



Project Manual

For construction contracts greater than \$20,000

Campus Security Upgrades Project SU-081523

Dated August 17, 2023

**Bid Proposal Due Date
September 20, 2023**

SUNY Purchase College
735 Anderson Hill Road
Purchase, New York 10577-1402
Sheli Taylor, Associate Director, Contract & Procurement Services

Project Number: SU-081523
Project Name: Campus Security Upgrades Project
Agency/Div Code: SUNY Purchase College/28260

Date: August 17, 2023
Contract No. TBD

Bidding Documents

Section	Title	Page #
---------	-------	--------

	Notice to Bidders.....	NB-1
--	------------------------	------

Information for Bidders

1	Definitions	IB-1
2	Issuance of Bidding and Contract Documents.....	IB-1
3	Proposals.....	IB-1, IB-2
4	Examination of Bidding and Contract Documents	IB-2
5	Computation of Bid	IB-2, IB-3
6	Payment of Security.....	IB-3
7	Qualification of Bidders	IB-4
8	Submission of Post-Bid Information	IB-5, IB-6, IB-7
9	Award of Contract	IB-8
10	Required Bonds and Insurance	IB-8 IB-9, IB-10
11	Minority and Women-Owned Business Enterprises.....	IB-10,IB-11
12	Equal Employment Opportunity Requirements.....	IB-11
13	Executive Order 162 (EO162).....	IB-12
14	Executive Order 177 (EO177).....	IB-12
15	Service Disabled Veteran Owned Business Enterprises	IB-12, IB-13
16	Encouraging Use of New York State Business Businesses in Contract Performance	IB-13
17	Single Contract Responsibility	IB-13
18	Examination of Site and Conditions of Work.....	IB-13, IB-14
19	General Terms and Conditions	IB-14, IB-15
20	Additional Terms and Conditions.....	IB-16, IB-17
21	Requirements for Construction Activities to Address Public Health or Safety	IB-17

	Proposal.....	1 to 6
--	---------------	--------

Technical Specifications

Division 1 - General Requirements

Section A - Description of Work	0100-1
Section B - Alternates	0100-1
Section C - Special Conditions	0100-1 - 0100-9

Division 1 – Time Progress Schedule

Division 2 – Cutting and Patching

Division 3 – Clean-Up

Division 4 – Temporary Access and Parking

Division 5 – Field meetings

Division 6 – Operating Instructions and Manuals
Division 7 – Utility Shutdowns and Cut Overs
Division 8 – Temporary Power for Construction Activities
Division 9 – Sanitary Facilities
Division 10 – Temporary Heat
Division 11 – Temporary Light
Division 12 – Temporary Water for Construction Purposes
Division 13 – Conducting Work
Division 14 – Safety and Protective Facilities
Division 15 – Protection of Existing Structures, Vegetation and Utilities
Division 16 – Abbreviations and References
Division 17 – Use of Elevators
Division 18 – Salvage of Materials
Division 19 – Storage of Materials
Division 20 – Shop Drawings and Samples
Division 21 – U.S. Steel
Division 22 – Non-Asbestos Products
Division 23 – Material Safety and Data Sheet
Division 24 – Architect's/Engineer's Seal
Division 25 – Construction Permit
Division 26 – Other Contracts
Division 27 – Asbestos
Division 28 – COVID-19 Contractor Requirements and Guidance for Construction Jobsites
Division 29 – Wage Rates and Supplements

Special Conditions for Construction.....Pages 1- 11

Technical Specifications

SECTION 02070 – Selective Demolition
SECTION 038213 – Concrete Core Drilling
SECTION 061000 – Rough Carpentry
SECTION 078400 – Firestopping
SECTION 079200 – Joint Sealants
SECTION 081113 – Exterior Hollow Metal Doors and Frames
SECTION 081113 – Interior Hollow Metal Doors and Frames
SECTION 081116 – Exterior Aluminum Doors and Frames
SECTION 081416 – Exterior Flush Wood Doors
SECTION 081416 – Interior Flush Wood Doors
SECTION 087100 – Exterior Finish Hardware (*Project 1*)
SECTION 087100 – Interior Finish Hardware (*Project 2*)
SECTION 088100 – Glass and Glazing
SECTION 092116 – Gypsum Board Systems
SECTION 099101 – Construction Painting
SECTION 271000 – Network Cable Installation
SECTION 280513 – Electronic Security Conductors and Cabling
SECTION 281300 – Access Control
SECTION 281326 – Access Control Field Devices

List of Drawings

Exterior Doors Access Control (*Project #1*)

CS-P1-SEC-000 – General Cover Sheet
DN-P1-SEC-100 – Security – Dance Basement Plan
DN-P1-SEC-101 – Security – Dance Level 1

DN-P1-SEC-300 – Security Riser Diagrams – Dance
DN-P1-SEC-400 – Security Details – Dance
DN-P1-SEC-500 – Security Device Schedule– Dance
DN-P1-SEC-600 – Security Door Schedule – Dance
MU-P1-SEC-100 – Security – Music Basement Plan
MU-P1-SEC-101 – Security – Music Level 1
MU-P1-SEC-300 – Security Riser Diagrams – Music
MU-P1-SEC-400 – Security Details – Music
MU-P1-SEC-500 – Security Device Schedule – Music
MU-P1-SEC-600 – Security Door Schedule – Music
SS-P1-SEC-100 – Security – Social Science Basement Plan
SS-P1-SEC-101 – Security – Social Science Level 1
SS-P1-SEC-300 – Security Riser Diagrams – Social Science
SS-P1-SEC-400 – Security Details – Social Science
SS-P1-SEC-500 – Security Device Schedule – Social Science
SS-P1-SEC-600 – Security Door Schedule – Social Science
VA-P1-SEC-100 – Security – Visual Arts Basement Plan
VA-P1-SEC-101 – Security – Visual Arts Level 1
VA-P1-SEC-300 – Security Riser Diagrams – Visual Arts
VA-P1-SEC-400 – Security Details – Visual Arts
VA-P1-SEC-500 – Security Device Schedule – Visual Arts
VA-P1-SEC-600 – Security Door Schedule – Visual Arts

Interior Doors Access Control – Shelter-in-Place (Project #2)

CS-P2-SEC-000 – General Cover Sheet
DN-P2-SEC-100 – Security – Dance Basement Plan
DN-P2-SEC-101 – Security – Dance Level 1
DN-P2-SEC-300 – Security Riser Diagrams – Dance
DN-P2-SEC-400 – Security Details – Dance
DN-P2-SEC-500 – Security Device Schedule – Dance
DN-P2-SEC-600 – Security Door Schedule – Dance
FA-P2-SEC-101 – Security – Fort Awesome Level 1
FA-P2-SEC-103 – Security – Fort Awesome Level 3
FA-P2-SEC-300 – Security Riser Diagrams – Fort Awesome
FA-P2-SEC-400 – Security Details – Fort Awesome
FA-P2-SEC-500 – Security Device Schedule– Fort Awesome
FA-P2-SEC-600 – Security Door Schedule – Fort Awesome
HU-P2-SEC-100 – Security – Humanities Basement Plan
HU-P2-SEC-101 – Security – Humanities Level 1
HU-P2-SEC-102 – Security – Humanities Level 2
HU-P2-SEC-300 – Security Riser Diagrams – Humanities
HU-P2-SEC-400 – Security Details – Humanities
HU-P2-SEC-500 – Security Device Schedule– Humanities
HU-P2-SEC-600 – Security Door Schedule – Humanities
MU-P2-SEC-100 – Security – Music Basement Plan
MU-P2-SEC-101 – Security – Music Level 1
MU-P2-SEC-300 – Security Riser Diagrams – Music
MU-P2-SEC-400 – Security Details – Music
MU-P2-SEC-605 – Security Device Schedule– Music
MU-P2-SEC-606 – Security Door Schedule – Music
SS-P2-SEC-101 – Security – Social Science Level 1
SS-P2-SEC-102 – Security – Social Science Level 2
SS-P2-SEC-300 – Security Riser Diagrams – Social Science
SS-P2-SEC-400 – Security Details – Social Science
SS-P2-SEC-500 – Security Device Schedule– Social Science

SS-P2-SEC-600 – Security Door Schedule – Social Science
 VA-P2-SEC-100 – Security – Visual Arts Basement Plan
 VA-P2-SEC-101 – Security – Visual Arts Level 1
 VA-P2-SEC-102 – Security – Visual Arts Level 2
 VA-P2-SEC-103 – Security – Visual Arts Level 3
 VA-P2-SEC-300 – Security Riser Diagrams – Visual Arts
 VA-P2-SEC-400 – Security Details – Visual Arts
 VA-P2-SEC-500 – Security Device Schedule – Visual Arts
 VA-P2-SEC-600 – Security Door Schedule – Visual Arts

State University of New York Construction Agreement

Summary

Article I

General Provisions

Section 1.01	Definitions	1, 2
Section 1.02	Captions	2
Section 1.03	Nomenclature.....	2
Section 1.04	Entire Agreement.....	2
Section 1.05	Successors, Assigns and Agents	2,3
Section 1.06	Accuracy and Completeness of Contract Documents	3
Section 1.07	Organization of Contract Documents.....	3
Section 1.08	Furnishing of Contract Documents	3
Section 1.09	Examination of Contract Documents and Site	3
Section 1.10	Invalid Provisions	3, 4
Section 1.11	No Collusion or Fraud	4
Section 1.12	Notices.....	4
Section 1.13	Singular-Plural; Male-Female.....	4

Article II

Contract Administration and Conduct

Section 2.01	Consultant's Status.....	4, 5
Section 2.02	Finality of Decisions	5
Section 2.03	Claims and Disputes	5, 6
Section 2.04	Omitted Work	6
Section 2.05	Extra Work.....	6, 7
Section 2.06	Contractor to Give Personal Attention.....	7
Section 2.07	Employment of Workers.....	7
Section 2.08	Detailed Drawings and Instructions.....	7
Section 2.09	Contract Documents to Be Kept at Site	7
Section 2.10	Permits and Building Codes.....	7, 8
Section 2.11	Surveys	8
Section 2.12	Site Conditions.....	8
Section 2.13	Right to Change Location	8
Section 2.14	Unforeseen Difficulties.....	8, 9
Section 2.15	Moving Materials and Equipment.....	9
Section 2.16	Other Contracts	9
Section 2.17	Inspection and Testing	9, 10
Section 2.18	Subcontractors	10, 11
Section 2.19	Shop Drawings and Samples	11, 12, 13
Section 2.20	Equivalents - Approved Equal	13, 14
Section 2.21	Patents, Trademarks and Copyrights	14

Section 2.22	Possession Prior to Completion	14
Section 2.23	Completion and Acceptance	14, 15
Section 2.24	Record Drawings	15, 16
Section 2.25	Guarantees	16
Section 2.26	Default of Contractor	16, 17, 18
Section 2.27	Termination.....	18, 19

Article III

Time of Performance

Section 3.01	Commencement, Prosecution and Completion of Work.....	20
Section 3.02	Time Progress Schedule.....	20
Section 3.03	Time Schedule for Shop Drawings and Samples	20
Section 3.04	Notice of Conditions Causing Delay	20, 21
Section 3.05	Extension of Time.....	21
Section 3.06	Contractor's Progress Reports	21, 22

Article IV

Payment

Section 4.01	Compensation to Be Paid Contractor.....	22
Section 4.02	Value of Omitted and Extra Work	22, 23
Section 4.03	Adjustment for Bond and Insurance Premiums	23
Section 4.04	Unit Prices	23, 24
Section 4.05	Allowances.....	24
Section 4.05A	Field Orders	24
Section 4.06	Deductions for Unperformed and/or Uncorrected Work	24, 25
Section 4.07	Liquidated Damages	25
Section 4.08	Contract Breakdown	25
Section 4.09	Prompt Payment Requirements.....	25
Section 4.10	Progress Payments	25, 26
Section 4.11	Applications for Progress Payments	26
Section 4.12	Progress Payments for Materials Delivered to Site.....	26
Section 4.13	Transfer of Title to Materials Delivered to Site	26
Section 4.14	Progress Payments for Materials Stored Off Site	26, 27
Section 4.15	Withholding of Progress Payments.....	27, 28
Section 4.16	Lien Law	28
Section 4.17	Substitution of Securities for Retainage.....	28
Section 4.18	Final Payment	28
Section 4.19	Acceptance of Final Payment	28, 29
Section 4.20	Guarantee Payment	29
Section 4.21	Acceptance of Guarantee Payment	29
Section 4.22	Contractor Limited to Money Damages.....	29
Section 4.23	No Estoppel or Waiver.....	29, 30
Section 4.24	Limitation of Actions	30
Section 4.25	Electronic Payments.....	30

Article V

Protection of Rights and Property

Section 5.01	Accidents and Accident Prevention	31
Section 5.02	Adjoining Property.....	31
Section 5.03	Emergencies.....	31
Section 5.04	Fire Safety.....	31
Section 5.05	Risks Assumed by Contractor.....	31, 32

Section 5.06	Compensation and Liability Insurance.....	32, 33, 34
Section 5.07	Builder's Risk Insurance	34, 35
Section 5.08	Effect of Procurement of Insurance	35
Section 5.09	No Third Party Rights	35, 36

Article VI	35, 36
Minority and Women's Business Enterprises (MWBEs) / Equal Employment Opportunities (EEO) Provisions	

Article VII

Provisions Required by Law

Section 7.01	Provisions Deemed Inserted	36
Section 7.02	Wage Rates	36

Article VIII

Vendor Responsibility

Article IX

Use of Service-Disabled Veteran-Owned Business Enterprises in Contract Performance

Signature of Parties and Governmental Approvals	38
--	----

Acknowledgments	39
------------------------------	----

Schedule I, II, III	40
----------------------------------	----

Attachments – Terms, Conditions

1. Schedule I, II, III (Schedule I Unit Prices, Schedule II Allowances, Schedule III Field Order Allowances)
2. [Exhibit A Standard Contract Clauses](#)
3. [Exhibit A-1 Affirmative Action Clauses](#)

Attachments –Contractor Documentation

4. [Form 7554-07](#) – Contractor Proposal
5. [Form 7554-10](#) - Bid Bond and Acknowledgement (*required with bid*)
6. Affirmative Action and Minority & Women Owned Business Enterprises *from SUNY Procedure Item #7557 "Participation by Minority Group Members and Women (MWBEs) with Respect to State University of New York Contract" (applies >\$100,000)*
 - a. [Form 7557-121b](#) – MWBE Prospective Bidders Notice
 - b. [Form 7557-107](#) - M/WBE Utilization Plan (*required within seven days of the bid*)
 - c. The Contractor's EEO Policy Statement or [Form 7557-104](#) (*required within seven days of the bid*)
 - d. [7557-108](#) - M/WBE-EEO Work Plan or EEO Staffing Plan (*required within seven days of the bid*)

Note: In accordance Procedure Item #7557 MWBE Utilization Plans, EEO policy statements and EEO Work Plans are due within seven days of submittal of the bid.

7. Service Disabled Owned Business Enterprise *from SUNY Procedure Item #7564 "Participation by Service-Disabled Veteran-Owned Business (SDVOBs) with Respect to State University of New York Contracts" (applies >\$100,000)*
 - a. [Form 7564-121b](#) – SDVOB Prospective Bidders Notice
 - b. [Form 7564-107](#) - SDVOB Utilization Plan (*required within seven days of the bid*)

Attachments –Additional Contractor Documentation (required after bid opening from the low bidder)

8. State Finance Law §§139-j and 139-k *from SUNY Procedure Item #7552 “Procurement Lobbying Procedure for State University of New York” (applies >\$15,000)*
 - a. [Form A](#) - Summary: Policy and Procedure of the State University of New York Relating to State Finance Law §§139-j and 139-k
 - b. [Form B](#) - Affirmation with respect to State Finance Law §§139-j and 139-k
 - c. [Form C](#) - Disclosure and Certification with respect to State Finance Law §§139-j and 139-k
9. Bidder’s Certifications (State Finance Law §139-l, Non-collusive bidding, Executive Order 177) *from SUNY Procedure Item #7554 “Construction Contracting Procedures*
 - a. [Form 7554-20](#) Bidder’s Certifications
10. Procurement Forms *from SUNY Procedure Item #7553 “Purchasing and Contracting (Procurement)*
 - a. [Form I](#) Omnibus Procurement Act of 1992 (*applies >\$1,000,000*)
 - b. [Form II](#) Omnibus Procurement Act of 1992, Out of state firms (*applies >\$1,000,000*)
 - c. [Form XIII](#) Public Officers Law Compliance
11. Bonds and Certificate of Insurance *from SUNY Procedure Item #7554 “Construction Contracting Procedures*
 - a. [Form 7554-11](#) Labor & Materials and Performance Bonds (*applies >\$50,000*)
 - b. [Form 7554-12](#) Certificate of Insurance (*applies to all contracts*)
 - c. NYS Workers Compensation and Disability Insurance (*applies all contracts*)
12. Vendor Responsibility
 - a. OSC’s [VendRep - Online System](#) or [Link to paper forms](#) (*form applies ≥ \$100,000*)
13. NYS Labor Law, Section 220-a
 - a. [Form 7554-13](#)
 - i. Form AC 2947, Prime Contractor's Certification
 - ii. Form AC 2948, Subcontractor's Certification
 - iii. Form AC 2958, Sub-subcontractor's Certification

Notice to Bidders and Newspaper Advertisement

The State University of New York at Purchase College will receive sealed bids for project number **SU-081523** titled **Campus Security Upgrades Project** until 3 p.m. local time on **Wednesday, September 20, 2023**, at the Procurement and Accounts Payable Office, Campus Center South, Purchase College, 735 Anderson Hill Road, Purchase New York 10577-1402 where such proposals will be publicly opened and read aloud. Proposals may be hand delivered or mailed to the above location and must be received by such time.

All work on this Contract is to be completed within **seven hundred thirty (730)** calendar days after the date of the Notice to Proceed.

A mandatory pre-bid conference and site walk-through for prospective Bidders will be held at **11:00 a.m.** on **Tuesday, August 29, 2023** at Capital Facilities Office building Conference Room, Purchase College, 735 Anderson Hill Road, Purchase New York 10577-1402. This will be the only guided walk-through of the subject project facilities.

For directions to Purchase College, see
<https://www.purchase.edu/admissions/travel-and-transportation/#Directions>

For a campus map, see
<https://www.purchase.edu/live/files/220-campus-map>

Purchase College is dedicated to environmentally sustainable practices and development. In an effort to conserve resources and reduce waste, the Bidding and Contract Documents will only be available electronically in PDF format for viewing and downloading at the following website:
<https://www.purchase.edu/PurchaseMeansBusiness>

There will be a Question Period from **August 17 through September 06, 2023, C.O.B.** During this time any questions must be submitted in writing (no telephone calls) to the following email address **sean.connolly@purchase.edu**. The email should reference the project in the subject line and include prospective bidder contact information. A response to all questions submitted within the Question Period and any required Addenda will be posted no later than the close of business on **September 13, 2023**.

Bids must be submitted in duplicate in accordance with the instructions contained in the Information for Bidders. Security will be required for each bid in an amount not less than five (5) percent of the Total Bid.

It is the policy of the State of New York and the State University of New York to encourage minority business enterprise participation in this project by contractors, subcontractors and suppliers, and all bidders are expected to cooperate in implementing this policy.

The Prevailing Rate Case (PRC) Number assigned to this project is **PRC# 2023009654 – Campus Security Upgrades Project**. The rates of wages and supplements determined by the Industrial Commissioner of the State of New York as prevailing in the locality of the site at which the work will be performed can be found at:
<https://apps.labor.ny.gov/wpp/publicViewProject.do?method=showIt&id=1554649>

Pursuant to State Finance Law §§139-j and 139-k, this solicitation includes and imposes certain restrictions on communications between Purchase College and an Offer or/Bidder during the procurement process. An Offer or/Bidder is restricted from making contacts from the earliest notice of intent to solicit proposals through final award and approval of the Procurement Contract by Purchase College/State University of New York and, if applicable, the Office of the State Comptroller ("restricted period") to other than designated staff unless it is a contact that is included among certain statutory exceptions set forth in State Finance Law §139-j(3)(a). Pursuant to the statute, Purchase College employees are also required to obtain certain

information when contacted during the restricted period and maintain a record of the communication and make a determination of a knowing and willful contact. Contact made to other than designated staff regarding this procurement may disqualify the vendor from the current award and affect future procurements with government entities in the State of New York.

The State University of New York reserves the right to reject any or all bids.

Designated Contacts:

Sean Connolly
Associate Director, Capital Facilities Planning
Purchase College
State University of New York
735 Anderson Hill Road
Purchase, NY 10577-1402
Tel: (914) 251-5916
Email: sean.connolly@purchase.edu

Sheli Taylor
Associate Director, Contract & Procurement Services
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State University of New York
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Purchase, NY 10577-1402
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INFORMATION FOR BIDDERS

Section 1 Definitions

All definitions set forth in the Agreement are applicable to the Notice to Bidders, Information for Bidders and the Proposal, all of which documents are hereinafter referred to as the Bidding Documents.

Section 2 Issuance of Bidding and Contract Documents

Drawings and Specifications will be issued by the Consultant upon request after payment of the deposit specified in the Notice to Bidders.

Section 3 Proposals

- (1) Proposals must be submitted in duplicate on the forms provided by the University. They shall be addressed to the University in a sealed envelope, marked with the name and address of the bidder, the title of the Project and the Project number. The University accepts no responsibility for Proposals that may be delivered by any courier or other messenger service that does not contain all of the above-noted information on the outside of a sealed envelope. Facsimile or email copies of the Proposal will not be accepted.

Sealed Proposals are to be delivered to:

Sheli Taylor, Associate Director of Contracts & Procurement Services
SUNY, Purchase College
735 Anderson Hill Road
Purchase, NY 10577-1402
Tel: (914) 251-6089
Email: sheli.taylor@purchase.edu

- (2) All blank spaces in the Proposal must be filled in and, except as otherwise expressly provided in the Bidding Documents; no change is to be made in the phraseology of the Proposal or in the items mentioned therein.
- (3) Proposals that are illegible or that contain omissions, alterations, additions or items not called for in the Bidding Documents may be rejected as informal. In the event any bidder modifies, limits or restricts all or any part of its Proposal in a manner other than that expressly provided for in the Bidding Documents, its Proposal may be rejected as informal.
- (4) Any Proposal may be considered informal which does not contain prices in words and figures in all of the spaces provided or which is not accompanied by a bid security in proper form. In case any price shown in words and its equivalent shown in figures do not agree, the written words shall be binding upon the bidder. In case of a discrepancy in the prices contained in the Proposal forms submitted in duplicate by the bidder, the Proposal form which contains the lower bid shall be deemed the bid of the bidder; provided, however, the University at its election may consider the Proposal of such bidder informal.
- (5) If the Proposal is made by a corporation, the names and places of residence of the president, secretary and treasurer shall be given. If by a partnership, the names and places of residence of the partners shall be given. If by a joint venture, the names and addresses of the members of the joint venture shall be given. If by an individual, the name and place of residence shall be given.

- (6) No Proposal will be considered which has not been deposited with the University at the location designated in and prior to the time of opening of bids designated in the Bidding and Contract Documents or prior to the time of opening as extended by Addendum.
- (7) Bids may be modified, withdrawn or canceled only in writing or by email notice received by the University prior to the time of opening of bids designated in the Bidding and Contract Documents. A written or email notice of modification, withdrawal or cancellation shall be marked by the bidder with the name and address of the bidder, the title of the Project and the Project number. Upon receipt by the University a duly authorized employee of the University, who shall note thereon the date and time of receipt and shall thereupon attach said written or email notice of modification, withdrawal or cancellation to the envelope submitted by the bidder pursuant to subdivision (1) of this.
- (8) Permission will not be given to modify, explain, withdraw or cancel any Proposal or part thereof after the time designated in the Bidding and Contract Documents for the opening of bids, unless such modification, explanation, withdrawal or cancellation is permitted by law and the University is of the opinion that it is in the public interest to permit the same.

Section 4 Examination of Bidding and Contract Documents

- (1) Prospective bidders shall examine the Bidding and Contract Documents carefully and, before bidding, shall make written request to the Consultant (with a copy thereof to the University) for an interpretation or correction of any ambiguity, inconsistency or error therein which should be discovered by a reasonably prudent bidder. Such interpretation or correction as well as any additional Contract provision the University shall decide to include will be issued in writing by the Consultant as an Addendum, which will be sent to each person recorded as having received a copy of the Bidding and Contract Documents from the Consultant, and which also will be available at the places where the Bidding and Contract Documents are available for inspection by prospective bidders. Upon such emailing or delivery and making available for inspection, such Addendum will become a part of the Bidding and Contract Documents and will be binding on all bidders whether or not the bidder receives or acknowledges the actual notice of it. Prospective bidders are responsible for ensuring that all addenda have been incorporated into the bid. The requirements contained in all Bidding and Contract Documents shall apply to all Addenda.
- (2) Only the written interpretation or correction so given by Addendum shall be binding. Prospective bidders are warned that no trustee, officer, agent or employee of the University or the Consultant is authorized to explain or interpret the Bidding and Contract Documents by any other method, and any such explanation or interpretation, if given, must not be relied upon.

Section 5 Computation of Bid

- (1) In computing their bids, bidders are not to include the sales and compensating use taxes of the State of New York or of any city and county in the State of New York for any supplies or materials which are incorporated into the completed Project as the University is exempt from such taxes.
- (2) Unit prices may be inserted in the Proposal by the University or the bidder at the discretion of the University. Any unit prices listed in the Proposal by the University are based upon the Consultant's appraisal of a fair cost for the work involved. Such listed prices will be binding upon both the bidder and the University unless the bidder wishes to change any of such unit prices by crossing out the listed unit price and inserting a revised unit price. Such revised unit price shall not be binding upon

the University unless it accepts the same, in writing, before it issues a Notice of Award. In the event the Proposal contains blank spaces for unit prices or the bidder revises any stated unit price, the amount of such unit prices for additions shall not vary by more than 15 percent from the prices inserted by the bidder for deductions, and, if the variance of such prices exceeds 15 percent, the University may adjust the deduction price inserted by the bidder so that it is only 15 percent lower than the addition price inserted by the bidder. In addition, the University may adjust any unit price filled in by a bidder to an amount agreeable to both the bidder and the University or it may reject any unit prices.

- (3) Alternates, if any, listed in the Proposal shall be accepted in the order indicated and will be used in combination with the Base Bid to determine the low bidder. Unit prices will not be used to determine the low bidder.
- (4) If a tie bid should occur the University reserves the right to use one of the following methods to determine the successful bidder. For tie bids between two contractors the University representative shall flip a coin, both affected contractors must be present for the coin toss. For tie bids between three or more contractors the University representative shall pull names from a bowl, hat or other container. The affected contractors must be present for the drawing.

Section 6 Payment of Bid Security

- (1) Each Proposal must be accompanied by the required amount of the bid security, which is 5% of the Total Bid, in the form of a bank draft or certified check, payable at sight to the University and drawn on a bank authorized to do business in the United States, or by a Bid Bond, on a form approved by the University, duly executed by the bidder as principal and having as surety thereon a surety company or companies, approved by the University, authorized to do business in the State of New York as a surety. Attorneys-in-fact who execute a Bid Bond on behalf of a surety must affix thereto a certified and effectively dated copy of their power of attorney.
- (2) The University will return, without interest, bid securities in accordance with the following procedure:
 - a. To all bidders except the apparent three (3) lowest bidders within two (2) working days after the opening of bids.
 - b. To any bidder submitting a Bid Bond as a replacement for a previously provided bank draft or certified check, within two (2) working days after the University's approval of such Bid Bond.
 - c. To the apparent three (3) lowest bidders, unless their bid security was previously returned, within two (2) working days after delivery to the University by the successful bidder of the executed Agreement and required Bonds, or within two (2) working days of the University's rejection of all bids or within two (2) working days after the expiration of forty-five (45) calendar days after the bid opening, whichever event shall occur first.
 - d. Bid Bonds, due to their nature, will not be returned.
- (3) The University reserves the right to deposit bid security drafts or checks pending final disposal of them.

Section 7 Qualifications of Bidders

- (1) A bidder must demonstrate, to the satisfaction of the University, that it has successfully completed three (3) contracts similar in size, scope and complexity to this contract within the last five (5) years.
 - a. For scope and complexity, similar work is defined as work supporting the implementation of new security access controls on both interior and exterior doors, including but not limited to; modifications to existing doors and frames, installation of new doors and frames, related door hardware installations/modifications, providing pathway between doors and building's IT and security closets (i.e., conduits through door frames, walls, floors, and ceilings, etc.), maintaining fire rating integrity of building elements, installation of new walls and/or repairs to modified walls, ceilings, and other building elements, and working closely with telecommunication and security installation vendors.
 - b. The determination of relevant contract experience in terms of size, scope and complexity will be at the sole discretion of the University.
 - c. The above three projects shall be submitted on Attachment A of the Proposal (Form 7554-07), "List of Completed Similar Construction Projects" (the List). If the List is not provided or is missing information, and/or is found to have erroneous information or information that is no longer current, a Proposal may be rejected as not responsive. If requested by the University, the bidder may be permitted to add missing information, modify and/or explain erroneous information or information that is no longer current on the List. Modifications and/or explanations of the List must be received within 48 hours of receipt of the University's request.
- (2) All prospective bidders must demonstrate to the satisfaction of the University that they have the skill and experience, as well as the necessary facilities, ample financial resources, ability to manage staff and subcontractors effectively, ability to anticipate and plan construction work for optimal progress, ability to create, strive for and maintain working environments and relationships that are constructive, communicative and cooperative, organization and general reliability to do the work to be performed under the provisions of the Contract in a satisfactory manner and within the time specified.
- (3) Each bidder must demonstrate to the satisfaction of the University that it has working capital available for the Project upon which it is bidding in an amount equal to 15 percent of the first \$100,000 of the amount of its Base Bid plus 10 percent of the next \$900,000 plus 5 percent of the remainder of its Base Bid. Working capital is defined as the excess of current assets over current liabilities. The University defines current assets as assets which can be reasonably expected to be converted into cash within a year, and current liabilities as debts which will have to be paid within a year.
- (4). The University may make such investigation as the University deems necessary to determine the ability of any bidder to perform the Work. Bidders shall furnish to the University all information and data required by the University, including complete financial data, within the time and in the form and manner required by the University. The University reserves the right to reject any bid if the evidence submitted by or an investigation of such bidder fails to satisfy the University that such bidder is properly qualified to carry out its obligations of the contract and to complete the work contemplated therein. Conditional bids will not be accepted.
- (5) At the time of the bid opening, all bidders and subcontractors, domestic and foreign, must be in

compliance with New York State business registration requirements. Contact the NYS Department of State regarding compliance.

Section 8 Submission of Post-Bid Information

- (1) Within forty-eight (48) hours after the opening of bids, each of the apparent three lowest bidders, unless otherwise directed by the University or otherwise provided in the Bidding and Contract Documents, shall submit to both the University and the Consultant:

- a. Evidence of a completed New York State Uniform Contracting Questionnaire (Vendor Responsibility Questionnaire For-Profit Construction (CCA-2)). Either email confirmation that the bidder's CCA-2 is current and certified in the New York State VendRep System (VendRep) within the last six months from the bid date, or deliver a certified paper format CCA-2, including all attachments, to the University.

The University recommends that vendors file the required CCA-2 online via the VendRep. To enroll in and use the VendRep, see the VendRep Instructions at https://www.osc.state.ny.us/vendrep/info_vrsystem.htm or go directly to the VendRep online at <https://portal.osc.state.ny.us>. To request assistance, contact the Office of the State Comptroller's ("OSC") Help Desk at 866-370-4672 or 518- 408-4672 or by email at ciohelpdesk@osc.state.ny.us.

The paper format CCA-2 and accompanying definitions are available on the OSC website at the following location:

http://www.osc.state.ny.us/vendrep/forms_vendor.htm

- b. A working plan and schedule showing clearly, in sequence and time-scale, all significant activities of the work. The working plan and schedule shall be in the form of suitable charts, diagrams or bar graphs and shall be based on the Contractor's logic and time estimates for the anticipated time of commencement and completion of the work and its significant phases and activities and the interrelationship between such significant activities and other items pertinent to the work. This requirement is in addition to and not a substitute for the schedule requirements of section 3.02 (Time Progress Schedule) of the Agreement. Although the working plan and schedule submitted shall not be used in determining the lowest responsible bidder, failure to submit the working plan and schedule may result in the rejection of the Proposal as not responsive.
- c. The names and addresses of the bidder's proposed subcontractor for the Asbestos Abatement work of any value, and proposed subcontractors for Electrical Work, the Heating, Ventilating and Air-Conditioning Work and the Plumbing Work for each of said work categories valued at \$100,000 or more.
- i. For each proposed subcontractor named, provide a completed "List of Completed Similar Construction Projects (the List)." If the List is not provided or is missing information, and/or is found to have erroneous information or information that is no longer current, a proposed subcontractor may be rejected. If requested by the University, the bidder may be permitted to add missing information, modify and/or explain erroneous information or information that is no longer current on the List; modifications and/or explanations of the List must be received promptly after receipt of the University's request.

- ii. Only one proposed subcontractor should be named for each of such trades. Proposed subcontractors of the bidder may not be changed except with the specific written approval of the University.
 - iii. The naming of the bidder itself for any of such work is not acceptable and may result in rejection of the bidder unless the bidder can demonstrate to the University that it has successfully completed or substantially completed three (3) contracts similar in size, scope and complexity for the designated work within the last five (5) years. The determination of relevant contract experience in terms of size, scope and complexity will be at the sole discretion of the University.
 - iv. The bidder will be required to establish, to the satisfaction of the Consultant and the University, the reliability and responsibility of each of their said proposed subcontractors to furnish and perform the work described in the sections of the Specifications pertaining to each of such proposed subcontractors' respective trades. By submission of the "List of Completed Similar Construction Projects," a proposed subcontractor must be able to demonstrate that they have successfully completed or substantially completed three (3) contracts similar in size, scope and complexity for the designated work within the last five (5) years. The determination of relevant contract experience in terms of size, scope and complexity will be at the sole discretion of the University.
 - v. For each of the proposed subcontractors, the bidders must submit to the University, within seven (7) calendar days after the bid opening, evidence of a completed New York State Uniform Contracting Questionnaire (Vendor Responsibility Questionnaire For-Profit Construction (CCA-2)). Either email confirmation that the subcontractor's CCA-2 is current and certified in the New York State VendRep System (VendRep) within the last six months from the bid date, or deliver a certified paper format CCA-2, including all attachments, to the University.
 - vi. In the event that the University and the Consultant reject any of said proposed subcontractors, the bidder, within two (2) working days after receipt of notification of such rejection, shall again submit to the University and the Consultant the name of another proposed subcontractor in place of the one rejected and it will be required to establish to the satisfaction of the University and the Consultant the reliability and responsibility of said proposed subcontractor; When naming another proposed subcontractor, the bidder must promptly submit the proposed subcontractor's completed "List of Completed Similar Construction Projects" and their completed CCA-2.
 - vii. The bidder will not be permitted to submit another proposed subcontractor if it designated itself for any of the aforesaid categories of work.
 - viii. Proposed subcontractors of the bidder, approved by the University and the Consultant, must be used on the work for which they were proposed and approved and they may not be changed except with the specific written approval of the University.
- d. A breakdown of the amount of the bidder's Proposal. Such breakdown shall be prepared in accordance with industry standards. No bidder shall be barred from revising, in the Contract breakdown required under the provisions of Section 4.08 of the Agreement, the

various amounts listed in the bid breakdown required under the provisions of this Section. The amount set forth in said bid breakdown will not be considered as fixing the basis for additions to or deductions from the Contract consideration.

- (2) Except for Contracts of \$100,000 or less, within seven (7) calendar days after the opening of bids, unless otherwise directed by the University, the three low bidders shall submit to the University for its approval, a Minority and Women-owned Business Enterprise Utilization Plan ([Form 7557-107](#)).
- (3) Except for contracts of \$100,000 or less, within seven (7) calendar days after the opening of bids, the three low bidders shall submit to the University for its approval, an Equal Employment Opportunity Statement and EEO Staffing Plan ([Form 7557-108](#)) to ensure equal employment opportunities without discrimination because of race, creed, color, sex or national origin. Such Statement and plan should demonstrate the bidder's intent to comply with the provisions of Article VI of the Agreement. The EEO plan should include the methods that the bidder will use to address nondiscrimination and affirmative action so that minorities and women will be included in the work force. The Equal Employment Opportunity ("EEO") Policy Statement that shall contain, but not necessarily be limited to, a provision that the bidder, as a precondition to entering into a valid and binding Contract with the University, shall during the performance of the Contract, agree to the following:
 - a. It will not discriminate against any employee or applicant for employment because of race, creed, color, national origin, sex, age, disability or marital status, will undertake or continue existing programs of affirmative action to ensure that minority group membership and women are afforded equal employment opportunities without discrimination, and shall make and document its conscientious and active efforts to employ and utilize minority group members and women in its work force on the Contract.
 - b. It shall state in all solicitations or advertisements for employees that, in the performance of the Contract, all qualified applicants will be afforded equal employment opportunities without discrimination because of race, creed, color, national origin, sex, age, disability or marital status.
 - c. At the request of the University, it shall request each employment agency, labor union or authorized representative of workers, with which it has collective bargaining or other agreement or understanding, to furnish a written statement that such employment agency, labor union or representative will not discriminate on the basis of race, creed, color, national origin, sex, age, disability or marital status and that such union or representative will affirmatively cooperate in the implementation of the bidder's obligations herein.
 - d. After the award of the contract, it shall submit to the University a work force utilization report, in a form and manner required by the University, of the work force actually utilized on the Contract, broken down by specified ethnic background, gender and Federal occupational categories or other appropriate categories specified by the University.
- (4) The above information and such other information as the University or the Consultant may request or obtain will be used by the University in determining the reliability and responsibility of the bidder and any proposed subcontractors. Each bidder must comply promptly with all requests by the University and the Consultant for information and must actively cooperate with the University and the Consultant in their efforts to determine the qualifications of the bidder and any proposed subcontractors. Failure to comply with the latter may result in the rejection of the Proposal as not responsive. All information required to be furnished to the University under this Section shall be

sent to the State University at {insert address or email address}.

Section 9 Award of Contract

- (1) The award of the Contract shall be made to the bidder submitting the lowest bid that is responsive to the solicitation and who, in the sole opinion of the University, is qualified to perform the work. The University shall determine the lowest bid by adding to or deducting from the Base Bid of the bidders the additive or deductive alternates, if any, the University elects to accept after the opening of the Proposals. Alternates will be accepted in the order they are set forth in the Proposal. The unit prices set forth in the Proposal for additions to or deductions from the work shall not be considered in determining the lowest bid.

The lowest base bid shall not exceed the amount of funds then estimated by the University as available to finance the contract. If the lowest bidder exceeds such amount, the University may reject all bids, or may award the contract on the base bid combined with deductive alternates applied in the order they are set forth in the Proposal as produces the net amount which is within the available funds.

- (2) The right is reserved, if, in the University's judgment, the public interest will be promoted thereby, to reject any or all Proposals, to waive any informality in any Proposal received or to afford any bidder an opportunity to remedy any deficiency resulting from a minor informality or irregularity. Without limiting the generality of the foregoing:
- a. A Proposal may be rejected as not responsive if the bidder fails to furnish the required bid security or to submit the data required with or after its Proposal and this Information for Bidders.
 - b. A Proposal may be rejected as not responsive if the bidder cannot show to the satisfaction of the University: (i) that it has the necessary qualifications and capital; or (ii) that it owns, controls or can procure the necessary plant and equipment to commence the work at the time prescribed in the Contract and thereafter to prosecute and complete the work at the rate, or within the time specified; or (iii) that it is not already obligated by the performance of so much other work as is likely to delay the commencement, prosecution or completion of the work contemplated by the Contract.
 - c. A Proposal will be rejected as not responsive if it does not provide for the completion of the work by the date of completion specified in the Proposal.
- (3) The University also expressly reserves the right to reject any Proposal as not responsive if, in its opinion, considering the work to be performed, the facts, as to the bidder's business or technical organization, plant, financial and other sources of business experience compared with the work bid upon, justify rejection.
- (4) The award of the Contract shall not be construed as a guarantee by the University that the plant, equipment and the general scheme of operations and other data submitted by the bidder with or after its Proposal is either adequate or suitable for the satisfactory performance of the work.

Section 10 Required Bonds and Insurance

- (1) Unless otherwise agreed to by the University, within ten (10) working days after the receipt of Letter

of Intent, the Contractor shall procure, execute and deliver to the University and maintain, at its own cost and expense:

- a. A Performance Bond and a Labor and Material Bond, both of which bonds shall be on the form prescribed by the University and in an amount not less than 100 percent of the total amount of the Contract awarded to the Contractor by the University said bonds must be issued by a surety company approved by the University and authorized to do business in the State of New York as a surety.
 - b. Attorneys-in-fact who execute said Bonds on behalf of a surety must affix thereto a certified and effectively dated copy of their power of appointment.
- (2) Prior to the commencement of work the Successful Bidder will provide, at its sole cost and expense, Certificates of Insurance in accordance with Section 5.06 and 5.07 of the Construction Agreement, which shall remain in force throughout the term of the agreement, or any extension thereof. Such Certificates of Insurances shall be from an insurance company licensed by the New York State Department of Insurance with a rating of at least "A-" as published with Standard & Poor's, and a liability insurance policy with limits no less than **\$2,000,000** per claim. If during the term of the policy, the carrier's rating falls below "A-", the liability insurance must be replaced no later than the renewal date of the policy with an insurer acceptable to the State of New York. Such policies shall name the STATE UNIVERSITY OF NEW YORK as an additional insured. The policy shall designate the State University of New York as the loss payee and shall contain a provision that the State University of New York shall receive at least thirty (30) days' notice prior to material change, cancellation or expiration of any such policy.
- (3) **Workers Compensation Insurance & Disability Benefits Coverage**
All employees of the Successful Bidder shall be adequately and properly covered by Workers' Compensation Insurance and Disability Benefits coverage for all work related to the resultant contract. Such policies shall name the STATE UNIVERSITY OF NEW YORK as an additional insured and are to be written by recognized and well-rated insurance companies authorized to transact business in the State of New York. The Successful Bidder shall deliver certificates of such coverage, or proof that such coverage is not required, in the required format, as required by the Workers' Compensation Board, to the following when the agreement is signed by the parties and thereafter not less than thirty (30) days prior to material change or cancellation of such coverage.
- (4) Proof of insurances with the specific coverage and limits required in Article V of the Agreement. Acceptable documents are:
- a. Proof of NYS Worker's Compensation is only accepted on the C-105.2 or U-26.3 form.
 - b. Proof of Disability insurance is only accepted on the DB-120.1 form. Use the link below for a description of the required forms for Workers Compensation and Disability:
<http://www.osc.state.ny.us/agencies/guide/MyWebHelp/Content/XI/18/G.htm>
 - c. All other proof of insurance must be on the Acord 25 Certificate of Liability Insurance form.
- (5) A 120-day schedule
- a. After receipt of the Letter of Intent but before receipt of the Contract is Awarded, the Contractor, unless otherwise directed by the University, shall update the working plan and schedule previously submitted in accordance with the Information for Bidders to define the contractor's planned operations during the first 120 days and submit it to the

University and the Consultant for their acceptance. The updated working plan and schedule shall be in the form of suitable charts, diagrams or bar graphs and shall be based on the Contractor's logic and time estimates. When updated, such plan and schedule shall be sufficiently detailed to show clearly, in sequence, all salient features of the work of each trade including: the anticipated time of commencement and completion of such work and the interrelationship between such work, submission of Shop Drawings and Samples for approval, approval of Shop Drawings and Samples, placing of orders of materials, fabrication and delivery of materials, installation and testing of materials, contiguous or related work under other contracts, and other items pertinent to the work. The Notice to Proceed may be withheld until this schedule is received and is deemed responsive to the project requirements.

- b. After Contract Award, but before processing second progress payment application, the Contractor, unless otherwise directed by the University, shall submit to the University and the Consultant for their acceptance its proposed working plan and project time schedule for all the work covered by the Contract, and shall include activities for preparation and submission of all Shop Drawings and Samples. Said proposed working plan and schedule shall be prepared in accordance with the form and requirements set forth in the preceding paragraph.

Section 11 Minority and Women-Owned Business Enterprises

- (1) Pursuant to New York State Executive Law Article 15-A, the University recognizes its obligation under the law to promote opportunities for maximum feasible participation of certified Minority and Women-Owned Business Enterprises and the employment of minority group members and women in the performance of University contracts.
- (2) For purposes of this solicitation, the University hereby establishes an overall goal of 4.48% for MWBE participation, **3.32%** for Minority-Owned Business Enterprises ("MBE") participation and **1.16%** for Women-Owned Business Enterprises ("WBE") participation (based on the current availability of qualified MBEs and WBEs). For additional information please refer to the MWBE requirements outlined in the Prospective Bidders Notice ([Form 7557-121b](#)) and Exhibit A-1.
- (3) For guidance on how the University will determine a Contractor's "good faith efforts," refer to 5 NYCRR §142.8.
- (4) Please note the forms identified in the Prospective Bidders Notice ([Form 7557-121b](#)) must be submitted within seven days of the bid opening. Required forms include the MWBE-EEO Policy Statement ([Form 7557-104](#) or equivalent), the MWBE Utilization Plan ([Form 7557-107](#)) and the EEO Staffing Plan ([Form 7557-108](#)).
- (5) Upon contract award and prior to contract execution the selected awardee will enter its Statewide Utilization Management Plan (SUMP) and document its good faith efforts to achieve the applicable MWBE participation goals by submitting evidence through the New York State Contract System, which can be viewed at: <http://ny.newnycontracts.com>, provided however, that the selected awardee may arrange to provide such evidence via a non-electronic method by contacting the SUNY Office of Diversity, Equity, and Inclusion.
- (6) Any modifications or changes to the MWBE Utilization Plan after the Contract award and during the term of the Contract must be reported on a revised MWBE Utilization Plan and submitted to the University. The University will review the submitted MWBE Utilization Plan and advise the Bidder

of the University's acceptance or issue a notice of deficiency within 30 days of receipt.

- (7) If a notice of deficiency is issued, Awardee agrees that it shall respond to the notice of deficiency within seven (7) business days of receipt by submitting to SUNY [address phone and fax information], a written remedy in response to the notice of deficiency. If the written remedy that is submitted is not timely or is found by SUNY to be inadequate, SUNY shall notify the Awardee and direct the Awardee to submit, within five (5) business days, a request for a partial or total waiver of MWBE participation goals on [Form 7557-114](#). Failure to file the waiver form in a timely manner may be grounds for disqualification of the bid or proposal.

SUNY may disqualify a Bidder as being non-responsive under the following circumstances:

- i. If a Bidder fails to submit a MWBE Utilization Plan;
- ii. If a Bidder fails to submit a written remedy to a notice of deficiency;
- iii. If a Bidder fails to submit a request for waiver; or
- iv. If SUNY determines that the Bidder has failed to document good faith efforts.

Section 12 Equal Employment Opportunity Requirements

- (1) Pursuant to Article 15 of the Executive Law (the "Human Rights Law"), and all other State and Federal statutory and constitutional non-discrimination provisions, the Bidder will not discriminate against any employee or applicant for employment because of race, creed, color, sex, religion, national origin, military status, sexual orientation, gender identity or expression, age, disability, predisposing genetic characteristics, domestic violence victim status, familial status or marital status. The Bidder shall also follow the requirements of the Human Rights Law with regard to non-discrimination on the basis of prior criminal conviction and prior arrest. The Bidder will state in all solicitations or advertisements for employees that, in the performance of this Contract, all qualified applicants will be afforded equal employment opportunities without discrimination.
- (2) The Bidder will undertake, or continue existing programs of affirmative action to ensure that minority group members and women are afforded equal employment opportunities without discrimination, and, if awarded a Contract pursuant to this solicitation, will make and document its conscientious and active efforts to employ and utilize minority group members and women in its work force during its legal engagement with SUNY.
- (3) By submission of a bid or proposal in response to this solicitation, the Bidder agrees with all of the terms and conditions of SUNY Exhibit A including Clause 12 - Equal Employment Opportunities for Minorities and Women and acknowledges that, if the Bidder is awarded a Contract, The Contractor is required to ensure that it and any subcontractors awarded a subcontract over \$25,000 for the construction, demolition, replacement, major repair, renovation, planning or design of real property and improvements thereon (the "Work") except where the Work is for the beneficial use of the Contractor, shall undertake or continue programs to ensure that minority group members and women are afforded equal employment opportunities without discrimination because of race, creed, color, national origin, sex, age, disability or marital status. For these purposes, equal opportunity shall apply in the areas of recruitment, employment, job assignment, promotion, upgrading, demotion, transfer, layoff, termination, and rates of pay or other forms of compensation. This requirement does not apply to: (i) work, goods, or services unrelated to the Contract; or (ii) employment outside New York State.
- (4) The Bidder further agrees, where applicable, to submit with the bid a staffing plan ([Form 7557-108](#)) identifying the anticipated work force to be utilized on the Contract and, if awarded a Contract, will,

upon request, submit to SUNY a workforce utilization report identifying the workforce actually utilized on the Contract if known. Forms are available in SUNY Procurement Policies and Procedures Document 7557 online at: http://www.suny.edu/sunypd/documents.cfm?doc_id=611.

Please Note: Failure to comply with the foregoing requirements may result in a finding of non-responsiveness, non-responsibility and/or a breach of the Contract, leading to the withholding of funds, suspension or termination of the Contract or such other actions or enforcement proceedings as allowed by the Contract.

Section 13 Executive Order 162 (EO162)

- (1) Governor Cuomo's Executive Order 162 requires state contractors to disclose data on the gender, race, ethnicity, job title, and salary of employees performing work on state contracts.
- (2) Bidder agrees to submit Workforce Utilization Report ([Form 7557-110](#)) and to require the same information to be submitted by any of their subcontractors on the state contract, in such format as shall be required by SUNY on a monthly basis for all construction contracts and quarterly basis for all other contracts during the term of the contract. Empire State Development has provided specific details on this requirement at <https://esd.ny.gov/doing-business-ny/mwbe/mwbe-executive-order-162>.

Section 14 Executive Order 177 (EO177)

- (1) The New York State Human Rights Law, Article 15 of the Executive Law, prohibits discrimination and harassment based on age, race, creed, color, national origin, sex, sexual orientation, gender identity, disability, marital status, military status, or other protected status.
- (2) The Human Rights Law may also require reasonable accommodation for persons with disabilities and pregnancy-related conditions. A reasonable accommodation is an adjustment to a job or work environment that enables a person with a disability to perform the essential functions of a job in a reasonable manner. The Human Rights Law may also require reasonable accommodation in employment on the basis of Sabbath observance or religious practices.
- (3) Generally, the Human Rights Law applies to: (i) all employers of four or more people, employment agencies, labor organizations and apprenticeship training programs in all instances of discrimination or harassment; (ii) employers with fewer than four employees in all cases involving sexual harassment; and (iii) any employer of domestic workers in cases involving sexual harassment or harassment based on gender, race, religion or national origin.
- (4) In accordance with Executive Order No. 177, prior to contract award, selected Awardee must submit a certification that it does not have institutional policies or practices that fail to address harassment and discrimination as described above. SUNY is electing to obtain the certification with the bid documents to avoid unnecessary delay in the contract award process. All Bidders must sign and submit the certification attached to this IFB, SUNY [Form 7554-20](#).

Section 15 Service Disabled Veteran Owned Business Enterprises

- (1) Consistent with the State University of New York's commitment to, and in accordance with, Article 17-B of the New York State Executive Law, contractors are required to ensure that good faith efforts are made to include meaningful participation by Service Disabled Veteran-Owned Business in SUNY's MWBE Program. The requirements apply to contracts in excess of \$100,000.
- (2) To ensure that SDVOB Enterprises are afforded the opportunity for meaningful participation in the

performance of the University's contracts, and to assist in achieving the SDVOB Act's statewide goal for participation on state contracts the University hereby establishes an overall goal of 4.31% for SDVOB participation for this solicitation.

- (3) For additional information please refer to the SDVOB requirements outlined in the Prospective Bidders Notice ([Form 7564-121b](#)). Please note the SDVOB Utilization Plan ([Form 7564-107](#)) must be submitted within seven days of the bid opening.

Section 16 Encouraging Use of New York State Business Businesses in Contract Performance

- (1) New York State businesses have a substantial presence in State contracts and strongly contribute to the economies of the state and the nation. In recognition of their economic activity and leadership in doing business in New York State, bidders/proposers for this contract for commodities, services or technology are strongly encouraged and expected to consider New York State businesses in the fulfillment of the requirements of the contract. Such partnering may be as subcontractors, suppliers, protégés or other supporting roles.
- (2) Bidders/proposers need to be aware that all authorized users of this contract will be strongly encouraged, to the maximum extent practical and consistent with legal requirements, to use responsible and responsive New York State businesses in purchasing commodities that are of equal quality and functionality and in utilizing services and technology. Furthermore, bidders/proposers are reminded that they must continue to utilize small, minority and women-owned businesses, consistent with current State law.
- (3) Utilizing New York State businesses in State contracts will help create more private sector jobs, rebuild New York's infrastructure, and maximize economic activity to the mutual benefit of the contractor and its New York State business partners. New York State businesses will promote the contractor's optimal performance under the contract, thereby fully benefiting the public sector programs that are supported by associated procurements.
- (4) Public procurements can drive and improve the State's economic engine through promotion of the use of New York businesses by its contractors. The State therefore expects bidders/proposers to provide maximum assistance to New York businesses in their use of the contract. The potential participation by all kinds of New York businesses will deliver great value to the State and its taxpayers.
- (5) Information on the availability of New York State subcontractors and suppliers is available from: New York State Department of Economic Development, Procurement Assistance Unit, One Commerce Plaza, Albany, New York 12245, Phone: (518) 474-7756, Fax: (518) 486-7577.

Section 17 Single Contract Responsibility

This is a single bid general construction project. The Contractor submitting the bid is responsible for all work associated with this Project.

Section 18 Examination of Site and Conditions of Work

- (1) A ****mandatory**** pre-bid conference and project walk-through will be held on August 29, 2023, at 11:00 a.m. with all contractors assembled at Capital Facilities Planning building conference room at Purchase College, 735 Anderson Hill Road, Purchase, NY 10577-1402. No individual or additional walk-throughs will be provided. Failure to attend a walk-through shall not be the cause

for extra payment.

- (2) Each bidder must inform itself fully of the conditions relating to the construction of the project and the employment of labor on the project. Failure to do so will not relieve a successful bidder of their obligation to furnish all material and labor necessary to carry out the provisions of their contract. To the extent possible, the contractor, in carrying out the work, must employ such methods or means as will not cause any interruption of or interference with the work of any other contractor.

Section 19 General Terms and Conditions

- (1) The following items will be incorporated into, and made part of, the formal agreement: (1) the University's Invitation for Bid; (2) the Successful Bidder's proposal; (3) Exhibit A, Standard Contract Clauses; (4) Exhibit A-1, Affirmative Action Clauses; and, (5) Forms A and B Procurement Lobbying Forms.
- (2) In the event of any inconsistency in or conflict among the document elements of the agreement described above, such inconsistency or conflict shall be resolved by giving precedence to the document elements in the following order: (1) Exhibits A and A-1; (2) Forms A and B Procurement Lobbying Forms, (3) the Agreement; (4) this IFB; and (5) the Successful Bidder's proposal.

Section 19.1 Vendor Debriefing and Contract Award Protest Procedure

- (1) Upon being notified of their unsuccessful bids, unsuccessful bidders may request in writing a debriefing within 15 calendar days of such notice. The 15 day period starts once unsuccessful bidders are notified. Once a request is made by the bidder, the University must schedule a debriefing within a reasonable time of such request. Unless the campus and bidder mutually agree to use another method such as by telephone, video conference or another type of electronic communication the debriefing must be conducted in person with the bidder.
- (2) This procurement is subject to SUNY Procedure Item 7561, Contract Award Protest Procedure.

Section 19.2 Proposal Confidentiality

- (1) All proposals and qualifications submitted for the University's consideration will be held in confidence. However, the resulting contract is subject to the New York State Freedom of Information Law (FOIL). Therefore, if a Bidder believes that any information in its proposal constitutes a trade secret or should otherwise be treated as confidential and wishes such information not to be disclosed the Bidder shall submit with its proposal a separate letter to the designated contact. The letter shall specifically identify the page number(s), line(s) or other appropriate designation(s) containing such information, explaining in detail why such information is a trade secret and formally requesting that such information be kept confidential. Failure by a Bidder to submit such a letter will constitute a waiver by the Bidder of any rights it may have under Section 89(5) of the Public Officers' Law relating to protection of trade secrets.
- (2) The proprietary nature of the information designated confidential by the Bidder may be subject to disclosure if ordered by a court of competent jurisdiction. A request that an entire proposal be kept confidential is not advisable since a proposal cannot reasonably consist of all data subject to FOIL proprietary status.

Section 19.3 Information Security Breach and Notification Act

- (1) The Bidder shall comply with the provisions of the New York State Information Security Breach and Notification Act (General Business Law Section 899-aa and State Technology Law, Section 208). The Bidder shall be liable for the costs associated with such breach if caused by its negligent or willful acts or omissions, or the negligent or willful acts or omissions of its agents, officers, employees or subcontractors.

Section 19.4 State Finance Law §§ 139-j and 139-k

- (1) State Finance Law §§139-j and 139-k imposes certain restrictions on communications between the University and a Bidder during the procurement process. During the restricted period the Bidder is restricted from making contacts to other than designated contact unless it is a contact that is included among certain statutory exceptions set forth in State Finance Law §139-j(3)(a). The restricted period is from the earliest notice of intent to solicit offers through final award and approval of the Contract.
- (2) University employees and their designated representatives are also required to obtain certain information when contacted during the restricted period and make a determination of the responsibility of the Bidder pursuant to these two statutes. Certain findings of non-responsibility can result in rejection of contract award and in the event of two findings within a 4 year period the Bidder is debarred from obtaining government procurement contracts.

Section 19.5 State Finance Law §§ 139-l

- (1) Pursuant to N.Y. State Finance Law §139-l, every bid made on or after January 1, 2019 to the State of any public department or agency thereof, where competitive bidding is required by statute, rule or regulation, for work or services performed or to be performed or goods sold or to be sold, and where otherwise required by such public department or agency, shall contain a certification that the bidder has and has implemented a written policy addressing sexual harassment prevention in the workplace and provides annual sexual harassment prevention training to all of its employees. Such policy shall, at a minimum, meet the requirements of N.Y. State Labor Law §201-g.
- (2) N.Y. State Labor Law §201-g provides requirements for such policy and training and directs the Department of Labor, in consultation with the Division of Human Rights, to create and publish a model sexual harassment prevention guidance document, sexual harassment prevent policy and sexual harassment training program that employers may utilize to meet the requirements of N.Y. State Labor Law §201-g. The model sexual harassment prevention policy, model sexual harassment training materials, and further guidance for employers, can be found online at the following URL: <https://www.ny.gov/combatting-sexual-harassment-workplace/employers>.
- (3) Pursuant to N.Y. State Finance Law §139-l, any bid by a corporate bidder containing the certification required above shall be deemed to have been authorized by the board of directors of such bidder, and such authorization shall be deemed to include the signing and submission of such bid and the inclusion therein of such statement as the act and deed of the bidder.
- (4) If the bidder cannot make the required certification, such bidder shall so state and shall furnish with the bid a signed statement that sets forth in detail the reasons that the bidder cannot make the certification. After review and consideration of such statement, SUNY may reject the bid or may decide that there are sufficient reasons to accept the bid without such certification.

- (5) All Bidders must sign and submit the certification attached to this IFB, SUNY [Form 7554-20](#).

Section 20 Additional Terms and Conditions

- (1) The terms and conditions of the State University of New York Construction Agreement (Form 7554-09) shall apply and is provided as an attachment to this IFB.
- (2) The resulting agreement shall be binding upon its execution by both parties and, if required by New York State law, upon the approval of the Attorney General and the Office of the State Comptroller.
- (3) The agreement may be revised at any time upon mutual consent of the parties in writing. Such written consent will not be effective until signed by both parties and, if required by New York State law, approved by the Attorney General and the Office of the State Comptroller.
- (4) The relationship of the Successful Bidder to the University shall be that of independent contractor.
- (5) Compliance with the post-employment restrictions of the Ethics in Government Act is required.
- (6) The submission of a proposal constitutes a binding offer to perform and provide said services.
- (7) In the event the Successful Bidder uses partners, subcontracts or subcontractors, the Successful Bidder will remain responsible for compliance with all specifications and performance of all obligations under the contract resulting from this IFB. For the resulting agreement, the Successful Bidder will be the prime contractor.
- (8) The University will not be liable for any costs associated with the preparation, transmittal, or presentation of any proposals or materials submitted in response to this IFB.
- (9) Public announcements or news releases regarding this IFB or any subsequent award of a contract must not be made by any Bidder without the prior written approval of SUNY.
- (10) The Successful Bidder is responsible for compliance with all applicable rules and regulations pertaining to cities, towns, counties and State where the services are provided, and all other laws applicable to the performance of the resulting contract. The Successful Offeror shall provide all necessary safeguards for safety and protection as set forth by the United States Department of Labor, Occupational Safety and Health Administration.
- (11) The Successful Bidder will be responsible for the work, direction and compensation of its employees, consultants, agents and contractors. Nothing in the resulting agreement or the performance thereof by the Successful Bidder will impose any liability or duty whatsoever on the University including, but not limited to, any liability for taxes, compensation, commissions, Workers' Compensation, disability benefits, Social Security, or other employee benefits for any person or entity.
- (12) In the event the Successful Bidder is required to be reimbursed for travel, Bidder shall be reimbursed at rates not to exceed the current NYS Schedule of Allowable Reimbursable Travel Expenses. Refer to the U.S. Government Administration Rates for Travel at: <http://www.gsa.gov>
- (13) In addition, the University reserves the right to:

- a. Not accept any and all proposals received in response to this IFB, waive requirements or amend this IFB upon notification to all bidders, waive minor irregularities or adjust or correct cost or cost figures with the concurrence of the bidder if mathematical or typographical errors exist.
- b. To terminate any resulting contract for: (1) unavailability of funds; (2) cause; (3) convenience; (4) in the event it is found that the certification filed by the Bidder in accordance with State Finance Law §§139-j and 139-k are found to be intentionally false or intentionally incomplete; and if applicable, the Department of Taxation and Finance Contractor Certification Form ST-220CA was false or incomplete. Upon such finding the University may exercise its termination right by providing written notification to the Bidder in accordance with the written notification terms of the contract.
- c. Request certified audited financial statements for the past three (3) completed fiscal years and/or other appropriate supplementation including, but not limited to, interim financial statements and credit reports.
- d. Contact any or all references.
- e. Request clarifications from Bidders for the purpose of assuring a full understanding of responsiveness, and further to permit revisions from all Bidders determined to be susceptible to being selected for contract award, prior to award.
- e. Advise Bidder of any objectionable employee(s) and/or subcontractor(s) and request their removal from the project. Such removal shall not be reasonably withheld by the Bidder.

Section 21 Requirements for Construction Activities to Address Public Health or Safety

- (1) The Bidder agrees it is responsible for complying with any and all requirements issued by federal, state or local entities, including but not limited to New York State Governor Office Executive Orders, New York State Department of Health rules, regulations and guidance, and other New York State or State University of New York laws, rules, regulations or requirements that may be issued and/or amended during the bidding and/or performance of work on this Project.
- (2) With respect to the COVID-19 pandemic, Bidder specifically acknowledges and agrees that the NYS Interim COVID-19 Guidance for Construction Projects is made a part of the contract work for this Project, as set forth in General Requirements. Bidder affirms that all costs and time associated with compliance with the current guidance are included in its bid. The current NYS Interim COVID-19 Guidance for Construction Projects for is available at the following website: <https://forward.ny.gov/industries-reopening-phase#phase-one-construction>. Notwithstanding the foregoing, Bidder agrees to comply with the Guidance as it may be amended or superseded in the future.

NAME OF BIDDER

ADDRESS OF BIDDER

PROPOSAL FOR

Project Number: SU-081523
Project Name: Campus Security Upgrades Project

Dated: August 15, 2023

TO THE STATE UNIVERSITY OF NEW YORK:

1. The Work Proposed Herein Will Be Completed Within the timeframe stated on page one of the Agreement. In the event the bidder fails to complete such work by said date or dates, or within the time to which such completion may have been extended in accordance with the Contract Documents, the bidder agrees to pay the University liquidated damages in an amount equal to the values indicate in the Liquidated Damages Schedule below for each calendar day of delay in completing the work.

LIQUIDATED DAMAGES SCHEDULE

<u>Contract Amount</u>	<u>Liquidated Damages</u>
Under \$100,000	\$100/day
\$100,000-\$499,999	\$200/day
\$500,000-\$999,999	\$300/day
\$1MM-\$1,999,999	\$400/day
\$2MM-\$3,499,999	\$500/day
\$3.5MM-\$5MM	\$700/day
Over \$5MM (to be determined by the University in each instance)	\$ ____/day

- The bidder hereby declares that it has carefully examined all Bidding and Contract Documents and that it has personally inspected the actual location of the work, together with the local sources of supply, has satisfied itself as to all the quantities and conditions, and understands that in signing this Proposal, it waives all right to plead any misunderstanding regarding the same.
- The bidder further understands and agrees that it is to do, perform and complete all work in accordance with the Contract Documents and to accept in full compensation therefore the amount of the Total Bid, modified by such additive or deductive alternates, if any, as are accepted by the University.
- The bidder further agrees to accept the unit prices, if any, set forth in paragraph (5) of this proposal, except as the same may be modified pursuant to the provisions of Section (5) of the Information to Bidders, as full payment for the amount of the credit to the University for any deletions, additions, modifications or changes to the portion or portions of work covered by said unit prices.

5. BID CALCULATION

a. BASE BID *(does not include allowances)*

\$ _____
(in numbers)

(in words)

b. ALLOWANCES: In accordance with the Schedule II and Section 4.05 of Agreement, the bidder further agrees to the following additions to the Base Bid:

Work or Materials Description	Amount in Words	Amount in Figures
Field Order Allowance	Seventy-five thousand dollars	\$75,000

c. TOTAL BID *(base bid + allowances = total bid)*

\$ _____ (in numbers)

\$ _____ (in words)

d. ALTERNATES: In accordance with Section B of the General Requirements the bidder proposes the following additions to or deductions from the Total Bid for the alternates listed below:

Alternate Number	Add/Deduct	Amount in Words	Amount in Figures

- e. **UNIT PRICES:** In accordance with Section (5) paragraph (2) of the Information to Bidders and Section 4.04 of the Agreement the bidder or the University may insert unit prices for the work or materials listed below for clarification.

Work or Materials Description	Amount in Words	Amount in Figures

6. By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid, each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief: (a) the prices in this bid have been arrived at independently without collusion, consultation, communication, or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other bidder or with any competitor; (b) unless otherwise required by law, the prices have been quoted in this bid have not been knowingly disclosed by the bidder and will not knowingly be disclosed by the bidder prior to opening, directly or indirectly, to any other bidder or to any competitor; and (c) no attempt has been made or will be made by the bidder to induce any person, partnership or corporation to submit or not to submit a bid for the purpose of restricting competition.

A bid shall not be considered for award nor shall any award be made where (a), (b) and (c) above have not been complied with; provided, however, that if in any case the bidder cannot make the foregoing certification the bidder shall so state and shall furnish with the bid a signed statement which sets forth in detail the reasons therefor. Where (a), (b), and (c) above shall have not been complied with, the bid shall not be considered for award nor shall any award be made unless the Campus President, or designee, or Vice Chancellor for Capital Facilities, or designee, determines that such disclosure was not made for purposes of restricting competition.

The fact that a bidder (a) has published price lists, rates, or tariffs covering items being procured, (b) has informed prospective customers of proposed or pending publication of new or revised price lists for such items, or (c) has sold the same items to other customers at the same prices being bid, does not constitute, without more, a disclosure within the meaning of this Section.

7. The bidder agrees that if awarded the Contract, it will commence work within (10) calendar days after date of receipt of a fully executed Agreement and that it will fully complete the work by the date stated herein.
8. The bidder acknowledges the receipt of the following addenda, but agrees that it is bound by all addenda whether or not listed herein.

Addendum Number	Date	Addendum Number	Date
_____	____/____/____	_____	____/____/____
_____	____/____/____	_____	____/____/____
_____	____/____/____	_____	____/____/____

9. The bidder submits herewith bid security in an amount not less than five (5) percent of the Total Bid. In the event that (a) the bidder's Total Bid is the lowest one submitted and the bidder does not timely provide the Post-Bid Information required by the Information for Bidders or (b) this Proposal is accepted by the University and the bidder shall refuse or neglect, within ten (10) calendar days after date of receipt of Agreement, to execute and deliver said Agreement in the form provided herein, or to execute and deliver a Performance Bond and a Labor and Material Bond in the amounts required and in the form prescribed, the bidder shall be liable to the University, as liquidated damages, for the amount of the bid security or the difference between the Total Bid of the bidder and the Total Bid of the bidder submitting the next lowest bid, whichever sum shall be higher, otherwise the total amount of the bid security will be returned to the bidder in accordance with the provisions set forth in the Information for Bidders. The University may apply the bid security in full or partial payments, as the case may be, of said liquidated damages and in the event the bid security is less than the amount of liquidated damages to which the University is entitled, the bidder shall pay the difference, upon demand, to the University.
10. The bidder certifies that all wood products that are to be used in the performance of this Contract shall be in accordance with the Specifications and provisions of Section 167 b. of the State Finance Law which Section prohibits the purchase and use of tropical hardwoods.
11. The bidder affirms that it understands and agrees to comply with the procedures of the Fund relative to permissible contacts as required by Sections 139-j(3) and 139-j-(6)(b) of the State Finance Law.
12. The bidder certifies that all information provided or to be provided to the University in connection with this procurement is, as required by Section 139-k of the State Finance Law, complete, true and accurate.

Dated ____ / ____ / ____

Firm's Federal ID Number or
Social Security Number as applicable _____

Legal name of person, partnership, joint venture or corporation:

By _____
(signature)

Title _____

ACKNOWLEDGMENT FOR THE PROPOSAL

THE LEGAL ADDRESS OF THE BIDDER

Telephone No. _____ Facsimile No. _____

If a Corporation

Name

Address

_____	PRESIDENT _____
_____	SECRETARY _____
_____	TREASURER _____

If a Partnership

Name of Partners

Address

_____	_____
_____	_____
_____	_____

If a Joint Venture

Name of Members

Address

_____	_____
_____	_____
_____	_____

If an Individual

Name of Individual

Address

_____	_____
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Bidder Name:

Project No.:

Bidders must provide three (3) example projects completed in the past five (5) years in which the Bidder served as the prime contractor. Example projects must be of similar size, scope and complexity to the project currently being bid, as further described in the Description of Work. Each project must include the Owner/Agency, Award Date, Contract Amount, Date Completed, Contact Person, Telephone number of the contact, Architect and/or Engineer's Name, Contract Number, Contact Email, and the Project Title and a brief scope description. Reference contacts may be used to verify project size, scope, dollar value, percentages and quality of performance.

1.	Agency/Owner			Award Date	Contract Amount	Date Completed
	Agency/Owner Contact Person		Telephone No.	Designer Architect and /or Design Engineer		
	Contract No.	Contact Email	Project Title & Scope			
2.	Agency/Owner			Award Date	Contract Amount	Date Completed
	Agency/Owner Contact Person		Telephone No.	Designer Architect and /or Design Engineer		
	Contract No.	Contact Email	Project Title & Scope			
3.	Agency/Owner			Award Date	Contract Amount	Date Completed
	Agency/Owner Contact Person		Telephone No.	Designer Architect and /or Design Engineer		
	Contract No.	Contact Email	Project Title & Scope			
Completed By:				Phone Number: Email: Date:		

Division 1 - General Requirements
SECTION A - Description of Work

1. Work to be Done

The work to be done under the Contract, in accordance with the Contract Documents, consists of performing, installing, furnishing and supplying all materials, equipment, labor and incidentals necessary or convenient for the construction of **Project SU-081523**, titled **Campus Security Upgrades to Exterior & Interior Doors Project** and carry out all of the duties and obligations imposed upon the Contractor by the Contract Documents.

The key features of the work shall include, but not be limited to the following:

All work for the implementation of new access control and shelter-in-place devices on a number of interior and exterior campus building doors as outlined in the bidding documents.

- Making required modifications to existing doors, frames, and door hardware as indicated
- Furnishing and installation of new doors and frames as indicated
- Furnishing and installation of new walls and other indicated building elements as indicated
- Furnishing and installation of door hardware as indicated (division 87100 specifications)
- Furnishing and installation of new junction boxes above doors as indicated
- Furnishing and install new conduits and other infrastructure items between the doors and new junction boxes above the doors (including pull-strings)
- Furnishing and installing all new electrical devices and power as indicated in the documents.
- Restore adjacent surfaces impacted by demolition and construction work back to original condition (unless otherwise noted) as outlined on drawings and technical specifications.
- Furnishing and installing all security devices, cabling and equipment as outlined in drawings and technical specifications.
- Furnishing and installing all telecommunication devices, cabling and equipment as outlined in drawings and technical specifications.

Work on exterior doors (referenced as Project 1) will take place in the following buildings:

- Dance Building
- Music Building
- Social Science Building
- Visual Arts Building

Work on interior doors (referenced as Project 2) will take place in the following buildings:

- Dance Building
- Fort Awesome Residence Hall
- Humanities Building
- Music Building
- Social Science Building
- Visual Arts Building

General Scope of Work Listed by Building

The primary features of the work shall include, but not be limited to the following:

Dance Building

- (13) exterior entrance door openings to receive new access control systems (*project 1*).
- (39) interior door openings to receive new access control systems (*project 2*).
- Main data racks/cabinet in basement sub-level room (access off of main mechanical room #0045). This feeds the southern section of the building.

- Secondary data room located in Long Island University (LIU) space (north side of plan at Basement Level). This feeds the north section of 1st floor.
- Access to basement level preferred through room #0043 and dispersed via corridor ceilings at basement level. Note basement ceiling is combination of 1x1 concealed spline ceiling acoustic tiles and gypsum board ceilings.
- Note there is an exterior breezeway between the south portion and LIU portion of the basement level.
- Access to 1st floor proposed via new 4" diameter sleeves at strategic locations as shown on plans (final locations to be verified in field).
- At 1st floor, 4" diameter sleeves to extend to above height of adjacent rooms and be enclosed with new gypsum board surrounds to create columns on each side of existing water fountains.

Music Building

- (11) exterior entrance door openings to receive new access control systems (*project 1*).
- (33) interior door openings to receive new access control systems (*project 2*).
- Main data racks/cabinet in basement sub-level room at two locations (access through Stairwell #0116). One rack location is below room #0072. The other below room #0001.
- Access to basement level and upper floors preferred through room #0072 and Room #001, dispersed via above ceilings.
- Note basement ceiling is combination of 1x1 concealed spline ceiling acoustic tiles and gypsum board ceilings. High ceilings.

Social Science Building

- (8) exterior entrance door openings to receive new access control systems (*project 1*).
- (20) interior door openings to receive new access control systems (*project 2*).
- Main data racks/cabinet in basement room #0027.
- Ceilings mostly 1x1 concealed spline ceiling acoustic tiles and some gypsum board ceilings.

Visual Arts Building

- (22) exterior entrance door openings to receive new access control systems (*project 1*).
- (66) interior door openings to receive new access control systems (*project 2*).
- Main data racks/cabinet on 2nd floor in room #2042.
- Mix of 2x2 and 2x4 acoustic tiles and some gypsum board ceilings.
- New walls and door/frame needed on both the 1st and 2nd floor as per drawings.

Fort Awesome Residence Hall

- (12) interior door openings to receive new access control systems (*project 2*).
- Main data racks/cabinet on 3rd floor in rooms #318 and #352.

Humanities Building

- (51) interior door openings to receive modified access control systems (*project 2*).
- Main data racks/cabinet in basement in room #0063.
- Mix of large format acoustic tiles and some gypsum board ceilings.

2. Work Not Included:

The Contract work does not include items marked "N.I.C"; movable furnishings, except those specified as include on the Drawings; and items marked "by others" as indicated on the Drawings.

SECTION B - Alternates

1. General

- a. Refer to Proposal Form. State thereon the amount to be added to or deducted from the Total Bid for the Alternates described herein.
- b. Extent and details of the Alternates are indicated on the Drawings and described in the Specifications.
- c. Where reference is made in the description of the Alternate to products, materials, or workmanship, the specification requirements applicable to similar products, materials or workmanship in the Total Bid shall govern the products, materials, and workmanship of the Alternate as if these specification requirements were included in full in the description of the Alternates.

2. Alternates -None

SECTION C - Special Conditions

1. Time Progress Schedule

- a. The Contractor shall schedule the Work for expeditious completion in accordance with Section 3.01(2) of the Agreement. The proposed schedule must be established in cooperation with the Campus and account for Campus calendar restrictions listed in this section that affect the Contractor's access to the work areas and construction activities. At each periodic meeting, the Time Progress Schedule required by Section 3.02 of the Agreement shall be reviewed for compliance with phasing requirements. Revise and update the Time Progress Schedule to properly depict the work required to maintain continuity of campus operations.
- b. First phases of work shall include appropriate time in the schedule for: (1) understanding Campus operations, training crews, acclimating trades and Campus to sequence and apportionment of activities; (2) additional meetings (up to twice a week during the first twelve weeks after the Notice to Proceed) with the Owner, consultant and the Contractor's principals, project manager and those of its significant subcontractors; (3) re-sequencing activities to recover from start-up delays in the progressive operation of interrelated work and (4) other activities commonly associated with the start-up of field work.
- c. Academic Calendar: The Contractor is advised that the Campus intends to maintain a full institutional program throughout the Project duration. The Campus will make continuous use of adjacent spaces, buildings and sites, except where work is scheduled or specified to occur. All Contract work must be scheduled and performed without causing unscheduled interruption of the normal institutional activities and processes. The Contractor shall coordinate his work with the following Campus Calendar, and No Utility shutdowns will be permitted during Registration, Study Periods, Exam Periods, or Commencement.

<https://www.purchase.edu/offices/registrar/academic-calendar/>

- d. The work site will be available to begin construction no earlier than December 18, 2023. Unless otherwise indicated, normal working hours on the campus are between 7:30 a.m. and 4:00 p.m.. Sequence the work in phases to meet the following interim milestones dates:

Winter Break – December 18, 2023, thru January 19, 2024
 Spring Break – March 25, 2024, thru March 29, 2024
 Summer Break – May 20, 2024, thru August 19, 2024
 Winter Break – December 16, 2024, thru January 17, 2025
 Spring Break – March 24, 2025, thru March 28, 2025

Summer Break – May 19, 2025, thru August 15, 2025

- e. On the Date of Substantial Completion in the Proposal, access to the work area for any uncompleted work and for punch list items shall be restricted to after 7:30 a.m. and prior to 4:00 p.m. and comply with the following:
 - 1. Methods of performing work shall not hinder or disrupt the Campus' occupancy, reduce Campus provided levels of cleanliness and ambient environmental conditions and affect building systems, services, and utilities serving the building unless, upon completion of each shift's work that is performed outside of normal Campus work hours, the Contractor provides cleaning to return the work areas to a similar level of cleanliness as normally provided by the Campus, returns spaces to their normal ambient environmental conditions and restores building systems, services, and utilities serving the occupancy.
 - 2. No material or equipment shall remain inside the building unless in the active use and control of Contractor personnel.
 - 3. The Contractor shall provide all utility relocations and re-routings necessary to maintain the existing utilities at their current level of service, including limiting their shutdowns for tie-ins and cutovers to those periods specified. All new work shall be in place, tested and accepted prior to performing a shutdown for the required tie in.
- f. Time Delay Allowance: In addition to the requirements of Article III of the Agreement, the base bid contract duration to perform the work specified in the proposal shall include not less than five (5) consecutive and/or non-consecutive eight hour working days in the Time Progress Schedule for delays that are of no fault of the Contractor or any of its subcontractors or suppliers, or caused by events or conditions that could not be reasonably anticipated. Provide notice of delay per Section 3.04 and request use of this time allowance. When approved by Consultant, the time allowance is expended for each workday that the contractor is unable to work and all delay time used is tracked in the Time Progress Schedule. After this base bid time allowance for delay is expended, comply with the requirements of Article III for any additional delays.

2. Cutting and Patching

- a. The Contractor shall do all cutting, fitting, and patching of its work that may be required to make its several parts come together properly and fitted as shown upon or reasonably implied from the Drawings and Specifications for the completed project.
- b. Any cost caused by defective or ill-timed work shall be borne by the Contractor. Except as otherwise expressly provided in the Contract Documents, the Contractor shall not cut or alter the work of any other Contractor or existing work without the consent of the University.
- c. Existing construction, finishes, equipment, wiring, etc., that is to remain and which is damaged or defaced by reason of work done under this contract shall be restored by the Contractor to a condition satisfactory to the University, or replaced with new, at no additional cost.
- d. Existing surfaces, materials, and work shall be prepared as necessary to receive the new installations. Such preparatory work shall be as required by the conditions and in each case shall be subject to approval by the University.
- e. Newly exposed work or surfaces which are presently concealed shall be made to match existing corresponding or adjoining new surfaces as directed, and the materials and methods to be employed shall be subject to approval by the University.

- f. All new, altered, or restored work in the building shall match existing corresponding work in the material, construction finish, etc., unless otherwise specified or required by the drawings.

3. Clean-Up

- a. Periodic Cleaning: The Contractor shall at all times during the progress of the work keep the Site free from accumulation of waste matter or rubbish and shall confine its apparatus, materials and operations of its workmen to limits prescribed by law or by the Contract Limit Lines, except as the latter may be extended with the approval of the University. Cleaning of the structure(s), once enclosed, must be performed daily and removal of waste matter or rubbish must be performed at least once a week.
- b. Final Clean Up: Upon completion of the work covered by the Contract, the Contractor shall leave the completed project ready for use without the need of further cleaning of any kind and with all work in new condition and perfect order. In addition, upon completion of all work, the Contractor shall remove from the vicinity of the work and from the property owned or occupied by the State of New York, the State University of New York or the University, all plant, buildings, rubbish, unused materials, concrete forms and other materials belonging to it or used under its direction during construction or impairing the use or appearance of the property and shall restore such areas affected by the work to their original condition, and, in the event of its failure to do so, the same shall be removed by the University at the expense of the Contractor, and it and its surety shall be liable therefor.

4. Temporary Access and Parking

See supplemental Special Conditions for Construction.

5. Field Meetings

Periodic job meetings will be scheduled by the Consultant and the University during the course of construction. The Contractor, and, upon request of the Consultant and the University, its principal subcontractors and manufacturer's representatives, shall attend such meetings and be prepared to furnish answers to questions on progress, workmanship, or any other subject on which the Consultant and the University might reasonably require information.

6. Operating Instructions and Manuals

The Contractor shall furnish three (3) complete sets of operating instructions and manuals which shall include definite and specific instructions on all mechanical and electrical systems involved in the Project. Said instructions and manuals should set forth: (1) the manner of operation; (2) the necessary precautions and care to be followed; (3) periodic prevention maintenance requirements; and (4) a complete set of spare parts lists, catalogs, service manuals and manufacturing data on said systems. Said instructions and manuals are to be made available by the Contractor for review and comment by the University a minimum of six (6) weeks prior to the scheduled completion of the Project.

7. Utility Shutdowns and Cut Overs

- a. Except as otherwise expressly provided in the Contract Documents, the Contractor shall be responsible for submitting to the University, for its approval, a proposed schedule of all utility shutdowns and Cut overs of all types which will be required to complete the Project; said schedule should contain a minimum of two (2) week's advance notice prior to the time of the proposed shutdown and cut over. Most campuses of the State University of New York are in full operation 12 months of the year, and shutdowns and Cut overs, depending upon their type, generally must be scheduled on weekends, at night, or during holiday periods. The contract consideration is deemed to include all necessary overtime and all premium time, if any, that is

required by the Contractor to complete the shutdowns or Cut overs.

- b. Temporary Connections: In the event the Contractor shall disrupt any existing services, the Contractor shall immediately make temporary connection to place such service back into operation and maintain the temporary connection until the Contractor makes the permanent connection. All work must be acceptable to the University.

8. Temporary Power for Construction Activities

Electrical energy will be available at no cost to the Contractor from existing outlets or panels from locations approved by the College. This power may be used for small power tools (not exceeding 1/2 HP), etc., and the Contractor shall not exceed the capacity of the existing circuits being used. The Contractor shall be responsible for providing all necessary connections, cables, etc. and removal of the same at completion of construction with approval from the University. The Contractor shall in no way modify the existing circuits at the panel boards to increase the capacities of the circuits. If the required power load exceeds the capacities of the available power sources, the Contractor shall be responsible and pay for furnishing and installing all necessary temporary power poles, cables, fused disconnect switches, transformers and electric meters necessary to provide a temporary power system for the project, and remove the same at completion. Install all temporary wiring and equipment and make all connections in conformity with the National Electrical Code. Make all replacements required by temporary use of the permanent wiring system. Provide ground fault protection.

9. Sanitary Facilities

The Contractor will be permitted to use existing toilet and janitor closet facilities as designated by the College provided the existing facilities are not misused, defaced, or left in an unsanitary condition. If the University deems that the existing facilities have been subject to misuse or left unsanitary, the Contractor shall be informed and caused to install and maintain (at its own cost) temporary, sanitary facilities at approved locations. The Contractor shall also be held responsible for the cost of cleaning and repair of any damage to said existing facilities and adherence to health and sanitary codes of the State of New York.

10. Temporary Heat

- a. In those locations where it is required by the conditions of the work, the Contractor shall provide and pay for all temporary heating, coverings and enclosures necessary to properly protect all work and materials against damage by dampness and cold, dry out the work, and facilitate the completion thereof. Fuel, equipment, materials, operating personnel and the methods used therefor shall be at all times satisfactory to the University and adequate for the purpose intended. The Contractor shall maintain the critical installation temperatures, provided in the technical provisions of the specifications hereof, for all work in those areas where the same is being performed.
- b. Maintenance of proper heating, ventilation and adequate drying out of the work is the responsibility of the Contractor. Any work damaged by dampness, insufficient or abnormal heating shall be replaced to the satisfaction of the University by and at the sole cost and expense of the Contractor.
- c. The Contractor shall provide all necessary, temporary heating for the efficient and effective work by itself and all trades engaged in the work. Unless otherwise specified, the minimum temperature shall be 50 degrees F at all places where work is actually being performed within the project (where enclosed). Before and during the placing of wood finish and the application of other interior finishing, varnishing, painting, etc., and until final acceptance by the University of all work covered by the Contract, the Contractor shall, unless otherwise specified in the Contract Documents, provide sufficient heat to produce a temperature of not less than 68 degrees F nor more than 78 degrees F.

11. Temporary Light

The contractor shall install, maintain and remove Underwriter's Label temporary lighting sockets, light bulbs, and intermittent power sockets as approved by the University. The minimum temporary lighting to be provided is at the rate of 1/4 watt per square foot and be maintained for 24 hours, 7 days per week at stairs and exit corridors; in all other spaces, temporary lighting is to be maintained during working hours. Installation shall be in accordance with the National Electric Code.

12. Temporary Water for Construction Purposes

Water for construction is available through the campus system without charge to the Contractor from location designated by the College. The Contractor shall obtain the necessary permission, make all connections, as required, furnish and install all pipes and fittings, and remove the same at completion of work. The Contractor must provide for waste water discharge and shall take due care to prevent damage to existing structures or site and the waste of water. All pipes and fittings must be maintained in perfect condition at all times.

13. Conducting Work

- a. All work is to be conducted in such a manner as to cause a minimum degree of interference with the College's operation and academic schedule.
- b. Safe and direct entrance to and exiting from the existing buildings shall be maintained at all times during regular hours while construction is in progress.
- c. No construction work will start in any area until the Contractor has all the required materials on-site.
- d. The Contractor and its employees shall comply with College regulations governing conduct, access to the premises, and operation of equipment.
- e. The building shall not be left "open" overnight or during any period of inclement weather. Temporary weather tight closures shall be provided for/by the Contractor to protect the structure and its contents.

14. Safety and Protective Facilities

- a. The Contractor shall provide the necessary safeguards to prevent accidents, to avoid all necessary hazards and protect the public, the Staff, students, the work and property at all times, including Saturdays, Sundays, holidays and other times when no work is being done.
- b. The Contractor shall erect, maintain and remove appropriate barriers or other devices, including mechanical ventilation systems, as required by the conditions of the work for the protection of users of the project area, the protection of the work being done, or the containment of dust and debris. All such barriers or devices shall be provided in conformance with all applicable codes, laws and regulations, including OSHA and National Fire Prevention Association 241, for safeguarding of structures during construction.

15. Protection of Existing Structures, Vegetation and Utilities

The Contractor, during the course of its work, shall not damage any buildings, structures and utilities, public or private, including poles, signs, services to buildings, utilities in the street, gas pipes, water pipes, hydrants, sewers, drains and electric power and lighting and telephone cables, lawns, curbs, plants and

other improvements. Any damage resulting from the Contractor's operations shall be repaired or replaced at its expense.

16. Abbreviations and References

The following abbreviations may be used in these Specifications:

N.A.	Not Applicable
N.I.C	Not in Contract.
Fed. Spec. or F.S.	Federal Specifications
SUCF	State University Construction Fund
University or SUNY	State University of New York
College	A Campus of the State University of New York

17. Use of Elevators

The Contractor shall be permitted to make temporary use of elevators designated by the University and provided such use does not interfere with the normal activities of the College. Large and heavy items shall not be placed in elevators, and suitable padding shall be provided whenever a cab is used for construction purposes. Elevator pits shall be kept free of debris and dust by frequent cleaning out. The elevators shall be restored to original condition satisfactory to the University at the end of construction activities. Use of the top of the elevator may be permitted after obtaining approval of the University.

18. Salvage of Materials

Remove and legally dispose of all debris and other materials resulting from the alterations to State University property. The following items shall remain the property of the University and shall be stored at the site as directed by the University:

Not applicable.

19. Storage of Materials

- a. The Contractor shall store materials and equipment within the contract limits in areas on the site as designated by the University.
- b. All materials shall be stored in a neat and orderly manner and shall be protected against the weather by raised floored weatherproof temporary storage facility or trailer.
- c. Security for stored materials shall be the responsibility of the Contractor.
- d. Storage of materials is not permitted on the roof of any building.

20. Shop Drawings and Samples - (Refer to Section 2.19 of the Agreement)

- a. The Contractor shall submit to the University for its approval five (5) sets of prints of all shop drawings required by the specifications. Those marked:

"REJECTED" are not in accordance with the Contract Documents and shall be resubmitted.

"REVISE AND RESUBMIT" Contractor shall correct and resubmit.

"MAKE CORRECTIONS NOTED": The contractor shall comply with corrections and may proceed.

Resubmittal is not required.

"APPROVED - NO EXCEPTIONS TAKEN": The contractor may proceed.

- b. All shop drawings and/or submittals used on the construction site must bear the impression of the consultant's review stamp as well as the General Contractor's review stamp, indicating the status of review and the date of review.
- c. All shop drawings shall reflect actual site conditions and accurate field dimensions. Dimensioned shop drawings shall be submitted for all fabricated items. Incomplete submittals will be rejected without review.
- d. All shop drawings, submittals and samples shall include:
 - 1). Date and revision dates.
 - 2). Project title and number.
 - 3). Names of:
 - a). Contractor
 - b). Subcontractor
 - c). Supplier
 - d). Manufacturer
 - 4). Identification of products or materials: Include Department of State (DOS) file number, manufacturers' name and market name of all covered products and applicable materials in accordance with Part 1120 of the Code. This information may be obtained by contacting the DOS, Office of Fire Prevention and Control: 518 474-6746 [voice] and 518 474-3240 [FAX])

21. U.S. Steel

All structural steel, reinforcing steel, or other major steel items to be incorporated in the work shall, if this Contract is in excess of \$100,000, be produced or made in whole or substantial part in the United States, its territories or possessions.

22. Non-Asbestos Products

- a. All materials specified herein shall contain no asbestos.
- b. Provide "Contains No Asbestos" permanent labels applied to the exterior jacket of all pipe insulation at 20 foot intervals with a minimum of one (1) label for each service in each work area.

23. Material Safety Data Sheet

The contractor shall submit MSDS (Material Safety Data Sheet) for all chemicals, solvents, and materials specified or proposed to be used on this project.

24. Architect's/Engineer's Seal

In accordance with Rules and Regulations of the New York State Education Law, Title 8, Part 69.5(b), to all plans, specifications and reports to which the seal of an architect has been applied, there shall also be applied a stamp with appropriate wording warning that it is a violation of the law for any person, unless acting under the direction of a licensed architect, to alter an item in any way. If an item bearing the seal of an architect is altered, the altering architect shall affix to his item the seal and the notation "altered by" followed by his signature and the date of such alteration, and a specific description of the alteration.

25. Construction Permit

The Code Compliance Manager for the State University Campus will, as required by law, issue a Construction Permit for this Project. The project is not subject to any local building code or permit requirements, except for work that the Contractor is to perform on property located outside of the boundaries of the campuses of the State University of New York.

26. Other Contracts

There may be other contracts let for work to be done in adjacent areas and, as such, this Contractor and such other contractors shall coordinate their work to conform with progressive operation of all the work covered by such contracts, and afford each other reasonable opportunities for the introduction and storage of their supplies, materials, equipment, and the execution of their work.

27. Asbestos

If the work to be done under this contract contains the abatement of asbestos the following shall apply:

- a. Applicable Regulations - All work to be done under this Contract shall be in compliance with Part 56 of Title 12 of the Official Compilation of Codes, Rules and Regulations of the State of New York (cited as 12 NYCRR Part 56) as amended effective November 9, 1994.
- b. Applicable Variance - The abatement contractor is responsible for obtaining any variance not issued to date that he feels may be applicable to the policies/procedures as set forth in 12 NYCRR Part 56.
- c. Owner Project Fact Sheet -The Contractor shall complete and submit as much information as possible on the Asbestos Material Fact Sheet to the University in triplicate prior to the project startup completion of the Fact Sheet shall be submitted prior to acceptance.
- d. Patent Infringement - The State University of New York and the State University Construction Fund have been given notice by a law firm representing GPAC, Inc. that the use of its process/procedure for asbestos containment and removal constitutes a patent infringement. All potential contractors are hereby notified that they may have to obtain a license to use certain patented Negative Air Containment systems, and that any liability of the University in connection therewith is covered by Section 2.21 of the Agreement. Therefore, all potential contractors are hereby notified that after opening of the bids they must advise the University as to the system they intend to use for Negative Air Containment and provide the University with either a copy of their license to use the same or written documentation, signed by an authorized officer of their surety, that their performance bond guarantees the Contractor's indemnification covering patent claims.
- e. Air Monitoring - All work to be done under this Contract shall be in compliance with Part 56 of Title 12 of the Official Compilation of Codes, Rules and Regulations of the State of New York (cited as 12 NYCRR Part 56), as currently amended, and applicable federal and state regulations.

The Owner shall be responsible for hiring and paying an independent third party firm to perform the requirements of air monitoring as called for in 12 NYCRR Part 56 and as permitted in Section 2.17 of the Agreement.
- f. Testing - The University and Campus reserve the right to employ an independent

testing laboratory to perform testing on the work and air sampling. The Contractor shall be required to cooperate with the testing laboratory.

- g. Disposal Procedures - It is the responsibility of the asbestos contractor to determine current waste handling, transportation and disposal regulations for the work site and for each waste disposal landfill. The asbestos contractor must comply fully with these regulations, all appropriate U.S. Department of Transportation, EPA and Federal, State and local entities' regulations, and all other then current legal requirements. Submit originals or copies of all pertinent manifests in triplicate to the University.
- h. Submittals - Prior to commencement of the work on this project, the Contractor must submit the following to the University:
 - 1). Copy of original insurance policy.
 - 2). Copy of Department of Labor notification.
 - 3). Owner Fact Sheet.
 - 4). Copy of EPA notification.
- i. Special Requirements -.
 - 1) Size, location, and quantities of all pipes, joints, ducts, valves, tees, etc. must be field verified by all prospective bidders. Information given on the drawings and specifications is for general orientation and information only.
 - 2) The Contractor shall have at least one English-speaking supervisor on the site at all times while the project is in progress.
 - 3) Prior to the commencement of work involving asbestos demolition, removal, renovation, the Contractor must submit to the University the name of its on-site asbestos supervisor responsible for such operations, together with documentation that such supervisor has completed an Environmental Protection Agency-approved training course for asbestos supervisors.

28. COVID-19 Contractor Requirements and Guidance for Construction Jobsites

The Contractor will comply with NYS DOH Interim COVID-19 Guidance for Construction Projects, "Guidance", as may be amended or superseded, which is made a part of the contract work for this Project. All costs and time associated with compliance with the current Guidance are included in the Contract consideration in Article IV of the Agreement. The current Guidance for Construction Projects is available at the following website:

<https://forward.ny.gov/industries-reopening-phase#phase-one-construction>

29. Wage Rates and Supplements

The following are the rates of wages and supplements determined by the Industrial Commissioner of the State of New York as prevailing in the locality of the site at which the work will be performed:

Wage Schedules can be accessed online using PRC # 2023009654 at

<https://apps.labor.ny.gov/wpp/publicViewProject.do?method=showIt&id=1554649>

If the Contractor is unable to access the prevailing wage schedule for the PRC# listed above, please contact the University for a copy of the wage rate schedule.

Special Conditions for Construction

Part 1 – Use of Premise

1.1 General

- A. Contractor shall confine operations at the site to areas permitted by law, ordinances, permits and the Contract Documents and shall not unreasonably encumber the site with materials or equipment. *For purposes of this provision, "site" shall include all existing structures.*
- B. The Building in which the Work is to be performed is currently occupied by residential areas, offices and/or classrooms. Each Contractor shall have limited use of premises for construction operations, including use of Project site, during the construction period. Each Contractor's use of premises is limited only as outlined in this section and/or any other section of the specifications, or at the College's discretion, to perform work or to retain other contractors on portions of Project.
- C. Coordination with Other Contractors:
 - 1). The Contractor will need to have their portion of the Work coordinated with other Contractors working on the site so that their work conforms to the progressive operation of all the work covered under other contracts that the College has let on this site.
 - 2). Each Contractor shall afford other Contractors reasonable opportunities for the introduction and storage of their supplies, materials, equipment, and execution of their work.
 - 3). If the Contractor or such other contractors contend that their work of the progress thereof is being interfered with by the acts or omissions of the others or that there is a failure to coordinate or properly arrange the sequence of the work on the part of the Contractor or such other contractors, they shall, within five (5) working days of the commencement of such interference or failure of coordination or failure to perform work in proper sequence, give written notification to the College of such contention. Upon receipt of such notification or on its own initiative, the College shall investigate the situation and issue such instructions to the Contractor or such other contractors with respect thereto as it may deem proper. The College shall determine the rights of the Contractor and of such other contractors and the sequence of work necessary to expedite the completion of the work covered by said other contracts.
- D. All work is to be conducted in such a manner as to cause a minimum degree of interference with the College's operations and academic schedule. Contractor is to coordinate their work with the College's classroom schedule.
- E. The Contractor and its employees shall comply with all College regulations governing conduct, access to the premises, and operation of equipment.
- F. Maintain all paths of egress and keep clear of all materials and debris.
- G. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, and other adjacent occupied or used facilities without written permission from College.
- H. Should it become necessary, in the judgment of the College, at any time during the course of the Work to move materials which are stored on the site and equipment which has been temporarily placed thereon, the Contractor upon request of the College shall move them or cause them to be moved at its sole cost and expense; provided, however, if materials and equipment that have been stored or placed by the Contractor at a location on the site expressly approved, in writing, by the College and the same are moved or caused to be moved by the Contractor at the College's request, such removal shall be deemed extra work and the Contractor shall be compensated.

1.2 Campus Regulations

- A. The contractor and his/her employees, subcontractors, etc., will not fraternize with any building or campus occupants. This includes but is not limited to students, faculty, and employees of the State other than those designated, visitors and guests. At no time will it be appropriate to say anything derogatory to the above referenced individuals. Harassment, verbal or otherwise, of the above referenced individuals will **not** be tolerated. If an incident arises, the Contractor will be directed to **permanently remove** the employee from the site.

- B. No drugs are permitted on campus.
- C. No smoking is permitted in the buildings.
- D. The contractor, employees and sub-contractors are required to stay within the construction boundary lines at all times.
- E. The contractor, employees, and sub-contractors must recognize the fact that this is an institute for learning. Flexibility will be required during certain times of the academic year.

1.3 Use of Permanent Utilities

- A. As the building is still under construction, when each permanent utility is operational, it may be used for construction purposes, if acceptable, in writing, by the College. The written request for permission for use of the system from the College shall include, as a minimum, the conditions and reasons for use and provisions for and effect on equipment warranties. In the event that the College accepts the Contractors use of the permanent utility for the balance of the Work, the Contractor shall be fully responsible for it, and shall pay all costs for operation, power, restoration and maintenance of same.
- B. If the existing facilities are not adequate for the Contractor, locate temporary facilities where they will serve Project adequately and result in minimum interference with performance of the Work and disruption to the College. Any temporary facilities location is to be reviewed and approved by College's Representative.

1.4 Storage and Staging of Materials

- A. The following shall apply to this project
 - 1). The Contractor shall store materials and equipment within areas designated by the College.
 - 2). Security for stored equipment and materials shall be the responsibility of the Contractor.
 - 3). No vehicles will be permitted on the Plaza. Any and all materials and/or equipment brought or stored on the Plaza shall not exceed the maximum weight limit of 150 psf.
 - 4). Access to the construction site for delivery of materials and equipment is limited. Temporary parking for the loading and unloading of the same shall be arranged only with prior approval of the College.
 - 5). The Contractor shall at all times keep access routes, and parking and staging areas clean of debris and other obstructions resulting from the work.

1.5 Temporary Power for Construction Activities

- A. Electrical energy, as it exists within the work area, will be available at no cost to the Contractor from existing outlets or panels from locations approved by the College. As this site is still under construction, if electrical power is not available in the area of work, it is the Contractor's responsibility to provide necessary power to perform the Work. Typically available power may be used for small power tools (not exceeding ½ HP).

1.6 Temporary Lighting / Heating & Cooling / Water

- A. Electrical lighting, as it exists within the work area, is available to the contractor at no cost. As this site is still under construction, if electrical lighting is not available in the area of work, it is the Contractor's responsibility to provide necessary temporary equipment to perform the Work at its cost.

1.7 Temporary Sanitary Facilities

- A. Toilet, Water, and Drinking Water Facilities: The Contractor shall make arrangements with the College for use of the existing toilet, water, and drinking water facilities. It is the Contractor's responsibility to maintain the facility during the construction and restore to original state upon completion of the project.

1.8 Temporary Parking

A. Contractor is to abide to the following:

- 1). The Contractor and its employees shall be subject to all the rules and regulations of the College, including parking regulations. The College is regulated by New York State Vehicle and Traffic Laws.
- 2). The Contractor and its employees shall only park in the designated areas in Lot #W-2. There shall be no parking in other areas of the campus (unless prior written authorization is provided by the College Chief of Police).
- 3). Parking violations are subject to fines and are the sole responsibility of the Contractor or its employees. Vehicles that are parked illegally may be towed at the expense of the owner/driver.
- 4). All vehicles are required at all times to register with the College's Public Safety Unit.
- 5). There is \$35.00 fee for parking permits. The fee is per vehicle and permits need to be display whenever the vehicle is parked on campus.

1.9 Temporary Support Facilities

- A. Construction Aids: Provide all items, such as lifting devices, all scaffolding, staging, platforms, runways, ladders; and all temporary flooring, as required by the various trades for the proper execution of the Work. Provide such construction aids with proper guys, bracing, guards, railings and other safety devices as required by the governing authorities and OSHA.
- B. Elevator and Loading Dock Usage: The Contractor shall make all arrangements with the College's Representative for the use of elevators as required for transporting material and workmen to the work areas and for the disposal of rubbish and waste materials.

1.10 Safety and Protection of Facilities

- A. The Contractor shall provide the necessary safeguards to prevent accidents, to avoid all necessary hazards and protect the public, the Faculty and Staff, students, the work, and the property at all times, including Saturdays, Sundays, holidays, and other times when no work is being done. The Contractor shall submit a safety plan which shall be certified by a Certified Safety Professional from the Board of Certified Safety Professionals (www.bcsp.org).
- B. The Contractor shall erect, maintain and remove appropriate barriers or other devices, including mechanical ventilation systems, as required by the conditions of the work for the protection of the users of the project area, adjoining areas, the protection of the work being done, or the containment of dust and debris. All such barriers or devices shall be provided in conformance with all applicable codes, laws and regulations, including OSHA and National Fire Prevention Association 241, for safeguarding of structures during construction.
- C. Fire safety during construction:
- 1). The Contractor shall provide all temporary equipment, labor and materials required for compliance with the applicable provisions of Chapter 14, Fire Safety during Construction and Demolition, of the Fire Code of New York State.
 - 2). For areas and spaces under their control, the Contractor shall comply with Chapter 14 of the Fire Code of New York State, titled "Fire Safety during Construction and Demolition". Subject to approval by the College's Consultant and the College, the Contractor shall designate one person as the **fire prevention program superintendent**. This superintendent shall be responsible for the fire prevention program required by Section 1408 of the Fire Code of New York State and implementing the minimum safeguards for construction, alteration, and demolition operations that provide reasonable safety to life and property from fire during the Contractor's operations. Responsibilities also include developing and maintaining pre-fire plans per 1408.2, the training of the Contractor's workforce per 1408.3, maintenance of the fire protection equipment per 1408.4, supervising hot work operations per 1408.5, and implementing temporary impairment to existing fire protection systems per 1408.6 & 1408.7. This superintendent shall also provide periodic written reports at the field meetings and respond to questions raised concerning compliance with Chapter 14 of the Fire Code of New York State.

D. Contractor shall comply with Labor Law Section 220-h; provide workers certified as having successfully completed the OSHA 10-hour construction safety and health course; and comply with applicable NYS DOL rules and regulations for monitoring and reporting compliance.

E. Temporary Fire Protection:

- 1). If the existing building is to be partially occupied during the course of the project, all existing exits and fire protection systems shall be continuously maintained in the occupied spaces/phases, or other measures must be taken which in the opinion of the College's Consultant and/or College will provide equal safety. Those portions occupied by the College must be available for their use 24hours a day, seven days a week during the contract period unless otherwise scheduled in these documents. Comply with all applicable State and Federal codes and regulations. The cost of all labor, fire watches, variances, materials, installations, maintenance and removal of such temporary fire protection systems or modifications to the existing systems are the responsibility of the Contractor.

F. Fire Watch Requirements:

- 1). If any of the work of the Contractor;
 - a) Disables any fire suppression systems, standpipes systems, fire alarm systems, fire detection systems, smoke control systems and/or smoke vents as defined in Chapter 9 of the Fire Code of New York State (FCNYS).
 - b) Involves welding, cutting, open torches and other hot work as defined in Chapter 26 of the FCNYS and/or involves demolition activities that are hazardous in nature as defined in Chapter 14 of the FCNYS.

Then the Contractor shall provide a fire watch or perform the work during the hours where the building is scheduled by the College to be closed, in accordance with Section 901.7 of the FCNYS, for structures that have campus occupancy.

- 2). If a fire watch is required, the Contractor shall provide all labor that is required. The Contractor shall:
 - a) Contact the New York State Department of State Office of Fire Prevention and Control (OFPC) at 41 State Street, Albany, NY 12231-0001, Phone: (518) 474-6746, Fax: (518) 474-3240, e-mail: fire@dos.state.ny.us and obtain its currently amended recommendation for fire watch procedures. Review the OFPC recommendations and notify the College's Consultant and/or College Representative if there are significant discrepancies with the requirements of this section.
 - b) Review the fire watch procedures with the College's alarm monitoring staff (University Police – 914-251-6900) and the fire department prior to disabling a fire protection system. Submit a plan for the fire watch for approval by the College's Consultant and/or College Representative, and schedule a pre-system shutdown meeting with the College's Consultant and/or College Representative.
 - c) Employ, instruct and maintain competent fire watch personnel. Provide the sufficient number of dedicated personnel that are required to patrol all portions of the means of egress system in the facility in the period of time required.
 - d) Notify University Police (UPD) prior to and at the conclusion of the fire watch.
 - e) Employ competent personnel to fix the fire protection system (see section 1.11 below).
- 3). Fire Watch Duties: Personnel serving as a fire watch have the following duties:
 - a) Conduct periodic patrols of the entire facility as specified below.
 - b) Identify any fire, life or property hazards.
 - c) Notify the UPD if a fire is discovered by call (914-251-6911), with the exact address and type of emergency.
 - d) Notify occupants of the facility of the need to evacuate. If sirens or public address function of the alarm system are still functional, use them to assist with evacuation of the building.
 - e) Have access to at least one means of direct communication with UPD. A cell phone is acceptable.
 - f) Maintain a written log of fire watch activities.

- g) Have knowledge of the location and use of fire protection equipment, such as fire extinguishers. (Note: The fire watch will not perform fire-fighting duties beyond the scope of the ordinary citizen).
 - h) Perform no other duties that are not directly part of the fire watch duties.
- 4). Frequency of Inspections: Fire watch personnel should patrol the entire facility patrol every 30 minutes except in the following situations, where patrols shall be every 15 minutes:
 - a) The facility has people sleeping.
- 5). Record Keeping: A fire watch log should be maintained at the facility. The log should show the following:
 - a) Address of the facility.
 - b) Times that the patrol has completed each tour of the facility.
 - c) Name of the person(s) conducting the fire watch.
 - d) Records of communication(s) to the University Police.
 - e) Record of other information directed by the College's Consultant and/of the College Representative.

1.11 Modifications / Alterations to Campus Existing Fire Alarm Systems

- A. The Campus standard for its fire alarm is the Edwards Fire Alarm System. Any contractor working on the Campus fire alarm system must be a licensed fire alarm installer. Any contractor working on adding to or modifying the existing fire alarm system's programming, must be certified to work on an Edwards Fire Alarm System and provide proof of that certification.
- B. A Pre-Fire Alarm construction meeting will be required between the Contractor, their fire alarm sub-contractors, and the College's Representative prior to any fire alarm work occurring.
- C. Contractor shall coordinate all modifications and/or alternations to the existing building's fire alarm systems with the College's Representative. If the work shall affect the existing fire alarm system in adjoining areas, the contractor must submit, in writing, their plan to protect and maintain the systems in the adjoining spaces, to the College's Representative for the College's review and approval, at least 72 hours in advance.
- D. Where demolition and dust may impact existing fire alarm smoke heads, the contractor shall protect these heads prior to beginning any work and follow the College's protocol listed below. If smoke heads are protected during the day, while work is occurring, the Contractor must uncover these heads at the end of each work day before leaving the site. The area protected by covered smoke heads must be continuously monitored while the heads are covered. The fire alarm systems must be operational at all times during construction. In the event that there is a need to shut down the system, the Contractor must notify the College in writing at least 72 hours in advance and provide a Fire Watch for all of the areas affected by the shutdown during the times the systems are non-operational.
- E. Where work will impact the existing fire alarm system, the contractor's site supervisor must follow the following protocol:
 - 1) Contractor Supervisor to contact the College's University Police (251-6900) prior to beginning work for the day and let them know where work is occurring and which smoke heads are being covered or device made inoperable.
 - 2) Cover smoke heads and make scheduled devices inoperable. Call University Police once heads are covered.
 - 3) Contractor to perform scheduled work. The area must be continuously monitored while the smoke heads are covered.
 - 4) At the end of the work day, Contractor Supervisor to College's University Police and let them know smoke head covers are being removed. It's strongly recommended that Contractor let's day's dust settle and clean around the devices prior to removing protective covers to avoid unintended activation.

Part 2 – Party Responsibilities

2.1 Information and Services Required of the College

- A. Furnished Information: College shall furnish (if available) surveys, existing plans, or other required information describing physical characteristics, legal limitation and utility locations for the site of the Project, and a legal description of the site. These documents are for information purposes only. They are to be field verified by the Contractor for accuracy. The College will not be responsible if actual conditions vary from what is indicated on the documents. Plans will be released to awarded Bidder in PDF electronic format.
- B. College's Right to Stop the Work: If Contractor fails to correct Work which is not in accordance with the requirements outlined, or fails to carry out Work in accordance with the Contract Documents, the College, by written order signed personally or by an agent specifically so empowered by the College in writing, may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the College to stop the Work shall not give rise to a duty on the part of the College to exercise this right for the benefit of Contractor or any other person or entity.
- C. College's Right to Carry Out the Work: If Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a ten (10) business-day period after receipt of written notice from College to commence and continue correction of such default or neglect with diligence and promptness, College may, without prejudice to other remedies College may have, correct such deficiencies. *College may offset* from payments then or thereafter due Contractor the cost of correcting such deficiencies, including compensation for Consultant's additional services and expenses made necessary by such default, neglect or failure. If payments then or thereafter due Contractor are not sufficient to cover such amounts, Contractor shall pay the difference to the College.

2.2 Information and Services Required of the Contractor

- A. Review of Contract Documents: Contractor shall carefully study and compare the Contract Documents with each other and with the information furnished by the College, and shall at once report to the College Representative errors, inconsistencies or omissions discovered.
- B. Review of Field Conditions: Contractor shall, *sufficiently in advance of undertaking the Work*, take field measurements and verify field conditions and shall carefully compare such field measurements and conditions and other information known to Contractor with the Contract Documents. Errors, inconsistencies or omissions discovered shall be reported to the College Representative at once. *If Contractor performs any construction activity which involves an error, inconsistency or omission which Contractor knew of or should reasonably have known of, without notice to College, Contractor shall assume responsibility for such performance and shall bear all costs of correction.*
- C. Construction Schedule: Contractor, promptly after being awarded the Contract, shall prepare and submit for College Representative, a Contractor's construction schedule for the Work.

Project Schedule shall include the following:

- 1). Contractor's work plan and/or schedule shall be sufficiently detailed to show clearly, in sequence, all salient features of the work of each trade including: the anticipated time of commencement and completion of such work and the interrelationship between such work, submission of Shop Drawings and Samples for approval, approval of Shop Drawings and Samples, placing of orders of materials, fabrication and delivery of materials, installation and testing of materials, contiguous or related work under other contracts, and other items pertinent to the work. The Notice to Proceed may be withheld until this schedule is received and is deemed responsive to the project requirements.
- 2). The proposed working plan and schedule shall be revised by the Contractor until they are satisfactory to the College and the Consultant, and the same shall be periodically updated bi-weekly thereafter. Whether or not the Consultant and the College have accepted the Project Schedule, submit the Project Schedule to the College and the Consultant for acceptance at such time or times as the College or the Consultant may request.
- 3). The proposed working plan and schedule, including any revision or revisions thereof, when accepted by both the College and the Consultant will become the Schedule of Record (SOR). The SOR, as the same may be revised as stated above by the Contractor and accepted by the College and the Consultant, shall be strictly adhered to by the Contractor.

Milestone Dates & Summary Activities (example)

- 1) Notice to Proceed (Milestone Date)
- 2) Mobilization
- 3) Site Preparation & Foundations
- 5) Natural Gas Piping Installation
- 6) Natural Gas Main Tapping
- 7) Regulator Station Installation
- 8) Gas Pipe Testing
- 9) Backfill
- 10) Restoration
- 11) Substantial Completion (Milestone Date)
- 12) Start of Guarantee Period
- 13) Contract Completion Date (if different from above)
- 14) Final Completion - All punch list/outstanding items satisfied (Milestone Date)

D. Supervision:

- 1). Contractor shall supervise and direct the Work, using Contractor's best skill and attention. Contractor shall be solely responsible for and have control over *construction means*, methods, techniques, sequences and procedures *including safety programs and procedures*, and for coordinating all portions of the Work under the Contract.
- 2). Contractor shall enforce strict discipline and good order among Contractor's employees and other persons carrying out the Contract. Contractor shall not permit employment of unfit persons or persons not skilled in tasks assigned to them.
- 3). Contractor shall be responsible for inspection of related portions of Work already performed, *as well as existing conditions*, to determine that such are in proper condition to receive subsequent Work.

E. Contractor shall be responsible to College for acts and omissions of Contractor's employees, Subcontractors and their agents and employees, and other *persons or entities directly or indirectly employed by them* performing portions of the Work under a contract with Contractor

F. Cutting and Patchwork:

- 1). Contractor shall be responsible for cutting, fitting or patching required to complete the Work or to make its parts fit together properly.
- 2). Structural Elements: Do not cut and patch structural elements in a manner that could change their load-carrying or load-deflection ratio.
- 3). Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety (i.e., mechanical systems, plumbing, fire alarm, etc.).
- 4). Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
- 5). Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
- 6). Dispose of demolished items and materials promptly.
- 7). Return elements of construction and surfaces that are to remain to condition existing before selective demolition operations began.
- 8). Existing utilities services to the College must be maintained at all times. If the Contractor is required to affect these services in order to complete the Work, Contractor must obtain written permission from the College prior to this work (also see Special Requirements Section). Any damage or disruption of services shall need to be repaired immediately and at the Contractor's expense.

G. Hot Work Permits:

- 1) If the work requires any Hot Work (including cutting, welding, Thermit welding, brazing, soldering (except soldering electronics or electrical components with an electric soldering iron or gun), grinding, thermal spraying, thawing pipe, installation of torch-applied roof systems or any other similar situation), the

Contractor shall be required to obtain a Hot Work Permit issued by the College. The Contractor shall request this through the College Representative, and be given a copy of the College's "Hot Work Guidelines and Permit Process" and the permit forms to be filled out. The Contractor must request, submit, and be given a permit before any Hot Work begins.

H. Cleaning Up:

- 1). Contractor shall *at all times* keep the premises and surrounding area free from accumulation of waste materials or rubbish caused by operations under the Contract. At completion of the Work Contractor shall remove from and about Project waste materials, rubbish, Contractor's tools, construction equipment, machinery and surplus materials.
- 2). If Contractor fails to clean up as provided in the Contract Documents, College may do so and the cost thereof shall be charged to Contractor.
- 3). If a dispute arises among Contractor, separate contractors and College as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish as described above, College may clean up and allocate the cost among those responsible

I. Access to Work: Contractor shall provide College access to *all portions of* the Work in preparation and progress wherever located.

J. Contractor's Coordination with the Utility Companies:

- 1). The Contractor shall coordinate and cooperate with utility companies, including scheduling the work of other trades to sequence with the work schedule required by the utility companies.
- 2). The Contractor shall pay all costs associated with the work of the utility companies for extension and connection to their services on both a temporary and permanent basis. For gas services, standard fees and special fees for the specified pressure are required.
- 3). The Contractor shall accept the form of contract proposed by the utility companies without exception.
- 4). The Contractor shall provide any riders, amendments, etc. to its own insurance policies that it deems proper to cover the work of utility companies in accordance with the agreement or to cover other liabilities that may arise from the contractor's relationship with the utility companies on this project.
- 5). The Contractor shall provide prompt payments to utility companies as required to advance their work, but accept payment for such work from the College in accordance with the Agreement.
- 6). This project includes work to be performed by the following utility companies:

NAME	Contact	Telephone number
Con Edison	Steven Bell	914-925-6157

2.3 Communications Protocol for Contract Administration

- A. Except as otherwise provided in the Contract Documents or when direct communications have been specially authorized, Contractor shall communicate through the College Representative to the College. Communications by and with College's consultants shall be through College Representative. Communications by and with Subcontractors and material suppliers shall be through Contractor.

Part 3 – Construction Administration Management

3.1 Project Meetings

- A. Periodic job meetings will be scheduled by the Consultant and the University during the course of construction. The Contractor, and, upon request of the Consultant and the University, its principal subcontractors and manufacturer's representatives, shall attend such meetings and be prepared to furnish answers to questions on progress, workmanship, or any other subject on which the Consultant and the University might reasonably require information.
- 1) In addition to the requirements of the Agreement, the Contractor shall submit bi-weekly reports to the Consultant summarizing the last two weeks of work and next two weeks of work anticipated, listing the

percent of work complete by trade, tabulating manpower utilized / projected, relevant shop drawing and submittals progress, relevant offsite fabrication progress and providing other information which may be reasonably required to understand the progress of the work.

- 2) In addition to the above referenced meetings, the Contractor shall schedule and manage periodic coordination meetings at the site between it and all its trades, subcontractors, suppliers, manufacturers, etc. to settle the allotment of work per the Agreement and to review progress on submittals and shop drawing, progress on installation of the work, conflicts between work of trades, compliance with the design intent, adherence to the Contractor's schedule, quality control, planning for commissioning and training of campus personnel, and other items which require coordination and sharing of information. Representatives of the Consultant and the University may attend these meetings to observe and make comments. These meetings shall be held a minimum of once per month and more frequently where required to effectively coordinate the construction. The Contractor shall prepare and distribute summary minutes of these meetings within (5) five working days of the meeting, in accordance with the "Document Tracking and Change Control Paragraph" of this section. Distribution of the coordination meeting minutes shall be to all attendees with copies to the University and Consultant whether they are in attendance or not.
- 3) The personnel representing the Contractor and its principal subcontractors shall have the authority to make decisions directly affecting the work.
- 4) In addition to the above meetings, meet to review fire safety periodically during the work and, starting approximately (16) sixteen weeks prior to the scheduled date of substantial completion, the Contractor's principals, project manager and those of its significant subcontractors shall attend additional weekly meetings with the Owner and its consultant(s) to review the progress on preparing close out deliverables, including those in Sections Operating Instructions and Manuals, Warranties, and Training of Campus Personnel.

3.2 Requests for Information

- A. In the event that the Contractor determines that some portion of the Drawings and Project Manual for the project requires clarification or interpretation by the Consultant, the Contractor shall submit a Request for Information (RFI) in writing to the Consultant. The Contractor shall create an RFI log in a format approved by the Consultant. Submit the RFI log to the consultant prior to each periodic Field Meeting. Update the RFI log to reflect comments received at the Field Meetings. The Contractor shall define the issue that requires clarification or interpretation in clear and concise language as follows:
 - 1) The Contractor shall customize RFI forms and logs for this project and submit them to the Consultant for review and approval prior to submission of any RFIs.
 - 2) Forms should include provisions for the Consultant's response, Contractor acceptance of response or rephrasing of question, and the Consultant's additional response if requested.
 - 3) Forms should include provisions for locating the issue within the building, by room number, name and nearest columns.
 - 4) RFIs shall confirm that reasonable locations for the information required have been reviewed and document those locations by specific references to the Drawings and Project Manual on the RFI.
 - 5) The Contractor shall review the RFI for systemic or global implications, including review of other pending RFIs and work of other phases, so that the final RFI submitted represents a reasonable consolidation of similar requests.
 - 6) The Contractor shall coordinate and review the RFIs originating from its trades, subcontractors, suppliers, manufacturers, etc. for compliance with this process, including polling them and meeting with them onsite to review the issue prior to its submission as an RFI. The Consultant may attend such meetings.
 - 7) Contractor to coordinate response from Consultant with subcontractors.

- 8) The RFI shall contain a description of what the Contractor believes to be the intent of the design documents, with due regard to the Agreement, along with reasons why the RFI is required.
 - 9) RFIs shall only be submitted on the approved forms.
 - 10) RFIs that do not comply with the above requirements will be returned to the Contractor for revision and resubmission.
- B. The Consultant will review all RFIs to determine whether they are RFIs within the meaning of this term as defined above. If the Consultant determines that the document submitted is not an RFI, it will be returned to the Contractor un-reviewed as to content, for resubmission in the proper manner and it will be removed from the RFI log.
- C. The Consultant will respond to all RFIs within (10) ten business days of its receipt, unless the Consultant determines that a longer time is required for an adequate, coordinated response. If the longer response time is deemed necessary, the Consultant will notify the Contractor of that necessity and indicate when the response will be completed within (10) ten business days of its original receipt.
- D. Based on projects of similar complexity, it is anticipated that there may be up to (15) fifteen RFIs on this project and that multiple responses may be required to adequately answer each RFI.
- E. Responses to RFIs shall not change any requirements of the documents.

3.3 Notice of Non-Compliance

- A. In the event the Consultant views the work or some portion thereof and finds that it has not been performed in accordance with the requirements of the contract documents, a Notice of Non-Compliance will be issued to the Contractor for action. Payment shall not be made for any portion of the work for which a Non-Compliance Notice has been issued and the work not corrected to the satisfaction of the Consultant.
- B. Upon receipt of a Non-Compliance Notice the Contractor shall provide a written response to the Notice within ten (10) working days after receipt of the Notice. The Contractor's response shall detail either:
- 1) Why they believe that the work was performed in accordance with the contract documents, or,
 - 2) What corrective action they intend to take, at their sole expense, to correct the non-conforming work.
- C. Refer to the Agreement for Contractors contention to the decision.

3.4 Warranties

- A. Provide warranties for products, equipment, systems and installations required by other technical sections of Contract Documents for duration indicated. Warranties shall be individually listed in the project specific submittal log required by Shop Drawings and Samples.
- 1) All warranties required by Contract Documents shall commence on date of Substantial Completion shown on Page a-1 of the Agreement.
 - a). At no additional cost to the College, for products, equipment, systems and installations completed prior to the date of Substantial Completion, obtain and pay for warranty extensions that cover the additional time between the earlier date of their completion and the date of Substantial Completion.

- 2) Provide a list of all Contractor provided warranties that are specified in Divisions 1 through 48, inclusive, and list who will inspect the work covered by the warranty (if applicable), when it will be done, who witnessed it and when, results (pass/fail), follow up action, comments and other information requested by the Consultant.
 - a) Unless otherwise approved by the College, all inspections must be witnessed and signed off by the Consultant prior to acceptance of Contractor provided warranties that are specified in Divisions 1 through 48, inclusive.
 - b) The Consultant will reject a Warranty issued prior to or without the manufacturer's field inspection of the work, if required in Divisions 1 through 48, inclusive.
- 3) Unless otherwise approved by the Consultant and if required in Divisions 1 through 48, inclusive, the scheduled value of a Contractor provided warranty in the Contract Breakdown required by the Agreement shall be 5% of the amount of the work being warrantied.
- 4) Furnish and organize original warranties in a separate binder with a durable plastic cover. Organize the binder into separate sections by CSI number based on the table of contents of the project manual. Internally subdivide the binder contents with permanent page dividers, logically organized as described below, with tab titles clearly printed under reinforced laminated plastic tabs. Provide a printed Table of Contents.
 - a) Warranties shall be in the form required by the applicable technical sections of Contract Documents. Include procedures to follow and required notifications for warranty claims.
 - b) Warranty Certification: Written certification from the warrantor that the warranty is in effect and non-retractable due to any of the specified conditions. Warranties submitted without warranty certification will not be accepted.
 - c) Deliver the binder to the Consultant with the written notice of Substantial Completion required by the Agreement.
- 5). For uncompleted work delayed beyond date of Substantial Completion, provide updated binder submittal within (10) ten days after acceptance, indicating date of acceptance as start of warranty period for any work delayed beyond date of Substantial Completion.

Applications for payment after the date of Substantial Completion may not be approved until the warranty certification and warranty documents are delivered to the Consultant.

End of Special Conditions for Construction



Technical Specifications

For construction contracts greater than \$20,000

Campus Security Upgrades Project SU-081523

Dated August 15, 2023

**Proposal Due Date
September 26, 2023**

SUNY Purchase College
735 Anderson Hill Road
Purchase, New York 10577-1402
Sheli Taylor, Associate Director, Contract & Procurement Services

SECTION 02070 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Demolition and removal of selected portions of a building or structure.

1.2 DEFINITIONS

- A. Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and salvaged or removed and reinstalled.
- B. Remove and Salvage: Carefully detach from existing construction, in a manner to prevent damage, and deliver to Owner.
- C. Remove and Reinstall: Detach items from existing construction, prepare for reuse, and reinstall where indicated.
- D. Existing to Remain: Existing items of construction that are not to be permanently removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

1.3 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

1.4 FIELD CONDITIONS

- A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.
- B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
- C. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
- D. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.

1. If suspected hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Hazardous materials will be removed by Owner under a separate contract.
- E. Storage or sale of removed items or materials on-site is not permitted.
- F. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
 1. Maintain fire-protection facilities in service during selective demolition operations.

1.5 WARRANTY

- A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials so as not to void existing warranties.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- B. Standards: Comply with ANSI/ASSE A10.6 and NFPA 241.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
- B. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Architect.

3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

- A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.
 1. Comply with requirements for existing services/systems interruptions specified in Division 01 Section "Summary."

3.3 PREPARATION

- A. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
 - 1. Comply with requirements for access and protection specified in Division 01 Section "Temporary Facilities and Controls."
- B. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
- C. Temporary Shoring: Provide and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.

3.4 SELECTIVE DEMOLITION, GENERAL

- A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
 - 1. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
 - 2. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
 - 3. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain portable fire-suppression devices during flame-cutting operations.
 - 4. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
 - 5. Dispose of demolished items and materials promptly.
- B. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition[**and cleaned**] and reinstalled in their original locations after selective demolition operations are complete.

3.5 DISPOSAL OF DEMOLISHED MATERIALS

- A. General: Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, remove demolished materials from Project site.
 - 1. Do not allow demolished materials to accumulate on-site.

2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
4. Comply with requirements specified in Division 01 Section "Construction Waste Management and Disposal."

B. Burning: Do not burn demolished materials.

C. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

3.6 CLEANING

- A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION 024119

SECTION 038213 - CONCRETE CORE DRILLING

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Core drilling of concrete
- B. Control of drilling water

1.02 RELATED TECHNICAL SPECIFICATIONS SECTIONS

- A. Section 02070, Selective Demolition.

1.03 REFERENCES

- A. Occupational Safety and Health Administration – Safety and Health Standards Digest, Construction Industry (OSHA).

1.04 DEFINITIONS

- A. Owner – Legal owner of the structure being cut and consequently, the owner of the holes or openings created by the coring contractor.
- B. Contracting agency – The contractor hired directly or indirectly by the owner that is sub-letting the coring requirements to a coring contractor.
- C. Coring contractor – The contractor hired to perform the actual coring operation. 1.4.4. Slurry – The liquid material comprised of water and cuttings generated when the owner's structure is cored using a water coolant.
- D. Embedment – Objects within the coring area that could be damaged during core drilling. Example of embedment are reinforcing rod and cable and utilities such as electrical power and telephone lines.
- E. Holes and openings – the voids resulting from the core drilling or coring operations of the coring contractor. Ownership of the holes or openings rests with the owner or contracting agency; not with the coring contractor.

1.05 SUBMITTALS

- A. General: Refer to Technical Specifications Section 013300 – Submittal Procedures, submittal requirements and procedures.
- B. Coring Procedures: Submit a concrete coring procedure, which shall include the following:

1. Proposed coring methods.
 2. Equipment to be used includes coring equipment and rebar locating equipment.
 3. Methods to control drilling water and spoils.
- C. Remedial Procedures when Reinforcement is Cut: Coring operations shall terminate immediately when reinforcement is cut. The Contractor shall submit to the SUNY Purchase Facilities for approval of the procedure proposed to repair the cut reinforcement and to prevent further cutting of reinforcement.

1.06 QUALITY ASSURANCE

- A. Codes and Standards: Comply with all applicable Federal, State and Local Codes and Safety Regulations. Work practices and worker health and safety shall conform to the New York State Occupational Safety and Health Construction Safety Orders.
- B. Construction Tolerances: The deviation in alignment of cored holes from that shown on the Construction Drawings shall not be more than 1/2 inch per 10 feet of cored hole length with a maximum deviation of not more than 3 inches.
- C. It is recommended that a pre-job meeting be held with the owner or contracting agency to determine the following information relating to steel reinforcing or other embedments:
1. Are there steel reinforcing or other embedments within the structure to be cut?
 2. What is the size and location of the steel reinforcing or other embedments?
 3. Is it permissible to cut the steel reinforcing or other embedments in the course of the drilling operation?
 4. Is it possible to lay out the holes in such a way that minimizes or avoids the cutting of the steel reinforcing or other embedments?
 5. After drilling begins is it permissible to move the hole to stop splitting steel reinforcing or embedments?
- Any scaffolding required shall be designed, provided by and erected by competent personnel.
- D. It is the owner or contracting agency's responsibility to provide protection to persons and property from potential water or slurry damage. The coring contractor shall not be deemed an owner or generator of slurry and the owner and contracting agency shall protect the coring contractor from all loss and expense associated with such claims.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Water for core drilling operations shall be from the local domestic water supply or shall not contain more than 1,000 parts per million of chlorides as Cl, nor more than 1,300 parts per million of sulfates as SO₄, nor shall the water contain any impurities in a sufficient amount that would cause discoloration of the concrete or produce etching of the surface.

PART 3 - EXECUTION

3.01 CORE DRILLING

- A. Coring concrete shall consist of coring holes through reinforced concrete members as shown on the Contract Documents.
- B. The holes shall be cored by methods that will not shatter or damage the concrete adjacent to the holes.
- C. Water from core drilling operations shall not be permitted to fall on public traffic, to flow across shoulders or lanes occupied by public traffic, or to flow into gutters or other drainage facilities.

END OF SECTION

SECTION 061000 - ROUGH CARPENTRY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Framing with dimension lumber.
2. Wood blocking and nailers.
3. Plywood backing panels.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of process and factory-fabricated product.

1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements
2. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements.

1.3 INFORMATIONAL SUBMITTALS

A. Material Certificates: For dimension lumber specified to comply with minimum allowable unit stresses. Indicate species and grade selected for each use and design values approved by the ALSC Board of Review.

B. Evaluation Reports: For the following, from ICC-ES:

1. Wood-preservative-treated wood.
2. Fire-retardant-treated wood.
3. Engineered wood products.
4. Shear panels.
5. Power-driven fasteners.
6. Powder-actuated fasteners.
7. Expansion anchors.
8. Metal framing anchors.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

- A. Certified Wood:** Materials shall be produced from wood obtained from forests certified by an FSC-accredited certification body to comply with FSC STD-01-001, "FSC Principles and Criteria for Forest Stewardship."

1. Dimension lumber framing.
 2. Miscellaneous lumber.
- B. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.
1. Factory mark each piece of lumber with grade stamp of grading agency.
 2. Provide dressed lumber, S4S, unless otherwise indicated.
- C. Maximum Moisture Content of Lumber: 19 percent for 2-inch nominal (38-mm actual) thickness or less, no limit for more than 2-inch nominal (38-mm actual) thickness unless otherwise indicated.

2.2 WOOD-PRESERVATIVE-TREATED LUMBER

- A. Preservative Treatment by Pressure Process: AWP A U1; Use Category UC2 for interior construction not in contact with the ground, Use Category UC3b for exterior construction not in contact with the ground, and Use Category UC4a for items in contact with the ground.
1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium. Do not use inorganic boron (SBX) for sill plates.
- B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use material that is warped or that does not comply with requirements for untreated material.
- C. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.
- D. Application: Treat all rough carpentry unless otherwise indicated.
1. Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.
 2. Wood sills, sleepers, blocking, furring, and similar concealed members in contact with masonry or concrete.
 3. Wood framing and furring attached directly to the interior of below-grade exterior masonry or concrete walls.
 4. Wood framing members that are less than 18 inches (460 mm) above the ground in crawlspaces or unexcavated areas.
 5. Wood floor plates that are installed over concrete slabs-on-grade.

2.3 FIRE-RETARDANT-TREATED MATERIALS

- A. General: Where fire-retardant-treated materials are indicated, use materials complying with requirements in this article, that are acceptable to authorities having jurisdiction, and with fire-test-response characteristics specified as determined by testing identical products per test method indicated by a qualified testing agency.

- B. Fire-Retardant-Treated Lumber and Plywood by Pressure Process: Products with a flame spread index of 25 or less when tested according to ASTM E 84, and with no evidence of significant progressive combustion when the test is extended an additional 20 minutes, and with the flame front not extending more than 10.5 feet (3.2 m) beyond the centerline of the burners at any time during the test.
 - 1. Exterior Type: Treated materials shall comply with requirements specified above for fire-retardant-treated lumber and plywood by pressure process after being subjected to accelerated weathering according to ASTM D 2898. Use for exterior locations and where indicated.
 - 2. Interior Type A: Treated materials shall have a moisture content of 28 percent or less when tested according to ASTM D 3201 at 92 percent relative humidity. Use where exterior type is not indicated.
- C. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Kiln-dry plywood after treatment to a maximum moisture content of 15 percent.
- D. Identify fire-retardant-treated wood with appropriate classification marking of qualified testing agency.
- E. Application: Treat the following:
 - 1. Concealed blocking.
 - 2. Framing for non-load-bearing partitions.
 - 3. Framing for non-load-bearing exterior walls.
 - 4. Plywood backing panels.

2.4 DIMENSION LUMBER FRAMING

- A. Non-Load-Bearing Interior Partitions: **Construction or No. 2** grade.
 - 1. Application: **All interior partitions.**
 - 2. Species:
 - a. Mixed southern pine; SPIB.
 - b. Northern species; NLGA.
 - c. Eastern softwoods; NeLMA.
 - d. Western woods; WCLIB or WWP.
- B. Framing Other Than Non-Load-Bearing Interior Partitions: **Construction or No. 2** grade.
 - 1. Application: Framing other than **interior partitions.**
 - 2. Species:
 - a. Hem-fir (north); NLGA.
 - b. Southern pine; SPIB.
 - c. Douglas fir-larch; WCLIB or WWP.
 - d. Spruce-pine-fir; NLGA.
 - e. Douglas fir-south; WWP.
 - f. Hem-fir; WCLIB or WWP.

- g. Douglas fir-larch (north); NLGA.

2.5 MISCELLANEOUS LUMBER

- A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:
1. Blocking.
 2. Nailers.
 3. Furring.
 4. Grounds.

2.6 PLYWOOD BACKING PANELS

- A. Equipment Backing Panels: DOC PS 1, fire-retardant treated, in thickness indicated or, if not indicated, not less than 3/4-inch (19-mm) nominal thickness.
1. Plywood shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

2.7 FASTENERS

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.
1. Where rough carpentry is exposed to weather, in ground contact, pressure-preservative treated, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.
- B. Power-Driven Fasteners: NES NER-272.
- C. Bolts: Steel bolts complying with ASTM A 307, Grade A (ASTM F 568M, Property Class 4.6); with ASTM A 563 (ASTM A 563M) hex nuts and, where indicated, flat washers.

2.8 METAL FRAMING ANCHORS

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
1. Cleveland Steel Specialty Co.
 2. KC Metals Products, Inc.
 3. Simpson Strong-Tie Co., Inc.
 4. USP Structural Connectors.
- B. Allowable Design Loads: Provide products with allowable design loads, as published by manufacturer, that meet or exceed those of products of manufacturers listed. Manufacturer's published values shall be determined from empirical data or by rational engineering analysis

and demonstrated by comprehensive testing performed by a qualified independent testing agency.

- C. Galvanized-Steel Sheet: Hot-dip, zinc-coated steel sheet complying with ASTM A 653/A 653M, G60 (Z180) coating designation.

1. Use for interior locations unless otherwise indicated.

- D. Hot-Dip, Heavy-Galvanized Steel Sheet: ASTM A 653/A 653M; structural steel (SS), high-strength low-alloy steel Type A (HSLAS Type A), or high-strength low-alloy steel Type B (HSLAS Type B); G185 (Z550) coating designation; and not less than 0.036 inch (0.9 mm) thick.

1. Use for wood-preservative-treated lumber and where indicated.

2.9 MISCELLANEOUS MATERIALS

- A. Sill-Sealer Gaskets: Glass-fiber-resilient insulation, fabricated in strip form, for use as a sill sealer; 1-inch (25-mm) nominal thickness, compressible to 1/32 inch (0.8 mm); selected from manufacturer's standard widths to suit width of sill members indicated.
- B. Sill-Sealer Gaskets: Closed-cell neoprene foam, 1/4 inch (6.4 mm) thick, selected from manufacturer's standard widths to suit width of sill members indicated.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry to other construction; scribe and cope as needed for accurate fit. Locate furring, nailers, blocking, grounds, and similar supports to comply with requirements for attaching other construction.
- B. Framing Standard: Comply with AF&PA's WCD 1, "Details for Conventional Wood Frame Construction," unless otherwise indicated.
- C. Framing with Engineered Wood Products: Install engineered wood products to comply with manufacturer's written instructions.
- D. Install fire-retardant treated plywood backing panels with classification marking of testing agency exposed to view.
- E. Metal Framing Anchors: Install metal framing anchors to comply with manufacturer's written instructions. Install fasteners through each fastener hole.
- F. Do not splice structural members between supports unless otherwise indicated.
- G. Comply with AWP A M4 for applying field treatment to cut surfaces of preservative-treated lumber.

- H. Where wood-preservative-treated lumber is installed adjacent to metal decking, install continuous flexible flashing separator between wood and metal decking.
- I. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:
 - 1. NES NER-272 for power-driven fasteners.
 - 2. Table 2304.9.1, "Fastening Schedule," in ICC's International Building Code.
 - 3. Table R602.3(1), "Fastener Schedule for Structural Members," and Table R602.3(2), "Alternate Attachments," in ICC's International Residential Code for One- and Two-Family Dwellings.

3.2 PROTECTION

- A. Protect wood that has been treated with inorganic boron (SBX) from weather. If, despite protection, inorganic boron-treated wood becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

END OF SECTION 061000

SECTION 078400 - FIRESTOPPING

PART 1 GENERAL

1.01 REFERENCES

- A. UL 263 Fire Tests of Building Construction and Materials.
- B. UL 1479 Fire Tests of Through-Penetration Firestops.
- C. UL 2079 Standard for Safety Tests for Fire Resistance of Building Joint Systems.
- D. ASTM E 119 Methods of Fire Tests of Building Construction and Materials.
- E. ASTM E 814 Method of Fire Tests of Through-Penetration Fire Stops.

1.02 DEFINITIONS

- A. UL Fire Resistance Directory: Product directory published yearly, with supplements, by Underwriters Laboratories Inc., containing listings and classifications in effect as of the published date for product categories covered by UL.
- B. Inchcape Directory of Listed Products: Product directory published yearly by Inchcape Testing Services containing listings which reflect certifications granted for materials, products, systems and equipment which have been tested by Inchcape Testing Services to recognized governing standards.
- C. Omega Point Laboratories Listings Directory: Product Directory published yearly by Omega Point Laboratories, Inc. containing listed building products, materials, and assemblies which have been tested by Omega Point Laboratories to recognized governing standards.
- D. Factory Mutual Approval Guide: Product directory published yearly, with supplements, by Factory Mutual Research Corp., containing listed building products, materials, and assemblies which have been tested by Factory Mutual Research Corp., to recognized governing standards.
- E. F Rating: Prohibits flame passage through the system and requires acceptable hose stream test performance.
- F. T Rating: Prohibits flame passage through the system and requires the maximum temperature rise on the unexposed surface of the wall or floor assembly, on the penetrating item and on the fill material not to exceed 325 degrees F above ambient and requires acceptable hose stream test performance.

- G. Company Field Advisor: An employee of the Company which lists and markets the primary components of the system under their name who is certified in writing by the Company to be technically qualified in design, installation, and servicing of the required products or an employee of an organization certified by the foregoing Company to be technically qualified in design, installation and servicing of the required products. Personnel involved solely in sales do not qualify.

1.03 DESIGN REQUIREMENTS

- A. Devices and materials shall meet the hourly fire resistance ratings required by the Project as determined by UL 263, UL 1479, UL 2079, ASTM E 119 or ASTM E 814 and be listed and detailed in the UL Fire Resistance Directory, Inchcape Directory of Listed Products, Factory Mutual Approval Guide, or the Omega Point Laboratories Listings Directory.
1. Exception: Where no listed designs exist that meet the requirements of a specific project condition, submit details and manufacturer's written recommendations for a design meeting the requirements. Include evidence of engineering judgment and extrapolation from listed designs.

1.04 SUBMITTALS

- A. Submittals Package: Submit the following items specified below the same time as a package:
1. Product Data.
 2. Samples.
 3. Quality Control Submittals.
 4. Firestop Schedule.
- B. Product Data: Catalog sheets, specifications and installation instructions for each firestop device and material.
1. Indicate design number for each firestop proposed to be used which is detailed in the UL Fire Resistance Directory, Inchcape Directory of Listed Products, Factory Mutual Approval Guide, or the Omega Point Laboratories Listings Directory.
 2. State the specific locations where each firestop system is proposed to be installed.
- C. Samples: One of each product if requested.
- D. Quality Control Submittals:
1. Design Data: Show details and include engineering information and manufacturer's written recommendations required under Design Requirements Article for each proposed firestop if other than a design detailed in the UL Fire Resistance Directory, Inchcape Directory of Listed Products, Factory Mutual Approval Guide, or the Omega Point Laboratories Listings Directory.
 - a. State the specific locations where each firestop is proposed to be installed.
 2. Installer's Qualifications Data:

- a. Name of each person who will be performing the Work and their employer's name, business address and telephone number.
 - b. Names and addresses of 3 similar projects that each person has worked on during the past 5 years.
 3. Company Field Advisor Data:
 - a. Name, business address and telephone number of Company Field Advisor secured for the required services.
 - b. Certified statement from the Company listing the qualifications of the Company Field Advisor and listing of services and each product specifically listed for this Project for which Company Field Advisor is given authorization by the Company to render advice.
- E. Firestop Schedule: Submit schedule itemizing the following:
1. Manufacturer's product reference numbers and/or drawing numbers.
 2. UL, Inchcape Testing Services, Factory Mutual Research Corp., or Omega Point Lab design number.
 3. Location of firestop material.
 4. Penetrating Item Description/Limits: Material, size, insulated or uninsulated, and combustibility.
 5. Maximum allowable annular space or maximum size opening.
 6. Wall type construction.
 7. Floor type construction.
 8. Hourly Fire resistance rating of wall or floor.
 9. F rating.
 10. T rating, if available.

NOTE: Firestop Schedule is for information only and will not be acted on for approval.
Refer to Sample Firestop Schedule bound in Appendix.

1.05 QUALITY ASSURANCE

- A. Installer Qualifications: The persons installing the firestopping and their supervisor shall be personally experienced in firestop work and shall have been regularly employed by a company installing firestopping for a minimum of 3 years.
- B. Pre-Installation Conference: Before the firestop work is scheduled to commence, a conference will be called by the Owner's Representative at the Site for the purpose of reviewing the Contract Documents and discussing requirements for the Work. The conference shall be attended by related trade Contractors (if any), their qualified firestopping installers, and associated firestopping manufacturer's Company Field Advisors.
- C. Container/Package Labels: Include manufacturer's name and identifying product number, date of manufacturer, lot number, shelf life (if applicable), qualified testing and inspecting agency classification marking, curing time, and mixing instructions for multi-component materials.

- D. Company Field Advisor: Secure the services of a Company Field Advisor for the following:
 - 1. Render advice regarding suitability of firestopping materials and methods.
 - 2. Assist in completing firestop schedule.
 - 3. Attend pre-installation conference.
- E. Field-Constructed Sample Installations: Prior to installing firestopping, erect sample installations for each type through-penetration firestop system indicated in the Firestop Schedule to verify selections made and to establish standard of quality and performance by which the firestopping work will be judged.
 - 1. Build sample installations to comply with the following requirements, using materials indicated for final installations.
 - a. Locate sample installations on site at locations where directed.
 - b. Obtain Owner's Representative's acceptance of sample installations before start of firestopping installation.
 - c. Retain and maintain sample installations during construction in an undisturbed condition.
 - d. Accepted sample installations in an undisturbed condition at time of substantial completion of Project may become part of completed firestopping work.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver firestopping materials to the Site in original, new unopened containers or packages bearing manufacturer's printed labels.
- B. Store and handle firestopping materials to prevent deterioration or damage due to moisture, temperature changes, contaminants, etc.

1.07 PROJECT CONDITIONS

- A. Environmental Requirements:
 - 1. Temperature: Do not install firestopping materials when ambient or substrate temperatures are outside limits permitted by manufacturer of firestopping materials.
 - 2. Humidity and Moisture: Do not install the Work of this Section under conditions that are detrimental to the application, curing, and performance of the materials.
 - 3. Ventilation: Provide sufficient ventilation wherever firestopping materials are installed in enclosed spaces. Follow manufacturer's recommendations.

1.08 SEQUENCING AND SCHEDULING

- A. Leave exposed those firestopping installations that are to be concealed behind other construction until the Owner's Representative has examined each installation.

PART 2 PRODUCTS

2.01 FIRESTOPPING-GENERAL

- A. Through-Penetration Firestop Devices, Forming Materials, And Fill, Void or Cavity Materials: As listed in the UL Fire Resistance Directory, Inchcape Directory of Listed Products, Factory Mutual Approval Guide, or the Omega Point Laboratories Listings Directory.
 - 1. For firestopping exposed to moisture, furnish products that do not deteriorate when exposed to this condition.
 - 2. For firestopping systems exposed to view, furnish products with flame-spread values of less than 25 and smoke developed values less than 50, as determined per ASTM E 84.
 - 3. For penetrations for piping services below ambient temperature, furnish moisture-resistant through-penetration firestop systems.
 - 4. For penetrations involving insulated piping, furnish through-penetration firestop systems not requiring removal of insulation.
- B. Accessories: Components required to install fill materials as recommended by the firestopping manufacturer for particular approved fire rated system.
- C. Identification Labels:
 - 1. Furnished by fire stopping manufacturer of suitable material for permanent field identification of through-penetration firestops.
 - 2. Identify the following:
 - a. "WARNING - FIRESTOP MATERIAL".
 - b. Company Name.
 - c. Product Catalog number.
 - d. F rating.
 - e. T rating, if available.
 - 3. Field fabricated labels are not acceptable.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examine existing through-penetrations of floors, walls, partitions, ceilings and roofs in the Work areas.
- B. Examine existing junctures, control joints, and expansion joints in the Work areas.
- C. Where firestopping is missing or not intact, submit a written report to the Owner's Representative describing the existing conditions.

3.02 PREPARATION

- A. Clean out openings immediately before installation of through-penetration firestopping. Comply with recommendations of firestopping manufacturer and the following requirements:
 - 1. Remove foreign materials from surfaces of openings, and from penetrating items that could interfere with adhesion of firestopping.
 - 2. Clean opening and penetrating items to produce clean, sound surfaces capable of developing optimum bond with firestopping. Remove loose particles remaining from cleaning operation.
 - 3. Remove laitance and form release agents from concrete.
- B. Clean out openings, and juncture, control, and expansion joints immediately before installation of firestopping. Comply with recommendations of firestopping manufacturer and the following requirements:
 - 1. Remove foreign materials from surfaces of openings and joint substrates, and from penetrating items that could interfere with adhesion of firestopping.
 - 2. Clean opening joint substrates to produce clean, sound surfaces capable of developing optimum bond with firestopping. Remove loose particles remaining from cleaning operation.
 - 3. Remove laitance and form release agents from concrete.
- C. Protection:
 - 1. Protect surfaces adjacent to through-penetration firestops with non-staining removable masking tape or other suitable covering to prevent firestopping from contacting adjoining surfaces that will remain exposed upon completion of Work and that would otherwise be permanently stained or damaged by such contact or that would be caused by cleaning methods used to remove smears from firestopping materials.
- D. Substrate Priming:
 - 1. Prime substrates in accordance with the firestopping manufacturer's printed installation instructions using recommended products and methods.
 - 2. Do not allow primer to spill or migrate onto adjoining exposed surfaces.

3.03 INSTALLATION OF THROUGH PENETRATION FIRESTOPS

- A. Use through-penetration firestop devices, forming materials, and fill, void or cavity materials to form through-penetration firestops to prevent the passage of flame, and limit temperature rise of the unexposed surface as detailed in the UL Fire Resistance Directory, Inchcape Directory of Listed Products, Factory Mutual Approval Guide, or the Omega Point Laboratories Listings Directory.
 - 1. Where applicable design is not detailed in the Directories, use forming materials and fill, void or cavity material to form through-penetration firestop in accordance with approved printed details and installation instructions from the company producing the forming materials and fill, void or cavity material.
 - 2. If the construction type(s) of the building cannot be determined, provide firestopping with fire resistance ratings as specified in the Building Code of New York State, Tables 720.1(1), 720.1(2), 720.1(3), and 302.3.2.

- B. Provide through-penetration firestop systems with F ratings that shall equal or exceed the fire resistance rating of the penetrated building construction.
- C. Provide through-penetration firestop systems with T ratings, in addition to F ratings, at floors where the following conditions exist:
 - 1. Where firestop systems protect penetrations located outside the wall cavities.
 - 2. Where firestop systems protect penetrations located outside fire resistive shaft enclosures.
 - 3. Through-penetration firestop systems protecting floor penetrations require a T-rating of at least 1 hour, but not less than the required floor fire-resistance rating.
- D. Firestop through-penetrations of floors, walls, partitions, ceilings, and roofs.
- E. Firestop through-penetrations associated with the new Work.
- F. Firestop through-penetration of partitions identified on the Construction Work Drawings as smoke partitions and fire rated assemblies.
- G. Firestop through-penetrations of floors, walls, partitions, ceilings, and roofs in accordance with the fire resistance rating assigned to the walls, partitions, floors, ceilings, and roofs on the Construction Work Drawings.
- H. In areas where through-penetration items have been installed before the construction work, firestop the through-penetration items after the construction work has been completed. Furnish drawings or written information to the Construction Work Contractor covering the provisions to be made in the construction work to enable firestopping of the through-penetration items.
- I. Permanently affix label at each firestop. Use adhesive compatible with surface construction at firestop location.

3.04 INSTALLATION OF JUNCTION, CONTROL, AND EXPANSION JOINT FIRESTOPS

- A. Use joint treatment materials to form firestop to prevent the passage of flame and limit temperature rise of the unexposed surface, as detailed in the UL Fire Resistance Directory, Inchcape Directory of Listed Products, Factory Mutual Approval Guide or the Omega Point Laboratories Listings Directory.
 - 1. Where applicable design is not detailed in the Directories, use forming materials and fill, void or cavity material to form firestop in accordance with approved printed details and installation instructions from the company producing the forming materials and fill, void or cavity material.
 - 2. If the construction type(s) of the building cannot be determined, provide firestopping with fire resistance ratings as specified in the Building Code of New York State, Tables 720.1(1), 720.1(2), 720.1(3), and 302.3.2.

- B. Firestop junctures, control joints, and expansion joints associated with the new Work.
- C. Permanently affix labels every 10 feet along each firestop. Use adhesive compatible with surface construction at firestop location.

3.05 CLEANING

- A. Clean off excess fill materials and sealants adjacent to penetrations by methods and cleaning materials recommended by manufacturers of firestopping products and of products in which penetrations occur.
- B. Remove masking tape as soon as practical so as not to disturb the firestopping's bond with substrate.
- C. Protect firestopping during and after curing period from contact with contaminating substances, or damage resulting from adjacent Work.
- D. Cut out and remove damaged or deteriorated firestopping immediately, and install new materials as specified in firestop schedule.

END OF SECTION

SECTION 079200 - JOINT SEALANTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Silicone joint sealants.
2. Urethane joint sealants.
3. Latex joint sealants.
4. Preformed joint sealants.
5. Acoustical joint sealants.

1.2 PRECONSTRUCTION TESTING

- A. Preconstruction Field-Adhesion Testing:** Before installing sealants, field test their adhesion to Project joint substrates. Test joint sealants according to Method A, Field-Applied Sealant Joint Hand Pull Tab, in Appendix X1 in ASTM C 1193 or Method A, Tail Procedure, in ASTM C 1521.

1.3 ACTION SUBMITTALS

- A. Product Data:** For each joint-sealant product indicated.
- B. Samples:** For each kind and color of joint sealant required.
- C. Joint-Sealant Schedule:** Include the following information:
1. Joint-sealant application, joint location, and designation.
 2. Joint-sealant manufacturer and product name.
 3. Joint-sealant formulation.
 4. Joint-sealant color.

1.4 INFORMATIONAL SUBMITTALS

- A. Product test reports.**
- B. Preconstruction compatibility and adhesion test reports.**
- C. Preconstruction field-adhesion test reports.**
- D. Field-adhesion test reports.**
- E. Warranties.**

1.5 QUALITY ASSURANCE

- A. Testing Agency Qualifications: Qualified according to ASTM C 1021 to conduct the testing indicated.
- B. Preinstallation Conference: Conduct conference at Project site.

1.6 WARRANTY

- A. Special Installer's Warranty: Manufacturer's standard form in which Installer agrees to repair or replace joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.
 - 1. Warranty Period: Two years from date of Substantial Completion.
- B. Special Manufacturer's Warranty: Manufacturer's standard form in which joint-sealant manufacturer agrees to furnish joint sealants to repair or replace those that do not comply with performance and other requirements specified in this Section within specified warranty period.
 - 1. Warranty Period: Two years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

- A. VOC Content of Interior Sealants: Sealants and sealant primers used inside the weatherproofing system shall comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
 - 1. Architectural Sealants: 250 g/L.
 - 2. Sealant Primers for Nonporous Substrates: 250 g/L.
 - 3. Sealant Primers for Porous Substrates: 775 g/L.
- B. Low-Emitting Interior Sealants: Sealants and sealant primers used inside the weatherproofing system shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."
- C. Liquid-Applied Joint Sealants: Comply with ASTM C 920 and other requirements indicated for each liquid-applied joint sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates.
 - 1. Suitability for Immersion in Liquids. Where sealants are indicated for Use I for joints that will be continuously immersed in liquids, provide products that have undergone testing according to ASTM C 1247. Liquid used for testing sealants is deionized water, unless otherwise indicated.

- D. Stain-Test-Response Characteristics: Where sealants are specified to be nonstaining to porous substrates, provide products that have undergone testing according to ASTM C 1248 and have not stained porous joint substrates indicated for Project.
- E. Suitability for Contact with Food: Where sealants are indicated for joints that will come in repeated contact with food, provide products that comply with 21 CFR 177.2600.

2.2 SILICONE JOINT SEALANTS

- A. Mildew-Resistant Silicone Joint Sealant [SS-1]: ASTM C 920.
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. BASF Building Systems.
 - b. Dow Corning Corporation.
 - c. GE Advanced Materials - Silicones.
 - d. Pecora Corporation.
 - e. Tremco Incorporated.
 - 2. Type: Single component (S).
 - 3. Grade: nonsag (NS).
 - 4. Class: 50.
 - 5. Uses Related to Exposure: Nontraffic (NT).

2.3 URETHANE JOINT SEALANTS

- A. Urethane Joint Sealant [US -1]: ASTM C 920.
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. BASF Building Systems.
 - b. Bostik, Inc.
 - c. Pecora Corporation.
 - d. Sika Corporation; Construction Products Division.
 - e. Tremco Incorporated.
 - 2. Type: Single component (S).
 - 3. Grade: nonsag (NS).
 - 4. Class: 50.
 - 5. Uses Related to Exposure: Nontraffic (NT).

2.4 PREFORMED JOINT SEALANTS

- A. Preformed Foam Joint Sealant [PS-1]: Manufacturer's standard preformed, precompressed, open-cell foam sealant manufactured from urethane foam with minimum density of 10 lb/cu. ft. (160 kg/cu. m) and impregnated with a nondrying, water-repellent agent. Factory produce in precompressed sizes in roll or stick form to fit joint widths indicated; coated on one side with a pressure-sensitive adhesive and covered with protective wrapping.
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Dayton Superior Specialty Chemicals.
 - b. EMSEAL Joint Systems, Ltd.
 - c. Sandell Manufacturing Co.
 - d. Schul International, Inc.

2.5 JOINT SEALANT BACKING

- A. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin) or any type, as approved in writing by joint-sealant manufacturer for joint application indicated, and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.
- B. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer.

2.6 MISCELLANEOUS MATERIALS

- A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.
- B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials.
- C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions.
 - 1. Remove laitance and form-release agents from concrete.

2. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants.
- B. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.
- C. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.2 INSTALLATION

- A. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
- B. Install sealant backings of kind indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
 1. Do not leave gaps between ends of sealant backings.
 2. Do not stretch, twist, puncture, or tear sealant backings.
 3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.
- C. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.
- D. Install sealants using proven techniques that comply with the following and at the same time backings are installed:
 1. Place sealants so they directly contact and fully wet joint substrates.
 2. Completely fill recesses in each joint configuration.
 3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
- E. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified in subparagraphs below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
 1. Remove excess sealant from surfaces adjacent to joints.
 2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
 3. Provide concave joint profile per Figure 8A in ASTM C 1193, unless otherwise indicated.

- F. Acoustical Sealant Installation: Comply with ASTM C 919 and with manufacturer's written recommendations.
- G. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.3 FIELD QUALITY CONTROL

- A. Field-Adhesion Testing: Field test joint-sealant adhesion to joint substrates as follows:
 - 1. Extent of Testing: Test completed and cured sealant joints as follows:
 - a. Perform 10 tests for the first 1000 feet (300 m) of joint length for each kind of sealant and joint substrate.
 - b. Perform 1 test for each 1000 feet (300 m) of joint length thereafter or 1 test per each floor per elevation.
 - 2. Test Method: Test joint sealants according to Method A, Field-Applied Sealant Joint Hand Pull Tab, in Appendix X1 in ASTM C 1193 or Method A, Tail Procedure, in ASTM C 1521.
- B. Evaluation of Field-Adhesion Test Results: Sealants not evidencing adhesive failure from testing or noncompliance with other indicated requirements will be considered satisfactory. Remove sealants that fail to adhere to joint substrates during testing or to comply with other requirements. Retest failed applications until test results prove sealants comply with indicated requirements.

3.4 JOINT-SEALANT SCHEDULE

- A. Joint-Sealant Application: Exterior joints in vertical surfaces and horizontal nontraffic surfaces SS-1.
 - 1. Joint Locations:
 - a. Control and expansion joints in unit masonry.
 - b. Joints between metal panels.
 - c. Joints between different materials listed above.
 - d. Perimeter joints between materials listed above and frames of doors and windows.
 - e. Control and expansion joints in ceilings and other overhead surfaces.
 - 2. Joint Sealant: Silicone.
 - 3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.
- B. Joint-Sealant Application: Interior joints in vertical surfaces and horizontal nontraffic surfaces SS-1.
 - 1. Joint Locations:

- a. Control and expansion joints on exposed interior surfaces of exterior walls.
 - b. Perimeter joints of exterior openings where indicated.
 - c. Vertical joints on exposed surfaces of interior walls and partitions.
 - d. Perimeter joints between interior wall surfaces and frames of interior doors and windows.
2. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

END OF SECTION 079200

SECTION 081113 – EXTERIOR HOLLOW METAL DOORS AND FRAMES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Standard hollow metal Doors and Frames
- B. Related Sections:
 - 1. Division 08 Section 087100 Finish Hardware for door hardware for hollow metal doors.
 - 2. Division 09 Sections Exterior Painting Interior Painting for field painting hollow metal doors and frames.

1.3 DEFINITIONS

- A. Minimum Thickness: Minimum thickness of base metal without coatings.
- B. Standard Hollow Metal Work: Hollow metal work fabricated according to ANSI/SDI A250.8.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated. Include construction details, material descriptions, core descriptions, Fire Rating and finishes.
- B. Shop Drawings: Include the following:
 - 1. Elevations of each door design.
 - 2. Details of doors, including vertical and horizontal edge details and metal thicknesses.
 - 3. Frame details for each frame type, including dimensioned profiles and metal thicknesses.
 - 4. Locations of reinforcement and preparations for hardware.
 - 5. Details of each different wall opening condition.
 - 6. Details of anchorages, joints, field splices, and connections.
 - 7. Details of accessories.
 - 8. Details of moldings, removable stops, and glazing.
 - 9. Details of conduit and preparations for power, signal, and control systems.

C. Samples for Verification:

1. If requested, for each type of exposed finish required, prepared on Samples of not less than 3 by 5 inches (75 by 125 mm).
2. If requested, for the following items, prepared on Samples about 12 by 12 inches (305 by 305 mm) to demonstrate compliance with requirements for quality of materials and construction:
 - a. Doors: Show vertical-edge, top, and bottom construction; core construction; and hinge and other applied hardware reinforcement. Include separate section showing glazing if applicable.
 - b. Frames: Show profile, corner joint, floor and wall anchors, and silencers. Include separate section showing fixed hollow metal panels and glazing if applicable.

D. Other Action Submittals:

1. Schedule: Provide a schedule of hollow metal work prepared by or under the supervision of supplier, using same reference numbers for details and openings as those on Drawings. Coordinate with door hardware schedule.

1.5 INFORMATIONAL SUBMITTALS

- A. Oversize Construction Certification: For assemblies required to be fire rated and exceeding limitations of labeled assemblies.
- B. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for each type of hollow metal door and frame assembly.

1.6 QUALITY ASSURANCE

- A. Source Limitations: Obtain hollow metal work from single source from single manufacturer.
- B. Fire-Rated Door Assemblies: Assemblies complying with NFPA 80 that are listed and labeled by a qualified testing agency, for fire-protection ratings indicated.
 1. Oversize Fire-Rated Door Assemblies: For units exceeding sizes of tested assemblies, provide certification by a qualified testing agency that doors comply with standard construction requirements for tested and labeled fire-rated door assemblies except for size.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver hollow metal work palletized, wrapped, or crated to provide protection during transit and Project-site storage. Do not use non-vented plastic.
 1. Provide additional protection to prevent damage to finish of factory-finished units.

- B. Deliver welded frames with two removable spreader bars across bottom of frames, tack welded to jambs and mullions.
- C. Store hollow metal work under cover at Project site. Place in stacks of five units maximum in a vertical position with heads up, spaced by blocking, on minimum 4-inch high wood blocking. Do not store in a manner that traps excess humidity.
 - 1. Provide minimum 1/4-inch (6-mm) space between each stacked door to permit air circulation.

1.8 PROJECT CONDITIONS

- A. Field Measurements: Verify actual dimensions of openings by field measurements before Submittal and fabrication.

1.9 COORDINATION

- A. Coordinate installation of anchorages for hollow metal frames. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors. Deliver such items to Project site in time for installation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. Ceco Door Products; an Assa Abloy Group company.
 - 2. Curries Company; an Assa Abloy Group company.
 - 3. Firedoor Corporation.
 - 4. Fleming Door Products Ltd.; an Assa Abloy Group company.
 - 5. Mesker Door Inc.
 - 6. Steelcraft; an Ingersoll-Rand company.

2.2 MATERIALS

- A. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, Commercial Steel (CS), Type B; suitable for exposed applications.
- B. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Commercial Steel (CS), Type B; with minimum **A60** metallic coating.
- C. Frame Anchors: ASTM A 591/A 591M, Commercial Steel (CS), 40Z (12G) coating designation; mill phosphatized.

1. For anchors built into exterior walls, steel sheet complying with ASTM A 1008/A 1008M or ASTM A 1011/A 1011M, hot-dip galvanized according to ASTM A 153/A 153M, Class B.
- D. Inserts, Bolts, and Fasteners: Hot-dip galvanized according to ASTM A 153/A 153M.
- E. Glazing: Comply with requirements in Division 08 Section "Glazing."

2.3 STANDARD HOLLOW METAL DOORS

- A. General: Provide doors of design indicated, not less than thickness indicated; fabricated with smooth surfaces, without visible joints or seams on exposed faces unless otherwise indicated. Comply with ANSI/SDI A250.8.
 1. Design: Flush Panel
 2. Core Construction: Polyurethane,
 - a. Fire Door Core: As required to provide fire-protection ratings indicated.
 - b. Thermal-Rated (Insulated) Doors: Where indicated, provide doors fabricated with thermal-resistance value .07-U factor when tested according to ASTM C 1363. Using a Polyurethane Core.
 - 1) Locations: Exterior Doors
 3. Vertical Edges for Single-Acting Doors: Beveled Edge.
 - a. Beveled Edge: 1/8 inch in 2 inches.
 - b. All seams to be stitch welded, filled and finished smooth.
 4. Top and Bottom Edges: Closed with flush or inverted 16 gage, end closures or channels of same material as face sheets welded in place for a seamless top and bottom.
 5. Tolerances: Comply with SDI 117, "Manufacturing Tolerances for Standard Steel Doors and Frames."
- B. Exterior Doors:
 1. Fabricate exterior doors with 2 outer stretcher-leveled A60-galvanized steel sheets Not less than 18 gage seamless hollow construction, 1 3/4" thick, beveled both edges.
 2. Reinforce inside of doors with the following:
 1. Solid block polyurethane with a minimum .07-U factor. That fills the entire door cavity and is chemically bonded to all surfaces.
- C. Interior Doors:
 1. Fabricate interior doors with 2 outer stretcher-leveled A60-galvanized steel sheets Not less than 18 gage seamless hollow construction, 1 3/4" thick, beveled both edges.
 2. Reinforce inside of doors with Solid block polyurethane with a minimum .24-U factor. That fills the entire door cavity and is chemically bonded to all surfaces.

- D. Hardware Reinforcement: Fabricate according to ANSI/SDI A250.6 with reinforcing plates from same material as door face sheets.
- E. Fabricate concealed stiffeners and hardware reinforcement from either cold- or hot-rolled steel sheet.

2.4 STANDARD HOLLOW METAL FRAMES

- A. General: Comply with ANSI/SDI A250.8 and with details indicated for type and profile.
- B. Exterior Frames: Fabricated from metallic-coated steel sheet not less than 16 gage.
 - 1. Full welded unit construction, with corners mitered and continuously welded full depth and width of frame, unless otherwise specified or shown.
 - 2. Knock-down type frames will not be accepted
- C. Interior Frames: Fabricated from cold-rolled steel sheet not less than 16 gage
 - 1. Full welded unit construction, with corners mitered and continuously welded full depth and width of frame, unless otherwise specified or shown.
 - 2. Knock-down type frames will not be accepted
- D. Hardware Reinforcement: Fabricate according to ANSI/SDI A250.6 with reinforcement plates from same material as frames.

2.5 FRAME ANCHORS

- A. Jamb Anchors:
 - 1. Masonry Type: Adjustable strap-and-stirrup or T-shaped anchors to suit frame size, not less than 0.042 inch thick, with corrugated or perforated straps not less than 2 inches wide by 10 inches long; or wire anchors not less than 0.177 inch thick.
 - 2. Stud-Wall Type: Designed to engage stud, welded to back of frames; not less than 0.042 inch thick.
 - 3. Compression Type for Drywall Slip-on Frames: Adjustable compression anchors.
 - 4. Postinstalled Expansion Type for In-Place Concrete or Masonry: Minimum 3/8-inch-diameter bolts with expansion shields or inserts. Provide pipe spacer from frame to wall, with throat reinforcement plate, welded to frame at each anchor location.
- B. Floor Anchors: Formed from same material as frames, not less than 0.042 inch thick, and as follows:
 - 1. Monolithic Concrete Slabs: Clip-type anchors, with two holes to receive fasteners.
 - 2. Separate Topping Concrete Slabs: Adjustable-type anchors with extension clips, allowing not less than 2-inch height adjustment. Terminate bottom of frames at finish floor surface.

2.6 HOLLOW METAL PANELS

- A. Provide hollow metal panels of same materials, construction, and finish as specified for adjoining hollow metal work.

2.7 STOPS AND MOLDINGS

- A. Moldings for Glazed Lites in Doors: Minimum 0.032 inch thick, fabricated from same material as door face sheet in which they are installed.
- B. Fixed Frame Moldings: Formed integral with hollow metal frames, a minimum of 5/8 inch high unless otherwise indicated.
- C. Loose Stops for Glazed Lites in Frames: Minimum 0.032 inch thick, fabricated from same material as frames in which they are installed.
- D. Terminated Stops: Where indicated on interior door frames, terminate stops 6 inches above finish floor with a 45 degree angle cut, and close open end of stop with steel sheet closure. Cover opening in extension of frame with welded-steel filler plate, with welds ground smooth and flush with frame.

2.8 FABRICATION

- A. Fabricate hollow metal work to be rigid and free of defects, warp, or buckle. Accurately form metal to required sizes and profiles, with minimum radius for thickness of metal. Where practical, fit and assemble units in manufacturer's plant. To ensure proper assembly at Project site, clearly identify work that cannot be permanently factory assembled before shipment.
- B. Tolerances: Fabricate hollow metal work to tolerances indicated in SDI 117, ANSI/NAAMM-HMMA 861.
- C. Hollow Metal Doors:
 - 1. Exterior Doors: Provide weep-hole openings in bottom of exterior doors to permit moisture to escape. Seal joints in top edges of doors against water penetration.
 - 2. Glazed Lites: Factory cut openings in doors.
 - 3. Astragals: Provide overlapping astragal on one leaf of pairs of doors where required by NFPA 80 for fire-performance rating or where indicated. Extend minimum 3/4 inch beyond edge of door on which astragal is mounted.
- D. Hollow Metal Frames: Where frames are fabricated in sections due to shipping or handling limitations, provide alignment plates or angles at each joint, fabricated of same thickness metal as frames.
 - 1. Welded Frames: Weld flush face joints continuously; grind, fill, dress, and make smooth, flush, and invisible.

2. Frames: Provide closed tubular members with no visible face seams or joints, fabricated from same material as door frame. Fasten members at crossings and to jambs by butt welding.
 3. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated.
 4. Grout Guards: Weld guards to frame at back of hardware mortises in frames to be grouted.
 5. Floor Anchors: Weld anchors to bottom of jambs and mullions with at least four spot welds per anchor.
 6. Jamb Anchors: Provide number and spacing of anchors as follows:
 - a. Masonry Type: Locate anchors not more than 18 inches from top and bottom of frame. Space anchors not more than 32 inches o.c. and as follows:
 - 1) Two anchors per jamb up to 60 inches high.
 - 2) Three anchors per jamb from 60 to 90 inches high.
 - 3) Four anchors per jamb from 90 to 120 inches high.
 - 4) Four anchors per jamb plus 1 additional anchor per jamb for each 24 inches or fraction thereof above 120 inches high.
 - b. Stud-Wall Type: Locate anchors not more than 18 inches from top and bottom of frame. Space anchors not more than 32 inches o.c. and as follows:
 - 1) Three anchors per jamb up to 60 inches high.
 - 2) Four anchors per jamb from 60 to 90 inches high.
 - 3) Five anchors per jamb from 90 to 96 inches high.
 - 4) Five anchors per jamb plus 1 additional anchor per jamb for each 24 inches or fraction thereof above 96 inches high.
 - 5) Two anchors per head for frames above 42 inches wide and mounted in metal-stud partitions.
 - c. Compression Type: Not less than two anchors in each jamb.
 - d. Postinstalled Expansion Type: Locate anchors not more than 6 inches from top and bottom of frame. Space anchors not more than 26 inches o.c.
 7. Door Silencers: Except on weather-stripped doors, drill stops to receive door silencers as follows. Keep holes clear during construction.
 - a. Single-Door Frames: Drill stop in strike jamb to receive three door silencers.
 - b. Double-Door Frames: Drill stop in head jamb to receive two door silencers.
- E. Fabricate concealed stiffeners, edge channels, and hardware reinforcement from either cold- or hot-rolled steel sheet.
- F. Hardware Preparation: Factory prepare hollow metal work to receive templated mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping according to the Door Hardware Schedule and templates furnished as specified in Division 08 Section "Door Hardware."

1. Locate hardware as indicated, or if not indicated, according to [ANSI/SDI A250.8] [ANSI/NAAMM-HMMA 861].
 2. Reinforce doors and frames to receive non-templated, mortised and surface-mounted door hardware.-
 3. Comply with applicable requirements in ANSI/SDI A250.6 and ANSI/DHI A115 Series specifications for preparation of hollow metal work for hardware.
 4. Coordinate locations of conduit and wiring boxes for electrical connections with Division 26 Sections.
- G. Stops and Moldings: Provide stops and moldings around glazed lites where indicated. Form corners of stops and moldings with butted or mitered hairline joints.
1. Single Glazed Lites: Provide fixed stops and moldings welded on secure side of hollow metal work.
 2. Multiple Glazed Lites: Provide fixed and removable stops and moldings so that each glazed lite is capable of being removed independently.
 3. Provide fixed frame moldings on outside of exterior and on secure side of interior doors and frames.
 4. Provide loose stops and moldings on inside of hollow metal work.
 5. Coordinate rabbet width between fixed and removable stops with type of glazing and type of installation indicated.

2.9 STEEL FINISHES

- A. Prime Finish: Apply manufacturer's standard primer immediately after cleaning and pretreating.
1. Shop Primer: Manufacturer's standard, fast-curing, lead- and chromate-free primer complying with ANSI/SDI A250.10 acceptance criteria; recommended by primer manufacturer for substrate; compatible with substrate and field-applied coatings despite prolonged exposure.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Examine roughing-in for embedded and built-in anchors to verify actual locations before frame installation.
- C. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Remove welded-in shipping spreaders installed at factory. Restore exposed finish by grinding, filling, and dressing, as required to make repaired area smooth, flush, and invisible on exposed faces.
- B. Prior to installation, adjust and securely brace welded hollow metal frames for squareness, alignment, twist, and plumbness to the following tolerances:
 - 1. Squareness: Plus or minus 1/16 inch, measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
 - 2. Alignment: Plus or minus 1/16 inch measured at jambs on a horizontal line parallel to plane of wall.
 - 3. Twist: Plus or minus 1/16 inch measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
 - 4. Plumbness: Plus or minus 1/16 inch, measured at jambs on a perpendicular line from head to floor.
- C. Drill and tap doors and frames to receive non-templated, mortised, and surface-mounted door hardware.

3.3 INSTALLATION

- A. General: Install hollow metal work plumb, rigid, properly aligned, and securely fastened in place; comply with Drawings and manufacturer's written instructions.
- B. Hollow Metal Frames: Install hollow metal frames of size and profile indicated. Comply with ANSI/SDI A250.11, HMMA 840.
 - 1. Set frames accurately in position, plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces, leaving surfaces smooth and undamaged.
 - a. At fire-protection-rated openings, install frames according to NFPA 80.
 - b. Where frames are fabricated in sections because of shipping or handling limitations, field splice at approved locations by welding face joint continuously; grind, fill, dress, and make splice smooth, flush, and invisible on exposed faces.
 - c. Install frames with removable glazing stops located on secure side of opening.
 - d. Install door silencers in frames before grouting.
 - e. Remove temporary braces necessary for installation only after frames have been properly set and secured.
 - f. Check plumbness, squareness, and twist of frames as walls are constructed. Shim as necessary to comply with installation tolerances.
 - g. Field apply bituminous coating to backs of frames that are filled with grout containing antifreezing agents.
 - 2. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor, and secure with postinstalled expansion anchors.

- a. Floor anchors may be set with powder-actuated fasteners instead of postinstalled expansion anchors if so indicated and approved on Shop Drawings.
 3. Metal-Stud Partitions: Solidly pack mineral-fiber insulation behind frames.
 4. Masonry Walls: Coordinate installation of frames to allow for solidly filling space between frames and masonry with grout.
 5. Concrete Walls: Solidly fill space between frames and concrete with grout. Take precautions, including bracing frames, to ensure that frames are not deformed or damaged by grout forces.
 6. In-Place Concrete or Masonry Construction: Secure frames in place with postinstalled expansion anchors. Countersink anchors, and fill and make smooth, flush, and invisible on exposed faces.
 7. In-Place Gypsum Board Partitions: Secure frames in place with post-installed expansion anchors through floor anchors at each jamb. Countersink anchors, and fill and make smooth, flush, and invisible on exposed faces.
 8. Ceiling Struts: Extend struts vertically from top of frame at each jamb to overhead structural supports or substrates above frame unless frame is anchored to masonry or to other structural support at each jamb. Bend top of struts to provide flush contact for securing to supporting construction. Provide adjustable wedged or bolted anchorage to frame jamb members.
 9. Installation Tolerances: Adjust hollow metal door frames for squareness, alignment, twist, and plumb to the following tolerances:
 - a. Squareness: Plus or minus 1/16 inch measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
 - b. Alignment: Plus or minus 1/16 inch measured at jambs on a horizontal line parallel to plane of wall.
 - c. Twist: Plus or minus 1/16 inch measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
 - d. Plumbness: Plus or minus 1/16 inch measured at jambs at floor.
- C. Hollow Metal Doors: Fit hollow metal doors accurately in frames, within clearances specified below. Shim as necessary.
1. Non-Fire-Rated Standard Steel Doors:
 - a. Jambs and Head: 1/8 inch plus or minus 1/16 inch
 - b. Between Edges of Pairs of Doors: 1/8 inch plus or minus 1/16 inch
 - c. Between Bottom of Door and Top of Threshold: Maximum 3/8 inch
 - d. Between Bottom of Door and Top of Finish Floor (No Threshold): Maximum 3/4 inch .
 2. Fire-Rated Doors: Install doors with clearances according to NFPA 80.
- D. Glazing: Comply with installation requirements in Division 08 Section "Glazing" and with hollow metal manufacturer's written instructions.
1. Secure stops with countersunk flat- or oval-head machine screws spaced uniformly not more than 9 inches o.c. and not more than 2 inches o.c. from each corner.

3.4 ADJUSTING AND CLEANING

- A. Final Adjustments: Check and readjust operating hardware items immediately before final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including hollow metal work that is warped, bowed, or otherwise unacceptable.
- B. Remove grout and other bonding material from hollow metal work immediately after installation.
- C. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying, rust-inhibitive primer.
- D. Metallic-Coated Surfaces: Clean abraded areas and repair with galvanizing repair paint according to manufacturer's written instructions.

END OF SECTION 081113

SECTION 081113 – INTERIOR HOLLOW METAL DOORS AND FRAMES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Standard hollow metal Doors and Frames
- B. Related Sections:
 - 1. Division 08 Section 087100 Finish Hardware for door hardware for hollow metal doors.
 - 2. Division 09 Sections Exterior Painting Interior Painting for field painting hollow metal doors and frames.

1.3 DEFINITIONS

- A. Minimum Thickness: Minimum thickness of base metal without coatings.
- B. Standard Hollow Metal Work: Hollow metal work fabricated according to ANSI/SDI A250.8.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated. Include construction details, material descriptions, core descriptions, Fire Rating and finishes.
- B. Shop Drawings: Include the following:
 - 1. Elevations of each door design.
 - 2. Details of doors, including vertical and horizontal edge details and metal thicknesses.
 - 3. Frame details for each frame type, including dimensioned profiles and metal thicknesses.
 - 4. Locations of reinforcement and preparations for hardware.
 - 5. Details of each different wall opening condition.
 - 6. Details of anchorages, joints, field splices, and connections.
 - 7. Details of accessories.
 - 8. Details of moldings, removable stops, and glazing.
 - 9. Details of conduit and preparations for power, signal, and control systems.

C. Samples for Verification:

1. If requested, for each type of exposed finish required, prepared on Samples of not less than 3 by 5 inches (75 by 125 mm).
2. If requested, for the following items, prepared on Samples about 12 by 12 inches (305 by 305 mm) to demonstrate compliance with requirements for quality of materials and construction:
 - a. Doors: Show vertical-edge, top, and bottom construction; core construction; and hinge and other applied hardware reinforcement. Include separate section showing glazing if applicable.
 - b. Frames: Show profile, corner joint, floor and wall anchors, and silencers. Include separate section showing fixed hollow metal panels and glazing if applicable.

D. Other Action Submittals:

1. Schedule: Provide a schedule of hollow metal work prepared by or under the supervision of supplier, using same reference numbers for details and openings as those on Drawings. Coordinate with door hardware schedule.

1.5 INFORMATIONAL SUBMITTALS

- A. Oversize Construction Certification: For assemblies required to be fire rated and exceeding limitations of labeled assemblies.
- B. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for each type of hollow metal door and frame assembly.

1.6 QUALITY ASSURANCE

- A. Source Limitations: Obtain hollow metal work from single source from single manufacturer.
- B. Fire-Rated Door Assemblies: Assemblies complying with NFPA 80 that are listed and labeled by a qualified testing agency, for fire-protection ratings indicated.
 1. Oversize Fire-Rated Door Assemblies: For units exceeding sizes of tested assemblies, provide certification by a qualified testing agency that doors comply with standard construction requirements for tested and labeled fire-rated door assemblies except for size.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver hollow metal work palletized, wrapped, or crated to provide protection during transit and Project-site storage. Do not use non-vented plastic.
 1. Provide additional protection to prevent damage to finish of factory-finished units.

- B. Deliver welded frames with two removable spreader bars across bottom of frames, tack welded to jambs and mullions.
- C. Store hollow metal work under cover at Project site. Place in stacks of five units maximum in a vertical position with heads up, spaced by blocking, on minimum 4-inch high wood blocking. Do not store in a manner that traps excess humidity.
 - 1. Provide minimum 1/4-inch (6-mm) space between each stacked door to permit air circulation.

1.8 PROJECT CONDITIONS

- A. Field Measurements: Verify actual dimensions of openings by field measurements before Submittal and fabrication.

1.9 COORDINATION

- A. Coordinate installation of anchorages for hollow metal frames. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors. Deliver such items to Project site in time for installation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. Ceco Door Products; an Assa Abloy Group company.
 - 2. Curries Company; an Assa Abloy Group company.
 - 3. Firedoor Corporation.
 - 4. Fleming Door Products Ltd.; an Assa Abloy Group company.
 - 5. Mesker Door Inc.
 - 6. Steelcraft; an Ingersoll-Rand company.

2.2 MATERIALS

- A. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, Commercial Steel (CS), Type B; suitable for exposed applications.
- B. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Commercial Steel (CS), Type B; with minimum **A60** metallic coating.
- C. Frame Anchors: ASTM A 591/A 591M, Commercial Steel (CS), 40Z (12G) coating designation; mill phosphatized.

1. For anchors built into exterior walls, steel sheet complying with ASTM A 1008/A 1008M or ASTM A 1011/A 1011M, hot-dip galvanized according to ASTM A 153/A 153M, Class B.
- D. Inserts, Bolts, and Fasteners: Hot-dip galvanized according to ASTM A 153/A 153M.
- E. Glazing: Comply with requirements in Division 08 Section "Glazing."

2.3 STANDARD HOLLOW METAL DOORS

- A. General: Provide doors of design indicated, not less than thickness indicated; fabricated with smooth surfaces, without visible joints or seams on exposed faces unless otherwise indicated. Comply with ANSI/SDI A250.8.
 1. Design: Flush Panel
 2. Core Construction: Polyurethane,
 - a. Fire Door Core: As required to provide fire-protection ratings indicated.
 - b. Thermal-Rated (Insulated) Doors: Where indicated, provide doors fabricated with thermal-resistance value .07-U factor when tested according to ASTM C 1363. Using a Polyurethane Core.
 - 1) Locations: Exterior Doors
 3. Vertical Edges for Single-Acting Doors: Beveled Edge.
 - a. Beveled Edge: 1/8 inch in 2 inches.
 - b. All seams to be stitch welded, filled and finished smooth.
 4. Top and Bottom Edges: Closed with flush or inverted 16 gage, end closures or channels of same material as face sheets welded in place for a seamless top and bottom.
 5. Tolerances: Comply with SDI 117, "Manufacturing Tolerances for Standard Steel Doors and Frames."
- B. Exterior Doors:
 1. Fabricate exterior doors with 2 outer stretcher-leveled A60-galvanized steel sheets Not less than 18 gage seamless hollow construction, 1 3/4" thick, beveled both edges.
 2. Reinforce inside of doors with the following:
 1. Solid block polyurethane with a minimum .07-U factor. That fills the entire door cavity and is chemically bonded to all surfaces.
- C. Interior Doors:
 1. Fabricate interior doors with 2 outer stretcher-leveled A60-galvanized steel sheets Not less than 18 gage seamless hollow construction, 1 3/4" thick, beveled both edges.
 2. Reinforce inside of doors with Solid block polyurethane with a minimum .24-U factor. That fills the entire door cavity and is chemically bonded to all surfaces.

- D. Hardware Reinforcement: Fabricate according to ANSI/SDI A250.6 with reinforcing plates from same material as door face sheets.
- E. Fabricate concealed stiffeners and hardware reinforcement from either cold- or hot-rolled steel sheet.

2.4 STANDARD HOLLOW METAL FRAMES

- A. General: Comply with ANSI/SDI A250.8 and with details indicated for type and profile.
- B. Exterior Frames: Fabricated from metallic-coated steel sheet not less than 16 gage.
 - 1. Full welded unit construction, with corners mitered and continuously welded full depth and width of frame, unless otherwise specified or shown.
 - 2. Knock-down type frames will not be accepted
- C. Interior Frames: Fabricated from cold-rolled steel sheet not less than 16 gage
 - 1. Full welded unit construction, with corners mitered and continuously welded full depth and width of frame, unless otherwise specified or shown.
 - 2. Knock-down type frames will not be accepted
- D. Hardware Reinforcement: Fabricate according to ANSI/SDI A250.6 with reinforcement plates from same material as frames.

2.5 FRAME ANCHORS

- A. Jamb Anchors:
 - 1. Masonry Type: Adjustable strap-and-stirrup or T-shaped anchors to suit frame size, not less than 0.042 inch thick, with corrugated or perforated straps not less than 2 inches wide by 10 inches long; or wire anchors not less than 0.177 inch thick.
 - 2. Stud-Wall Type: Designed to engage stud, welded to back of frames; not less than 0.042 inch thick.
 - 3. Compression Type for Drywall Slip-on Frames: Adjustable compression anchors.
 - 4. Postinstalled Expansion Type for In-Place Concrete or Masonry: Minimum 3/8-inch-diameter bolts with expansion shields or inserts. Provide pipe spacer from frame to wall, with throat reinforcement plate, welded to frame at each anchor location.
- B. Floor Anchors: Formed from same material as frames, not less than 0.042 inch thick, and as follows:
 - 1. Monolithic Concrete Slabs: Clip-type anchors, with two holes to receive fasteners.
 - 2. Separate Topping Concrete Slabs: Adjustable-type anchors with extension clips, allowing not less than 2-inch height adjustment. Terminate bottom of frames at finish floor surface.

2.6 HOLLOW METAL PANELS

- A. Provide hollow metal panels of same materials, construction, and finish as specified for adjoining hollow metal work.

2.7 STOPS AND MOLDINGS

- A. Moldings for Glazed Lites in Doors: Minimum 0.032 inch thick, fabricated from same material as door face sheet in which they are installed.
- B. Fixed Frame Moldings: Formed integral with hollow metal frames, a minimum of 5/8 inch high unless otherwise indicated.
- C. Loose Stops for Glazed Lites in Frames: Minimum 0.032 inch thick, fabricated from same material as frames in which they are installed.
- D. Terminated Stops: Where indicated on interior door frames, terminate stops 6 inches above finish floor with a 45 degree angle cut, and close open end of stop with steel sheet closure. Cover opening in extension of frame with welded-steel filler plate, with welds ground smooth and flush with frame.

2.8 FABRICATION

- A. Fabricate hollow metal work to be rigid and free of defects, warp, or buckle. Accurately form metal to required sizes and profiles, with minimum radius for thickness of metal. Where practical, fit and assemble units in manufacturer's plant. To ensure proper assembly at Project site, clearly identify work that cannot be permanently factory assembled before shipment.
- B. Tolerances: Fabricate hollow metal work to tolerances indicated in SDI 117, ANSI/NAAMM-HMMA 861.
- C. Hollow Metal Doors:
 - 1. Exterior Doors: Provide weep-hole openings in bottom of exterior doors to permit moisture to escape. Seal joints in top edges of doors against water penetration.
 - 2. Glazed Lites: Factory cut openings in doors.
 - 3. Astragals: Provide overlapping astragal on one leaf of pairs of doors where required by NFPA 80 for fire-performance rating or where indicated. Extend minimum 3/4 inch beyond edge of door on which astragal is mounted.
- D. Hollow Metal Frames: Where frames are fabricated in sections due to shipping or handling limitations, provide alignment plates or angles at each joint, fabricated of same thickness metal as frames.
 - 1. Welded Frames: Weld flush face joints continuously; grind, fill, dress, and make smooth, flush, and invisible.

2. Frames: Provide closed tubular members with no visible face seams or joints, fabricated from same material as door frame. Fasten members at crossings and to jambs by butt welding.
 3. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated.
 4. Grout Guards: Weld guards to frame at back of hardware mortises in frames to be grouted.
 5. Floor Anchors: Weld anchors to bottom of jambs and mullions with at least four spot welds per anchor.
 6. Jamb Anchors: Provide number and spacing of anchors as follows:
 - a. Masonry Type: Locate anchors not more than 18 inches from top and bottom of frame. Space anchors not more than 32 inches o.c. and as follows:
 - 1) Two anchors per jamb up to 60 inches high.
 - 2) Three anchors per jamb from 60 to 90 inches high.
 - 3) Four anchors per jamb from 90 to 120 inches high.
 - 4) Four anchors per jamb plus 1 additional anchor per jamb for each 24 inches or fraction thereof above 120 inches high.
 - b. Stud-Wall Type: Locate anchors not more than 18 inches from top and bottom of frame. Space anchors not more than 32 inches o.c. and as follows:
 - 1) Three anchors per jamb up to 60 inches high.
 - 2) Four anchors per jamb from 60 to 90 inches high.
 - 3) Five anchors per jamb from 90 to 96 inches high.
 - 4) Five anchors per jamb plus 1 additional anchor per jamb for each 24 inches or fraction thereof above 96 inches high.
 - 5) Two anchors per head for frames above 42 inches wide and mounted in metal-stud partitions.
 - c. Compression Type: Not less than two anchors in each jamb.
 - d. Postinstalled Expansion Type: Locate anchors not more than 6 inches from top and bottom of frame. Space anchors not more than 26 inches o.c.
 7. Door Silencers: Except on weather-stripped doors, drill stops to receive door silencers as follows. Keep holes clear during construction.
 - a. Single-Door Frames: Drill stop in strike jamb to receive three door silencers.
 - b. Double-Door Frames: Drill stop in head jamb to receive two door silencers.
- E. Fabricate concealed stiffeners, edge channels, and hardware reinforcement from either cold- or hot-rolled steel sheet.
- F. Hardware Preparation: Factory prepare hollow metal work to receive templated mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping according to the Door Hardware Schedule and templates furnished as specified in Division 08 Section "Door Hardware."

1. Locate hardware as indicated, or if not indicated, according to [ANSI/SDI A250.8] [ANSI/NAAMM-HMMA 861].
 2. Reinforce doors and frames to receive non-templated, mortised and surface-mounted door hardware.-
 3. Comply with applicable requirements in ANSI/SDI A250.6 and ANSI/DHI A115 Series specifications for preparation of hollow metal work for hardware.
 4. Coordinate locations of conduit and wiring boxes for electrical connections with Division 26 Sections.
- G. Stops and Moldings: Provide stops and moldings around glazed lites where indicated. Form corners of stops and moldings with butted or mitered hairline joints.
1. Single Glazed Lites: Provide fixed stops and moldings welded on secure side of hollow metal work.
 2. Multiple Glazed Lites: Provide fixed and removable stops and moldings so that each glazed lite is capable of being removed independently.
 3. Provide fixed frame moldings on outside of exterior and on secure side of interior doors and frames.
 4. Provide loose stops and moldings on inside of hollow metal work.
 5. Coordinate rabbet width between fixed and removable stops with type of glazing and type of installation indicated.

2.9 STEEL FINISHES

- A. Prime Finish: Apply manufacturer's standard primer immediately after cleaning and pretreating.
1. Shop Primer: Manufacturer's standard, fast-curing, lead- and chromate-free primer complying with ANSI/SDI A250.10 acceptance criteria; recommended by primer manufacturer for substrate; compatible with substrate and field-applied coatings despite prolonged exposure.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Examine roughing-in for embedded and built-in anchors to verify actual locations before frame installation.
- C. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Remove welded-in shipping spreaders installed at factory. Restore exposed finish by grinding, filling, and dressing, as required to make repaired area smooth, flush, and invisible on exposed faces.
- B. Prior to installation, adjust and securely brace welded hollow metal frames for squareness, alignment, twist, and plumbness to the following tolerances:
 - 1. Squareness: Plus or minus 1/16 inch, measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
 - 2. Alignment: Plus or minus 1/16 inch measured at jambs on a horizontal line parallel to plane of wall.
 - 3. Twist: Plus or minus 1/16 inch measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
 - 4. Plumbness: Plus or minus 1/16 inch, measured at jambs on a perpendicular line from head to floor.
- C. Drill and tap doors and frames to receive non-templated, mortised, and surface-mounted door hardware.

3.3 INSTALLATION

- A. General: Install hollow metal work plumb, rigid, properly aligned, and securely fastened in place; comply with Drawings and manufacturer's written instructions.
- B. Hollow Metal Frames: Install hollow metal frames of size and profile indicated. Comply with ANSI/SDI A250.11, HMMA 840.
 - 1. Set frames accurately in position, plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces, leaving surfaces smooth and undamaged.
 - a. At fire-protection-rated openings, install frames according to NFPA 80.
 - b. Where frames are fabricated in sections because of shipping or handling limitations, field splice at approved locations by welding face joint continuously; grind, fill, dress, and make splice smooth, flush, and invisible on exposed faces.
 - c. Install frames with removable glazing stops located on secure side of opening.
 - d. Install door silencers in frames before grouting.
 - e. Remove temporary braces necessary for installation only after frames have been properly set and secured.
 - f. Check plumbness, squareness, and twist of frames as walls are constructed. Shim as necessary to comply with installation tolerances.
 - g. Field apply bituminous coating to backs of frames that are filled with grout containing antifreezing agents.
 - 2. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor, and secure with postinstalled expansion anchors.

- a. Floor anchors may be set with powder-actuated fasteners instead of postinstalled expansion anchors if so indicated and approved on Shop Drawings.
 3. Metal-Stud Partitions: Solidly pack mineral-fiber insulation behind frames.
 4. Masonry Walls: Coordinate installation of frames to allow for solidly filling space between frames and masonry with grout.
 5. Concrete Walls: Solidly fill space between frames and concrete with grout. Take precautions, including bracing frames, to ensure that frames are not deformed or damaged by grout forces.
 6. In-Place Concrete or Masonry Construction: Secure frames in place with postinstalled expansion anchors. Countersink anchors, and fill and make smooth, flush, and invisible on exposed faces.
 7. In-Place Gypsum Board Partitions: Secure frames in place with post-installed expansion anchors through floor anchors at each jamb. Countersink anchors, and fill and make smooth, flush, and invisible on exposed faces.
 8. Ceiling Struts: Extend struts vertically from top of frame at each jamb to overhead structural supports or substrates above frame unless frame is anchored to masonry or to other structural support at each jamb. Bend top of struts to provide flush contact for securing to supporting construction. Provide adjustable wedged or bolted anchorage to frame jamb members.
 9. Installation Tolerances: Adjust hollow metal door frames for squareness, alignment, twist, and plumb to the following tolerances:
 - a. Squareness: Plus or minus 1/16 inch measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
 - b. Alignment: Plus or minus 1/16 inch measured at jambs on a horizontal line parallel to plane of wall.
 - c. Twist: Plus or minus 1/16 inch measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
 - d. Plumbness: Plus or minus 1/16 inch measured at jambs at floor.
- C. Hollow Metal Doors: Fit hollow metal doors accurately in frames, within clearances specified below. Shim as necessary.
1. Non-Fire-Rated Standard Steel Doors:
 - a. Jambs and Head: 1/8 inch plus or minus 1/16 inch
 - b. Between Edges of Pairs of Doors: 1/8 inch plus or minus 1/16 inch
 - c. Between Bottom of Door and Top of Threshold: Maximum 3/8 inch
 - d. Between Bottom of Door and Top of Finish Floor (No Threshold): Maximum 3/4 inch .
 2. Fire-Rated Doors: Install doors with clearances according to NFPA 80.
- D. Glazing: Comply with installation requirements in Division 08 Section "Glazing" and with hollow metal manufacturer's written instructions.
1. Secure stops with countersunk flat- or oval-head machine screws spaced uniformly not more than 9 inches o.c. and not more than 2 inches o.c. from each corner.

3.4 ADJUSTING AND CLEANING

- A. Final Adjustments: Check and readjust operating hardware items immediately before final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including hollow metal work that is warped, bowed, or otherwise unacceptable.
- B. Remove grout and other bonding material from hollow metal work immediately after installation.
- C. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying, rust-inhibitive primer.
- D. Metallic-Coated Surfaces: Clean abraded areas and repair with galvanizing repair paint according to manufacturer's written instructions.

END OF SECTION 081113

SECTION 081116 – EXTERIOR ALUMINUM DOORS AND FRAMES

PART 1 GENERAL

1.01 RELATED WORK SPECIFIED ELSEWHERE

- A. Finish Hardware and Thresholds: Section 087100.
- B. Glass and Glazing: Section 088100.

1.02 SUBMITTALS

- A. Shop Drawings: Show details of each frame type, elevation and construction for each door type, conditions at openings, location and installation requirements for finish hardware (including cutouts and reinforcements), details of connections, and anchorage and accessory items.
 - 1. Include a schedule of doors and frames using the same reference numbers for details and openings as those on the Contract Drawings.
- B. Product Data: Catalog sheets, specifications, and installation instructions for each type door and frame specified.
- C. Samples:
 - 1. Frames: Corner sample of each type, 18 x 18 inches, with mortises, reinforcements, and specified finish.
 - 2. Doors: Corner sample of each type showing construction, 18 x 18 inches, with mortises, reinforcements, and specified finish.
 - 3. Color Samples: Manufacturer's standard colors showing maximum variation of each color. Submit actual production sections large enough to establish the allowable color shade range.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Aluminum:
 - 1. Extruded Shapes: 6063 alloy, T5 temper.
 - 2. Rolled Shapes: 6061 alloy, T6 temper.
 - 3. Sheet, and Shapes Formed of Sheet: 1100 alloy, H14 temper.
 - 4. Color Anodized Aluminum: 5005 alloy of temper for required shapes.
- B. Steel Subframes: ASTM A 36 plates, shapes and bars.
- C. Reinforcement: Manufacturer's standard formed or fabricated steel units, of shapes, plates or bars; galvanized after reinforcement fabrication, ASTM A 123.

- D. Fasteners: Aluminum, non-magnetic stainless steel, or other non-corrosive metal fasteners compatible with aluminum door components and other items to be fastened; Phillips flat-head screws for exposed fasteners (if any), finished to match fastened item.
 - 1. Do not use exposed fasteners except for necessary application of surface mounted hardware. Use concealed screws when required for application of glazing stops.
- E. Inserts: Cast iron, malleable iron, 12 gage galvanized steel, ASTM A 153, for required anchorage to concrete or masonry Work.
- F. Expansion Anchors: Anchor bolt and sleeve assembly of material indicated below with capability to sustain, without failure, a load equal to six times the load imposed when installed in unit masonry and equal to four times the load imposed when installed in concrete, as determined by testing per ASTM E 488, conducted by a qualified independent test agency.
 - a. Carbon Steel: Zinc-Plated; ASTM B 633, Class Fe/Zn 5.
 - b. Stainless Steel: Bolts, Alloy Group 1 or 2; ASTM F593, Nuts; ASTM F 594.
- G. Machine Screws for Steel Subframes: ASME B18.6.3.
- H. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187.
- I. Compression Weatherstripping: Replaceable stripping of either molded neoprene gaskets complying with ASTM D 2000, Designation 2BC415 to 3BC620, or molded PVC gaskets complying with ASTM D 2287.
- J. Sliding Weatherstripping: Replaceable stripping of wool, polypropylene or nylon woven pile, with nylon fabric and aluminum strip backing, complying with AAMA 701.1.
- K. Sealants and Gaskets: Manufacturer's standard for the fabrication, assembly and installation of the Work; guaranteed by the manufacturer to remain permanently elastic, non-shrinking, non-migrating and weatherproof.
- L. Glazing Gaskets: Stripping of molded neoprene complying with ASTM D 2000, Designation 2BC415 to 3BC620, or molded PVC complying with ASTM D 2287, or molded closed-cell neoprene complying with ASTM C 509, Type II, for glazing factory-installed glass and panels, and for gaskets which are factory-installed in a "captive" assembly of glazing stops.

2.02 FABRICATION

- A. Frames:
 - 1. Fabricate door frames, and frames combining transoms, sidelights, and panel framing of formed or extruded aluminum not less than 0.125 inch thick.

3. Door Stops: Manufacturer's standard integral extruded shapes.
5. Glazing Beads: Manufacturer's standard integral extruded shapes.
6. Subframes: Fabricate subframe assemblies and accessories, as shown, of materials specified herein.

B. Glazed Doors:

1. Fabricate stiles and rails of extruded aluminum tubular shapes, 1/8 inch min wall thickness, not less than 3 1/2" inches wide. Attach extrusions together by means of concealed mechanical fasteners and concealed welding.
2. Glazing Beads: Manufacturer's standard extruded shapes.
3. Door Edges: Lock stile edge of single acting doors shall be beveled 1/8 inch in 2 inches. Double acting doors shall have 4 inch radius rounded edges. Meeting stile edges of pairs of single acting doors shall be "V" beveled or rounded, as indicated.

C. Finish Hardware Preparation: Attach concealed reinforcements and cut mortises of sizes required and where located by the approved hardware schedule, for the proper installation of finish hardware.

1. Reinforcements: 1/4 inch thick aluminum.
2. Install reinforcements within mortises at the depths required to bring the hardware surfaces flush with the door and jamb surfaces.
3. Extend reinforcements for hinges, pivots, floor hinges, 4 inches above and below mortises on side jambs and door edges.
4. Reinforce all doors not mortised for concealed door closers on both sides for surface door closer application; and all frames on both sides for closer arm application.

2.03 FINISHES

A. Preparation: After fabrication of doors and frames, but before lamination of panels (if any), prepare the aluminum surfaces for finishing in accordance with the Aluminum Association recommendations and standards. Process all components of each assembly simultaneously to attain complete uniformity of color.

B. Finish exposed aluminum door and frame components as follows:

1. Natural Anodized Finish: NAAMM AA-M21C22A41, (minimum thickness of 0.7 mils), natural aluminum color.
2. Colored Anodized Finish: NAAMM AA-M21C22A42 heavy colored, (minimum thickness of 0.7 mils), integral color anodized finish.
3. Color: As listed on door schedule

PART 3 EXECUTION

3.01 INSTALLATION

- A. Securely anchor sub-framing to supporting structures, plumb and level and properly prepared to receive aluminum doors and frames.
- B. Protect areas of frames and panels to be in contact with sealants and surfaces of glazing rebates and glazing beads with protective, strippable tape. Do not apply lacquer to such areas. Remove tape immediately before application of caulking or glazing compound.
- C. Paint aluminum surfaces in contact with masonry and incompatible metals with bituminous paint.
- D. Door Installation: Fit doors accurately in their frames, with the following clearances:
 - 1. Jambs and Head: 3/32 inch.
 - 2. Meeting Edges, Pairs of Doors: 1/8 inch.
 - 3. Bottom; no Threshold or Carpet: 3/8 inch.
 - 4. Bottom, at Threshold or Carpet: 1/8 inch.

3.02 PROTECTION

- A. Provide protective covering to protect aluminum doors and frames from damage or defacement after erection.

3.03 ADJUSTING AND CLEANING

- A. Final Adjustments: Check and readjust operating finish hardware items just prior to final inspection. Leave Work in complete and proper operating condition.
- B. When directed, or just prior to final inspection remove protective coverings and clean aluminum surfaces with products specifically formulated for aluminum and known to be compatible with finishes specified herein.

END OF SECTION

SECTION 081116 – INTERIOR ALUMINUM DOORS AND FRAMES

PART 1 GENERAL

1.01 RELATED WORK SPECIFIED ELSEWHERE

- A. Finish Hardware and Thresholds: Section 087100.
- B. Glass and Glazing: Section 088100.

1.02 SUBMITTALS

- A. Shop Drawings: Show details of each frame type, elevation and construction for each door type, conditions at openings, location and installation requirements for finish hardware (including cutouts and reinforcements), details of connections, and anchorage and accessory items.
 - 1. Include a schedule of doors and frames using the same reference numbers for details and openings as those on the Contract Drawings.
- B. Product Data: Catalog sheets, specifications, and installation instructions for each type door and frame specified.
- C. Samples:
 - 1. Frames: Corner sample of each type, 18 x 18 inches, with mortises, reinforcements, and specified finish.
 - 2. Doors: Corner sample of each type showing construction, 18 x 18 inches, with mortises, reinforcements, and specified finish.
 - 3. Color Samples: Manufacturer's standard colors showing maximum variation of each color. Submit actual production sections large enough to establish the allowable color shade range.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Aluminum:
 - 1. Extruded Shapes: 6063 alloy, T5 temper.
 - 2. Rolled Shapes: 6061 alloy, T6 temper.
 - 3. Sheet, and Shapes Formed of Sheet: 1100 alloy, H14 temper.
 - 4. Color Anodized Aluminum: 5005 alloy of temper for required shapes.
- B. Steel Subframes: ASTM A 36 plates, shapes and bars.
- C. Reinforcement: Manufacturer's standard formed or fabricated steel units, of shapes, plates or bars; galvanized after reinforcement fabrication, ASTM A 123.

- D. Fasteners: Aluminum, non-magnetic stainless steel, or other non-corrosive metal fasteners compatible with aluminum door components and other items to be fastened; Phillips flat-head screws for exposed fasteners (if any), finished to match fastened item.
 - 1. Do not use exposed fasteners except for necessary application of surface mounted hardware. Use concealed screws when required for application of glazing stops.
- E. Inserts: Cast iron, malleable iron, 12 gage galvanized steel, ASTM A 153, for required anchorage to concrete or masonry Work.
- F. Expansion Anchors: Anchor bolt and sleeve assembly of material indicated below with capability to sustain, without failure, a load equal to six times the load imposed when installed in unit masonry and equal to four times the load imposed when installed in concrete, as determined by testing per ASTM E 488, conducted by a qualified independent test agency.
 - a. Carbon Steel: Zinc-Plated; ASTM B 633, Class Fe/Zn 5.
 - b. Stainless Steel: Bolts, Alloy Group 1 or 2; ASTM F593, Nuts; ASTM F 594.
- G. Machine Screws for Steel Subframes: ASME B18.6.3.
- H. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187.
- I. Compression Weatherstripping: Replaceable stripping of either molded neoprene gaskets complying with ASTM D 2000, Designation 2BC415 to 3BC620, or molded PVC gaskets complying with ASTM D 2287.
- J. Sliding Weatherstripping: Replaceable stripping of wool, polypropylene or nylon woven pile, with nylon fabric and aluminum strip backing, complying with AAMA 701.1.
- K. Sealants and Gaskets: Manufacturer's standard for the fabrication, assembly and installation of the Work; guaranteed by the manufacturer to remain permanently elastic, non-shrinking, non-migrating and weatherproof.
- L. Glazing Gaskets: Stripping of molded neoprene complying with ASTM D 2000, Designation 2BC415 to 3BC620, or molded PVC complying with ASTM D 2287, or molded closed-cell neoprene complying with ASTM C 509, Type II, for glazing factory-installed glass and panels, and for gaskets which are factory-installed in a "captive" assembly of glazing stops.

2.02 FABRICATION

- A. Frames:
 - 1. Fabricate door frames, and frames combining transoms, sidelights, and panel framing of formed or extruded aluminum not less than 0.125 inch thick.

3. Door Stops: Manufacturer's standard integral extruded shapes.
5. Glazing Beads: Manufacturer's standard integral extruded shapes.
6. Subframes: Fabricate subframe assemblies and accessories, as shown, of materials specified herein.

B. Glazed Doors:

1. Fabricate stiles and rails of extruded aluminum tubular shapes, 1/8 inch min wall thickness, not less than 3 1/2" inches wide. Attach extrusions together by means of concealed mechanical fasteners and concealed welding.
2. Glazing Beads: Manufacturer's standard extruded shapes.
3. Door Edges: Lock stile edge of single acting doors shall be beveled 1/8 inch in 2 inches. Double acting doors shall have 4 inch radius rounded edges. Meeting stile edges of pairs of single acting doors shall be "V" beveled or rounded, as indicated.

C. Finish Hardware Preparation: Attach concealed reinforcements and cut mortises of sizes required and where located by the approved hardware schedule, for the proper installation of finish hardware.

1. Reinforcements: 1/4 inch thick aluminum.
2. Install reinforcements within mortises at the depths required to bring the hardware surfaces flush with the door and jamb surfaces.
3. Extend reinforcements for hinges, pivots, floor hinges, 4 inches above and below mortises on side jambs and door edges.
4. Reinforce all doors not mortised for concealed door closers on both sides for surface door closer application; and all frames on both sides for closer arm application.

2.03 FINISHES

A. Preparation: After fabrication of doors and frames, but before lamination of panels (if any), prepare the aluminum surfaces for finishing in accordance with the Aluminum Association recommendations and standards. Process all components of each assembly simultaneously to attain complete uniformity of color.

B. Finish exposed aluminum door and frame components as follows:

1. Natural Anodized Finish: NAAMM AA-M21C22A41, (minimum thickness of 0.7 mils), natural aluminum color.
2. Colored Anodized Finish: NAAMM AA-M21C22A42 heavy colored, (minimum thickness of 0.7 mils), integral color anodized finish.
3. Color: As listed on door schedule

PART 3 EXECUTION

3.01 INSTALLATION

- A. Securely anchor sub-framing to supporting structures, plumb and level and properly prepared to receive aluminum doors and frames.
- B. Protect areas of frames and panels to be in contact with sealants and surfaces of glazing rebates and glazing beads with protective, strippable tape. Do not apply lacquer to such areas. Remove tape immediately before application of caulking or glazing compound.
- C. Paint aluminum surfaces in contact with masonry and incompatible metals with bituminous paint.
- D. Door Installation: Fit doors accurately in their frames, with the following clearances:
 - 1. Jambs and Head: 3/32 inch.
 - 2. Meeting Edges, Pairs of Doors: 1/8 inch.
 - 3. Bottom; no Threshold or Carpet: 3/8 inch.
 - 4. Bottom, at Threshold or Carpet: 1/8 inch.

3.02 PROTECTION

- A. Provide protective covering to protect aluminum doors and frames from damage or defacement after erection.

3.03 ADJUSTING AND CLEANING

- A. Final Adjustments: Check and readjust operating finish hardware items just prior to final inspection. Leave Work in complete and proper operating condition.
- B. When directed, or just prior to final inspection remove protective coverings and clean aluminum surfaces with products specifically formulated for aluminum and known to be compatible with finishes specified herein.

END OF SECTION

SECTION 081416 – EXTERIOR FLUSH WOOD DOORS

PART 1 GENERAL

1.01 RELATED WORK SPECIFIED ELSEWHERE

- A. Hollow Metal Frames: Section 081103.
- B. Finish Hardware: Section 087100.
- C. Glass and Glazing: Section 088100.
- D. Painting (Site Finishing Doors): Section 099101.

1.02 REFERENCES

- A. Standards: Unless otherwise specified, comply with the applicable requirements of the "Architectural Woodwork Standards" (First Edition-2009) (AWS).

1.03 SUBMITTALS

- A. Shop Drawings: Show details, elevation, and construction for each door type, location and installation requirements for Finish Hardware (including cutouts and reinforcements), and accessory items.
 - 1. Include a schedule of doors using the same reference numbers for details and openings as those on the Contract Drawings.
- B. Product Data: Catalog sheets, specifications, and installation instructions for each type door specified.
- C. Samples:
 - 1. 12 x 12-inch corner sample of each door type, with panel (if any).
 - a. Factory Finished Doors: Include shop finish on samples.
- D. Quality Control Submittals:
 - 1. Affidavit required under Quality Assurance Article.

1.04 QUALITY ASSURANCE

- A. Certifications: Affidavit by door manufacturer certifying that each door meets the specified requirements and standards.
- B. Fire Rated Doors: Carry metal label, fastened on hinge edge with drive screws, indicating fire class/rating certified by an independent testing agency.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Factory Finished Doors: Deliver doors in factory applied plastic bags or heavy paper protective cartons. Mark packaging with sufficient identification to insure proper door location.
- B. Comply with manufacturer's storage instructions.

1.06 PROJECT CONDITIONS

- A. Environmental Requirements: Do not store doors within the building or install doors until after completion of cast-in-place concrete, masonry, plastering, gypsum board and tile Work, and until after the building has dried out.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Lumber: Comply with applicable AWS species requirements for door type and grade.
 - 1. Exposed Surfaces: As indicated on the Drawings or specified. Furnish matching exposed surface material on both faces and both edges of each door unless otherwise indicated.
 - 2. Fire Rated Doors: Exposed faces to match non-fire rated doors in same building area.
- B. Wood Veneers: Comply with applicable AWS species requirements for door type and grade.
- C. Glue: Type I waterproof adhesives for bonding faces and crossbands to core, for both exterior and interior door fabrication.
- D. Water-Repellent Preservative Treatment Materials for Exterior Doors: Comply with National Wood Window And Door Association's Standard NWWDA I.S.4.
- E. Flashing For Exterior Doors: Flexible, non-corrosive, sheet metal.
- H. Metal Louvers:
 - 1. Steel: 20 gage minimum; galvanized and factory primed for paint finish.
 - 2. Natural Anodized Aluminum: Extruded aluminum, with natural anodized finish complying with NAAMM AA-C22A31 (0.4 mil minimum thickness).
 - 3. Color Anodized Aluminum: Extruded aluminum, with color anodized finish complying with NAAMM AA-C22A32 (0.4 mil minimum thickness). Color as selected.
- I. Fire Rated Louvers: Door manufacturer's listed, fusible link, self-closing type.

2.02 FABRICATION

A. Heavy Duty Wood Interior Door:

1. Product: 8500-ME (5-ply - Particle Core). Lifetime Warranty.
 - a. Core: Particleboard. Solid particleboard. Density of 28-32 lb per cubic foot. Complies with ANSI A208-1 standards (LD-1/LD-2).
 - b. Fire Rating: 20-minutes, in compliance with NFPA 80.
2. Stiles: 1/8 inch (3 mm) thick veneer, longitudinally laminated by hot pressing with type 1 structural glue, as per ASTM-D5456-93 (LVL), including a 7/8 inch (22 mm) piece of hardwood, matched with faces, for a total width of 4-3/16 inches (107 mm).
3. Top and bottom rails: 1/8 inch (3 mm) thick veneer, longitudinally laminated by hot pressing with type 1 structural glue, as per ASTM-D5456-93 (LVL), for a total width of 3-5/16 inches (85 mm).
4. Stiles and Rails: Bonded to core. 7. Lock Block: Integrated. 8. Glue: Type1 PVA Cross-link. 9. Faces: Refer to Door Characteristics.

2.03 FACTORY FINISHING, PREFITTING, AND PREPARATION FOR HARDWARE

A. Factory Finishing: Prefinish wood doors at the factory or finishing shop as follows:

1. Comply with AWS factory finishing recommendations including final sanding requirements.
2. Finishing System: Comply with the requirements of the following AWS Finish System:
 - a. Transparent Finish: System No. 5 - Conversion Varnish, Premium Grade.
 - 1) Sheen: Dull satin; 15 to 20 degrees.
 - 2) Stain Color: To match existing doors
 - b. Opaque Finish: System No. 3 - Standard Lacquer, Custom Grade finish requirements for wood grain characteristics of exposed wood species.

B. Factory Prefitting and Premachining for Hardware: Prefit doors scheduled or indicated to receive factory finishing. Premachine these doors for hardware.

1. Comply with AWS clearance requirements for prefitting. Machine doors for hardware requiring cutting of doors. Comply with finish hardware schedule, door frame shop drawings, and hardware templates to insure proper fit and alignment of doors and hardware.
2. Verify hardware mortises in steel frames in the field to verify dimensions and proper alignment prior to proceeding with factory machining of doors.

PART 3 EXECUTION

3.01 PREPARATION

- A. Condition doors to average prevailing humidity in installation area prior to hanging.
- B. Prepare doors to receive scheduled mortise hardware. Coordinate doors with the finish hardware schedule and with the door frame shop drawings for proper location of mortise hardware. Machine doors for hardware.

3.02 INSTALLATION

- A. Install the Work of this Section in accordance with manufacturer's printed installation instructions, except as shown or specified otherwise.
- B. Fit doors to prepared frames for proper fit. Allow 3/32-to-1/8-inch clearance at head and both jambs. Trim doors when necessary by planing. Slightly chamfer edge of lock stiles. Bevel lock stile as follows:
 - 1. Non-fire Rated Doors: 1/8 inch in 2 inches.
 - 2. Fire Rated Doors: 1/16 inch in 2 inches.
- C. Prefit Doors: Do not alter prefit factory finished doors.
- D. Fire Rated Doors: Install doors in corresponding fire rated frames in accordance with the requirements of NFPA No. 80.
- E. Factory Finished Doors: Field touch-up and restore finishes damaged during installation.

END OF SECTION

SECTION 081416 – INTERIOR FLUSH WOOD DOORS

PART 1 GENERAL

1.01 RELATED WORK SPECIFIED ELSEWHERE

- A. Hollow Metal Frames: Section 081103.
- B. Finish Hardware: Section 087100.
- C. Glass and Glazing: Section 088100.
- D. Painting (Site Finishing Doors): Section 099101.

1.02 REFERENCES

- A. Standards: Unless otherwise specified, comply with the applicable requirements of the "Architectural Woodwork Standards" (First Edition-2009) (AWS).

1.03 SUBMITTALS

- A. Shop Drawings: Show details, elevation, and construction for each door type, location and installation requirements for Finish Hardware (including cutouts and reinforcements), and accessory items.
 - 1. Include a schedule of doors using the same reference numbers for details and openings as those on the Contract Drawings.
- B. Product Data: Catalog sheets, specifications, and installation instructions for each type of door specified.
- C. Samples:
 - 1. 12 x 12-inch corner sample of each door type, with panel (if any).
 - a. Factory Finished Doors: Include shop finish on samples.
- D. Quality Control Submittals:
 - 1. Affidavit required under Quality Assurance Article.

1.04 QUALITY ASSURANCE

- A. Certifications: Affidavit from door manufacturer certifying that each door meets the specified requirements and standards.
- B. Fire Rated Doors: Carry metal label, fastened on hinge edge with drive screws, indicating fire class/rating certified by an independent testing agency.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Factory Finished Doors: Deliver doors in factory applied plastic bags or heavy paper protective cartons. Mark packaging with sufficient identification to insure proper door location.
- B. Comply with manufacturer's storage instructions.

1.06 PROJECT CONDITIONS

- A. Environmental Requirements: Do not store doors within the building or install doors until after completion of cast-in-place concrete, masonry, plastering, gypsum board and tile Work, and until after the building has dried out.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Lumber: Comply with applicable AWS species requirements for door type and grade.
 - 1. Exposed Surfaces: As indicated on the Drawings or specified. Furnish matching exposed surface material on both faces and both edges of each door unless otherwise indicated.
 - 2. Fire Rated Doors: Exposed faces to match non-fire rated doors in same building area.
- B. Wood Veneers: Comply with applicable AWS species requirements for door type and grade.
- C. Glue: Type I waterproof adhesives for bonding faces and crossbands to core, for both exterior and interior door fabrication.
- D. Water-Repellent Preservative Treatment Materials for Exterior Doors: Comply with National Wood Window And Door Association's Standard NWWDA I.S.4.
- E. Flashing For Exterior Doors: Flexible, non-corrosive, sheet metal.
- H. Metal Louvers:
 - 1. Steel: 20 gage minimum; galvanized and factory primed for paint finish.
 - 2. Natural Anodized Aluminum: Extruded aluminum, with natural anodized finish complying with NAAMM AA-C22A31 (0.4 mil minimum thickness).
 - 3. Color Anodized Aluminum: Extruded aluminum, with color anodized finish complying with NAAMM AA-C22A32 (0.4 mil minimum thickness). Color as selected.
- I. Fire Rated Louvers: Door manufacturer's listed, fusible link, self-closing type.

2.02 FABRICATION

A. Heavy Duty Wood Interior Door:

1. Product: 8500-ME (5-ply - Particle Core). Lifetime Warranty.
 - a. Core: Particleboard. Solid particleboard. Density of 28-32 lb per cubic foot. Complies with ANSI A208-1 standards (LD-1/LD-2).
 - b. Fire Rating: 20-minutes, in compliance with NFPA 80.
2. Stiles: 1/8 inch (3 mm) thick veneer, longitudinally laminated by hot pressing with type 1 structural glue, as per ASTM-D5456-93 (LVL), including a 7/8-inch (22 mm) piece of hardwood, matched with faces, for a total width of 4-3/16 inches (107 mm).
3. Top and bottom rails: 1/8 inch (3 mm) thick veneer, longitudinally laminated by hot pressing with type 1 structural glue, as per ASTM-D5456-93 (LVL), for a total width of 3-5/16 inches (85 mm).
4. Stiles and Rails: Bonded to core. 7. Lock Block: Integrated. 8. Glue: Type1 PVA Cross-link. 9. Faces: Refer to Door Characteristics.

2.03 FACTORY FINISHING, PREFITTING, AND PREPARATION FOR HARDWARE

A. Factory Finishing: Prefinish wood doors at the factory or finishing shop as follows:

1. Comply with AWS factory finishing recommendations including final sanding requirements.
2. Finishing System: Comply with the requirements of the following AWS Finish System:
 - a. Transparent Finish: System No. 5 - Conversion Varnish, Premium Grade.
 - 1) Sheen: Dull satin; 15 to 20 degrees.
 - 2) Stain Color: To match existing doors
 - b. Opaque Finish: System No. 3 - Standard Lacquer, Custom Grade finish requirements for wood grain characteristics of exposed wood species.

B. Factory Prefitting and Premachining for Hardware: Prefit doors scheduled or indicated to receive factory finishing. Premachine these doors for hardware.

1. Comply with AWS clearance requirements for prefitting. Machine doors for hardware requiring cutting of doors. Comply with finish hardware schedule, door frame shop drawings, and hardware templates to insure proper fit and alignment of doors and hardware.
2. Verify hardware mortises in steel frames in the field to verify dimensions and proper alignment prior to proceeding with factory machining of doors.

PART 3 EXECUTION

3.01 PREPARATION

- A. Condition doors to average prevailing humidity in installation area prior to hanging.
- B. Prepare doors to receive scheduled mortise hardware. Coordinate doors with the finish hardware schedule and with the door frame shop drawings for proper location of mortise hardware. Machine doors for hardware.

3.02 INSTALLATION

- A. Install the Work of this Section in accordance with manufacturer's printed installation instructions, except as shown or specified otherwise.
- B. Fit doors to prepared frames for proper fit. Allow 3/32-to-1/8-inch clearance at head and both jambs. Trim doors when necessary by planing. Slightly chamfer edge of lock stiles. Bevel lock stile as follows:
 - 1. Non-fire Rated Doors: 1/8 inch in 2 inches.
 - 2. Fire Rated Doors: 1/16 inch in 2 inches.
- C. Prefit Doors: Do not alter prefit factory finished doors.
- D. Fire Rated Doors: Install doors in corresponding fire rated frames in accordance with the requirements of NFPA No. 80.
- E. Factory Finished Doors: Field touch-up and restore finishes damaged during installation.

END OF SECTION

SECTION 087100 – EXTERIOR FINISH HARDWARE

PART 1 GENERAL

1.1 REFERENCES

- A. NFPA 80 Fire Doors and Windows (2013).
- B. NFPA 101 Life Safety Code (2015).
- C. Building Code of New York State (2016).
- D. ICC/ANSI A117.1-2017 Accessible and Usable Buildings and Facilities.
- E. ANSI/BHMA Standard A156.1 Butts and Hinges (2016).
- F. ANSI/BHMA Standard A156.4 Door Controls – Closers (2013).
- G. ANSI/BHMA Standard A156.6 Architectural Door Trim (2015).
- H. ANSI/BHMA Standard A156.7 Template Hinge Dimensions (2016).
- I. ANSI/BHMA Standard A156.8 Door Controls – Overhead Stops and Holders (2015).
- J. ANSI/BHMA Standard A156.13 Mortise Locks and Latches Series 1000 (2017).
- K. ANSI/BHMA Standard A156.16 Auxiliary Hardware (2018).
- L. ANSI/BHMA Standard A156.18 Materials and Finishes (2016).
- M. ANSI/BHMA Standard A156.22 Door Gasketing Systems (2017).
- N. ANSI/BHMA Standard A156.26 Continuous Hinges (2017).
- O. DHI - Door and Hardware Institute.
- P. NAAM Standard HMMA 800-96- Hollow Metal Manufacturers Association.
- Q. NAAM Standard HMMA 831-13 Recommended Hardware Locations for Custom Hollow Metal Doors and Frames.
- R. 2010 Standards for State and Local Government Facilities: Title II.

1.2 DEFINITIONS

- A. Architectural Hardware Consultant (AHC): A Door and Hardware Institute certified expert in complex architectural openings requiring advanced knowledge of model building codes and safety standards, ADA requirements, access control knowledge and installation expertise.
- B. Architectural Hardware Distributor: A company that regularly purchases architectural hardware from manufacturers and specializes in the sale, service and support of that hardware to contractors and/or end users.
- C. Company Field Advisor(s): Hardware manufacturers' representatives who are certified in writing by manufacturer to be technically qualified in design, installation, and servicing of products.
- D. Installation Supervisor: Designated supervisor/installer, who has a minimum three years' experience in finish hardware installation and is qualified and responsible to ensure approved finish hardware is installed, adjusted, and operates properly.
- E. Benchmark: Finish hardware installed on full size door and frame assembly that is constructed on-site. Benchmarks are constructed to verify qualities of materials and execution; to review coordination between frames, doors, and architectural hardware; to show interface between partitions and frames; and to demonstrate compliance with specified installation tolerances. Benchmarks are not samples. Unless otherwise indicated, approved benchmarks establish the standard by which the Work will be judged. The approved benchmark may be incorporated into the work of this section.

1.3 SUBMITTALS

- A. Waiver of Submittals: The Waiver of Certain Submittal Requirements in Section 013300 does not apply to this Section.
- B. Re-Evaluation Fee: In accordance with the General Conditions 07213 Article 4.7.
- C. Prior to preparing submittals the hardware supplier is required to perform an on-site visit to identify and confirm ratings, sizes, weight and size of hinges where being replaced and other information to confirm compatibility with existing components.
- D. Submittal Package Cover Sheets: The Hardware Distributor shall provide a cover sheet, which identifies each package by:
 - 1. project number.

2. Project name.
3. Facility name and location.
4. Submittal Package name.
5. Specification section name and number.
6. Construction Contractor's company name, address, e-mail address, and telephone number.
7. Finish Hardware Distributor's company name, address, e-mail address, and telephone number.
8. Certified Architectural Hardware Consultant's name, company name, address, e-mail address, and telephone number.
9. Submittal Date.

E. Submittal Packages

1. Quality Control Package: Do not submit balance of packages until this package is approved.
 - a. Architectural Hardware Consultant Data:
 - 1) Provide name, business address, and telephone number of DHI certified Architectural Hardware Consultant.
 - 2) Submit photocopy of Door and Hardware Institute's certificate demonstrating individual is an Architectural Hardware Consultant.
 - b. Company Field Advisor Data:
 - 1) Provide name, business address, and telephone number of Company Field Advisor(s) for continuous hinges, door bolts, locksets, overhead stops, door closers, and gaskets.
 - 2) List services and products for which company field advisor(s) is/are certified by manufacturer. Provide written certifications.
 - c. Hardware Distributor's Qualification Data:
 - 1) Provide the Finish Hardware Distributor's company name, address, e-mail address, and telephone number.
 - 2) Provide the hardware distributor's company history, including number of years in the hardware distribution business, the number of AHC's employed, and the number of employees. Describe the distributor's major market.
 - 3) Include the names and contact information of physical plant managers for 3 facilities, similar to this project, for which the distributor has furnished architectural hardware within the past 2 years.
 - d. Supervisor's/Installer's Qualification Data:
 - 1) Name of Supervisor and each installer performing Work, and employer's name, business address and telephone number.
 - 2) Names and addresses, and contact information of physical plant managers for 3 facilities, similar to this project, on which each installer has worked on during past 2 years.

2. Finish Hardware Package:
 - a. Finish Hardware Schedule: Use vertical format and indicate finish hardware items, both mechanical and electrical in one document, required to complete Work of this section. Submit Hardware Schedule that includes complete hardware sets for each door and frame shown on Door Schedule.
 - 1) Preface schedule with following:
 - a) Certified Architectural Hardware Consultant's statement of preparation of/or certification of, Finish Hardware Schedule.
 - b) Index.
 - c) List of manufacturers.
 - d) List of finishes.
 - e) Explanation of abbreviations.
 - f) Keying instructions and key schedule.
 - 2) Create hardware groups, each group consisting of similar doors and hardware. Do not combine labeled and non-labeled openings. Do not combine doors and frames with dissimilar door sizes and/or materials.
 - 3) For each opening include the following:
 - a) Door and frame materials and dimensions.
 - b) Fire rating.
 - c) Door number, location and handing.
 - d) Degree of opening required for closer and/or overhead stop.
 - e) Installation and detailing notes.
 - 4) Under each group heading, list hardware items in detail, required for ordering. For each hardware item include:
 - a) Type (Hinges).
 - b) Quantity (Hinges 3ea).
 - c) Manufacturers' name (Hinges 3ea Hagar).
 - d) Catalog number (Hinges 3ea Hagar AB800).
 - e) Size (Hinges 3ea Hagar AB800 4 ½ x 4 ½).
 - f) Options or accessories (Hinges HTAB800 4 ½ x 4 ½).
 - g) Finish (Hinges HTAB800 4 ½ x 4 ½ x 630).
 - h) Fasteners (Hinges HTAB800 4 ½ x 4 ½ x 630 x torx with center security pin).
 - i) Indicate location of protection plates: Push side or pull side.
 - j) Installation Notes, as written in this section, for each hardware group.
 - 5) Use a separate hardware group in Hardware Schedule that lists attic stock hardware items, key cabinets, key control system, special tools required to install hardware, lubricants, and Operations and Maintenance Manuals.
 - b. Product Data: Furnish six copies of manufacturers' catalog sheets, specifications, sizing charts, and installation instructions, for each

item specified. Highlight information pertaining specifically to product (s) submitted.

c. Submit samples as requested.

3. Closeout Submittals Package: Submit as a complete package.

a. Operation and Maintenance Manuals: Furnish 2 hardcover three ring binders with the project name and number displayed on the front cover and spine. Include:

- 1) List of Manufacturers.
- 2) Approved Finish Hardware Schedule.
- 3) Approved Manufacturers' Product Data Sheets.
- 4) Manufacturer's operation, installation, maintenance, and repair instructions for each type of hardware furnished.
- 5) Templates for kind of hardware furnished.
- 6) Parts List for each type of finish hardware furnished.
- 7) Manufacturers' dated written warranty for each type of finish hardware furnished.
- 8) Certifications: Written certification from Company Field Advisors that their products are installed according to manufacturers' printed installation instructions, are operating properly, and manufacturers' written warranty will be in effect upon physical completion of the Work.
- 9) Special Tools: List of special tools required to install hardware, and their purpose.

b. Special Tools:

- 1) At conclusion of finish hardware installation, turn over to the facility 2 of each special tool required to install hardware together with a list of these tools and their purpose.

1.4 TEMPLATES

- A. After receipt of approved submittals, furnish templates to affected trades, to enable fabricators to make provision for finish hardware without delaying the Work of the Project.

1.5 DELIVERY AND STORAGE

- A. Coordinate delivery to avoid delay.
- B. Clearly label each item for identification and installation location as it corresponds to the approved Finish Hardware Schedule and subsequent information bulletins.
- C. Deliver hardware to the jobsite in the manufacturers' original packages complete with fasteners, parts, installation instructions, and templates required for proper installation.

- D. Inventory hardware at jobsite to identify shortages or backorders. Resolve delivery shortages and damaged items prior to installing hardware.
 - E. Store finish hardware where directed by the facility. Provide locked, dry storage for finish hardware.
- 1.6 QUALITY ASSURANCE
- A. Hardware Distributor's Qualification:
 - 1. Hardware Distributor who has been in the business of furnishing, and/ or installing finish hardware for a minimum of three years.
 - 2. Hardware Distributor shall have the DHI certified Architectural Hardware Consultant prepare or certify the Finish Hardware Submittal meets specification requirements, and the schedule is written accurately and in accordance with DHI recommendations, and requirements of this specification.
 - B. Company Field Advisors: Employ advisor(s) for continuous hinges, door bolts, mortise locksets, surface overhead stops, door closers, and gaskets.
 - C. Installation Supervisor: Employ a qualified Installation Supervisor who will be responsible to ensure approved finished hardware is installed, adjusted and operates properly.
 - D. Installers: Employ experienced finish hardware installers who have been regularly employed by a Company installing finish hardware for a minimum of 5 years.
 - E. On Site Pre-installation Conference: Before finish hardware installation begins, the Contractor will call a conference at the site to review Finish Hardware Specifications, approved Finish Hardware Submittals, and to discuss requirements for the Work including:
 - 1. Hardware delivery and storage.
 - 2. Hardware labeling by door number.
 - 3. Hardware locations.
 - 4. Potential location conflicts.
 - 5. Hardware installation sequence and responsibility.
 - 6. Required accessories and fasteners.
 - 7. Continuous hinge installation.
 - 8. Surface overhead stops and closer template and adjustments.
 - 9. Special tools and maintenance items.
 - 10. Hardware Closeout requirements.
 - 11. Hardware Warranties.
 - G. Pre-installation Conference Attendance: The Construction Contractor, Company Field Advisors, authorized Finish Hardware Installers, and the Finish Hardware Distributor's Architectural Hardware Consultant shall attend the conference. Finish Hardware

Reviewer conducts the meeting. Designers and facility personnel may attend. The Company Field Advisors will present installation instruction and advice.

- H. Construction of Benchmark: Before installing portions of the Work requiring benchmarks, install benchmarks for each form of construction required to comply with the following requirements, using materials indicated for the completed Work.
 - 1. Build hardware benchmark in door and frame assembly, specified in section 081102, in locations as directed, and include continuous hinge, lockset, closer, surface overhead stop and gaskets.
 - 2. Notify the Design Team in advance of dates and times when benchmark will be constructed.
 - 3. Install benchmark with supervisor oversight and workers who will be employed during the construction of the Work.
 - 4. Construct benchmarks using the exact materials, products, methods, and workmanship that were approved for the Work.
 - 5. Obtain the Design Team's approval of benchmarks before starting work, fabrication, or construction.
 - 6. Maintain benchmarks during construction in an undisturbed condition as a standard for judging the completed Work.
 - 7. Failure to maintain this standard of quality will be cause for rejection of the Work.
 - 8. Benchmark may be used in the Work unless otherwise indicated.
 - J. Uniformity of Hardware and Single Source Responsibility: For each kind of hardware provide product(s) of a single manufacturer.
 - K. Size Variations: Manufacturers' products may vary slightly from sizes specified except where minimum size or thickness is specified.
- 1.7 WARRANTY
- A. Manufacturer's Warranty: Fifteen-year minimum warranty for door closers.
 - B. Manufacturer's Warranty: Three year minimum for locksets.
- 1.8 MAINTENANCE
- A. Special Tools: At the conclusion of finish hardware installation, turn over to Facilities Representative 2 sets of each special tools required for proper installation and adjustment of hardware, together with a list of these tools and their purpose.
 - B. Lubricants: Provide manufacturer's recommended lubricants for locksets and closers sufficient for 1 year of maintenance. Turn over to the facility

PART 2 PRODUCTS

2.1 ACCESSORIES

- A. Provide brackets, plates, arms, spacers, and special templates to mount door closers in combination with overhead stops and coordinators, on narrow top rails and for special ceiling and jamb conditions.
- B. Provide curved lip strikes, with wrought boxes, specific to individual lock functions. Universal strikes that fit a variety of lock functions are not acceptable.

2.2 FASTENINGS

- A. Provide fasteners that harmonize with finish hardware material and finish.
- B. Provide torx center pin security fasteners for exposed hardware, including full mortise hinges.
- C. Provide machine screws for hardware secured to metal; and machine screws and metal expansion shields for attachment to masonry substrates. Self-tapping or self-drilling screws are not acceptable.
- D. Provide undercut shallow head torx center pin security fasteners where necessary for proper seating.
- E. Attach door closers and overhead stops with sex bolts.

2.3 MATERIALS AND FINISHES

- A. General: Requirements for design, grade, function, finish, size, and other distinctive qualities of each type of finish hardware are indicated in this section and in the Hardware Groups.
- B. Continuous Hinges
 - 1. Full height barrel-type manufactured from 14-gauge 304 stainless steel.
 - 2. .25" diameter stainless steel pins.
 - 3. Provide hinges without covers.
- C. Locks, Latches and Bolts
 - 1. Comply with UL requirements for throw of bolts and latch bolts on rated fire openings.
 - 2. Provide 3/4" minimum throw on other latch bolts.
 - 3. Provide 1" minimum throw deadbolts.
- D. Closers and Door Control Devices

1. Closer bodies: Provide closer bodies with the same hole template pattern regardless of type or application.
2. Closer arms: Non-handed forged steel.
3. Closer size: Provide sized closers.
4. Provide all-weather fluid to eliminate seasonal adjustment of closer speed.
5. Powder coat closer body, arm, and adapter plate or pre-treat closer body, arm, and adapter plate with rust-inhibiting coating before painted finish is applied.

2.4 FINISH HARDWARE

A. HARDWARE MANUFACTURERS:

1. MK- MCKINNEY
2. SA – SARGENT
3. LC – LCN
4. SE – SECURITRON
5. AR - ADAMS RITE
6. RO - ROCKWOOD
7. CA - COMMAND ACCESS

B. HARDWARE SETS

SET P1-1 PAIR OF DOORS (Latch Retraction)

2	Ea.	Power Transfer	EL-CEPT	SE	630
1	Ea.	Exit Device	55-56-8504	SA	630
1	Ea.	Exit Device	55-56-8510	SA	630
1	Ea.	Cylinder Compatible with existing system and lockset		BE	626
2	Ea.	Door Pull	BF158-2	RO	630
1	Ea.	Power Supply	3520 24 VDC	SA	GRy
2	Ea.	Wire Harness	QC-C300P	MK	
2	Ea.	Wire Harness	QC-2500P	MK	
Balance of hardware existing					

Doors are normally closed and locked. Entry by Valid Credential momentarily retracting one exit device allowing door to be pulled open. Access Control system can unlock all devices during events. Doors are monitored by door position switch and latch bolt monitoring. Free egress at all times by manually pushing exit device in path of travel. Request to exit switch built into push bar.

SET P1-2 SINGLE DOOR (Latch Retraction)

1	Ea.	Power Transfer	EL-CEPT	SE	630
1	Ea.	Exit Device	55-56- 8804	SA	630
1	Ea.	Cylinder Compatible with existing system and lockset		BE	626
1	Ea.	Door Pull	Reuse Existing	RO	630
1	Ea.	Power Supply	3520 24 VDC	SA	GRY
1	Ea.	Wire Harness	QC-C300P	MK	
1	Ea.	Wire Harness	QC-2500P	MK	
Balance of hardware existing					

Door is normally closed and locked. Entry by Valid Credential momentarily retracting one exit device allowing door to be pulled open. Access Control system can unlock all devices during events. Doors are monitored by door position switch and latch bolt monitoring. Free egress at all times by manually pushing exit device in path of travel. Request to exit switch built into push bar.

SET P1-3 SINGLE DOOR (Latch Retraction)

1	Ea.	Power Transfer	EL-CEPT	SE	630
1	Ea.	Exit Device	55-56-8904	SA	630
1	Ea.	Cylinder Compatible with existing system and lockset		BE	626
1	Ea.	Door Pull	Reuse Existing	RO	630
1	Ea.	Power Supply	3520 24 VDC	SA	GRY
1	Ea.	Wire Harness	QC-C300P	MK	
1	Ea.	Wire Harness	QC-2500P	MK	
Balance of hardware existing					

Door is normally closed and locked. Entry by Valid Credential momentarily retracting one exit device allowing door to be pulled open. Access Control system can unlock all devices during events. Doors are monitored by door position switch and latch bolt monitoring. Free egress at all times by manually pushing exit device in path of travel. Request to exit switch built into push bar.

SET P1-4 INTERIOR SHELTER IN PLACE (PAIRS AND SINGLES)

1	Ea.	Poe Transfer	CEPT-C5E	SE	630
1	Ea.	POE Lockset	IN220-82276 IKP BP	SA	630
1	Ea.	Cylinder Compatible with existing system and lockset		BE	626
1	Ea.	Door Closer	PR8501 NO689		
1	Ea.	Wire Harness	PoE-C306P	MK	
1	Ea.	Wire Harness	PoE-C1300P	MK	
Balance of Hardware existing					

Door is normally closed and locked. Door momentarily unlocked for entry by valid credential at reader. Door position monitored by door position switch built into lockset. Request to Exit incorporated into lockset. Thumbturn on room side extends deadbolt. Free Egress at all times by turning inside lever.

SET P1-5 NEW DOORS EXISTING FRAMES

6	Ea.	Hinges	FBB199 4 ½ x 4 ½ NRP	ST	630
1	Ea.	Poe Transfer	CEPT-C5E	SE	630
1	Ea.	POE Lockset	IN220-82276 IKP BP	SA	630
1	Ea.	Cylinder Compatible with existing system and lockset		BE	626
2	Ea.	Door Closer	PR7501	NO	689
1	Set	Auto Flushbolts	2845	RO	626
2	Ea.	Kickplates	K1050 10" x 1.5" ldwLDW	RO	630
2	Ea.	Overhead Stops	OH900S Series	RO	630
1	Ea.	Wire Harness	PoE-C306P	MK	
1	Ea.	Wire Harness	PoE-C1300P	MK	

Confirm and template existing hinge size weight and location of existing hinge prep to confirm compatibility with new door and hinges.

Door is normally closed and locked. Door momentarily unlocked for entry by valid credential at reader. Door position monitored by door position switch built into lockset. Request to Exit incorporated into lockset. Thumbturn on room side extends deadbolt. Free Egress at all times by turning inside lever.

SET P1-6 EXTERIOR PAIR OF DOORS (Latch Retraction)

2	Ea.	Power Transfer	EL-CEPT	SE	630
1	Ea.	Exit Device	55-56-8504	SA	630
1	Ea.	Exit Device	55-56-8510	SA	630
1	Ea.	Cylinder Compatible with existing system and lockset		BE	626
2	Ea.	Position Sw.	MSS100-4	FL	BRN
2	Ea.	Door Pull	Reuse Existing	RO	630
1	Ea.	Power Supply	3540 24 VDC	SA	GRY
2	Ea.	Wire Harness	QC-C300P	MK	
2	Ea.	Wire Harness	QC-2500P	MK	
Balance of hardware existing					

Doors are normally closed and locked. Entry by Valid Credential momentarily retracting one exit device allowing door to be pulled open. Access Control system can unlock all devices during events. Doors are monitored by door position switch and latch bolt monitoring. Free egress at all times by manually pushing exit device in path of travel. Request to exit switch built into push bar.

SET P1-7 EXTERIOR PAIR OF DOORS (Latch Retraction)

2	Ea. Power Transfer	EL-CEPT	SE	630
1	Ea. Exit Device	55-56-8804	SA	630
1	Ea. Exit Device	55-56-8810	SA	630
1	Ea. Cylinder Compatible with existing system and lockset		BE	626
2	Ea. Door Pull	BF158-2	RO	630
2	Ea. Position Sw.	MSS100-4	FL	BRN.
1	Ea. Power Supply	3540 24 VDC	SA	GRY
2	Ea. Wire Harness	QC-C300P	MK	
2	Ea. Wire Harness	QC-2500P	MK	
Balance of hardware existing				

Doors are normally closed and locked. Entry by Valid Credential momentarily retracting one exit device allowing door to be pulled open. Access Control system can unlock all devices during events. Doors are monitored by door position switch and latch bolt monitoring. Free egress at all times by manually pushing exit device in path of travel. Request to exit switch built into push bar.

SET P1-8 EXTERIOR PAIR OF DOORS (Latch Retraction)

2	Ea. Power Transfer	EL-CEPT	SE	630
1	Ea. Exit Device	55-56-8704	SA	630
1	Ea. Exit Device	55-56-8710	SA	630
1	Ea. Cylinder Compatible with existing system and lockset		BE	626
2	Ea. Position Sw	MSS100-4	FL	BRN
2	Ea. Door Pull	Reuse Existing		
1	Ea. Power Supply	3540 24 VDC	SA	GRY
2	Ea. Wire Harness	QC-C300P	MK	
2	Ea. Wire Harness	QC-2500P	MK	
Balance of hardware existing				

Doors are normally closed and locked. Entry by Valid Credential momentarily retracting one exit device allowing door to be pulled open. Access Control system can unlock all devices during events. Doors are monitored by door position switch and latch bolt monitoring. Free egress at all times by manually pushing exit device in path of travel. Request to exit switch built into push bar.

SET P1-9 EXTERIOR BANK OF 3 DOORS (Latch Retraction)

3	Ea. Power Transfer	EL-CEPT	SE	630
1	Ea. Exit Device	55-56-8504	SA	630
2	Ea. Exit Device	55-56-8510	SA	630
1	Ea. Cylinder Compatible with existing system and lockset		BE	626
3	Ea. Position Sw.	MSS100-4	FL	BRN
3	Ea. Door Pull	Reuse Existing	RO	630

1	Ea. Power Supply	3540 24 VDC	SA	GRY
3	Ea. Wire Harness	QC-C300P	MK	
3	Ea. Wire Harness	QC-2500P	MK	
Balance of hardware existing				

Doors are normally closed and locked. Entry by Valid Credential momentarily retracting one exit device allowing door to be pulled open. Access Control system can unlock all devices during events. Doors are monitored by door position switch and latch bolt monitoring. Free egress at all times by manually pushing exit device in path of travel. Request to exit switch built into push bar.

SET P1-10 EXTERIOR NARROW FRAMED DOORS

1	Ea. Power Transfer	EL-CEPT	SE	630
1	Ea. Electric Lock	4300-2M-201	AR	628
1	Ea. Paddle	4591	AR	628
1	Ea. Cylinder Compatible with existing system and lockset		BE	626
1	Ea. Door Closer	PR8501	NO	689
1	Ea. Wire Harness	QC-1500P	MK	
1	Ea. Wire Harness	QC-2500P	MK	
Balance of Hardware existing				

Doors are normally closed and locked. Entry by Valid Credential momentarily retracting one exit device allowing door to be pulled open. Access Control system can unlock all devices during events. Doors are monitored by door position switch and latch bolt monitoring. Free egress at all times by manually pushing exit device in path of travel. Request to exit switch built into push bar.

SET P1-11 EXTERIOR PAIR OF DOORS (Latch Retraction)

2	Ea. Power Transfer	EL-CEPT	SE	630
1	Ea. Exit Device	55-56-8504	SA	630
1	Ea. Exit Device	55-56-8510	SA	630
1	Ea. Cylinder Compatible with existing system and lockset		BE	626
2	Ea. Position Sw.	MSS100-4	FL	BRN
2	Ea. Door Pull	Reuse Existing	RO	630
1	Ea. Mullion	650A	SA	613
1	Ea. Power Supply	3540 24 VDC	SA	GRY
2	Ea. Wire Harness	QC-C300P	MK	
2	Ea. Wire Harness	QC-2500P	MK	
Balance of hardware existing				

Doors are normally closed and locked. Entry by Valid Credential momentarily retracting one exit device allowing door to be pulled open. Access Control system can unlock all devices during events. Doors are monitored by door position switch and latch bolt monitoring. Free egress at all times by manually pushing exit device in path of travel. Request to exit switch built into push bar.

SET P1-12 EXTERIOR PAIR OF DOORS (Latch Retraction)

2	Ea.	Power Transfer	Reuse Existing		
2	Ea.	Retraction Kits	MLRK1-XXX-Elynx	CA	630
		Confirm exit device manufacturer prior to ordering			
2	Ea.	Position Sw.	MSS100-4	FL	BRN
2	Ea.	Door Pull	Reuse Existing	RO	630
1	Ea.	Power Supply	3540 24 VDC	SA	GRY
2	Ea.	Wire Harness	QC-C300P	MK	
2	Ea.	Wire Harness	QC-2500P	MK	
		Balance of hardware existing			

Doors are normally closed and locked. Entry by Valid Credential momentarily retracting one exit device allowing door to be pulled open. Access Control system can unlock all devices during events. Doors are monitored by door position switch and latch bolt monitoring. Free egress at all times by manually pushing exit device in path of travel. Request to exit switch built into push bar.

SET P1-13 EXTERIOR SINGLE DOOR (Latch Retraction)

1	Ea.	Power Transfer	Reuse Existing		
1	Ea.	Retraction Kits	MLRK1-XXX-Elynx	CA	630
		Confirm exit device manufacturer prior to ordering			
1	Ea.	Position Sw.	MSS100-4	FL	BRN
1	Ea.	Door Pull	Reuse Existing	RO	630
1	Ea.	Power Supply	3540 24 VDC	SA	GRY
1	Ea.	Wire Harness	QC-C300P	MK	
1	Ea.	Wire Harness	QC-2500P	MK	
		Balance of hardware existing			

Doors are normally closed and locked. Entry by Valid Credential momentarily retracting one exit device allowing door to be pulled open. Access Control system can unlock all devices during events. Doors are monitored by door position switch and latch bolt monitoring. Free egress at all times by manually pushing exit device in path of travel. Request to exit switch built into push bar.

SET P1-14 EXTERIOR SINGLE DOOR (Latch Retraction)

1	Ea.	Power Transfer	EL-CEPT	SE	630
1	Ea.	Exit Device	55-56-8504	SA	630
1	Ea.	Cylinder Compatible with existing system and lockset			BE 626
1	Ea.	Door Pull	Reuse Existing	RO	630
1	Ea.	Power Supply	3520 24 VDC	SA	GRY
1	Ea.	Wire Harness	QC-C300P	MK	
1	Ea.	Wire Harness	QC-2500P	MK	
		Balance of hardware existing			

Door is normally closed and locked. Entry by Valid Credential momentarily retracting one exit device allowing door to be pulled open. Access Control system can unlock all devices during events. Doors are monitored by door position switch and latch bolt monitoring. Free egress at all times by manually pushing exit device in path of travel. Request to exit switch built into push bar.

SET P1-15NEW PAIR OF DOORS EXISTING FRAMES

2	Ea. Cont Hinges	SL-11HD EPT	SL	AL
2	Ea. Power Transfer	EL-CEPT	SE	630
1	Ea. Exit Device	55-56-8404 x 106	SA	630
1	Ea. Exit Device	55-56-8410	SA	630
1	Ea. Cylinder Compatible with existing system and lockset		BE	626
2	Ea. Position Sw.	MSS100-4	FL	BRN
2	Ea. Door Pull	BF158-2	RO	630
2	Ea. Closer	7501	no	689
1	Ea. Power Supply	3540 24 VDC	SA	GRY
2	Ea. Wire Harness	QC-C300P	MK	
2	Ea. Wire Harness	QC-2500P	MK	
Balance of hardware existing				

Doors are normally closed and locked. Entry by Valid Credential momentarily retracting one exit device allowing door to be pulled open. Access Control system can unlock all devices during events. Doors are monitored by door position switch and latch bolt monitoring. Free egress at all times by manually pushing exit device in path of travel. Request to exit switch built into push bar.

SET P1-16NEW PAIR OF DOORS EXISTING FRAMES

8	Ea. Hinges	FBB199 4 ½ x 4 ½ NRP	ST	630
1	Ea. Poe Transfer	CEPT-C5E	SE	630
1	Ea. POE Lockset	IN220-82276 IKP BP	SA	630
1	Ea. Cylinder Compatible with existing system and lockset		BE	626
2	Ea. Door Closer	PR7501	NO	689
1	Set Auto Flushbolts	2845	RO	626
1	Ea. Coordinator	2672 x required brackets	RO	689
2	Ea. Kickplates	K1050 10" x 1.5" ldwLDW	RO	630
2	Ea. Wall Stops	406	RO	630
1	Ea. Wire Harness	PoE-C306P	MK	
1	Ea. Wire Harness	PoE-C1300P	MK	

Confirm and template existing hinge size weight and location of existing hinge prep to confirm compatibility with new door and hinges.

Door is normally closed and locked. Door momentarily unlocked for entry by valid credential at reader. Door position monitored by door position switch built into lockset. Request to Exit incorporated into lockset. Thumbturn on room side extends deadbolt. Free Egress at all times by turning inside lever.

SET P1-17NEW PAIR OF DOORS EXISTING FRAMES

2	Ea. Cont Hinges	SL-11HD EPT	SL	DB
2	Ea. Power Transfer	EL-CEPT	SE	690
1	Ea. Exit Device	QEL-RX-3547A TL	VD	313
1	Ea. Exit Device	QEL-RX-3547A EO	VD	630
1	Ea. Cylinder Compatible with existing system and lockset		BE	626
2	Ea. Position Sw.	MSS100-4	FL	BRN
2	Ea. Door Pull	BF158-2	RO	630
1	Ea. Closer	7501	NO	690
1	Ea. Operator	Reuse existing		
1	Ea. Power Supply	PS904-2RS 24 VDC	VD	GRY
2	Ea. Wire Harness	CON-26P	VD	
2	Ea. Wire Harness	CON-192P	VD	

Doors are normally closed and locked. Entry by Valid Credential momentarily retracting one exit device allowing door to be pulled open. Access Control system can unlock all devices during events. Doors are monitored by door position switch and latch bolt monitoring. Free egress at all times by manually pushing exit device in path of travel. Request to exit switch built into push bar.

SET P1-18NEW DOOR EXISTING FRAMES

1	Ea. Cont Hinges	SL-11HD EPT	SL	DB
1	Ea. Power Transfer	EL-CEPT	SE	690
1	Ea. Exit Device	QEL-RX-33A NL-OP	VD	313
1	Ea. Cylinder Compatible with existing system and lockset		BE	626
1	Ea. Position Sw.	MSS100-4	FL	BRN
1	Ea. Door Pull	BF158-2	RO	630
1	Ea. Closer	7501	NO	690
1	Ea. Power Supply	PS904-2RS 24 VDC	VD	GRY
1	Ea. Wire Harness	CON-26P	VD	
1	Ea. Wire Harness	CON-192P	VD	

Doors are normally closed and locked. Entry by Valid Credential momentarily retracting one exit device allowing door to be pulled open. Access Control system can unlock all devices during events. Doors are monitored by door position switch and latch bolt monitoring. Free egress at all times by manually pushing exit device in path of travel. Request to exit switch built into push bar.

SET P1-19NEW DOOR EXISTING FRAMES

1	Ea. Cont Hinges	SL-11HD EPT	SL	DB
1	Ea. Door Pull	BF158-2	RO	630
1	Ea. Door Push Bar	By Door Supplier		
1	Ea. Closer	7501 CLP	NO	690

2.5 KEYING

- A. Continue existing Best key system established Systems for Facility.
 - 1. Stamp key symbol on one side of key, and “Do Not Duplicate” on other side of key.
 - 3. Furnish one copy of factory bitting list to facility.
 - 4. Factory key cylinders.
 - 5. Furnish 3 cut keys for each master key.
 - 6. Furnish 7 cut keys for each keyed lockset.
 - 7. These cut key quantities are for bidding purposes only. Actual number of cut keys required will be determined at keying meeting.
 - 8. When lockset and cylinder are by different manufacturers, identify and furnish correct cylinder cam to operate lockset.
 - 9. Provide compression rings and spacers to achieve proper spacing relationship between cylinder and face of door.
- B. Keying Conference
 - 1. Immediately following contract award, Contractor will schedule a keying conference to develop a written key schedule that reflects Facility’s specific keying requirements.
Facility Representative(s), Hardware Distributor, Consulting Hardware Designer, and Hardware Designer will attend.
 - 2. Incorporate this schedule in Finish Hardware Submittals for approval.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine doors and frames and related items for conditions such as, but not limited to, incorrect handing, hardware preparation, misaligned lock and strike preparations, that would prevent proper application of finish hardware. Do not proceed until defects are corrected.
- B. Report conditions or hardware applications that are incorrect to the design team

3.2 INSTALLATION

- A. Do not proceed with installation of finish hardware prior to attending referenced pre-installation conference.
- B. Installation Sequence: Use proper installation sequence, i.e., install coordinators, and overhead stops and holders before surface mounted door closers.
- C. Install hardware in accordance with manufacturer’s printed installation instructions, and adjust for smooth operation, free of sticking, binding or rattling.
 - 1. Template surface overhead stops and holders for proper operation

2. Template and adjust closers for proper operation.
- D. Use proper tools and methods to prevent scratches, burrs or other defacement.
- E. Threshold Installation:
 1. Drill holes 3 inches from each end of threshold and intermediate holes 12 inches maximum o.c. for required fasteners. Prepare holes for countersunk fasteners.
 2. Level and align thresholds with frames and doors. Where required, use non-corrosive shims.
 3. Exterior Doors: Set thresholds in a solid bed of Type 3 sealant.
 4. Secure thresholds to substrate with countersunk fasteners.
- F. Door Bottom Installation:
 1. Mount sweep type door bottom protection/drip caps on exterior side of doors.
 2. Before mounting apply Type 2 sealant on the back side of bearing surface. Secure to door with required fasteners.
- G. Gasket Installation:
 1. Install continuous stripping at each opening without unnecessary interruptions.
 2. Where fasteners are required, secure fasteners for stripping and seals so they will not work loose during door operation. Exposed heads of fasteners shall be free of sharp edges.
 3. Coordinate meeting stile gasket with hardware before installation.
 4. Install units plumb and level at the optimum location to maintain a permanent effective seal.
- H. After installation, cover and protect hardware to prevent damage during remaining construction. Remove protection upon completion of construction.

3.3 LOCATIONS

- A. Locate hardware as follows:
 1. Door Closers: Template for maximum door swing allowed by wall placement and jamb conditions. Where overhead stop prevents door from swinging to wall, template the closer to exceed degree of opening allowed by overhead stop.
 2. Protection Plates: 1/8 inch from door bottom.
 3. Wall Stops: Centerline of bumper to match centerline of locking trim.

3.4 FIELD QUALITY CONTROL

- A. Post Installation Review: After hardware is adjusted for proper operation, The design team will hold a Post-Installation Review with the Contractor, Hardware

Designer, Company Field Advisors, Hardware Distributor and Hardware Installers.

1. Physically inspect to verify proper application, installation, adjustment and operation of finish hardware, and in particular that:
 - a) Latches engage freely without binding. Filing of strike plates to relieve latch bind is not acceptable.
 - b) Closers are adjusted for proper spring power; sweep speed, latching speed; and hydraulic back check.
 - c) Locations and proper attachment of installed protective hardware are as specified.
 - d) There is no field modification of fasteners.
 - e) Damaged fasteners are replaced.
 2. Defective hardware is repaired or replaced.
 3. Hardware is to be left clean and free from disfigurement.
- B. Turn referenced Operations and Maintenance Manuals over to Facility.

END OF SECTION

SECTION 087100 – INTERIOR FINISH HARDWARE

PART 1 GENERAL

1.1 REFERENCES

- A. NFPA 80 Fire Doors and Windows (2013).
- B. NFPA 101 Life Safety Code (2015).
- C. Building Code of New York State (2016).
- D. ICC/ANSI A117.1-2017 Accessible and Usable Buildings and Facilities.
- E. ANSI/BHMA Standard A156.1 Butts and Hinges (2016).
- F. ANSI/BHMA Standard A156.4 Door Controls – Closers (2013).
- G. ANSI/BHMA Standard A156.6 Architectural Door Trim (2015).
- H. ANSI/BHMA Standard A156.7 Template Hinge Dimensions (2016).
- I. ANSI/BHMA Standard A156.8 Door Controls – Overhead Stops and Holders (2015).
- J. ANSI/BHMA Standard A156.13 Mortise Locks and Latches Series 1000 (2017).
- K. ANSI/BHMA Standard A156.16 Auxiliary Hardware (2018).
- L. ANSI/BHMA Standard A156.18 Materials and Finishes (2016).
- M. ANSI/BHMA Standard A156.22 Door Gasketing Systems (2017).
- N. ANSI/BHMA Standard A156.26 Continuous Hinges (2017).
- O. DHI - Door and Hardware Institute.
- P. NAAM Standard HMMA 800-96- Hollow Metal Manufacturers Association.
- Q. NAAM Standard HMMA 831-13 Recommended Hardware Locations for Custom Hollow Metal Doors and Frames.
- R. 2010 Standards for State and Local Government Facilities: Title II.

1.2 DEFINITIONS

- A. Architectural Hardware Consultant (AHC): A Door and Hardware Institute certified expert in complex architectural openings requiring advanced knowledge of model building codes and safety standards, ADA requirements, access control knowledge and installation expertise.
- B. Architectural Hardware Distributor: A company that regularly purchases architectural hardware from manufacturers and specializes in the sale, service and support of that hardware to contractors and/or end users.
- C. Company Field Advisor(s): Hardware manufacturers' representatives who are certified in writing by manufacturer to be technically qualified in design, installation, and servicing of products.
- D. Installation Supervisor: Designated supervisor/installer, who has a minimum three years' experience in finish hardware installation and is qualified and responsible to ensure approved finish hardware is installed, adjusted, and operates properly.
- E. Benchmark: Finish hardware installed on full size door and frame assembly that is constructed on-site. Benchmarks are constructed to verify qualities of materials and execution; to review coordination between frames, doors, and architectural hardware; to show interface between partitions and frames; and to demonstrate compliance with specified installation tolerances. Benchmarks are not samples. Unless otherwise indicated, approved benchmarks establish the standard by which the Work will be judged. The approved benchmark may be incorporated into the work of this section.

1.3 SUBMITTALS

- A. Waiver of Submittals: The Waiver of Certain Submittal Requirements in Section 013300 does not apply to this Section.
- B. Re-Evaluation Fee: In accordance with the General Conditions 07213 Article 4.7.
- C. Prior to preparing submittals the hardware supplier is required to perform an on-site visit to identify and confirm ratings, sizes, weight and size of hinges where being replaced and other information to confirm compatibility with existing components.
- D. Submittal Package Cover Sheets: The Hardware Distributor shall provide a cover sheet, which identifies each package by:
 - 1. project number.
 - 2. Project name.
 - 3. Facility name and location.
 - 4. Submittal Package name.

5. Specification section name and number.
6. Construction Contractor's company name, address, e-mail address, and telephone number.
7. Finish Hardware Distributor's company name, address, e-mail address, and telephone number.
8. Certified Architectural Hardware Consultant's name, company name, address, e-mail address, and telephone number.
9. Submittal Date.

E. Submittal Packages

1. Quality Control Package: Do not submit balance of packages until this package is approved.
 - a. Architectural Hardware Consultant Data:
 - 1) Provide name, business address, and telephone number of DHI certified Architectural Hardware Consultant.
 - 2) Submit photocopy of Door and Hardware Institute's certificate demonstrating individual is an Architectural Hardware Consultant.
 - b. Company Field Advisor Data:
 - 1) Provide name, business address, and telephone number of Company Field Advisor(s) for continuous hinges, door bolts, locksets, overhead stops, door closers, and gaskets.
 - 2) List services and products for which company field advisor(s) is/are certified by manufacturer. Provide written certifications.
 - c. Hardware Distributor's Qualification Data:
 - 1) Provide the Finish Hardware Distributor's company name, address, e-mail address, and telephone number.
 - 2) Provide the hardware distributor's company history, including number of years in the hardware distribution business, the number of AHC's employed, and the number of employees. Describe the distributor's major market.
 - 3) Include the names and contact information of physical plant managers for 3 facilities, similar to this project, for which the distributor has furnished architectural hardware within the past 2 years.
 - d. Supervisor's/Installer's Qualification Data:
 - 1) Name of Supervisor and each installer performing Work, and employer's name, business address and telephone number.
 - 2) Names and addresses, and contact information of physical plant managers for 3 facilities, similar to this project, on which each installer has worked on during past 2 years.
2. Finish Hardware Package:
 - a. Finish Hardware Schedule: Use vertical format and indicate finish hardware items, both mechanical and electrical in one

document, required to complete Work of this section. Submit Hardware Schedule that includes complete hardware sets for each door and frame shown on Door Schedule.

- 1) Preface schedule with following:
 - a) Certified Architectural Hardware Consultant's statement of preparation of/or certification of, Finish Hardware Schedule.
 - b) Index.
 - c) List of manufacturers.
 - d) List of finishes.
 - e) Explanation of abbreviations.
 - f) Keying instructions and key schedule.
 - 2) Create hardware groups, each group consisting of similar doors and hardware. Do not combine labeled and non-labeled openings. Do not combine doors and frames with dissimilar door sizes and/or materials.
 - 3) For each opening include the following:
 - a) Door and frame materials and dimensions.
 - b) Fire rating.
 - c) Door number, location and handing.
 - d) Degree of opening required for closer and/or overhead stop.
 - e) Installation and detailing notes.
 - 4) Under each group heading, list hardware items in detail, required for ordering. For each hardware item include:
 - a) Type (Hinges).
 - b) Quantity (Hinges 3ea).
 - c) Manufacturers' name (Hinges 3ea Hagar).
 - d) Catalog number (Hinges 3ea Hagar AB800).
 - e) Size (Hinges 3ea Hagar AB800 4 ½ x 4 ½).
 - f) Options or accessories (Hinges HTAB800 4 ½ x 4 ½ x 4 ½).
 - g) Finish (Hinges HTAB800 4 ½ x 4 ½ x 630).
 - h) Fasteners (Hinges HTAB800 4 ½ x 4 ½ x 630 x torx with center security pin).
 - i) Indicate location of protection plates: Push side or pull side.
 - j) Installation Notes, as written in this section, for each hardware group.
 - 5) Use a separate hardware group in Hardware Schedule that lists attic stock hardware items, key cabinets, key control system, special tools required to install hardware, lubricants, and Operations and Maintenance Manuals.
- b. Product Data: Furnish six copies of manufacturers' catalog sheets, specifications, sizing charts, and installation instructions, for each item specified. Highlight information pertaining specifically to product (s) submitted.
- c. Submit samples as requested.

3. Closeout Submittals Package: Submit as a complete package.
 - a. Operation and Maintenance Manuals: Furnish 2 hardcover three ring binders with the project name and number displayed on the front cover and spine. Include:
 - 1) List of Manufacturers.
 - 2) Approved Finish Hardware Schedule.
 - 3) Approved Manufacturers' Product Data Sheets.
 - 4) Manufacturer's operation, installation, maintenance, and repair instructions for each type of hardware furnished.
 - 5) Templates for kind of hardware furnished.
 - 6) Parts List for each type of finish hardware furnished.
 - 7) Manufacturers' dated written warranty for each type of finish hardware furnished.
 - 8) Certifications: Written certification from Company Field Advisors that their products are installed according to manufacturers' printed installation instructions, are operating properly, and manufacturers' written warranty will be in effect upon physical completion of the Work.
 - 9) Special Tools: List of special tools required to install hardware, and their purpose.
 - b. Special Tools:
 - 1) At conclusion of finish hardware installation, turn over to the facility 2 of each special tool required to install hardware together with a list of these tools and their purpose.

1.4 TEMPLATES

- A. After receipt of approved submittals, furnish templates to affected trades, to enable fabricators to make provision for finish hardware without delaying the Work of the Project.

1.5 DELIVERY AND STORAGE

- A. Coordinate delivery to avoid delay.
- B. Clearly label each item for identification and installation location as it corresponds to the approved Finish Hardware Schedule and subsequent information bulletins.
- C. Deliver hardware to the jobsite in the manufacturers' original packages complete with fasteners, parts, installation instructions, and templates required for proper installation.
- D. Inventory hardware at jobsite to identify shortages or backorders. Resolve delivery shortages and damaged items prior to installing hardware.

- E. Store finish hardware where directed by the facility. Provide locked, dry storage for finish hardware.
- 1.6 QUALITY ASSURANCE
- A. Hardware Distributor's Qualification:
 - 1. Hardware Distributor who has been in the business of furnishing, and/ or installing finish hardware for a minimum of three years.
 - 2. Hardware Distributor shall have the DHI certified Architectural Hardware Consultant prepare or certify the Finish Hardware Submittal meets specification requirements, and the schedule is written accurately and in accordance with DHI recommendations, and requirements of this specification.
 - B. Company Field Advisors: Employ advisor(s) for continuous hinges, door bolts, mortise locksets, surface overhead stops, door closers, and gaskets.
 - C. Installation Supervisor: Employ a qualified Installation Supervisor who will be responsible to ensure approved finished hardware is installed, adjusted and operates properly.
 - D. Installers: Employ experienced finish hardware installers who have been regularly employed by a Company installing finish hardware for a minimum of 5 years.
 - E. On Site Pre-installation Conference: Before finish hardware installation begins, the Contractor will call a conference at the site to review Finish Hardware Specifications, approved Finish Hardware Submittals, and to discuss requirements for the Work including:
 - 1. Hardware delivery and storage.
 - 2. Hardware labeling by door number.
 - 3. Hardware locations.
 - 4. Potential location conflicts.
 - 5. Hardware installation sequence and responsibility.
 - 6. Required accessories and fasteners.
 - 7. Continuous hinge installation.
 - 8. Surface overhead stops and closer template and adjustments.
 - 9. Special tools and maintenance items.
 - 10. Hardware Closeout requirements.
 - 11. Hardware Warranties.
 - G. Pre-installation Conference Attendance: The Construction Contractor, Company Field Advisors, authorized Finish Hardware Installers, and the Finish Hardware Distributor's Architectural Hardware Consultant shall attend the conference. Finish Hardware Reviewer conducts the meeting. Designers and facility personnel may attend. The Company Field Advisors will present installation instruction and advice.

- H. Construction of Benchmark: Before installing portions of the Work requiring benchmarks, install benchmarks for each form of construction required to comply with the following requirements, using materials indicated for the completed Work.
 - 1. Build hardware benchmark in door and frame assembly, specified in section 081102, in locations as directed, and include continuous hinge, lockset, closer, surface overhead stop and gaskets.
 - 2. Notify the Design Team in advance of dates and times when benchmark will be constructed.
 - 3. Install benchmark with supervisor oversight and workers who will be employed during the construction of the Work.
 - 4. Construct benchmarks using the exact materials, products, methods, and workmanship that were approved for the Work.
 - 5. Obtain the Design Team's approval of benchmarks before starting work, fabrication, or construction.
 - 6. Maintain benchmarks during construction in an undisturbed condition as a standard for judging the completed Work.
 - 7. Failure to maintain this standard of quality will be cause for rejection of the Work.
 - 8. Benchmark may be used in the Work unless otherwise indicated.
 - J. Uniformity of Hardware and Single Source Responsibility: For each kind of hardware provide product(s) of a single manufacturer.
 - K. Size Variations: Manufacturers' products may vary slightly from sizes specified except where minimum size or thickness is specified.
- 1.7 WARRANTY
- A. Manufacturer's Warranty: Fifteen-year minimum warranty for door closers.
 - B. Manufacturer's Warranty: Three year minimum for locksets.
- 1.8 MAINTENANCE
- A. Special Tools: At the conclusion of finish hardware installation, turn over to Facilities Representative 2 sets of each special tools required for proper installation and adjustment of hardware, together with a list of these tools and their purpose.
 - B. Lubricants: Provide manufacturer's recommended lubricants for locksets and closers sufficient for 1 year of maintenance. Turn over to the facility

PART 2 PRODUCTS

2.1 ACCESSORIES

- A. Provide brackets, plates, arms, spacers, and special templates to mount door closers in combination with overhead stops and coordinators, on narrow top rails and for special ceiling and jamb conditions.
- B. Provide curved lip strikes, with wrought boxes, specific to individual lock functions. Universal strikes that fit a variety of lock functions are not acceptable.

2.2 FASTENINGS

- A. Provide fasteners that harmonize with finish hardware material and finish.
- B. Provide torx center pin security fasteners for exposed hardware, including full mortise hinges.
- C. Provide machine screws for hardware secured to metal; and machine screws and metal expansion shields for attachment to masonry substrates. Self-tapping or self-drilling screws are not acceptable.
- D. Provide undercut shallow head torx center pin security fasteners where necessary for proper seating.
- E. Attach door closers and overhead stops with sex bolts.

2.3 MATERIALS AND FINISHES

- A. General: Requirements for design, grade, function, finish, size, and other distinctive qualities of each type of finish hardware are indicated in this section and in the Hardware Groups.
- B. Continuous Hinges
 - 1. Full height barrel-type manufactured from 14-gauge 304 stainless steel.
 - 2. .25" diameter stainless steel pins.
 - 3. Provide hinges without covers.
- C. Locks, Latches and Bolts
 - 1. Comply with UL requirements for throw of bolts and latch bolts on rated fire openings.
 - 2. Provide 3/4" minimum throw on other latch bolts.
 - 3. Provide 1" minimum throw deadbolts.
- D. Closers and Door Control Devices
 - 1. Closer bodies: Provide closer bodies with the same hole template pattern regardless of type or application.
 - 2. Closer arms: Non-handed forged steel.
 - 3. Closer size: Provide sized closers.

4. Provide all-weather fluid to eliminate seasonal adjustment of closer speed.
5. Powder coat closer body, arm, and adapter plate or pre-treat closer body, arm, and adapter plate with rust-inhibiting coating before painted finish is applied.

2.4 FINISH HARDWARE

A. HARDWARE MANUFACTURERS:

1. MK- MCKINNEY
2. SA – SARGENT
3. LC – LCN
4. SE – SECURITRON
5. AR - ADAMS RITE
6. RO - ROCKWOOD
7. CA - COMMAND ACCESS

B. HARDWARE SETS

SET P2-1 PAIR OF DOORS (Latch Retraction)

2	Ea. Power Transfer	EL-CEPT	SE	630
1	Ea. Exit Device	55-56-8504	SA	630
1	Ea. Exit Device	55-56-8510	SA	630
1	Ea. Cylinder Compatible with existing system and lockset		BE	626
2	Ea. Door Pull	BF158-2	RO	630
1	Ea. Power Supply	3520 24 VDC	SA	GRy
2	Ea. Wire Harness	QC-C300P	MK	
2	Ea. Wire Harness	QC-2500P	MK	
Balance of hardware existing				

Doors are normally closed and locked. Entry by Valid Credential momentarily retracting one exit device allowing door to be pulled open. Access Control system can unlock all devices during events. Doors are monitored by door position switch and latch bolt monitoring. Free egress at all times by manually pushing exit device in path of travel. Request to exit switch built into push bar.

SET P2-2 PAIR OF DOORS (Latch Retraction)

2	Ea. Power Transfer	EL-CEPT	SE	630
1	Ea. Exit Device	55-56-8704	SA	630
1	Ea. Exit Device	55-56-8710	SA	630

1	Ea.	Cylinder Compatible with existing system and lockset	BE	626	
2	Ea.	Position Sw	MSS100-4	FL	BRN
2	Ea.	Door Pull	Reuse Existing		
1	Ea.	Power Supply	3540 24 VDC	SA	GRY
2	Ea.	Wire Harness	QC-C300P	MK	
2	Ea.	Wire Harness	QC-2500P	MK	
Balance of hardware existing					

Doors are normally closed and locked. Entry by Valid Credential momentarily retracting one exit device allowing door to be pulled open. Access Control system can unlock all devices during events. Doors are monitored by door position switch and latch bolt monitoring. Free egress at all times by manually pushing exit device in path of travel. Request to exit switch built into push bar.

SET P2-3 BANK OF 3 DOORS (Latch Retraction)

3	Ea. Power Transfer	EL-CEPT	SE	630
1	Ea. Exit Device	55-56-8504	SA	630
2	Ea. Exit Device	55-56-8510	SA	630
1	Ea. Cylinder Compatible with existing system and lockset	BE	626	
3	Ea. Position Sw.	MSS100-4	FL	BRN
3	Ea. Door Pull	Reuse Existing	RO	630
1	Ea. Power Supply	3540 24 VDC	SA	GRY
3	Ea. Wire Harness	QC-C300P	MK	
3	Ea. Wire Harness	QC-2500P	MK	
Balance of hardware existing				

Doors are normally closed and locked. Entry by Valid Credential momentarily retracting one exit device allowing door to be pulled open. Access Control system can unlock all devices during events. Doors are monitored by door position switch and latch bolt monitoring. Free egress at all times by manually pushing exit device in path of travel. Request to exit switch built into push bar.

SET P2-4 INTERIOR SHELTER IN PLACE (PAIRS AND SINGLES)

1	Ea. Poe Transfer	CEPT-C5E	SE	630
1	Ea. POE Lockset	70- IN220-82276 IKP BP	SA	630
1	Ea. Cylinder Compatible with existing system and lockset	BE	626	
1	Ea. Door Closer	PR8501	NO	689
1	Ea. Wire Harness	PoE-C306P	MK	
1	Ea. Wire Harness	PoE-C1300P	MK	
Balance of Hardware existing				

Door is normally closed and locked. Door momentarily unlocked for entry by valid credential at reader. Door position monitored by door position switch built into lockset. Request to Exit incorporated into lockset. Thumbturn on room side extends deadbolt. Free Egress at all times by turning inside lever.

SET P2-5 INTERIOR SHELTER IN PLACE MODIFICATIONS

1	Ea. Push Button	PB4LA-2	SE	630
	Balance of Hardware existing			

Adding an interior pushbutton to the existing access control system to block the card reader from unlocking the door from the corridor.

SET P2-6 PAIR OF DOORS (Electrified Trim)

6	Ea. Hinges	BB199 4 ½ x 4 ½	ST	630
2	Ea. Power Transfer	EL-CEPT	SE	630
1	Ea. Exit Device	12-55-8876 x ETL	SA	630
1	Ea. Exit Device	12-55-8810	SA	630
1	Ea. Cylinder Compatible with existing system and trim		BE	626
2	Ea. Position Sw	MSS100-4	FL	BRN
1	Ea. Power Supply	3540 24 VDC	SA	GRY
2	Ea. Wire Harness	QC-C300P	MK	
2	Ea. Wire Harness	QC-2500P	MK	
2	Ea. Door Closer	PR8501	NO	689
2	Ea. Kickplates	K1050- x 1" LDW	RW	630
1	Ea. Removable Mullion	980S	SA	PRI

Balance of hardware existing

Doors are normally closed and locked. Entry by Valid Credential momentarily unlocking the exit device trim device allowing door to be pulled open. Access Control system can unlock all devices during events. Doors are monitored by door position switch. Free egress at all times by manually pushing exit device in path of travel. Request to exit switch built into push bar.

SET P2-7 INTERIOR SHELTER IN PLACE (New Doors)

6	Ea. Hinges	BB199 4 ½ x 4 ½	ST	630
1	Ea. Poe Transfer	CEPT-C5E	SE	630
1	Ea. POE Lockset	70- IN220-82276 IKP BP	SA	630
1	Ea. Cylinder Compatible with existing system and lockset		BE	626
1	Ea. Door Closer	PR8501	NO	689
1	Set Flush Bolts	555	RW	626
2	Ea. Kickplates	K1050- x 1" LDW	RW	630
1	Ea. Wire Harness	PoE-C306P	MK	
1	Ea. Wire Harness	PoE-C1300P	MK	

Balance of Hardware existing

Door is normally closed and locked. Door momentarily unlocked for entry by valid credential at reader. Door position monitored by door position switch built into lockset. Request to Exit incorporated into lockset. Thumbturn on room side extends deadbolt. Free Egress at all times by turning inside lever.

SET P2-8 INTERIOR SHELTER IN PLACE (New Doors)

3	Ea. Hinges	BB191 4 ½ x 4 ½	ST	630
1	Ea. Poe Transfer	CEPT-C5E	SE	630
1	Ea. POE Lockset	70- IN220-82276 IKP BP	SA	630
1	Ea. Cylinder Compatible with existing system and lockset		BE	626
1	Ea. Door Closer	PR8501	NO	689
1	Ea. Stop	Reuse existing		
1	Ea. Kickplates	K1050- x 1 ½" LDW	RW	630
1	Ea. Wire Harness	PoE-C306P	MK	
1	Ea. Wire Harness	PoE-C1300P	MK	

Balance of Hardware existing

Door is normally closed and locked. Door momentarily unlocked for entry by valid credential at reader. Door position monitored by door position switch built into lockset. Request to Exit incorporated into lockset. Thumbturn on room side extends deadbolt. Free Egress at all times by turning inside lever.

SET P2-9 SINGLE DOOR (Electrified Trim)

1	Ea. Power Transfer	EL-CEPT	SE	630
1	Ea. Exit Device	12-55-8976 x ETL	SA	630
1	Ea. Cylinder Compatible with existing system and trim		BE	626
1	Ea. Position Sw	MSS100-4	FL	BRN
1	Ea. Power Supply	3540 24 VDC	SA	GRY
1	Ea. Wire Harness	QC-C300P	MK	
1	Ea. Wire Harness	QC-2500P	MK	
1	Ea. Door Closer	PR8501	NO	689

Balance of hardware existing

Doors are normally closed and locked. Entry by Valid Credential momentarily unlocking the exit device trim device allowing door to be pulled open. Access Control system can unlock all devices during events. Doors are monitored by door position switch. Free egress at all times by manually pushing exit device in path of travel. Request to exit switch built into push bar.

SET P2-10 SINGLE DOOR (Electrified Trim)

1 Ea.	Power Transfer	EL-CEPT	SE	630
1 Ea.	Exit Device Trim	L996 x 24VDC	VD	626
1 Ea.	Cylinder Compatible with existing system and trim		BE	626
1 Ea.	Position Sw	MSS100-4	FL	BRN
1 Ea.	Power Supply	3540 24 VDC	SA	GRY
1 Ea.	Wire Harness	QC-C300P	MK	
1 Ea.	Wire Harness	QC-2500P	MK	

Balance of hardware existing

Doors are normally closed and locked. Entry by Valid Credential momentarily unlocking the exit device trim device allowing door to be pulled open. Access Control system can unlock all devices during events. Doors are monitored by door position switch. Free egress at all times by manually pushing exit device in path of travel. Request to exit switch built into push bar.

SET P2-11 INTERIOR SHELTER IN PLACE (New Doors)

6 Ea.	Hinges	BB199 4 ½ x 4 ½ NRP	ST	630
1 Ea.	Poe Transfer	CEPT-C5E	SE	630
1 Ea.	POE Lockset	70- IN220-82276 IKP BP	SA	630
1 Ea.	Cylinder Compatible with existing system and lockset		BE	626
2 Ea.	Door Closer	PR8501	NO	689
1 Set	Auto Flushbolts	2845	RO	626
1 Ea.	Coordinator	2672 x required brackets	RO	689
2 Ea.	Kickplates	K1050- x 1" LDW	RW	630
1 Ea.	Wire Harness	PoE-C306P	MK	
1 Ea.	Wire Harness	PoE-C1300P	MK	

Balance of Hardware existing

Door is normally closed and locked. Door momentarily unlocked for entry by valid credential at reader. Door position monitored by door position switch built into lockset. Request to Exit

2.5 KEYING

- A. Continue existing Best key system established Systems for Facility.
 1. Stamp key symbol on one side of key, and "Do Not Duplicate" on other side of key.
 3. Furnish one copy of factory bitting list to facility.
 4. Factory key cylinders.
 5. Furnish 3 cut keys for each master key.
 6. Furnish 7 cut keys for each keyed lockset.
 7. These cut key quantities are for bidding purposes only. Actual number of cut keys required will be determined at keying meeting.

8. When lockset and cylinder are by different manufacturers, identify and furnish correct cylinder cam to operate lockset.
 9. Provide compression rings and spacers to achieve proper spacing relationship between cylinder and face of door.
- B. Keying Conference
1. Immediately following contract award, Contractor will schedule a keying conference to develop a written key schedule that reflects Facility's specific keying requirements. Facility Representative(s), Hardware Distributor, Consulting Hardware Designer, and Hardware Designer will attend.
 2. Incorporate this schedule in Finish Hardware Submittals for approval.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine doors and frames and related items for conditions such as, but not limited to, incorrect handing, hardware preparation, misaligned lock and strike preparations, that would prevent proper application of finish hardware. Do not proceed until defects are corrected.
- B. Report conditions or hardware applications that are incorrect to the design team

3.2 INSTALLATION

- A. Do not proceed with installation of finish hardware prior to attending referenced pre-installation conference.
- B. Installation Sequence: Use proper installation sequence, i.e., install coordinators, and overhead stops and holders before surface mounted door closers.
- C. Install hardware in accordance with manufacturer's printed installation instructions, and adjust for smooth operation, free of sticking, binding or rattling.
 1. Template surface overhead stops and holders for proper operation
 2. Template and adjust closers for proper operation.
- D. Use proper tools and methods to prevent scratches, burrs or other defacement.
- E. Threshold Installation:
 1. Drill holes 3 inches from each end of threshold and intermediate holes 12 inches maximum o.c. for required fasteners. Prepare holes for countersunk fasteners.
 2. Level and align thresholds with frames and doors. Where required, use non-corrosive shims.
 3. Exterior Doors: Set thresholds in a solid bed of Type 3 sealant.

4. Secure thresholds to substrate with countersunk fasteners.

F. Door Bottom Installation:

1. Mount sweep type door bottom protection/drip caps on exterior side of doors.
2. Before mounting apply Type 2 sealant on the back side of bearing surface. Secure to door with required fasteners.

G. Gasket Installation:

1. Install continuous stripping at each opening without unnecessary interruptions.
2. Where fasteners are required, secure fasteners for stripping and seals so they will not work loose during door operation. Exposed heads of fasteners shall be free of sharp edges.
3. Coordinate meeting stile gasket with hardware before installation.
4. Install units plumb and level at the optimum location to maintain a permanent effective seal.

- H. After installation, cover and protect hardware to prevent damage during remaining construction. Remove protection upon completion of construction.

3.3 LOCATIONS

A. Locate hardware as follows:

1. Door Closers: Template for maximum door swing allowed by wall placement and jamb conditions. Where overhead stop prevents door from swinging to wall, template the closer to exceed degree of opening allowed by overhead stop.
2. Protection Plates: 1/8 inch from door bottom.
3. Wall Stops: Centerline of bumper to match centerline of locking trim.

3.4 FIELD QUALITY CONTROL

A. Post Installation Review: After hardware is adjusted for proper operation, The design team will hold a Post-Installation Review with the Contractor, Hardware Designer, Company Field Advisors, Hardware Distributor and Hardware Installers.

1. Physically inspect to verify proper application, installation, adjustment and operation of finish hardware, and in particular that:
 - a) Latches engage freely without binding. Filing of strike plates to relieve latch bind is not acceptable.
 - b) Closers are adjusted for proper spring power; sweep speed, latching speed; and hydraulic back check.
 - c) Locations and proper attachment of installed protective hardware are as specified.
 - d) There is no field modification of fasteners.
 - e) Damaged fasteners are replaced.
2. Defective hardware is repaired or replaced.

3. Hardware is to be left clean and free from disfigurement.
- B. Turn referenced Operations and Maintenance Manuals over to Facility.

END OF SECTION

SECTION 088100 - GLASS AND GLAZING

PART 1 GENERAL

1.01 RELATED WORK SPECIFIED ELSEWHERE

- A. Security Glass and Glazing: Section 088853.
- B. Plastic Sheet Glazing: Section 088400.

1.02 REFERENCES

- A. Comply with recommendations in the "Glazing Manual" of the Glass Association of North America and the "Sealant Manual" of the Flat Glass Marketing Association except as shown or specified otherwise, and except as specifically recommended otherwise by the manufacturers of the glass and glazing materials.

1.03 SUBMITTALS

- A. Product Data: Manufacturer's specifications and installation instructions for each type of glass and glazing material specified, and spacers and compressible filler rod.
- B. Samples:
 - 1. Glass: 12 x 12-inch pieces for each type of glass specified.
 - a. Insulating glass samples need not be hermetically sealed but include edge construction materials.
 - 2. Setting blocks, full size.
 - 3. Color Samples for Glazing Materials: Manufacturer's standard colors.
 - a. Marking Decals: Manufacturer's standard colors.
 - b. Tinted Glass: Manufacturer's standard colors.
 - c. Spandrel Glass Ceramic Coat: Manufacturer's standard colors.
 - 4. Pattern Samples:
 - a. Type C-1 Glass: Manufacturer's standard patterns.
 - b. Type F Glass: Manufacturer's standard patterns.
- C. Quality Control Submittals:
 - 1. Certificates:
 - a. Affidavit required under Quality Assurance Article.

1.04 QUALITY ASSURANCE

- A. Compatibility of Materials: All components of the glazing system shall be manufactured or recommended by one manufacturer to assure the compatibility of materials.

- B. Safety Glazing Material: Type indicated, meeting requirements of ANSI Z97.1 with label on each piece.
- C. Certification:
 - 1. Affidavit by the material supplier, certifying type and quality of glass furnished.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Protect glass from edge damage during handling, storage, and installation.

1.06 PROJECT CONDITIONS

- A. Environmental Requirements: Comply with glazing materials manufacturer's written recommendations regarding environmental conditions under which glazing materials can be installed.
- B. Glazing channel dimensions shown are intended to provide for necessary minimum bite on the glass, minimum edge clearance and adequate glazing material thicknesses, with reasonable tolerances. Provide correct glass size for each opening, within the tolerances and necessary dimensions required.

PART 2 PRODUCTS

2.01 GLASS

- A. Type I Glass (Interior View Lites): Laminated Safety Glass; two sheets of double-strength clear sheet glass; ASTM C 1036, Type I, Class 1, quality q3; permanently laminated together with a minimum 0.030-inch-thick sheet of clear plasticized polyvinyl butyral, which has been produced specifically for laminating glass.
- B. Type 2 Glass (Exterior Insulated Units):
 - a. Type D Glass: Tempered Float Glass; ASTM C 1048, Kind FT, Condition A, Type I, Class 1, tempered by the manufacturer's standard process (after cutting to final size).
 - 1. Thickness: 1/4 inch.
 - b. Laminated Safety Glass; two sheets of double-strength clear sheet glass; ASTM C 1036, Type I, Class 1, quality q3; permanently laminated together with a minimum 0.030-inch-thick sheet of clear plasticized polyvinyl butyral, which has been produced specifically for laminating glass.
 - 1. Unit Thickness:
 - a. Interior – 3/8"
 - b. Exterior Side Lite – 1"
 - c. Exterior Door – 1/2"

2.02 GLAZING MATERIALS

- A. Type 1 Glazing Material: Silicone Rubber Glazing Sealant; silicone rubber one-part elastomeric sealant; FS TT-S-001543, Class A; acid-type for non-porous channel surfaces, and non-acid type where any of the channel surfaces are porous.
- B. Type 3 Glazing Material: Acrylic Glazing Sealant; solvent-based, acrylic terpolymer, thermoplastic sealant; FS TT-S-00230, Type II, Class B, 95 percent of solids acrylic; compounded specifically for glazing.
- C. Type 4 Glazing Material: Acrylic-Latex Glazing Sealant; modified latex rubber and acrylic emulsion-polymer; compounded specifically as a glazing sealant with permanent flexibility (non-hardening), non-staining and non-bleeding.
- D. Type 5 Glazing Material: Butyl Rubber Glazing Sealant; polymerized butyl rubber compound with inert fillers and pigments; FS TT-S-001657, Type I; solvent-based with 75 percent solids, non-sag, tack-free within 24 hours, paintable, non-staining.
- E. Colors: For exposed materials provide color as indicated or, if not indicated, as selected by the Director from the manufacturer's standard colors. For concealed materials, provide any of the manufacturer's standard colors.
- F. Setting Blocks: Neoprene, 70-90 durometer hardness, with proven compatibility with sealants used.
- G. Spacers: Neoprene, 40-50 durometer hardness, with proven compatibility with glazing materials used.
- H. Compressible Filler Rod: Closed-cell or waterproof-jacketed rod stock of synthetic rubber or plastic foam, proven to be compatible with glazing materials used, flexible and resilient, with 5-10 psi compression strength for 25 percent deflection.
- I. Cleaners, Primers and Sealers: Type recommended by glazing material manufacturer.

2.03 MISCELLANEOUS

- A. Safety Marking Decals: Opaque decals, 4-inch diameter, color as selected by the Director from manufacturer's standard colors.

PART 3 EXECUTION

3.01 PREPARATION

- A. Clean the glazing channel, or other framing members to receive glass, immediately before glazing. Remove coatings which are not firmly bonded to

the substrate. Remove lacquer from metal surfaces wherever elastomeric sealants are used.

- B. Inspect each piece of glass immediately before installation and eliminate pieces which have observable damage or face imperfections.
- C. Apply primer or sealer to joint surfaces wherever recommended by sealant manufacturer.

3.02 INSTALLATION

- A. Each installation shall withstand normal temperature changes, wind loading, and impact loading (for operating sash and doors) without failure of any kind including loss or breakage of glass, failure of sealants or gaskets to remain watertight and airtight, deterioration of glazing materials and other defects in the Work.
- B. Install glass in accordance with the standards detailed in the "Glazing Manual" of the Glass Association of North America and the "Sealant Manual" of the Flat Glass Marketing Association except as shown and specified otherwise, and except as specifically recommended otherwise by the manufacturers of the glass and glazing materials.
- C. Unify appearance of each series of lights by setting each piece to match others as nearly as possible. Inspect each piece and set with pattern, draw and bow oriented in the same direction as other pieces.
- D. Install glazing materials in accordance with the manufacturer's printed instructions.

3.03 GLAZING

- A. Install setting blocks of proper size at quarter points of sill rabbet. If required to keep in place set blocks in thin course of the heel-bead compound.
- B. Provide spacers inside and out, and of proper size and spacing, for all glass sizes larger than 50 united inches, except where gaskets are used for glazing. Provide 1/8-inch minimum bite of spacers on glass and use thickness equal to sealant width, except with sealant tape use thickness slightly less than final compressed thickness of tape.
- C. Voids and Filler Rods: Prevent exudation of sealant or compound by forming voids or installing filler rods in the channel at the heel of jambs and head (do not leave voids in the sill channels) except as otherwise indicated, depending on light sizes, thickness and type of glass, and complying with manufacturer's recommendations.
- D. Force glazing materials into channel to eliminate voids and to ensure complete "wetting" or bond of glazing material to glass and channel surfaces.

- E. Tool exposed surfaces of glazing sealants and compounds to provide a substantial "wash" away from the glass. Install pressurized tapes and gaskets to protrude slightly out of the channel, so as to eliminate dirt and moisture pockets.
- F. Where wedge-shaped gaskets are driven into one side of the channel to pressurize the sealant or gasket on the opposite side, provide adequate anchorage to ensure that gasket will not "walk" out when subjected to dynamic movement. Anchor gasket to stop with matching ribs, or by proven adhesives, including embedment of gasket tail in cured heel bead.

3.04 CURE, PROTECTION AND CLEANING

- A. Cure glazing materials in accordance with manufacturer's printed instructions and recommendations, to obtain high early bond strength, internal cohesive strength, and surface durability.
- B. Mark glazed openings immediately upon installation of glass by attaching crossed streamers to framing. Do not apply markers of any type to surfaces of glass.
- C. Replace glass included in the work, which is broken, or otherwise damaged, from the time Work is started at the site until the date of physical completion.
- D. Maintain glass in a reasonably clean condition until date of physical completion.
 - 1. Clean and trim excess glazing material from the glass and stops or frames promptly after installation.
- E. When directed, or just before the project is turned over to the State, remove dirt and other foreign material and wash and polish glass included in the work on both sides.

3.05 MARKING DECALS

- A. Install two marking decals on each transparent glass door, and on each transparent glass sidelight which is wider than 20 inch between stiles. Locate decals midway between stiles 34 inch and 64 inch above the floor line.

END OF SECTION

SECTION 092116 - GYPSUM BOARD SYSTEMS

PART 1 GENERAL

1.01 DEFINITIONS

- A. Sheet Steel Gages: US Standard.
- B. Gypsum Board Terminology: ASTM C 11 - Standard Terminology Relating to Gypsum and Related Building Materials and Systems.

1.02 SUBMITTALS

- A. Product Data: Catalog sheets, specifications, and installation instructions for each item specified.

1.03 QUALITY ASSURANCE

- A. Fire Resistance Rated Applications: Provide UL listed or ASTM E 119 tested materials, accessories, and application procedures to comply with the rating, UL Design Number, or Gypsum Association File Number indicated.
- B. Sound Transmission Class (STC) Rated Applications: Provide materials and installation procedures identical to those tested in assembly indicated according to ASTM E 90 and classified according to ASTM E 413.

1.05 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials in original packages, containers, or bundles bearing brand name and identification of manufacturer.
- B. Store materials inside under cover and keep them dry and protected against damage from weather, direct sunlight, surface contamination, corrosion, construction traffic, and other causes. Stack gypsum panels flat to prevent sagging.

1.06 PROJECT CONDITIONS

- A. Environmental Requirements: Comply with gypsum board manufacturer's printed temperature and ventilation requirements during application and finishing. Ventilate installation areas to relieve excess moisture.

PART 2 PRODUCTS

2.01 FRAMING

- A. Studs, Tracks, and Furring: ASTM C 645; 25 gage (minimum base metal thickness 0.0179 inch) galvanized steel, with additional framing members, reinforcing, accessories, and anchors necessary for the complete framing system.
 - 1. Deep-Leg Deflection Track: ASTM C 645 top runner with 2 inch deep flanges.
 - 2. Resilient Furring Channels: Steel furring members designed to reduce sound transmission.

2.02 GYPSUM BOARD

- A. Standard Gypsum Board: ASTM C 1396; long edges as follows:
 - 1. Long Edges: Tapered.
- B. Fire Resistant Gypsum Board: ASTM C 1396; Type X, UL listed and bearing listing marking; long edges as follows:
 - 1. Long Edges: Tapered.

2.03 FASTENERS

- A. Steel Drill Screws: ASTM C 1002; gypsum board manufacturer's recommended types and sizes for substrates involved.
- B. Laminating Adhesive: Gypsum board manufacturer's recommended type for substrates involved.
- C. Expansion Anchors: Anchor bodies AISI 1018 or 12L14, of dimensions indicated; with nuts, ASTM A 563; and flat washers. Expansion sleeves AISI 1010, of dimensions indicated; with bolts, SAE Grade 5; and flat washers.
- D. Toggle Bolts: Tumble wing type.
 - 1. Wing Body: AISI 1008-1010 or equivalent cold rolled steel.
 - 2. Trunnion Nut: 1/4 inch thru 3/8 inch AISI 1010 steel; 1/2 inch Zamac alloy.
 - 3. Screw: Carbon steel.
- E. Self Threading Masonry Screws: Zinc plated; Tapcon Fasteners by ITW Buildex 1349 West Bryn Mawr Ave. Itasca, IL 60143, (800) 284-5339.

2.04 TRIM

- A. Interior Trim: ASTM C 1047.
 - 1. Material: Galvanized steel or extruded vinyl.
 - 2. Shapes:
 - a. Cornerbead: Use at outside corners.
 - b. Bullnose Bead: Use where indicated.
 - c. LC-Bead: J-Shaped, exposed long flange receives joint compound. Use at exposed panel edges.
 - d. L-Bead: L-shaped, exposed long leg receives joint compound with tear away bead. Use where gypsum board abuts or intersects dissimilar material.

- e. U-Bead: J-shaped, exposed short flange does not receive joint compound. Use where indicated.
- f. Expansion (Control) Joint: Use where indicated.

2.05 JOINT TREATMENT MATERIALS

- A. Joint Tapes: ASTM C 475; plain or perforated.
- B. Joint Compound: ASTM C 475; gypsum board manufacturer's recommended dry powder or ready-mixed, either of the following:
 - 1. One Compound Treatment: One compound for both bedding and finishing joints.
 - 2. Two Compound Treatment: Compatible joint compounds; one compound for bedding and the other compound for finishing joints.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examine substrates to which gypsum board system attaches or abuts, preset steel door frames, cast in anchors, and structural framing, with installer present for compliance with requirements for installation tolerances and other conditions affecting performance of gypsum board system construction. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.02 CONSTRUCTION TOLERANCES

- A. Do not exceed 1/8 inch in 8 feet variation from plumb or level in any exposed line or surface, except at joints between boards do not exceed 1/16-inch variation between planes or abutting edges or ends. Shim as required to comply with specified tolerances.

3.03 STEEL FRAMING INSTALLATION

- A. Installation Standards: ASTM C 754, and ASTM C 840 requirements that apply to framing installation.
- B. Install supplementary framing, blocking, and bracing at terminations in gypsum board system to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction. Comply with details indicated and with gypsum board manufacturer's written recommendations.
- C. Isolate partitions from structural elements with slip or cushion-type joints between steel framing and structure as recommended by steel framing manufacturer to prevent transfer of structural loads or movements to partitions.
- D. Partition Framing Installation:
 - 1. Align tracks accurately at floor and ceiling. Secure tracks as recommended by the framing manufacturer for the floor and ceiling construction involved, except do not exceed 24 inches oc spacing for

- powder-driven fasteners, or 16 inches oc for other types of attachment. Provide fasteners approximately 2 inches from corners and ends of tracks.
2. Position studs vertically and engage both floor and ceiling tracks. Install studs so flanges point in the same direction and leading edge or end of each panel can be attached to open (unsupported) edge of stud flanges first. Space studs 16 inches on center, unless otherwise indicated on the Drawings. Fasten studs to track flanges with screws or by crimping.
 3. Use full length studs between tracks wherever possible. If necessary, splice studs with a minimum 8 inch nested lap and fasten with two screws per stud flange.
 4. Install additional studs to support inside corners at partition intersections and corners, and to support outside corners, terminations of partitions, and both sides of control joints (if any).
 5. Extend partition framing full height to structural supports or substrates above suspended ceilings, except where partitions are indicated to terminate at suspended ceilings. Continue framing over frames for doors and openings and frame around ducts penetrating partitions above ceiling to provide support for gypsum board.
 6. Brace chase wall framing horizontally to opposite studs with 12 inch wide gypsum board gussets or metal framing braces, spaced vertically not more than 4 feet on center.
 - a. Attach gypsum board gussets with a minimum 3 screws per stud flange.
 - b. Attach metal framing braces with a minimum 2 screws per stud flange.
 7. Install rough framing at openings consisting of full-length studs adjacent to jambs and horizontal header and sill tracks. Cut horizontal tracks to length and split flanges and bend webs at ends for flange overlap and screw to jamb studs. Install intermediate studs between jamb studs at head and sill sections, at same spacing as full-length studs.
 8. At door frames, install rough framing as specified above. Install jamb studs to comply with framing manufacturer's recommendations for the types of frames and weights of doors required. Fasten jamb studs to metal frames with anchor clips using 2 self tapping screws or bolts per clip. Where wood frames are shown, fasten jamb studs to rough framing with screws.
 9. Where solid core wood doors, double doors, or doors weighing more than 50 lb are indicated or scheduled, install two studs at each jamb and one additional stud not more than 6 inches from jamb studs.
 10. Where vertical control joints are shown at jamb lines, install additional vertical studs located on opening side of jambs and not less than 1/2 inch from jamb studs. Do not fasten the additional studs to tracks or jamb studs.
 11. Where wall mounted door bumpers are scheduled, provide horizontal reinforcement consisting of 2 pieces of framing installed back-to-back, flush with the face of adjacent stud flanges.

3.04 GYPSUM BOARD INSTALLATION

- A. Install gypsum board in the most economical direction, of maximum lengths to minimize end butt joints. Where unavoidable, locate end butt joints as far from center of walls or ceilings as possible.
- C. Install gypsum board with face side out. Butt boards together at edges and ends over firm bearing with not more than 1/16 inch of open space between boards. Do not force into place.
- D. Fasteners: Fasten gypsum board to supports and furring with steel drill screws of required size and spacing as recommended by the gypsum board manufacturer.
- E. Provide additional framing and blocking required to support gypsum board at openings and cutouts.
- F. Form control joints in gypsum board where indicated. Allow 1/2-inch continuous opening between boards to allow for insertion of control joint trim.
- G. Wood Supports: Provide “floating” interior angle construction between gypsum board at interior corners.
- H. Reinforce joints formed by tapered edges, butt edges, and interior corners or angles with joint tape.

3.07 TRIM INSTALLATION

- A. Coordinate installation of trim progressively with gypsum board installation where trim is of type required to be installed prior to, or progressively with installation of gypsum board.
- B. Securely fasten trim pieces in accordance with manufacturer’s printed instructions.
- C. Install cornerbeads at external corners. Install LC-Bead (J-Bead) beads at unprotected (exposed) edges and where gypsum board abuts dissimilar materials. Use single unjointed lengths unless otherwise approved by the Director.
- D. Install control joint trim in accordance with ASTM C 840, where indicated.
- E. Comply with joint compound manufacturer’s recommended drying time for the relative humidity and temperature at time of application. Allow minimum of 24 hours drying time between applications of joint compound.

3.08 LEVELS OF GYPSUM BOARD FINISH

- A. General: Finish panels to levels indicated below, in accordance with ASTM C 840, for locations indicated.
 - 1. Level 1 Finish (Temporary Partitions): Joints and angles, provide tape embedded in joint compound. Surface shall be free of excess joint compound. Tool marks and ridges will be acceptable.

2. Level 4 Finish: Joints and angles, provide tape embedded in joint compound and provide three separate coats of joint compound over all joints, angles, and fastener heads. Accessories to be covered with three separate coats of joint compound. Joint compounds to be smooth and free of tool marks and ridges. Cover the prepared surface with a drywall primer prior to the application of the final decoration.

END OF SECTION

SECTION 099101 - CONSTRUCTION PAINTING

PART 1 GENERAL

1.01 DEFINITIONS

- A. The word “paint” in this Section refers to substrate cleaners, fillers, sealers, primers, undercoats, enamels, stains, varnishes and other first, intermediate, last or finish coatings.
- B. The word “primer” in this Section refers to substrate cleaners, fillers, sealers, undercoats, and other first or intermediate coats beneath the last or finish coating.
- C. The words “finish paint” in this Section refers to the last or final coat and previous coats of the same material or product directly beneath the last or final coat.
- D. Finish Paint Systems: Finish paint and primers applied over the same substrate shall be considered a paint system of products manufactured or recommended by the finish coat manufacturer.
 - 1. Finish paint products shall meet or exceed specified minimum physical properties.

1.03 SUBMITTALS

- A. Painting Schedule: Cross-referenced Painting Schedule listing all exterior and interior substrates to be painted and specified finish paint type designation; product name and manufacturer, recommended primers and product numbers, and finish paint color designation for each substrate to be painted.
 - 1. Designate exterior substrates by building name and number, substrate to be painted and surface location.
 - 2. Designate interior substrates by building name and number, floor, room name and number, and surface to be painted.
- B. Product Data Sheets: Manufacturer’s published product data sheets describing the following for each finish paint product to be applied:
 - 1. Percent solids by weight and volume, solvent, vehicle, weight per gallon, ASTM D 523 gloss/reflectance angle, recommended wet and dry film thickness, volatile organic compound (VOC) content in lbs/gallon, product use limitations and environmental restrictions, substrate surface preparation methods, directions and precautions for mixing and thinning, recommended application methods, square foot area coverage per gallon, storage instructions, and shelf-life expiration date.
 - 2. Manufacturer’s recommended primer for each finish paint product and substrate to be painted.
 - 3. Manufacturer’s complete range of available colors for each finish paint product to be applied.

- C. Quality Control Submittals:
 - 1. Test Reports:; Furnish certified test results from an independent testing laboratory showing that products submitted comply with the specifications, if requested by the Owner's Representative.
 - 2. Certificates: Furnish certificates of compliance required under QUALITY ASSURANCE Article.
- D. Existing Exterior Paint Film Stripping and Removal Submittals:
 - 1. Submit proposed materials and methods for removing existing paint films down to a clean and original undamaged substrate.
 - a. Depending upon the substrate to be stripped and thickness of paint films to be removed, acceptable methods of removal include hand or mechanical tools, pressure washing with water, heat or steam devices, chemical strippers and other appropriate methods.
 - b. More aggressive paint stripping and removal methods will not be accepted when less aggressive methods are equally effective with less damages.
 - c. Chemical Strippers: As recommended by a letter of approval from finish paint manufacturer.

1.04 QUALITY ASSURANCE

- A. Volatile Organic Compounds (VOCs) Regulatory Requirements: Chapter III of Title 6 of the official compilation of Codes, Rules and Regulations of the State of New York (Title 6 NYCRR), Part 205 Architectural Surface Coatings.
 - 1. Certificate of Compliance: List of each paint product to be delivered and installed. List shall include written certification stating that each paint product listed complies with the VOC regulatory requirements in effect at the time of job site delivery and installation.
- B. Container Labels: Label each product container with paint manufacturer's name, product name and number, color name and number, thinning and application instructions, date of manufacture and shelf-life expiration, required surface preparation, recommended coverage per gallon, wet and dry film thickness, drying time, and clean up procedures.
- C. Field Examples:
 - 1. Prior to on-site painting, at locations designated by the Owner's Representative, apply field examples of each paint type to be applied.
 - 2. Field examples to be applied on actual substrates to be painted and shall duplicate earlier approved paint samples.
 - a. Interior field examples to be applied in rooms and spaces to be painted with the same products.
 - b. Field Example Minimum Wet and Dry Film Thickness: As indicated on approved product data sheet.
 - c. Application: Apply each coat in a smooth uniform wet mil thickness without brush marks, laps, holidays, runs, stains,

cloudiness, discolorations, nail holes and other surface imperfections.

- 1) Leave a specified exposed width of each previous coat beneath each subsequent coat of finish paint and primer.
- D. Do not begin applying paints represented by field examples until examples have been reviewed and approved by the Owner's Representative.
 - a. Protect and maintain approved field examples until all painting work represented by the example has been completed and approved.
- D. Compatibility of Paint Materials: Primers and intermediate paints shall be products manufactured or recommended by the finish paint manufacturer.
- E. Performance Criteria:
 1. The following criteria are REQUIRED for products included in this section:
 - a. Paints and coatings manufactured within 500 miles (by air) of the project site shall be documented in accordance with Submittal Requirements of Item 1.03.F.
 - b. Architectural paints and coatings applied to interior walls and ceilings must not exceed the volatile organic compound (VOC) content limits established in Green Seal Standard GS-11, Paints.
 - c. Anti-corrosive and anti-rust paints applied to interior ferrous metal substrates must not exceed the VOC content limit established in Green Seal Standard GC-03, AntiCorrosive Paints.
 - d. Clear wood finishes, floor coatings, stains, primers, and shellacs applied to interior elements must not exceed the VOC content limits established in South Coast Air Quality Management District (SCAQMD) Rule 1113, Architectural Coatings.
 2. Volatile Organic Compounds: The VOC concentrations (in grams per liter) of the product shall not exceed those listed below as determined by U. S. Environmental Protection Agency (EPA) Reference Test Method 24 and the standards referenced in 1.04.E.1.
 - a. Interior Paints and Coatings:
 1. Non-flat: 150
 2. Flat: 50
 - b. Anti-Corrosive Paints (if used in interior applications):
 1. Gloss: 250
 2. Semi-gloss: 250
 3. Flat: 250
 - c. Exclude water and tinting color added at the point of sale in the calculation of VOC concentrations.
 3. Chemical Component Limitations: Aromatic Compounds: the product must contain no more than 1.0% by weight of the sum total of aromatic compounds. Testing for the concentration of these compounds will be performed if they are determined to be present in the product during a materials audit.

4. Chemical Component Limitations, Other Chemicals: The manufacturer shall demonstrate that the following chemical compounds are not used as ingredients in the manufacture of the product:
 - a. Halomethanes: Methylene chloride.
 - b. Chlorinated ethanes: 1,1,1-trichloroethane.
 - c. Aromatic solvents: benzene, toluene (methylbenzene), ethylbenzene.
 - d. Chlorinated ethylenes: Vinyl chloride.
 - e. Polynuclear aromatics: Naphthalene.
 - f. Chlorobenzenes: 1,2-dichlorobenzene.
 - g. Phthalate esters: Di (2-ethylhexyl) phthalate, butyl benzyl phthalate, di-n-butyl phthalate, di-n-octyl phthalate, diethyl phthalate, dimethyl phthalate.
 - h. Miscellaneous semi-volatile organics: Isophorone.
 - i. Metals and their compounds: antimony, cadmium, hexavalent chromium, lead, mercury
 - j. Preservatives (antifouling agents): formaldehyde
 - k. Ketones: methyl ethyl ketone, methyl isobutyl ketone
 - l. Miscellaneous volatile organics: acrolein, acrylonitrile

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Delivery: Deliver materials to the Site in original, unopened containers and cartons bearing manufacturer's printed labels. Do not deliver products which have exceeded their shelf life, are in open or damaged containers or cartons, or are not properly labeled as specified.
- B. Storage and Handling: Store products in a dry, well-ventilated area in accordance with manufacturer's published product data sheets. Storage location shall have an ambient air temperature between 45 degrees F and 90 degrees F.

1.06 PROJECT CONDITIONS

- A. Environmental Requirements:
 1. Ambient Air Temperature, Relative Humidity, Ventilation, and Surface Temperature: Comply with paint manufacturer's published product data sheet or other printed product instructions.
 2. If paint manufacturer does not provide environmental requirements, use the following:
 - a. Ambient Air Temperature: Between 45 degrees F and 75 degrees F.
 - b. Relative Humidity: Below 75 percent.
 - c. Ventilation: Maintain the painting environment free from fumes and odors throughout the Work of this Section.
 - d. Surface Temperature: At least 5 degrees F above the surface dewpoint temperature.
 3. Maintain environmental requirements throughout the drying period.

- B. The following items are not to be painted unless otherwise specified, noted or directed:
1. Exposed stainless steel, chrome, copper, bronze, brass, and aluminum.
 2. Steel to be encased in cast-in-place concrete.
 3. Top flanges of structural beams and girders in composite concrete-steel construction.
 4. Factory prefinished items.
 5. Exposed structural wood floor joists, subflooring, rafters, roof sheathing and other framing lumber.
 6. Galvanized items not exposed in finished spaces.

PART 2 PRODUCTS

2.01 PAINT MANUFACTURERS

- A. Where noted, the following finish paint manufacturers produce the paint types specified.
1. Benjamin Moore and Co., 51 Chestnut Ridge Rd., Montvale, NJ 07645, (201) 573-9600.
 2. Samuel Cabot Inc., 100 Hale St., Newburyport, MA 01950, (508) 465-1900.
 3. Sherwin-Williams Co., Cleveland, OH 44101, (800) 321-8194.
 4. Valspar Corp., 1401 Severn St., Baltimore, MD 21230, (800) 638-7756.

2.02 PAINT PRODUCTS

- A. Bedding Compound: Water based pre-mixed gypsum wallboard joint compound.
- B. Cleaning Solvents: Low toxicity with flash point in excess of 100 degrees F.
- C. Color Pigments: Pure, nonfading, finely ground pigments with at least 99 percent passing a 325 mesh sieve.
1. Use lime-proof color pigments on masonry, concrete and plaster.
 2. Use exterior pigments in exterior paints.
- D. Galvanizing Compound, Cold: Single component compound with 93 percent pure zinc in the dried film and meeting the requirements of DOD-P-21035A (NAVY).
- E. Glazing Compound: ASTM C 669.
- F. Masking Tape: Removable paper or fiber tape, self-adhesive and nonstaining.
- G. Metal Filler: Polyester resin base autobody filler.
- H. Mineral Spirits: Low odor type recommended by finish paint manufacturer.
- I. Nonskid Deck Enamel Additive: Sid Tex by Gamma Labs, Inc., 840 Arroyo Ave., San Fernando, CA, 91340-1832, (818) 369-7500.

- J. Paint Stripper: As recommended by finish paint manufacturer.
- K. Spackling Compound: Water based pre-mixed plaster and gypsum wallboard finishing compound.
- L. Stain Blocker, Primer-Sealer: As recommended by finish paint manufacturer.
- M. Turpentine: ASTM D 13.
- N. Wood Putty: Water based pre-mixed wood filler.
 - 1. Color match putty to wood substrate beneath clear and semi-transparent finishes.
- O. Wood Substrate Cleaner, Brightener, Conditioner, and Open-grain Sealer: As recommended by finish paint manufacturer.

2.03 FINISH PAINT TYPES

- A. Physical Properties:
 - 1. Specified percent solids by weight and volume, pigment by weight, wet and dry film thickness per coat, and weight per gallon are minimum physical properties of acceptable materials.
 - a. Opaque Pigmented Paints: Physical properties specified are for white titanium dioxide base before color pigments are added.
 - b. Specified minimum wet and dry film thickness per coat are for determining acceptable finish paint products. Minimum wet and dry film thickness per coat to be applied shall comply with approved finish paint manufacturer's product data sheets.
 - 2. Gloss or Reflectance: The following ASTM D 523 specified light levels and angles of reflectance:
 - a. Flat: Below 15 at 85 degrees.
 - b. Eggshell: Between 5 and 20 at 60 degrees.
 - c. Satin: Between 15 and 35 at 60 degrees.
 - d. Semigloss: Between 30 and 65 at 60 degrees.
 - e. Gloss: Over 65 at 60 degrees.
- B. Exterior Finish Paint Types:
 - 1. Paint Type 1: Exterior Acrylic Latex, Flat.
 - a. Solids by Weight: 52.0 percent.
 - b. Solids by Volume: 32.0 percent.
 - c. Solvent: Water.
 - d. Vehicle: 100 percent acrylic resin.
 - e. Weight Per Gallon: 10.5 lbs.
 - f. Wet Film Thickness: 4.0 mils.
 - g. Dry Film Thickness: 1.3 mils.
 - h. Manufacturers: Benjamin Moore and Sherwin-Williams.
 - 2. Paint Type 2: Exterior Acrylic Latex, Semigloss Enamel.
 - a. Solids by Weight: 47.0 percent.

- b. Solids by Volume: 33.2 percent.
 - c. Solvent: Water.
 - d. Vehicle: 100 percent acrylic resin.
 - e. Weight Per Gallon: 10.0 lbs.
 - f. Wet Film Thickness: 4.0 mils.
 - g. Dry Film Thickness: 1.3 mils.
 - h. Manufacturers: Benjamin Moore and Sherwin-Williams.
 - 3. Paint Type 3: Exterior Acrylic Latex, Gloss Enamel.
 - a. Solids by Weight: 40.0 percent.
 - b. Solids by Volume: 32.0 percent.
 - c. Solvent: Water.
 - d. Vehicle: 100 percent acrylic resin.
 - e. Weight Per Gallon: 10.0 lbs.
 - f. Wet Film Thickness: 3.4 mils.
 - g. Dry Film Thickness: 1.2 mils.
 - h. Manufacturers: Benjamin Moore, PPG, Sherwin-Williams.
- C. Interior Finish Paint Types:
- 1. Paint Type INT-1: Interior Acrylic Latex, Flat.
 - a. Solids by Weight: 50.0 percent.
 - b. Solids by Volume: 32.0 percent.
 - c. Solvent: Water.
 - d. Vehicle: Vinyl acrylic resin.
 - e. Weight Per Gallon: 10.9 lbs.
 - f. Wet Film Thickness: 3.8 mils.
 - g. Dry Film Thickness: 1.3 mils.
 - h. Manufacturers: Benjamin Moore, ICI Dulux, Sherwin-Williams.
 - 2. Paint Type INT-2: Interior Acrylic Latex, Eggshell.
 - a. Solids by Weight: 51.0 percent.
 - b. Solids by Volume: 35.0 percent.
 - c. Solvent: Water.
 - d. Vehicle: Vinyl acrylic resin.
 - e. Weight Per Gallon: 11.0 lbs.
 - f. Wet Film Thickness: 3.8 mils.
 - g. Dry Film Thickness: 1.3 mils.
 - h. Manufacturers: Benjamin Moore, ICI Dulux, Sherwin-Williams.
 - 3. Paint Type INT-3: Interior Acrylic Latex, Semigloss Enamel.
 - a. Solids by Weight: 49.0 percent.
 - b. Solids by Volume: 35.0 percent.
 - c. Solvent: Water.
 - d. Vehicle: Vinyl acrylic resin.
 - e. Weight Per Gallon: 10.0 lbs.
 - f. Wet Film Thickness: 3.8 mils.
 - g. Dry Film Thickness: 1.2 mils.
 - h. Manufacturers: Benjamin Moore, ICI Dulux, Sherwin-Williams.
 - 4. Paint Type INT-4: Interior Acrylic Latex, Gloss Enamel.

- a. Solids by Weight: 40.0 percent.
 - b. Solids by Volume: 32.0 percent.
 - c. Solvent: Water.
 - d. Vehicle: Vinyl acrylic resin.
 - e. Weight Per Gallon: 10.0 lbs.
 - f. Wet Film Thickness: 3.4 mils.
 - g. Dry Film Thickness: 1.2 mils.
 - h. Manufacturers: Benjamin Moore, PPG, Sherwin-Williams.
- D. Colors: Provide paint colors either shown on contract drawings or to be selected by the Director from finish paint manufacturers available color selections.
1. Approved finish paint manufacturers to match designated colors of other manufacturers where colors have been shown on the contract documents.
 2. Safety Colors: Industry Standard ANSI Safety Colors.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examine surfaces to be prepared, primed, or painted for compliance with contract documents, required environmental conditions, manufacturer's product data sheets, product label instructions and other written requirements.
1. Do not begin any phase of the work without first checking and verifying that surfaces and environmental conditions are acceptable for such work and that any earlier phase deficiencies and discrepancies have been properly corrected.
 - a. The commencement of new work shall be interpreted to mean acceptance of surfaces to be affected.

3.02 PREPARATION

- A. Protection: Cover and protect both surfaces to be painted and adjacent surfaces not to be painted from existing paint removals, airborne sanding particles, cleaning fluids and paint spills using suitable drop cloths, barriers and other protective devices.
1. Adjacent exterior surface protections include roofs, walls, landscaping, driveways and walkways. Interior protections include floors, walls, furniture, furnishings and electronic equipment.
 2. Remove and replace removable hardware, lighting fixtures, telephone equipment, other devices and cover plates over concealed openings in substrates to be painted.
 - a. Cover and neatly mask permanently installed hardware, lighting fixtures, cover plates and other devices which cannot be removed and are not scheduled for painting.
 3. Schedule and coordinate surface preparations so as not to interfere with work of other trades or allow airborne sanding dust particle to fall on freshly painted surfaces.

4. Provide adequate natural or mechanical ventilation to allow surfaces to be prepared and painted in accordance with product manufacturer's instructions and applicable regulations.
 5. Provide and maintain "Wet Paint" signs, temporary barriers and other protective devices necessary to protect prepared and freshly painted surfaces from damages until Work has been accepted.
- B. Clean and prepare surfaces to be painted in accordance with specifications, paint manufacturer's approved product data sheets and printed label instructions. In the event of conflicting instructions or directions, the more stringent requirements shall apply.
1. Cleaners: Use only approved products manufactured or recommended by finish paint manufacturer. Unless otherwise recommended by cleaner manufacturer, thoroughly rinse with clean water to remove surface contaminants and cleaner residue
- C. Surfaces:
1. Existing Exterior Painted Surfaces: Thoroughly clean to remove dirt, soot, grease, mildew, chalkiness and stains using finish paint manufacturer's recommended spray-on liquid cleaner.
 - a. Apply cleaner using hand-held wand applicator in accordance with product manufacturer's instructions. Thoroughly rinse and remove all residue with clean water.
 - b. Remove loose, peeling, cracked and blistered paint by chipping, scraping, and sanding smooth with medium and fine sandpaper.
 - c. Fill surface holes and depressions with finish paint manufacturer's recommended filler and sand smooth to adjacent undisturbed edges.
 - d. Touch-up bare spots on previously painted surfaces with finish paint manufacturer's recommended primer.
 - e. Sand existing semigloss and gloss paint surfaces to a uniform smooth dull finish before painting.
 - f. Fill and sand smooth existing paint surface damages, depressions, ridges and other imperfections that will remain visible after new paints have been applied.
 2. Steel Doors and Frames: Fill indentations and cracks with metal filler; sand smooth to match adjacent undamaged surfaces.
 3. Plaster, Cement Plaster, and Gypsum Wallboard:
 - a. Fill cracks, holes, and other indentations smooth to adjacent surfaces using specified bedding, spackling, and finishing compounds.
 - b. Plaster: Scrape and sand smooth ridges, spills, nibs, and other surface projections.
 - c. Cement Plaster: Coat surfaces to be patched with a bonding agent. Patch cement plaster with an approved mortar patching mix and finish to match adjacent surface and texture.
 - d. Gypsum Wallboard: Fill and sand smooth minor bedding and finishing compound defects.
 - e. Vacuum and wipe surfaces free of all sanding residue and dust.

- D. Painting Material Preparations:
1. Prepare painting materials in accordance with manufacturer's approved product data sheets and printed label instructions.
 - a. Stir materials before and during application for a consistent mixture of density. Remove container surface paint films before stirring and mixing.
 - b. Slightly tint first opaque finish coat where primer and finish coats are the same color.
 - c. Do not thin paints unless allowed and directed to do so in writing within limits stated on approved product data sheets.

3.03 APPLICATION

- A. Environmental Conditions:
1. Water-based Paints: Apply when surface temperatures will be 50 degrees Fahrenheit to 90 degrees Fahrenheit throughout the drying period.
 2. Other Paints: Apply when surface temperatures will be 45 degrees Fahrenheit to 95 degrees Fahrenheit throughout the drying period.
 3. Apply exterior paints during daylight hours free from rain, snow, fog and mist when ambient air conditions are more than 5 degrees above the surface dewpoint temperature and relative humidity less than 85 percent.
 - a. When exterior painting is allowed or required during nondaylight hours, provide portable outdoor weather recording station with constant printout showing hourly to diurnal air temperature, humidity, and dewpoint temperature.
 4. Exterior Cold Weather Protection: Provide heated enclosures necessary to maintain specified temperature and relative humidity conditions during paint application and drying periods.
- B. Install approved paints where specified, or shown on the drawings, and to match approved field examples.
1. Paint Applicators: Brushes, rollers or spray equipment recommended by the paint manufacturer and appropriate for the location and surface area to be painted.
 - a. Approved minimum wet and dry film thicknesses shall be the same for different application methods and substrates.
- C. Paint Type Coats To Be Applied: Unless specified otherwise by finish paint manufacturer's product data sheet, the number of coats to be applied as follows:
1. Interior Gypsum Board Assemblies:
 - a. New Unpainted Surfaces: Apply 1 coat of primer and 2 coats of finish paint.
 - b. Existing Painted Surfaces:
 - 1) Apply 2 coats of finish paint when existing paint has a lower gloss.
 - 2) Apply one coat of primer and 2 finish coats when existing paint has a higher gloss.

2. Factory Primed Surfaces: Apply 2 coats of finish paint.

D. Surfaces: Unless otherwise specified or shown on the drawings, paint surfaces as follows:

1. Exterior Surfaces:
 - a. Factory Finished Metal Substrates: Field painting not required.
 - b. Factory Primed and Unprimed Ferrous Substrates:
 - 1) Doors, Frames and Trim: Paint Type -3.
2. Interior Surfaces:
 - a. Ceilings: Paint Type -1
 - b. Walls: Paint Type -2
 - c. Doors, Windows, Frames and Trim: Paint Type -3
3. Unless otherwise noted, paint both exterior and interior unremovable and exposed wall and ceiling air supply and return grilles; plumbing pipes; electrical panel and fuse boxes, raceways and conduits; heating convector cabinets, radiators, radiator cabinets, unit heaters, and similar existing and installed devices and equipment by other trades.
 - a. Paint to match adjacent wall or ceiling surfaces.
 - b. Paint exposed surfaces when any part of the surface is on or within 8 inches of ceiling or wall surface to be painted.
 - c. Paint visible interior surfaces behind grilles, guards and screens.
4. Doors and Frames: Unless otherwise noted, paint doors and frames the same color in the next highest gloss as adjacent wall surfaces.
 - a. Where walls are not the same color on both sides of a door frame, change color at the inside corner of the frame stop.
 - b. Prime and finish paint door faces and edges before installation.
 - 1) Paint door edges the same paint type color as the exterior side of the door.
 - c. Do not paint door components which are clearly not intended to be painted such as non-ferrous hardware, frame mutes, and weather stripping.
 - d. Do not allow doors and frames to touch until paint is thoroughly dry on both surfaces.
5. Ferrous Metal Door and Window Hardware: Unless otherwise noted, prime and paint to match adjacent doors, windows and frames.

3.04 FIELD QUALITY CONTROL

- A. Paint Samples: Assist the Owner's Representative in obtaining random one quart paint samples for testing at any time during the Work.
 1. Notify the Owner's Representative upon delivery of paints to the Site.
 2. Furnish new one quart metal paint containers with tight fitting lids and suitable labels for marking.
 - a. Furnish labor to thoroughly mix paint before sampling and provide assistance with sampling when required.

3.05 ADJUSTING AND CLEANING

- A. Reinstall removed items after painting has been completed.
 - 1. Restore damaged items to a condition equal to or better than when removed. Replace damaged items that cannot be restored.
- B. Touch up and restore damaged finish paints. Touch up and restoration paint coats are in addition to the number of specified finish paint coats.
- C. Remove spilled, splashed, or spattered paint without marring, staining or damaging the surface. Restore damaged surfaces to the satisfaction of the Owner's representative.
- D. Remove temporary barriers, masking tape, and other protective coverings upon completion of painting, cleaning and restoration work.

END OF SECTION

SECTION 27 10 00

NETWORK CABLE INSTALLATION

Part 1: Introduction

1.1.1.1) Introduction

Purchase College (SUNY) located in Purchase, NY, maintains the following specification (hereafter referred to as "Specification", "the Specification", or "this Specification") as a set of requirements for any installation of cables that shall support any Data, Telephone, Audio/Video, and Security (alarm, surveillance, and door access systems) services on the Purchase College campus.

1.2) The Terms "Owner" and "the Owner"

The Terms "Owner" and "the Owner" shall represent Purchase College, State University of New York (SUNY) of 735 Anderson Hill Rd., Purchase, NY 10577.

1.3) Applicability of this Specification and the Term "Contractor"

This Specification may be presented in a number of ways, including but not limited to the following:

- 1.3.1) This Specification may be attached to a request for quotation or request for proposal, in which case this document shall specify requirements for proposed work upon which a vendor shall base its quotation. In this case the terms "Contractor" and "the Contractor" shall represent the vendor who is providing cost quotation/proposal upon which an agreement to perform the work may be reached. By use of the terms "Contractor" and "the Contractor", Owner conveys no promise or intention that such an agreement will be reached.
- 1.3.2) This Specification may accompany an order for installation services and materials, in which case it shall serve as requirements by which vendor is to provide requested services and materials should the vendor accept the order. In this case the terms "Contractor" and "the Contractor" shall represent the selected vendor in its obligation to perform the actual work.

1.4) Format

This Specification consists of the following five parts:

- Part 1: Introduction
- Part 2: General,
- Part 3: Materials,
- Part 4: Execution
- Part 5: Documentation

With some projects an additional part may be added:
Part 6: Scope of Work

Part 2: General

2) General

2.1) Schedule

Contractor shall complete all work according to any Schedule Requirements specified in the Scope of Work (if provided) and the original RFQ/RFP/Project.

Contractor shall accompany any request for quote with a proposed schedule in writing, including all of the Project Milestones specified below and the Schedule Requirements specified in the Scope of Work (if provided) and the original RFQ/RFP/Project..

If work is awarded to contractor, then proposed schedule of Contractor shall become the Schedule absent other written agreement by Owner. Contractor shall adhere strictly to the Schedule and convey any proposed adjustments to the Schedule and all Project Milestones as a Transmittal to Owner Project Manager.

Written approval from Owner Project Manager must be obtained by Contractor prior to change of Schedule according to any proposed adjustments. If written approval from Owner Project Manager is not obtained by Contractor, then the Schedule remains unchanged and Contractor is obligated to perform according to Schedule.

Project Milestones are as follows:

- 2.1.1) Date Order Must be Received By
- 2.1.2) Materials Delivery Date (if different from the start date)
- 2.1.3) Start of Work Date
- 2.1.4) Start Date of Work on Communication Rooms
- 2.1.5) Start Date of Pathway Installation (incl. core drilling, riser installation, raceway installation)
- 2.1.6) Completion of Risers Date
- 2.1.7) Completion of Path Installation Date
- 2.1.8) Start of Fiber-Optic Cable Installation Date
- 2.1.9) Fiber-Optic Testing and Labeling Date
- 2.1.10) Completion of Fiber-Optic Cable Installation Date
- 2.1.11) Start of Other Cable Installation Date
- 2.1.12) Completion of Cable Pulling/Rough-in Date
- 2.1.13) Completion of Category 6 / 6A Cable Installation Date
- 2.1.14) Completion of Telecommunications Feeder Installation Date
- 2.1.15) Completion of Other Cable Installation Date
- 2.1.16) Documentation Delivery Date
- 2.1.17) Project Total Completion Date

2.2) Contractor References

Contractor shall supply along with their bid a list of references of comparable installations, including contact name and telephone number. Owner may elect to perform a site visit to one or more references. Contractor shall note at least one reference that is able to accommodate a site visit by Owner.

2.3) Designated Contacts

2.3.1) Owner Designated Contacts

Owner shall specify the name, mailing address, email address, fax, and telephone numbers for the following persons, hereafter referred to as "Owner Designated Contacts".

Changes to any Owner Designated Contacts before or during the relevant period of this work shall be communicated to all Designated Contacts by the Owner Project Manager.

Contractor shall communicate exclusively with the Owner Designated Contacts defined below in regard to any matter pertaining to the work described herein.

2.3.1.1) Owner Project Manager

Sean Connolly
Capital Facilities Planning

Purchase College
735 Anderson Hill Rd., Purchase NY 10577
(914)251-6916
sean.connolly@purchase.edu

2.3.1.2) Owner Technical Contacts

Joseph Kennedy
Campus Technology Services
Purchase College
735 Anderson Hill Rd., Purchase NY 10577
(914)251-6916
joseph.kennedy@purchase.edu

William Redding
University Police Department
Purchase College
735 Anderson Hill Rd., Purchase NY 10577
(914)251-6905
William.Redding@purchase.edu

2.3.1.3) Owner Billing Contact

Elizabeth Pleva
Purchasing and Accounts Payable Office
Purchase College
735 Anderson Hill Rd., Purchase NY 10577
Phone: (914)251-6070
Fax: (914)251-6075

2.3.1.4) Owner Parking and Transportation Contact

Christine Onderdonk
Parking and Transportation Office
CCN Building, Rm. 1014
Purchase College
735 Anderson Hill Rd., Purchase NY 10577
(914)251-6177
christine.underdonk@purchase.edu

2.3.1.5) Owner Certified Payroll Records Contact

Anne Marie Russillo
Capital Facilities Planning Office
Purchase College
735 Anderson Hill Rd., Purchase NY 10577
(914)251-4480

2.3.1.6) Owner Capital Projects Contact

Anne Marie Russillo
Capital Facilities Planning
Purchase College
735 Anderson Hill Rd., Purchase NY 10577
(914)251-4480

2.3.2) Contractor Designated Contacts

Contractor shall specify the name, mailing address, email address, fax, and telephone numbers for the following persons, hereafter referred to as "Contractor Designated Contacts".

Changes to any Contractor Designated Contacts before or during the relevant period of this work shall be communicated to all Designated Contact by the Contractor Project Manager.

- 2.3.2.1) Contractor Project Manager
- 2.3.2.2) Contractor Field Contact
- 2.3.2.3) Contractor Sales Contact
- 2.3.2.4) Contractor Billing Contact
- 2.3.2.5) Contractor President / CEO

2.3.3) Coordination by Contractor with Owner Designated Contacts

Contractor shall simultaneously forward copies to the Owner Project Manager of any correspondence between Contractor (or any of its employees or designees) and Owner (or any of its employees or designees).

Contractor shall forward copies of meeting minutes to the Owner Project Manager within one business day following any meeting with Owner (or any of its employees or designees).

Contractor shall submit all required documentation; all test results, all quotations, all matters of dispute, and all questions pertaining to this document in writing via the mailing address of the Owner Project Manager. Contractor shall send electronic copy of same to both the Owner Project Manager and the Owner Technical Contact via email.

Contractor shall submit all technical questions to the Owner Technical Contact via email, with copy to Owner Project Manager.

Contractor shall submit all matters of billing to the mailing address of the Owner Billing Contact, with copy to Owner Project Manager.

Contractor shall submit all certified payroll records to the Owner Certified Payroll Records Contact, and notify Owner Project Manager when these are sent.

Contractor shall submit all questions regarding parking and transportation on Owner premises, all requests for permission to park vehicles on owner premises, and all disputes related to parking/ticketing/towing on Owner premises to the Owner Parking and Transportation Contact

2.4) Quality Assurance and Contractor Qualifications:

Contractor must have and maintain the following qualifications:

2.4.1) Contractor's personnel are trained and experienced in the installation and testing of cabling systems according to all parts of all referenced standards bodies, certification organizations, and laws/codes listed in the "Technical References" section of this document.

2.4.2) Contractor's personnel are trained and experienced in cable support techniques.

2.4.3) Contractor's personnel are trained and experienced in fire stopping methods.

2.4.4) Contractor's on-site personnel must be fully conversant with and capable of the installation of large scale Category 6 / 6A cabling systems for high-speed data and voice, and telecommunications cabling systems to support both analog and digital voice communications.

2.4.5) Contractor's on-site personnel must be trained and certified in the installation of Category 6 / 6A and equivalent-cabling systems at the level required to provide the cabling system manufacturer extended performance warranty with a minimum of a 20-year term.

- 2.4.6) Contractor's on-site supervisory personnel have completed training/testing and are certified in BICSI "Installer 2, Copper (INSTC)".
- 2.4.7) Contractor's on-site personnel must have completed at least three comparable installations of telecommunications cabling systems supporting analog and digital voice communications within the last year.
- 2.4.8) Contractor's on-site personnel must be fully conversant with and capable of the installation of large scale Single-mode Fiber-Optic (SMF) cabling systems supporting high-speed data and voice, if scope requires SMF installation.
- 2.4.9) Contractor's on-site personnel must have completed at least three comparable installations of SMF cabling systems supporting 10GBASE-LR Ethernet within the last year.
- 2.4.10) Contractor's on-site supervisory personnel have completed training/testing, and are certified in BICSI "Installer 2, Optical Fiber (INSTF)".
- 2.4.11) Contractor's on-site personnel must be trained and certified in installing Corning Single-mode Fiber and equivalent cabling system at the level required to provide the cabling system manufacturer extended performance warranty with a minimum of a 25 year term.
- 2.4.12) Contractor's on-site personnel must be fully conversant with and capable of the installation of large scale Security cabling systems supporting analog and digital signals.
- 2.4.13) Contractor's on-site personnel must have completed at least three comparable installations of cabling systems supporting installation of Security cable within the last year.
- 2.4.14) Contractor's on-site personnel must be trained and certified in installing Security cabling systems supporting analog and digital signals.

2.5) Technical References

The provision and installation of the cable plant is to adhere to the strictest codes, standards, and practices. All products, processes, and standards of work must conform to the current versions of all applicable standards, certification guidelines, and codes as defined by the following organizations and as otherwise cited herein:

- American National Standards Institute (ANSI)
- American Society for Testing and Materials (ASTM)
- Edison Testing Laboratories (ETL)
- Building Industry Consulting Service International (BICSI)
- Association of Cabling Professionals (ACP)
- Electronic Industries Association (EIA)
- Federal Communications Commission (FCC)
- International Electrotechnical Commission (IEC)
- Institute of Electrical and Electronics Engineers (IEEE)
- International Standards Organization (ISO)
- National Electrical Code (NEC / NFPA 70)
- National Electrical Contractors Association (NECA)
- National Electrical Manufacturers Association (NEMA)

National Electrical Safety Code (NESC)
National Fire Protection Association (NFPA)
New York State Uniform Fire Prevention and Building Code
Telecommunication Industries Association (TIA)
Underwriters Laboratories (UL)

In the event of a conflict between standards or codes, Contractor shall adhere to the most stringent standard or code.

In the event of a conflict between this Specification and any standard, code, or practice whereby this Specification is the most stringent, Contractor shall adhere to this Specification.

In the event of a conflict between this Specification and any standard, code, or practice whereby this Specification is not the most stringent, Contractor will immediately inform Owner Technical Contact and identify the conflict.

2.6) Submittals and Approvals

Unless otherwise specified, all submittals must be sent by Contractor via email as electronic file in Adobe® PDF format to Owner Project Manager and Owner Technical Contact via email. Submittal emails sent to Owner Technical Contact and Owner Project manager must be less than 10 Megabytes in size. No more than six (6) Adobe® PDF files shall be attached to a single submittal email. No more than one (1) product or one (1) method shall be detailed in each Adobe® PDF file.

Any variance from this Specification or from this Scope of Work (if provided) and the original RFQ/RFP/Project must be explicitly approved in writing by both the Owner Technical Contact and the Owner Project Manager. An approval from one of either the Owner Technical Contact or Owner Project Manager shall not suffice as approval.

Owner reserves the right to deny any request for approval. If an approval request is denied or an approval is not received, then Contractor shall comply with this Specification and Scope of Work.

2.6.1) Materials and Practices

All non-miscellaneous materials Contractor intends to provide and/or install must be submitted by contractor and approved in writing by the Owner Technical Contact prior to Contractor providing and/or installing.

The use of any materials and practices that are specified in this specification do not waive Contractor's requirement for submittal and approval prior to provision and/or installation. If Contractor wishes to use a specific manufacturer and part number specified in this specification, then Contractor must still submit manufacturer's product cut sheet to the Owner Technical Contact and Owner Project Manager for approval of material. Submitted cut sheets shall have specific product part number and specific product options encircled by Contractor to clearly identify the product and all options Contractor intends to provide/install.

If specific manufacturer and part number are unspecified in this specification, or if Contractor wishes to propose an equivalent component or practice to one that is specified, then a Contractor must submit formal request for approval to the Owner Technical Contact and Owner Project Manager for approval, and must include electronic copies of all of the following as applies to material or practice:

- 2.6.1.1) Performance data
- 2.6.1.2) Cut sheets
- 2.6.1.3) Shop drawings
- 2.6.1.4) All supporting documentation.

Submitted cut sheet shall have specific product part number and specific product options encircled

Proposed alternate component or practice must not invalidate any manufacturer warranty on any installed components, any installed cable plants, or any installed systems.

2.6.2) Change Orders

Requests for Change Orders Proposals may be sent in writing by Owner Project Manager to Contractor at any time following Award and prior to Completion. Request shall describe a proposed Change Order scope in detail and may reference discussions in field.

Contractor shall respond within ten (10) days by sending a Change Order Proposal to Owner Project Manager that shall include a Proposed Change Order Cost Quotation and a Proposed Change Order Schedule Impact Statement.

2.6.2.1) Proposed Change Order Cost Quotation

Contractor shall submit Proposed Change Order Cost Quotation to Owner Project manager which includes detailed line item unit pricing, quantity, and extended pricing for each type of material and labor that would be required to execute the Proposed Change Order.

2.6.2.1.1) Unit Pricing

Unit prices for materials and labor shall be based on calculable values from the first applicable source according to the following ordered list:

2.6.2.1.1.1) Materials and Labor: Contractor's base-bid proposal

2.6.2.1.1.2) Labor: Prevailing wage labor rates

If a required material is not quoted as part of base-bid, then unit price shall be Contractor's gross cost to purchase one unit of that material from supplier at projected quantity, plus 20%

2.6.2.1.2) Quantities

Quantities of materials shall be based on need pertaining to Proposed Change Order and shall not project greater than 10% surplus quantity where such a surplus is typically required for estimation of work. All surplus materials shall be furnished to Owner at end of proposed work, unless otherwise instructed in writing by Owner Project Manager.

Quantities of labor units for a required work or trade shall be based on calculable quantities from Contractor's base-bid proposal.

If a required work or trade is not quoted as part of base-bid, then unit based on the first applicable source of the latest editions of the following ordered list of industry-standard guides for estimating:

- 2.6.2.1.2.1) National Electrical Contractors Association (NECA), Manual of Labor Units
- 2.6.2.1.2.2) Mechanical Contractors Association of America (MCAA), Labor Estimating Manual
- 2.6.2.1.2.3) U.S. Army Corps of Engineers, Modification Impact Evaluation Guide
- 2.6.2.1.2.4) Walker's Building Estimator's Reference Book

2.6.2.2) Proposed Change Order Schedule Impact Statement

Proposed Change Order Schedule Impact Statement shall summarize the greatest potential impact to Schedule as a result of execution of the proposed Change Order by Contractor, and shall propose a new Schedule including an adjustment of all Project Milestones as defined herein, that would be adopted should Owner Project Manager approve of Change Order in writing.

2.6.2.3) Change Order Approval

Approval of Change Order Proposal may take place at sole option of Owner, and shall be sent in writing by Owner Project Manager at any time following Award and prior to Completion.

A Purchase Order shall accompany any approval of Proposed Change Order. Contractor shall not act on approval of Change Order Proposal unless Purchase Order is received.

2.6.3) Field-Directed Changes

Field-Directed Changes shall be defined as minor changes to the Scope of Work (if provided) and the original RFQ/RFP/Project that would result in zero additional cost to Owner or would result in a credit to Owner, and also would have zero impact on Schedule or would result in earlier completion of Schedule, as agreed by both Owner Project Manager and Contractor.

Requests for Field-Directed Change may be sent in writing by Owner Project Manager to Contractor at any time following Award and prior to Completion. Request shall describe Field-Directed Change scope in detail and may reference discussions in field.

Contractor shall respond to Owner Project Manager within two (2) days with a Field-Directed Change Response, which shall either:

2.6.3.1) Confirm that Requested Field-Directed Change is properly classified, and that Field-directed change is agreed by all parties to result in:

2.6.3.1.1) zero cost and schedule impact to Owner, or else

2.6.3.1.2) provide details of credit amount and/or earlier completion of schedule, including a Schedule Impact Statement that demonstrates earlier completion.

2.6.3.2) Dispute that the Requested Field-Directed Change is properly classified as such, and that there are cost and/or schedule implications of executing such a change.

2.6.4) Schedule Impact Statement.

Field-Directed Changes shall not be made by Contractor unless Owner Project Manager directs Contractor in writing to perform a Field-Directed Change. Direction shall be accompanied by detailed description of the Field-Directed change. If Contractor agrees that said Field-Directed Change shall be at zero additional cost or result in a credit to Owner, then Contractor shall respond within

2.6.5) Construction Change Directives

Construction Change Directives shall not be permitted, nor any change that is associated with additional cost in advance of a Purchase Order being issued.

2.7) Notification of Errors, Inquires and Interpretation

It shall be the responsibility of the Contractor to notify owner of any errors in this Specification and to make recommendations to Owner Project Manager and Owner Technical Contact in writing for any additional requirements deemed necessary. If Owner finds the errors significant or a change in the requirements necessary, then Owner will notify Contractor in writing of the change in this Specification. No deviations from this Specification shall be made without approval from Owner Technical Contact and Owner Project Manager.

2.8) Hazards

Contractor must immediately notify Owner Project Manager by telephone, by email, and in writing of any Hazards to any person(s), any Hazards to animal(s), any Hazards to the environment, and any Hazards to asset(s), when a Hazard is not managed or manageable by contractor as part of standard means, standard methods, and standard safety procedures. Contractor shall immediately notify Owner Project Manager in writing of any such hazard that exist in this Specification, in the proposed Scope of Work (if provided) and the original RFQ/RFP/Project, in any proposed Change Order, or in any Field-Directed Change. Contractor shall avoid the Hazard until written or email reply is received from Owner Project Manager instructing Contractor regarding the identified Hazard.

2.9) Parking and Operation of Vehicles on Campus

Contractor will operate vehicles responsibly under campus rules and regulations and will not park vehicles in unauthorized areas. Illegally parked vehicles will be towed at vehicle owner's expense.

It will be the responsibility of the Contractor to contact the Parking and Transportation Office at (914)251-6177 to arrange for temporary visitor parking permits.

Contractor shall not park or operate motor vehicles on grass or other non-paved surfaces unless explicit written permission is granted by the Parking and Transportation Office.

2.10) Proper Contractor Identification

Employees of Contractor while on site shall wear a uniform shirt. Employees of Contractor shall carry identification badge or identification cards and shall be instructed to submit same to scrutiny upon request by campus personnel.

2.11) Subcontracts

All requirements that apply to Contractor or Employees of Contractor shall also apply to any Subcontractor that Contractor uses to execute the requirements of this Specification. It is Contractor's sole responsibility to ensure that all work is executed according to this Specification, whether performed directly by Contractor, or by Contractor's Subcontractor. Upon request, Contractor must provide a list of all proposed subcontractors along with detailed information regarding their financial and technical abilities.

2.12) Certified payroll records must be submitted by the Contractor to Owner Certified Payroll Records Contact.

Part 3: Materials

3) Materials

The following requirements apply to all materials provided, installed, and/or used by Contractor.

3.1) General

Contractor shall supply all materials, unless otherwise noted.

All materials, equipment, tools and methods shall be of standard manufacture, shall have undergone thorough tests, shall have been proven in actual use, and shall not be custom-designed for this project.

Communications Rooms and Spaces (herein referred to as "Communications Room", "CR", "Closet", or plural derivatives of same) shall refer to any central location where Data, Telecommunications, Security, and/or Audio/Video cables are collectively run to, including interior spaces containing Open Equipment Racks, Equipment Cabinets, Splice Enclosures, and furniture- or wall-mounted Patch Panels.

3.2) Category 6 and Category 6A

All Category 6 / 6A cable, jacks, plugs, patch panels, and patch cables must be rated to meet or exceed performance specifications for Category 6 / 6A components as defined in ANSI/TIA-568-C and ISO/IEC 11801 performance requirements for Category 6 / 6A, and shall be ETL verified to Category 6 / 6A, and must be certified by manufacturer at a frequency range of 1Mhz through 600Mhz.

Installed Category 6 / 6A system and components shall support 100BASE-TX Ethernet as per IEEE 802.3u, 1000BASE-T Ethernet as per IEEE 802.3ab, 1000BASE-TX Ethernet as per TIA-854, 2.5GBASE-T and 5GBASE-T Ethernet as per IEEE 802.3bz, 10GBASE-T Ethernet as per IEEE 802.3an, Voice-Over-IP telephony (VOIP) as per TIA-TR41, digital telephony as per TIA-810-B, analog telephony as per TIA 470-C, Power over Ethernet as per IEEE 802.3af, IEEE802.3at, and IEEE802.3bt standards.

Installed materials must form an integrated system and must integrate with existing network. Components and interconnections must match for optimum future performance. All components must be produced by the same manufacturer or be warranted by an exclusive partnership.

3.2.1) Warranty on Installed Category 6 / 6A Cabling System

Manufacturer warranty on installed Category 6 / 6A Cabling System shall be extended to Owner for a period of not less than 20 years and shall provide immediate remediation or replacement of installed cabling system by manufacturer, if cabling system does not meet the requirements of this Specification, including but not limited to testing parameters, at any point during the warrantee period.

Contractor shall submit manufacturer warranty information on proposed Category 6 / 6A cabling system, along with copies of manufacturer certification credentials for Contractor, with Contractor's bid.

3.2.2) Category 6 / 6A Cable

Category 6 / 6A Cable shall be 24 AWG, 4-pair, with a blue jacket. Plenum-rated cable shall be used where cabling runs through an air-handling space as per NEC/NFPA70. Individual conductors shall be 100% FEP insulated. Cable jacketing shall be lead-free.

Cable shall be independently verified for flammability compliance to NEC article 800 and NFPA 70; CMR ANSI/UL 1666.

Cable shall be dispensed from a plastic reel in a cardboard box packaged by manufacturer.

3.2.2.1) Category 6 Cable

Outer cable jacket diameter shall not exceed 0.25 inches.

Unless otherwise noted, Category 6 cable shall be Unshielded Twisted Pair (UTP).

3.2.2.2) Category 6A Cable

Outer cable jacket diameter shall not exceed 0.285 inches.

Unless otherwise noted, Category 6A cable shall be Foil-shielded Unscreened Twisted Pair (F/UTP).

3.2.2.3) Outside Service Plant Cable ("Category 6A OSP Cable")

Category 6A OSP Cable shall be 4-pair Foil-shielded Unscreened Twisted Pair (F/UTP).cable. Category 6A OSP Cable shall consist of a core of four balanced twisted pairs surrounded by water-blocking gel, surrounded by a dielectric inner jacketed core, covered by dry water block material , surrounded by aluminum tape shield, surrounded by a sunlight and abrasion resistant black polyethylene outer jacket. OSP Category 6A Cable shall be suitable for direct-buried, underground conduit, and lashed aerial applications.

OSP Category 6A Cable must meet or exceed ANSI/TIA-568-C and ISO/IEC 11801 Class E_A performance requirements for Category 6A, and shall be ETL verified to Category 6A.

3.2.3) Category 6 / 6A Terminations

3.2.3.1) Modular Jacks for Category 6 / 6A Permanent Links

Modular jacks used in Data/Telecommunications Outlets and Patch Panels shall be un-keyed, RJ-45 (8-position – 4-pair) and shall meet EIA/TIA-568 requirements for Category 6 / 6A component performance.

Modular jacks shall fit in a .790" X .582" opening. Modular jacks shall be terminated using PDS 110-style insulation displacement pc board connectors, color-coded for both T568A and T568B wiring. The 110-style connectors shall be capable of terminating 22-24 AWG solid wire. The 110 Contacts shall be paired (with additional space between pairs) to improve crosstalk performance. Each jack shall be provided with a bend-limiting strain relief. The strain relief shall provide a "silo" to limit the bend radius at the point of termination.

Each jack shall have an integrate dust cover or separate approved dust covers must be provided.

Modular jacks shall be colored orange

3.2.3.2) Modular Plugs for Category 6 / 6A Single-Connector Modified Permanent Links

Where Single-Connector Modified Permanent Links are called for, station/device end shall be terminated in 8-Position 8-Conductor "RJ45" shielded modular plug with dual-pronged blades designed to be crimped onto and create secure contact with the specified/approved solid-conductor cable. Modular plugs for Category 6 / 6A Outside Service Plant (OSP) Cable shall be designed to operate as part of an installed Category 6A cabling system.

3.2.3.3) Modular Plugs for Category 6A Outside Service Plant (OSP) Cable

Outside Service Plant Data Cable shall terminate on both ends in 8-Position 8-Conductor "RJ45" shielded modular plugs with dual-pronged blades designed to be crimped onto and create secure contact with the specified/approved solid-conductor cable. Modular plugs for Category 6 / 6A Outside Service Plant (OSP) Cable shall be designed operate as part of an installed Category 6A cabling system.

3.2.4) Category 6 / 6A Station/Device Outlets

3.2.4.1) Standard Faceplates

Standard faceplates shall be non-metallic, constructed of a single molded piece, and shall be of angled type such that the front of installed modular jacks face downward 45-degrees when faceplate is installed with faceplate longest dimension up/down.

Standard faceplates shall be single-gang, and shall accept four modular jacks ("four-port"). Blanks shall be installed in any unused port/space on the faceplate.

Faceplates and blanks shall be colored ivory, unless otherwise specified.

Faceplates shall have insert-type labels capable of accepting and retaining printed non-adhesive paperboard labels of minimum 10-point thickness. Paperboard labels must be of suitable width and height to meet labeling requirements, as defined herein, with label text positioned centered on and parallel to each port to which label text pertains.

A transparent snap-in flexible plastic label cover shall retain the label, and shall have a small hole at side to permit label cover removal.

3.2.4.2) Biscuit Surface-Mount Box ("Biscuit")

Biscuit shall be constructed of high-impact flame-retardant plenum-rated thermoplastic and shall be colored white. Biscuits are acceptable only where specified in Scope section for use in outlets above ACT ceilings that are air-handling spaces.

Biscuit shall provide two Category 6A modular jack ports.

Biscuit shall have insert-type label capable of accepting and retaining printed non-adhesive paperboard labels of minimum 10-point thickness. Paperboard labels must be of suitable width and height to meet labeling requirements, as defined herein, with label text positioned centered on and parallel to each port to which label text pertains.

3.2.5) Category 6 / 6A Patch Panels

Category 6 / 6A Patch panels shall be angled, shall be 1.75" high, shall occupy one 19" rack unit (1RU), and shall provide twenty-four (24) individually-replaceable Category 6 / 6A Modular Jacks for termination of cabling. Patch panels shall be colored black.

The front of each patch panel shall be capable of accepting and retaining printed non-adhesive paperboard labels of minimum 10-point thickness. Paperboard labels must be of suitable width and height to meet labeling requirements, as defined herein, with label text positioned centered on and parallel to each port to which label text pertains.

A transparent snap-in flexible plastic label cover shall retain the label, and shall have a small hole at side to permit label cover removal.

3.2.6) Horizontal 19-inch Lacing Bar for Patch Panel Rear Cable Strain Relief

Each installed rack-mounted Category 6 / 6A Patch Panel shall have, projecting to rear of rack from rear of patch panel, a 6-inch deep x 19-inch wide x 0.7-inch high L-shaped horizontal lacing bar installed on rack.

Horizontal 19-inch Lacing Bar for Patch Panel Rear Cable Strain Relief shall have lacing slots of 0.150-inch x 0.9-inch, suitable for attaching hook-and-loop fasteners to secure and reduce strain on solid-conductor cables entering patch panel.

Horizontal 19-inch Lacing Bar for Patch Panel Rear Cable Strain Relief shall be constructed of 18-gauge cold rolled steel, and shall have powder-coat black finish.

Horizontal 19-inch Lacing Bar for Patch Panel Rear Cable Strain Relief shall attached to 19-inch equipment rails in two places (one left rail, one right rail) via equipment mounting screws at rear of front-face of rack.

3.2.7) Category 6A Lightning Protectors (for use with OSP Category 6A Cable)

Category 6A Lightning Protectors shall be designed and laboratory-tested for use with 10/100/1000/10000 Base-T Ethernet networks in indoor and outdoor environments between -40 degrees Fahrenheit and +158 degrees Fahrenheit. Category 6A Lightning Protectors shall meet or exceed the UL497B surge protection requirements for 10/100/1000/10000 Base-T Ethernet lines.

Category 6A Lightning Protectors shall present two Category 6A 8P8C shielded modular jacks, with shield isolated from the safety ground. Category 6A Lightning Protectors modular jacks shall accept 8P8C shielded modular plugs for inline installation in a single permanent link. Category 6A Lightning Protectors shall be compatible with 802.3bt Power-over-Ethernet (PoE) devices, and shall support PoE modes A and B as per 802.3bt.

Category 6A Lightning Protectors clamping voltage shall be no more than 15 Volts for wire-to-wire, 90 Volts for wire-to-ground, and 90 Volts for shield-to-ground.

Outdoor Category 6A Lightning Protectors shall have a weatherproof ABS enclosure with gasketed cover and concealed mounting holes. Ground clamp provided outside the Category 6 Lightning Protector enclosure shall accept a 10-gauge ground cable.

Indoor non-rack mounted Single Channel Category 6A Lightning Protectors shall be DTK-MRJPOES manufactured by DITEK or approved equal.

Indoor non-rack mounted Eight-Channel Category 6A Lightning Protectors shall be DTK-WM8NETS manufactured by DITEK or approved equal.

Outdoor non-rack mounted Single Channel Category 6A Lightning Protectors shall be DTK-MRJPOEX manufactured by DITEK or approved equal.

3.2.7.1) Rack-mount Category 6A Lightning Protectors (for use in interior spaces, only)

Rack-mount Category 6A Lightning Protectors are only to be used where specified in interior spaces or weather-protected exterior cabinets.

Rack-mount Category 6A Lightning Protectors shall provide lightning and surge protection for up to 24 POE 802.3bt lines, with low line to line and line to ground capacitance to minimize distortion of high-speed signals.

Rack-mount Category 6A Lightning Protectors shall provide protection for both common and differential mode surges.

Rack-mount Category 6A Lightning Protectors shall be compatible with 802.3bt Power-over-Ethernet (PoE) devices. It shall support both PoE mode A and B for power.

Rack-mount Category 6A Lightning Protectors shall provide lightning protection for twelve (24) Category 6A cables via 48 shielded (24 in / 24 out) RJ-45 jacks.

Rack-mount Category 6A Lightning Protectors shall be DTK-RM24NETS manufactured by DITEK, or approved equal.

3.2.8) Category 6 / 6A Patch Cables

Patch Cables shall be gray in color, unless otherwise noted.

Patch cables shall be constructed using 50-micron gold-plated RJ45 (8-position 8-conductor) modular plugs.

Patch Cable shall be constructed using 24 gauge stranded cable.

Patch Cable assemblies shall utilize colored cable and "snag-less" slim cable boots that are clear and integrated with the RJ45 connector.

Each Patch Cable assembly shall be individually certified to Category 6 / 6A performance specification according to TIA-568-C and ISO/IEC 11801, and shall be backed by a 20-year component warranty provided by the manufacturer to Owner.

3.3) Category 3 Telecommunications Feeder/Backbone

All Telecommunications Feeder Cables, Telecommunications Patch Panels, and Connection Blocks shall be rated Category 3, shall comply with or exceed specifications as defined in TIA-568-B, and must be certified by manufacturer at a frequency range of 1Mhz through 16Mhz.

Installed Category 3 Telecommunications Feeder components shall support analog telephony as per TIA 470-C and digital telephony as per TIA-810-B.

Installed materials shall form an integrated system and shall integrate with existing telecommunications network. Components and interconnections must match for optimum future performance. All components shall be produced by the same manufacturer or be warranted by an exclusive partnership.

3.3.1) Telecommunications Feeder Cable

Telecommunications Feeder Cable shall be type ARMM and shall consist of 100-pair of #24 AWG solid conductor cables wrapped individually in expanded polyethylene insulation. Telecommunications Feeder Cable shall be wrapped in ALVYN sheath-corrugated polymer-coated aluminum shield adhering to a flame-retardant grey PVC jacket. Cable shall be UL/NEC rated. Cable jacketing shall be lead-free.

Color-coding of insulation on individual pairs of conductors shall conform to TIA-568-B and PIC standard color codes for telecommunications backbone cable.

Telecommunications Feeder Cable shall be ETL verified to Category 3 transmissions requirements as defined in the TIA-568-A standard.

Typical electrical characteristics shall be as follows at 20-degree Celsius:

- 3.3.1.1) Max DC Resistance of 27.3 Ohms/kft
- 3.3.1.2) Insulation Resistance of 5000 Megohms-kft
- 3.3.1.3) Mutual Capacitance of 83 nF/mile at 1 kHz(nom)
- 3.3.1.4) Nominal Attenuation of 6.9 dB/kft at 772 kHz
- 3.3.1.5) Characteristics Impedance of 100 Ohms at 1 MHz(nom)

3.3.2) Telecommunications Feeder Patch Panels

Telecommunications Feeder Patch Panels shall be 1.75 inches high, shall occupy one 19" rack units (4RU), and provide 24 RJ45 (8-position – 8-pair) modular jack ports on front of panel, with PDS 110-style insulation displacement connectors on rear of panel that accommodate between 26 and 23 gauge wire. Modular jack ports on front of panel may be configured in groups of between four and six ports.

Telecommunications Feeder Patch Panels shall be fully loaded with RJ-45 jacked, colored black.

Telecommunications Feeder Patch Panel Ports shall be clearly factory-labeled on front of patch panel with consecutive numbers between 1 (at leftmost port) and 24 (at rightmost port).

Telecommunications Feeder Patch Panels shall have integrated lacing lattice at rear of panel to manage wire pairs and permit re-punching IDC for each pair in-place.

Telecommunications Feeder Patch Panels shall be colored black.

Telecommunications Feeder Patch Panels shall be CommScope "Telephone Patch Panel, Category 3, RJ45, 19 in, 25-port, black" part number 1711213-2, or approved equal.

3.3.3) Telecommunications Connection Block

Telecommunications Connection Blocks for distribution shall be type 66M split 50-pair insulation displacement punch-down blocks. Connection blocks shall provide 6 pins per row and shall be designed for termination of 22-26 AWG solid or 20-26 AWG stranded conductors. Blocks shall be molded of flame-retardant thermoplastic with quick-connect clips.

3.3.4) Telecommunications Gas Protector Panel

Gas Protector Panels shall be CIRCA Telecom (serial #205226, CIRCA 1900A1-100) gas protector panel, or approved equal.

3.3.5) Telecommunications Patch Cables

Telecommunications Patch Cables shall be Category 6 Patch Cables, as defined herein.

Category 6 Patch Cables shall be colored Violet.

3.4) Fiber-Optics

All Fiber-Optic network cable, jacks, patch panels, and patch cables shall be designed for Single-mode optical transmission.

Installed Fiber-Optic network shall support standards 1000BASE-LX, 10GBASE-LR, 40GBASE-LR4, and 100GBASE-LR4.

Installed materials must form an integrated system and must integrate with existing Fiber-Optic network. Components and interconnections must match for optimum future performance. All components must be produced by the same manufacturer or be warranted by an exclusive partnership.

All components of the Fiber-Optic cable plant shall be produced by Corning Cable Systems, or approved equal.

3.4.1) Warranty on Installed Cabling system

Manufacturer warranty on installed Fiber-Optic Cabling System shall be extended to Owner **for a period of not less than 25 years** and shall provide immediate remediation or replacement of installed cabling system by manufacturer, if cabling system does not meet the requirements of this Specification, including but not limited to testing parameters, at any point during the warrantee period.

Contractor shall submit manufacturer warranty information on proposed Fiber-Optic Cabling System, along with copies of manufacturer certification credentials for Contractor and Contractor's employees, with Contractor's bid.

3.4.2) Fiber-Optic Cable

All Fiber-Optic cable shall contain Single-mode fibers surrounded by a lead-free flame-retardant outer jacket. Fiber-Optic cable shall provide an 8-9 micron core transmission medium with 125 micron cladding, and introduce no more than .4 dB/km of attenuation (nominal). Color of Fiber-Optic strand cladding and buffer tubes shall conform to TIA-598-C.

Outer jacket of all Fiber-Optic cable, including armored and non-armored Fiber-Optic cable, shall be colored yellow.

All Fiber-Optic cable shall be gel-free.

All Fiber-Optic cable shall be pre-terminated at factory in Multi-Fiber Push-On (MPO) Connectors. Pulling eyes shall be attached by faculty at both ends of cable.

3.4.2.1) Intra-building Single-mode Fiber-Optic Cable

All intra-building Single-mode Fiber-Optic cable shall contain 24-strands strands of 900 μ m tight-buffered fibers. Fibers shall be surrounded by dielectric strength members and a lead-free flame-retardant outer jacket. Outer jacket of all intra-building Single-mode Fiber-Optic cable shall be colored Yellow.

Indoor Single-mode Fiber-Optic cable shall be:

- 3.4.2.1.1) Plenum-rated Armored Single-mode Fiber-Optic cable -- Corning MIC Interlocking Armored Plenum Cable, Corning part number 024E88-33131-A3
- 3.4.2.1.2) Riser-rated Armored Single-mode Fiber-Optic cable -- Corning MIC Interlocking Armored Riser Cable, Corning part number 024E81-33131-A1
- 3.4.2.1.3) Plenum-rated (non-armored) Single-mode Fiber-Optic cable -- Corning MIC Plenum Cable, Corning part number 024E88-33131-29
- 3.4.2.1.4) Riser-rated (non-armored) Single-mode Fiber-Optic cable -- Corning MIC Riser Cable, Corning part number 024E81-33131-24

3.4.2.2) Inter-building Single-mode Fiber-Optic Cable

Unless otherwise noted, all inter-building Single-mode Fiber-Optic cable shall contain 24-strands strands of fiber in two 3.0 mm buffer tubes. Buffer tubes shall be surrounded by water-swallowable tape, dielectric strength members, and a lead-free UV-resistant flame-retardant outer jacket.

Inter-building Single-mode Fiber-Optic cable shall be as:

- 3.4.2.2.1) Plenum-rated Armored inter-building Single-mode Fiber-Optic cable -- Corning FREEDM Plenum Loose Tube Cable with Interlocking Armor, part number 024E8P-31131-A3
- 3.4.2.2.2) Riser-rated Armored inter-building Single-mode Fiber-Optic cable -- Corning FREEDM Loose Tube Cable with Interlocking Armor, part number 024EWF-14101-AA1
- 3.4.2.2.3) Riser-rated (non-armored) inter-building Single-mode Fiber-Optic cable -- Corning FREEDM Loose Tube Indoor/Outdoor Cable, part number 024EWF-T4103A20
- 3.4.2.2.4) Plenum-rated (non-armored) inter-building Single-mode Fiber-Optic cable -- Corning FREEDM Loose Tube Indoor/Outdoor Cable, part number

3.4.3) Fiber-Optic Grounding

Armored cable shall be grounded.

Armored cable grounding assembly shall be Corning part number FDC-CABLE-GRND (Armored Cable Grounding Kit)

3.4.4) Fiber-Optic Connectors

Fiber-Optic connectors shall have Ultra Physical Contact (UPC) polish/finish. Fiber-Optic connector ferrules shall be constructed of ceramic.

Fiber-Optic connectors shall present no more than 0.2 dB of typical insertion loss and 0.5 dB of maximum insertion loss, as measured by manufacturer at wavelengths of 1310 nm and 1550 nm, FOTP-171.

Fiber-Optic connectors on patch panels shall be compliant with TIA/EIA 604-2 ("SC") connectors.

3.4.5) Fiber-Optic Patch Panel

Fiber-Optic patch panels shall meet requirements of TIA-568-C and TIA606, suitable for loose tube, tight-buffered, and optical fiber ribbon cables. Fiber-Optic patch panels shall be rack-mountable in standard EIA 19" (48 cm) equipment racks (1.75-in EIA hole spacing). Fiber-Optic patch panels shall be capable of being rack-mounted with either a 4.5" (11.4 cm) frontal projection to allow entry of Fiber-Optic patch cable set front compartment, or flush to rack rails (0" projection). Fiber-Optic patch panels shall offer multiple locations for jumper egress, and a slide-out drawer for easy connector access.

Fiber-Optic patch panel shall provide integrated bend radius limiting, cable anchor, and strand fan-out in rear connector housing. Protection for patch cable connectors, D-rings for patch cable routing, and side egress for patch cables shall be provided on front of housing.

Fiber-Optic patch panels installed in building Communications Rooms shall consume two rack spaces (3.5-in high), shall have up to 64 fiber total capacity (SC or ST connectors).

Fiber-Optic Patch Panels shall be manufactured by Corning Cable Systems and shall be of model "CCH".

3.4.6) Fiber-Optic Cable Management

Fiber-Optic cable management shall be one rack unit (1.75-in) high.

Fiber-Optic cable management shall be Corning Cable Systems part number CJP-01U.

3.4.7) Fiber-Optic Patch Cables (Jumpers)

Fiber-Optic patch cable assemblies shall be Single-mode, 2-fiber jumper cable, and shall provide one duplex SC connector to one duplex un-keyed LC connector.

Fiber-Optic patch cable assembly cable shall be engineered to present lowest attenuation at bends up to and including a minimal bend radius of 30mm (1.2 inches).

Fiber-Optic patch cable assembly cable outer jacket shall be yellow in color, and shall allow separation of individual fibers and duplex connectors in field to allow conversion to two separate 1-fiber jumpers. Each separable 1-fiber cable shall be minimum of 2mm in diameter.

SC and LC connectors shall allow coupling and decoupling in duplex or single connector configuration.

LC connector duplex clip shall allow pairs to be swapped in the field such that cable may be field-configurable as either a straight-through or crossover cable.

Connector ferrules shall be constructed of ceramic. Connectors shall be factory-installed, shall have Ultra Physical Contact (UPC) polish/finish, and shall present no more than 0.15 dB of typical insertion loss and 0.4 dB of maximum insertion loss, as measured by manufacturer at wavelengths of 1310 nm and 1550 nm.

Fiber-Optic patch cable assemblies shall be factory-built and factory-tested to produce no more than 1 dB attenuation at wavelengths of 1310 nm and 1550 nm.

Fiber-Optic patch cable assemblies shall be Corning Cable Systems part number 0472-02-R5120-002-M.

3.4.8) Fiber-Optic Splice Enclosures

Fiber-Optic Splice Enclosures shall be Corning Cable Systems part number SCF-6C28-01-144 or approved equal.

Fiber splice trays shall be type 2S trays, and shall permit for 24 RTF fusion splices.

Fiber-Optic splice trays shall be Corning Cable Systems part number M67-092.

3.5) Audio/Video

- 3.5.1) Audio/Video systems ("Audio/Video") may include but not be limited to audio systems, video systems, and control systems installed in classrooms, conference rooms, and performance areas.
- 3.5.2) All Category 6 / 6A cable and components used to interconnect Audio/Video components shall meet all requirements for Category 6 / 6A cable and components, defined herein.
- 3.5.3) All Fiber-Optic cable and components used to interconnect Audio/Video components shall meet all requirements for Fiber-Optic cable and components, defined herein.

3.6) Security

- 3.6.1) Security systems ("Security") may include but not be limited to security alarm systems (motion, door contact, panic button) systems, video surveillance systems, electronic door access control systems, and/or audio security systems (e.g. intercom, glass-break sensor, and/or shot detection) systems.
- 3.6.2) All Category 6 / 6A cable and components used to interconnect Security components shall meet all requirements for Category 6 / 6A cable and components, defined herein.
- 3.6.3) All Fiber-Optic cable and components used to interconnect Security/Surveillance components shall meet all requirements for Fiber-Optic cable and components, defined herein.

3.6.4) Other Security Cable

Except where noted, all cabling and components for security for Security shall be Category 6 data

3.6.4.1) Signal Cable for Security

3.6.4.2) Power Cable for Security

Power cable used for surveillance network shall be two conductor 18 AWG twisted pair, with stranded bare copper conductors, encased in a black jacket.

3.7) Pathways and Spaces

3.7.1) Termination Devices

3.7.1.1) Metallic Recessed-Mount Device Boxes

Metallic Recessed-Mount Device Boxes shall be constructed of 0.0625-inch-thick galvanized steel, and shall be "four-square" extra-deep type, with minimum dimensions of 3.5-inch deep x 4-inch wide x 4-inch high.

Metallic Recessed-Mount Device Boxes shall have eight (8) 3/4-inch side Knockouts.

Metallic Recessed-Mount Device boxes above symsum-board ceiling shall be supported by an 8-inch max depth adjustable height box hanger. Box hanger shall be Garvin BHT481A, or approved equal.

3.7.1.2) Metallic Surface-Mount Device Boxes

Metallic Surface-Mount Device Boxes shall be constructed of 0.0625-inch-thick galvanized steel, and shall be "four-square" extra-deep type, with minimum dimensions of 3.5-inch deep x 4-inch wide x 4-inch high.

Metallic Surface-Mount Device Boxes shall have eight (8) 3/4-inch side Knockouts.

3.7.1.3) Non-Metallic Surface-Mount Device Boxes

Non-Metallic Surface-mount device boxes shall be constructed entirely of PVC, and shall be ivory in color.

NM surface-mount device boxes shall be 2 7/8" inches deep, and shall be single-gang, 3 inches wide by, 4 7/8" high.

NM surface mount boxes shall be of same manufacturer and compatible with approved raceway, and shall have knockouts/twist-outs for selected raceway model.

NM surface-mount device boxes shall be designed to be secured to wall mechanically using screws or bolts.

3.7.2) Low Voltage Faceplate Mounting Brackets

Low-Voltage Faceplate Mounting Brackets shall be constructed of minimum 0.0303 inch thick galvanized steel, and shall be mounted to wall using a minimum of two fold-back tabs as well as drywall screws.

Unless otherwise noted, Low-Voltage Faceplate Mounting Brackets shall be single-gang.

Unless otherwise noted, Low-Voltage Faceplate Mounting Brackets shall be used for retrofit applications, only.

Low-Voltage Faceplate Mounting Brackets must allow faceplate to be mounted flush to wall, with no greater than a 1/16" gap between faceplate and wall.

3.7.3) Floor Boxes (In-Floor Device Box)

In-floor device boxes shall be constructed of galvanized steel, and shall be installed with parts to permit concrete pour around box. Box

In-floor device box shall have mechanically-fastened self-sealing flip-open covers installed flush with floor that prevent water and dust ingress when covers are closed. Cover shall be able to be secured by turning integrated screw when not in use.

Unless otherwise noted, in-floor device boxes shall offer two divided compartments per NEC requirements permitting both low-voltage communications cabling and 120-Volt electrical power to be terminated in the same device box.

Floor box shall permit installation of at least two (2) standard single-gang faceplates for communications, and at least two (2) single-gang faceplates for electrical power. Single-gang faceplates when installed must face up at no less than 45 degree angle. At least three inches of space must be provide between center of single-gang faceplate cover to permit patch cables and power cords to be connected.

Standard Category 6 / 6A faceplates must be able to be used in singe-gang slots, with insert labels visible while cover is on.

3.7.4) Poke-Throughs

Poke-throughs shall fit into nominal 4" cored hole, and shall be fire-rated for four hours when installed in compatible unprotected reinforced concrete floors or fire-rated for three hours when installed in compatible floors employing steel floor units with concrete top floors. An adjustable fire barrier shall be integral to the poke-through that may accommodate floors between 2 ¼ inches to 7 inches in thickness. Poke-throughs shall be suitable for new or retrofit installations, shall be suitable for use in air handling spaces, and shall be appropriate for installation on carpeted or tiled floors.

3.7.4.1) Recessed Poke-throughs shall provide minimum four (4) Category 6 / 6A modular jacks, and minimum two (2) NEMA 5-20R electrical power receptacles fed by two separate 20 Amp 125V power circuits.

3.7.4.2) Furniture Feed Poke-throughs shall provide a minimum 1-1/2" opening for low voltage Category 6 / 6A cable conduits, and minimum 3/4" opening for electrical power cable conduits. Both low voltage and power openings shall allow watertight connection using standard Liquid-tight Flexible Metal Conduit (LFMC) adapters, and shall be furnished with threaded/gasketed blank plugs of same finish as cover that prevent scrub water infiltration and provide a flush finish of plate should furniture feed conduit be disconnected in the future.

Poke-through cover shall be gasketed to prevent scrub water infiltration around perimeter of poke through, and shall permit replacement of gasketed cover with a furniture feed cover

Poke-throughs shall provide flip-up gasketed covers over each data/communications and power receptacle, to exclude scrub-water and dirt/debris when closed. Poke-through receptacles shall be positioned face-up atop a flange that shall raise the receptacles a minimum of 0.5 inches in height, further discouraging scrub-water infiltration even when covers are opened.

Poke-throughs shall exceed UL514A and UL514C testing standards, and UL scrub water exclusion requirements.

3.7.5) Ladder Cable Tray

All cable trays installed in Communications Rooms will be ladder-style cable tray. Unless otherwise noted, Ladder Cable Tray shall be 18 inches wide, and powder-coat painted black.

Ladder Cable Tray shall have stringers and cross members that are 1.5 inches wide by 0.375 inches high made from tubular steel with 0.065 wall thickness. Cross members shall be welded to stringer 4-1/2 inches from end of a single tray section, and thereafter at 9 inch intervals in that section. When properly installed, stringers will be positioned under cross members, creating a flat load area on top of Ladder Cable Tray.

Maximum load shall be at least 132 pounds per foot when manufacturer-approved supports for Ladder Cable Tray are installed at 5-foot intervals.

Ladder Cable Tray shall be installed according to manufacturer specification, using proper radius fittings and fasteners prescribed by manufacturer. Ladder Cable Tray shall be grounded per NEC and manufacturer standards and bonded to the equipment rack in Communications Rooms.

Ladder Cable Tray shall be sized to contain cables as specified in Scope of Work (if provided) and the original RFQ/RFP/Project, and shall account for 10% spare capacity while not exceeding 40% fill/capacity ratio as per TIA.

Ladder Cable Tray shall be "Cable Runway" manufactured by Chatsworth Products, or approved equal.

3.7.6) Basket Cable Tray

Unless otherwise noted, all intra-building cable trays will be 8"-wide welded wire mesh Basket Cable Tray with a 2" usable load depth. Finish of Basket Cable Tray shall be pre-galvanized zinc finish, applied to steel wire prior to fabrication, and meeting the minimum properties of ASTM A 641.

Basket Cable Tray shall be made of high strength steel wires and formed into a standard 2 inch by 4 inch wire mesh pattern with intersecting wires welded together. All mesh sections must have at least one bottom longitudinal wire along entire length of straight section, which shall measure nominally ten (10) feet in length.

Basket Cable Tray shall have T-weld on top rail in order to avoid sharp surfaces or protrusions on tray surface. Wire Diameter on all mesh sections of Basket Cable Tray must be a minimum of 0.196 inch.

Basket Cable Tray manufacturer must have a demonstrated history of production and distribution of product offering for a minimum period of 3 years in the US.

Basket Cable Tray shall be installed as per manufacturer's specification. All fittings shall be field-formed, from straight sections, in accordance with manufacturer's instructions.

Basket Cable Tray shall be classified by UL as an Equipment Ground Conductor (ECG) when spliced as recommended. All splicing assemblies shall likewise be UL approved as ECG.

Basket Cable Tray shall be sized to contain cables as specified in Scope of Work (if provided) and the original RFQ/RFP/Project, and shall account for 10% spare capacity while not exceeding 40% fill/capacity ratio as per TIA.

Basket Cable Tray shall be "Flextray" manufactured by Cooper B-Line, or approved equal.

3.7.7) J-Hooks

J-Hooks shall provide wide base design and smooth beveled edges to provide a three-inch (3") bending radius for current and future high-performance data cables, and shall comply with TIA standards for Cat 6A, and Cat 7 cable installations.

J-Hooks, when mounted, shall swivel to support various directional runs of cables.

J-Hooks shall have wire retainer providing 360 degree containment for installed cables.

Magnetic or hammer-on mounting clips are not acceptable for use in mounting J-Hooks.

J-Hooks shall be UL listed for use in environmental air handling spaces per 2008 NEC code requirements 300-22(c).

J-Hooks shall be: "Cat HP J-Hook" by Erico/CADDY; or "HPH J-Hooks" by Platinum Tools; or approved equal.

3.7.8) Loop/Strap Cable Hangers

Loop/Strap Cable Hangers ("Hangers") shall be constructed of flexible non-metallic material where they contact installed cable, and shall provide sturdy support of Category 6 and Category 6A cable without sagging, bending, or damaging the cable. Loop/Strap Hangers shall be mountable in a variety of ways and be rotatable to any angle.

Loop/Strap Hangers shall be UL listed for use in environmental air handling spaces per 2008 NEC code requirements 300-22(c).

Where Loop/Strap Hangers are directed by Scope of Work (if provided) and the original RFQ/RFP/Project for use in open areas, they shall be UV (Ultraviolet light) resistant-rated.

Loop/Strap Hangers shall be available in a variety of sizes to accommodate a 2-inch and 5-inch diameter bundle of cable.

Magnetic or hammer-on mounting clips are not acceptable for use in mounting Loop/Strap Hangers.

Loop/Strap Cable Hangers ("Hangers") shall be: "The LOOP" by Arlington, Part Number TL20, TL25, TL50; or "Cat 425 Adjustable Cable Support" by CADDY; or approved equal.

3.7.9) Conduit

All conduits to be installed by Contractor, unless otherwise specified, shall be Electrical Metallic Tubing.

3.7.9.1) Electrical Metallic Tubing

Electrical Metallic Tubing (EMT) must be ANSI C80.3 galvanized conduit.

EMT fittings and conduit bodies installed in interior spaces must be NEMA FB 1 steel setscrew type.

EMT fittings, conduit bodies, and junction boxes installed in exterior spaces must be weatherproof compression type.

Conduit system bushing and connectors must have nylon insulated throats.

3.7.10) Surface-Mount Non-Metallic Raceway ("Raceway")

Raceway and fittings shall be constructed entirely of PVC, and shall be colored Ivory. minimum 8' lengths. Raceway shall be designed to be secured to walls mechanically using screws or bolts. Raceway product series must include the following finishing fittings:

- 3.7.10.1) cover clip / union
- 3.7.10.2) internal 90-degree bend
- 3.7.10.3) external 90-degree bend
- 3.7.10.4) flat 90-degree bend
- 3.7.10.5) end-cap

Fittings shall have a minimum of 1.3 inches interior bend radius, and shall be suitable to maintain rating of selected Category 6 / 6A cable.

Raceway shall be Wiremold NM2000 series or approved equal.

3.8) Innerduct

All innerduct shall be constructed of corrugated High Density Polyethylene (HDPE) and shall be colored orange.

3.9) Pull Tape

Pull tape shall be composed of longitudinal aramid strands tied together with a 90-degree cross-weave of polyester strands. Pull cord shall have a minimum tensile strength of 1250 pounds, and shall maintain less than 4% tensile elongation at yield.

Pull tape shall have lubrication coating applied at factory, and shall have a coefficient of less than 0.12 (twelve hundredths).

Pull tape shall have footage marked clearly on tape by manufacturer.

Pull tape shall meet or exceed pull line requirement as defined in Bellcore GR-356-CORE "Generic Requirements for Optical Cable Innerduct and Accessories".

3.10) Pull Cord

Pull cord shall be composed of continuous polyethylene fibers and shall have a tensile strength of at least 200 pounds.

3.11) Cable Fasteners

Velcro brand hook-and-loop fasteners, or equivalent shall be used to secure cables. Contractor shall not use nylon or plastic zip strip, tie wrap, cable tie, (etc.) or similar fasteners on cables during construction and installation of the Data/Telecommunications Cabling System.

3.12) Free-Standing Equipment Cabinets ("Cabinets")

Free-Standing Equipment Cabinets ("Cabinets") shall be four-post free-standing EIA 19" cabinets, specifically designed for high-density cabling system applications. Cabinets shall include steel side panels each end of a series of bayed cabinets. Each cabinet shall include steel locking doors on front and rear. Installed cabinets shall provide NEMA 12 rating of protection against dust, falling dirt, and dripping non-corrosive liquids.

Cabinets shall be rated IP 51, and classified UL 50 Type 1, UL 50 Type 2, and UL 50 Type 12. Cabinets shall be certified by Underwriters Laboratories to be in compliance with UL 50 (Standard for Safety for Enclosures for Electrical Equipment), and to maintain integrity of a UL Type 12 enclosure.

Cabinets shall include integrated plinths (base) to raise bottom of cabinet a minimum of 4" from floor when installed. Plinths shall have side, front, and rear covers.

Cabinets shall be constructed of steel and shall provide a minimum of 2500 pound static load capacity when properly installed. Cabinet mounting rails/panels shall be constructed of 12-gauge zinc-plated steel. Cabinet frame, roof, base, and sidewalls shall be constructed of 16-gauge steel. Cabinet doors shall be constructed of 14-gauge steel.

Cabinet rails depth shall be fully adjustable. All rack mounting rails shall be factory machine-tapped with 10/32" factory-tapped holes in EIA-310-D Universal pattern.

Cabinet exterior shall be dip coat primed, and powder-painted RAL 7035 light gray at factory.

Cabinet door handles shall be tamper-proof with integrated locks, keyed alike.

Unless otherwise specified, cabinets shall be 82 inches high, 28 inches wide, and 31.5" deep, and provide 42 rack units (RU) of equipment mounting space.

If integrated cabinet system air conditioner is specified, then air conditioner shall be manufactured by the same manufacturer as the cabinet, and shall be compatible with cabinet. Cabinet shall maintain its NEMA 12 rating when the air conditioner is installed. Air conditioner shall accept 230V input and provide a minimum of 3500 BTU of continuous cooling in sustained ambient temperatures of 55 degrees Celsius.

Cabinets shall be Hoffman base model number PDGP2078GAC or approved equal. Solid doors shall be Hoffman part number PDS207G.

Integrated cabinet system air conditioner shall be Hoffman part number CR290426G002 or approved equal.

One baying kit shall be supplied with each cabinet.

Additional Hoffman components are required to meet this Specification.

Contractor shall coordinate with Hoffman product specialist and Owner Technical Contact to ensure proper cabinet configuration and order. Contractor shall submit Bill of Materials to Owner Technical Contact and Owner Project Manager for approval prior to order placement.

3.12.1) Mounting Hardware for Cabinets

Contractor shall furnish a quantity of one hundred (100) compatible equipment mounting bolts for each cabinet supplied.

3.12.2) Power Distribution Units for Cabinets

Contractor shall install two (2) Power Distribution Units (PDUs) per each cabinet supplied by Contractor.

PDUs for cabinets shall each have a single 30 amp 125 volt input via a NEMA L5-30P (male) plug, and shall distribute power to a total of twenty-four (24) NEMA 5-15/20R ("T-slot") female receptacle outputs.

PDUs shall each be between 42" and 49" in height, between 2" and 3" in width, and less than 2.5" inches in depth. Input power cable shall be 7' long.

Two 20 Amp circuit breakers shall be integrated into PDU chassis and shall each be wired to twelve (12) NEMA 5-15/20R outputs.

3.12.3) Vertical Cable Management Panels for Cabinets

One Vertical Cable Management Panels shall be provided and installed by Contractor on each post of each cabinet provided by Contractor (four per cabinet).

Vertical Cable Management Panels installed in cabinet shall be molded out of plastic and shall incorporate bend radius control throughout the fingers, pass-through holes, and transitions between horizontal and vertical pathways. Integral cable retainers shall be molded on the end of each finger. Four snap-on adjustable cable retainers, manufactured specifically to fit the selected model of cable management, shall be attached to duct fingers to provide additional retention of cables within channel.

Vertical Cable Management Panels provided with cabinet shall be double-sided. Front and rear dual-hinged cover shall open minimum of 110-degrees in the left or right position. Front duct shall be 83" high X 6" deep X 4.9" wide. Rear duct shall be 83" high X 6" deep X 4.9" wide.

Vertical Cable Management Panels provided with cabinets shall be colored black.

3.12.4) Horizontal Cable Management Panels for Cabinets

One Horizontal Cable Management Panel shall be supplied and installed per each Free-Standing Equipment Cabinet installed, to permit patch cables to pass from left to right side of Cabinet at center of Cabinet.

Horizontal Cable Management Panels shall be double-sided.

Horizontal Cable Management Panels shall mount to any standard EIA 19" wide rack, and when mounted to rack shall provide two fingered ducts -- one in front of rack, and one in rear of rack. Front dual-hinged removable cover shall open 180-degrees in the up or down position. Rear cover shall snap on. Front duct shall be 7" high X 5.5" deep. Rear duct shall be 7" high X 7.6" deep. Pass-through holes shall permit routing cables from front duct to rear duct.

Horizontal Cable Management Panels shall be molded out of plastic and shall incorporate bend radius control throughout the fingers, pass-through holes, and transitions between horizontal and vertical pathways. Integral cable retainers shall be molded on the end of each finger. Four snap-on adjustable cable retainers shall be attached to duct fingers to provide additional retention of cables within channel. Snap-on adjustable cable retainers must be manufactured specifically to fit the selected model of Horizontal Cable Management Panels.

Horizontal Cable Management Panels shall be colored black.

Horizontal Cable Management Panels shall be PANDUIT part number NM4 or approved equal.

3.13) Wall-Mounted Cabinets ("Wall-Mounted Cabinets")

Wall-Mounted Cabinets shall be constructed of 16 gauge steel with black powder-coated finish. Wall-Mounted Cabinets shall have four equipment mounting rails – two in front and two in rear. Wall-Mounted Cabinet equipment mounting rails shall be constructed of 11 gauge steel with black powder-coated finish, shall be 19 inches apart with fully adjustable depth position, and shall provide 26 rack units of usable rack space. All rack mounting rails shall be factory machine-tapped with #12/24 factory-tapped holes in EIA-310-D Universal pattern. Wall-Mounted Cabinets shall have solid front door. Wall-Mounted Cabinet shall have a rear hinged section with pre-drilled/cut keyholes slots that permits mounting to wall, and allows full access to rear of cabinet when mounted. Rear section of cabinet shall have minimum three (3) 3-inch diameter and eight (8) 3/4-inch diameter conduit entry knockouts on top and bottom panels. Wall-Mounted Cabinet side panels shall be vented via ventilation slots/louvers. Wall-Mounted Cabinet top shall have 250 CFM exhaust fan. Wall-Mounted Cabinet dimensions shall be 48 inches high, by 21 inches wide, by 26 inches deep.

Wall-Mounted Cabinet shall be Hubbell base part number HSQ48S36.

Wall-Mounted Cabinet shall include an installed top-mounted Fan Kit With Tray containing two (2) 57 CFM fans, Hubbell part number HWKF120..

Wall-Mounted Cabinet shall include an installed 1-RU Power Strip (PDU) with casing constructed of steel, with one (1) NEMA 5-15P input on six-foot stranded cord, and ten (10) rear-facing NEMA 5-15R outlets. Power Strip (PDU) shall be Hubbell part number HPWPWR.

Wall-Mounted Cabinet rear rails shall be Hubbell part number WMC48RAILS or approved equal, installed.

3.13.1) Mounting Hardware for Wall-Mounted Cabinets

Contractor shall furnish a quantity of one hundred (100) compatible #12/24 equipment mounting bolts for each cabinet supplied.

3.14) Open Equipment Racks ("Racks", "Open Racks")

Open Equipment Racks shall be two-post free-standing EIA 19" wide racks, specifically designed for high-density cabling system applications. Racks shall be constructed of steel and shall provide a minimum of 1500 pound static load capacity. Rack shall be colored black with powder-painted at factory.

Rack posts shall be factory machine-tapped on front and rear with #12/24 factory-tapped holes in EIA-310-D Universal pattern.

Rack posts shall contain built-in cable routing channels with hand-hole access openings on sides. The depth of the built-in cable routing channels shall be 16.5". Rack shall provide open access to cable routing channels from top, bottom, and inside of rack. The cable routing channel outside walls shall provide built-in cable tie points for affixing 3/4"-wide hook-and-loop fasteners directly to sidewalls while dressing cable.

Racks shall have integrated rungs on top of rack behind rack face to permit support and routing of cables to patch panel rear. Integrated rungs shall be of sufficient radius to maintain proper bend radius of cable.

Racks shall have integrated top trough with built-in waterfall in front of posts to provide bend radius control and efficient routing for patch cables.

Unless otherwise specified, racks shall be seven feet high (7' H), and provide 45 rack units (45 RU) of equipment mounting space.

Seven-foot-high Open Racks shall be Legrand part number MM10716, or approved equal.

Eight-foot-high Open Racks shall be Legrand part number MM10816, or approved equal.

3.14.1) Mounting Hardware for Open Racks

Contractor shall furnish a quantity of one hundred (100) compatible #12/24 bolts for each rack supplied.

3.14.2) Power Distribution Units for Open Racks

Contractor shall install two (2) Power Distribution Units (PDUs) on each Open Rack provided and/or installed by Contractor.

PDUs for Open Racks shall each have a single 30 amp 125 volt input via a NEMA L5-30P (male) plug, and shall distribute power to a total of twenty-four (24) NEMA 5-15/20R ("T-slot") female receptacle outputs.

Two 20 Amp circuit breakers shall be integrated into PDU chassis, and shall each be wired to twelve (12) NEMA 5-15/20R outputs.

PDUs for open racks shall each be between 42" and 49" in height, between 2" and 3" in width, and less than 2.5" inches in depth. Input power cable shall be 7' long.

PDUs for open racks shall be mounted vertically on rear of Open Rack and secured to factory-tapped holes on rear face of Open Rack using PDU-manufacturer-supplied brackets.

PDU must have mounting brackets that permit mounting PDU to pre-tapped holes in the Open Rack as described herein. Adjustable mounting brackets are acceptable if brackets securely fasten PDU to rack. Tapping of rear face of Open Rack shall not be permitted. Use of pre-tapped 19-inch EIA-pattern equipment mounting holes to mount PDU shall not be permitted.

One PDU shall be installed on each (left and right) side of rear face of Open Rack, four inches away from (clear) of EIA Universal equipment mounting holes of Open Rack.

Each PDUs for Open Racks shall be mounted such that output receptacles face laterally inward, toward nearest of the two rear 19-inch equipment-mounting rails of Open Rack. PDU shall not block ability to mount or remove equipment on rear rails when installed and fully-populated with 3-inch deep plugs in each output receptacle of PDU.

3.14.3) Vertical Cable Management Panels for Open Racks

One vertical cable management panels shall be provided and installed by Contractor on each post of each rack provided by Contractor.

Vertical cable management provided with racks shall be colored black, with a solid black front cover with hinge on both sides to permit opening of panel from right or left without removal of panel. Vertical cable management provided with racks shall be manufactured by same manufacturer of rack to fit selected rack. Vertical cable management provided with racks shall include snap-on bend-radius-limiting cable management spools and bend-limiting clips. Vertical cable management provided with racks shall provide an 8.25-inch-wide channel between racks for front and back routing of equipment cables and patch cords.

Seven-foot-high vertical cable management panels for seven-foot-high open racks shall be Ortronics part number MM10VMD712 or approved equal.

Eight -foot-high vertical cable management panels for eight-root-high open racks shall be Ortronics part number MM10VMD812 or approved equal.

3.14.4) Horizontal Cable Management Panels for Open Racks

One (1) 4RU Horizontal Cable Management Panel shall be supplied and installed per each Open Equipment Rack installed, to permit patch cables to pass from left to right side of rack at center of rack height.

Horizontal Cable Management Panels shall mount to any standard EIA 19" wide rack, and when mounted to front of rack shall provide two fingered ducts -- one facing front of rack, and one facing rear of rack. Dual-hinged removable covers shall open 180-degrees in the up or down position. Pass-through holes shall permit routing cables from front duct to rear duct.

Horizontal Cable Management Panels shall be molded out of plastic and shall incorporate bend radius control throughout the fingers, pass-through holes, and transitions between horizontal and vertical pathways. Integral cable retainers shall be molded on the end of each finger. Four snap-on adjustable cable retainers shall be attached to duct fingers to provide additional retention of cables within channel. Snap-on adjustable cable retainers must be manufactured specifically to fit the selected model of Horizontal Cable Management Panels.

Horizontal Cable Management Panels shall be colored black.

Horizontal Cable Management Panels shall be PANDUIT part number NM4 or approved equal.

3.15) Labels

All label text shall conform to the Cable Installation Labeling Convention, defined herein.

All labels shall meet the legibility requirements of UL 969, and shall be preprinted using a mechanical means of printing (e.g., laser printer) using the label content of an approved Circuit Endpoint Table Spreadsheet submittal.

3.15.1) Data/telecommunications Outlet Labels

Data/telecommunications faceplates shall be labeled using compatible non-adhesive labels. A transparent snap-in flexible plastic label cover shall retain the label, and shall provide a small hole at side to permit label cover removal.

Data/telecommunications outlets and data/telecommunications outlet ports shall be labeled according to the Cable Installation Labeling Convention, defined herein.

3.15.2) Labels for Patch Panels (all types)

Patch Panels shall be labeled using compatible non-adhesive labels. A transparent snap-in flexible plastic label cover shall retain the label, and shall provide a small hole at side to permit label cover removal

Patch panels and patch panel ports shall be labeled according to the Cable Installation Labeling Convention, defined herein, and shall meet the legibility requirements of UL 969. Font shall be Bold 8-point Courier (fixed width), and label content shall be left-justified.

3.15.3) Cable Marking Labels

Cable marking labels shall be composed of vinyl substrate with a white printing area and a clear "tail" that self laminates the printed area when wrapped around the cable.

Cable marking labels shall meet the legibility, defacement, exposure, and adhesion requirements of UL 969, and shall be preprinted using a mechanical means of printing (e.g., laser printer).

If cable jacket is white, provide cable label with printing area that is any other color than white, preferably orange or yellow – so that the labels are easily distinguishable.

Cables shall be labeled on both ends according to the Cable Installation Labeling Convention, defined herein.

3.15.4) Fiber-Optic Cable Warning Labels

Fiber-Optic cable warning labels shall alert to the presence of Fiber-Optic cable within innerduct and conduit.

Fiber-Optic cable warning labels shall be colored yellow, and shall clearly state in black print applied by manufacturer: "WARNING" and "FIBER-OPTIC CABLE".

Fiber-Optic cable warning labels shall also advise reader in clearly legible print to "CONTACT: CTS NETOPS AT (914)251-6465" for information.

Fiber-Optic cable warning labels shall be manufactured to attach directly to innerduct, conduit, and Fiber-Optic cable via mechanical means, rather than adhesive.

3.16) Communications Room Backboard

Communications Room Backboard ("Backboard") shall be constructed of 3/4" thick type A/C fire-rated plywood. Backboard shall be stamped clearly on the "good" finished side (the "A" side) by manufacturer, showing that it has been treated with fire-retardant chemical and meets Class A requirements for NFPA Life Safety Code (NFPA 101). Backboard shall be entirely unpainted. At least one fire-retardant treatment stamp must be clearly visible on installed Backboard at all times, regardless of what is mounted on the backboard.

Whole 4' x 8' sections of plywood shall be cut to fit the specified area of Backboard. Scrap or remnant wood is not acceptable. Plywood must be free of dirt and dust.

Plywood shall be cut and mounted such that specified size and area of Backboard is covered continuously, with as few joints and as few cuts as possible.

3.16.1) Steel Strut Used as Standoff for Communications Room Backboard

Steel strut Used as Standoff for Communications Room Backboard shall be 1-5/8 inch wide by 2-7/16" deep, and shall be constructed of 12 Gage, low-carbon cold formed steel.

Steel strut used as standoff for Communications Room Backboard shall have mounting holes drilled every 1-7/8" inch on center at its face.

3.17) Electrical Grounding Busbar for Communications Rooms

Unless existing, Contractor shall install one UL-listed electrical grounding busbar in Communications Rooms, to be used as the Telecommunications Main Grounding Busbar (TMGB) in data/telecommunications located closest to entrance facility, and as Telecommunications Grounding Busbar (TBB) in all other Communications Rooms as per TIA/EIA J-STD-607-A.

Grounding busbars for Communications Rooms shall be 0.25" deep x 4" high x 12" wide copper grounding busbar with a minimum of eighteen (18) 0.437" holes at a minimum of 1" separation.

Grounding busbars for Communications Rooms shall be insulated from each of its supports by a minimum of two inches (2") of UL standoff insulators.

Grounding busbars for Communications Rooms shall be mounted at bottom of plywood backboard via two stainless steel mounting brackets, and four stainless steel assembly bolts and lock washer.

Grounding busbars for Communications Rooms shall be suitable for indoor or outdoor installations.

Electrical Grounding Busbar shall be Storm Copper SCGB-5KT Ground Bar Kit, or approved equal.

3.18) Firestopping

Use only Firestopping products that have been tested for specific fire resistance rated construction conditions conforming to construction assembly type, penetrating item type, annular space requirements, and fire rating involved for each separate instance.

Firestopping products shall form a seal around cables that shall remain soft and pliable to allow removal, repair, and the addition of cables ("re-enterability") without power tools, and without any danger of damaging existing cable traversing the penetration

Firestopping products shall be UL-Listed.

3.18.1) Firestopping

Materials used for Firestopping shall remain soft and pliable to allow removal, repair, and the addition of cables ("re-enterability") without power tools, and without any danger of damaging existing cable traversing the penetration.

Firestopping Materials shall not re-emulsify, dissolve, leach, breakdown or otherwise deteriorate over time from exposure to atmospheric moisture, sweating pipes, ponding water or other forms of moisture characteristic during or after construction.

Firestopping Putty/Caulk/ Foam shall be colored red.

3.18.2) Fire Rated Cable Pathway Devices (Firestop Assemblies)

Fire Rated Cable Pathway Devices shall be comprised of steel raceway with intumescent foam pads allowing 0 to 100 percent cable fill while retaining all Firestopping properties.

Fire rated pathway devices shall:

- 3.18.2.1) Meet the hourly rating of the floor or wall penetrated.
- 3.18.2.2) Permit the allowable cable load to range from 0% to 100% visual fill while retaining intumescent/firestopping properties, thereby eliminating the need to calculate allowable fill ratios.
- 3.18.2.3) Permit multiple devices to be ganged together to increase overall cable capacity.
- 3.18.2.4) Allow for retrofit to install around existing cables.
- 3.18.2.5) Include an optional means to lengthen the device to facilitate installation in thicker barriers without degrading fire or smoke sealing properties or inhibiting ability of device to permit cable moves, add-ons, or changes.
- 3.18.2.6) Not require any additional action on the part of the installer to open or close the pathway device or activate the internal smoke and fire seal, such as, but not limited to:
 - 3.18.2.6.1) Opening, closing, or adjustment of doors.
 - 3.18.2.6.2) Twisting an inner liner.
 - 3.18.2.6.3) Removal or replacement of any material such as, but not limited to, sealant, caulk, putty, pillows, bags, foam plugs, foam blocks, or any other material.

Fire Rated Cable Pathways shall be Specified Technologies Inc. (STI) EZ-PATH™ Fire Rated Pathway or approved equal.

3.18.3) Firestopping for Data/Telecommunications Cabinet Penetrations

Firestopping used on data/telecommunications cabinet penetrations shall provide a fire- and smoke-proof seal to and from space within cabinet.

3.19) Wireless Access Point Mounting Brackets

3.19.1) Suspended-Ceiling-Mount Wireless Access Point Mounting Bracket

Suspended-Ceiling-Mount WAP Bracket shall be Cisco AIR-AP-T-RAIL-R, Part Number 700-19209-04. Suspended-Ceiling-Mount Wireless Access Point Bracket shall be provided by Purchase College.

3.19.2) Indoor Wall-Mount Wireless Access Point Mounting Bracket

Indoor Wall-Mount Wireless Access Point Mounting Bracket shall be constructed of 18 gauge steel, and be constructed sturdily with a hostile environment in mind. Door concealing faceplate must lock, and all Wall-Mount WAP Mounting Brackets must be keyed alike. Two keys shall be furnished for each Wall-Mount WAP Mounting Bracket provided. Surface of WAP Mounting Bracket shall be finished with textured white powder coat.

Indoor Wall-Mount Wireless Access Point Enclosures shall be Oberon Wireless model 1012-00 or approved equal.

3.20) Ceiling Access Hatches

Ceiling Access Hatches shall be plenum-rated, shall be constructed of steel, and shall have a hinged door. Ceiling Access Hatches shall provide a 2-foot by 2-foot square opening in ceiling when opened. Hinged door on Ceiling Access Hatches shall be square and shall be secured mechanically via coin-slot drive in each corner of hinged door.

Contractor is required to install ceiling access hatches at a spacing of 15 feet maximum for during/after installation accessibility.

Part 4: Execution

4) Execution

4.1) Quality of Work

All work shall be performed to the highest industry standards. All equipment and materials are be installed in a neat and secure manner in accordance with applicable industry technical standards, local code standards, and product manufacturer's installation instructions and standards.

4.2) Pre-Bid and Pre-Installation Surveys

Prior to placing any cabinet, rack, wireless access point enclosure, conduit, cable tray, raceway, feeder, or cable, the Contractor shall survey the site to see that job conditions do not impose any obstructions that would interfere with the safe and satisfactory placement of the cables or equipment. Necessary changes to the plans may be determined by Contractor's site survey, and such changes require written approval by Owner Project Manager.

Building plans and documentation are not guaranteed to be entirely accurate or to scale, and are provided for informational purposes only. Contractor must verify all measurements in the field.

Unless otherwise noted, Contractor may freely access public areas of campus during normal hours of operation in order to verify measurements and existing conditions.

Contractor is urged to perform a site visit and verify measurements and existing conditions prior to placing a bid in respond to any request for quote or request for proposal.

4.3) Access and Physical Security

Contractor may require access to locked doors or alarmed areas. Contractor shall coordinate access with Owner Project Manager.

If a security alarm is tripped, then Contractor must immediately notify the University Police Department at (914)251-6900.

Contractor shall comply with all of Owner's policies regarding access to non-public areas.

Contractor may be provided with a chaperone by Owner while working in residence facilities, museum, art galleries, and other restricted areas of the campus.

4.4) Coordination with Other Trades

In order to conform to the overall project event schedule, Contractor shall survey the work areas regularly, and coordinate work with other applicable trades and with the Owner Project Manager.

4.5) Regular Meeting with Owner Project Manager

Owner Project Manager and Contractor Project Manager shall meet weekly, or more frequently as determined by Owner Project Manager. Owner Technical Contact and/or Contractor Field Contact, or any other party that Owner or Contractor deem necessary may be present.

4.6) Damage or Loss

During installation, and prior to final acceptance, the Contractor shall protect finished and unfinished work against damage and loss. In the event of such damage or loss, the Contractor shall replace or repair such work at no additional cost to Owner. As cable is installed, care must be taken to avoid nicks, kinks or other damage to the cable.

4.7) Existing Cables and Equipment

Contractor shall perform work without disturbing existing cables and equipment. If Contractor must disturb existing cables in order to perform work, then Contractor must obtain prior written permission to do so from Owner.

4.8) Clean-up

Contractor is required to clean up work areas of debris and dust generated by Contractor, as specified herein.

4.8.1) End of day

Contractor shall broom-clean all work areas of job site prior to leaving job site the end of each workday. Contractor shall restore suspended-ceilings in occupied areas to their former condition by the end of each workday. If suspended-ceiling tiles are damaged or broken, then Contractor shall replace tiles.

4.8.2) End of project

Following the completion of construction in an area, Contractor shall vacuum-clean and wipe-down all dust and debris generated by the work.

4.8.3) Communications Rooms

4.8.3.1) New Communications Rooms

New Communications Rooms and Cabinets shall be delivered to college in clean condition with all surfaces dust-free and debris-free.

Door sweeps and seals shall be installed on any door in New Communications Room to prevent dust from entering.

4.8.3.2) Existing Communications Rooms and Cabinets

Existing Communications Rooms and Cabinets shall be cleaned by Contractor with HEPA-Filter dry Vacuum prior to commencing work in Communications Room, and shall be maintained as dust-free and debris-free for duration of project.

Tools, cloths, boots, and ladders shall be cleaned prior to entering any existing Communications Room or Cabinet.

Sticky mat and door sweep shall be required at Communications Room to prevent dust from entering.

4.9) Splices

All cables shall be "home run" between patch panel and termination point.

No intermediate splice points are permitted for cables of any type.

Splicing of any cables of any type is prohibited, except where Fiber-Optic fusion splices or Category 3 telephone splices are specified.

4.10) Technical Requirements

4.10.1) Data/Telecommunications Cabling System

Installed Category 6 / 6A system and components shall support 100BASE-TX Ethernet as per IEEE 802.3u, 1000BASE-T Ethernet as per IEEE 802.3ab, 1000BASE-TX Ethernet as per TIA-854, 2.5GBASE-T and 5GBASE-T Ethernet as per IEEE 802.3bz, 10GBASE-T Ethernet as per IEEE 802.3an, Voice-Over-IP telephony (VOIP) as per TIA-TR41, digital telephony as per TIA-810-B, analog telephony as per TIA 470-C, and Power over Ethernet as per the IEEE 802.3af, IEEE802.3at, and IEEE802.3bt standards.

Installation of Data/Telecommunications Cabling System must satisfy requirements set forth in all parts and addenda of ANSI/TIA/EIA-568-C, and TIA-569-A, ISO/IEC 11801, and IEC 61156.

Contractor shall furnish and install cables, terminals, connectors, patch panels, and miscellaneous hardware required for delivery of a complete and working cable plant.

4.11) Cabinets and Racks

4.11.1) Securing Cabinets and Racks to Floor and to Each Other

Cabinets and racks installed by Contractor must be securely anchored and bolted to the floor. Wherever one cabinet or rack is installed directly adjacent to another cabinet or rack, the cabinets or racks must be securely connected using manufacture-approved baying kit.

4.11.2) Knockouts

Where knockouts in cabinet sheet metal are specified or are necessary, knockout will be fitted with a bushed steel chase nipple to prevent cable from contacting sharp surfaces of cut sheet metal, and to allow proper packing of fire-stop material at cabinet penetration. All unused knockouts in cabinet are to be covered with knockout seals, regardless of whether or not knockout was open prior to Contractor performing work.

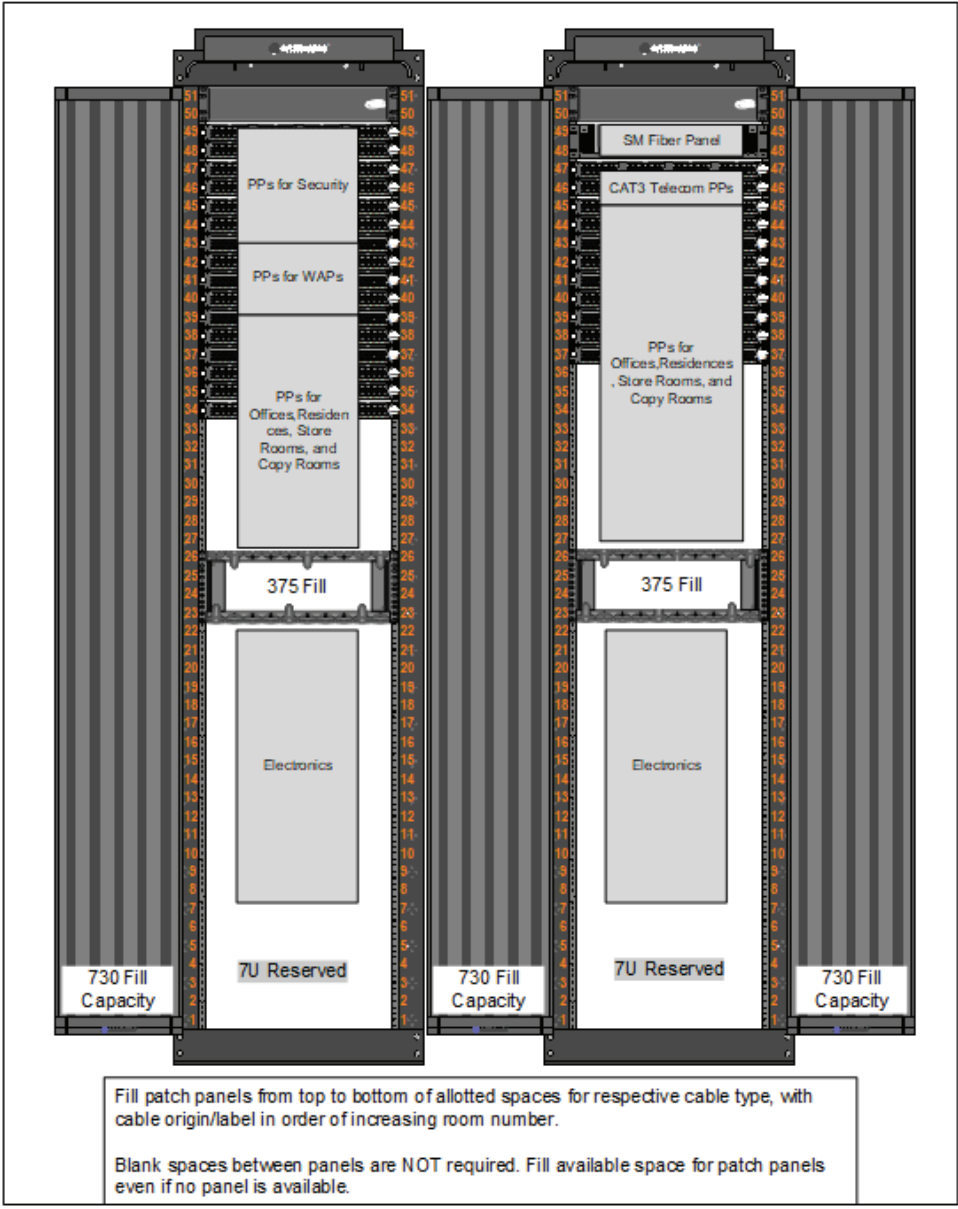
4.11.3) Fire-stop for Cabinet Penetrations

Contractor shall insure that fire-stop material is installed at all knockouts or other entrances to any cabinet in which Contractor performs work, regardless of whether or not Contractor disturbed fire-stop while performing work, and regardless of whether or not fire-stop was present prior to Contractor performing work.

Contractor shall install fire-stop in any new cabinet penetration that contractor creates. Contractor shall insure that every cabinet penetration has firestop installed prior to the completion of the job.

4.11.4) Cabinet or Rack Layout

See following sample rack elevation. Actual rack elevation drawings shall be provided by Owner Project Manager prior to cable dress/termination in each Communications Room, per project schedule, to ensure rack elevations are complete and accurate.



4.12) Drip Loops

For all cables Contractor installs, Contractor will create minimum 6" radius drip loops before cabinets, racks, and connection blocks. Drip loops shall not be located anywhere above or within four feet (4') of cabinets, equipment, patch panels, and connection blocks, and shall direct any water traveling on cables away from such equipment.

4.13) Communications Room Backboard

Communications Room Backboard ("Backboard") shall be provided in whole 4'x8' sections cut to maximum size and fit in the designated location.

Backboard shall be mounted such that bottom edge of plywood is 36" AFF and top edge of plywood is 84" AFF.

Six 22-inch lengths of 12-gauge back-to-back 1-5/8" x 4-7/8" steel strut shall be mounted horizontally behind each whole piece of plywood to create a 4-7/8-inch accessible gap (standoff) for routing cable between the Backboard and the wall, with one length of strut mounted roughly at each of the four corners and one length mounted roughly on center of both of the two longest sides of the plywood. Smaller cut sections of plywood shall be mounted using fewer lengths/pieces of steel strut, as appropriate.

Each length of strut shall be mechanically affixed to studs, to blocking, to masonry, or to structural steel behind the finished wall using two 1/2-inch Grade 8 carbon-steel bolts/washers/anchors.

Prior to installation, bolts and strut must be filed and deburred as to not to nick or cut cables that are routed behind backboard in the future.

Adequate materials, methods, and fasteners shall be utilized to insure proper support of the weight of the backboard assembly plus 600 pounds of static load on each 4'x8' section of backboard.

Wood screws used in mounting equipment, cable, and supports to backboard shall not exceed the thickness of the backboard. Screws and other sharp objects must not protrude out rear of backboard where they may nick or cut cables that are routed behind backboard in the future.

Existing light fixtures, electrical outlets, switches, and other items fixed to designated wall shall be avoided, or plywood must be cut around such items such that access to items is not hindered in any way.

The "good" finished side (the "A" side) of the fire-rated A/C plywood shall face away from mounting wall, and shall display manufacturer's stamps confirming that it has been treated with fire-retardant chemical.

Plywood backboard shall be entirely unpainted and installed so that stamps show clearly for all future fire inspections. At least one stamp in its entirety must be clearly visible on plywood at all times, regardless of what is mounted on the backboard.

4.14) Grounding

All components of the Data/Telecommunications Cabling System shall be properly grounded and bonded as per ANSI/TIA/EIA 607, and all applicable electrical codes. Electrical ground busbars shall be available on plywood backboards in all Communications Rooms

A complete connection to ground shall be formed from each structural metallic part of the cable plant to and through all others which parallel the route that a signal is designed to travel. Appropriate gauge copper ground cable as per code and standards shall be used to connect all components. Paint-piercing screws, grounding lugs, and split-bolt connectors shall be utilized as appropriate to insure proper connections.

All connections to the Grounding busbars for Communications Rooms shall all be made via UL-rated two-hole compression lugs – one-hole compression lugs are not acceptable. Each compression lug shall be crimped a minimum of twice to insure good connection to lug. Grounding busbars for Communications Rooms and associated lugs shall be cleaned prior to fastening of conductors, and an anti-oxidant shall be applied to contact area to control corrosion and reduce contact resistance.

Grounding busbars for Communications Rooms shall be installed no more than ten feet from electrical panel located in same Communications Room that serves the data/telecommunications system. A minimum gauge of #6 AWG cable designed for use in grounding/bonding applications shall be used to interconnect grounding/bonding components and shall have a green insulating jacket that meets the fire ratings of its pathway. Any cable used to ground/bond newly-installed components shall be installed without splices.

A Telecommunications Bonding Backbone cable of at minimum #3/0 AWG cable designed for use in grounding/bonding applications shall be supplied and installed by Contractor to interconnect the Main Telecommunications Grounding Busbar and all Telecommunications Ground Busbar(s) as per ANSI/TIA/EIA J-STD-607-A, if one does not exist.

4.15) Keys to Cabinets, Furniture, and WAP Mounting Brackets

Keys to cabinets, Furniture, and WAP Mounting Brackets may be retained by Contractor until Final Completion, at which time all keys must be returned to Owner.

Contractor shall not make copies of any key and shall account for all keys received or purchased prior to Final Completion.

Contractor shall immediately provide keys to Owner upon written request by Owner at any point during construction.

4.16) Service Slack

4.16.1) Data/telecommunications Outlet Service Slack

Each installed data/telecommunications cable shall provide a minimum of eight inches (8") of service slack in the station outlet gang box at modular jack termination point, or as much as is allowed considering available space in gang box. Service slack shall be arranged in a loop and tucked in gang box, with consideration for the specified maximum bend radius of installed cable.

4.16.2) Additional Service Slack for Wireless Access Point Data Outlets

Each installed data cable designated for Wireless Access Point (WAP) connection shall have thirty feet (30') of service slack coiled above nearest accessible ceiling to WAP outlet, and fastened to nearest J-Hook or other approved support using hook-and-loop fasteners.

4.16.3) Additional Service slack for Security Cables

Each installed cable designated for Security shall have thirty feet (30') of service slack coiled above nearest accessible ceiling to Security termination, and fastened to nearest J-Hook or other approved support using hook-and-loop fasteners.

4.16.4) Additional Service Slack for Spare Cables

Each installed data/telecommunications cable designated as a "Spare Cable" shall have fifty feet (50') of service slack coiled above nearest accessible ceiling, and hung on nearest J-Hook or other approved support using hook-and-loop fasteners.

4.16.5) Communications Room Service Slack

4.16.5.1) Category 6 / 6A Cable

At each Communications Room, Category 6 / 6A cables shall be combed, secured to Communications Room Backboard using hook-and-loop fasteners, and arranged in an S-curve such that ten feet (10') of service slack is provided in the Communications Room.

With written approval, Contractor may alternatively lay service slack in Communications Room on adjoined cable trays that are dedicated for the purposes of dressing service slack. Service slack on cable tray shall be combed and secured to cable tray using hook-and-loop fasteners.

An additional three feet (3') of service slack shall be provided in the cabinet or rack via a small "C-curve" secured to side rail of cabinet or rack with hook-and-loop fasteners, directly before cable enters rear of slotted duct cable management.

4.16.5.2) Telecommunications Feeder Cable Service Slack

At each Communications Room and telecommunications distribution frame, Telecommunications Feeder Cable shall be neatly secured to Communications Room Backboard using hook-and-loop fasteners, and arranged in a C-curve such that six feet (6') of service slack is provided.

With written approval, Contractor may alternatively lay Telecommunications Feeder Cable service slack in Communications Room on adjoined cable trays that are dedicated for the purpose of dressing service slack. Service slack on cable tray shall be secured to cable tray using hook-and-loop fasteners.

An additional four feet (4') of service slack on Telecommunications Feeder Cable shall be provided in cabinet or rack, arranged in a "C-curve" secured to side rail of cabinet or rack with hook-and-loop fasteners.

4.16.5.3) Fiber-Optic Cable Service Slack

At each Communications Room, Fiber-Optic cable shall be neatly secured to Backboard using hook-and-loop fasteners, and arranged in a coil such that fifty feet (50') of service slack is provided in each Communications Room.

With written approval, contractor may alternatively lay Fiber-Optic cable service slack in a coil in Communications Room on adjoined cable trays that are dedicated for the purpose of dressing service slack. Service slack on cable tray shall be secured to cable tray using hook-and-loop fasteners.

An additional ten feet (10') of service slack on Fiber-Optic cable shall be provided in the cabinet or rack in an "S-curve" secured to side rail of cabinet or rack with hook-and-loop fasteners.

4.17) Strain Relief and Cable Dressing

The Contractor shall provide and install hook-and-loop fasteners ties, riser cable support grips and strain relief based upon field conditions to maintain orderly cable organization

Contractor shall neatly dress cable in Communications Rooms and securely bundle them at every two-foot interval using prescribed cable fastener. Separate cable fasteners shall be used to attach cable bundle to cable tray, cabinet, cable management, or other cable support in the room.

Contractor shall install Horizontal 19-inch Lacing Bar for Patch Panel Rear Cable Strain Relief for all installed patch panels. Plastic strain relief bars that mount directly to patch panel are not acceptable. Strain relief will be installed in such a way that patch panel may be serviced with strain relief in place.

Strain relief boots and termination caps shall be installed on the station outlet modular jack and patch panel modular jack, if provided as part of the selected jack assembly.

4.18) Data/telecommunications Cabling System

4.18.1) Data/telecommunications Outlets

4.18.1.1) Outlet Placement

Standard wall data/telecommunications outlets shall be installed on the wall entirely above baseboard or cove base, at approximately 15 inches AFF.

Outlet placement shall match the height and orientation of existing electrical and communications outlets that are installed at a minimum of 8 inches in height and maximum of 24 inches in height on center. Existing outlets installed below 8 inches in height and above 24 inches in height on center shall not be used as a guide to place new outlets.

4.18.1.1.1) Wall outlets from to which an EMT conduit or stub are connected shall be installed in Metallic Recessed-Mount Device Boxes.

4.18.1.1.2) Wall outlets retrofitted into sheetrock walls shall utilize Low Voltage Faceplate Mounting Brackets.

4.18.1.2) Termination

All Category 6 / 6A termination assemblies shall employ the TIA-568-B wiring configuration for color-coding of pinout/position.

In order to maintain the electrical and data transmission characteristics of Category 6 / 6A cables, the following practices must be observed during the termination of all Category 6 / 6A cabling:

4.18.1.2.1) Only remove the minimum amount of cable sheath necessary to properly terminate the wires.

4.18.1.2.2) Cable conductors are arranged in pairs. Each pair has a specific twist associated with that pair. Maintain the pair twist at all times. Do not untwist and then attempt to re-twist cable pairs while terminating. Separate the conductors in a pair only as much as absolutely necessary to terminate the cable onto the connector. For all twisted pair cables the maximum untwisted length is not to exceed 0.5 inches.

4.18.1.2.3) Never remove insulation from the conductors. All of the terminations in this project shall be of the insulation displacement (IDC) type.

4.18.1.2.4) Leave the minimum amount of conductor after termination in an IDC connector. If necessary, use a cable scissor to trim extra length. Under no circumstances shall the excess length exceed 0.125 inches above the terminator block face edge.

4.18.2) Telecommunications Feeder Cable

Contractor shall terminate Telecommunications Feeder Cables on PDS 110-style insulation displacement connectors on the rear of 19" rack-mount Telecommunications Feeder Patch Panels at Communications Room end. Contractor shall terminate one pair of conductors on each port of 19" rack-mount telecommunications feeder patch panel.

Contractor shall terminate all pairs of Telecommunications Feeder Cables in corresponding order on 66M Connection Blocks mounted on backboard at the telecommunications distribution frame end. Connection Blocks shall be mounted to backboard or to distribution frame as specified by Owner.

All terminations shall be made in color order according to TIA/PIC standards.

4.18.3) Telecommunications Gas Protector Panel

If specified, Contractor shall install an intermediary gas protector panel for Communications Room on Communications Room Backboard.

4.19) Fiber-Optic Cable

Fiber-Optic cable shall be run within innerduct or dedicated $\frac{3}{4}$ " EMT for the entirety of the cable length between Communications Rooms.

A conduit less than or equal to 1.5" in diameter that a Fiber-Optic cable is run through shall be deemed non-re-enterable. Additional cables shall not be pulled through this conduit following testing/certification of Fiber-Optic cable, in order to insure performance of the Fiber-Optic cable.

When run through conduit greater than 1.5" in diameter or on cable tray, Fiber-Optic cable shall be run within innerduct.

When otherwise run above suspended-ceilings, in mechanical rooms, and in mechanical spaces, Fiber-Optic cable shall be run in dedicated $\frac{3}{4}$ " EMT.

When otherwise run below suspended-ceilings and in occupied areas that require aesthetics to be maintained, Fiber-Optic cable shall be run in raceway that is specifically designed to maintain bend radius of the Fiber-Optic cable.

4.19.1) Non-Armored Fiber-Optic Cable

No exceptions shall be made in any circumstance regarding the above use of innerduct/EMT/raceway with non-armored Fiber-Optic cable.

4.19.2) Armored Fiber-Optic Cable

Exceptions may be made under certain circumstances regarding the above use of innerduct/EMT/raceway with armored Fiber-Optic cable, but only if explicit written permission is granted from both Owner Project Manager and Owner Technical Contact.

4.19.3) Patch Panels and Termination

Termination of Fiber-Optic cable at Fiber-Optic patch panels shall confirm to TIA-568-C. SC duplex connectors shall be used for all Single-mode fiber termination.

The highest level of workmanship and attention to detail shall be exercised during installation and termination of Fiber-Optic cable.

Only cable manufacturer compatible tools and materials such as crimpers, fan-outs, and connectors shall be used in terminating Fiber-Optic cable termination.

4.19.4) Splicing and Fusion Splicing

Where fusions splices of Fiber-Optic cable are specified, contractor shall use fusion splicing tool from same manufacturer as cable being fused, to insure optimal results. Each fusion splice shall be tested at point of fuse, and less than 0.1 dB

Mechanical splices of Fiber-Optic cable are not permitted.

4.20) Pathways and Spaces

4.20.1) Pathways

Cable pathways will be constructed of appropriate cable supports such as J-Hooks, Loop/Strap Cable Hangers, Basket Cable Tray, raceways, or conduits.

J-Hooks, Loop/Strap Cable Hangers, or Basket Cable Tray may be used to support cable above suspended-ceiling, where there is no requirement for a specific type of cable support at that location.

Cable supports installed above suspended-ceilings shall be supported from the building structure and not from the existing ceiling support cables, grid, rods, or acoustical tees. Cable supports installed above suspended-ceiling shall be installed below plenum partition, if enough space exists between ceiling and plenum partition. If insufficient space exists between ceiling and plenum partition to install cable supports, then alternate pathway or method must be proposed by Contractor and approved in writing by Owner.

Threaded support rods shall extend a minimum of one inch (1") below cable tray wherever space allows to accommodate extension hardware that may be need to be added in the future.

Conduit, cable tray, innerduct, and raceway installation shall be continuous and connected appropriately to all boxes, cabinets, and other pathway components. Manufacturer's fitting must be used for all transitions. Caps and gaskets shall be used to prevent dirt and moisture from entering installed conduit, innerduct, and raceway where appropriate. Nylon bushings shall be used on all stubs and points of connection to prevent sharp edges from damaging cable and pull tape.

Pathway shall be constructed with Owner's hostile environment in mind. Unless noted, cables must not be exposed when run below finished ceilings -- all cables shall be run within conduit, within raceway, in walls, or above ceilings. Cables run in Mechanical Rooms shall be run in conduit. Raceway may be used as an alternate path when it is desirable to avoid certain ceiling spaces, though any use of conduit or raceway not explicitly prescribed in the scope of work (if provided) and the original RFQ/RFP/Project must be approved in writing by Owner prior to bid submission.

Headroom shall be maintained when installing conduit, cable tray, raceway, J-Hooks, cable hangers, and cable.

4.20.1.1) Metallic Recessed-Mount Device Boxes

Metallic Recessed-Mount Device Boxes shall be generally used for Category 6 / 6A outlets on gypsum-board (sheetrock) walls, and Category 6A Wireless Access Point (WAP) and outlets installed in gypsum-board ceilings – when either are installed during new construction or during gut-renovations.

During new construction and gut-renovations, Metallic Recessed-Mount Device Box shall be installed with 3/4-inch EMT run to box while finished wall is not yet built, and structure/studs are exposed. The 3/4-inch EMT shall stub to nearest accessible cable tray or nearest accessible ACT/open ceiling.

Cables shall not be installed in Metallic Recessed-Mount Device Boxes until gypsum-board has been installed. Once cables are installed and until room has been completely painted, a temporary cover shall be placed on box to prevent paint and primer from contaminating cable jacket. If ceiling is to be sprayed or painted, then cables above ceiling shall be temporarily wrapped with protective plastic covering to prevent paint and primer or other spray-on materials from contaminating cable jacket

4.20.1.1.1) General Category 6 / 6A outlets

Metallic Recessed-Mount Device Boxes for general Category 6 outlets shall be reduced with single-gang raised reducing ring, unless otherwise noted.

4.20.1.1.2) Category 6A for Wireless Access Point (WAP) or Surveillance Camera installation in gypsum-board ceilings

The following assembly shall be mechanically fastened together:

- 4.20.1.1.2.1) One (1) Metallic Recessed-Mount Device box (facing downward),
- 4.20.1.1.2.2) One (1) Flat single-gang reducing ring below,
- 4.20.1.1.2.3) One (1) Standard Category 6A faceplate, specified herein, facing downward,
- 4.20.1.1.2.4) One (1) Galvanized steel extension collar that is 2-1/8" deep x 4-inch wide x 4-inch high, and
- 4.20.1.1.2.5) One (1) Single-gang raised reducing ring (facing downward)

Metallic Recessed-Mount Device box in the above assembly shall be supported in ceiling by 8-inch max depth adjustable height box hanger, specified herein.

WAP may be connected with assembly in place, and WAP bracket mounted to single-gang raised reducing ring, following all priming and painting.

Raised reducing ring and extension collar shall be removable to permit removing faceplate, in order to be able to service Category 6A outlets.

4.20.1.2) Metallic Surface-Mount Device Boxes

Metallic Surface-Mount Device Boxes shall be used for Category 6 / 6A outlets in industrial areas, in Mechanical Equipment Rooms, and above ACT ceilings.

Metallic Surface-Mount Device Boxes shall be reduced with single-gang flat reducing ring, unless otherwise noted.

4.20.1.3) Non-Metallic Surface-Mount Device Boxes

Non-Metallic Surface-mount device boxes shall be constructed entirely of PVC, and shall be ivory in color.

NM surface-mount device boxes shall be 2 7/8" inches deep, and shall be single-gang, 3 inches wide by, 4 7/8" high.

NM surface mount boxes shall be of same manufacturer and compatible with approved raceway, and shall have knockouts/twist-outs for selected raceway model.

NM surface-mount device boxes shall be designed to be secured to wall mechanically using screws or bolts.

4.20.1.4) J-Hooks and Loop/Strap Cable Hangers

J-Hooks and/or Loop/Strap Cable Hangers shall be installed no more than six feet apart. When transitioning from J-Hook to another approved cable support, conduit, or through a penetration, then Cable Hanger shall be at most four feet from alternate cable support or conduit.

4.20.1.5) Basket Cable Tray and Ladder Cable Tray

Contractor shall install anchors, threaded rod, clamps and bars as needed to properly install and secure cable tray. Contractor shall use support methods, splice methods, fittings, and materials that are recommended by the cable tray manufacturer to continuously connect sections of cable tray and fittings. Cable tray shall be bonded per NEC and manufacturer standards and to the same ground as equipment rack. Contractor shall provide a minimum 12-inch working clearance above and on either side of encompassing cable tray to permit access for installing and maintaining cables. Contractor shall install cable tray in accordance with recognized industry practices, and in accordance with all of the following:

4.20.1.5.1) NEMA VE-2 2000

4.20.1.5.2) NEC and applicable portions of NFPA 70

4.20.1.5.3) NECA's "Standards of Installation" pertaining to general electrical installation practices

4.20.2) Avoidance of Electromagnetic Interference Sources

All conduit, cable tray, and cables containing metallic elements -- including, but not limited to dielectric/non-metallic cable housed in metallic armor -- shall be routed in such a way as to maintain the following distances from sources of electromagnetic interference:

6 inches from power lines 2KVA or less.

12 inches from fluorescent lighting such as fluorescent/HID lamps

60 inches from transformers, motors, or power lines of 5KVA and up

4.20.3) Innerduct

All cables running within conduit of 3" (three inch) or greater outer diameter that is at 0% fill (unused) initially, and is expected to be filled to less than 25% upon completion of job must be run within innerduct supplied and installed by Contractor.

When installing innerduct in an unused conduit, Contractor shall simultaneously pull the maximum number of 1" and/or 1.25" diameter innerduct capable of fitting in the conduit, such that the maximum number of innerducts is provided for future use.

Pull tape shall be installed in each innerduct.

4.20.4) Conduit

Conduit shall be run in parallel, wherever practical, and secured to existing steel channel and steel beams using conduit straps or clamps. Existing steel channel or trapeze may be used if additional load can be supported at appropriate safety factor.

Unless specified, conduit fill ratio must never exceed 40% or the fill ratio specified by the firestopping assembly, whichever is lesser. For conduit of over 50 feet of length with no intermediate pull point, the fill ratio must never exceed 30%.

There shall not be more than 100 feet in length of conduit between pull boxes or conduit ends. Each 30-degrees of bend shall be considered as 10 feet of conduit when determining pull box placement.

There shall not be between two pull boxes or conduit ends more than a 180 degree cumulative total of bends.

Pull boxes shall not be used in place of bends. Conduit ends must be aligned in parallel on opposite sides within each pull box, such that they permit a straight pull through a pull box. Angled pulls and U-pulls through pull boxes are not permitted.

Example:

A length of conduit originating from a pull box, containing one 90-degree bend (counted as 30 feet of a 100 foot total budget), must not contain more than 70 feet of straight conduit ($30 + 70 = 100$ feet) before terminating in a pull box.

4.20.5) Raceway

Surface-mount raceway (raceway) shall be provided and installed in such a manner to optimize aesthetics. Appropriate raceway fittings such as unions, bends, and end-caps must be provided and installed by Contractor. In-field mitering of raceway in lieu of using fittings is not permitted.

Raceway and fittings used for data/telecommunications cable must be appropriate for a Category 6 / 6A installation, maintaining minimum bend radius and other properties of the Category 6 / 6A cable contained within.

Raceway fill shall not exceed 80% of the raceway manufacturer's recommendations, such that 20% spare capacity remains available in the raceway for future use without exceeding manufacturer's recommendations.

Raceway shall be mechanically mounted as per manufacturer's instructions using screws, anchors, and/or bolts. Raceway shall not be mounted with adhesive.

Raceway shall run vertically near the corners of room and horizontally at same height of data/telecommunications outlets. Raceway shall not run near the middle of walls. Installed raceway shall not cover or prevent access to any existing service, outlet, control, or access panel. Raceway covers must be installed and secured properly.

4.20.6) Pulling Tension

No cable shall be installed with a pulling tension exceeding the maximum recommended by the manufacturer. Pulling tension shall be monitored with a tension gauge (tensiometer) to ensure the maximum tension rating of cable is not exceeded.

A suitable breakaway link (swivel) should be used as a failsafe to insure maximum pulling tension of cable is not exceeded. Breakaway link/swivel shall be used as a failsafe in this respect, and not as a primary means of controlling cable tension.

If multiple cables are to be pulled at one time, the Contractor shall make the necessary allowances to back off the pulling tension of the bundle.

As necessary, for cable pulls in conduit, the Contractor shall use only an approved lubricant compatible with the cable outer jacket insulation, innerduct, and pull tape.

4.20.7) Pull tape

Contractor shall install new pull tape in all conduits 2" or greater in trade size installed by contractor, and in all pre-existing conduits 2" or greater in trade size utilized by Contractor.

Pull tape installed in conduits and innerducts shall be lubricated with a lubricant appropriate for the selected pull tape, innerduct, and installed cable, as necessary to prevent burn-through of pull tape.

All installed pull tape shall be tied securely on both ends of the conduit to a fixed object that is attached to or part of the conduit system. Pull tape installed in a conduit or cable tray shall include 4' of slack on both ends. Slack shall be rolled and tied neatly.

4.20.8) Pull Cord

Contractor shall install pull cord in all conduits less than 2" in trade size installed or utilized by Contractor, all raceways installed or utilized by Contractor, all cable tray installed or utilized by contractor, and all walls fished by Contractor.

4.20.9) Ceiling Access Hatches

Plaster and gypsum board shall be removed, and finished ceiling structural support cut and reinforced as required in each location in order to properly install Ceiling Access Hatches.

Finished ceiling shall be temporarily supported using suitable jack post as required during installation of Ceiling Access Hatches.

4.20.10) Bend Radii

4.20.10.1) Conduits

The minimum inside radius for conduits 2-inch in diameter or less shall be six times the internal diameter of the conduit. Conduits having diameter greater than two inches shall have a minimum inside radius of ten times the internal diameter of the conduit.

4.20.10.2) Basket Cable Tray and Ladder Cable Tray

Radius shields shall be installed at all cable tray lateral bends, and must maintain a minimum 6 inch radius in interior of tray.

Waterfall/radius-drop fittings shall be installed at all cable tray vertical transitions, where cables transition more than six inches (6") vertically without support. Waterfall/radius-drop fittings shall have minimum of 3 inch radius.

4.20.10.3) Cables

All cables shall be installed with a bend radius greater than or equal to the bend radius recommended by the cable manufacturer to maintain cable rating and transmission properties.

As necessary, cable guides shall be used to maintain recommended bend radii during pulling.

Cables shall be secured using prescribed cable fasteners so as to prevent migration and maintain proper bend radius after initial installation.

Contractor shall secure the cable bundle at each J-Hook and Loop/Strap Cable Hanger with a prescribed cable fastener.

4.21) Labeling

All outlets, patch panel ports, cable ends, and firestopping locations shall be clearly labeled according to the Cable Installation Labeling Convention.

A blank Circuit Endpoint Table Spreadsheet (Microsoft Excel spreadsheet form) shall be provided by Owner Technical Contact upon request by Contractor. The Circuit Endpoint Table Spreadsheet can be used as an aid for quickly creating labels that are in compliance with the Cable Installation Labeling Convention.

Contractor must complete and submit an electronic copy of the Circuit Endpoint Table Spreadsheet based on as-built termination locations and the Cable Installation Labeling Convention.

Following receipt of Contractor submittal, Owner Technical Contact shall review and respond to submittal with either "APPROVED", "APPROVED AS NOTED", or "REJECTED". Notes shall direct Contractor specifically and/or generally on corrections that must be made to the spreadsheet before it is resubmitted by Contractor.

4.21.1) Cable Installation Labeling Convention

The Cable Installation Labeling Convention shall be used to identify all components of installed systems, including but not limited to equipment, cable, termination points (such as modular jacks, patch panel ports, or other connectors), and firestop installation, in all documentation, test results, and labeling.

Cable Installation Labeling Convention is an ANSI/TIA-606-A -compatible identification standard.

There are a total of six fields in each name: five identifying fixed-length fields used to identify *where* an item is located and *what* the item is, followed by one *variable length* field used to identify a port on the item.

These six fields can be split up into two parts: the first part identifying a general location and the second part describing specific location of and on an object within that location.

4.21.1.1) General Location Fields

The first three fields describe the general location of an item. This will describe the building, room, suite, and possibly a general location within a room (e.g. a Rack or Cabinet within the room, grid coordinates within room, etc.). These three fields are a total of exactly eight characters in length (2+4+2).

1) Building Code field (two letters)

Examples of Building Code field:

"NS" for Natural Sciences

"MF" for the Center for Media, Film, and Theater

"MT" for Maintenance Tunnels

2) Room or Suite Number field (four digits, typically)

Examples of Room or Suite Number field:

"1023" for room number 1023

"L120" for room number L120

"0055" for apartment 55

3) Location in Suite/Room field (letter+digit, or “-“ for either/both)

Use “-“ (hyphen) in place of letter or digit if there is no pertinent information for either, and “--” (two hyphens) if no pertinent information for both.

Examples of Location in Suite/Room field:

“K6” for network and server room grid coordinates,
“-2” for rack #2 in a room with three racks in it,
“L-” for living room in a residence suite,
“A-” for bedroom A in a residence suite,
“B-” for bedroom B in a residence suite,
or a placeholder of two hyphens (“--”) if not pertinent.

An optional line break (newline/carriage return) may appear after the three General Location Fields where label does not allow all six fields to be legibly printed on a single line.

4.21.1.2) Item Identification

The last three fields identify a specific location of a particular type of item within the general location; specify the unique identification number of that particular type of item in the location; and specify a particular port on that particular item. This part contains three fields and totals four or more characters in length:

4) Item Type Code field (two letters)

Examples of Item Type Code field:

“MJ” for Modular Jack faceplate
“PP” for Patch Panel
“MP” for Modular Plug (Single-Connector Modified Permanent Link)

5) Index number of Item within room or rack field (two digits)

Examples of Item within room or rack field:

“03” for the third item of its type in the location

6) [Optional] Port Number field**: (optional: “-“+ variable length and content)

** The Index Number field is always separated from the Port Number field by a hyphen (e.g. “03-9” or “03-4” or “3-C”)

Always pad numeric fields that may be two digits with a leading zero (e.g. “-00”, “-01”, ... “-10”, “-11”, etc.), when there is only one significant digit (0-9), in order to permit ease of reading in table format and ease of electronic searching.

Always pad alphabetic data that may be two letters with extra leading hyphen (e.g. “-A”, “-B”, ... “-AA”, “-AB”, etc.), when there is only one significant letter (A-Z), in order to permit ease of reading in table format and ease of electronic searching.

Examples of Item within room or rack field:

“-4” for modular jack “4”, where jacks are numbered 1-4
“-09” for panel port “9”, where ports are numbered 1-24
“-C” for device port “C”, where ports are numbers A-Z
“-C” for device port “C”, where ports numbered A-ZZ
“-B5” for Fiber-Optic patch panel six-pack “A” port “5”

“-B05 for Fiber-Optic patch panel twelve-pack “A” port “5”

[See illustration next page]

<u>Building Code</u>	<u>Room or Suite Number</u>	<u>Sub-Room / Cabinet</u>
Format Two UPPERCASE alphabetic characters	Format (Typically) Four numeric characters, or as according to building plans. Pad with leading zeros if plans indicate less than 4-digit room number.	Format One UPPERCASE alphabetic character or a hyphen, followed by one numeric character or a hyphen
Contents Code as follows: AD Administration CN Campus Center North CS Campus Center South DA Dance FM Facilities Management HU Humanities LI Library MF Ctr for Media Film and Theater MU Music NM Neuberger Museum NS Natural Sciences SS Social Science ST Student Services Building MS Mechanical Services below ST MT Maintenance Tunnel PA Performing Arts Center PE Physical Education VA Visual Arts R* Residence area “*” (e.g. “RA”) Use Dormitory or Apartment street code assigned by ResLife	Contents Room number in four-digits (e.g. “SS0021”) OR Apartment building/unit numbers (e.g. “RG0053”) Notes This field MUST be padded with leading zeros to create four-digit number. Alphabetical character in room identifier shall be removed and moved to next field (“Sub-Room”)	Contents Sub-room in suite (A, B, C, or “L” for living room) or hyphen (e.g. “RJ0041A-”) OR Coordinates or serial number of cabinet or rack in room (e.g. “SS0027F5”) OR Two hyphens, if nothing relevant (e.g. “LI1014--”) Notes Hyphens (“-”) can be used in one or both characters of this field if field information is irrelevant (e.g. a simple, single room) in order to make this field exactly two characters in length.

C S 0 0 0 8 - 2 P P 0 1 - 0 1

<u>Item Type Code</u>	<u>Item Index Number</u>	<u>Port Number</u>
Format Two UPPERCASE alphabetic characters	Format Two numeric characters	Format Optional field. May contain any number of characters in any format. Possible values depend on item.
Contents Code as follows examples below: MJ Modular Jack faceplate/box PP Patch Panel MP Modular Plug (SCMPL/OSP) FL Firestopping location SV Server WS Workstation SW Switch RO Router MC Media Converter PS Power Supply / UPS TE Terminal MO Modem AB AB, ABC, ABCD Switch KV KVM Switch AP Wireless Access device VS Video Surveillance AC Access Control (reader/sensor) etc...	Contents Unique index number of item in the room, cabinet, or rack Notes Index numbers shall unless otherwise specified begin at “01” for equipment of a certain type located at the top of a rack or cabinet and increment for lower equipment of same type in same rack or cabinet.	Contents Used to specify port number Notes Always separate from previous field with a hyphen. Use values as labeled by manufacturer on an item, if available (e.g. a certain manufacturer’s faceplate may have molded plastic labels of “A”, “B”, “C”, while another might use “1”, “2”, “3”). If manufacturer does not print labels on ports, then number ports starting at one (1) on top left and proceeding all the way to right, and then down.

4.21.2) Data/telecommunications Outlet Labels

Contractor shall label data/telecommunications outlet faceplates with appropriate far-end (patch panel) termination address for each modular jack, as in the following example:

Example:

NS2055A-
PP01-24

(Showing room NS2055, Cabinet "A", Patch Panel #01, port 24)

Where a label insert slot or space is available on faceplate, insert a compatible non-adhesive label, and provide and install manufacturer-supplied clear plastic cover over label slot.

4.21.3) Patch Panel Labels

Contractor shall label patch panel ports using compatible labels and label covers.

Contractor shall label patch panel ports with appropriate far-end (Outlet) termination address as in the following example:

Example:

NS1010B-
MJ06-4

(Showing room "NS1010B", Modular Jack faceplate "06", Jack "4")

Where a label insert slot or space is available on patch panel, insert a compatible non-adhesive label, and provide and install manufacturer-supplied clear plastic cover over label slot.

4.21.4) Cable Marking Labels

All cables shall have wrap labels affixed to cable at both ends between three inches (3") and five inches (5") from each termination point. The three-inch space is very important to permit future re-termination of cable without need to remove and re-label each cable.

Contractor shall label each cable end with the appropriate near and far-end termination address, as in the following example:

Example:

NS1010B-MJ06-4
NS2055A-PP01-24

(Label on outlet-side of cable run between NS1010B-MJ06-4 and
NS255A-PP01-24)

NS2055A-PP01-24
NS1010B-MJ06-4

(Label on panel-side of cable run between NS1010B-MJ06-4 and
NS255A-PP01-24)

If label media does not permit all text on a single label, then applying two (2) labels to cable shall be acceptable, such that text read left-to-right reads in the same order.

4.21.5) Labeling of Firestopping Locations

Contractor shall neatly and legibly mark firestopping locations with firestopping location name, according to this convention, using permanent marker on or adjacent to the firestopping material, in a conspicuous location.

If Contractor cannot mark firestopping location name on firestopping materials, then Contractor shall mark firestopping location name on the firestopping barrier or assembly, directly adjacent to firestopping material.

Contractor shall consider aesthetics of surrounding area when labeling/markings firestopping locations.

Example:

4.21.6) Fiber-Optic Cable Warning Labels

Fiber-Optic cable warning labels shall be placed on all innerduct containing Fiber-Optic cable, within two feet of location where innerduct enters or exits conduit.

4.22) Safety and Code Requirements

Contractor will adhere to all applicable local, state, and federal laws and codes.

4.23) Firestopping

Contractor shall provide and install Firestopping materials at all penetrations of fire-rated barriers, both existing and created by Contractor, through which any cable, conduit, or sleeve installed by the Contractor passes.

Contractor shall provide and install Firestopping materials in the interior of all conduits, sleeves, and raceways that are installed or utilized by Contractor and that traverse a fire-rated barrier. Threaded metal caps may be utilized, as per applicable codes, to close-off unused conduits and/or sleeves.

Firestopping materials shall be installed according to code, according to certification listing, and according to firestopping manufacturer instructions. Firestopping materials used must meet the hourly rating of the floor or wall penetrated.

4.23.1) Firestopping product type

The type of firestopping utilized in each case shall be determined based on this Specification, on firestopping manufacturer instructions, on code, on certification listing, and on application including but not limited to:

- 4.23.1.1) Barrier or assembly in which the firestopping is being installed
- 4.23.1.2) Size of penetration
- 4.23.1.3) Materials (e.g. cables, conduit, Basket Cable Tray, etc.) that shall traverse or adjoin the penetration

4.23.2) Fire Rated Pathway Devices

- 4.23.2.1) Fire Rated Pathway Devices shall be the preferred method of firestopping and shall be installed in all locations where frequent cable moves, add-ons and changes will occur.
- 4.23.2.2) Cable trays shall terminate at each barrier and resume on the opposite side such that cables pass independently through fire-rated pathway devices. Cable tray shall be rigidly supported independent from fire-rated pathway devices on each side of barrier.
- 4.23.2.3) Install through-penetration firestop systems in accordance with Performance Criteria and in accordance with the conditions of testing and classification as specified in the published design.

4.23.3) Firestop Putty, Firestop Caulk, and Firestop Foam

Where it is not practical to use a Fire Rated Pathway Device, Firestop Putty/Caulk/Foam may be used.

- 4.23.3.1) Before beginning installation, verify that substrate conditions previously installed under other sections are acceptable for installation of firestopping in accordance with manufacturer's installation instructions and technical information.
- 4.23.3.2) Surfaces shall be free of dirt, grease, oil, scale, laitance, rust, release agents, water repellants, and any other substances that may inhibit optimum adhesion.
- 4.23.3.3) Provide masking and temporary covering to protect adjacent surfaces.

4.23.4) Firestopping Pillows

Pillow-type firestopping may be used in conduits if and where code permits. If firestopping pillows are utilized, then all firestopping pillow manufacturer instructions and certification listing must be adhered to, including but not limited to those pertaining to compression ratio, cable bundling, and hose-stream dislodgement prevention. Proper compression ratio must be maintained as per certification listing and manufacturer instructions. Cable bundles must be shaped properly as per certification listing and manufacturer instructions in order to prevent smoke penetration between cables. Wire mesh or other material must be installed on larger openings to prevent dislodgement of pillow as per certification listing and manufacturer instructions.

Contractor shall submit compression ratio calculations to the Owner Project Manager for each penetration in which a firestopping pillow is used by Contractor, including:

- 4.23.4.1) any penetration in which a new firestopping pillow is installed by Contractor
- 4.23.4.2) any existing penetration used by contractor in which an existing firestopping pillow has been disturbed by Contractor
- 4.23.4.3) any penetration where a cable has been added or removed by Contractor

4.23.5) Firestopping of Data/Telecommunications Cabinet Penetrations

Contractor shall create and maintain fire, smoke, and watertight seal of firestopping for data/telecommunications cabinet penetrations.

4.24) Testing and Certification Requirements

4.24.1) Independent Testing and Certification Requirement

Contractor shall arrange to have a qualified 3rd-Party independent inspecting and testing agency perform field testing and submit certification and observation reports for each and every cable installed by Contractor, including 100% of installed Fiber-Optic cable strands, 100% of installed Category 6 / 6A Cable permanent links, 100% of installed telephone feeder/trunk cable pairs, and 100% of installed security/surveillance cables.

Field test certification and observation reports shall indicate and interpret test results relative to compliance with performance requirements of the installed systems, and as defined herein.

This Independent Testing and Certification Requirement may at the option of Owner be waived in the Scope of Work (if provided) and the original RFQ/RFP/Project or in a Transmittal signed by both the Owner Project Manager and Purchase College Technical Contact. If the Independent Testing and Certification Requirement is waived in such a way, then all certification and testing requirements shall be maintained save that for the requirement of having an independent 3rd-Party perform the testing and certification: Contractor shall submit field test certification reports, as defined herein, from a qualified employee for 100% of cables installed by Contractor.

4.24.2) All Testing to be witnessed and/or reviewed by Owner

The Owner Project Manager and the Owner Technical Contact shall be invited to witness and/or review field-testing.

The Owner Project Manager and the Owner Technical Contact shall be notified of the start date of the testing phase five (5) business days before testing commences.

The Owner Project Manager will select a random sample of 5% of the installed cables. Owner may test these randomly selected cables. The results obtained may be compared to the data provided by the installation contractor. If more than 2% of the sample results differ in terms of the pass/fail determination, then Contractor under supervision of Owner Technical Contact's representative shall repeat 100% testing at no cost to the Owner.

4.24.3) Ground / Bond Testing

Test all installed or modified grounded components of cable systems as per NFPA 70B, Chapter 18 to ensure electrical continuity of bonding and grounding connections, and to demonstrate compliance with specified maximum grounding resistance.

4.24.4) Category 6 / 6A Cable Testing

100% of the Category 6 / 6A cables in the installation shall be tested in accordance with the Telecommunications Industry Association (TIA) standard ANSI/TIA/EIA-568-C, and with this Specification.

The installed twisted-pair links shall be tested from the patch panel or termination block, to the data/telecommunications outlet against the "Permanent Link" performance limits specification as defined in ANSI/TIA/EIA-568-C.

4.24.4.1) Technician Qualifications

All tests shall be executed by trained technicians who have successfully attended an appropriate training program and have obtained a certificate as proof thereof. Appropriate training programs include but are not limited to installation certification programs provided by BICSI or the ACP.

4.24.4.2) Test Equipment Accuracy

The test equipment (tester) shall comply with or exceed the accuracy requirements for enhanced level II (Level II-E) field testers as defined in TIA-568; Annex I: Section I.4. The tester including the appropriate interface adapter must meet the specified accuracy requirements. The accuracy requirements for the permanent link test configuration (baseline accuracy plus adapter contribution) are specified in Table I.4 of Annex I of TIA/EIA-568-B.2. (Table I.5 in this TIA document specifies the accuracy requirements for the Channel configuration.)

The tester shall be within the calibration period recommended by the vendor in order to achieve the vendor-specified measurement accuracy. The contractor shall provide proof that the interface has been calibrated within the period recommended by the vendor.

The tester interface adapters must be of high quality and the cable shall not show any twisting or kinking resulting from coiling and storing of the tester interface adapters. In order to deliver optimum accuracy preference is given to a permanent link interface adapter for the tester that can be calibrated to extend the reference plane of the Return Loss measurement to the permanent link interface. To ensure that normal handling on the job does not cause measurable Return Loss change, the adapter cord cable shall not be of twisted-pair construction.

4.24.4.3) The Pass or Fail condition for the link-under-test is determined by the results of the required individual tests (detailed in "Performance Test Parameters", below). Any Fail, Fail*, or marginal pass ("Pass*") result yields a Fail for the link-under-test. In order to achieve an overall Pass condition, the results for each individual test parameter must pass - the accuracy margin of the testing device.

A Pass or Fail result for each parameter is determined by comparing the measured values with the specified test limits for that parameter. The test result of a parameter shall be marked with an asterisk (*) when the result is closer to the test limit than the accuracy of the field tester. The field tester manufacturer must provide documentation as an aid to interpret results marked with asterisks. (Reference TIA-568; Annex I: Section I.2.2)

4.24.4.4) Performance Test Parameters

The test parameters for Category 6 / 6A are defined in ANSI/TIA/EIA standard TIA-568-B.1; The test of each Category 6 / 6A link shall contain all of the following parameters as detailed below. In order to pass the link test all measurements must meet or exceed the limit value determined in the TIA-568.1 standard at each frequency in the range as prescribed by the standards referenced herein.

All test measurement points at all frequency ranges required are to be recorded in the test results information as detailed in Section 4.25.1.3) ("Database Detailed Information")

4.24.4.4.1) Wire Map [as defined in TIA/EIA-568-B.1]

4.24.4.4.2) Length [as defined in TIA/EIA-568-B.1]

4.24.4.4.3) Insertion Loss (Attenuation) [as defined in TIA/EIA-568-B.1]

4.24.4.4.4) NEXT Loss, pair-to-pair [as defined in TIA/EIA-568-B.1]

4.24.4.4.5) PSNEXT Loss [as defined in TIA/EIA-568-B.1]

4.24.4.4.6) ELFEXT Loss, pair-to-pair [as defined in TIA/EIA-568-B.1]

4.24.4.4.7) PSELFEXT Loss [as defined in TIA/EIA-568-B.1]

4.24.4.4.8) Return Loss [as defined in TIA/EIA-568-B.1]

4.24.4.4.9) ACR (Attenuation to crosstalk ratio) [This parameter is not demanded by the standards but may be required in order to obtain the premise wiring vendor's warranty. Premise wiring vendor's parameters shall prevail.]

This calculation yields 12 combinations – six from each end of the link.

Test results shall identify the wire pair combination that exhibits the worst-case margin and the wire pair combination that exhibits the worst value for ACR.

These wire pair combinations must be identified for the tests performed from each end. Each reported case shall include the frequency at which it occurs as well as the test limit value at this frequency.

4.24.4.4.10) PSACR [This parameter is not required by the standards but may be required in order to obtain the premise wiring vendor's warranty. Premise wiring vendor's parameters shall prevail.]

This calculation yields 8 combinations – one for each wire pair from both ends of the link.

Test results shall identify the wire pair that exhibits the worst-case margin and the wire pair that exhibits the worst value for PSACR. These wire pairs must be identified for the tests performed from each end. Each reported case shall include the frequency at which it occurs as well as the test limit value at this frequency.

4.24.4.4.11) Propagation Delay [as defined in TIA/EIA-568-B.1; Section 11.2.4.10]

4.24.4.4.12) Delay Skew [as defined in TIA/EIA-568-B.1]

4.24.4.4.13)DC Loop Resistance [as defined by TIA/EIA-568-C.2]

4.24.4.4.14)DC Resistance Unbalance within a pair [as defined by TIA/EIA-568-C.2]

4.24.5) Telecommunications Feeder Cable Testing

100% of the Category 3 cables in the installation shall be tested in accordance with the Telecommunications Industry Association (TIA) standard ANSI/TIA/EIA-568-B and with this Specification.

All pairs of the installed Telecommunications Feeder Cable shall be tested and shall be confirmed meet or exceed Category 3 specification as per TIA-568-B.

The installed Telecommunications Feeder Cable shall be tested from the telecommunications feeder patch panel, to the MDF connection block against performance limits specification as defined in ANSI/TIA/EIA-568-B. Technician Qualifications

All tests shall be executed by trained technicians who have successfully attended an appropriate training program and have obtained a certificate as proof thereof. Appropriate training programs include but are not limited to installation certification programs provided by BICSI or the ACP (Association of Cabling Professionals).

4.24.5.1) Test Equipment Accuracy

The test equipment (tester) shall comply with or exceed the accuracy requirements for enhanced level II (Level II-E) field testers as defined in TIA-568; Annex I: Section I.4. The tester including the appropriate interface adapter must meet the specified accuracy requirements

The tester shall be within the calibration period recommended by the vendor in order to achieve the vendor-specified measurement accuracy. The contractor shall provide proof that the interface has been calibrated within the period recommended by the vendor.

The tester interface adapters must be of high quality and the cable shall not show any twisting or kinking resulting from coiling and storing of the tester interface adapters. I

4.24.5.2) The Pass or Fail condition for the link-under-test is determined by the results of the required individual tests. Any Fail or Fail* result yields a Fail for the link-under-test. In order to achieve an overall Pass condition, the results for each individual test parameter must Pass or Pass*.

A Pass or Fail result for each parameter is determined by comparing the measured values with the specified test limits for that parameter. The test result of a parameter shall be marked with an asterisk (*) when the result is closer to the test limit than the accuracy of the field tester. The field tester manufacturer must provide documentation as an aid to interpret results marked with asterisks.

4.24.5.3) Performance Test Parameters

The test parameters for Category 3 are defined in ANSI/TIA/EIA standard TIA-568-B; The test of each Category 3 link shall contain all parameters as required by TIA-568-B for Category 3 installed permanent link. In order to pass the link test all measurements must meet or exceed the limit value determined in the TIA-568.B standard at each frequency in the range from 1 MHz through 16 MHz.

4.24.6) Fiber-Optic Cable Testing

This Section includes the minimum requirements for the test certification and administration of backbone and horizontal optical fiber cabling.

Contractor shall notify the Owner Project Manager and the Owner Technical Contact of any additional tests that are deemed necessary to guarantee a fully functional system as described under this Specification. The contractor shall carry out and record any additional measurement results at no additional charge.

4.24.6.1) Testing Scope

4.24.6.1.1) Testing shall be carried out in accordance with this Specification. This includes testing the attenuation and polarity of the installed cable plant with an optical loss test set (OLTS) and the installed condition of the cabling system and its components with an optical time domain reflectometer (OTDR). The condition of the fiber end faces shall also be verified.

4.24.6.1.2) Testing shall be performed on each cabling link (connector to connector).

4.24.6.1.2.1) Testing shall not include any active devices or passive devices within the link or channel other than cable, connectors, and splices, i.e. link attenuation does not include such devices as optical bypass switches, couplers, repeaters, or optical amplifiers.

4.24.6.1.3) All tests shall be documented including OLTS dual wavelength attenuation measurements for multimode and singlemode links and channels and OTDR traces and event tables for multimode and singlemode links and channels.

4.24.6.1.3.1) Documentation shall also include optical length measurements and pictures of the connector endface.

4.24.6.2) Quality Assurance

4.24.6.2.1) All testing procedures and field-test instruments shall comply with applicable requirements of:

- 4.24.6.2.1.1) ANSI Z136.2, ANSI For Safe Use Of Optical Fiber Communication Systems Utilizing Laser Diode And LED Sources
- 4.24.6.2.1.2) ANSI/EIA/TIA 455 50B, Light Launch Conditions For Long-Length Graded-Index Optical Fiber Spectral Attenuation Measurements
- 4.24.6.2.1.3) ANSI/TIA/EIA-455-59A, Measurement of Fiber Point Discontinuities Using an OTDR
- 4.24.6.2.1.4) ANSI/TIA/EIA 455 60A, Measurement of Fiber or Cable Length Using an OTDR
- 4.24.6.2.1.5) ANSI/TIA/EIA 455 61A, Measurement of Fiber or Cable Attenuation Using an OTDR
- 4.24.6.2.1.6) ANSI/TIA/EIA 526 7, Optical Power Loss Measurements of Installed Singlemode Fiber Cable Plant
- 4.24.6.2.1.7) ANSI/TIA/EIA 526 14 A, Optical Power Loss Measurements of Installed Multimode Fiber Cable Plant
- 4.24.6.2.1.8) ANSI/TIA/EIA-568-B.1, Commercial Building Telecommunications Cabling Standard, Part 1, General Requirements
- 4.24.6.2.1.9) ANSI/TIA/EIA 568 B.3, Optical Fiber Cabling Components Standard
- 4.24.6.2.1.10) TIA/EIA TSB-140, Additional Guidelines for Field-Testing Length, Loss and Polarity of Optical Fiber Cabling Systems

4.24.6.2.1.11) ANSI/TIA/EIA-606-A, Administration Standard for Commercial Telecommunications Infrastructure, in addition to the requirements specified by Owner.

4.24.6.2.2) Trained technicians who have successfully attended an appropriate training program, which includes testing with an OLTS and an OTDR and have obtained a certificate as proof thereof shall execute the tests. These certificates may have been issued by any of the following organizations or an equivalent organization:

4.24.6.2.2.1) Manufacturer of the Fiber-Optic cable and/or the Fiber-Optic connectors

4.24.6.2.2.2) Manufacturer of the test equipment used for the field certification

4.24.6.2.2.3) Training organizations (e.g., BICSI, A Telecommunications Association headquarters in Tampa, Florida; ACP [Association of Cabling Professionals™] Cabling Business Institute located in Dallas, Texas).

4.24.6.3) Submittals

Contractor shall supply the following to Owner Project Manager upon request:

4.24.6.3.1) Manufacturers catalog sheets and specifications for Fiber-Optic field-test instruments including optical loss test sets (OLTS; power meter and source), optical time domain reflectometer (OTDR) and inspection scope.

4.24.6.3.2) A schedule (list) of all optical fibers to be tested.

4.24.6.3.3) Sample test reports.

4.24.6.4) Acceptance of Test Results

4.24.6.4.1) Unless otherwise specified by the Owner Technical Contact, each cabling link shall be demonstrated via test result database to be in compliance with the test limits as specified in ANSI/TIA/EIA-568-B.1.

4.24.6.4.1.1) Optical loss testing

4.24.6.4.1.1.1) Backbone (multimode and singlemode) link

The link attenuation shall be calculated by the following formulas as specified in ANSI/TIA/EIA-568-B.1.

4.24.6.4.1.1.1.1) $\text{Link Attenuation (dB)} = \text{Cable_Attn (dB)} + \text{Connector_Attn (dB)} + \text{Splice_Attn (dB)}$

4.24.6.4.1.1.1.2) $\text{Cable_Attn (dB)} = \text{Attenuation_Coefficient (dB/km)} * \text{Length (Km)}$

4.24.6.4.1.1.1.3) $\text{Connector_Attn (dB)} = \text{number_of_connector_pairs} * \text{connector_loss (dB)}$

4.24.6.4.1.1.1.4) Maximum allowable connector_loss = 0.75 dB

4.24.6.4.1.1.1.5) $\text{Splice_Attn (dB)} = \text{number_of_splices} * \text{splice_loss (dB)}$

4.24.6.4.1.1.1.6) Maximum allowable splice_loss = 0.3 dB

- 4.24.6.4.1.1.1.7) The values for the Attenuation Coefficient (dB/km) as listed in referenced specifications.
- 4.24.6.4.1.1.2) Horizontal (multimode) link
 - 4.24.6.4.1.1.2.1) The acceptable link attenuation for a multimode horizontal optical fiber cabling system is based on the maximum 90 m (295 ft) distance.
 - 4.24.6.4.1.1.2.2) The horizontal link may be tested using a fixed upper limit for attenuation of 2.0 dB. This value is based on the loss of two (2) connector pairs, one pair at the telecommunications outlet/connector and one pair at the horizontal cross-connect, plus 90 m (295 ft) of optical fiber cable.
 - 4.24.6.4.1.1.2.3) A horizontal link in an Open Office Cabling network with a consolidation point may be tested using a fixed upper limit for attenuation of 2.75 dB.
- 4.24.6.4.1.1.3) Centralized (multimode) link
 - 4.24.6.4.1.1.3.1) The acceptable link attenuation for a multimode centralized optical fiber cabling system is based on the maximum 300 m (984 ft) distance.
 - 4.24.6.4.1.1.3.2) The centralized link may be tested using a fixed upper limit for attenuation of 3.3 dB. This value is based on the loss of three (3) connector pairs, one pair at the telecommunications outlet/connector, one pair at the consolidation point and one pair at the horizontal cross-connect, plus 300 m (984 ft) of optical fiber cable.
 - 4.24.6.4.1.1.3.3) A horizontal link in an Open Office Cabling network with a consolidation point may be tested using a fixed upper limit for attenuation of 4.1 dB.
- 4.24.6.4.1.2) OTDR testing
 - 4.24.6.4.1.2.1) Reflective events (connections) shall not exceed 0.75 dB.
 - 4.24.6.4.1.2.2) Non-reflective events (splices) shall not exceed 0.3 dB.
- 4.24.6.4.1.3) Magnified end face inspection
 - 4.24.6.4.1.3.1) Fiber connections shall be visually inspected for end face quality.
 - 4.24.6.4.1.3.2) Scratched, pitted or dirty connectors shall be diagnosed and corrected.
- 4.24.6.4.2) All installed cabling links and channels shall be field-tested and pass the test requirements and analysis as described in this Specification. Any link or channel that fails these requirements shall be diagnosed and corrected. Any corrective action that must take place shall be documented and followed with a new test to prove that the corrected link or channel meets performance requirements. The final and passing result of the tests for all links and channels shall be provided in the test results documentation in accordance with this Specification.

- 4.24.6.4.3) Acceptance of the test results shall be given in writing after the project is fully completed and tested in accordance with Contract Documents and to the satisfaction of the Owner.

Note: High Bandwidth applications such as 1000BASE-SX, 10GBASE-S, and FC1200 impose stringent channel loss limits. Where practical, certification shall consider loss length limits that meet maximum channel (transmitter to receiver) loss.

4.24.6.5) Optical Fiber Cable Tester Device Requirements

- 4.24.6.5.1) The field-test instrument shall be within the calibration period recommended by the manufacturer.

4.24.6.5.2) Optical loss test set (OLTS)

- 4.24.6.5.2.1) Multimode optical fiber light source
- 4.24.6.5.2.2) Provide dual LED light sources with central wavelengths of 850 nm (± 30 nm) and 1300 nm (± 20 nm)
- 4.24.6.5.2.3) Output power of -20 dBm minimum.
- 4.24.6.5.2.4) The light source shall meet the launch requirements of ANSI/EIA/TIA 455 50B, Method A. This launch condition can be achieved either within the field test equipment or by use of an external mandrel wrap (as described in clause 11 of ANSI/TIA/EIA-568-B.1) with a Category 1 light source.

4.24.6.5.3) Singlemode optical fiber light source

- 4.24.6.5.3.1) Provide dual laser light sources with central wavelengths of 1310 nm (± 20 nm) and 1550 nm (± 20 nm).
- 4.24.6.5.3.2) Output power of -10 dBm minimum.

4.24.6.5.4) Power Meter

- 4.24.6.5.4.1) Provide 850 nm, 1300/1310 nm, and 1550 nm wavelength test capability.
- 4.24.6.5.4.2) Power measurement uncertainty of ± 0.25 dB.
- 4.24.6.5.4.3) Store reference power measurement.
- 4.24.6.5.4.4) Save at least 100 results in internal memory.
- 4.24.6.5.4.5) PC interface (serial or USB).

4.24.6.5.5) Optional length measurement

- 4.24.6.5.5.1) It is preferable to use an OLTS that is capable of measuring the optical length of the fiber using time-of-flight techniques.

4.24.6.5.6) Optical Time Domain Reflectometer (OTDR)

- 4.24.6.5.6.1) Multimode OTDR
 - 4.24.6.5.6.1.1) Wavelengths of 850 nm (± 20 nm) and 1300 nm (± 20 nm).
 - 4.24.6.5.6.1.2) Event deadzones of 3.7 m maximum at 850 nm and 1300 nm.
 - 4.24.6.5.6.1.3) Attenuation deadzones of 10 m maximum at 850 nm and 13 m maximum at 1300 nm.
 - 4.24.6.5.6.1.4) Distance range not less than 2000 m.

4.24.6.5.6.1.5) Dynamic range at least 10 dB at 850 nm and 1300 nm

4.24.6.5.6.2) Singlemode OTDR

4.24.6.5.6.2.1) Wavelengths of 1310 nm (± 20 nm) and 1550 nm (± 20 nm).

4.24.6.5.6.2.2) Event deadzones of 3.5 m maximum at 1310 nm and 1550 nm.

4.24.6.5.6.2.3) Attenuation deadzones of 10 m maximum at 1310 nm and 12 m maximum at 1550 nm.

4.24.6.5.6.2.4) Distance range not less than 10000 m.

4.24.6.5.6.2.5) Dynamic range at least 10 dB at 1310 nm and 1550 nm

4.24.6.5.7) Fiber Microscope

4.24.6.5.7.1) Magnification of 200X or 400X for endface inspection.

4.24.6.5.7.2) Test equipment shall be capable of saving and reporting the endface image.

4.24.6.5.8) Integrated OLTS, OTDR and fiber microscope

4.24.6.5.8.1) Test equipment that combines into one instrument an OLTS, an OTDR and a fiber microscope may be used.

4.24.6.6) Administration

4.24.6.6.1) Administration of the documentation shall include test results of each fiber link and channel.

4.24.6.6.2) The test result information for each link shall be recorded in the memory of the field-test instrument upon completion of the test.

4.24.6.6.3) The test result records saved within the field-test instrument shall be transferred into a Microsoft Windows™-based database utility that allows for the maintenance, inspection and archiving of these test records.

4.24.6.7) Execution of Optical Fiber Cable Testing

4.24.6.7.1) All outlets, cables, patch panels and associated components shall be fully assembled and labeled prior to field-testing. Any testing performed on incomplete systems shall be redone on completion of the work.

4.24.6.7.2) All tests performed on optical fiber cabling that use a laser or LED in a test set shall be carried out with safety precautions in accordance with ANSI Z136.2.

4.24.6.7.3) Field-test instruments shall have the latest software and firmware installed.

4.24.6.7.4) Link and channel test results from the OLTS and OTDR shall be recorded in the test instrument upon completion of each test for subsequent uploading to a PC in which the administrative documentation (reports) may be generated.

4.24.6.7.5) Fiber endfaces shall be inspected at 200X or 400X magnification. 200X magnification is suitable for inspecting multimode and singlemode fibers. 400X magnification may be used for detailed examination of singlemode fibers. Scratched, pitted or dirty connectors shall be diagnosed and corrected.

4.24.6.7.5.1) Endface images shall be recorded in the memory of the test instrument for subsequent reporting.

4.24.6.7.6) Testing shall be performed on each cabling segment (connector to connector).

4.24.6.7.7) Testing shall be performed on each cabling channel (equipment to equipment) that is planned for use per the Owner's instructions.

- 4.24.6.7.8) Testing of the cabling shall be performed using high-quality test cords of the same fiber type as the cabling under test. The test cords for OLTS testing shall be between 1 m and 5 m in length. The test cords for OTDR testing shall be approximately 100 m for the launch cable and at least 25 m for the receive cable.
- 4.24.6.7.9) Optical loss testing
 - 4.24.6.7.9.1) Backbone link
 - 4.24.6.7.9.1.1) Multimode backbone links shall be tested at 850 nm and 1300 nm in accordance with ANSI/EIA/TIA-526-14A, Method B, One Reference Jumper or the equivalent method.
 - 4.24.6.7.9.1.2) Singlemode backbone links shall be tested at 1310 nm and 1550 nm in accordance with ANSI/TIA/EIA-526-7, Method A.1, One Reference Jumper or the equivalent method.
 - 4.24.6.7.9.1.3) Link attenuation does not include any active devices or passive devices other than cable, connectors, and splices, i.e. link attenuation does not include such devices as optical bypass switches, couplers, repeaters, or optical amplifiers.
 - 4.24.6.7.9.1.4) Use the One Reference Jumper Method specified by ANSI/TIA/EIA-526-14A, Method B and ANSI/TIA/EIA-526-7, Method A.1 or the equivalent method. The user shall follow the procedures established by these standards or application notes to accurately conduct performance testing.
 - 4.24.6.7.9.2) Horizontal (multimode) link
 - 4.24.6.7.9.2.1) The horizontal optical fiber cabling link segments need to be tested at only one wavelength. Because of the short length of cabling, attenuation deltas due to wavelength are insignificant. The horizontal link shall be tested at 850 nm or 1300 nm in one direction in accordance with ANSI/EIA/TIA-526-14A, Method B, One Reference Jumper method or the equivalent method.
 - 4.24.6.7.9.3) Centralized (multimode) link
 - 4.24.6.7.9.3.1) The centralized optical fiber cabling link segments need to be tested at only one wavelength. Because of the short length of cabling, attenuation deltas due to wavelength are insignificant. The horizontal link shall be tested at 850 nm or 1300 nm in one direction in accordance with ANSI/EIA/TIA-526-14A, Method B, One Reference Jumper method or the equivalent method. Testing at 850 nm is recommended unless otherwise specified by the Owner.
- 4.24.6.7.10) OTDR Testing
 - 4.24.6.7.10.1) Backbone, horizontal and centralized links shall be tested at the appropriate operating wavelengths for anomalies and to ensure uniformity of cable attenuation and connector insertion loss.
 - 4.24.6.7.10.1.1) Backbone multimode: 850 nm and 1300 nm
 - 4.24.6.7.10.1.2) Backbone singlemode: 1310 nm and 1550 nm
 - 4.24.6.7.10.1.3) Horizontal multimode: 850 nm or 1300 nm
 - 4.24.6.7.10.1.4) Centralized multimode: 850 nm or 1300 nm (850 nm recommended unless otherwise specified by the end user)
 - 4.24.6.7.10.2) Each fiber link and channel shall be tested in one direction.
 - 4.24.6.7.10.3) A launch cable shall be installed between the OTDR and the first link connection.
 - 4.24.6.7.10.4) A receive cable shall be installed after the last link connection.
- 4.24.6.7.11) Magnified Endface Inspection
 - 4.24.6.7.11.1) Fibers shall be inspected at 250X or 400X magnification. 250X magnification is suitable for inspecting multimode and singlemode fibers. 400X magnification may be used for detailed examination of singlemode fibers.
- 4.24.6.7.12) Length Measurement

- 4.24.6.7.12.1) The length of each fiber shall be recorded.
- 4.24.6.7.12.2) It is preferable that the optical length be measured using an OLTS or OTDR.
- 4.24.6.7.13) Polarity Testing
 - 4.24.6.7.13.1) Paired duplex fibers in multi-fiber cables shall be tested to verify polarity in accordance with subclause 10.3 of ANSI/TIA/EIA 568 B.1. The polarity of the paired duplex fibers shall be verified using an OLTS.

4.24.7) Security/Surveillance Power Cable Testing

100% of the Security/Surveillance cables in the installation shall be tested.

All conductors of the installed Security/Surveillance cable shall be tested and shall be confirmed continuous.

The installed Security/Surveillance cable shall be tested from the point of termination, to the Security/Surveillance patch panel.

4.24.8) Additional Requirements

- 4.24.8.1) The test results documentation shall be available for inspection by the Owner Project Manager and the Owner Technical Contact during the installation period and shall be passed to the Owner Project Manager and the Owner Technical Contact representative within 5 working days of completion of tests on cabling served by a Communications Room or of backbone cabling. The installer shall retain a copy to aid preparation of as built information.
- 4.24.8.2) Circuit IDs reported by the test instrument shall match the Cable Marking Label on the patch panel end of the tested cable, in accordance with the Cable Installation Labeling Convention, described in this Specification.

4.25) Documentation

4.25.1) Category 6 / 6A Test Results

Contractor will supply test results from test equipment for all cables that Contractor installs.

The test results information for each link shall be recorded in the electronic memory of the field tester equipment upon completion of the test.

The test results records saved by the field tester shall be transferred into a Microsoft Windows™-based database utility that allows for the maintenance, inspection, archiving, and plain-text exporting of these test records. A guarantee must be made that the measurement results are transferred to the PC unaltered (i.e., "as saved in the field-test instrument") and that these results cannot be modified at a later time. Testers that transfer the numeric measurement data from the tester to the PC in a non-printable format in this regard offer superior protection. The file format, CSV (comma separated value), does not provide adequate protection of these records and shall not be used.

The database for the completed job and all source tester data files shall be stored and delivered on CD-ROM prior to Owner acceptance of the tested cable. This CD-ROM shall include the software tools required to view, inspect, and print any selection of the test reports.

A paper hard copy shall be submitted, containing a test results summary of each installed link.

4.25.1.1) Hard Copy

A paper copy of the test results shall be provided that lists all the links that have been tested with the following summary information:

- 4.25.1.1.1) The identification of the link in accordance with the Cable Installation Labeling Convention, described in this Specification
- 4.25.1.1.2) The overall Pass/Fail evaluation of the link-under-test including the NEXT Headroom (overall worst case) number
- 4.25.1.1.3) The date and time the test results were saved in the memory of the tester

4.25.1.2) Database General Information

General Information to be provided in the electronic database with the test results information for each link:

- 4.25.1.2.1) The identification of the customer site as specified by Owner
- 4.25.1.2.2) The identification of the link in accordance with the Cable Installation Labeling Convention, described in this Specification
- 4.25.1.2.3) The overall Pass/Fail evaluation of the link-under-test
- 4.25.1.2.4) The name of the standard selected to execute the stored test results
- 4.25.1.2.5) The cable type and the value of NVP used for length calculations
- 4.25.1.2.6) The date and time the test results were saved in the memory of the tester
- 4.25.1.2.7) The brand name, model and serial number of the tester
- 4.25.1.2.8) The identification of the tester interface
- 4.25.1.2.9) The revision of the tester software and the revision of the test standards database in the tester
- 4.25.1.2.10) The test results information must contain information on each of the required test parameters that are listed in Section **Error! Reference source not found.** ("Performance Test Parameters") and as further detailed below under paragraph 4.25.1.3) ("Database Detailed Information")

4.25.1.3) Database Detailed Information

The detailed test results data to be provided in the electronic database for each tested Category 6 / 6A link must contain the following information:

For each of the frequency-dependent test parameters, the minimum test results documentation shall be stored for each wire-pair or wire-pair combination as observed from each end of the link. The minimum test results documentation for each test parameter shall be in compliance with the information in Section **Error! Reference source not found.** ("Performance Test Parameters")

- 4.25.1.3.1) The name of the test limit selected to execute the stored test results
- 4.25.1.3.2) The name of the personnel performing the test
- 4.25.1.3.3) The date and time the test results were saved in the memory of the tester
- 4.25.1.3.4) The manufacturer, model and serial number of the field-test instrument
- 4.25.1.3.5) The version of the test software and the version of the test limit database held within the test instrument
- 4.25.1.3.6) Length: Identify the wire-pair with the shortest electrical length, the value of the length rounded to the nearest foot and the test limit value
- 4.25.1.3.7) Propagation delay: Identify the pair with the shortest propagation delay, the value measured in nanoseconds (ns) and the test limit value
- 4.25.1.3.8) Delay Skew: Identify the pair with the largest value for delay skew, the value calculated in nanoseconds (ns) and the test limit value
- 4.25.1.3.9) Insertion Loss (Attenuation): Minimum test results documentation as explained in Section **Error! Reference source not found.** ("Performance Test Parameters") for the wire pair with the worst insertion loss
- 4.25.1.3.10) Return Loss: Minimum test results documentation as explained in Section **Error! Reference source not found.** ("Performance Test Parameters"). Identify as detected from each end of the link, the wire pair that exhibits the worst-case margin and the wire pair with the worst RL. Each reported case shall include the frequency at which it occurs as well as the test limit value at this frequency.
- 4.25.1.3.11) NEXT, ELFEXT, ACR: Minimum test results documentation as explained in Section **Error! Reference source not found.** ("Performance Test Parameters"). Identify as measured from each end of the link, the wire pair combination that exhibits the worst case margin and the wire pair combination that delivers the worst case value. Each reported case shall include the frequency at which it occurs as well as the test limit value at this frequency.
- 4.25.1.3.12) PSNEXT, PSELFEXT, and PSACR: Minimum test results documentation as explained in Section **Error! Reference source not found.** ("Performance Test Parameters"). Identify as detected from each end of the link, the wire pair that exhibits the worst-case margin and the wire pair with the worst value. Each reported case shall include the frequency at which it occurs as well as the test limit value at this frequency.
- 4.25.1.3.13) Link length, propagation delay, and delay skew shall also be reported for each wire pair as well as the test limit for each of these parameters.

4.25.2) Telecommunications Feeder Cable Test Results

Contractor will supply test results from test equipment for all Telecommunications Feeder Cables that Contractor installs.

The test results information for each pair of the installed Telecommunications Feeder Cable shall be recorded in the electronic memory of the field tester equipment upon completion of the test.

The test results records saved by the field tester shall be transferred into a Microsoft Windows™-based database utility that allows for the maintenance, inspection, archiving, and plain-text exporting of these test records. A guarantee must be made that the measurement results are transferred to the PC unaltered (i.e., "as saved in the field-test instrument") and that these results cannot be modified at a later time. Testers that transfer the numeric measurement data from the tester to the PC in a non-printable format in this regard offer superior protection. The file format, CSV (comma separated value), does not provide adequate protection of these records and shall not be used.

The database for the completed job and all source tester data files shall be stored and delivered on CD-ROM prior to Owner acceptance of the tested cable. This CD-ROM shall include the software tools required to view, inspect, and print any selection of the test reports.

A paper hard copy shall be submitted, containing a test results summary of each installed pair.

4.25.2.1) Hard Copy

A paper copy of the test results shall be provided that lists all the pairs that have been tested with the following summary information:

- 4.25.2.1.1) The identification of the pair in accordance with the Cable Installation Labeling Convention, described in this Specification
- 4.25.2.1.2) The overall Pass/Fail evaluation of the pair-under-test
- 4.25.2.1.3) The date and time the test results were saved in the memory of the tester

4.25.2.2) Database General Information

General Information to be provided in the electronic database with the test results information for each pair:

- 4.25.2.2.1) The identification of the customer site as specified by Owner
- 4.25.2.2.2) The identification of the pair in accordance with the Cable Installation Labeling Convention, described in this Specification
- 4.25.2.2.3) The overall Pass/Fail evaluation of the link-under-test
- 4.25.2.2.4) The name of the standard selected to execute the stored test results
- 4.25.2.2.5) The cable type
- 4.25.2.2.6) The date and time the test results were saved in the memory of the tester
- 4.25.2.2.7) The brand name, model and serial number of the tester
- 4.25.2.2.8) The identification of the tester interface
- 4.25.2.2.9) The revision of the tester software and the revision of the test standards database in the tester
- 4.25.2.2.10) The test results information must contain information on each of the required test parameters as detailed below under "Database Detailed Information"

4.25.2.3) Database Detailed Information

The detailed test results data to be provided in the electronic database for each tested Category 3 pair must contain the following information:

For each of the frequency-dependent test parameters, the minimum test results documentation shall be stored for each wire-pair or wire-pair combination as observed from each end of the pair. The minimum test results documentation for each test parameter shall be in compliance with TIA568-B specification for Category 3 cable.

- 4.25.2.3.1) The name of the test limit selected to execute the stored test results
- 4.25.2.3.2) The name of the personnel performing the test
- 4.25.2.3.3) The date and time the test results were saved in the memory of the tester
- 4.25.2.3.4) The manufacturer, model and serial number of the field-test instrument
- 4.25.2.3.5) The version of the test software and the version of the test limit database held within the test instrument
- 4.25.2.3.6) Insertion Loss (Attenuation)
- 4.25.2.3.7) Return Loss: Identify as detected from each end of the pair, the wire pair that exhibits the worst-case margin and the wire pair with the worst RL. Each reported case shall include the frequency at which it occurs as well as the test limit value at this frequency.

4.25.3) Fiber-Optic Cable Test Results

Contractor will supply test results from test equipment for all Fiber-Optic cables that Contractor installs.

The test results information for each terminated or fused strand shall be recorded in the electronic memory of the field tester equipment upon completion of the test.

The test results records saved by the field tester shall be transferred into a Microsoft Windows™-based database utility that allows for the maintenance, inspection, archiving, and plain-text exporting of these test records. A guarantee must be made that the measurement results are transferred to the PC unaltered (i.e., "as saved in the field-test instrument") and that these results cannot be modified at a later time. Testers that transfer the numeric measurement data from the tester to the PC in a non-printable format in this regard offer superior protection. The file format, CSV (comma separated value), does not provide adequate protection of these records and shall not be used.

The database for the completed job and all source tester data files shall be stored and delivered on CD-ROM prior to Owner acceptance of the tested cable. This CD-ROM shall include the software tools required to view, inspect, and print any selection of the test reports.

A paper hard copy shall be submitted, containing a test results summary of each strand.

4.25.3.1) Hard Copy

A paper copy of the test results shall be provided that lists all the links that have been tested with the following summary information:

- 4.25.3.1.1) The identification of the strand in accordance with the Cable Installation Labeling Convention, described in this Specification
- 4.25.3.1.2) The overall Pass/Fail evaluation of the strand-under-test
- 4.25.3.1.3) The date and time the test results were saved in the memory of the tester

4.25.3.2) Database General Information

General Information to be provided in the electronic database with the test results information for each link:

- 4.25.3.2.1) The identification of the customer site as specified by Owner
- 4.25.3.2.2) The identification of the pair in accordance with the Cable Installation Labeling Convention, described in this Specification
- 4.25.3.2.3) The overall Pass/Fail evaluation of the strand-under-test
- 4.25.3.2.4) The name of the standard selected to execute the stored test results
- 4.25.3.2.5) The cable type
- 4.25.3.2.6) The date and time the test results were saved in the memory of the tester
- 4.25.3.2.7) The brand name, model and serial number of the tester
- 4.25.3.2.8) The identification of the tester interface
- 4.25.3.2.9) The revision of the tester software and the revision of the test standards database in the tester
- 4.25.3.2.10) The test results information must contain information on each of the required test parameters as detailed below under "Database Detailed Information"

4.25.3.3) Database Detailed Information

Detailed test results documentation data is to be provided in an electronic database for each tested optical fiber and shall contain the following information:

- 4.25.3.3.1) The identification of the customer site as specified by Owner
- 4.25.3.3.2) The name of the test limit selected to execute the stored test results
- 4.25.3.3.3) The name of the personnel performing the test
- 4.25.3.3.4) The date and time the test results were saved in the memory of the tester
- 4.25.3.3.5) The manufacturer, model and serial number of the field-test instrument
- 4.25.3.3.6) The version of the test software and the version of the test limit database held within the test instrument
- 4.25.3.3.7) Circuit ID - as reported by the test instrument and matching the label on test tested cable, in accordance with the Cable Installation Labeling Convention, described in this Specification
- 4.25.3.3.8) The fiber strand identification number
- 4.25.3.3.9) The length for each optical fiber
- 4.25.3.3.10) Optionally the index of refraction used for length calculation when using a length capable OLTS
- 4.25.3.3.11) Test results to include OLTS attenuation link and channel measurements at the appropriate wavelength(s) and the margin (difference between the measured attenuation and the test limit value).
- 4.25.3.3.12) Test results to include OTDR link and channel traces and event tables at the appropriate wavelength(s).
- 4.25.3.3.13) The length for each optical fiber as calculated by the OTDR.
- 4.25.3.3.14) The overall Pass/Fail evaluation of the link-under-test for OLTS and OTDR measurements
- 4.25.3.3.14.1) A picture or image of each fiber end-face
- 4.25.3.3.15) A pass/fail status of the end-face based upon visual inspection.

Part 5: Documentation

5) As-Built Documentation

Contractor shall provide as-built documentation in electronic format, describing all work performed. As-built documentation shall follow apparent documentation standards and formats of existing data wiring documentation and building plans, submitted to Contractor by Owner.

5.1) Circuit Endpoint Table

Contractor shall submit a completed "Circuit Endpoint Table.xls" document, entering as-built labeling information for 100% of installed cables into this Microsoft Excel document. A blank "Circuit Endpoint Table.xls" form shall be provided to Contractor by Owner upon request.

Contractor shall submit completed spreadsheet to Owner as both electronic document (Microsoft Excel spreadsheet), and as hard-copy.

5.2) As-Built Drawings

Contractor shall provide a full set of as-built drawings in electronic format as a Microsoft Visio document, in file format of most recent commercially-available version of Microsoft Visio.

As-built drawings shall convey an accurate depiction of the entire installation superimposed on a drawing of the building. As-built drawings must be to scale.

All edits and additions by Contractor shall be placed in a new layer, which shall have a name clearly identifying Contractor name, and date of job completion.

The as-built drawings shall include, but shall not be limited to, the following information for all materials installed by Contractor and for all existing materials used by Contractor:

- 5.2.1) Inside Service Plant (ISP) drawings, depicting all installed materials, as well as any existing materials utilized, along with building envelope, walls, and features. These shall include, but not be limited to:

- 5.2.1.1) Station outlet location and label
- 5.2.1.2) Details of cable path
- 5.2.1.3) Locations of cable termination points
- 5.2.1.4) Locations of pull boxes
- 5.2.1.5) Locations and diameter of conduits/sleeves
- 5.2.1.6) Locations and manufacturer/model number of raceways
- 5.2.1.7) Locations of penetrations and installed firestopping
- 5.2.1.8) Block diagrams
- 5.2.1.9) Frame and cable labeling
- 5.2.1.10) Locations of cabinets/racks
- 5.2.1.11) Equipment room layouts and frame installation details

- 5.2.2) Outside Service Plant (OSP) drawings, depicting all installed materials, as well as any existing materials utilized, along with campus building envelopes and landmarks. This shall include, but not be limited to:

- 5.2.2.1) Photographic aerial image of campus or accurate plan that includes:
 - 5.2.2.1.1) Label/name of each utilized or installed manhole, handhole, and pole as per existing documentation or else as directed by Owner Technical Contact,
 - 5.2.2.1.2) Label/name of each utilized or installed manhole any label evident in the utilized manhole or on its cover
 - 5.2.2.1.3) Precise locations of each utilized manhole, handhole, and pole, as determined by the Global Positioning System (GPS), expressed as longitude and latitude in DMS (degrees° minutes' seconds"), and accurate to one-hundredth of a minute.
 - 5.2.2.1.4) Location of any trench with type of:
 - 5.2.2.1.4.1) Conduit(s) Installed
 - 5.2.2.1.4.2) Backfill(s) Used
 - 5.2.2.1.5) Location(s) of any Conduit(s) used
- 5.2.2.2) Cable schematic diagram, with:
 - 5.2.2.2.1) Label/name of each utilized or installed manhole, handhole, and pole as per existing documentation or else as directed by Owner Technical Contact,
 - 5.2.2.2.2) Label/name of each utilized or installed manhole any label evident in the utilized manhole or on its cover

- 5.2.2.2.3) Precise locations of each utilized manhole, handhole, and pole, as determined by the Global Positioning System (GPS), expressed as longitude and latitude in DMS (degrees° minutes' seconds"), and accurate to one-hundredth of a minute.
- 5.2.2.2.4) Measured pull distances between manholes, as evident from markings on installed pull tape and/or cable jacket
- 5.2.2.2.5) The type of cable that was installed between manholes, handholes and poles. e.g. 24-strand-SM-fiber, OSP-CAT6, etc., etc.
- 5.2.2.2.6) The cable labels installed on ends of cables shown

5.2.2.3) Manhole fold-out drawings for any installed manhole(s), and for any manhole(s) in which splice enclosure has been installed

- 5.2.3) The as built drawings shall also include accurate depiction of all field-directed changes made up to construction completion. These shall include, but not limited to:
- 5.2.3.1) field-directed changes to pull schedule
 - 5.2.3.2) field-directed changes to cross connect and patching schedule
 - 5.2.3.3) horizontal cable routing changes
 - 5.2.3.4) backbone cable routing or location changes
 - 5.2.3.5) associated detail drawings

5.3) Firestopping Locations

Contractor shall provide a table of as-built firestopping locations in Microsoft Excel format as in the following example:

Example:

	A	B	C	D
1	<u>Location</u>	<u>Description</u>	<u>Manufacturer</u>	<u>Material</u>
2	LI1005C-FL01	Above Cable tray	Hilte	Intumescent putty
3	LI1005C-FL02	Around 4" Conduit	Hilte	Mortar
4	LI1005C-FL03	Inside 4" conduit	Hilte	Vermiculite Pillow
...				
...				
...				
37	LI0003F-PP01-22	3" Cabinet penetration	PRC-DeSoto	PR-855 Chase Foam

5.4) Submission of Manufacturer Warranty Information

Contractor shall submit Manufacturer Warranty documents on installed cable plant upon completion of installation. Warranty documents must state specific terms of Warranty, including:

- 5.4.1) Start date
- 5.4.2) Length of Warranty (years)
- 5.4.3) Contact information
- 5.4.4) What is Covered

5.4.5) Exclusions

5.5) Punch Lists

Owner Project Manager and Owner Technical Contact shall inspect all work with Contractor at a punch list inspection tours, to take place as determined by Owner Project Manager.

Additional punch list inspection tours shall be performed as deemed necessary by Owner Project Manager, whereby prior punch list items shall be inspected, and additional punch list items may be generated.

The punch lists shall be conveyed in writing by Owner Project Manager to Owner Technical Contact, and to Contractor.

Contractor shall provide all materials and labor to repair, replace, or complete each punch list item that is within the Scope of Work (if provided) and the original RFQ/RFP/Project.

Contractor shall respond to all punch list items in writing, either by stating that the item has been addressed/completed or by claiming that the item is outside of the Scope of Work (if provided) and the original RFQ/RFP/Project..

Final payment shall not be released by Owner until after such a time that all punch list items have been completed to the satisfaction of Owner Project Manager and Owner Technical Contact.

5.6) Unused materials

At completion of work, Contractor shall deliver to Owner Technical Contact any materials of significant value that were included in Contractor's cost quotation/proposal for the work, but neither delivered, installed, nor credited by Contractor to Owner.

This shall include, but not be limited to:

- 5.6.1) Spooled/reeled/boxed copper cable greater than 150' in length
- 5.6.2) Unused or trimmed Fiber-Optic cable greater than 1000' in length
- 5.6.3) Unused jacks and faceplates
- 5.6.4) Unused patch panels
- 5.6.5) Unused patch cables
- 5.6.6) Unused racks/cabinets
- 5.6.7) Unused cable management
- 5.6.8) Unused conduit, raceway and cable tray, greater than 5' in length
- 5.6.9) Unused conduit, raceway, and cable tray fittings
- 5.6.10) Unused fire stopping
- 5.6.11) Unused wireless access point brackets/enclosures

***** END OF DOCUMENT *****

SECTION 28 05 13

ELECTRONIC SECURITY CONDUCTORS AND CABLING

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

- A. Applicable requirements of Division 01 - General Requirements and Division 28, Section 28 00 00 shall be considered a part of this section and shall have the same force as if printed herein full.
- B. Strict adherence to SUNY Purchase Network Cable Installation Specification contained in its entirety within technical specification 271000 of these contract documents is required. Any deviation from these requirements will require prior owner/consultant approval before installation, no exceptions.
- C. The work to be done under this section of the Specifications shall include the furnishing of labor, material, equipment, and tools required for the complete installation of the work indicated on the Drawings, as specified herein, or as noted in other sections of Division 28 – Electronic Safety and Security.
- D. All materials, obviously a part of the electronic security infrastructure and necessary to its proper operation, but not specifically mentioned or shown on the Drawings, shall be furnished and installed without additional charge.
- E. The Drawings and Specifications are complementary to each other and what is called for by one shall be as binding as if called for by both. If a discrepancy exists between the Drawings and Specifications, the higher cost and/or higher level of functionality shall be included to meet the design intent.

1.2 RELATED SECTIONS

- A. Network Cable Installation – Section 27 10 00
- B. Access Control – Section 28 13 00
- C. Access Control Field Devices – Section 28 13 26

1.3 WORK INCLUDED

- A. The Security Management System (SMS) shall consist of:
 - 1. Access Control and Alarm Monitoring System
 - 2. Security Equipment Racks, Cabinets, and Consoles
 - 3. Wire and cable to install all equipment as specified herein
 - 4. Miscellaneous conduit and back boxes (not shown on the Documents as provided, but required for a complete installation)

1.4 REFERENCES

- A. All work shall be in accordance with, but not limited to, the following:
 - 1. The National Electrical Code

2. American National Standards Institute (ANSI)
3. National Electrical Manufacturers Association (NEMA)
4. Telecommunications Industries Association (TIA)
5. Electronic Industries Association (EIA)
6. Institute of Electrical & Electronics Consultants (IEEE)
7. Underwriters Laboratories (UL)
8. American Standards Association (ASA)
9. Federal Communications Commission (FCC)
10. Occupational Safety and Health Administration (OSHA)
11. American Society of Testing Material (ASTM)
12. Americans with Disabilities Act (ADA)
13. Local city and county ordinances

B. In the event of conflicts, the more stringent provisions shall apply.

PART 2 PRODUCTS

2.1 GENERAL

- A. All products not provided by the end-user shall be new and unused and shall be of manufacturers' current and standard production.
- B. Where two or more equipment items of the same kind are provided, all shall be identical and provided by the same manufacturer.
- C. Drawings and Specifications indicate major system components, and may not show every component, connector, module, or accessory that may be required to support the operation specified. Contractor shall provide all components needed for complete and satisfactory and intended operation.
- D. Product Availability
 1. Contractor, prior to submitting a proposal, shall determine product availability and delivery time, and shall include such considerations into his proposed Contract Time.
 2. Certain products specified may only be available through factory authorized dealers and distributors. Contractor shall verify his ability to procure the products specified prior to submitting a proposal.
- E. Wire and Cable
 1. Strict adherence to SUNY Purchase Network Cable Installation Specification contained in its entirety within technical specification 271000 of these contract documents is required. Any deviation from these requirements will require prior owner/consultant approval before installation, no exceptions.
 2. General: Provide all wire and cable required to install systems as indicated. Wire and cable shall be sized to provide minimum voltage drop and minimum resistance to the devices being supplied.
 3. All cables shall be specifically designed for their intended use (direct burial, aerial, etc.).
 4. Comply with equipment manufacturers recommendations for wire and cable size and type.
 5. Comply with all applicable codes and ordinances.
- F. Conduit and Raceway Systems

1. General: The placing of surface mounted conduit on the exterior of any building shall be approved by end-user prior to its installation.
2. Interior Conduit:
 - a. Electrical Metallic Tubing (EMT)
 - b. Flexible Metal Conduit
 - c. Provide fittings and connectors as required for installation of EMT or flexible conduit.
3. Surface Raceways:
 - a. Sheet metal channel with fitted cover, suitable for use as surface metal raceway, WIREMOLD, or approved equal.
 - b. Provide fittings, elbows, and connectors designed for use with raceway system.
4. Exterior Conduit: (any of the following as determined by local code requirements):
 - a. Rigid Steel Conduit
 - b. Rigid Aluminum Conduit
 - c. Rigid Nonmetallic Conduit (only if buried 18" below ground surface).
 - d. Intermediate Metal Conduit
 - e. Provide rain-tight fittings and connectors as required for installation of exterior conduit.
5. Exterior Flexible Conduit:
 - a. Liquid-tight Flexible Conduit: Flexible metal conduit with PVC jacket.
 - b. Provide rain-tight fittings and connectors as required for installation of Liquid-tight Flexible Conduit.

G. Junction and Pull Boxes

1. Interior Boxes: Sheet Metal Outlet Boxes: Sizes to be determined in accordance with code requirements for conductor fill. Provide box covers as required.
2. Exterior Boxes: All exterior boxes shall NEMA 4 or NEMA 3R, water-tight and dust-tight
3. All interior and exterior boxes shall have their covers fastened using security screws.

H. Lightning Protection

1. The Contractor shall provide suitable lightning protection for all processors/controllers.
 - a. All lightning protection equipment shall be UL listed.

2.2 WIRE AND CABLE

A. General Requirements:

1. Provide wire and cable as required to install the Security System as indicated on the Drawings and specified herein.
2. All wire and cable shall be Underwriter's Laboratories (UL) listed, and shall meet all national, state, and local code requirements for its application.
3. All wire and cable shall meet individual system or subsystem manufacturer Specifications.
4. All wire and cable shall be Plenum type cable and shall conform to the minimum requirements of Insulated Cable Engineers Association (ICEA) Standards.
5. Wire and cable shall comply with the applicable requirements of the National Electrical Code (NEC), latest edition, in regard to cable construction and usage.
6. The conductors of wires shall be copper and have conductivity in accordance with the standardization rules of the Institute of Electrical and Electronics Engineers, Inc. (IEEE). The conductor and each strand shall be round and free of kinks and defects.
7. All cable carrying data or voice transmissions shall be shielded. All other cable shall be shielded where necessary for interference-free signals.
8. Insulation shall be rated for a minimum of 300V.

9. Color-coding shall be accomplished by using solidly colored insulation. Grounding conductors, where insulated, shall be colored solid green or identified with green color as required by the National Electric Code (NEC).
- B. Wire Types and Sizes
 1. Signal Cable (Non-Power): Wire size shall be a minimum of 20 AWG, twisted, shielded, stranded, insulated, and jacketed.
 2. Signal Cable (Low Voltage Power): Wire size shall be a minimum of 18 AWG, stranded, insulated, and jacketed.
 - a. Wire size shall be a minimum of 18 AWG, twisted, stranded, insulated and jacketed and shall be used for cable runs less than 500 feet.
 - b. Wire size shall be a minimum of 16 AWG, twisted, stranded, insulated and jacketed and shall be used for cable runs in excess of 500 feet, but less than 750 feet.
 - c. Wire size shall be a minimum of 14 AWG, twisted, stranded, insulated and jacketed and shall be used for cable runs in excess of 750 feet, but less than 1,250 feet.
- C. Composite Cable for Door Devices
 1. Composite cable shall contain the following cable types: 22 AWG 6 Conductor (QTY 1), 22 AWG 2 Conductor (QTY 1), 22 AWG 4 Conductor (QTY 1), 18 AWG 2 Conductor (QTY 1)
 2. Acceptable Manufacture: Belden 658AFS, or approved equal
- D. Card Reader, Single Cable
 1. Cable shall be a 22 AWG 6 Conductor
 2. Acceptable Manufacture: West Penn 253270B, or approved equal
- E. Electric Lock Cable
 1. Cable shall be an 18AWG 2 Conductor
 2. Acceptable Manufacture: West Penn 25224B, or approved equal
- F. Door Contact Cable
 1. Cable Shall be an 22AWG 2 Conductor
 2. Acceptable Manufacture: West Penn 25221B, or approved equal
- G. Request to Exit or Accessory Cable
 1. Cable Shall be and 18AWG 4 Conductor
 2. Acceptable Manufacture: West Penn 25244B, or approved equal
- H. Security IP Network Cabling
 1. Refer to specification 271000 for Network Cable Installation requirements.
 2. Strict adherence to SUNY Purchase Network Cable Installation Specification contained in its entirety within technical specification 271000 of these contract documents is required. Any deviation from these requirements will require prior owner/consultant approval before installation, no exceptions
- I. IP Network Patch Cables for Security Equipment

1. Refer to specification 271000 for Network Cable Installation requirements.
2. Strict adherence to SUNY Purchase Network Cable Installation Specification contained in its entirety within technical specification 271000 of these contract documents is required. Any deviation from these requirements will require prior owner/consultant approval before installation, no exceptions

PART 3 EXECUTION

3.1 SITE INSPECTIONS

- A. Continuously verify that the site conditions are in agreement with the Documents and the design package. Submit a report to the Architect documenting changes to the site or conditions that affect the performance of the System to be installed. For those changes or conditions, which affect System installation or performance, provide (with the report) specification sheets, or written functional requirements to support the findings, and a cost estimate to correct the deficiency. No deficiency shall be corrected without written permission from the owner/consultant.
- B. Specific mounting locations, exact wire and cable runs, and conduit routing have not been specified or delineated on the Documents. Coordinate all aspects of the Work with the owner/consultant.

3.2 COORDINATION

- A. Coordinate with the owner/consultant to ensure that adequate conduit is provided and that equipment back-boxes are adequate for System installation.
- B. Coordinate with the owner/consultant to ensure that adequate power has been provided and properly located for the security System equipment.
- C. Coordinate with the owner/consultant to ensure that doors and doorframes are properly prepared for electric locking hardware and door position switches.
- D. Coordinate locations of all devices with the owner/consultant prior to installation.

END OF SECTION

SECTION 28 13 00

ACCESS CONTROL

PART 1 - GENERAL

1.1 WORK INCLUDED

- A. The Work shall include installation and commissioning of the following:
1. Integrated Security Management System (SMS) consisting of electronically access controlled openings that are added to the existing campus wide security system (Genetec).
 2. Security Equipment Racks, Cabinets, and Consoles
 3. Wire and cable to install all equipment as specified herein
 4. Miscellaneous conduit and back boxes (not shown on the Documents as provided, but required for a complete installation)

1.2 SCOPE OF WORK

- A. The scope of work to be included in this contract does not necessarily include every item of work. The Contractor shall supply and install items that meet the specified requirements/needs of the construction documents. The Security Management System (SMS) Servers and Workstations are all existing. As per this contract, the contractor will provide all pertinent software updates to make the system and its components current with manufacturer requirements. All software and software licenses for all devices will be provided by the contractor.
- B. Dedicated, secure equipment space shall be provided to accommodate distributed processing equipment (access control panels) and power supplies for electric locking hardware. This will ideally be in separately locked cabinets in the same space(s) that serve(s) space-wide data communications needs. Equipment (including batteries and other serviceable devices) shall not be located above ceilings. SMS controllers shall be installed within the access-controlled space and above ceiling in a locked and monitored enclosure with local battery backup and full functionality at controlled space if communications are lost. Any new SMS network shall be compatible for direct interconnection with current and planned networks installed in the space.
- C. All doors with access control shall have a position switch to allow notification to designated personnel of forcing door open without authorized entry, propping of the door, or opening of selected doors during times when they should not be accessed. All designated security doors, with or without card readers shall have position switch(es) to allow indication of status, with alarming software applications that provides for alarming by time of day and for door being held opened in excess of a user selectable time period or opening of selected doors during times when there should not be accessed.
- D. The work to be provided, in addition to designing, furnishing, and installing the additions to the existing SMS, shall include the following:
1. Provide complete system design and engineering.
 2. Provide software that meets specified contract requirements.
 3. Verification that proposed equipment and devices furnished are adequate for the intended purpose.
 4. Installation, set-up, and programming of SMS server and any related ancillary equipment.

5. Perform a layout check to ensure that adequate access is available for construction, installation, and maintenance of equipment and devices furnished.
 6. Perform acceptance tests to show system is properly installed and that it meets the specifications and applicable codes.
 7. Provide option for system integration with the digital video surveillance system.
 8. SMS system administration will be by client. The System Administrator shall be responsible to configure and maintain the system after system acceptance. System utilities shall be provided for the System Administrator to use. Software for database backups and log file maintenance shall also be provided.
- E. The SMS contractor shall be responsible for all initial programming, software configuration, and graphics development to provide a complete operating SMS System as described herein. Client will be responsible for the creation/modification of the personnel database and assigning access levels and privileges to individual cardholders.
- F. Client currently standardizes on Genetec Access Control System. Contractor shall coordinate with client and consultant to ensure version match on all software and components of the access control system to ensure there is no mismatch of software/hardware between client site and secondary monitoring site.

1.3 QUALIFICATIONS

- A. The system programmer shall have attended manufacturer training and obtained certification in Genetec Technical Certification.
- B. The system programmer (actual onsite personnel performing the install) shall have attended manufacturer training and obtained certification in Genetec - Enterprise Technical Certification or equivalent.
- C. The system programmer shall be a Genetec certified partner with all pertinent certifications.
- D. The system programmer shall submit proof of certifications.

PART 2 - PRODUCTS

2.1 GENERAL

- A. All products not provided by the end-user shall be new and unused and shall be of manufacturers' current and standard production.
- B. Where two or more equipment items of the same kind are provided, all shall be identical and provided by the same manufacturer.
- C. Drawings and Specifications indicate major system components, and may not show every component, connector, module, or accessory that may be required to support the operation specified. Contractor shall provide all components needed for complete and satisfactory and intended operation.
- D. Product Availability
 1. Contractor, prior to submitting a proposal, shall determine product availability and delivery time, and shall include such considerations into his proposed Contract Time.

2. Certain products specified may only be available through factory authorized dealers and distributors. Contractor shall verify his ability to procure the products specified prior to submitting a proposal.

E. Wire and Cable

1. Strict adherence to SUNY Purchase Network Cable Installation Specification contained in its entirety within technical specification 271000 of these contract documents is required. Any deviation from these requirements will require prior owner/consultant approval before installation, no exceptions.
2. General: Provide all wire and cable required to install systems as indicated. Wire and cable shall be sized to provide minimum voltage drop and minimum resistance to the devices being supplied.
3. All cables shall be specifically designed for their intended use (direct burial, aerial, etc.).
4. Comply with equipment manufacturers recommendations for wire and cable size and type.
5. Comply with all applicable codes and ordinances.

F. Conduit and Raceway Systems

1. General: The placing of surface mounted conduit on the exterior of any building shall be approved by end-user prior to its installation.
2. Interior Conduit:
 - a. Electrical Metallic Tubing (EMT)
 - b. Flexible Metal Conduit
 - c. Provide fittings and connectors as required for installation of EMT or flexible conduit.
3. Surface Raceways:
 - a. Sheet metal channel with fitted cover, suitable for use as surface metal raceway, WIREMOLD, or approved equal.
 - b. Provide fittings, elbows, and connectors designed for use with raceway system.
4. Exterior Conduit: (any of the following as determined by local code requirements):
 - a. Rigid Steel Conduit
 - b. Rigid Aluminum Conduit
 - c. Rigid Nonmetallic Conduit (only if buried 18" below ground surface).
 - d. Intermediate Metal Conduit
 - e. Provide rain-tight fittings and connectors as required for installation of exterior conduit.
5. Exterior Flexible Conduit:
 - a. Liquid-tight Flexible Conduit: Flexible metal conduit with PVC jacket.
 - b. Provide rain-tight fittings and connectors as required for installation of Liquid-tight Flexible Conduit.

G. Junction and Pull Boxes

1. Interior Boxes: Sheet Metal Outlet Boxes: Sizes to be determined in accordance with code requirements for conductor fill. Provide box covers as required.
2. Exterior Boxes: All exterior boxes shall NEMA 4 or NEMA 3R, water-tight and dust-tight
3. All interior and exterior boxes shall have their covers fastened using security screws.

H. Lightning Protection

1. The Contractor shall provide suitable lightning protection for all processors/controllers.
2. All lightning protection equipment shall be UL listed.

2.2 ACCESS CONTROL SYSTEM - SYSTEM SPECIFICATIONS

- A. Head-end Hardware and Software:
1. Upgrade as needed to comply with the ACS manufacturer's recommendations and/or specifications.
- B. Acceptable Manufacturer: Genetec, no exceptions.
1. **Genetec access control software and licensing to be provided by contractor.**

PART 3 - EXECUTION

3.1 SITE INSPECTIONS

- A. Continuously verify that the site conditions are in agreement with the Documents and the design package. Submit a report to the owner/consultant documenting changes to the site or conditions that affect the performance of the System to be installed. For those changes or conditions, which affect System installation or performance, provide (with the report) specification sheets, or written functional requirements to support the findings, and a cost estimate to correct the deficiency. No deficiency shall be corrected without written permission from the owner/consultant.
- B. Specific mounting locations, exact wire and cable runs, and conduit routing have not been specified or delineated on the Documents. Coordinate all aspects of the Work with the owner/consultant.

3.2 COORDINATION

- A. Coordinate with the owner/consultant to ensure that adequate conduit is provided, and that equipment back-boxes are adequate for System installation.
- B. Coordinate with the owner/consultant to ensure that adequate power has been provided and properly located for the security System equipment.
- C. Coordinate with the owner/consultant to ensure that doors and doorframes are properly prepared for electric locking hardware and door position switches.
- D. Coordinate locations of all devices with the owner/consultant prior to installation.
- E. Coordinate and verify the location of each piece of rack-mounted equipment with the owner/consultant.
- F. Coordinate custom SMS report requirements with the owner/consultant. Submit report formats to the owner/consultant for review and acceptance.
- G. Coordinate all initial database partitioning and setup with the owner/consultant prior to initial programming and cardholder data entry.
- H. Coordinate finishes and colors of all equipment with the Architect. Submit all finish and graphics for all equipment in public areas to the owner/consultant for approval prior to installation.

1. Provide all initial System programming and setup of the SMS including, but not limited to the following:
 - a. Graphical Maps and Icons: Coordinate with the owner/consultant to obtain AutoCAD architectural backgrounds for implementation as graphical maps. Import all AutoCAD background information provided by the owner/consultant and produce a complete set of graphical maps depicting all SMS points.
 - b. SMS Card Reader Information: Coordinate all card reader values and text, including descriptors, alarm messages, camera call up, map call-up, and identification with the owner/consultant.
 - c. Input and Output Points: Coordinate all input and output priorities and text, including descriptors, alarm messages, camera call up, and map call up and identification with the owner/consultant.
 - d. Initial System Users and Levels of Access: This shall include the designation of an Owner's representative at the "Super User" level immediately upon SMS initialization.
 - e. Initial camera call-up and alarm information for interface with the VSS.
 - f. Initial camera call-up and alarm information for interface with the intercom system.
 - g. Alarm monitoring and automatic shutdown information for the UPS interface.

END OF SECTION

SECTION 28 13 26

ACCESS CONTROL FIELD DEVICES

PART 1 - GENERAL

1.1 WORK INCLUDED

- A. The Work shall include installation and commissioning of the following:
1. Access Control and Alarm Monitoring System
 2. Security Equipment Racks, Cabinets, and Consoles
 3. Wire and cable to install all equipment as specified herein
 4. Miscellaneous conduit and back boxes (not shown on the Documents as provided, but required for a complete installation)

1.2 SCOPE OF WORK

- A. The scope of work to be included in this contract does not necessarily include every item of work. The Contractor shall supply and install items that meet the specified requirements/needs of the construction documents. The Security Management System (SMS) Servers and Workstations are all existing. As per this contract, the contractor will provide all pertinent software updates to make the system and its components current with manufacturer requirements. All software and software licenses for all devices will be provided by the contractor.
- B. Dedicated, secure equipment space shall be provided to accommodate distributed processing equipment (access control panels) and power supplies for electric locking hardware. This will ideally be in separately locked cabinets in the same space(s) that serve(s) space-wide data communications needs. Equipment (including batteries and other serviceable devices) shall not be located above ceilings. SMS controllers shall be installed within the access-controlled space and above ceiling in a locked and monitored enclosure with local battery backup and full functionality at controlled space if communications is lost. Any new SMS network shall be compatible for direct interconnection with current and planned networks installed in the space.
- C. All doors with access control shall have a position switch to allow notification to Security of forcing door open without authorized entry, propping of the door, or opening of selected doors during times when they should not be accessed. All designated security doors, with or without card readers shall have position switch(es) to allow indication of status, with alarming software applications that provides for alarming by time of day and for door being held opened in excess of a user selectable time period or opening of selected doors during times when there should not be accessed.
- D. The work to be provided, in addition to designing, furnishing, and installing the SMS, shall include the following:
1. Provide complete system design and engineering.
 2. Provide software that meets specified contract requirements.
 3. Verification that proposed equipment and devices furnished are adequate for the intended purpose.
 4. Installation, set-up, and programming of SMS server and any related ancillary equipment.

5. Perform a layout check to ensure that adequate access is available for construction, installation, and maintenance of equipment and devices furnished; however, the Contractor is not responsible for furniture.
 6. Perform acceptance tests to show system is properly installed and that it meets the specifications and applicable codes.
 7. Provide option for system integration with the digital video surveillance system.
 8. SMS system administration will be by client. The System Administrator shall be responsible to configure and maintain the system after system acceptance. System utilities shall be provided for the System Administrator to use. Software for database backups and log file maintenance shall also be provided.
- E. The contractor shall be responsible for all initial programming (including access levels/permissions), software configuration, and graphics development to provide a complete operating SMS System as described herein. Contractor will be responsible for the creation/modification of the personnel database and assigning access levels and privileges to individual cardholders.

1.3 SYSTEM DESCRIPTION

A. Basic System Characteristics

1. The SMS is existing, and the contractor is responsible for all modifications/additions/licenses of the existing SMS for the new access control locations as per this contract.
2. This SMS shall provide true multi-tasking, multi-workstation client-server owner/consultant use based on PC-based client platforms
3. The SMS client-server owner/consultant use shall communicate with native TCP/IP Security Access Controllers (SAC) over an Ethernet TCP/IP enterprise network with encrypted Ethernet.
4. Card information shall be stored in the SAC and shall not depend on a network controller or PC to perform the card access functions.

B. Components

1. The Contractor shall provide the required additions/modifications to the SMS as specified herein including but not limited to the following:
 - a. UPS systems (if facility UPS power is not provided)
 - b. Badge Printer
 - c. Power supplies
 - d. Access control and alarm monitoring controller(s)
 - e. Software modules required for specification operation
 - f. Access control equipment enclosures

1.4 INSPECTION FEES AND PERMITS

- A. Obtain and pay for all necessary permits and inspection fees required for electrical installation.
- B. As a NY State entity, Purchase College SUNY is a self-permitting agency.

1.5 BID SUBMITTALS

- A. Contractor shall carefully review the project drawings and specifications and immediately report any possible omissions or conflicts.
- B. Contactor shall provide a narrative of their understanding of the scope, schedule, ability and resources to be provided to complete the work, and an acknowledgement that their solution is in full compliance with these plans and specifications, and/or a brief description of equals being offered.
- C. Bid submittal shall identify all subcontractors and a brief description of the services they will be providing.
- D. Provide qualifying documentation required per the General Division 1 and these specifications, such as proof of insurance, certifications, references, and any other required documentation.
- E. Provide a complete Bill of Materials (BoM) per section that details quantities for each part, part number, and description.
- F. Provide line-item pricing for each item shown on the "Cameras-Cards-Bid-Estimators-Workbook.xlsx"
- G. Provide pricing per section to include costs broken down by materials and labor.
- H. Complete the "cameras-cards-Bid-Estimators-Workbook.xlsx" to provide a clear and concise pricing worksheet that summarizes the pricing of all sections and then a grand total for the entire project. If voluntary alternatives are provided, the add/deduct pricing shall be detailed separately.
- I. Product Data: Submit manufacturer's data on equipment and materials, and shop drawings, as listed below. Clearly indicate proposed substitutions and deviations from drawings and specifications. Approval of product data and shop drawings is not to be interpreted as permitting departure from the contract documents.
- J. Submission
 - 1. Electronic copies of all bid submittal materials shall be provided on memory stick or similar medium. All files must be clearly organized and clearly named.
 - 2. Submit bid response documents in a single binder with tabs and a title sheet separating each section. Do NOT submit data in separate binders. Data submitted separately will be rejected without comment.
- K. SECTIONS:

28 13 16 – Access Control Systems and Database Management
28 13 26 – Access Control Remote Devices
28 16 16 – Intrusion Detection Systems Infrastructure

1.6 **WARRANTY**

- A. All parts and labor shall be warrantied against defect in product and workmanship for a period of 1 year from substantial completion.
- B. All manufacturer warranties on equipment shall be extended to the college for the duration of the factory warranty.
- C. Spare parts shall be provided in the quantities specified within these documents.
- D. Warranty shall include the Software Service Agreement (SSA) for all devices and other applicable licensing to be synchronized with the overall campus-wide Genetec SSA.

1.7 **CLOSEOUT DOCUMENTATION**

- A. Operating and Maintenance Manuals: Provide three sets of the following data. Arrange each set of data in an orderly way, and bind each set in a separate 3-ring, hard-cover binder to be provided within 30 Days of system acceptance:
 - 1. Operating and maintenance instructions.
 - 2. Copies of approved submittal data.
- B. Update existing drawings showing any adjustment in the location of devices
 - 1. Hard copy 11x17 – 2 full sets.
 - 2. Full set in a single PDF document plotted at the correct scale and page size.
 - 3. Autocad .dwg or Visio (preferred) format.
- C. Spreadsheet listing all installed devices, panels, servers, computers, etc. to include labeling nomenclature of device, model, location, controller port, switch port, cable types, power source, and comments. Provide both 2 hard copies in a binder and electronically in Microsoft Excel format.
- D. All electronic closeout documents shall be unlocked and editable by the Owner.

1.8 **QUALITY ASSURANCE**

- A. Electrical and electronic Components, Devices, and Accessories: UL Listed and labeled and marked for intended use.

- B. Comply with applicable requirements of recognized industry associations which promulgate standards for the various trades.
- C. Assign only qualified technicians who are factory trained and certified on the products and work to be provided under this Contract. Employ a competent project manager to oversee and supervise the work.
- D. Contractor shall employ technicians and project support persons current in the following Genetec certifications:
 - Security Center - Omnicast Technical Certification
 - Security Center - Synergis Technical Certification
 - Security Center - Enterprise Technical Certification
- E. Perform work specified in Division 28 in accordance with standards listed below including amendments or revisions. In case of conflict, obtain a decision from the Owner's Representative:
 - 1. International Building Code
 - 2. Any other applicable state and local codes or industry accepted standard practices.
 - 3. Accepted low voltage and security industry best practices.
- F. Contractor will comply with all on-site construction requirements to include any necessary safety training, Occupational Safety and Health Administration Standards, all National Consensus Standards, and all other federal, state and local safety codes and regulations, and all other safety and personal conduct policies as required by SUNY Purchase College.

1.9 DISCLOSURE OF NONCONFORMING EQUIPMENT

- A. Purchase College desires to make an informed decision regarding the Contractor's proposed project approach.
- B. The Contractor is required to disclose, separate from any cut or advertising sheets, any functional, operational or electrical requirements of these specifications that they are not able to perform and/or which fall outside the scope of their quotation
- C. The form of this disclosure shall be by letter clearly identifying these noncompliant items and describing how the Contractor intends to address these issues.
- D. Absent such disclosure and subsequent acceptance of non-compliant items by the Owner, Contractors are responsible for ensuring that their systems will fully operate as outlined in these specifications without additional cost to the Owner or other parties.
- E. The Contractor may elect to provide an alternate design approach if cost savings or increased functionality could be realized. This approach must be clearly outlined, priced, and tabbed separately within their bid submittal, and fully meet or exceed the objectives of the Basis of Design. All substitutions are subject to the approval process prior to acceptance. Substitutions that are not fully compatible and compliant with the Genetec Security Center platform will not be considered.

1.10 COORDINATION

- A. Carefully examine specifications and drawings to be thoroughly familiar with items which require electrical connections and coordination. Bring to the attention of the Owner's Representative (Consultant) any
- B. Coordinate with other trades as required for network connectivity, cabling, pathways, 120VAC power receptacles, access panels, and mounting surfaces.
- C. Coordinate with the Owner regarding IP address schema, VLAN, etc.
- D. Coordinate work schedule and equipment deliveries with the Owner and General Contractor.

1.11 DELIVERY AND STORAGE

- A. Deliver items in manufacturer's original unopened packaging. Use care in loading, transporting, unloading, and storage to keep items from being damaged. Contractor is responsible to store and safeguard all supplied equipment.
- B. Equipment shall be stored in environmental conditions suitable for the equipment and per the manufacturer's instructions.
- C. Vendor to stage and store equipment in room NM0002 during this project.

1.12 RECORD DRAWINGS

- A. Keep a set of the project Security drawings at the job site exclusively for recording deviations from the drawings which are necessary because of job conditions and retain as the basis for final as-built drawings.
- B. Mark deviations in colored pens/pencils so that work of various systems can be easily identified.
- C. Wire routing and paths shall be annotated in red.

PART 2 - ACCESS CONTROL SYSTEM (ACS)

2.1 GENERAL

- A. All products not provided by the end-user shall be new and unused and shall be of manufacturers' current and standard production.
- B. Where two or more equipment items of the same kind are provided, all shall be identical and provided by the same manufacturer.
- C. Drawings and Specifications indicate major system components, and may not show every component, connector, module, or accessory that may be required to support the operation specified. Contractor shall provide all components needed for complete and satisfactory and intended operation.
- D. Product Availability
 - 1. Contractor, prior to submitting a proposal, shall determine product availability and delivery time, and shall include such considerations into his proposed Contract Time.
 - 2. Certain products specified may only be available through factory authorized dealers and distributors. Contractor shall verify his ability to procure the products specified prior to submitting a proposal.
- E. Wire and Cable
 - 1. Strict adherence to SUNY Purchase Network Cable Installation Specification contained in its entirety within technical specification 271000 of these contract documents is required. Any deviation from these requirements will require prior owner/consultant approval before installation, no exceptions.
 - 2. General: Provide all wire and cable required to install systems as indicated. Wire and cable shall be sized to provide minimum voltage drop and minimum resistance to the devices being supplied.
 - 3. All cables shall be specifically designed for their intended use (direct burial, aerial, etc.).
 - 4. Comply with equipment manufacturers recommendations for wire and cable size and type.
 - 5. Comply with all applicable codes and ordinances.
- F. Conduit and Raceway Systems
 - 1. General: The placing of surface mounted conduit on the exterior of any building shall be approved by end-user prior to its installation.
 - 2. Interior Conduit:
 - a. Electrical Metallic Tubing (EMT)
 - b. Flexible Metal Conduit
 - c. Provide fittings and connectors as required for installation of EMT or flexible conduit.
 - 3. Surface Raceways:
 - a. Sheet metal channel with fitted cover, suitable for use as surface metal raceway, WIREMOLD, or approved equal.
 - b. Provide fittings, elbows, and connectors designed for use with raceway system.
 - 4. Exterior Conduit: (any of the following as determined by local code requirements):
 - a. Rigid Steel Conduit
 - b. Rigid Aluminum Conduit
 - c. Rigid Nonmetallic Conduit (only if buried 18" below ground surface).

- d. Intermediate Metal Conduit
 - e. Provide rain-tight fittings and connectors as required for installation of exterior conduit.
- 5. Exterior Flexible Conduit:
 - a. Liquid-tight Flexible Conduit: Flexible metal conduit with PVC jacket.
 - b. Provide rain-tight fittings and connectors as required for installation of Liquid-tight Flexible Conduit.
- G. Junction and Pull Boxes
 - 1. Interior Boxes: Sheet Metal Outlet Boxes: Sizes to be determined in accordance with code requirements for conductor fill. Provide box covers as required.
 - 2. Exterior Boxes: All exterior boxes shall NEMA 4 or NEMA 3R, water-tight and dust-tight
 - 3. All interior and exterior boxes shall have their covers fastened using security screws.
- H. Lightning Protection
 - 1. The Contractor shall provide suitable lightning protection for all processors/controllers.
 - 2. All lightning protection equipment shall be UL listed.

2.2 SYNERGIS MASTER CONTROLLER

- A. The Synergis Master Controller's IP network communication with Security Center shall be event-driven, whereby events are sent to the host when they happen. All access control logic is stored and handled directly by the SMC for local access control decision making capabilities and will operate even when communication to the host is down.
- B. The SMC shall support a variety of third-party interface modules and connect to those downstream interface modules over IP or RS-485.
- C. The SMC shall communicate hierarchically downstream with Mercury EP series controllers and MR series door and I/O controllers via IP and RS-485.
- D. The SMC will minimally provide support for the following modules, controllers, and features:
 - 1. HID Global Modules
 - 2. Mercury Security Modules
 - 3. Assa Abloy SARGENT IP locks (Wi-Fi and PoE)
 - 4. Assa Abloy Corbin Russwin IP locks (Wi-Fi and PoE)
 - 5. Complete offline decision-making capabilities
 - 6. Threat level management
 - 7. Hard and soft antipassback
 - 8. Unrestricted number of card formats
 - 9. Up to 100,000 cardholders and 150,000 offline events
 - 10. Dynamic (DHCP) or static IP addressing
 - 11. Encrypted communications with host software 128-bit
 - 12. Secure web interface for basic configuration.
- E. Basis of design is the Genetec Synergis Master Controller (SMC) SY-SMC1RAM16CF-KIT or higher.

2.3 MERCURY INTELLIGENT CONTROLLER (MIC)

- A. The intelligent controller shall be an Ethernet ready, fault-tolerant host communication capable for the efficient management of a large network of access panels in any system design. The intelligent controller shall use an RS-232, 2-wire RS-485 or Ethernet link to connect to a Windows or Linux host. The intelligent controller shall be capable of elaborate processes and procedures without host intervention. Once configured, the intelligent controller shall function independently of the host, and shall be capable of controlling access, managing alarms, interfacing with an array of hardware devices, all while providing the decision-making oversight that each system configuration requires. The intelligent controller shall provide centralized biometric template management and support a wide range of reader technologies, including OSDP V2, magnetic stripe and biometric 2-wire RS-485 connectivity and capable of supporting doors in paired and or alternate reader configurations with peripheral interface devices.
- B. Connectivity:
 - 1. Primary Port: 10/100 Ethernet
 - 2. IP Server, IP Client, DHCP Client
 - 3. HTTP, TLS, X.509
 - 4. Back up channel: RS-232, RS-485, Dial-up
- C. Access Control:
 - 1. 600,000 Cardholder capacity
 - 2. 50,000 Transaction buffer
 - 3. If/Then Macro capability
- D. Card Formats:
 - 1. Eight active card formats per intelligent controller
 - 2. Entire card number reported on invalid read
 - 3. 19 digit (64-bit) User ID and 15 digit PIN numbers maximum
 - 4. PIV-II, CAC, TWIC card compatible
 - 5. 32 Access Levels per cardholder
 - 6. Activation/Deactivation Dates
- E. Card Reader Functions
 - 1. Multiple card format support by reader
 - 2. Paired reader support
 - 3. Alternate reader support
 - 4. Elevator support
 - 5. Turnstile support
 - 6. Biometric device support
 - 7. Open Supervised Device Protocol (OSDP) compliant
 - 8. Occupancy count
 - 9. Support of multi-occupancy rules
 - 10. Anti-passback support
 - i. Area-based, reader-based, or time based
 - ii. Nested area, hard, soft, or timed forgiveness
 - 11. Supports host-based approval rules
 - 12. Keypad support with programmable user commands, card input
- F. Database Functions

1. Configurable card database
2. Supports up to nineteen (19) digital card numbers
3. Supports pin codes up to fifteen (15) digits
4. Programmable card activation and deactivation times and dates
5. Card issue code, ADA and VIP flags (up to 32 bits); PIV (75 bits); Smart Card (200 bits)
6. Up to 128 access levels per user
7. Ability to track people and objects

G. Intrusion Alarm Functions

1. Supports entry delays and exit delays
2. Area monitoring
3. Standard alarm masking
4. Provides control and alarm processing from the keypad

H. Basis of design is the Mercury EP series controller module.

1. Mercury LP4502, Genetec Part # Sy-LP4502
2. Additional intelligent controllers based on application:
 - Mercury LP1501 intelligent network controller with single door internal ACM.
 - Mercury LP1502 intelligent network controller with dual-door internal ACM.

2.4 DOOR ACCESS CONTROL MODULE (ACM)

- A. The Access (Door) Control Module (ACM) shall provide the circuitry and connections for two reader ports, support separate in/out readers of all technologies, including OSDP V2, clock and data, magnetic stripe, keypads, LCD and biometrics and all associated door status and Request to Exit inputs and relay strike outputs.
- B. The ACM shall be auto-addressable and directly managed by Mercury or Genetec intelligent controllers.
- C. Data communications to the intelligent controller shall be network IP.
- D. The ACM shall support the following features:
1. Multi- facility code support
 2. Multi-reader technology support
 3. PoE enabled
 4. Auto-addressable
 5. AES 128 bit data encryption
 6. HSPD-12/FIPS201 Compliant
 7. UL 294 Recognized
 8. Universal I/O device characterization
 9. PoE
- E. Reader bus shall be OSDP V2 and provide both audible and visual indicators at the reader when a badge is accepted or rejected.
- F. Door status and other alarm inputs shall employ end of line resistors.
- G. Relay output for the door lock shall be rated at 2A @ 24VDC minimum.

H. Vendor will provide additional locking cabinets, power supplies, etc. as needed.

I. **Basis of design Mercury MR62e, Genetec Part # Sy-MR62e.**

3. Additional controllers based on application:
 - Mercury MR50-S3 Single-Door RS-485 connected controller.
 - Mercury MR52-S3 Dual-Door RS-485 connected controller.
 - Mercury MR16IN-S3 16-input RS-485 connected controller.
 - Mercury MR16OUT-S3 16-output RS-485 connected controller.
- K. MR62e (in-field) enclosures shall be LideSafety Power Flexpower E5M MCLASS Enclosure with tamper switch. See security device schedules by building for number of MR62e controllers per enclosure.

2.5 ACCESS CONTROL CARD READER

1. The card reader shall be multi-technology and shall read encoded data from access cards and transmit the data to the ICs. The operating frequency shall meet all local regulations.
2. A two-color LED on the face of the card reader and an audible tone shall indicate authorized and unauthorized reader uses.
3. No system compromise shall be possible from circuitry located in the reader unit.
4. The card reader shall have provision to operate as specified in environments of electromagnetic and radio frequency interference as well as spurious electrical line interference. When installed according to manufacturer's instructions the reader shall operate properly when mounted adjacent to or directly on any material including metal without the use of standoff or space.
5. Provide manufacturer recommended power to each card reader directly from the IC or a secondary supply. The power supply shall be UL Class 2, power limited and shall provide necessary output voltage to allow the card reader to operate at its maximum specified read range.
6. Contractor shall provide visual check of connections, and maintenance of the system per Manufacturer's specification.
7. Contractor shall provide at least (5) spare card readers to be stored onsite at a location to be determined by the client.
8. Acceptable Manufacturers: HID multiCLASS SE® RPK40 or current HID equal.

2.6 ELECTRIFIED LOCKING MECHANISMS

- A. Electrified locking mechanisms shall be provided as indicated on the Documents.
- B. The security system shall interface with electrified locking mechanisms as indicated on the Documents.

- C. Provide fail-safe/fail-secure operation of electrified locking mechanisms as required by local codes.
- D. Fail-secure locks shall remain operational during a fire alarm condition or power failure.

2.7 ELECTRIFIED LOCKING MECHANISM POWER SUPPLY

- A. Refer to Division 08 Door Hardware specifications.

2.8 REQUEST-TO-EXIT DEVICE, INFRARED

- A. The motion detector shall be specifically designed for Request to Exit applications and be UL listed under the UL-294 standard.
- B. The motion detector shall feature two Form "C" contacts with latch times adjustable from 0.5 to 60 seconds.
- C. The PIR shall feature a dip switch to select the relay mode to resettable/non-resettable. The PIR shall be set to non/resettable mode so that relay outputs resets after its timeout period even there is still motion detected.
- D. Basis of design is the Bosch DS150i/DS151i or equal.

2.9 REQUEST-TO-EXIT DEVICE, PUSHBUTTON

- A. Refer to Division 08 Door Hardware specifications.

2.10 DEVICE POWER SUPPLIES

- A. Provide Power Supplies for all ACAMS equipment.
- B. Monitor low battery and power fail alarms for each power supply.
- C. Minimum Specifications:
 - 1. Type: UL Listed Class II power limited
 - 2. Input: 120VAC 60 Hz hard wired
 - 3. Output: Regulated and filtered 24VDC
 - 4. Output rating: 150% of the actual connected load
 - 5. Battery backup: Four (4) hours of rechargeable backup
 - 6. Battery: Sealed gel type
 - 7. Alarm outputs: Low battery and power fail
 - 8. Enclosure: Key lockable wall mount housing with tamper switch
- D. Acceptable Manufacturers: Altronix or approved equal.

2.11 DOOR POSITION SWITCHES

- A. Wide gap, closed loop or form C contacts, designed for steel doors, rare earth magnets.
- B. Recessed Steel Door Contact w/Wire Leads, 3/4" Diameter, Closed Loop, Wide Gap, 3/4" Gap Size

- C. Surface mounted and overhead door contacts to be constructed with an aluminum housing, armored cable, Closed Loop, Wide Gap, 3" Gap Size.
- D. Basis of design
 - 1. Aritech Industrial Wide Gap Surface Mount Magnetic Contacts 2500 Series
 - 2. products from Interlogix (Formerly Sentrol/GE):
 - Interlogix 1078CW concealed door contact.
 - Interlogix 2505A-L Surface-mounted door contact.
 - Interlogix 2202A-L Overhead Door Contact

2.12 END-OF-LINE (EOL) RESISTOR

- A. The EoL resistor (EoL resistor pack) supervises the wiring between the control panel and the field device and is required for monitoring purposes for all devices in the system.
- B. If one detection device is on a single detection circuit, the EoL should be installed at the detection device.
- C. If more than one detection device is on a single detection circuit, the EoL should installed be at the last detection device in the loop.
- D. Do not install EoL resistors at the controller or panel location(s).
- E. The input circuit shall be monitored by EoL resistors to provide detection of the following four (4) states:
 - 1. Normal
 - 2. Alarm
 - 3. Open
 - 4. Short
 - a. The Contractor is to use the required EoL resistors particular for the system being furnished to provide the required four (4) state supervision.
 - b. Acceptable Manufacturers: GRI 6644 EoL resistor pack or approved equal.

2.13 ELECTRIC DOOR LOCKS (POE LOCKSETS)

- A. Refer to Division 08 Door Hardware specifications.

PART 3 - EXECUTION

3.1 SITE INSPECTIONS

- A. Continuously verify that the site conditions are in agreement with the Documents and the design package. Submit a report to the owner/consultant documenting changes to the site or conditions that affect the performance of the System to be installed. For those changes or conditions, which affect System installation or performance, provide (with the report) specification sheets, or written functional requirements to support the findings, and a cost

estimate to correct the deficiency. No deficiency shall be corrected without written permission from the owner/consultant.

- B. Specific mounting locations, exact wire and cable runs, and conduit routing have not been specified or delineated on the Documents. Coordinate all aspects of the Work with the owner/consultant.

3.2 COORDINATION

- A. Coordinate with the owner/consultant to ensure that adequate conduit is provided, and that equipment back-boxes are adequate for System installation.
- B. Coordinate with the owner/consultant to ensure that adequate power has been provided and properly located for the security System equipment.
- C. Coordinate with the owner/consultant to ensure that doors and doorframes are properly prepared for electric locking hardware and door position switches.
- D. Coordinate locations of all devices with the owner/consultant prior to installation.
- E. Coordinate and verify the location of each piece of rack-mounted equipment with the owner/consultant.
- F. Coordinate custom SMS report requirements with the owner/consultant. Submit report formats to the owner/consultant for review and acceptance.
- G. Coordinate all initial database partitioning and setup with the owner/consultant prior to initial programming and cardholder data entry.
- H. Coordinate finishes and colors of all equipment with the owner/consultant. Submit all finish and graphics for all equipment in public areas to the owner/consultant for approval prior to installation.
 - 1. Provide all initial System programming and setup of the SMS including, but not limited to the following:
 - a. Graphical Maps and Icons: Coordinate with the owner/consultant to obtain AutoCAD owner/consultant ural backgrounds for implementation as graphical maps. Import all AutoCAD background information provided by the Owner/consultant and produce a complete set of graphical maps depicting all SMS points.
 - b. SMS Card Reader Information: Coordinate all card reader values and text, including descriptors, alarm messages, camera call up, map call-up, and identification with the Owner/consultant .
 - c. Input and Output Points: Coordinate all input and output priorities and text, including descriptors, alarm messages, camera call up, and map call up and identification with the Owner/consultant .
 - d. Initial System Users and Levels of Access: This shall include the designation of an Owner's representative at the "Super User" level immediately upon SMS initialization.
 - e. Initial camera call-up and alarm information for interface with the VSS.
 - f. Initial camera call-up and alarm information for interface with the intercom system.
 - g. Alarm monitoring and automatic shutdown information for the UPS interface.

3.3 TRAINING

- A. Coordinate with the Owner to establish a training outline and schedule.
- B. SMS
 - 1. Provide a minimum of 20 hours of SMS operator training/administrative training, and 8 hours of door peripheral device maintenance (readers, locks, sensors ,etc) training either on or off site on a complete and fully operational System parallel and equal to the System being provided, to representatives of the Owner.
 - 2. Operator training shall include, but not be limited to the following:
 - a. All operating System procedures
 - b. System configuration
 - c. Alarm acknowledgment, alarm response logging, and map graphics functionality.
 - 3. Administrative training shall include, but not be limited to the following:
 - a. All operating System procedures and configuration variables
 - b. Database functions and setup
 - c. Card holder input and deletion procedures
 - d. Report generation
 - e. Applications programs (as applicable)
 - f. Map graphics generation and manipulation.

3.4 EQUIPMENT

- A. Provide equipment as indicated on the Documents and specified herein. Additional specific installation requirements are as follows:
 - 1. Security Equipment Room and IC Locations
 - a. Configure security equipment as indicated in the Documents.
 - b. Wire all power supply power fail alarm contacts in each equipment room as a single alarm input to the SMS.
 - c. Wire each power supply low battery alarm contact as individual alarm inputs to the SMS.
 - 2. Controllers
 - a. Configure the System such that devices can be connected to spare input points, output points and card reader inputs on the controller without requiring reconfiguration of the system.
 - 3. Card Readers
 - a. Wire card reader LEDs to indicate valid and invalid card reads, and door locked and unlocked conditions. All card reader LED indicators shall operate identically.
 - 4. Electric Locking Mechanisms
 - a. Interface with electric locking mechanisms provided by the door hardware supplier.
 - b. Wire electric locking mechanisms as indicated on the Documents.
 - c. Wire fail-safe electric locking mechanisms in accordance with local codes.
 - d. Wire fail-secure electric locking mechanisms and power supplies such that a fire alarm condition or building power failure shall not affect operation of the lock.
 - 5. Delayed Egress Locking Devices
 - a. Interface with delayed egress locking devices provided by the door hardware supplier.
 - b. Wire delayed egress locking devices as indicated on the Documents.
 - c. Wire delayed egress locking devices for fail-safe operation in accordance with local codes.

- d. Interface with a normally closed alarm contacts that shall open upon activation of the unlock timer.
 - e. Interface with sounder bypass control contacts. Wire control output contacts to bypass sounder by system workstation.
 - f. Interface with lock control contacts activated by system workstation and/or time schedule. Wire control output contacts to lock/unlock devices by time schedule and/or system workstation.
6. Fire Alarm Interface
- a. Connect (hard wire) fail-safe electric and time delay locking mechanical to the building fire alarm System for fail-safe release upon any fire alarm.
 - b. Interface with a single low voltage/low current normally closed dry contact from the fire alarm System provided by the fire alarm contractor in the Fire Command Center. The contact shall open on any fire alarm condition.
 - c. Provide all additional UL listed fail-safe relays and power supplies necessary to interface to this contact and unlock all fail-safe doors.
 - d. Connect fail-safe relays and power supplies to standard building power. Connection of fail-safe devices to emergency or UPS power shall not be acceptable.
 - e. Reference the Documents for fire alarm interface requirements.

END OF SECTION

State University of New York
Construction Agreement

PLEASE NOTE: SECTIONS THAT HIGHLIGHTED MUST BE FILLED OUT TO COMPLETE THIS CONTRACT. THIS INCLUDES CONTENT IN PAGE 1, SECTIONS 4.20, 5.06, THE SIGNATURE PAGE & SCHEDULE A. DELETE THIS TEXT BEFORE FINALIZING THIS AGREEMENT.

This Agreement (referred to alternately as "Agreement" or "Contract") made as of the _____ day of _____, 20____, for Contract Number _____ by and between STATE UNIVERSITY OF NEW YORK, a corporation organized and existing under the laws of the State of New York, with its principal office located at State University Plaza, 353 Broadway, Albany, New York 12246, on behalf of State University of New York at Purchase College located at 735 Anderson Hill Road, Purchase, NY 10577, hereinafter referred to as "University" and _____ having its principal office located at _____, and a Federal ID or Social Security No. of {insert number}, hereinafter referred to as "the Contractor."

WITNESSETH:

The parties hereto agree that the Contractor shall:

(a) furnish and perform all work of every kind required and all other things necessary to complete in the most substantial and workmanlike manner the construction of

SU-081523
Campus Security Upgrades Project
At SUNY Purchase College

in strict accordance with the Contract Documents; and

(b) complete all work necessary for substantial completion **within 730 days after the date of the Notice to Proceed**, or within the time to which such completion may have been extended in accordance with the Contract Documents;

(c) in the event it fails to substantially complete all the work on time, pay to the University liquidated damages in accordance with the liquidated damages schedule listed on page one of the contractors proposal for each calendar day of delay of substantially completing all the work; and

(d) do everything required by the Contract; subject, however, to the terms, provisions and conditions listed hereinafter.

(e) The University shall pay and the Contractor shall accept as full and complete payment for the performance of this Agreement, subject to additions or deductions as provided herein, the total contract compensation of \$_____, (in figures), _____ (in words).

Article I
General Provisions

Section 1.01 Definitions

Where the following words and expressions are used in the Contract Documents it is understood that they have the meaning set forth as follows:

Allowance Any and all work and materials which may be required of the Contractor in performing work set forth under one or more allowances to this Agreement shall be Work, as defined herein, which shall be performed in accordance with the base schedule for the performance of the Contractor's Work. Contractor shall not be entitled to an extension of time for the performance of an allowance or all allowances.

Consultant The Architect or Engineer named in the Notice to Bidders or such other person or firm designated by the University to provide general administration of the Contract and inspection of the work.

Bidding Documents Notice to Bidders, Information for Bidders and Proposals

State University of New York
Construction Agreement

Bonds	Performance Bond and Labor and Material Bond
Delay	For purposes of this document and as used herein and in any other contract documents between the Contractor and the University the word "delay" shall be interpreted broadly and shall include by way of example only and not by way of limitation: delay, disruption, interference, inefficiencies, impedance, hindrance, acceleration, resequencing, schedule impacts, lack of timeliness by the University and/or Consultant, and lack of coordination, cumulative impact of multiple change orders, delay and other impacts.
Contract or Contract Documents	The Agreement, Exhibits A and A-1, Bidding Documents, Bonds, Specifications, Project Manual, Drawings Addenda issued prior to the opening of bids and Change Orders issued after award of the Contract.
University	State University of New York
Notice to Proceed	Written notice provided by the University to the Contractor stating the date on which the contractor can begin project work.
Project	The facility or facilities to be constructed including all usual, appropriate and necessary attendant work shown on, described in or mentioned in the Contract.
Site	The area within the Contract limit lines, as shown on the Drawings, and all other areas upon which the Contractor is to perform work.
Substantial Completion	Substantial Completion is the completion of Work so that the Project can be fully occupied and used for the purposes for which it is intended. Substantial Completion includes: (1) completion of all work required for the issuance of a code compliance certificate, or a temporary approval for occupancy, completed in a manner that includes no uncorrected deficiency or material violation of the Building Code of New York State within the area or work for which the certificate is to be issued; (2) completion of all building systems and functional testing of said systems (other than tests that cannot be performed due to the seasonal environmental conditions in effect at the time of completion); (3) acceptance and approval of the Operating Instructions and Manuals and Training of Campus Personnel; and (4) the sum of values determined for Punch List work at the time of Substantial Completion shall not exceed one (1) percent of the amount of the Contract consideration unless otherwise agreed to by the University.
Work	The using, performing, installing, furnishing and supplying of all materials, equipment, labor, services and incidentals necessary or proper for or incidental to the successful completion of the Project and the carrying out of all duties and obligations imposed upon the Contractor by the Contract.

Section 1.02 Captions

The titles or captions of Articles and Sections of the Contract are intended for convenience and reference purposes only and in no way define, limit or describe the scope or intent thereof or of the Contract or in any way affect the Contract.

Section 1.03 Nomenclature

Materials, equipment or other work described in words and abbreviations which have a well-known, technical or trade meaning shall be interpreted as having such meaning in connection with the Contract.

Section 1.04 Entire Agreement

The Contract constitutes the entire agreement between the parties hereto and no statement, promise, condition, understanding, inducement or representation, oral or written, expressed or implied, which is not contained herein shall be binding or valid and the Contract shall not be changed, modified, or altered in any manner except by an instrument in writing executed by the parties hereto.

Section 1.05 Successors, Assigns and Agents

To the extent allowed by the terms of "Exhibit A", the Contract shall bind the successors, assigns and representatives of the parties hereto. The University reserves the right to have the State University Construction University Fund act as

State University of New York
Construction Agreement

its agent at any time or duration of this Agreement. Such designation of the Fund to act on the behalf of the University shall be in writing and addressed to the Contractor.

Section 1.06 Accuracy and Completeness of Contract Documents

- (1) The Contract Documents are complementary and what is called for by any one shall be as binding as if called for by all. The intention of the Documents is to include all materials, plant, equipment, tools, skill and labor of every kind necessary for the proper execution of the work and also those things which may be reasonably inferable from the Contract Documents as being necessary to produce the intended results.
- (2) The Contract Documents contemplate a finished piece of work of such character and quality as is reasonably inferable from them. The Contractor acknowledges that the Contract consideration includes sufficient money allowance to make its work complete and operational and in compliance with good practice and it agrees that inadvertent minor discrepancies or omissions or the failure to show details or to repeat on any part of the Contract Documents the figures or notes given on another shall not be the cause for additional charges or claims. In case of a conflict between any part or parts of the Contract Documents with any other part or parts thereof, as contrasted to an omission or failure to show details or to repeat on any part of the Contract Documents the figures or notes given on another part thereof, the following shall be given preference, in the order hereinafter set forth, to determine what work the Contractor is required to perform: (a) Exhibit A and A-1, (b) Addenda (later dates to take preference over earlier dates); (c) Amendments to Agreement; (d) Agreement; (e) Bidding Documents; (f) Specifications; (g) Schedules (i.e. finish schedules); (h) Large scale detail Drawings (detail drawings having a scale of 3/4" and over); (i) Large scale plan and section Drawings (plan and section drawings having a scale equal to or larger than that used for the basic floor or site plan, as the case may be); (j) Small scale detail Drawings (detail drawings having a scale of less than 3/4"); and (k) Small scale plan and section Drawings (plan and section drawings having a scale less than that used for the basic floor or site plan, as the case may be). In the event of such a conflict between or among parts of the Contract Documents that are entitled to equal preference, the more expensive way of doing the work, the better quality or greater quantity of material shall govern unless the University otherwise directs.

Section 1.07 Organization of Contract Documents

The Specifications and Drawings are generally divided into trade sections for the purpose of ready references, but such division is arbitrary and such sections shall not be construed as the prescription by the Consultant or the University of the limits of the work of any subcontractor or as a determination of the class of labor or trade necessary for the fabrication, erection, installation or finishing of the work required. The Contractor will be permitted to allot the work of subcontractors at its own discretion regardless of the grouping of the Specifications and Drawings. It shall be the Contractor's responsibility to settle definitively with each subcontractor the portions of the work which the latter will be required to do. The University and the Consultant assume no responsibility whatever for any jurisdiction claimed by any of the trades involved in the work.

Section 1.08 Furnishing of Contract Documents

The University shall establish the format for the Contract Documents (hard copy and/or electronic media) at the start of the Project. The Contractor shall be furnished, free of charge, with two (2) copies of the Specifications and Drawings in the selected format(s). Any other copies of the Specifications and Drawings which the Contractor may desire can be obtained at the Contractors expense.

Section 1.09 Examination of Contract Documents and Site

By executing the Contract, the Contractor agrees that it has carefully examined the Contract Documents together with the site of the proposed work as well as its surrounding territory; that it is fully informed regarding all the conditions affecting the work to be done and the labor and materials to be furnished for the completion of the Contract; and that its information has been acquired by personal investigation and research and not in the estimates and records of the University.

Section 1.10 Invalid Provisions

If any term or provision of the Contract Documents or the application thereof to any person, firm or corporation or circumstance shall, to any extent, be invalid or unenforceable, the remainder of the Contract Documents, or the application of such terms or provisions to persons, firms or corporations or circumstances other than those to which it is held invalid or unenforceable, shall not be affected thereby and each term or provision of the Contract Documents shall be valid and be enforced to the fullest extent permitted by law.

State University of New York
Construction Agreement

Section 1.11 No Collusion or Fraud

The Contractor hereby agrees that the Contract was secured without collusion or fraud and that neither any officer nor any employee of the University has or shall have a financial interest in the performance of the Contract or in the supplies, work or business to which it relates, or in any portion of the profits thereof.

Section 1.12 Notices

- (1) All notices permitted or required hereunder shall be in writing and shall be transmitted either:
- a. via certified or registered United States mail, return receipt requested;
 - b. by personal delivery;
 - c. by expedited delivery service; or
 - d. by email if actually received by the University. Contractor bears the burden of proof of service by email and receipt of email by the University.

Such notices shall be addressed as follows or to such different addresses as the parties may from time to time designate:

SUNY Purchase College

Name: Elizabeth Pleva

Title: Director, Procurement & Accounts Payable

Address: 735 Anderson Hill Road, Purchase, NY 10577

Telephone Number: 914-251-6070

E-mail address: elizabeth.pleva@purchase.edu

{insert company name}

Name: {insert designated contact's title}

Title: {insert designated contact's title}

Address: {insert company}

Telephone Number: {insert phone}

E-mail Address: {insert email}

- (2) Any such notice shall be deemed to have been given either at the time of personal delivery or actual receipt by the University, or in the case of email, upon receipt by the University.
- (3) The parties may, from time to time, specify any new or different address in the United States as their address for purpose of receiving notice under this Agreement by giving fifteen (15) days written notice to the other party sent in accordance herewith. The parties agree to mutually designate individuals as their respective representatives for the purposes of receiving notices under this Agreement. Additional individuals may be designated in writing by the parties for purposes of implementation and administration/billing, resolving issues and problems and/or for dispute resolution.

Section 1.13 Singular-Plural; Male-Female

As used in the Contract Documents, the singular of any word or designation, whenever necessary or appropriate, shall include the plural and vice versa, and the masculine gender shall include the female and neutral genders and vice versa.

Article II
Contract Administration and Conduct

Section 2.01 Consultant's Status

- (1) The Consultant, as the University's representative, shall provide general administration of the Contract and inspection of the work. The Consultant will not be responsible for construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the work, and it will not be responsible for the Contractor's failure to carry out the work in accordance with the Contract Documents. The Consultant's duties, services and work shall in no way supersede or dilute the Contractor's obligation to perform the work in conformance with all Contract requirements, but it is empowered by the University to act on its behalf with respect to the proper execution of the work and to give instructions and/or direction when necessary to

State University of New York
Construction Agreement

require such corrective measures as may be necessary, in its professional opinion, to insure the proper execution of the Contract or to otherwise protect the University's interest.

- (2) The Consultant shall have the authority to stop the work or to require and/or direct the prompt execution thereof whenever such action may be necessary, in its professional opinion, to insure the proper execution of the Contract or to otherwise protect the interests of the University.
- (3) Except as otherwise provided in the Contract, the Consultant shall determine the amount, quality, acceptability, fitness and progress of the work covered by the Contract and shall decide all questions of fact which may arise in relation to the interpretation of the plans and Specifications, the performance of the work and the fulfillment by the Contractor of the provisions of the Contract. The Consultant shall in the first instance be the interpreter of the provisions of the Contract and the judge of its performance and it shall use its power under the Contract to enforce its faithful performance.

Section 2.02 Finality of Decisions

- (1) Any decision or determination of the Consultant under the provisions of the Contract shall be final, conclusive and binding on the Contractor unless the Contractor shall, within ten (10) working days after such decision, make and deliver to the University a verified written statement of its contention that the decision of the Consultant is contrary to a provision of the Contract. The University shall thereupon determine the validity of the Contractor's contention. Pending decision by the University, the Contractor shall proceed in accordance with the Consultant's decision.
- (2) Wherever it is provided in the Contract Documents that an application must be made to the University and/or determination made by the University, the University's decision on such application and/or its determination under the Contract Documents shall be final, conclusive and binding upon the Contractor unless the Contractor, within ten (10) working days after receiving notice of the University's decision or determination, files a written statement with the University and the Consultant that it reserves its rights in connection with the matters covered by said decision or determination and after a court of competent jurisdiction determines the University's said decision or determination to be fraudulent, capricious, arbitrary or so grossly erroneous as necessarily to imply bad faith in an action brought in accordance with Section 4.24.

Section 2.03 Claims and Disputes

- (1) If the Contractor claims (i) that any work it has been ordered to do is extra work or (ii) that it has performed or is going to perform extra work or (iii) that any action or omission of the University or the Consultant is contrary to the terms and provisions of the Contract, it shall:
 - a. Promptly comply with such order;
 - b. Notwithstanding the provisions of Section 1.12 of the Agreement and any other provisions of the Contract documents to the contrary, file with the University and the Consultant, within five (5) working days after being ordered to perform the work claimed by it to be extra work or within five (5) working days after commencing performance of the extra work, whichever date shall be the earlier, or within fifteen (15) working days after the said action or omission on the part of the University or the Consultant occurred, a written notice of the basis of its claim and request a determination thereof.
 - c. Notwithstanding the provisions of Section 1.12 of the Agreement and any other provisions of the Contract documents to the contrary, file with the University and the Consultant, within thirty (30) calendar days after said alleged extra work was required to be performed or said alleged extra work was commenced, whichever date shall be the earlier, or said alleged action or omission by the University or the Consultant occurred, a verified detailed statement, with documentary evidence, of the items and basis of its claim, including an initial and updated detailed Time Progress Schedule,
 - d. Produce for the University's examination, upon notice from the University, such information and documentation as directed by the University, which shall include but not be limited to job cost reports and all estimates and documentation used to develop the Bid Proposal, all its books of account, bills, invoices, payrolls, subcontracts, time books, progress records, daily reports, bank deposit books, bank statements, checkbooks and cancelled checks, showing all of its actions and transactions in connection with or relating to or arising by reason of its

State University of New York
Construction Agreement

claim, and submit persons in its employment and in its subcontractors' employment for examination under oath by any person designated by the University to investigate any claims made against the University under the Contract, such examination to be made at the offices of the Contractor; and

- e. Proceed diligently, pending and subsequent to the determination of the University with respect to any such disputed matter, with the performance of the Contract and in accordance with all instructions of the University and the Consultant.
- (2) The Contractor's failure to comply with any or all parts of subdivision b, c and d of paragraph (1) of this Section shall be deemed to be: (i) a conclusive and binding determination on its part that said order, work, action or omission does not involve extra work and is not contrary to the terms and provisions of the Contract; and (ii) a waiver by the Contractor of all claims for additional compensation or damages as a result of said order, work, action or omission. The provisions of subdivision b, c and d of paragraph (1) of this Section are for the purpose of enabling the University to avoid waste of public funds by affording it promptly the opportunity to cancel or revise any order, change its plans, mitigate or remedy the effects or circumstances giving rise to a claim or take such other action as may seem desirable and to verify any claimed expenses or circumstances as they occur. Compliance with such provisions is essential whether or not the University is aware of the circumstances of any order or other circumstances which might constitute a basis for a claim and whether or not the University has indicated it will consider a claim in connection therewith.
- (3) The Contractor's failure to submit and maintain a Time Progress Schedule in accordance with Section 3.02 of the Agreement shall be deemed to be a waiver by the Contractor of all claims for additional time, compensation or damages as a result of any condition which is an alleged cause of delay in the completion of the work. The Schedule of Record, regularly updated and submitted at required durations in accordance with the provisions of the General Requirements, Section paragraph titled "Project Schedule": (i) informs the University and affords it promptly of regular opportunities to change its plans or mitigate or remedy the effects or circumstances giving rise to a claim of delay in the completion of the work or take such other action as may seem desirable to verify any claimed circumstances as they occur; and (ii) forms a record which becomes the basis of the University's verification of an alleged cause of delay in the completion of the work.
- (4) No person has power to waive or modify any of the foregoing provisions and, in any action against the University to recover any sum in excess of the sum certified by the University to be due under or by reason of the Contract, the Contractor must allege in its complaint and prove at the trial compliance with the provisions of this Section.
- (5) Nothing in this Section shall in any way affect the University's right to obtain an examination before trial or a discovery and inspection in any action that might be instituted by or against the University or the Contractor.

Section 2.04 Omitted Work

The University reserves the right at any time during the progress of the work to delete, modify or change the work covered by the Contract, by a Change Order or Field Order thereto providing for either a reduction or omission of any portion of the work, without constituting grounds for any claim by the Contractor for allowances for damages or for loss of anticipated profits and in such event a deduction shall be made from the Contract consideration, the amount of which is to be determined in accordance with the provisions of Section 4.02 or 4.05A of the Agreement.

Section 2.05 Extra Work

- (1) The University reserves the right at any time during the progress of the work to add, modify or change the work covered by the Contract by Change Order or Field Order or as otherwise required by the University thereto providing for extra work of either a qualitative or quantitative nature and in such event the Contract consideration may be increased by an amount to be determined in accordance with the provisions of Sections 4.02 and 4.05A of the Agreement and the completion date for all or any part of the work may be extended for such period of time as may be determined by the University as necessary, because of the extra work, to complete the work or any part thereof.
- (2) Nothing in the Contract Documents shall excuse the Contractor from proceeding with the extra work as directed., The terms and conditions of the Contract Documents shall be fully applicable to all extra work.

State University of New York
Construction Agreement

- (3) The Contractor shall have no claim for extra work or an extension of time if the performance of such work, in the judgment of the Consultant, is made necessary or desirable because of any act or omission of the Contractor which is not in accordance with the Contract.
- (4) Notwithstanding the provisions of Section 2.02 of the Agreement and any other provisions of the Contract Documents to the contrary, the University, after conferring with the Consultant, shall have the right to overrule a determination or decision of the Consultant, that relates to whether certain work is included in the Contract Documents or is extra work, which the University believes is incorrect; in the event the University exercises such right, that determination or decision shall be final, conclusive and binding upon the Contractor and the University unless the same shall be determined by a court of competent jurisdiction to have been fraudulent, capricious, arbitrary or so grossly erroneous as necessarily to imply bad faith.

Section 2.06 Contractor to Give Personal Attention

- (1) The Contractor shall give its constant personal attention to all the work while it is in progress and shall place the work in charge of a competent and reliable full-time superintendent acceptable to the Consultant and the University who shall have authority to act for the Contractor and who shall be accountable to the Consultant to the extent provided in the Contract. Unless the superintendent proves to be unsatisfactory to the Contractor and ceases to be in its employ, such superintendent shall not be changed without the written permission of the Consultant and the University.
- (2) When the Contractor and its superintendent are temporarily absent from the site of the work, the Contractor or its superintendent shall designate a responsible supervisory employee, approved by the Consultant and the University, to receive such orders as the Consultant or its representative may give. At no time shall any work be conducted on the site in the absence of an individual present who has been so designated by the Contractor or its superintendent as having authority to receive and execute instructions given by the Consultant or its representative.
- (3) If the superintendent, project manager or other supervisory employees are not satisfactory to the University, the Contractor shall, if directed by the University, immediately replace such supervisory employees with other supervisory employees acceptable to the Consultant and the University. Such replacement and all related impacts shall be at no additional cost to the University.

Section 2.07 Employment of Workers

The Contractor shall at all times employ competent and suitable workers and equipment which shall be sufficient to prosecute all the work to full completion in a disciplined orderly manner and in accordance with the Time Progress Schedule and the contractually required time of performance. All workers engaged in special or skilled work shall have had sufficient experience in such work to properly and satisfactorily perform the same. Should the Consultant deem any employee of the Contractor or any subcontractor incompetent, careless, insubordinate or otherwise objectionable or whose continued employment on the work is deemed by the Consultant to be contrary to the public interest, it shall so advise the Contractor and the latter shall dismiss or shall cause the subcontractor, if such employee is employed by the latter, to dismiss such employee and such employee shall not again be employed on the work to be performed under the Contract without obtaining the prior written approval of the Consultant.

Section 2.08 Detailed Drawings and Instructions

Upon timely notice from the Contractor that supplementary information is required, the Consultant shall furnish additional instructions, by means of Drawings or otherwise, necessary for the proper execution of the work. All such Drawings and instructions shall be consistent with the Contract Documents, true developments thereof and reasonably inferable therefrom. The work shall be executed in conformity therewith and the Contractor shall do no work without proper Drawings and/or instructions.

Section 2.09 Contract Documents to Be Kept at Site

The Contractor shall keep at the site of the work a copy of the Drawings and Specifications and shall at all times give the Consultant and the University access thereto.

Section 2.10 Permits and Building Codes

The Contractor shall obtain from the proper authorities all permits legally required to carry on its work, pay any and all taxes and fees legally required and shall be responsible for conducting its operations in accordance with the provisions

State University of New York
Construction Agreement

of such permits. Except as otherwise expressly provided in the Contract Documents, all of the work covered by this Agreement which is to be performed on property owned by the State University of New York is not subject to the building code of any city, county or other political subdivision of the State of New York. It is, however, subject to the provisions of the Building Code of New York State and the applicable Federal and State health and labor laws and regulations.

Section 2.11 Surveys

- (1) From the data shown on the Drawings and identified at the site by the Consultant, a licensed surveyor, to be designated and paid for by the University, shall establish one (1) fixed benchmark and one (1) fixed base line at the site. The Contractor shall work from the benchmarks and base lines shown on the Drawings, identified at the site by the Consultant and established at the site by the aforesaid surveyor and shall establish such supplementary bench marks and base lines that are required in order for it to lay out the work. The Contractor shall be responsible for all measurements that may be required for execution of the work to the exact position and elevation as prescribed in the Specifications, shown on the Drawings, or as the same may be modified at the direction of the Consultant to meet changed conditions or as a result of modifications to the work covered by the Contract.
- (2) The Contractor shall furnish at its own expense such stakes and other required equipment, tools and materials, and all labor as may be required in laying out any part of the work. If, for any reason, monuments are disturbed, it shall be the responsibility of the Contractor to reestablish them, without cost to the University, as directed by the Consultant. The Consultant may require that construction work be suspended at any time when location and limit marks established by the Contractor are not reasonably adequate to permit checking completed work or the work in progress.
- (3) In all multiple-story construction, the Contractor shall establish and maintain line marks at each floor level and grade marks four (4) feet above the finished floor at each floor level.

Section 2.12 Site Conditions

- (1) The Contractor acknowledges that it has assumed the risk and that the Contract consideration includes such provision as it deems proper for all physical conditions and subsurface conditions as it could reasonably anticipate encountering from the provisions of the Contract Documents, borings, rock cores, topographical maps and such other information as the University or the Consultant made available to it prior to the University's receipt of bids or from its own inspection and examination of the site prior to the University's receipt of bids.
- (2) In the event that the Contractor encounters subsurface physical conditions or other latent physical conditions at the site differing substantially from those shown on or described or indicated in the Contract Documents and which could not have been reasonably anticipated from the aforesaid information made available by the University or the Consultant or from the Contractor's aforesaid inspection and examination of the site, it shall give immediate notice to the Consultant of such conditions before they are disturbed. The Consultant will thereupon promptly investigate the conditions and, if it finds that they do substantially differ from that which should have been reasonably anticipated by the Contractor, it shall make such changes in the Drawings and Specifications as may be necessary and a Change Order or Field Order may be issued, the amount of which shall be determined in accordance with the provisions of Sections 4.02 and 4.05A, to reflect any increase or decrease in the cost of, or the time required for, performance of the Contract as a result of any of the aforesaid changes made by the Consultant and/or as a result of such unanticipated subsurface conditions.

Section 2.13 Right to Change Location

When additional information regarding the subsurface conditions becomes available to the University as a result of the excavation work, further testing or otherwise, it may be found desirable to change the location, alignment, dimensions or grades to conform to such conditions. The University reserves the right to make such reasonable changes in the work as, in its opinion, may be considered necessary or desirable; such changes and any adjustments in the Contract consideration as a result thereof are to be made in accordance with the provisions of Sections 2.04, 2.05 4.02 and 4.05A of the Agreement.

Section 2.14 Unforeseen Difficulties

Except as otherwise expressly provided in Section 2.12 of the Agreement and in other Sections of the Contract Documents, the Contractor acknowledges that it has assumed the risk and that the Contract consideration includes such

State University of New York
Construction Agreement

provisions as it deems proper for any unforeseeable obstacles or difficulties which it may encounter in the performance of the work.

Section 2.15 Moving Materials and Equipment

Should it become necessary, in the judgment of the Consultant, at any time during the course of the work to move materials which are stored on the site and equipment which has been temporarily placed thereon, the Contractor upon request of the Consultant shall move them or cause them to be moved at its sole cost and expense; provided, however, if materials and equipment that have been stored or placed by the Contractor at a location on the site expressly approved, in writing, by the Consultant and the same are moved or caused to be moved by the Contractor at the Consultant's request, such removal shall be deemed extra work and the Contractor shall be compensated therefor in accordance with the provisions of Sections 4.02 and 4.05A of the Agreement.

Section 2.16 Other Contracts

- (1) Prior to and during the progress of the work hereunder the University reserves the right to let or permit the letting of other contracts relating to the Project or in connection with work on sites within the Contract limit lines or adjoining or adjacent to that on which the work covered by this Agreement is to be performed. In the event such other contracts are let, or have previously been let, the Contractor and such other contractors shall coordinate their work with each other, arrange the sequence of their work to conform with the progressive operation of all the work covered by such contracts and afford each other reasonable opportunities for the introduction and storage of their materials, supplies and equipment and the execution of their work. If the Contractor or such other contractors contend that their work or the progress thereof is being interfered with by the acts or omissions of the other or others or that there is a failure to coordinate or properly arrange the sequence of the work on the part of the Contractor or such other contractors, they shall, within five (5) working days of the commencement of such interference or failure of coordination or failure to perform work in proper sequence, give written notification to the University and the Consultant of such contention. Upon receipt of such notification or on its own initiative, the Consultant shall investigate the situation and issue such instructions to the Contractor or such other contractors with respect thereto as it may deem proper. The Consultant shall determine the rights of the Contractor and of such other contractors and the sequence of work necessary to expedite the completion of all work covered by this Agreement in relation to the work covered by said other contracts.
- (2) The Contractor agrees that it has and will make no claim for damages against the University by reason of any act or omission to act by any other contractor or in connection with the Consultant's or University's acts or omissions to act in connection with such other contractor, but the Contractor shall have a right to recover such damages from the other contractors.
- (3) If the proper and accurate performance of the work covered by the Contract depends upon the proper performance and execution of work not included herein or depends upon the work of any other contractor, the Contractor shall inspect and promptly report to the Consultant any defects in such work that render it unsuitable for proper execution and results. Its failure to so inspect and report shall constitute an acceptance of the other contractor's work as fit and proper for the reception of the work covered by the Contract, except as to latent defects which may be discovered thereafter.

Section 2.17 Inspection and Testing

- (1) All materials and workmanship shall be subject to inspection, examination and testing by the Consultant and the University at all times during the performance of the work and at all places where the work is carried on. Except as otherwise herein specified, the University shall pay for the cost of inspection, examination and testing by the Consultant or the University. If, however, the tests prove that the materials and/or work tested do not meet the requirements of the Contract, then the entire cost of such tests and any additional testing and or inspections required until the work is deemed compliant is to be borne by the Contractor. The Consultant will have the right to reject defective material and workmanship furnished by the Contractor or require its correction. The Contractor, without charge therefor, shall satisfactorily and promptly correct all rejected work and replace all rejected material with proper material.
- (2) The Contractor shall promptly segregate and remove from the site of the work all rejected material and work. If the Contractor shall fail to proceed at once with the replacing of rejected material and/or correction of defective workmanship, the University may, by contract or otherwise, replace such material and/or correct such

State University of New York
Construction Agreement

workmanship, and charge the costs thereof to the Contractor or it may cancel the Contract and terminate the Contractor's employment as provided in the Agreement.

- (3) The Contractor, without additional charge, shall promptly furnish all reasonable facilities, labor materials and equipment with associated operators necessary for the safe and convenient access, inspection and testing that may be required by the Consultant or the University.
- (4) If the Contract Documents or the Consultant's instructions or the applicable laws, ordinances or regulations of any governmental authority require any part of the work covered by the Contract to be specially tested or inspected, the Contractor shall give the Consultant timely notice of its readiness for such testing or inspection or, if the same is to be performed by a governmental authority, of the date fixed therefor. If any such work, without the written permission of the Consultant, should be covered up prior to such testing or inspection, the Contractor, at its sole cost and expense must, if directed by the Consultant, uncover the same for testing or inspection and reconstruct same after the tests or inspection are conducted. All certificates of inspection or testing, involving the Contractor's work, required to be obtained from governmental authorities are to be secured by the Contractor at its sole cost and expense.
- (5) Should it be considered necessary or advisable by the Consultant at any time before final acceptance of the entire work to make an examination of work already completed by removing or tearing out same, the Contractor, upon request, shall furnish all necessary facilities, labor and material to perform such examination. If the work subject to such examination is found to be defective or nonconforming in any manner due to the fault of the Contractor or any of its subcontractors, such uncovering or destruction and necessary reconstruction, even though such includes work not covered in the Contract, shall be at the expense of the Contractor. If, however, such work after testing and examination is found to be satisfactory, the University will pay the Contractor the cost of such uncovering or destruction and reconstruction, such cost to be determined as in the case of extra work as provided in Sections 4.02 and 4.05A.
- (6) Inspection of material and furnished articles to be incorporated in the work may be made at the place of production, manufacture or shipment unless otherwise stated herein. The inspection of material and workmanship for final acceptance as a whole or in part will be made at the site of the work.

Section 2.18 Subcontractors

- (1) Except for subcontractors designated by the University, or required to be named at any earlier date, pursuant to the provisions of the Information for Bidders, within thirty (30) calendar days after receipt of the notice to proceed, the Contractor must submit a written statement to the Consultant giving the name and address of all proposed subcontractors. Said statement must contain a description of the portion of the work and materials which the proposed subcontractors are to perform and furnish and any other information tending to prove that the proposed subcontractors have the necessary facilities, skill, integrity, past experience and financial resources to perform the work in accordance with the terms and provisions of the Contract Documents.
- (2) If the Consultant finds that the proposed subcontractors are qualified, it will so notify the Contractor within ten (10) working days after receipt of the aforesaid information. If the determination is to the contrary, however, the Consultant within such period will notify the Contractor of such determination and the latter, unless it decides to do such work itself and is qualified, in the Consultant's opinion, to do such work, must, within ten (10) working days thereafter, submit similar information with respect to other proposed subcontractors.
- (3) The Consultant's approval of a subcontractor and/or the University's designation of a subcontractor pursuant to the provisions of the Contract Documents shall not relieve the Contractor of any of its responsibilities, duties and liabilities hereunder. The Contractor shall be solely responsible to the University for the acts or defaults of such subcontractors and of such subcontractors' officers, agents and employees, each of whom shall, for this purpose, be deemed to be the agent or employee of the Contractor to the extent of its subcontract.
- (4) The Contractor shall be fully responsible for the administration, integration, coordination, direction and supervision of all of its subcontractors and of all work and it shall check all space requirements of the work and coordinate and adjust the same so that conflicts in space do not occur in the work being performed by it with its own employees and with the work being performed by its subcontractors and so that all equipment, piping, wiring, etc., can be installed, where possible, in the spaces allowed for same.

State University of New York
Construction Agreement

- (5) No subcontractor shall be permitted to work at the site until: (a) it has furnished satisfactory evidence to the Consultant of the insurance required by law; (b) in the case of a Project involving a federal grant, it has furnished satisfactory evidence to the Consultant of the same type and amount of liability insurance as that required of the Contractor by Section 5.06 of the Agreement; and (c) except for subcontractors designated by the University pursuant to the provisions of the Information for Bidders, it has been approved by the Consultant.
- (6) Within ten (10) working days after the Contractor receives payment from the University on account of a progress payment application for the percentage of the work done, it shall pay each of its subcontractors the sum contained in said payment for the percentage of said subcontractor's work, less the same amount retained therefrom by the University under the terms of the Contract Documents or in consequence of any legal proceedings or statutory liens, and less any amounts due the Contractor under the subcontract for work not performed or not properly or timely performed by the subcontractor. In the event any subcontractor is not paid by the Contractor, the former should immediately notify the University of such fact.
- (7) The Contractor shall execute with each of its subcontractors and shall require all subcontractors to execute with their sub-subcontractors a written agreement which shall bind the latter to the terms and provisions of this Agreement insofar as such terms and provisions are applicable to the work to be performed by such subcontractors. The Contractor shall require all subcontractors and sub-subcontractors to promptly, upon request, file with the Consultant and the University a conformed copy of such agreements, from which the price and terms of payment may be deleted.
- (8) If for sufficient reason, at any time during the progress of the work to be performed hereunder, the Consultant determines that any subcontractor or sub-subcontractor is incompetent, careless, or uncooperative, the Consultant will notify the Contractor accordingly and immediate steps will be taken by the Contractor for cancellation of such subcontract or sub-subcontract. Such termination, however, shall not give rise to any claim by the Contractor or by such subcontractor or sub-subcontractor for loss of prospective profits on work unperformed and/or work unfurnished and a provision to that effect shall be contained in all subcontracts and sub-subcontracts.
- (9) No provisions of this Agreement shall create or be construed as creating any contractual relation between the University and any subcontractor or sub-subcontractor or with any person, firm or corporation employed by, contracted with or whose services are utilized by the Contractor.

Section 2.19 Shop Drawings and Samples

- (1) The Contractor in accordance with the approved Shop Drawing, Submittal, Mockup, and Sample schedules and with such promptness and in such sequence as to cause no delay in the work, shall submit for the Consultant's approval all Shop Drawings and Samples called for under the Contract or requested by the Consultant.
- (2) Shop Drawings and mock-ups shall establish the actual detail of the work, indicate proper relation to adjoining work, amplify design details of mechanical and electrical equipment in proper relation to physical spaces in the structure, and incorporate minor changes of design or construction to suit actual conditions. Shop drawings include drawings, diagrams, schedules, product data and other information or materials specially prepared for the work by the Contractor to illustrate some portion of the work. Product data include standard illustrations, schedules, performance charts, instructions, brochures, diagrams and other information identified by the Contractor to illustrate materials or equipment for some portion of the work.
- (3) All Shop Drawings, mock-ups and samples shall be thoroughly checked by the Contractor for compliance with the Contract Documents before submitting them to the Consultant for approval and all Shop Drawings shall bear the Contractor's recommendation for approval. Any Shop Drawings submitted without this stamp of approval and certification, and Shop Drawings which, in the Consultant's opinion, are incomplete, contain numerous errors or have not been checked or only checked superficially, will be returned unchecked by the Consultant for resubmission by the Contractor. In checking Shop Drawings, the Contractor shall verify all dimensions and field conditions and shall check and coordinate the Shop Drawings of any section or trade with the requirements of all other sections or trades whose work is related thereto, as required for proper and complete installation and sequence of the work.

State University of New York
Construction Agreement

- (4) Samples must be of sufficient size or number to show the quality, type, range of color, finish and texture of the material. Each Sample shall be properly labeled to show the nature of the material, trade name of manufacturer, name and location of the work where the material represented by the Sample is to be used and the name of the Contractor submitting the Sample. Transportation charges to the Consultant must be prepaid on Samples forwarded to it.
- (5) At the start of the Project, the format for submittals shall be established by the University. If an electronic method is selected for the submission and approval of submittals, the Contractor shall provide submittals in a PDF format and the Consultant will return the submittals in electronic format to the Contractor. For both hard-copy and electronic submittal formats, all submittals that require physical samples or mock-ups shall be provided in accordance with the requirements set forth in the Contract Specifications. Shop Drawings and Samples, submitted by the Contractor in accordance with the approved Shop Drawing and Sample schedule that is included in the Time Progress Schedule, will be reviewed by the Consultant within fifteen (15) working days and if satisfactory will be approved. A Shop Drawing, when approved, will be returned to the Contractor. If not satisfactory, the Drawings and Samples will be appropriately marked and returned to the Contractor for correction thereof, in which event the Contractor shall resubmit to the Consultant a corrected copy of the Shop Drawing or a new Sample, as the case may be. The Contractor shall make any correction required by the Consultant and shall appropriately note any changes or revisions on the Shop Drawing, dated to correspond with the date of the Consultant's request for the change. Upon approval of the Shop Drawing by the Consultant, the Contractor shall promptly furnish to the Consultant as many copies thereof as the Consultant may reasonably request. Should more than two (2) separate reviews of any required shop drawings or samples submitted be necessary, in the judgement of the Consultant and the University, the Contractor shall be responsible for the reasonable costs incurred by the University for such additional reviews by the Consultant.
- (6) At the time of submission of a Shop Drawing or Sample, the Contractor shall inform the Consultant and the University in writing of any deviation in the Shop Drawing or Sample from the requirements of the Contract Documents. Unless such deviation is specifically noted by the Contractor with a notation that such deviation will result in extra work for which the Contractor requests payment, the Contractor shall be deemed to have waived any claim for extra work, additional compensation or payment or an extension of time with respect to all work shown on, described in or related to the Shop Drawing or Sample.
- (7) The Consultant's approval of Shop Drawings or Samples is for design only and is not a complete check on the method of assembly, erection or construction. Approval shall in no way be construed as: (a) permitting any departure whatsoever from the Contract Documents, except where the Contractor, in accordance with the provisions of paragraph 6 of this Section, has previously notified the University and the Consultant of such departure; (b) relieving the Contractor of full responsibility for any error in quality of materials, details, dimensions, omissions or otherwise that may exist; (c) relieving the Contractor of full responsibility for adequate field connections, erection techniques, bracing or deficiencies in strength; (d) relieving the Contractor of full responsibility for satisfactory performance of all work and coordination with the work of all subcontractors and other contractors; or (e) permitting departure from additional details or instructions previously furnished by the Consultant.
- (8) No work requiring a Shop Drawing or Sample shall be commenced until a Shop Drawing or Sample is approved by the Consultant and all such work shall be: (a) in accordance with the approved Shop Drawing, provided the latter conforms in all respects to the Contract Documents or to such deviations therefrom as have been previously noted by the Contractor in accordance with the provisions of paragraph 6 of this Section; and (b) in conformance in all respects to the sample furnished to and approved by the Consultant and, unless otherwise specified, as new and of good quality.
- (9) The Contractor may be required to provide professional services that constitute the practice of architecture or engineering when specifically required by the Contract Documents for a portion of the work or the Contractor needs to provide such services in order to carry out its responsibilities for construction means, methods, techniques, sequences and procedures. When professional services are required in the Contract Documents, the Consultant will specify all performance and design criteria that such services must satisfy. The University and Consultant shall be entitled to rely on the adequacy, accuracy and completeness of the professional services, certifications, and approvals performed or provided by design professionals working for the Contractor.

State University of New York
Construction Agreement

- (10) Contractor agrees that the University may deduct from any application for payment made by the Contractor, any and all Design Professional, Consultant and/or Construction Management fees and costs incurred by the University together with a markup upon such hard costs in the amount of 15% in the review or evaluation of any substitutions for methods, products or performance pursuant to this Section 2.19.

Section 2.20 Equivalents - Approved Equal

(1) Equivalents or Approvals - General

- a. The words "similar and equal to", or equal", "equivalent" and such other words of similar content and meaning shall for the purposes of this Agreement be deemed to mean similar and equivalent to one of the named products. For the purposes of subdivisions (1) and (2) of this Section and for the purposes of the Bidding Documents, the word "products" shall be deemed to include the words "articles", "materials", "items", "equipment" and "methods". Whenever in the Contract Documents one or more products are specified, the words "similar and equal to" shall be deemed inserted.
- b. Whenever any product is specified in the Contract Documents by a reference to the name, trade name, make or catalog number of any manufacturer or supplier, the intent is not to limit competition, but to establish a standard of quality which the Consultant has determined is necessary for the Project. A Contractor may at its option use any product other than that specified in the Contract Documents provided the same is approved by the Consultant in accordance with the procedures set forth in subdivision (2) of this Section. In all cases the Consultant shall be the sole judge as to whether a proposed product is to be approved and the Contractor shall have the burden of proving, at its own cost and expense, to the satisfaction of the Consultant, that the proposed product is similar and equal to the named product. In making such determination the Consultant may establish such objective and appearance criteria as it may deem proper that the proposed product must meet in order for it to be approved.
- c. Nothing in the Contract Documents shall be construed as representing, expressly or implied, that the named product is available or that there is or there is not a product similar and equal to any of the named products and the Contractor shall have and make no claim by reason of the availability or lack of availability of the named product or of a product similar and equal to any named product.
- d. The Contractor shall have and make no claim for an extension of time or for damages by reason of the time taken by the Consultant in considering a product proposed by the Contractor or by reason of the failure of the Consultant to approve a product proposed by the Contractor.
- e. Requests for approval of proposed equivalents will be received by the Consultant only from the Contractor.
- f. Approval shall in no way be construed as: (a) permitting any departure whatsoever from the Contract Documents, (b) relieving the Contractor of full responsibility for any error in quality of materials, details, dimensions, sequence of work, omissions or otherwise that may exist, (c) relieving the Contractor of full responsibility for adequate field connections, erection techniques, bracing or deficiencies in strength, (d) relieving the Contractor of full responsibility for satisfactory performance of all work to achieve a functionally complete facility or result and coordination with the work of all subcontractors and other contractors or (e) permitting departure from additional details or instructions previously furnished by the Consultant.
- g. Contractor agrees that the Contractor approves and authorizes the deduction from Contractor's applications for payment any and all costs incurred by the Construction Manager, Consultant, Design Professional or otherwise in evaluating Contractor's submissions under this Section 2.20, together with a markup upon such hard costs in the amount of 15%.

(2) Equivalents or Approvals After Bidding

- a. Any and all submissions for "or equal" products which are submitted by the Contractor after award of the Contract must be made by the Contractor within ninety (90) calendar days after the date of award. Contractor agrees that it waives and relinquishes the right, claim or privilege, if any, to submit "or equal" proposals if such are made ninety (90) calendar days after the date of award of the Contract to the Contractor.
- b. Requests for approval of proposed equivalents will be considered by the Consultant after bidding only in the

State University of New York
Construction Agreement

following cases: (a) the named product cannot be obtained by the Contractor because of strikes, lockouts, bankruptcies or discontinuance of manufacture and the Contractor makes a written request to the Consultant for consideration of the proposed equivalent within ten (10) calendar days of the date it ascertains it cannot obtain the named product; or (b) the proposed equivalent is superior, in the opinion of the Consultant, to the named product; or (c) the proposed equivalent, in the opinion of the Consultant, is equal to the named product and its use is to the advantage of the University, e.g., the University receives an equitable credit, acceptable to it, as a result of the estimated cost savings to the Contractor from the use of the proposed equivalent or the University determines that the Contractor has not failed to act diligently in placing the necessary purchase orders and a savings in the time required for the completion of the construction of the Project should result from the use of the proposed equivalent.

- c. Where the Consultant pursuant to the provisions of this subdivision approves a product proposed by a Contractor and such proposed product requires a revision or redesign of any part of the work covered by this Agreement, all such revision and redesign and all new Drawings and details required therefor shall be subject to the approval of the Consultant and shall be provided by the Contractor at its own cost and expense.

Where the Consultant pursuant to the provisions of this Section approves a product proposed by a Contractor and such proposed product requires a different quantity and/or arrangement of duct work, piping, wiring, conduit or any other part of the work from that specified, detailed or indicated in the Contract Documents, the Contractor shall provide the same at its own cost and expense.

- (3) Contractor agrees that the University may deduct from any application for payment made by the Contractor any and all Design Professional, Consultant and/or Construction Management fees and costs incurred by the University, together with a markup upon such hard costs in the amount of 15%, in the consideration or evaluation of any substitutions for methods, products or performance pursuant to this Section 2.20.

Section 2.21 Patents, Trademarks and Copyrights

The Contractor acknowledges that the Contract consideration includes all royalties, license fees and costs arising from patents or trademarks in any way involved in the work; provided, however, that the Contract consideration shall not be deemed to have included therein any royalty, license fee or cost arising from a patent or trademark for a design prepared by the Consultant and neither the Contractor nor the University shall have any liability in connection therewith. Where the Contractor is required or desires to use any product, device, material or process covered by patent or trademark, the Contractor shall indemnify and save harmless the University and the State of New York from any and all claims, actions, causes of action or demands, for infringement by reason of the use of such patented product, device, material or process, and shall indemnify the University and the State of New York from any cost, liability, damage and expense, including reasonable attorneys' fees and court costs, which it may be obligated to incur or pay by reason of any claim or infringement at any time both before or after the University's final acceptance of all the work to be performed under the Contract.

Section 2.22 Possession Prior to Completion

If before the final completion of all the work it shall be deemed advisable or necessary by the University to take over, use, occupy or operate any part of the completed or partly completed work or to place or install therein equipment and furnishings, the University, upon reasonable written notice to the Contractor, shall have the right to do so and the Contractor will not in any way interfere therewith or object to the same. Such action by the University shall in no way affect the obligations of the Contractor under the terms and provisions of the Contract Documents and the Contractor acknowledges that such action by the University does not in any way evidence the completion of the work or any part thereof or in any way signify the University's acceptance of the work or any part thereof. The Contractor agrees to continue the performance of all work covered by the Contract in a manner which will not unreasonably interfere with such takeover, use, occupancy, operation, placement or installation.

Section 2.23 Completion and Acceptance

(1) Partial Completion

If before the final completion of all the work any portion of the permanent construction has been satisfactorily completed and the same will be immediately useful to the University, the latter may, by written notice, advise the Contractor that it accepts such portion of the work. Such action by the University shall in no way affect the obligations of the Contractor under the terms and provisions of the Contract with respect to any work not so completed and accepted. The partial completion of any portion of the Contractor's work by the University, the

State University of New York
Construction Agreement

Campus or the Consultant, shall not impact the assessment of liquidated damages or actual costs for delays or disruption to the Project caused by the Contractor, its subcontractors or vendors.

(2) Substantial Completion

When all the Work covered by the Contract is substantially completed, as defined in Section 1.01, the Contractor shall give written notice thereof to the University and the Consultant. The latter will then promptly make an inspection of the work and, if they shall determine that all the work is substantially completed, they shall so advise the Contractor. Such action shall in no way affect the obligations of the Contractor under the terms and provisions of the Contract with respect to any uncompleted (including untested or deferred work), unaccepted or corrective work or in any way affect, limit or preclude the issuance by the Consultant, from time to time thereafter, of "Punch Lists", i.e., lists of uncompleted or corrective work which the Contractor is to promptly complete and/or correct. In the judgement of the University, should more than two (2) separate inspections of the Work be necessary, the Contractor agrees that the University may deduct from any application for payment made by the Contractor, any and all Design Professional, Consultant and/or Construction Management fees and costs incurred by the University together with a markup upon such hard costs in the amount of 15% for all such additional inspections.

The Contractor must fully, completely and acceptably perform all Punch List work and any other work subsequently discovered remaining to be completed or corrected, within ninety (90) calendar days of Substantial Completion or within such other timeframe stipulated by the University or Consultant. Failure to complete the Punch List within the time so designated hereunder may be deemed default on the part of the Contractor.

(3) Final Completion and Acceptance

After the completion of all the work the Contractor shall give written notice to the University and the Consultant that all the work is ready for inspection and final acceptance. The University and the Consultant shall promptly make such inspection and, if they shall determine that all the work has been satisfactorily completed, the University shall thereupon by written notice advise the Contractor that it accepts such work. In the judgement of the University, should more than two (2) separate inspections of the Work be necessary, the Contractor agrees that the University may deduct from any application for payment made by the Contractor, any and all Design Professional, Consultant and/or Construction Management fees and costs incurred by the University together with a markup upon such hard costs in the amount of 15% for all such additional inspections.

Section 2.24 Record Drawings

- (1) At the start of the Project, the format for Record Drawings shall be established by the University. Prior to acceptance by the University of all work covered by the Contract, the Contractor shall furnish to the Consultant one (1) set of current Contract Drawings on which the Contractor has recorded, using colored pencil for hard copy format or electronic editing tool in contrasting color for electronic format, in a neat and workmanlike manner, all instances where actual field construction differs from work as indicated on the Contract Drawings. These "Record". Drawings shall show the following information: (a) all significant changes in plans, sections, elevations and details, such as shifts in location of walls, doors, windows, stairs and the like made during construction; (b) all significant changes in foundations, columns, beams, openings, concrete reinforcing, lintels, concealed anchorages and "knock-out" panels made during construction; (c) final location of electric panels, final arrangement of electric circuits and any significant changes made in electrical design as a result of Change Orders, Field Orders or job conditions; (d) final location and arrangement of all mechanical equipment and major concealed plumbing, including, but not limited to, supply and circulating mains, vent stacks, sanitary and storm water drainage; (e) final location and arrangement of all underground utilities, connections to building and/or rerouting of existing utilities, including, but not limited to, sanitary, storm, heating, electric, signal, gas, water and telephone; and (f) final make and model for all significant equipment and devices listed in the specifications. The Contractor shall also provide an electronic version as determined by the Consultant.
- (2) Periodically during the work, the Consultant may request submission of a progress set of Record Drawings for review and advise the Contractor of errors or omissions, if any, that must be corrected or completed prior to final submission of the Record Drawings. Shop Drawings shall not be acceptable as Record Drawings.
- (3) The Contractor shall submit the Record Drawings to the Consultant at least fifteen (15) days prior to the date of Substantial Completion. The Consultant will then review the Record Drawings and, if they shall determine that the Record Drawings represent the actual field construction being completed, they shall so advise the

State University of New York
Construction Agreement

Contractor. If not satisfactory, the Record Drawings will be appropriately marked and returned to the Contractor for correction thereof, in which event the Contractor shall promptly correct and resubmit to the Consultant a corrected copy of the Record Drawings. Acceptance of the Record Drawings by the University is a condition precedent to the Contractor's entitlement to receive Final Payment.

Section 2.25 Guarantees

- (1) The Contractor, at the convenience of the University, shall remove, replace and/or repair at its own cost and expense any defects in workmanship, materials, ratings, capacities or characteristics occurring in or to the work covered by the Contract within one (1) year or within such longer period as may otherwise be provided in the Contract, the period of such guarantee to commence with the University's final acceptance of all work covered under the Contract or at such other date or dates as the University may specify prior to that time, and the Contractor, upon demand, shall pay for all damage to all other work resulting from such defects and all expenses necessary to remove, replace and/or repair such other work which may be damaged in removing, replacing or repairing the said defects. The obligations of the Contractor under the provisions of this paragraph or any other guarantee provisions of the Contract Documents are not limited to the monies retained by the University under the Contract.
- (2) Unless such removal, replacement and/or repair shall be performed by the Contractor within ten (10) working days after it receives written notice from the University specifying such defect, or if such defect is of such a nature that it cannot be completely removed, repaired and/or replaced within said ten (10) day period and the Contractor shall not have diligently commenced removing, repairing and/or replacing such defect within said ten (10) day period and shall not thereafter with reasonable diligence and in good faith proceed to do such work, the University may employ such other person, firm or corporation as it may choose to perform such removal, replacement and/or repair and the Contractor agrees, upon demand, to pay to the University all amounts which it expends for such work.

Section 2.26 Default of Contractor

- (1) In addition to those instances specifically referred to in other Sections hereof, the University shall have the right to declare the Contractor in default of the whole or any part of the work if:
 - a. The Contractor becomes insolvent; or if
 - b. The Contractor makes an assignment for the benefit of creditors pursuant to the statutes of the State of New York; or if
 - c. A voluntary or involuntary petition in bankruptcy is filed by or against the Contractor; or if
 - d. A receiver or receivers are appointed to take charge of the Contractor's property or affairs; or if
 - e. The Contractor fails to commence work when notified to do so by the Consultant; or if
 - f. The Contractor shall abandon the work; or if
 - g. The Contractor shall refuse to proceed with the work or extra work when and as directed by the Consultant or the University; or if
 - h. The Contractor shall without just cause reduce its working force to a number which, if maintained, would be insufficient, in the opinion of the University, to complete the work in accordance with the approved time progress schedule, and shall fail or refuse to sufficiently increase such working force when ordered to do so by the Consultant; or if
 - i. The Contractor shall sublet, assign, transfer convey, or otherwise dispose of the Contract other than as herein specified; or if
 - j. The University shall be of the opinion that the Contractor is or has been unnecessarily or unreasonably or willfully delaying the performance and completion of the work, or the award of necessary subcontracts, or the placing of necessary material and equipment orders; or if

State University of New York
Construction Agreement

- k. The University shall be of the opinion that the work cannot be completed within the time herein provided therefor or within the time to which such completion may have been extended; provided, however, that the impossibility of timely completion is, in the University's opinion, attributable to conditions within the Contractor's control; or if
 - l. The work is not completed within the time herein provided therefor or within the time to which the Contractor may be entitled to have such completion extended; or if
 - m. The University shall be of the opinion that the Contractor is or has been willfully or in bad faith violating any of the provisions of this Agreement;
 - n. The University shall be of the opinion that the Contractor is not or has not been executing the Contract in good faith and in accordance with its terms; or if
 - o. At any time during the period of the Agreement, insurance as required is not in effect or proof thereof is not provided to the University.
- (2) Before the University shall exercise its right to declare the Contractor in default by reason of the conditions set forth in the above items *a, b, c, d, e, f, g, h, i, j, k, l, m, n* and *o*, it shall give the Contractor three (3) working days' notice of its intention to declare the Contractor in default and unless, within such three (3) day period, the Contractor shall make arrangements, satisfactory to the University, to correct and/or eliminate the conditions set forth in the University's aforesaid notice, the Contractor may be declared in default at the expiration of such three (3) day period or at the expiration of such longer period of time as the University may determine.
- (3) The right to declare in default for any of the grounds specified or referred to shall be exercised by the University sending the Contractor a written notice setting forth the ground or grounds upon which such default is declared. Upon receipt of notice that it has been declared in default, the Contractor shall immediately discontinue all further operations under the Contract and shall immediately quit the site, leaving untouched all plant, materials, equipment, tools and supplies then on site.
- (4) The University, after declaring the Contractor in default, may then have the work completed by such means and in such manner, by contract, with or without public letting, or otherwise, as it may deem advisable, utilizing for such purpose such of the Contractor's plant, materials, equipment, tools and supplies remaining on the site, and also such subcontractors as it may deem advisable, or it may call upon the Contractor's surety at its own expense to do so.
- (5) In the event that the University declared the Contractor in default of the work or any part of the work, the Contractor, in addition to any other liability to the University hereunder or otherwise provided for or allowed by law, shall be liable to the University for any costs it incurs for additional architectural and engineering services necessary, in its opinion, because of the default and the total amount of liquidated damages from the date when the work should have been completed by the Contractor in accordance with the terms hereof to the date of actual completion of the work, both of which items shall be considered as expenses incurred by the University in completing the work and the amount of which may be charged against and deducted out of such monies as would have been payable to the Contractor or its surety if the work had been completed without a default.
- (6) If the University completes the work, the Consultant shall issue a certificate stating the expenses incurred in such completion, including the cost of re-letting. Such certificate shall be final, binding and conclusive upon the Contractor, its surety, and any person claiming under or through the Contractor, as to the amount thereof.
- (7) The expense of such completion, as so certified by the Consultant, shall be charged against and deducted out of such monies as would have been payable to the Contractor if it had completed the work; the balance of such monies, if any, subject to the other provisions of the Contract, to be paid to the Contractor without interest after such completion. Should the expense of such completion, so certified by the Consultant, exceed the total sum which would have been payable under the Contract if the same had been completed by the Contractor, any such excess shall be paid by the Contractor to the University upon demand.

State University of New York
Construction Agreement

- (8) In the event the University shall determine to complete the work without calling upon the Contractor's surety to do so, the Contractor shall not be entitled, from and after the effective date of the declaration of the default, to receive any further payment under the Contract until the said work shall be wholly completed and accepted by the University.
- (9) In case the University shall declare the Contractor in default as to a part of the work only, the Contractor shall discontinue such part, shall continue performing the remainder of the work in strict conformity with the terms of the Contract, and shall in no way hinder or interfere with any other contractors or persons whom the University may engage to complete the work as to which the Contractor was declared in default.
- (10) The provisions relating to declaring the Contractor in default as to the entire work shall be equally applicable to a declaration of partial default, except that the University shall be entitled to utilize for completion of the part of the work as to which the Contractor was declared in default only such plant, materials, equipment, tools and supplies as had been previously used by the Contractor on such part.
- (11) In completing the whole or any part of the work, the Consultant and the University shall have the power to depart from, change or vary the terms and provisions of the Contract; provided, however, that such departure, change or variation is made for the purpose of reducing the time or expense of such completion. Such departure, change or variations, even to the extent of accepting a lesser or different performance, shall not affect the conclusiveness of the Consultant's certificate of the cost of completion, nor shall it constitute a defense to any action to recover the amount by which such certificate exceeds the amount which would have been payable to the Contractor hereunder but for its default.
- (12) The provisions of this Section shall be in addition to any and all other legal or equitable remedies provided by this Agreement and otherwise applicable by law.

Section 2.27 Termination for Convenience

- (1) The performance of work under this Agreement may be terminated by the University, in whole or in part, whenever the University shall determine that such termination is in the best interest of the University. Any such termination shall be effected by a notice in writing to the Contractor specifying the date upon which such termination shall become effective and the extent to which performance of the Contract shall be terminated. Such termination shall be effective on the date and to the extent specified in said notice.
- (2) Upon receipt of a notice of termination, and-except as otherwise directed in writing by the University, the Contractor shall:
 - a. Discontinue all work and the placing of all orders for materials and facilities otherwise required for the performance thereof,
 - b. Cancel all existing orders and subcontracts to the extent such orders and subcontracts relate to the performance of work terminated by the notice of termination;
 - c. Take such action as may be necessary to secure to the University the benefits of any rights of the Contractor under orders or subcontracts which relate to the performance of work terminated by the notice of termination, including, but not limited to, the assignment to the University, in the manner and to the extent directed by the University, all the right, title and interest of the Contractor under the orders or subcontracts so terminated and cancelled. In the event of such assignment, the University shall have the right, in its discretion, to settle or pay any or all claims arising out of the termination and cancellation of such orders and subcontracts;
 - d. Transfer title and deliver to the University, in accordance with the direction of the University, all materials, supplies, work in process, facilities, equipment, machines or tools produced as a part of or acquired by the Contractor in connection with the work terminated by said notice, and all plans, Drawings, Working Drawings, sketches, Specifications and information for use in connection therewith; provided, however, that the Contractor may retain any of the foregoing if it so elects and foregoes reimbursement therefor;
 - e. Take such action as may be necessary or as the Consultant or the University may prescribe for the protection and preservation of all property in the possession or control of the Contractor in which the University, under the provisions of the Contract, has or may acquire an interest.

State University of New York
Construction Agreement

- (3) Notwithstanding the foregoing, should the notice of termination relate to only a portion of the work covered by the Contract, the Contractor will proceed with the completion of such portions of the work as are not terminated.
- (4) The University will pay and the Contractor shall accept, in full consideration for the performance and completion of the portions of the work as are not terminated, a sum calculated by determining the percentage the portions of the work not terminated bear to the total amount of the work covered by the Contract, and by multiplying the Contract consideration by such percentage - the product thereof being the amount to be paid to the Contractor. The University shall determine the amount of such consideration in accordance with the foregoing.
- (5) Upon compliance by the Contractor with the foregoing provisions of this Section and subject to deductions for payments previously made, the University, for the portions of the work terminated, shall compensate the Contractor as follows:
- a. By reimbursing the Contractor for actual expenditures made with respect to such work, including expenditures made in connection with any portion thereof which may have been completed prior to termination, as well as expenditures made after termination in completing those portions of the work covered by the Contract which the Contractor may have been required by the notice of termination to complete. The University shall determine the allowability and amount of such expenditures.
 - b. By reimbursing the Contractor for all actual expenditures made, with the prior written approval of the University or pursuant to a court judgment, in settling or discharging any outstanding contractual obligations or commitments incurred or entered into by the Contractor in good faith with respect to the Contract and resulting from the termination thereof.
 - c. By reimbursing the Contractor for all actual expenditures made after the effective date of the notice of termination resulting from or caused by the Contractor taking necessary action or action prescribed by the Consultant or the University for the protection and preservation of all property in the possession or control of the Contractor in which the University, under the provisions of the Contract, has or may acquire an interest.
 - d. By paying the Contractor a markup, which is to be calculated in the same manner as that provided for in subdivision c of paragraph (1) of Sections 4.02 and 4.05A for extra work, on the foregoing expenditures, which markup is to cover the Contractor's overhead and profit; provided, however, that if it appears that the Contractor would have sustained a loss on the entire Contract had it been completed, said markup shall be reduced by one-third.
- (6) The sum of all amounts payable under this Section, plus the sum of all amounts previously paid by the University under the provisions of the Contract, shall not exceed the amount of the Contract consideration. In no event shall the Contractor be entitled to any payment for loss of anticipated profits on uncompleted work and the University shall not be liable for same.
- (7) Termination by the University under the provisions of this Section shall be without prejudice to any claims or rights which the University may have against the Contractor. The University may retain from the amount due to the Contractor under the provisions of this Section such monies as may be necessary to satisfy any claim which the University may have against the Contractor in connection with the Contract; provided, however, that the University's failure to retain such monies shall not be deemed a waiver of any of its rights or claims against the Contractor.
- (8) Notwithstanding the foregoing, where the Contractor and the Consultant can agree upon another method of determining the amount of the consideration to be paid to the Contractor under the provisions of this Section, such method, subject to the approval of the University, may, at the option of the University, be substituted for the method set forth above.

Article III
Time of Performance

Section 3.01 Commencement, Prosecution and Completion of Work

State University of New York
Construction Agreement

- (1) The Contractor agrees that it will begin the work herein embraced upon receipt of notice to proceed, unless the University consents in writing, to begin at a different date, and that it will prosecute the same with such diligence that all work covered by the Contract shall be substantially completed and performed on or before the time specified on page one of the Agreement.
- (2) The Contractor further agrees that time is of the essence in this Agreement and that all the work shall be prosecuted in such manner and with sufficient plant and forces to complete all work timely.

Section 3.02 Time Progress Schedule

- (1) To show compliance with the requirements of Section 3.01 of the Agreement, provide and maintain a Time Progress Schedule in accordance with the General Requirements, Special Conditions, Section paragraph titled "Project Schedule". Unless otherwise accepted by the University, the Time Progress Schedule shall be strictly adhered to by the Contractor. The time for substantial completion shall be on or before the time specified on page one of the Agreement.
- (2) If through the fault of the Contractor or any subcontractor the Contractor shall fail to adhere to the time progress schedule, it must promptly adopt such other and additional means and methods of construction as will make up for the time lost and will assure completion in accordance with such schedule.
- (3) The failure of the Contractor to submit a Time Progress Schedule, the University's or the Consultant's acceptance of the Contractor's time progress schedule or lack of such acceptance, the means and/or methods of construction employed by the Contractor, including any revisions thereof, and/or its failure to revise the same shall not relieve the Contractor of its obligation to accomplish the result required by the Contract in the time specified on page one of the Agreement, nor shall the exercise of the Consultant's or the University's right to reject any portion of the work, create or give rise to any claim, action or cause of action, legal, equitable or otherwise, against the Consultant or the University.
- 4) The failure of the Contractor to submit and maintain a Time Progress Schedule in accordance with the General Requirements shall be deemed to be a waiver by the Contractor of all claims for additional compensation or damages as a result of any condition which is an alleged cause of delay in the completion of the work.

Section 3.03 Time Progress Schedule for Shop Drawings and Samples

The Contractor shall include activities for preparation and submission of all Shop Drawings, mock-ups and Samples in the Time Progress Schedule in Section 3.02.

Section 3.04 Notice of Conditions Causing Delay

- (1) Within ten (10) working days after the commencement of any condition which is causing or may cause delay in completion or require Contractor to request an extension of time, the Contractor must notify the Consultant and the University in writing of the effect, if any, of such condition upon the Time Progress Schedule, and must state why and in what respects, if any, the condition is causing or may cause such delay.
- (2) Contractor agrees that an express condition precedent to Contractor's entitlement to any extension of time on the project shall be full and complete compliance to the satisfaction of the University with the Contractor's obligations in Section 3.06, Contractor's Progress Reports. Failure to submit proper Contractor's progress reports in appropriate and timely fashion shall be deemed a waiver and relinquishment of any right, claim or privilege to obtain an extension of time for the performance of the Contractor's work.
- (3) Failure to strictly comply with this requirement may, in the discretion of the University, be deemed sufficient cause to deny any extension of time on account of delay in completion arising out of or resulting from any change, extra work, suspension, or other condition.
- (4) Except as otherwise set forth in this Section 3.04 all procedures set forth in Sections 2.02 and 2.03 of this Agreement shall be complied with by the Contractor. Furthermore, full and complete compliance with the requirements of this Article III is a condition precedent to the Contractor's entitlement to receive an extension of time.

Section 3.05 Extension of Time

State University of New York
Construction Agreement

- (1) Within ten (10) working days after the commencement of any condition which is causing or may cause the Contractor to incur, require or otherwise need an extension of time, the Contractor shall notify the Consultant and the University of such condition. Full and complete compliance with this paragraph 3.05(1) is a condition precedent to the Contractor obtaining an extension of time for performance of any portion or all of its work.
- (2) An extension or extensions of time for the completion of the work may be granted by the University subject to the provisions of this Section, but only upon written application therefor by the Contractor to the University and the Consultant.
- (3) An application for an extension of time must set forth in detail the source and the nature of each alleged cause of delay in the completion of the work, the date upon which each such cause of delay began and ended and the number of days of delay attributable to each of such causes. It must be submitted prior to completion of the work.
- (4) If such an application is made, the Contractor may be entitled to an extension of time for delay in completion of the work caused solely: (a) by the acts or omissions of the University, its trustees, officers, agents or employees; or (b) by the acts or omissions of other contractors, not including subcontractors of the Contractor, on this Project; or (c) by unforeseeable supervening conditions entirely beyond the control of either party hereto (such as, but not limited to, acts of God or the public enemy, war or other national emergency making performance temporarily impossible or illegal, or strikes or labor disputes).
- (5) The Contractor may, however, be entitled to an extension of time for such causes only for the number of calendar days of delay which the University may determine to be due solely to such causes, and then only if the Contractor shall have strictly complied with all of the requirements of this Section and Section 3.04. The University shall make such determination within ninety (90) calendar days after receipt of the Contractor's application for an extension of time; provided, however, said application complies with the requirements of this Section.
- (6) The Contractor shall not be entitled to receive a separate extension of time for each one of several causes of delay operating concurrently, but, if at all, only for the actual period of delay in completion of the work as determined by the University, irrespective of the number of causes contributing to produce such delay. If one of several causes of delay operating concurrently results from any act, fault or omission of the Contractor or of its subcontractors or material-men and would of itself (irrespective of the concurrent causes) have delayed the work, no extension of time will be allowed for the period of delay resulting from such an act, fault or omission.
- (7) The granting of an application for an extension of time for causes of delay other than those herein referred to shall be entirely within the discretion of the University.
- (8) If the Contractor shall claim to have sustained any damages by reason of delays, extraordinary or otherwise, or hindrances which it claims to be due to any action, omission, direction or order by the University or the Consultant, the Contractor shall be entitled only to an extension of time as hereinabove provided and shall not have or assert any claim or prosecute any suit, action, cause of action or proceeding against the University based upon such delays or hindrances, unless such delays or hindrances were caused by the University's bad faith or its willful, malicious, or grossly negligent conduct, or un contemplated delays, or delays so unreasonable that they constitute an intentional abandonment of the Contract by the University, or delays resulting from the University's breach of a fundamental obligation of the Contract.
- (9) The Contractor shall not be entitled to an extension of time for the performance of any or all of the Work set forth in allowances to the Contract. All allowance work shall be performed in accordance with the Contractor's schedule.

Section 3.06 Contractor's Progress Reports

After commencement of the work the Contractor shall furnish the Consultant with written monthly reports setting forth the condition and progress of the work, the percentage of each part of the work that has been finished, those parts of the work which have been completed within the scheduled time and those parts of the work which have not been finished within the scheduled time, and the general progress of the work that is being performed away from the site and the approximate date when such work will be finished and delivered to the site. Contractor agrees that compliance with this Section 3.06 is an express condition precedent to the Contractor's right, claim or entitlement to obtain an extension of

State University of New York
Construction Agreement

time for the performance of the Contractor's work. Failure to comply with this Section 3.06 shall be a waiver and relinquishment of all such rights, claims and privileges to request or obtain an extension of time for the performance of Contractor's work.

Article IV
Payment

Section 4.01 Compensation to Be Paid Contractor

The University shall pay to the Contractor and the latter shall accept as full and complete payment for the performance of this Agreement, subject to additions or deductions as provided herein, the sum of identified on page one of this agreement which sum is the amount of the Contract consideration.

Section 4.02 Value of Omitted and Extra Work

(1) The amount by which the Contract consideration is to be increased or decreased by any Change Order or Field Order shall be determined by the University by one or more of the following methods:

- a. By applying the applicable price or prices set forth on the attached Schedule "I" of this Agreement or by applying a unit price agreed to by both parties. Subject to the provisions of Section 4.04, this method must be used if the Contract Documents contain applicable unit prices.
- b. By estimating the fair and reasonable cost of: (i) labor, including all wages, required wage supplements and insurance required by law (workers' compensation, social security, disability, unemployment, etc.) paid to or on behalf of foremen, workers and other employees below the rank of superintendent directly employed at the site of the Project; (ii) materials; and (iii) equipment, excluding hand tools, which, in the judgment of the University, would have been or will be employed exclusively and directly on the omitted work or extra work, as the case may be; and, in the case of extra work, where the same is performed directly by the Contractor, by adding to the total of such estimated costs a sum equal to 15 percent thereof, but, where the extra work is performed by a subcontractor, by adding a sum equal to 15 percent of said costs for the benefit of such subcontractor, and by adding, for the benefit of the Contractor (no further allowance will be made where extra work is performed by the sub-subcontractor), an additional sum equal to 10 percent of the first \$10,000 of the above-estimated costs, including the subcontractor's percentage override, plus 5 percent of the next \$90,000 of the total of said items, plus 3 percent of any sum in excess of \$100,000 of the total of said items. There is no markup on the premium portion of overtime labor. For the purposes of the aforesaid percentage overrides, the words "extra work" shall be defined as a complete item of added, modified or changed work as described in the Consultant's written instructions to the Contractor. Such "extra work" may include the work of one or more trades and/or subcontractors or sub-subcontractors and shall include all labor, materials, plant, equipment, tools and all incidentals directly and/or indirectly necessary, related, involved in or convenient to the successful completion of the extra work item. Where the Consultant's aforesaid written instructions to the Contractor involve both an increase and a reduction in similar or related work, the above percentage overrides will be applied only on the amount, if any, the cost of the increased work exceeds the cost of the reduced work.

No overhead and profit shall be retained by the Contractor on the cost of work determined by the method provided in Subparagraph (1)a.

All profit, overhead and expense of whatsoever kind and nature, other than those set forth above in items (i) through (iii), of the Contractor, its subcontractors and sub-subcontractors, are covered by the aforesaid percentage overrides and no additional payment therefor will be made by the University.

The University may make such cost estimate either before or after the extra work is completed by the Contractor.

- c. By determining the actual cost of the extra work in the same manner as in the above subdivision b except that actual costs of the Contractor shall be utilized in lieu of estimated costs. The University shall have the option to utilize this method provided it notifies the Contractor of its intent to do so prior to the time the Contractor commences performance of such extra work.
- (2) Irrespective of the method used or to be used by the University in determining the value of a Change Order or Field Order, the Contractor, within fifteen (15) working days after a request for the same, must submit to the University

State University of New York
Construction Agreement

and the Consultant a detailed breakdown of the Contractor's estimate of the value of the omitted and/or extra work in a format approved by the University.

- (3) Equipment Watch Rental Rate Blue Book (published online by Intertec Penton Media, Inc.) or other published rates as approved by the University in writing, will be utilized for the equipment rental pricing. For the purposes of paragraph (1) hereof, the cost of equipment shall be determined, irrespective of the actual price for any rental or actual cost associated with such equipment as follows: take the monthly rate listed in Equipment Watch and dividing the same by 176 hours to establish an hourly rate and then multiplying such hourly rate by the actual number of hours that the equipment was used. The Contractor will submit an actual rental invoice, or acceptable quotation from a bonafide equipment rental supplier for rented equipment when equipment is not owned by the Contractor. The equipment rental supplier cannot be an "affiliate" of the Contractor, nor in any way be related to the Contractor. If submitted invoices/quotations are acceptable to the University, the Contractor will be reimbursed the actual rental cost including sales tax and appropriate mark-up. If no listing of rates for an item of equipment is contained in Equipment Watch, the University shall determine the reasonable rate of rental of the particular item of equipment by such other means as it finds appropriate. The edition Equipment Watch to be used shall be that in effect on the date of the receipt of bids for this Agreement. None of the provisions of Equipment Watch shall be deemed referred to or included in this Agreement excepting only the aforesaid monthly rates. To the cost of equipment as determined above, there is to be added the actual cost of gasoline, oil, grease and maintenance required for operation of such equipment and, in the case of equipment utilized only for extra work when, in the opinion of the Consultant, suitable equipment therefor was not available on the site, the reasonable cost of transporting said equipment to and from the site. Notwithstanding the foregoing, if the Consultant should determine that the nature or size of the equipment used by the Contractor in connection with the extra work is larger or more elaborate, as the case may be, than the size or nature of the minimum equipment determined by the Consultant to be suitable for the extra work, the cost of equipment will not be based upon the equipment used by the Contractor but instead will be based on the smallest or least elaborate equipment determined by the Consultant to have been suitable for the performance of the extra work.
- (4) Unless otherwise specifically provided for in a Change Order or Field Order, the compensation specified therein for extra work includes full payment for both the extra work covered thereby and for any damage or expense caused the Contractor by any delays to other work to be done under the Contract resulting from or on account of said extra work, and the Contractor waives all rights to any other compensation for said extra work, damage or expense.

Section 4.03 Adjustment for Bond and Insurance Premiums

Upon final acceptance of the work to be performed under this Agreement, the University may adjust the Contract consideration to reflect any changes in the cost of all required Bonds and liability and builder's risk insurance premiums which the Contractor had to pay for on all extra work and would have had to furnish and pay for on all omitted work. Unless such cost is agreed upon by the University and the Contractor, the University may calculate and determine the amount of the adjustment in the Contract consideration by estimating such costs. There is no markup on bond or insurance premium adjustment.

Section 4.04 Unit Prices

- (1) Except as otherwise provided in the second paragraph of this Section, the unit prices, set forth on the attached Schedule "I" of this Agreement, will be binding upon both the University and the Contractor in determining the value of omitted and/or extra work, and, in the case of extra work, such unit prices shall be deemed to include all profit, overhead and expenses of whatsoever kind and nature of the Contractor, its subcontractors and sub-subcontractors, and the Contractor agrees that it shall make no claim for any profit, overhead, expense or percentage override in connection therewith.
- (2) Where said Schedule "I" sets forth a unit price for added and/or deducted work, the University shall have the option, whenever it is found that the quantity of changed work varies by more than 15 percent from the quantity that is stated or that can be determined by the Contract Documents at the time of execution thereof, to accept or reject such unit price for the quantity that the changed work varies by more than 15 percent from the stated or determinable quantity. Where a quantity is not specifically stated in the Contract Documents, the University's determination of the amount of said quantity included in the Contract Documents shall determine the applicability of this paragraph. Where the University, pursuant to the foregoing provisions, exercises its aforesaid option, the amount of the increase or decrease in the Contract consideration for the quantity of work which varies by more

State University of New York
Construction Agreement

than 15 percent from the stated or determinable quantity shall be determined in accordance with the provisions of Section 4.02 of the Agreement as if there was no unit price therefor set forth in said Schedule "I".

Section 4.05 Allowances

- (1) The Contractor acknowledges that the Contract consideration includes the allowances set forth on the attached Schedule "II" and "III" of this Agreement and, except for quantitative and field order allowances, it agrees to cause the work covered thereby to be done by such contractors for such sums as the University may direct. Where cash allowances are provided, the allowances shall be deemed to include the purchase of the materials and/or equipment and the delivery of same to the job site. Unless otherwise specified in the Contract Documents, cash allowances do not include the proper installation of the materials and/or equipment or the connection for final utilities thereto; the cost of said installation and/or connection having been included in the amount of the Contract consideration.
- (2) The Contractor acknowledges that the Contract consideration includes such sums for expenses and profit on account of cash allowances as it deems proper and that it shall make no claim for expenses or profit or any percentage override in addition thereto; said items having been included in the amount of the Contract consideration.
- (3) In the event any of the cash allowances listed below are either higher or lower than the cost of having the work done in accordance herewith, the Contract consideration shall be adjusted to reflect such variance, the amount of said adjustment to be the difference between the amount of the allowance and the actual cost of performing the work covered thereby.
- (4) When quantitative allowances are provided, progress payments thereof to the Contractor will be based upon the applicable unit prices set forth on the attached Schedule "I" of the Agreement, subject, however, to the provisions of paragraph (2) of Section 4.04. In the event any of said quantitative allowances are more than or less than the actual quantity of work performed, the Contract consideration shall be adjusted to reflect such variance, the amount of said adjustment to be determined in accordance with the provisions of Sections 4.02, 4.04 and 4.05A of the Agreement.

Section 4.05A Field Orders

When the Agreement contains a Field Order Allowance, the bid shall include the amount of such allowance. Said amount shall cover the cost of additional labor, materials and time for contingent activities within the scope of the Agreement as directed and described by the University in writing in a Field Order. The Field Order will include a description of the work and the method for determining the value of such work. The value of the work directed under this allowance will be determined by one or more of the provisions of Section 4.02. If the net cost(s) of all Field Orders issued are more or less than the specified amount of the allowance, the Contract sum will be adjusted by Change Order.

Section 4.06 Deductions for Unperformed and/or Uncorrected Work

- (1) Without prejudice to any other rights, remedies or claims of the University, in the event that the Contractor at any time fails or neglects to supply working forces and materials of the proper quantity and quality necessary, in the opinion of the Consultant or the University, to comply with the approved time progress schedule, or fails in any respect to prosecute the work with promptness and diligence or causes by any action or omission the stoppage or delay of or interference with the work of any other contractor having a contract with the University, or fails in the performance of any obligations and responsibilities under this Agreement, then, and in that event, the University, acting itself or through the Consultant, may, upon three (3) working days' notice to the Contractor, either itself provide or have any other contractor, including but limited to the University's Job Order Contracting Program, provide any and all labor or materials or both necessary, in its opinion, to correct any aforesaid deficiency of the Contractor, and the University will thereafter backcharge the Contractor by issuing a Change Order reducing the amount of the Contract consideration for all costs and expenses it incurs in connection with the correction of such deficiency. The Contractor agrees that the University may deduct from any application for payment made by the Contractor, any and all Design Professional, Consultant and/or Construction Management fees and costs incurred by the University together with a markup upon such hard costs in the amount of 15% for services required in connection with the correction of such deficiency(ies).
- (2) Notwithstanding any provisions in the Contract Documents to the contrary, if the University deems it inexpedient to correct work not done in accordance with the Contract or any work damaged as a result thereof, it shall notify

State University of New York
Construction Agreement

the Contractor of such fact and the latter shall not remedy or correct the same. In such event, however, the amount of the Contract consideration shall be decreased by an amount, determined by the University, which is equal to the difference in value of the work as performed by the Contractor and the value of the work had it been satisfactorily performed in accordance with the Contract or which is equal to the cost of performing the corrective work, whichever shall be the higher amount.

Section 4.07 Liquidated Damages

In the event that the Contractor shall fail to substantially complete all the work within the time fixed for such completion on page one of this agreement, or within the time to which such completion may have been extended or in the event that the Contractor abandons the work and the same is not substantially completed within the aforesaid time for such completion, the Contractor must pay to the University as damages for each calendar day of delay in completing the work the amount set forth on page one of the Contractors proposal, as stated on page one of this agreement. . In view of the difficulty of accurately ascertaining the loss which the University will suffer by reason of delay in completion of the work hereunder, said sum is hereby fixed and agreed as liquidated damages which the University will suffer by reason of such delay and not as a penalty. The University may deduct and retain out of the monies which may become due hereunder to the Contractor the amount of any such liquidated damages and, in case the amount which may become due to the Contractor under the provisions of the Contract may be less than the liquidated damages suffered by the University, the Contractor shall pay the difference, upon demand, to the University.

Section 4.08 Contract Breakdown

Prior to the submission of its first application for a progress payment, the Contractor shall present to the University and the Consultant for their approval a detailed schedule showing the breakdown of the Contract consideration. The Contract Breakdown Summary shall be further broken down as required by the Consultant and the University. Such schedule must contain the amount estimated for each part of the work and quantity survey for each part of the work. It shall also list the estimated value of the Contractor's guarantee obligations under the provisions of the Contract Documents, which is hereby fixed at \$5,000 or one-half of one percent (1/2%) of the Contract award amount, whichever is the lesser sum. Such schedule shall be revised by the Contractor until the same shall be satisfactory to the University and the Consultant and shall not be changed after the University and the Consultant have approved the same. The amounts set forth in the schedule will not be considered as fixing the basis for additions to or deductions from the Contract consideration.

Section 4.09 Prompt Payment Requirements

- (1) For the purposes of Article XI-A of the State Finance Law, the campus for which the work is being performed is the University's designated payment office. Applications for payment must contain the approval of the Consultant before being submitted to the University.
- (2) Whenever the Consultant's approval of an application for payment is required under the Contract, the Consultant shall have fifteen (15) calendar days, after receipt of such application, to inspect the work before acting on the application.
- (3) Until such time that the Contract is approved by the University, the thirty (30) day period, referred to in Article XI-A of the State Finance Law for the payment of invoices without interest, shall not begin.

Section 4.10 Progress Payments

- (1) Unless otherwise provided in the Contract, progress payments will be made as the work progresses upon applications submitted by the Contractor and approved by the Consultant and the University. Payment of such approved applications shall be made by the University within thirty (30) days after such approval has been given.
- (2) The University shall make progress payments to the Contractor on the basis of such approved applications, less a retained amount equal to 5 percent thereof (i.e. retainage) , plus an amount necessary, in the University's judgment, to satisfy any claims, liens or judgments against the Contractor which have not been suitably discharged, , together with any back charges and offsets which are deemed necessary or likely to be incurred by the University as a result of any failure by the Contractor to fully, completely, accurately and timely perform its work, which it shall reserve from each such payment until all of the work covered by the Contract has been completed.
- (3) When the University and the Consultant have determined that all the work is substantially completed, or that a substantial portion of the permanent construction has been completed and accepted, the University shall make

State University of New York
Construction Agreement

a progress payment to the Contractor, on the basis of an application submitted by the Contractor and approved by the Consultant and the University, which shall reduce the unpaid amount due to the Contractor under the terms of the Contract, including all monies retained by the University from previous progress payments to the Contractor, to an amount equal to two (2) times the cost, estimated by the Consultant, of performing, in accordance with the Contract, all uncompleted, unaccepted and corrective work, plus an amount necessary, in the University's judgment, to satisfy any claims, liens or judgments against the Contractor which have not been suitably discharged. As the remaining items of work are satisfactorily completed or corrected, the University shall make progress payments to the Contractor, on the basis of applications submitted by the Contractor and approved by the University and the Consultant, covering said items of work less an amount necessary, in the University's judgment, to satisfy any claims, liens or judgments against the Contractor which have not been suitably discharged.

Section 4.11 Applications for Progress Payments

The Contractor shall prepare all applications for progress payments for work performed, together with supporting data and computations as are deemed necessary by the Consultant to determine the accuracy of the application. The application for payment and all required supporting documentation shall be submitted using the University's prescribed forms. The Contractor shall include with such applications reports detailing actual payments to minority and women-owned businesses who participate on University projects. Failure of the Contractor to submit applications for progress payments, or lack of complete and accurate supporting data, shall be sufficient reason for withholding payment until such omissions or errors are rectified. Unless otherwise directed, such applications, signed and certified as correct by the Contractor, shall be delivered by the Contractor to the Consultant once each month showing the total value of work completed and in place on the last day of the payment period covered by the application.

Section 4.12 Progress Payments for Materials Delivered to Site

- (1) Progress payments made in accordance with Section 4.10 shall include a payment for materials and equipment to be furnished and installed under the Contract, after such materials and equipment have been delivered and accepted at the site of the work.
- (2) Materials and equipment for which such progress payment has been made shall not be removed from the site, shall be stored until incorporated into the work in a location approved by the Consultant and shall be adequately protected from fire, theft and vandalism, the effects of the elements and any other damage whatsoever, and shall at all times be available for inspection by the Consultant and the University.

Section 4.13 Transfer of Title to Materials Delivered to Site

Title to all supplies and materials to be furnished or provided by the Contractor to the University pursuant to the provisions of the Contract Documents shall immediately vest in and become the sole property of the University upon delivery of such supplies and materials to the site. Notwithstanding such transfer of title, the Contractor shall have the full continuing responsibility to install such materials and supplies, protect them, maintain them in proper condition and forthwith repair, replace and make good any damage thereto without cost to the University until such time as the work covered by the Contract is fully accepted by the University. Such transfer of title shall in no way affect any of the Contractor's obligations under the Contract. In the event that, after title has passed to the University, any of such supplies and materials are rejected as being defective or otherwise unsatisfactory, title to all such supplies and materials shall be deemed to have been transferred back to the Contractor.

Section 4.14 Progress Payments for Materials Stored Off Site

- (1) Progress payments made in accordance with Section 4.10 shall include a payment for materials and equipment which are in short and/or critical supply or have been specially fabricated for the Project. Materials and equipment, for which a progress payment is made pursuant to the preceding sentence, shall be stored by the Contractor, after fabrication, until such time as their delivery to the site is required, at a facility and location approved by the Consultant; shall be adequately protected from fire, theft and vandalism, the effects of the elements and any other damage whatsoever; and shall at all times be available for inspection by the Consultant and the University. No progress payment shall, however, be made for said materials and equipment until:
 - a. The Contractor furnishes to the University a bill of sale listing quantity and costs of said materials and equipment f.o.b. point of origin;
 - b. The Consultant shall have inspected said materials and equipment and recommended payment therefor; and

State University of New York
Construction Agreement

- c. The Contractor furnishes to the University a builder's risk insurance policy, with the broad form extended coverage endorsement, for said materials and equipment, in an amount equal to 100 percent of the value thereof, which policy shall be maintained, at the sole cost and expense of the Contractor, until said materials and equipment have been incorporated into the Project. The said insurance policy shall contain a provision that the loss, if any, is to be made adjustable with and payable to the University as trustee for the insured, i.e., the University and the Contractor, and a provision that it shall not be changed or cancelled and that it will be automatically renewed upon expiration and continued in force unless the University is given thirty (30) days written notice to the contrary.
 - d. The Contractor shall develop and provide a preventive maintenance log for stored equipment when determined appropriate by the Consultant. The Contractor shall provide timely notification and opportunity for the Consultant and the University to view the Contractor's preventative maintenance efforts.
- (2) Materials and equipment for which a progress payment has been made by the University pursuant to this Section shall be, become and remain the sole property of the University; provided, however, that the Contractor shall have the full continuing responsibility to install such materials and equipment, to deliver it to the site, to protect it, to maintain it in proper condition and to forthwith repair, replace and make good any damage thereto without cost and/or additional time to the University until such time as the work covered by the Contract is fully accepted by the University. Such transfer of title shall in no way affect any of the Contractor's obligations under the Contract.

Section 4.15 Withholding of Progress Payments

Notwithstanding anything contained in the Contract to the contrary, the University may withhold payment of all or any part of a progress, final or guarantee payment, in such an amount as it may deem proper to enforce the provisions of the Contract and to satisfy the claims of third parties, when:

- a. The University shall learn of any claim, of whatsoever nature or kind, against the University or the Contractor, which in any way arises or is alleged to arise out of or as a result of or in connection with the performance by the Contractor of the work covered by the Contract or out of or in connection with the Contractor's operations or performance at or in the vicinity of the construction site, that, in the opinion of the University, may not be adequately covered by insurance.

If an action on such claim is timely commenced and the liability of the University and/or the Contractor shall have been established therein by a final judgment of a court of competent jurisdiction, or if such claim shall have been admitted by the Contractor to be valid, the University shall pay such judgment or admitted claim out of the monies retained by it under the provisions of the Contract and return the balance, if any, without interest, to the Contractor.

The University may withhold from the Contractor any payments retained by it until such time as all such claims are either satisfied or barred by law from being presented. At such time the University, upon written demand by the Contractor, shall return to the Contractor the amount so withheld, without interest.

- b. The Contractor has not complied with any lawful or proper direction of the Consultant or the University or their representatives concerning the work covered by the Contract or the performance of the Contract or the production of records as required under the provisions of the Contract.
- c. There exists any of the conditions, listed in Section 2.26, which would allow the University to declare the Contractor in default of the whole or any part of the work.
- d. The Contractor is a foreign contractor and has not furnished satisfactory proof that all taxes due by such Contractor under the provisions of the Tax Law have been paid. The Certificate of the New York State Tax Commission to the effect that all such taxes have been paid shall be conclusive proof of the payment of such taxes. The term "foreign contractor" as used herein means, in the case of an individual, a person who is not a resident of the State of New York; in the case of a partnership, one having one or more partners not a resident of the State; and in the case of a corporation, one not organized under the laws of the State of New York.

State University of New York
Construction Agreement

- e. The Contractor, upon request of the University at any time after the initial progress payment by the University to the Contractor, fails to furnish the University with such documentary evidence that the University may deem necessary to prove to it that material and labor paid for by the University under previous applications for payment submitted have been paid for by the Contractor and that there are no outstanding claims or liens in connection therewith or fails to satisfy the University that the Contractor, with good cause, has sufficiently provided for the payment and/or satisfaction of claims for said material and labor.

Section 4.16 Lien Law

The attention of the Contractor is specifically called to the provisions of the Lien Law of the State of New York, wherein funds received by a Contractor for a public improvement are declared to constitute trust funds in the hands of such Contractor to be applied first to the payment of certain claims.

Section 4.17 Substitution of Securities for Retainage

Any time after 50 percent of all the work has been completed, the University, if the progress and performance of the work is satisfactory to it, on request of the Contractor, will allow the Contractor to withdraw up to 50 percent of the aforesaid amount retained by the University by depositing with the Comptroller of the State of New York government securities, of the type and kind specified in Section 139 of the State Finance Law, having a market value not exceeding par, at the time of deposit, equal to the amount so withdrawn. The Comptroller of the State of New York shall, from time to time, collect all interest or income on the obligations so deposited, and shall pay the same, when and as collected, to the Contractor. If the deposit be in the form of coupon bonds, the coupons as they respectively become due shall be delivered to the Contractor; provided, however, that the Contractor shall not be entitled to interest or coupons or income on any of the deposited securities, the proceeds of which have or will be used or applied by the University. In the event that the Contractor does not, in accordance with the terms and provisions of the Contract, comply with and fulfill all of its obligations and responsibilities thereunder, the Comptroller of the State of New York shall have the right to sell, assign, transfer or otherwise dispose of the aforesaid securities and the University shall have the right to use and apply all or any part of the monies obtained by the Comptroller of the State of New York from such a sale, assignment, transfer or disposition or from the collection of interest or income from said securities to the performance and fulfillment of said obligations and responsibilities. Notwithstanding the foregoing, when the University makes a payment under Section 4.10 (3) of the Agreement, it will return to the Contractor, as part of such payment, its substituted securities, and thereafter all retention of the University shall be in funds and not in substituted securities.

Section 4.18 Final Payment

Upon acceptance of all the work, except for the Contractor's guarantee obligations under Section 2.25 of the agreement and the Contractor's guarantee obligations under any provision of the Specifications, the Contractor shall prepare and submit to the University and the Consultant, for their approval, a final application for payment, which the University, within thirty (30) days after its approval of same, shall pay. Such application and payment shall be in an amount equal to 100 percent of the Contract consideration excluding the Contractor's guarantee obligations, less:

- a. All previous payments by the University to the Contractor;
- b. All deductions authorized to be made by the University under the Contract; and
- c. An amount necessary, in the University's judgment, to satisfy any claims, liens or judgments against the Contractor which have not been suitably discharged.
- d. The Contractor shall not be entitled to any interest on the monies retained by the University pursuant to Subdivision c of Section 4.18 of the Agreement.

Section 4.19 Acceptance of Final Payment

- (1) The acceptance by the Contractor, or by any one claiming by or through it, of the final payment shall, except with respect to the amount retained by the University pursuant to the provisions of subdivisions b and c of Section 4.18 of the Agreement, constitute and operate as a release to the University from any and all claims of any liability for anything theretofore done or furnished for or relating to or arising out of the work covered by the Contract and for any prior act, neglect or default on the part of the University or any of its trustees, officers, agents or employees in connection therewith.
- (2) Should the Contractor refuse to accept the final payment as tendered by the University or should the Contractor refuse to execute the final application for payment without protest and without reserving any rights or claims

State University of New York
Construction Agreement

against the University, it shall constitute a waiver of any right to interest on the amount of the payment so tendered and/or on the amount set forth in said final application for payment.

Section 4.20 Guarantee Payment

- (1) Subject to the provisions of the second paragraph of this Section, at the expiration of one (1) year after the University has accepted all the work covered by the Contract, the Contractor shall prepare and submit to the University and the Consultant, for their approval, a guarantee application for payment, which the University, within thirty (30) days after its approval of same, shall pay. Such application and payment shall be in an amount equal to the monies retained by the University for the Contractor's guarantee obligations under the Agreement, less any monies deducted by the University under this Section. The Contractor shall not be entitled to any interest on the monies retained by the University pursuant to subdivision c of Section 4.18 of the Agreement.
- (2) In the event the Contractor does not, in accordance with the terms and provisions of the Contract, complete all corrective work or comply with and fulfill its contractual obligations, the University may use and apply all or any part of the monies retained by it to have such work or obligations performed or fulfilled by a person, firm or corporation other than the Contractor. The obligations of the Contractor, under the terms and provisions of the Contract, shall not, however, be limited to the monies retained by the University pursuant to the provisions of the Contract.
- (3) No payments may be made under this agreement for work completed more than 365 days after the completion date listed on page one of this agreement unless the date/duration listed on page one of this agreement, is extended in writing by the University.

Section 4.21 Acceptance of Guarantee Payment

The acceptance by the Contractor or by anyone claiming by or through it, of the guarantee payment shall constitute and operate as a release to the University from any and all claims in connection with monies retained by the University. Should the Contractor refuse to accept the guarantee payment as tendered by the University or should the Contractor refuse to execute the guarantee application for payment without protest and without reserving any rights or claims against the University, it shall constitute a waiver of any right to interest on the amount of the payment so tendered and/or on the amount set forth in said guarantee application for payment.

Section 4.22 Contractor Limited to Money Damages

Inasmuch as the Contractor can be compensated adequately by money damages for any breach of the Contract which may be committed by the University, the Contractor agrees that no default, act or omission of the University shall constitute a material breach of the Contract entitling it to cancel or rescind the same or to suspend or abandon performance thereof; and it hereby waives any and all rights and remedies to which it might otherwise be or become entitled to because of any wrongful act or omission of the University or its representatives, saving only its right to money damages.

Section 4.23 No Estoppel or Waiver

- (1) The University shall not be precluded or estopped by any inspection, acceptance, application for payment or payment, final or otherwise, issued or made under the Contract or otherwise issued or made by it, the Consultant, or any trustee, officer, agent or employee of the University, from showing at any time the true amount and character of the work performed, or from showing that any such inspection, acceptance, application for payment or payment is incorrect or was improperly issued or made; and the University shall not be precluded or estopped, notwithstanding any such inspection, acceptance, application for payment or payment, from recovering from the Contractor any damages which it may sustain by reason of any failure on its part to comply strictly with the Contract and any monies which may be paid to it or for its account in excess of those to which it is lawfully entitled.
- (2) Neither the acceptance of all or any part of the work covered by the Contract; nor any payment therefor; nor any order or application for payment issued under the Contract or otherwise issued by the University, the Consultant, or any trustee, officer, agent or employee of the University; nor any permission or direction to continue with the performance of the Contract before or after its specified completion date; nor any performance by the University of any of the Contractor's duties or obligations; nor any aid lent to the Contractor by the University in its performance of such duties or obligations; nor any delay or omission by the University to exercise any right or remedy accruing to it under the terms of the Contract or existing at law or in equity or by statute or otherwise;

State University of New York
Construction Agreement

nor any other thing done or omitted to be done by the University, its trustees, officers, agents or employees; shall be deemed to be a release to the Contractor or its sureties from any obligations, liabilities or undertakings in connection with the Contract or the Performance Bond or a waiver of any provision of the Contract or of any rights or remedies to which the University may be entitled because of any breach thereof, excepting only a written instrument expressly providing for such release or waiver. No cancellation, rescission or annulment hereof, in whole or as to any part of the Contract, because of any breach hereof, shall be deemed a waiver of any money damages to which the University may be entitled because of such breach. No waiver by the University of any breach of the Contract shall be deemed to be a waiver of any other or any subsequent breach.

Section 4.24 Limitation of Actions

- (1) No action or proceeding shall be maintained by the Contractor, or anyone claiming under or through the Contractor, against the University, or its trustees, officers, agents or employees, upon any claim arising out of or based upon the Contract or any breach thereof or by reason of any act or omission or requirement of the University, or its trustees, officers, agents or employees, unless:
- a. Such action or proceeding shall be instituted in the Court of Claims in the State of New York.
 - b. The Contractor or the person claiming under or through it shall have strictly complied with all requirements relating to the giving of notices and information with respect to such claims; and shall have provided the University with an electronic version of any claims, including all required information and copies of all contractually required notices that the Contractor provided to the University and the Consultant throughout the duration of the Contract ;
 - c. Such action or proceeding by the Contractor shall be commenced within eighteen months after the date of substantial completion set by the University or its Consultant and issued in writing to the Contractor. Any action or proceeding not commenced within this time frame shall be dismissed with prejudice.
 - d. If the Contract is terminated or the Contractor declared in default by the University, such action is commenced within six (6) months after the date of such termination or declaration of default by the University.
 - e. The Parties shall use good faith efforts to amicably resolve any dispute arising under this Agreement. If the Parties are unable to amicably resolve the dispute within thirty (30) days, then either Party may seek legal or equitable redress.
- (2) Notwithstanding anything in the laws of the State of New York to the contrary, the Contractor, or anyone claiming under or through the Contractor, shall not be entitled to any additional time to begin anew any other action if an action commenced within the times herein specified is dismissed or discontinued for any reason whatsoever.

Section 4.25 Electronic Payments

The Contractor shall provide complete and accurate payment applications in order to receive payment. Payment applications submitted must contain all information and supporting documentation required by the University. Payment for applications submitted by the Contractor shall only be rendered electronically unless payment by paper check is expressly authorized by the University's sole discretion, due to extenuating circumstances. Such electronic payment shall be made in accordance with ordinary State procedures and practices. The Contractor shall comply with the State Comptroller's procedures to authorize electronic payments. Authorization forms are available at the Office of the State Comptroller's website at www.osc.state.ny.us/epay/index.htm; by email at epunit@osc.state.ny.us; or by telephone at 518-474-4032. The Contractor acknowledges that it will not receive payment on any invoices submitted under this Agreement if it does not comply with the State Comptroller's electronic payment procedures, except where the University has expressly authorized payment by paper check as set forth above.

Article V
Protection of Rights and Property

Section 5.01 Accidents and Accident Prevention

The Contractor shall at all times take reasonable precautions for the safety of persons engaged in the performance of the work. The Contractor shall comply fully with all applicable provisions of the laws of the State of New York and OSHA

State University of New York
Construction Agreement

and with all valid rules and regulations thereunder. The Contractor's attention is specifically called to the applicable rules and regulations, codes and bulletins of the New York State Department of Labor.

Section 5.02 Adjoining Property

The Contractor shall be required to protect all the adjoining property and to repair or replace any such properties damaged or destroyed by it, its employees or subcontractors through, by reason of or as a result of activities under, for or related to the Contract.

Section 5.03 Emergencies

- (1) In case of an emergency which threatens loss or injury to persons or property, the Contractor will be allowed to act, without previous instructions from the Consultant or the University, in a diligent manner, to the extent required to avoid or limit such loss or injury, and it shall notify the Consultant and the University immediately thereafter of the action taken by it and of such emergency. Where the Contractor has not taken action but has notified the Consultant or the University of an emergency which threatens loss or injury to persons or property, it shall act in accordance with the instructions and/or authorization by the Consultant or the University.
- (2) In the event that the Contractor performs extra work in accordance with the preceding paragraph, it will be compensated therefor in accordance with the provisions of Section 4.02.

Section 5.04 Fire Safety

- (1) If the existing building is to be partially occupied during the course of the project, all existing exits except those shown for closure, fire walls, fire barriers and fire protection systems shall be continuously maintained in the occupied phases in compliance with the Fire Code of New York State and as required by NFPA 241 and as recommended in its Annex A, Explanatory Material, or other measures must be taken which in the opinion of the Consultant will provide equal safety. Those portions occupied by the campus must be available for their use 24 hours a day, seven days a week during the contract period unless otherwise scheduled in these documents. Comply with all applicable State and Federal codes and regulations. Prior to removal of existing fire walls, fire barriers and fire protection systems, if such removal is part of the work, install equivalent temporary fire walls, fire barriers and fire protection systems. The cost of all labor, fire watches, variances, materials, installations, maintenance and removal of such temporary fire protection systems or modifications to the existing systems are the responsibility of the Contractor. Install permanent fire walls, fire barriers and fire protection systems, if provided as part of the work, as soon as practical and as required by NFPA 241 and as recommended in its Annex A, Explanatory Material.
- (2) Solid fuel salamanders and heaters shall not be used by the Contractor or any of its subcontractors. All other salamanders used by the Contractor or any of its subcontractors shall require constant attendance of competent persons on each floor where in use.
- (3) All temporary fabric used by the Contractor or any of its subcontractors for curtains or awnings shall be either non-combustible or flame retarded so that it will not burn or propagate flame.

Section 5.05 Risks Assumed by Contractor

- (1) To the fullest extent permitted by law, the Contractor solely assumes the following distinct several risks whether they arise from acts or omissions (whether negligent or not and whether supervisory or otherwise) of the Contractor, of the University, of third persons or from any other cause, including unforeseen obstacles and difficulties which may be encountered in the prosecution of the work covered by the Contract, whether such risks are within or beyond the control of the Contractor and whether such risks involve a legal duty, primary or otherwise, imposed upon the State University Construction Fund, the Dormitory Authority of the State of New York, the State of New York or the State University of New York, excepting only risks which arise from defects in maps, plans, designs or Specifications prepared, acquired or used by the Consultant or the University, from the negligence of the University, its agents or employees or from affirmative acts of the, State University Construction Fund, the Dormitory Authority of the State of New York, the State of New York or the State University of New York or their trustees, officers, agents or employees committed with intent to cause the loss, damage and injuries herein below set forth:
 - a. The risk of loss or damage, direct or indirect, to the work covered by the Contract or to any plant, equipment, tools, materials or property furnished, used, installed or received by the University or by the Contractor or any subcontractor, material man or worker performing services or furnishing materials for the work covered

State University of New York
Construction Agreement

hereunder. The Contractor shall bear such risk of loss or damage until the work covered by the Contract has been finally accepted by the University or until completion of removal of such plant, equipment, tools, materials or property from the construction site and the vicinity thereof, whichever event occurs last. In the event of such loss or damage, the Contractor shall forthwith repair, replace and/or make good any such loss or damage without cost to the University.

- b. The risk of claims, just or unjust, by third persons against the Contractor, the State University Construction Fund, the Dormitory Authority of the State of New York, the State of New York, or the State University of New York on account of wrongful death, bodily injuries and property damage, direct or consequential, loss or damage of any kind whatsoever arising or alleged to arise out of or as a result of or in connection with the performance by the Contractor of the work covered by the Contract (whether actually caused by or resulting from the performance of the Contract) or out of or in connection with the Contractor's operations or presence at or in the vicinity of the construction site.
- (2) To the fullest extent permitted by law, the Contractor shall indemnify and save harmless the State University Construction Fund the Dormitory Authority of the State of New York, the State of New York and the State University of New York, their trustees, officers, agents or employees against all claims described above and for all costs and expenses incurred by them in the defense, settlement or satisfaction thereof, including attorneys' fees and court costs. If so directed, the Contractor shall at its own expense defend against such claims, in which event it shall not, without obtaining express advance permission from Counsel of the University, raise any defense involving in any way jurisdiction of the tribunal over the University, governmental nature of the University or the provisions of any statutes respecting suits against the University.
- (3) Neither the University's final acceptance of the work to be performed hereunder nor the making of any payment shall release the Contractor from its obligations under this Section. The enumeration elsewhere in the Contract of particular risks assumed by the Contractor or of particular claims for which it is responsible shall not be deemed to limit the effect of the provision of this Section or to imply that it assumes or is responsible for only risks or claims of the type enumerated.

Section 5.06 Compensation and Liability Insurance

(1) General Requirements

- a. Prior to the commencement of the work to be performed by the Contractor, the Contractor shall procure at its sole cost and expense, and maintain in force at all times during this Agreement until Final Payment and as further required by the Contract, policies of insurance as herein set forth below. All insurance shall be written by insurance carriers approved by the University, licensed to do business in the State of New York ("admitted" carriers), and rated at least "A-" by A.M. Best Company.
- b. Prior to the commencement of the work, the Contractor shall submit to the University, certificates of insurance, in a form acceptable to the University, showing evidence of compliance with all insurance requirements contained in this Agreement. Certificates of Insurance (with the exception of Workers' Compensation and Disability) must be provided on an ACORD 25 Certificate of Insurance, or an equivalent form. Certificates of Insurance shall disclose any deductible, self-insured retention, aggregate limit or any exclusion to the policy that materially changes the coverage required by the Contract; specify the additional insureds and named insureds as required herein; and be signed by an authorized representative of the insurance carrier or producer. Deductibles or self-insured retentions above \$25,000 are subject to approval by the University and additional security may be required. Certificates shall reference the Contract number. Only original documents will be accepted.
- c. All insurance shall provide that the required coverage apply on a primary and not on an excess or contributing basis as to any other insurance that may be available to the University for any claim arising from the Contractor's work under this Agreement, or as a result of Contractor's activities. Any other insurance maintained by the University shall be in excess of and shall not contribute with the Contractor's insurance, regardless of the "other insurance" clause contained in the University's own policy of insurance. A copy of the endorsement reflecting this requirement may be requested by the University.

State University of New York
Construction Agreement

- d. Not less than thirty days prior to the expiration date or renewal date, the Contractor shall supply the University with updated replacement certificates of insurance and endorsements. The Contractor shall advise the University of any letter or notification that cancels, materially changes, or non- renews the policy and Contractor shall require the insurance carrier(s) to copy the University on any letter or notification that cancels, materially changes, or non- renews the policy. If, at any time during the period of the Agreement, insurance as required is not in effect, or proof thereof is not provided to the University, the University shall have the options to (i) direct the Contractor to stop work with no additional cost or extension of time due on account thereof; or (ii) treat such failure as an event of default under Section 2.26 of the Agreement. At any time the coverage provisions and limits of the policies required herein do not meet the provisions and limits set forth in the Agreement the Contractor shall immediately cease Work on the Project. The Contractor shall not resume Work on the Project until authorized to do so by the University. Any delay or time lost as a result of the Contractor not having insurance required by the Agreement shall not give rise to a delay claim or any other claim against the University. If required by the University, Contractor shall deliver to the University within forty-five (45) days of such request, a copy of any or all policies of insurance not previously provided, certified by the insurance carrier as true and complete.
 - e. Should the Contractor engage a subcontractor, the Contractor shall impose the insurance requirements of this document on those entities, as applicable. Required insurance limits should be determined commensurate with the work of the subcontractor. Contractor shall keep the subcontractor certificates of insurance on file and produce them upon the demand of the University.
 - f. The aggregate insurance limits set forth herein shall apply separately to each contract for which a certificate of insurance and/or policy is issued.
 - g. Unless otherwise agreed to in writing by the University, policies must be endorsed to provide that there shall be no right of subrogation against the University. To the extent that any of the policies of insurance prohibit such a waiver of subrogation, Contractor shall secure the necessary permission to make this waiver.
 - h. Except as otherwise specifically provided herein or agreed in writing, policies must be written on an occurrence basis. The insurance policy(ies) shall name the State University Construction Fund, State University of New York, State of New York, its officers, agents, and employees as additional insureds thereunder. The additional insured requirement does not apply to Workers' Compensation or Disability coverage. Include ISO Endorsement CG 20 10 11 85 or its equivalent.
- (2) Specific Coverage and Limits
- The Contractor shall obtain and maintain in full force and effect, the following insurance with limits not less than those described below and as required by the terms of the Contract, or as required by law, whichever is greater:
- a. Commercial General Liability Insurance. A Commercial General Liability insurance policy with coverage that shall include, but not be limited to coverage for bodily injury, property damage, personal/advertising injury, premises liability, independent contractors, blanket contractual liability including tort liability of another assumed in Contract, liability arising from all work and operations under this Agreement, defense and indemnification obligations, including those assumed under Contract, cross liability coverage for additional insureds, products/completed operations for a term no less than three years commencing upon acceptance of the work, explosion, collapse, and underground hazards, contractor means and methods, and liability resulting from Section 240 or Section 241 of the NYS Labor Law. The limits under such policy shall not be less than \$2,000,000 for each occurrence; \$2,000,000 general aggregate; and products/completed operations with an aggregate limit of \$2,000,000.
 - b. Workers Compensation and Disability Benefits as required by New York State.
 - c. Comprehensive Business Automobile Liability Insurance. A policy with a combined single limit for bodily injury and property damage of no less than \$1,000,000 covering liability arising out of the use of any motor vehicle in connection with the work, including owned, leased, hired, and non-owned vehicles bearing, or, under the circumstances under which they are being used, required by the Motor Vehicle Laws of the State of New York to bear license plates. If the Contract involves the removal of hazardous waste from the project site or otherwise

State University of New York
Construction Agreement

transporting hazardous materials, pollution liability coverage for covered autos shall be provided by form CA 99 48 03 06 or CA 00 12 03 06 and the Motor Carrier Act Endorsement (MCS90) shall be attached.

- d. **Umbrella and Excess Liability.** When the limits of the Commercial General Liability, Auto, and/or Employers Liability policies procured are insufficient to meet the limits specified, the Contractor shall procure and maintain Commercial Umbrella and/or Excess Liability policies with limits in excess of the primary, provided, however, that the total amount of insurance coverage is at least equal to the requirements set forth above. Such policies shall follow the same form as the primary. Any insurance maintained by the University or additional insured shall be considered excess of and shall not contribute with any other insurance procured or maintained by the Contractor including primary, umbrella and excess liability regardless of the "other insurance" clause contained in either party's policy.
- e. **Owner's Protective Liability Insurance.** A policy issued to and covering the liability for damages imposed by law upon the State University Construction Fund, the Dormitory Authority of the State of New York, the State of New York and the State University of New York, their trustees, officers, agents or employees, with respect to all operations under the Contract by the Contractor and its subcontractors, and/or their interest in the Project and the property upon which work under the Contract is to be performed, including omissions and supervisory acts of the former. Said insurance policy limits shall be no less than \$1,000,000 each occurrence and \$2,000,000 general aggregate.
- f. **Asbestos Abatement Insurance.** A liability insurance policy issued to and covering the liability, of the Contractor and/or subcontractor engaged in the removal, handling or wrapping of asbestos, if any of such work is to be performed under the Contract, for bodily injury, illness, sickness or property damage caused by exposure to asbestos in an amount not less than \$1,000,000 per occurrence and \$2,000,000 aggregate. The Contractor and/or its aforesaid subcontractor shall either obtain an endorsement to the aforesaid required insurance policy adding the State University Construction Fund, the Dormitory Authority of the State of New York, the State of New York and the State University of New York, their trustees, officers, agents or employees, as additional parties insured thereunder or shall obtain a separate owner's protective liability insurance policy for such parties with coverage similar to that required by the first sentence of this subdivision. In addition, any Contractor or subcontractor engaged in the removal, handling, or wrapping of asbestos shall, to the fullest extent permitted by law, hold harmless and indemnify the State University Construction Fund, the Dormitory Authority of the State of New York the State of New York and the State University of New York, their trustees, officers, agents or employees, for any claims or liabilities in connection with illness or sickness arising from work performed, not performed, or which should have been performed. The Contractor shall have said hold-harmless and indemnification conditions stipulated in all Contracts with subcontractors.

Section 5.07 Builder's Risk

- (1) The Contractor shall procure and maintain, at its own cost and expense, until final acceptance of all work covered by this Agreement or until the Project has been turned over for use by the State University of New York, whichever event occurs earlier, a builder's risk insurance policy covering all risks, with fire, extended coverage, vandalism and malicious mischief coverage. In the event the loss occurs at an occupied facility, the policy shall permit occupancy without the consent of the insurance company. The policy shall cover the cost of removing debris, including demolition as may be legally necessary by operation of any law, ordinance, or regulation, and property of the State held in their care, custody and/or control.
- (2) The policy shall be in an amount equal to the Project's insurable value, i.e., the Contract consideration less the cost of the Contractor's Performance and Labor and Material Bonds; the cost of trees, shrubbery, lawn grass, plants and the maintenance of the same; the cost of demolition; the cost of excavation; the cost of foundations, piers or other supports which are below the undersurface of the lowest basement floor, or where there is no basement, which are below the surface of the ground, concrete and masonry work; the cost of underground flues, pipes or wiring; the cost of earthmoving, grading and the cost of paving, roads, walks, parking lots or athletic fields; and the cost of bridges, tunnels, dams, piers, wharves, docks, retaining walls and radio and/or television towers and antennas.
- (3) The policy may contain a provision for a \$500 deductible for each loss to a Project having an insurable value of less than \$1,500,000 and a \$1,000 deductible for each loss to a Project having an insurable value of \$1,500,000 or more.

State University of New York
Construction Agreement

- (4) The University, the Contractor and its subcontractors, as their interests may appear, shall be named as the parties insured under said policy.
- (5) The Contractor shall have the sole responsibility to promptly report any loss to the insurer and/or its representatives and to furnish the latter with all necessary details relating to the occurrence of the loss and the amount thereof. The University, the Contractor and all subcontractors of the Contractor waive all rights, each against the others, for damages caused by fire or other perils covered by insurance provided under the terms of this Section, except such rights as they may have to the proceeds of insurance received; provided, however, this waiver shall not apply to any manufacturer, supplier or similar agent under any guarantee or warranty.
- (6) The Contractor shall not violate or permit to be violated any condition of such policy and shall at all times satisfy the fire safety requirements of the University and the insurance company issuing the same.
- (7) The procurement and maintenance of said policy shall in no way be construed or be deemed to relieve the Contractor from any of the obligations and risks imposed upon it by this Agreement or to be a limitation on the nature or extent of such obligations and risks.
- (8) Not less than thirty days prior to the expiration date or renewal date, the Contractor shall supply the University with an updated replacement certificate of insurance and endorsements. The Contractor shall advise the University of any letter or notification that cancels, materially changes, or non- renews the policy and Contractor shall require the insurance carrier(s) to copy the University on any letter or notification that cancels, materially changes, or non- renews the policy. Before the Contractor shall be entitled to have any progress payment rendered on account of the work which is to be insured pursuant to this Section, it shall furnish to the University a certificate in duplicate of the insurance herein required. Such insurance must be procured from an insurance carrier approved by the University, licensed to do business in the State of New York ("admitted" carrier), and rated at least "A-" by A.M. Best Company.

Section 5.08 Effect of Procurement of Insurance

Neither the procurement nor the maintenance of such insurance shall in any way affect or limit the obligations, responsibilities or liabilities of the Contractor hereunder.

Section 5.09 No Third Party Rights

Nothing in this Section or in this Agreement shall create or give to third parties, except the Dormitory Authority of the State of New York, the State of New York and the State University Construction Fund any claim or right of action against the Contractor, the Consultant, the State University of New York, the State University Construction Fund, the Dormitory Authority of the State of New York, or the State of New York and beyond such as may legally exist irrespective of this Section or this Agreement.

Article VI

Minority and Women's Business Enterprises (MWBES) / Equal Employment Opportunity (EEO) Provisions

The University is required to implement the provisions of New York State Executive Law Article 15-A and 5 NYCRR Parts 142-145 ("MWBE Regulations") for all State contracts as defined therein, with a value (1) in excess of \$25,000 for labor, services, equipment, materials, or any combination of the foregoing or (2) in excess of \$100,000 for real property renovations and construction.

The requirements for the MWBE and EEO programs are set forth in "Exhibit A-1" which is attached hereto and made a part hereof, and shall be deemed to be inserted herein and the Contract shall be read and enforced as though it were included herein and, in the event any such provision is not inserted or is not correctly inserted, then, upon the application of either party, this Agreement shall forthwith be physically amended to make such insertion or correction.

Article VII

Provisions Required by Law

Section 7.01 Provisions Deemed Inserted

State University of New York
Construction Agreement

Each and every provision required by law to be inserted in the Contract, including, but not limited to, the applicable provisions set forth in Exhibit "A" which is attached hereto and made a part hereof, shall be deemed to be inserted herein and the Contract shall be read and enforced as though it were included herein and, in the event any such provision is not inserted or is not correctly inserted, then, upon the application of either party, this Agreement shall forthwith be physically amended to make such insertion or correction.

Section 7.02 Wage Rates

The Contractor shall post the appropriate prevailing wage schedules in a conspicuous place at the construction site. The Department of Labor shall provide the Contractor with posters relating to prevailing wage rates and same shall be displayed by the Contractor in a conspicuous place at the construction site. The Contractor shall also distribute wallet cards, to be provided by the Department of Labor, to all workers engaged at the construction site containing information relating to wage rates and telephone numbers to call if a worker believes his or her rights are being violated. The Contractor shall provide each worker with a written notice, informing them of the applicable prevailing wage requirements, and the Contractor must obtain a signed statement or declaration from such worker attesting to the fact that he or she has been given this information. Further, the Contractor is required to keep certified copies of its payrolls at the construction site.

Section 7.03 Governing Law

This Agreement shall be governed, construed and enforced in accordance with the laws of New York State, excluding New York State's choice of law principles, in a court of competent jurisdiction, and all claims relating to or arising out of this Agreement or the breach thereof, whether sounding in contract, tort or otherwise, shall likewise be governed by the laws of New York State, excluding the New York choice of law principles, in a court of competent jurisdiction. Consultant agrees to submit itself to such courts' jurisdiction.

Article VIII
Vendor Responsibility

- (1) The Contractor shall at all times during the Agreement term remain responsible. The Contractor shall provide the University with written notice as required by this Article of any issues impacting its responsibility, which shall minimally include updated responses to the it's filed vendor responsibility questionnaire. The Contractor agrees, if requested by the University, to present evidence of its continuing legal authority to do business in New York State, integrity, experience, ability, prior performance and organizational and financial capacity.
- (2) The University, at its sole discretion, reserves the right to suspend any or all activities under this Agreement, at any time, when the University discovers information that calls into question the responsibility of the Contractor. In the event of such suspension, the Contractor will be given written notice outlining the particulars of such suspension. Upon issuance of such notice, the Contractor must comply with the terms of the suspension order. Agreement activity may resume at such time as the University issues a written notice authorizing a resumption of performance under the Agreement.
- (3) Upon written notice to the Contractor, and a reasonable opportunity to be heard with appropriate University officials or staff, the Contractor may be terminated by the University at the Contractor's expense where the Contractor is determined by the University to be non-responsible. In such event, the University may complete the contractual requirements in any manner that the University may deem advisable and pursue available legal or equitable remedies for breach.

In no case shall termination of the Contract by the University be deemed a breach by the University thereof, nor shall the University be liable for any damages or lost profits or otherwise, which may be sustained by Contractor as a result of such termination.

Article IX
Use of Service-Disabled Veteran-Owned Business Enterprises in Contract Performance

Article 17-B of New York State Executive Law acknowledges that Service-Disabled Veteran-Owned Businesses (SDVOBs) strongly contribute to the economies of the State and the nation. As defenders of our nation and in recognition

State University of New York
Construction Agreement

of their economic activity in doing business in New York State, the Contractor for the Project and Work defined in this Agreement, agrees to, at no additional cost to the University, fully comply and cooperate with the University's implementation of New York State Executive Law Article 17-B and provide opportunities for SDVOBs in the fulfillment of the requirements of this Agreement. SDVOBs can be readily identified on the directory of certified businesses at: http://www.ogs.ny.gov/Core/docs/CertifiedNYS_SDVOB.pdf.

State University of New York
Construction Agreement

In accordance with the Chapter 17 of the Laws of 2023 certain University contracts are subject to review by the Office of the State Comptroller. As such a contract, the State shall have no liability under this Agreement and this Agreement is not valid, effective, or binding until it has been approved by the Office of the State Comptroller and filed in their office.

This Agreement may be amended only upon the mutual written consent of the Parties, and with the approval of the New York Attorney General and the Office of the State Comptroller if such approval is required.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the day and year first above written.

Agency Certification:

In addition to the acceptance of this contract, I also certify that original copies of this signature page will be attached to all other exact copies of this contract.

Contract Number: ***Insert Contract Number***

Insert Contractor Name

STATE UNIVERSITY OF NEW YORK

Sign: _____ Date: _____

Sign: _____ Date: _____

Print: _____

Print: _____

Title: _____

Title: _____

APPROVED BY ATTORNEY GENERAL:

**APPROVED BY OFFICE OF THE STATE
COMPTROLLER:**

_____ Date: _____

_____ Date: _____

By:

By:

ACKNOWLEDGMENTS

(ACKNOWLEDGMENT BY AN INDIVIDUAL)

Public

Notary

Public

Notary

Notary Public

State University of New York
Construction Agreement

Schedule I, II, III

SCHEDULE I

Unit Prices

Refer to Section 4.04 of the Agreement for additional information.

<u>Work or Material</u> <u>Description</u>	<u>Amount in Words</u>	<u>Amount in Figures</u>
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None

SCHEDULE II Allowance(s)

Refer to Section 4.05 of the Agreement for additional information. The amount(s) indicated below shall be included in the Total Bid amount and their total indicated on the Proposal in the space provided.

<u>Work or Material</u> <u>Description</u>	<u>Amount in Words</u>	<u>Amount in Figures</u>
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None

SCHEDULE III Field Order Allowance

Refer to Section 4.05A of the Agreement for additional information. The amount indicated below shall be included in the Total Bid amount and indicated on the Proposal in the space provided.

<u>Seventy-five thousand dollars</u> (in words)	<u>\$75,000</u> (in figures)
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State University of New York
Construction Agreement

Exhibit A

State University of New York
Construction Agreement

Exhibit A-1

State University of New York

The parties to the attached contract, license, lease, amendment or other agreement of any kind (hereinafter, "contract") agree to be bound by the following clauses which are hereby made a part of the contract (the word "Contractor" herein refers to any party other than the State or State University of New York, whether a Contractor, licensor, licensee, lessor, lessee or any other party; the State University of New York shall hereinafter be referred to as "SUNY"):

1. **EXECUTORY CLAUSE.** In accordance with Section 41 of the State Finance Law, the State shall have no liability under this contract to the Contractor or to anyone else beyond funds appropriated and available for this contract.

2. **PROHIBITION AGAINST ASSIGNMENT.** In accordance with Section 138 of the State Finance Law, this contract may not be assigned by the Contractor or its right, title or interest therein assigned, transferred, conveyed, sublet or otherwise disposed of without the State's previous written consent, and attempts to do so are null and void. Notwithstanding the foregoing, such prior written consent of an assignment of a contract let pursuant to Article XI of the State Finance Law may be waived at the discretion of SUNY and with the concurrence of the State Comptroller where the original contract was subject to the State Comptroller's approval, where the assignment is due to a reorganization, merger or consolidation of the Contractor's business entity or enterprise. SUNY retains its right to approve an assignment and to require that any Contractor demonstrate its responsibility to do business with SUNY. The Contractor may, however, assign its right to receive payments without SUNY's prior written consent unless this contract concerns Certificates of Participation pursuant to Article 5-A of the State Finance Law.

3. **COMPTROLLER'S APPROVAL.** (a) In accordance with Section 112 of the State Finance Law, the State Comptroller's approval is required for the following contracts: (i) goods, services, construction, and construction-related services for State University hospital or healthcare facilities which exceed \$150,000; (ii) purchases utilizing an Office of General Services (OGS) centralized contract which exceed \$200,000 (iii) goods, services, construction, and construction-related services not described in (i) or (ii) and which exceed \$75,000;

(b) If this contract exceeds the threshold amounts listed above in Paragraph 3(a), or, if this is an amendment for any amount to a contract which, as so amended, exceeds said threshold amounts, or if, by this contract, the State agrees to give something other than money when the value or reasonably estimated value of such consideration exceeds \$25,000, it shall not be valid, effective or binding upon the State, and the State shall bear no liability, until it has been approved by the State Comptroller and filed in his or her office.

4. **WORKERS' COMPENSATION BENEFITS.** In accordance with Section 142 of the State Finance Law, this contract shall be void and of no force and effect unless the Contractor shall provide and maintain coverage during the life of this contract for the benefit of such employees as are required to be covered by the provisions of the Workers' Compensation Law.

5. **NON-DISCRIMINATION REQUIREMENTS.** To the extent required by Article 15 of the Executive Law (also known as the Human Rights Law) and all other State and Federal statutory and constitutional non-discrimination provisions, the Contractor will not discriminate against any employee or applicant for employment, nor subject any individual to harassment, because of age, race, creed, color, national origin, citizenship or immigration status, sexual orientation, gender identity or expression, military status, sex, disability, predisposing genetic characteristics, familial status, marital status, or domestic violence victim status or because the individual has opposed any practices forbidden under the Human Rights Law or has filed a complaint, testified, or assisted in any proceeding under the Human Rights Law. Furthermore, in accordance with Section 220-e of the Labor Law, if this is a contract for the construction, alteration or repair of any public building or public work or for the manufacture, sale or distribution of materials, equipment or supplies, and to the extent that this contract shall be performed within the State of New York, Contractor agrees that neither it nor its subcontractors shall, by reason of race, creed, color, disability, sex, or national origin: (a) discriminate in hiring against any New York State citizen who is qualified and available to perform the work; or (b) discriminate against or intimidate any employee hired for the performance of work under this contract. If this is a building service contract as defined in Section 230 of the Labor Law, then, in accordance with Section 239 thereof, Contractor agrees that neither it nor its subcontractors shall by reason of race, creed, color, national origin, age, sex or disability: (a) discriminate in hiring against any New York State citizen who is qualified and available to perform the work; or (b) discriminate against or intimidate any employee hired for the performance of work under this contract. Contractor is subject to fines of \$50.00 per person per day for any violation of Section 220-e or Section 239 as well as possible termination of this contract and forfeiture of all moneys due hereunder for a second or subsequent violation

6. **WAGE AND HOURS PROVISIONS.** If this is a public work contract covered by Article 8 of the Labor Law or a building service contract covered by Article 9 thereof, neither Contractor's employees nor the employees of its subcontractors may be required or permitted to work more than the number of hours or days stated in said statutes, except as otherwise provided in the Labor Law and as set forth in prevailing wage and supplement schedules issued by the State Labor Department. Furthermore, Contractor and its subcontractors must pay at least the prevailing wage rate and pay or provide the prevailing supplements, including the premium rates for overtime pay, as determined by the State Labor Department in accordance with the Labor Law. Additionally, effective April 28, 2008, if this is a public work contract covered by Article 8 of the Labor Law, the Contractor understands and agrees that the filing of payrolls in a manner consistent with Subdivision 3-a of Section 220 of the Labor Law shall be a condition precedent to payment by the State of any State- approved sums due and owing for work done upon the project.

7. **NON-COLLUSIVE BIDDING CERTIFICATION.** In accordance with Section 139-d of the State Finance Law, if this contract was awarded based upon the submission of competitive bids, Contractor affirms, under penalty of perjury, that its bid was arrived at independently and without collusion aimed at restricting competition. Contractor further affirms that, at the time Contractor submitted its bid, an authorized and responsible person executed and delivered to SUNY a non-collusive bidding certification on Contractor's behalf.

8. **INTERNATIONAL BOYCOTT PROHIBITION.** In accordance with Section 220-f of the Labor Law and Section 139-h of the State Finance Law, if this contract exceeds \$5,000, the Contractor agrees, as a material condition of the contract, that neither the Contractor nor any substantially owned or affiliated person, firm, partnership or corporation has participated, is participating, or shall participate in an international boycott in violation of the federal Export Administration Act of 1979 (50 USC App. Sections 2401 *et seq.*) or regulations thereunder. If such Contractor, or any of the aforesaid affiliates of Contractor, is convicted or is otherwise found to have violated said laws or regulations upon the final determination of the United States Commerce Department or any other appropriate agency of the United States subsequent to the contract's execution, such contract, amendment or modification thereto shall be rendered forfeit and void. The Contractor shall so notify the State Comptroller within five (5) business days of such conviction, determination or disposition of appeal (2 NYCRR § 105.4).

9. **SET-OFF RIGHTS.** The State shall have all of its common law, equitable and statutory rights of set-off. These rights shall include, but not be limited to, the State's option to withhold for the purposes of set-off any moneys due to the Contractor under this contract up to any amounts due and owing to the State with regard to this contract, any other contract with any State department or agency, including any contract for a term commencing prior to the term of this contract, plus any amounts due and owing to the State for any other reason including, without limitation, tax delinquencies, fee delinquencies or monetary penalties relative thereto. The State shall exercise its set-off rights in accordance with normal State practices including, in cases of set-off pursuant to an audit, the finalization of such audit by SUNY, its representatives, or the State Comptroller.

10. **RECORDS.** The Contractor shall establish and maintain complete and accurate books, records, documents, accounts and other evidence directly pertinent to performance under this contract (hereinafter, collectively, "the Records"). The Records must be kept for the balance of the calendar year in which they were made and for six (6) additional years thereafter. The State Comptroller, the Attorney General and any other person or entity authorized to conduct an examination, as well as SUNY and any other agencies involved in this contract, shall have access to the Records during normal business hours at an office of the Contractor within the State of New York or, if no such office is available, at a mutually agreeable and reasonable venue within the State, for the term specified above for the purposes of inspection, auditing and copying. SUNY shall take reasonable steps to protect from public disclosure any of the Records which are exempt from disclosure under Section 87 of the Public Officers Law (the "Statute") provided that: (i) the Contractor shall timely inform an appropriate SUNY official, in writing, that said Records should not be disclosed; and (ii) said Records shall be sufficiently identified; and (iii) designation of said Records as exempt under the Statute is reasonable. Nothing contained herein shall diminish, or in any way adversely affect, SUNY's or the State's right to discovery in any pending or future litigation.

11. **IDENTIFYING INFORMATION AND PRIVACY NOTIFICATION.**

(a) Identification Number(s). Every invoice or New York State Claim for Payment submitted to SUNY by a payee, for payment for the sale of goods or services or for transactions (e.g., leases, easements, licenses, etc.) related to real or personal property must include the payee's identification number. The number is any or all of the following: (i) the payee's Federal employer identification number, (ii) the payee's Federal social security number, and/or (iii) the payee's Vendor Identification Number assigned by the Statewide Financial System. Failure to include such number or numbers may delay payment. Where the payee does not have such number or numbers, the payee, on its invoice or Claim for Payment, must give the reason or reasons why the payee does not have such number or numbers.

(b) Privacy Notification. (1) The authority to request the above personal information from a seller of goods or services or a lessor of real or personal property, and the authority to maintain such information, is found in Section 5 of the State Tax Law. Disclosure of this information by the seller or lessor to SUNY or the State is mandatory. The principal purpose for which the information is collected is to enable the State to identify individuals, businesses and others who have been delinquent in filing tax returns or may have understated their tax liabilities and to generally identify persons affected by the taxes administered by the Commissioner of Taxation and Finance. The information will be used for tax administration purposes and for any other purpose authorized by law. (2) The personal information is requested by the purchasing unit of SUNY contracting to purchase the goods or services or lease the real or personal property covered by this contract or lease. The information is maintained in the Statewide Financial System by the Vendor Management Unit within the Bureau of State Expenditures, Office of the State Comptroller, 110 State Street, Albany, New York 12236.

12. **EQUAL EMPLOYMENT OPPORTUNITIES FOR MINORITIES AND WOMEN.**

In accordance with Section 312 of the Executive Law and 5 NYCRR Part 143, if this

contract is: (i) a written agreement or purchase order instrument, providing for a total expenditure in excess of \$25,000.00, whereby a contracting agency is committed to expend or does expend funds in return for labor, services, supplies, equipment, materials or any combination of the foregoing, to be performed for, or rendered or furnished to the contracting agency; or (ii) a written agreement in excess of \$100,000.00 whereby a contracting agency is committed to expend or does expend funds for the acquisition, construction, demolition, replacement, major repair or renovation of real property and improvements thereon; or (iii) a written agreement in excess of \$100,000.00 whereby the owner of a State assisted housing project is committed to expend or does expend funds for the acquisition, construction, demolition, replacement, major repair or renovation of real property and improvements thereon for such project, then the following shall apply and by signing this agreement the Contractor certifies and affirms that it is Contractor's equal employment opportunity policy that:

(a) The Contractor will not discriminate against employees or applicants for employment because of race, creed, color, national origin, sex, age, disability or marital status, shall make and document its conscientious and active efforts to employ and utilize minority group members and women in its workforce on State contracts and will undertake or continue existing programs of affirmative action to ensure that minority group members and women are afforded equal employment opportunities without discrimination. Affirmative action shall mean recruitment, employment, job assignment, promotion, upgrading, demotion, transfer, layoff, or termination and rates of pay or other forms of compensation;

(b) at SUNY's request, Contractor shall request each employment agency, labor union, or authorized representative of workers with which it has a collective bargaining or other agreement or understanding, to furnish a written statement that such employment agency, labor union or representative will not discriminate on the basis of race, creed, color, national origin, sex, age, disability or marital status and that such union or representative will affirmatively cooperate in the implementation of the Contractor's obligations herein; and

(c) the Contractor shall state, in all solicitations or advertisements for employees, that, in the performance of the State contract, all qualified applicants will be afforded equal employment opportunities without discrimination because of race, creed, color, national origin, sex, age, disability or marital status.

Contractor will include the provisions of "a," "b," and "c" above, in every subcontract over \$25,000.00 for the construction, demolition, replacement, major repair, renovation, planning or design of real property and improvements thereon (the "Work") except where the Work is for the beneficial use of the Contractor. Section 312 does not apply to: (i) work, goods or services unrelated to this contract; or (ii) employment outside New York State. The State shall consider compliance by a contractor or sub-contractor with the requirements of any federal law concerning equal employment opportunity which effectuates the purpose of this clause. SUNY shall determine whether the imposition of the requirements of the provisions hereof duplicate or conflict with any such federal law and if such duplication or conflict exists, SUNY shall waive the applicability of Section 312 to the extent of such duplication or conflict. Contractor will comply with all duly promulgated and lawful rules and regulations of the Department of Economic Development's Division of Minority and Women's Business Development pertaining hereto.

13. CONFLICTING TERMS. In the event of a conflict between the terms of the contract (including any and all attachments thereto and amendments thereof) and the terms of this Exhibit A, the terms of this Exhibit A shall control.

14. GOVERNING LAW. This contract shall be governed by the laws of the State of New York except where the Federal supremacy clause requires otherwise.

15. LATE PAYMENT. Timeliness of payment and any interest to be paid to Contractor for late payment shall be governed by Article 11-A of the State Finance Law to the extent required by law.

16. NO ARBITRATION. Disputes involving this contract, including the breach or alleged breach thereof, may not be submitted to binding arbitration (except where statutorily authorized) but must, instead, be heard in a court of competent jurisdiction of the State of New York.

17. SERVICE OF PROCESS. In addition to the methods of service allowed by the State Civil Practice Law & Rules ("CPLR"), Contractor hereby consents to service of process upon it by registered or certified mail, return receipt requested. Service hereunder shall be complete upon Contractor's actual receipt of process or upon the State's receipt of the return thereof by the United States Postal Service as refused or undeliverable. Contractor must promptly notify the State, in writing, of each and every change of address to which service of process can be made. Service by the State to the last known address shall be sufficient. Contractor will have thirty (30) calendar days after service hereunder is complete in which to respond.

18. PROHIBITION ON PURCHASE OF TROPICAL HARDWOODS. The Contractor certifies and warrants that all wood products to be used under this contract award will be in accordance with, but not limited to, the specifications and provisions of State Finance Law §165 (Use of Tropical Hardwoods), which prohibits purchase and use of tropical hardwoods, unless specifically exempted, by the State or any governmental agency or political subdivision or public benefit corporation. Qualification for an exemption under this law will be the responsibility of the contractor to establish to meet with the approval of the State.

In addition, when any portion of this contract involving the use of woods, whether supply or installation, is to be performed by any subcontractor, the prime Contractor will indicate and certify in the submitted bid proposal that the subcontractor has been informed and is in compliance with specifications and provisions regarding use of tropical hardwoods as detailed in Section 165 of the State Finance Law. Any such use must meet with the approval of the State, otherwise, the bid may not be considered responsive. Under bidder certifications, proof of qualification for exemption will be the responsibility of the Contractor to meet with the approval of the State.

19. MACBRIDE FAIR EMPLOYMENT PRINCIPLES. In accordance with the MacBride Fair Employment Principles (Chapter 807 of the Laws of 1992), the Contractor hereby stipulates that the Contractor either (a) has no business operations in Northern Ireland, or (b) shall take lawful steps in good faith to conduct any business operations in Northern Ireland in accordance with the MacBride Fair Employment Principles (as described in Section 165 of the New York State Finance Law), and shall permit independent monitoring of compliance with such principles.

20. OMNIBUS PROCUREMENT ACT OF 1992.

It is the policy of New York State to maximize opportunities for the participation of New York State business enterprises, including minority and women-owned business enterprises as bidders, subcontractors and suppliers on its procurement contracts.

Information on the availability of New York State subcontractors and suppliers is available from:

NYS Department of Economic Development
Division for Small Business and Technology Development
625 Broadway
Albany, NY 12245
Telephone: 518-292-5100

A directory of certified minority and women-owned business enterprises is available from:

NYS Department of Economic Development
Division of Minority and Women's Business Development
633 Third Avenue 33rd Floor
New York, NY 10017
646-846-7364
email: mwbebbusinessdev@esd.ny.gov
<https://ny.newnycontracts.com/FrontEnd/searchcertifieddirectory.asp>

The Omnibus Procurement Act of 1992 (Chapter 844 of the Laws of 1992, codified in State Finance Law § 139-i and Public Authorities Law § 2879(3)(n)-(p)) requires that by signing this bid proposal or contract, as applicable, Contractors certify that whenever the total bid amount is greater than \$1 million:

(a) The Contractor has made reasonable efforts to encourage the participation of New York State Business Enterprises as suppliers and subcontractors, including certified minority and women-owned business enterprises, on this project, and has retained the documentation of these efforts to be provided upon request to SUNY;

(b) The Contractor has complied with the Federal Equal Employment Opportunity Act of 1972 (P.L. 92-261), as amended;

(c) The Contractor agrees to make reasonable efforts to provide notification to New York State residents of employment opportunities on this project through listing any such positions with the Job Service Division of the New York State Department of Labor, or providing such notification in such manner as is consistent with existing collective bargaining contracts or agreements. The Contractor agrees to document these efforts and to provide said documentation to the State upon request; and

(d) The Contractor acknowledges notice that the State may seek to obtain offset credits from foreign countries as a result of this contract and agrees to cooperate with the State in these efforts.

21. RECIPROCITY AND SANCTIONS PROVISIONS. Bidders are hereby notified that if their principal place of business is located in a country, nation, province, state or political subdivision that penalizes New York State vendors, and if the goods or services they offer will be substantially produced or performed outside New York State, the Omnibus Procurement Act of 1994 and 2000 amendments (Chapter 684 and Chapter 383, respectively, codified in State Finance Law § 165(6) and Public Authorities Law § 2879(5))

require that they be denied contracts which they would otherwise obtain.
NOTE: As of May 2023, the list of discriminatory jurisdictions subject to this provision includes the states of South Carolina, Alaska, West Virginia, Wyoming, Louisiana and Hawaii.

22. COMPLIANCE WITH BREACH NOTIFICATION AND DATA SECURITY LAWS. Contractor shall comply with the provisions of the New York State Information Security Breach and Notification Act (General Business Law § 899-aa, § 899-bb, and State Technology Law § 208).

23. COMPLIANCE WITH CONSULTANT DISCLOSURE LAW. If this is a contract for consulting services, defined for purposes of this requirement to include analysis, evaluation, research, training, data processing, computer programming, engineering, environmental health and mental health services, accounting, auditing, paralegal, legal or similar services, then in accordance with Section 163(4)(g) of the State Finance Law (as amended by Chapter 10 of the Laws of 2006), the Contractor shall timely, accurately and properly comply with the requirement to submit an annual employment report for the contract to SUNY, the Department of Civil Service and the State Comptroller.

24. PURCHASES OF APPAREL AND SPORTS EQUIPMENT. In accordance with State Finance Law Section 165(7), SUNY may determine that a bidder on a contract for the purchase of apparel or sports equipment is not a responsible bidder as defined in State Finance Law Section 163 based on (a) the labor standards applicable to the manufacture of the apparel or sports equipment, including employee compensation, working conditions, employee rights to form unions and the use of child labor; or (b) bidder's failure to provide information sufficient for SUNY to determine the labor conditions applicable to the manufacture of the apparel or sports equipment.

25. PROCUREMENT LOBBYING. To the extent this contract is a "procurement contract" as defined by State Finance Law §§ 139-j and 139-k, by signing this contract the Contractor certifies and affirms that all disclosures made in accordance with State Finance Law §§ 139-j and 139-k are complete, true and accurate. In the event such certification is found to be intentionally false or intentionally incomplete, the State may terminate the contract by providing written notification to the Contractor in accordance with the terms of the contract.

26. CERTIFICATION OF REGISTRATION TO COLLECT SALES AND COMPENSATING USE TAX BY CERTAIN STATE CONTRACTORS, AFFILIATES AND SUBCONTRACTORS. To the extent this contract is a contract as defined by Tax Law § 5-a, if the Contractor fails to make the certification required by Tax Law § 5-a or if

during the term of the contract, the Department of Taxation and Finance or SUNY discovers that the certification, made under penalty of perjury, is false, then such failure to file or false certification shall be a material breach of this contract and this contract may be terminated, by providing written notification to the Contractor in accordance with the terms of the contract, if SUNY determines that such action is in the best interests of the State.

27. IRAN DIVESTMENT ACT. By entering into this contract, Contractor certifies in accordance with State Finance Law §165-a that it is not on the "Entities Determined to be Non-Responsive Bidders/Offerers pursuant to the New York State Iran Divestment Act of 2012" ("Prohibited Entities List") posted at: <https://ogs.ny.gov/iran-divestment-act-2012>.

Contractor further certifies that it will not utilize on this contract any subcontractor that is identified on the Prohibited Entities List. Contractor agrees that should it seek to renew or extend this contract, it must provide the same certification at the time the contract is renewed or extended. Contractor also agrees that any proposed Assignee of this contract will be required to certify that it is not on the Prohibited Entities List before the contract assignment will be approved by the State.

During the term of the contract, should SUNY receive information that a person (as defined in State Finance Law §165-a) is in violation of the above-referenced certifications, SUNY will review such information and offer the person an opportunity to respond. If the person fails to demonstrate that it has ceased its engagement in the investment activity which is in violation of the Act within 90 days after the determination of such violation, then SUNY shall take such action as may be appropriate and provided for by law, rule, or contract, including, but not limited to, imposing sanctions, seeking compliance, recovering damages, or declaring the Contractor in default.

SUNY reserves the right to reject any bid, request for assignment, renewal or extension for an entity that appears on the Prohibited Entities List prior to the award, assignment, renewal or extension of a contract, and to pursue a responsibility review with respect to any entity that is awarded a contract and appears on the Prohibited Entities list after contract award.

28. ADMISSIBILITY OF REPRODUCTION OF CONTRACT. Notwithstanding the best evidence rule or any other legal principle or rule of evidence to the contrary, the Contractor acknowledges and agrees that it waives any and all objections to the admissibility into evidence at any court proceeding or to the use at any examination before trial of an electronic reproduction of this contract, in the form approved by the State Comptroller, if such approval was required, regardless of whether the original of said contract is in existence.

THE FOLLOWING PROVISIONS SHALL APPLY ONLY TO THOSE CONTRACTS TO WHICH A HOSPITAL OR OTHER HEALTH SERVICE FACILITY IS A PARTY

29. Notwithstanding any other provision in this contract, the hospital or other health service facility remains responsible for insuring that any service provided pursuant to this contract complies with all pertinent provisions of Federal, state and local statutes, rules and regulations. In the foregoing sentence, the word "service" shall be construed to refer to the health care service rendered by the hospital or other health service facility.

30. (a) In accordance with the 1980 Omnibus Reconciliation Act (Public Law 96-499), Contractor hereby agrees that until the expiration of four years after the furnishing of services under this agreement, Contractor shall make available upon written request to the Secretary of Health and Human Services, or upon request, to the Comptroller General of the United States or any of their duly authorized representatives, copies of this contract, books, documents and records of the Contractor that are necessary to certify the nature and extent of the costs hereunder.

(b) If Contractor carries out any of the duties of the contract hereunder, through a subcontract having a value or cost of \$10,000 or more over a twelve-month period, such subcontract shall contain a clause to the effect that, until the expiration of four years after the furnishing of such services pursuant to such subcontract, the subcontractor shall make available upon written request to the Secretary of Health and Human Services or upon request to the Comptroller General of the United States, or any of their duly authorized representatives, copies of the subcontract and books, documents and records of the subcontractor that are necessary to verify the nature and extent of the costs of such subcontract.

(c) The provisions of this section shall apply only to such contracts as are within the definition established by the Health Care Financing Administration, as may be amended or modified from time to time.

31. **Hospital Retained Authority:** Hospital Retained Authority: The Hospital retains direct, independent authority over the appointment and/or dismissal, in its sole discretion, of the facility's management level employees (including but not limited to, the Facility/Service Administrator/Director, the Medical Director, the Director of Nursing, the Chief Executive Officer, the Chief Financial Officer and the Chief Operating Officer) and all licensed or certified health care staff. The Hospital retains the right to adopt and approve, at its sole discretion, the facility's operating and capital budgets. The Hospital retains independent control over and physical possession of the facility's books and records. The Hospital retains independent control over and physical possession of the facility's operating policies and procedures. The Hospital retains full authority and responsibility for, and control over, the operations and management of the facility. The Hospital retains the right and authority to independently adopt, approve and enforce, in its sole discretion, policies affecting the facility's delivery of health care services. The Hospital retains the right to independently adopt, approve and enforce, at its sole discretion, the disposition of assets and authority to incur debts. The Hospital retains the right to approve, at its sole discretion, contracts for administrative services, management and/or clinical services. The Hospital retains the right to approve, at its sole discretion, any facility debt. The Hospital retains the right to approve, at its sole discretion, settlements of administrative proceeding or litigation to which the facility is a party. No powers specifically reserved to the Hospital may be delegated to, or shared by, the Contractor or any other person. In addition, if there is any disagreement between the parties to this Agreement regarding control between the Hospital and the Contractor, the terms of this Section shall control.

1. DEFINITIONS. The following terms shall be defined in accordance with Section 310 of the Executive Law:

STATE CONTRACT herein referred to as "State Contract", shall mean: (a) a written agreement or purchase order instrument, providing for a total expenditure in excess of twenty-five thousand dollars (\$25,000.00), whereby the State University of New York ("University") is committed to expend or does expend funds in return for labor, services including but not limited to legal, financial and other professional services, supplies, equipment, materials or a combination of the foregoing, to be performed for, or rendered or furnished to the University; (b) a written agreement in excess of one hundred thousand dollars (\$100,000.00) whereby the University is committed to expend or does expend funds for the acquisition, construction, demolition, replacement, major repair or renovation of real property and improvements thereon; (c) and (d) a written agreement in excess of one hundred thousand dollars (\$100,000.00) whereby the University as an owner of a state assisted housing project is committed to expend or does expend funds for the acquisition, construction, demolition, replacement, major repair or renovation of real property and improvements thereon for such project.

SUBCONTRACT herein referred to as "Subcontract", shall mean any agreement for a total expenditure in excess of \$25,000 providing for services, including non-staffing expenditures, supplies or materials of any kind between a State agency and a prime contractor, in which a portion of the prime contractor's obligation under the State contract is undertaken or assumed by a business enterprise not controlled by the prime contractor.

WOMEN-OWNED BUSINESS ENTERPRISE herein referred to as "WBE", shall mean a business enterprise, including a sole proprietorship, partnership or corporation that is: (a) at least fifty-one percent (51%) owned by one or more United States citizens or permanent resident aliens who are women; (b) an enterprise in which the ownership interest of such women is real, substantial and continuing; (c) an enterprise in which such women ownership has and exercises the authority to control independently the day-to-day business decisions of the enterprise; (d) an enterprise authorized to do business in this state and independently owned and operated; (e) an enterprise owned by an individual or individuals, whose ownership, control and operation are relied upon for certification, with a personal net worth that does not exceed fifteen million dollars (\$15,000,000), as adjusted annually on the first of January for inflation according to the consumer price index of the previous year; and (f) an enterprise that is a small business pursuant to subdivision twenty of this section.

A firm owned by a minority group member who is also a woman may be certified as a minority-owned business enterprise, a women-owned business enterprise, or both, and may be counted towards either a minority-owned business enterprise goal or a women-owned business enterprise goal, in regard to any Contract or any goal, set by an agency or authority, but such participation may not be counted towards both such goals. Such an enterprise's participation in a Contract may not be divided between the minority-owned business enterprise goal and the women-owned business enterprise goal.

MINORITY-OWNED BUSINESS ENTERPRISE herein referred to as

"MBE", shall mean a business enterprise, including a sole proprietorship, partnership or corporation that is: (a) at least fifty-one percent (51%) owned by one or more minority group members; (b) an enterprise in which such minority ownership is real, substantial and continuing; (c) an enterprise in which such minority ownership has and exercises the authority to control independently the day-to-day business decisions of the enterprise; (d) an enterprise authorized to do business in this state and independently owned and operated; (e) an enterprise owned by an individual or individuals, whose ownership, control and operation are relied upon for certification, with a personal net worth that does not exceed fifteen million dollars (\$15,000,000.00), as adjusted annually on the first of January for inflation according to the consumer price index of the previous year; and (f) an enterprise that is a small business pursuant to subdivision twenty of this section.

MINORITY GROUP MEMBER shall mean a United States citizen or permanent resident alien who is and can demonstrate membership in one of the following groups: (a) Black persons having origins in any of the Black African racial groups; (b) Hispanic persons of Mexican, Puerto Rican, Dominican, Cuban, Central or South American of either Indian or Hispanic origin, regardless of race; (c) Native American or Alaskan native persons having origins in any of the original peoples of North America. (d) Asian and Pacific Islander persons having origins in any of the Far East countries, South East Asia, the Indian Subcontinent or Pacific Islands.

CERTIFIED ENTERPRISE OR BUSINESS shall mean a business verified as a minority or women-owned business enterprise pursuant to section 314 of the Executive Law. A business enterprise which has been

approved by the New York Division of Minority & Women Business Development ("DMWBD") for minority or women-owned enterprise status subsequent to verification that the business enterprise is owned, operated, and controlled by minority group members or women, and that also meets the financial requirements set forth in the regulations.

2. TERMS. The parties to the attached State Contract agree to be bound by the following provisions which are made a part hereof (the word "Contractor" herein refers to any party other than the University:

1(a) Contractor and its Subcontractors shall undertake or continue existing programs of affirmative action to ensure that minority group members and women are afforded equal employment opportunities without discrimination. For these purposes, affirmative action shall apply in the areas of recruitment, employment, job assignment, promotion, upgrading, demotion, transfer, layoff, or termination and rates of pay or other forms of compensation.

(b) Prior to the award of a State Contract, the Contractor shall submit an equal employment opportunity (EEO) policy statement to the University within the time frame established by the University.

(c) As part of the Contractor's EEO policy statement, the Contractor, as a precondition to entering into a valid and binding State Contract, shall agree to the following in the performance of the State Contract: (i) The Contractor will not discriminate against any employee or applicant for employment, will undertake or continue existing programs of affirmative action to ensure that minority group members and women are afforded equal employment opportunities without discrimination, and shall make and document its conscientious and active efforts to employ and utilize minority group members and women in its work force on State Contracts; (ii) The Contractor shall state in all solicitations or

advertisements for employees that, in the performance of the State Contract, all qualified applicants will be afforded equal employment opportunities without discrimination; (iii) At the request of the University the Contractor shall request each employment agency, labor union, or authorized representative of workers with which it has a collective bargaining or other agreement or understanding, to furnish a written statement that such employment agency, labor union, or representative will not discriminate, and that such union or representative will affirmatively cooperate in the implementation of the Contractor's obligations herein.

(d) Form 108 - Staffing Plan To ensure compliance with this Section, the Contractor shall submit a staffing plan to document the composition of the proposed workforce to be utilized in the performance of the Contract by the specified categories listed, including ethnic background, gender, and Federal occupational categories. Contractors shall complete the Staffing plan form and submit it as part of their bid or proposal or within a reasonable time, but no later than the time of award of the contract.

(e) Form 112 - Workforce Employment Utilization Report ("Workforce Report")

(i) Once a contract has been awarded and during the term of Contract, Contractor is responsible for updating and providing notice to SUNY of any changes to the previously submitted Staffing Plan. This information is to be submitted on a quarterly basis during the term of the contract to report the actual workforce utilized in the performance of the contract by the specified categories listed including ethnic background, gender, and Federal occupational categories. The Workforce Report must be submitted to report this information.

(ii) Separate forms shall be completed by Contractor and any subcontractor performing work on the Contract.

(iii) In limited instances, Contractor may not be able to separate out the

workforce utilized in the performance of the Contract from Contractor's and/or subcontractor's total workforce. When a separation can be made, Contractor shall submit the Workforce Report and indicate that the information provided related to the actual workforce utilized on the Contract. When the workforce to be utilized on the contract cannot be separated out from Contractor's and/or subcontractor's total workforce, Contractor shall submit the Workforce Report and indicate that the information provided is Contractor's total workforce during the subject time frame, not limited to work specifically under the contract.

(f) Contractor shall comply with the provisions of the Human Rights Law, all other State and Federal statutory and constitutional non-discrimination provisions. Contractor and subcontractors shall not discriminate against any employee or applicant for employment because of race, creed (religion), color, sex, national origin, sexual orientation, military status, age, disability, predisposing genetic characteristic, marital status or domestic violence victim status, and shall also follow the requirements of the Human Rights Law with regard to non-discrimination on the basis of prior criminal conviction and prior arrest.

(g) The Contractor shall include the provisions of this section in every Subcontract in such a manner that the requirements of the provisions will be binding upon each Subcontractor as to work in connection with the State Contract, including the requirement that Subcontractors shall undertake or continue existing programs of affirmative action to ensure that minority group members and women are afforded equal employment opportunities without discrimination, and, when requested, provide to the Contractor information on the ethnic background, gender, and Federal occupational categories of the

employees to be utilized on the State Contract.

(h) To ensure compliance with the requirements of this paragraph, the University shall inquire of a Contractor whether the work force to be utilized in the performance of the State Contract can be separated out from the Contractor's and/or Subcontractors' total work force and where the work of the State Contract is to be performed. For Contractors who are unable to separate the portion of their work force which will be utilized for the performance of this State Contract, Contractor shall provide reports describing its entire work force by the specified ethnic background, gender, and Federal Occupational Categories, or other appropriate categories which the agency may specify.

(i) The University may require the Contractor and any Subcontractor to submit compliance reports, pursuant to the regulations relating to their operations and implementation of their affirmative action or equal employment opportunity program in effect as of the date the State Contract is executed.

(j) If a Contractor or Subcontractor does not have an existing affirmative action program, the University may provide to the Contractor or Subcontractor a model plan of an affirmative action program. Upon request, the Director of DMWBD shall provide a contracting agency with a model plan of an affirmative action program.

(k) Upon request, DMWBD shall provide the University with information on specific recruitment sources for minority group members and woman, and contracting agencies shall make such information available to Contractors

3. Contractor must provide the names, addresses and federal identification numbers of certified minority- and women-owned business enterprises which the Contractor intends to use to perform the State Contract and a description of the Contract scope of work which the Contractor intends to structure to

increase the participation by Certified minority- and/or women-owned business enterprises on the State Contract, and the estimated or, if known, actual dollar amounts to be paid to and performance dates of each component of a State Contract which the Contractor intends to be performed by a certified minority- or woman-owned business enterprise. In the event the Contractor responding to University solicitation is joint venture, teaming agreement, or other similar arrangement that includes a minority- and women owned business enterprise, the Contractor must submit for review and approval: i. the name, address, telephone number and federal identification of each partner or party to the agreement; ii. the federal identification number of the joint venture or entity established to respond to the solicitation, if applicable; iii. A copy of the joint venture, teaming or other similar arrangement which describes the percentage of interest owned by each party to the agreement and the value added by each party; iv. A copy of the mentor-protégé agreement between the parties, if applicable, and if not described in the joint venture, teaming agreement, or other similar arrangement.

4. PARTICIPATION BY MINORITY GROUP MEMBERS AND WOMEN. The University shall determine whether Contractor has made conscientious and active efforts to employ and utilize minority group members and women to perform this State Contract based upon an analysis of the following factors:

(a) Whether Contractor established and maintained a current list of recruitment sources for minority group members and women, and whether Contractor provided written notification to such recruitment sources that contractor had employment opportunities at the time such opportunities became available.

(b) Whether Contractor sent letters to recruiting sources, labor unions, or authorized representatives of workers with which contractor has

a collective bargaining or other agreement or understanding requesting assistance in locating minority group members and women for employment.

(c) Whether Contractor disseminated its EEO policy by including it in any advertising in the news media, and in particular, in minority and women news media.

(d) Whether Contractor has attempted to provide information concerning its EEO policy to Subcontractors with which it does business or had anticipated doing business.

(e) Whether internal procedures exist for, at a minimum, annual dissemination of the EEO policy to employees, specifically to employees having any responsibility for hiring, assignment, layoff, termination, or other employment decisions. Such dissemination may occur through distribution of employee policy manuals and handbooks, annual reports, staff meetings and public postings.

(f) Whether Contractor encourages and utilizes minority group members and women employees to assist in recruiting other employees.

(g) Whether Contractor has apprentice training programs approved by the N.Y.S. Department of Labor which provides for training and hiring of minority group members and women.

(h) Whether the terms of this section have been incorporated into each Subcontract which is entered into by the Contractor.

5. PARTICIPATION BY MINORITY AND WOMEN-OWNED BUSINESS ENTERPRISES. Based upon an analysis of the following factors, the University shall determine whether Contractor has made good faith efforts to provide for meaningful participation by minority-owned and women-owned business enterprises which have been certified by DMWBD:

(a) Whether Contractor has actively solicited bids for Subcontracts from qualified

M/WBEs, including those firms listed on the Directory of Certified Minority and Women-Owned Business Enterprises, and has documented its good faith efforts towards meeting minority and women owned business enterprise utilization plans by providing, copies of solicitations, copies of any advertisements for participation by certified minority- and women-owned business enterprises timely published in appropriate general circulation, trade and minority- or women-oriented publications, together with the listing(s) and date(s) of the publications of such advertisements; dates of attendance at any pre-bid, pre-award, or other meetings, if any, scheduled by the University, with certified minority- and women-owned business enterprises, and the reasons why any such firm was not selected to participate on the project.

(b) Whether Contractor has attempted to make project plans and specifications available to firms who are not members of associations with plan rooms and reduce fees for firms who are disadvantaged.

(c) Whether Contractor has utilized the services of organizations which provide technical assistance in connection with M/WBE participation.

(d) Whether Contractor has structured its Subcontracts so that opportunities exist to complete smaller portions of work.

(e) Whether Contractor has encouraged the formation of joint ventures, partnerships, or other similar arrangements among Subcontractors.

(f) Whether Contractor has requested the services of the Department of Economic Development (DED) to assist Subcontractors' efforts to satisfy bonding requirement.

(g) Whether Contractor has made progress payments promptly to its Subcontractors.

(h) Whether the terms of this section have been incorporated into each Subcontract which is entered into by the Contractor. It shall be the responsibility of Contractor to

ensure compliance by every Subcontractor with these provisions.

6. MWBE Utilization Plan.

(a) The Contractor represents and warrants that Contractor has submitted an MWBE Utilization Plan prior to the execution of the contract.

(b) MWBE Utilization Plan (Form 7557-107).

Contractors are required to submit a Utilization Plan on Form 7557-107 with their bid or proposal. Complete the following steps to prepare the Utilization Plan:

- i. list NYS Certified minority- and women-owned business enterprises which the Contractor intends to use to perform the State contract;
- ii. insert a description of the contract scope of work which the Contractor intends to structure to increase the participation by NYS Certified minority- and women-owned enterprises on the State contract;
- iii. insert the estimated or, if known, actual dollar amounts to be paid to and performance dates of each component of a State contract which the Contractor intends to be performed by a NYS Certified minority- or women-owned business; and

(c) Any modifications or changes to the agreed participation by NYS Certified MWBEs after the Contract Award and during the term of the contract must be reported on a revised MWBE Utilization Plan and submitted to the SUNY University-wide MWBE Program Office.

(d) The University will review the MWBE Utilization Plan and will issue the Contractor a written notice of acceptance or deficiency within twenty (20) day of its receipt. A notice of deficiency shall include the:

- i. list NYS Certified minority- and women-owned business enterprises which the

Contractor intends to use to perform the State contract; name of any MWBE which is not acceptable for the purpose of complying with the MWBE participation goals;

- ii. reasons why it is not an acceptable element of the Contract scope of work which the MWBE Program Office has determined can be reasonably structured by the Contractor to increase the likelihood of participation in the Contract by MWBEs; and
- iii. other information which the MWBE Program Office determines to be relevant to the MWBE Utilization Plan.

(e) The Contractor shall respond to the notice of deficiency within seven (7) business days of receipt by submitting to the University a written remedy in response to the notice of deficiency.

- i. If the written remedy that is submitted is not timely or is found to be inadequate, the University-wide MWBE Program Office shall notify the Contractor and direct the Contractor to submit, within five (5) business days, a request for partial or total waiver of MWBE participation goals on forms provided by the University-wide MWBE Program Office.

- ii. Failure to file the waiver form in a timely manner may be grounds for disqualification of the bid or proposal.

(f) The University may disqualify a Contractor as being non-responsive under the following circumstances:

- i. If a Contractor fails to submit a MWBE Utilization Plan;
- ii. If a Contractor fails to submit a written remedy to a notice of deficiency in a MWBE Utilization Plan;
- iii. If a Contractor fails to submit a request for waiver; or

iv. If the MWBE Program Office determines that the Contractor has failed to document Good Faith Efforts.

(g) Contractor agrees to use such MWBE Utilization Plan for the performance of MWBEs on the Contract pursuant to the prescribed MWBE goals set forth in Section III-A of this Appendix.

(h) Contractor further agrees that a failure to submit and/or use such MWBE Utilization Plan shall constitute a material breach of the terms of the Contract. Upon the occurrence of such a material breach, SUNY shall be entitled to any remedy provided herein, including but not limited to, a finding of Contractor non-responsiveness.

7. Waivers.

(a) For Waiver Requests Contractor should use (Form 7557-114) – Waiver Request.

(b) If the Contractor, after making good faith efforts, is unable to comply with MWBE goals, the Contractor may submit a Request for Waiver form documenting good faith efforts by the Contractor to meet such goals. If the documentation included with the waiver request is complete the University shall evaluate the request and issue a written notice of acceptance or denial within twenty (20) days of receipt.

(c) If University, upon review of the MWBE Utilization Plan and updated Quarterly MWBE Contractor Compliance Reports determines that Contractor is failing or refusing to comply with the Contract goals and no waiver has been issued in regards to such non-compliance, the University may issue a notice of deficiency to the Contractor. The contractor must respond to the notice of deficiency within seven (7) business days of receipt. Such response may include a request for partial or total waiver of MWBE Contract Goals.

8. MWBE Contractor Compliance Report.

Contractor is required to submit an MWBE Contractor Compliance Report (Form 7557-112) to the University by the 5th day following each end of quarter over the term of the Contract documenting the progress made towards achievement of the MWBE goals of the Contract. Compliance Reports for construction contracts (Form 7557-110) must be submitted on a monthly basis.

9. GOALS. (a) GOALS FOR MINORITY AND WOMEN WORK FORCE PARTICIPATION.

(i) The University shall include relevant work force availability data, which is provided by the DMWBD, in all documents which solicit bids for State Contracts and shall make efforts to assist Contractors in utilizing such data to determine expected levels of participation for minority group members and women on State Contracts.

(ii) Contractor shall exert good faith efforts to achieve such goals for minority and women's participation. To successfully achieve such goals, the employment of minority group members and women by Contractor must be substantially uniform during the entire term of this State Contract. In addition, Contractor should not participate in the transfer of employees from one employer or project to another for the sole purpose of achieving goals for minority and women's participation.

(b) GOALS FOR MINORITY AND WOMEN-OWNED BUSINESS ENTERPRISES PARTICIPATION.

For all State Contracts in excess of \$25,000.00 whereby the University is committed to expend or does expend funds in return for labor, services including but not limited to legal, financial and other professional services, supplies, equipment, materials or an combination of the foregoing or all State Contracts in excess of \$100,000.00 whereby the University is committed to expend or does expend funds for the acquisition,

construction, demolition, replacement, major repair or renovation of real property and improvements thereon, Contractor shall exert good faith efforts to achieve a participation goal of 3.32 percent (3.32%) for Certified Minority-Owned Business Enterprises and 1.16 percent (1.16%) for Certified Women-Owned Business Enterprises.

10. ENFORCEMENT. The University will be responsible for enforcement of each Contractor's compliance with these provisions. Contractor, and each Subcontractor, shall permit the University access to its books, records and accounts for the purpose of investigating and determining whether Contractor or Subcontractor is in compliance with the requirements of Article 15-A of the Executive Law. If the University determines that a Contractor or Subcontractor may not be in compliance with these provisions, the University may make every reasonable effort to resolve the issue and assist the Contractor or Subcontractor in its efforts to comply with these provisions. If the University is unable to resolve the issue of noncompliance, the University may file a complaint with the DMWBD.

Failure to comply with all of the requirements herein may result in a finding of non-responsiveness, non-responsibility and/or a breach of contract, leading to the withholding of funds or such other actions, remedies or enforcement proceedings as allowed by the Contract.

11. DAMAGES FOR NON COMPLIANCE.

Where the University determines that Contractor is not in compliance with the requirements of the Contract and Contractor refuses to comply with such requirements, or if Contractor is found to have willfully and intentionally failed to comply with the MWBE participation goals, Contractor shall be obligated to pay

liquidated damages to the University. Such liquidated damages shall be calculated as an amount equaling the difference between:

- a. All sums identified for payment to MWBEs had the Contractor achieved the contractual MWBE goals; and
- b. All sums actually paid to MWBEs for work performed or materials supplied under the Contract.

In the event a determination has been made which requires the payment of liquidated damages and such identified sums have not been withheld by the University, Contractor shall pay such liquidated damages to the University within sixty (60) days after such damages are assessed, unless prior to the expiration of such sixtieth day, the Contractor has filed a complaint with the Director of the

Division of Minority and Woman Business Development pursuant to Subdivision 8 of Section 313 of the Executive Law in which event the liquidated damages shall be payable if Director renders a decision in favor of the University.