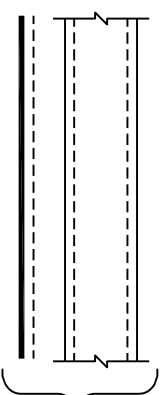
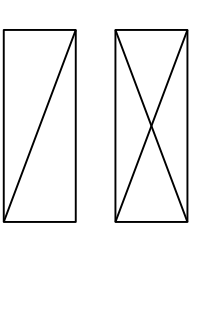


HVAC SYMBOLS

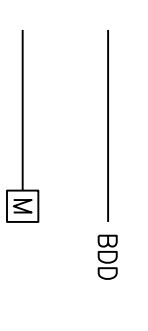
SINGLE LINE DUCTWORK OR EQUIPMENT - NEW



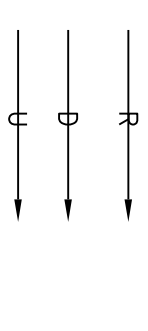
DUCTWORK WITH ACOUSTIC LINING



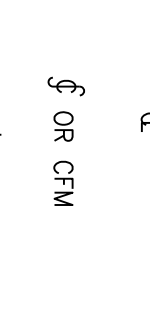
DUCT UNDER POSITIVE PRESSURE (SUPPLY AIR OR FAN DISCHARGE)
DUCT UNDER NEGATIVE PRESSURE (RETURN, EXHAUST OR OUTSIDE AIR)
VOLUME DAMPER



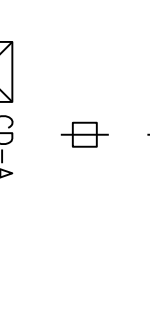
BACK DRAFT DAMPER
AUTOMATIC DAMPER (ELECTRIC)



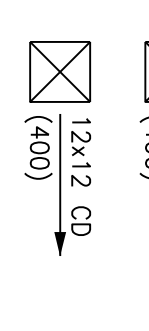
RISE IN DUCTWORK (IN DIRECTION OF AIR FLOW)
DROP IN DUCTWORK (IN DIRECTION OF AIR FLOW)
1" DOOR UNDERCUT



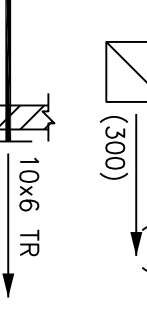
CENTER LINE
CUBIC FEET PER MINUTE



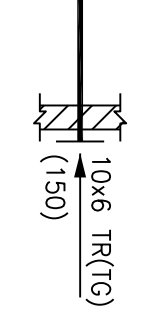
DIAMETER
SQUARE FEET



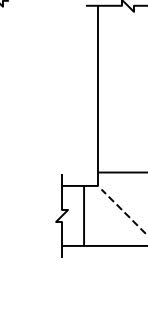
TYPE A CEILING DIFFUSER
RECTANGULAR CEILING DIFFUSER WITH 12"x12" NECK



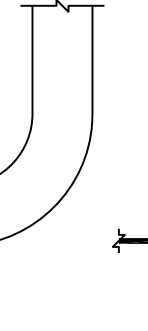
10" BY 6" CEILING REGISTER (CEILING GRILLE)
10" BY 6" TOP REGISTER (TOP GRILLE)



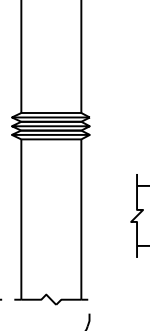
10" BY 6" TOP REGISTER (TOP GRILLE)
150 CFM RETURN AIR



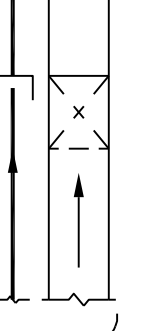
VANE ELBOW (SEE DETAIL)
VANE ELBOW (SEE DETAIL)



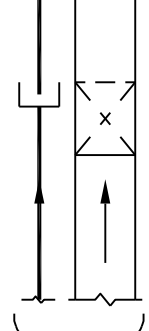
VANE ELBOW (SEE DETAIL)
RADIUS ELBOW



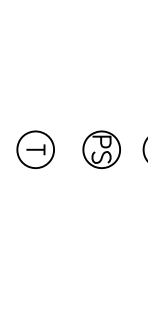
DUCT FLEXIBLE CONNECTION



VERTICAL DUCT DROP (IN DIRECTION OF AIRFLOW)
VERTICAL DUCT RISE (IN DIRECTION OF AIRFLOW)



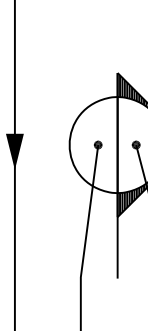
HUMIDISTAT
PRESSURE SWITCH
THERMOSTAT
SMOKE DETECTOR
REMOTE CONTROLLER



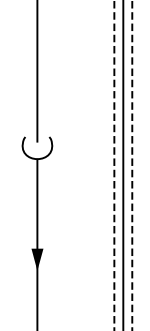
SECTION DESIGNATION
SHEET NO. WHERE SECTION IS SHOWN
NEW PIPE WITH DIRECTION OF FLOW



PIPE IN UNDERGROUND CONDUIT
PIPE DROP
PIPE RISE
CONDENSATE LINE



PITCH UP IN DIRECTION OF FLOW
PITCH DOWN IN DIRECTION OF FLOW



UNION
DUCT DETECTOR

HVAC ABBREVIATIONS

REFRIGERANT LIQUID LINE
REFRIGERANT SUCTION LINE

ABBREVIATION	MEANING
A	AMPERES
AW	AUTOMATIC AIR VENT
AC	AIR CONDITIONING
ACU	AIR COOLED CONDENSING UNIT
ACU	AIR CONDITIONING UNIT
AD	ACCESS DOOR
AF	AFTER FILTER
AF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
AL	ACOUSTICAL LINING
AP	ACCESS PANEL
BF	BOOSTER FAN
BHP	BRAKE HORSEPOWER
BU	BRITISH THERMAL UNIT
BUH	BTU PER HOUR
CCW	COUNTER CLOCKWISE
CD	CEILING DIFFUSER
CFM	CUBIC FEET PER MINUTE
CLG	CEILING
COMP	COMPRESSOR
COND	CONDENSATE
CP	CONDENSATE PUMP
CR	CEILING REGISTER
CU FT	CUBIC FEET
CU IN	CUBIC INCHES
CV	CONSTANT VOLUME
CW	CLOCKWISE
DB	DRY BULB
DX	DIRECT EXPANSION
DAM	DIAMETER
DMPR	DAMPER
DN	DOWN
DWG	DRAWING
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EDB	ENTERING DRY BULB TEMPERATURE
EF	EXHAUST FAN
EL	ELEVATION
ELEC	ELECTRIC
EO	EQUAL
EWB	ENTERING WET BULB
EXH	EXHAUST
F	DEGREES FAHRENHEIT
FA	FREE AREA (SQ.FT.)
FC	FLEXIBLE CONNECTION
FD	FIRE DAMPER
FIN FL	FINISHED FLOOR
FLA	FULL LOAD AMPERES
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FT	FEET
FV	FACE VELOCITY
HR	HOUR
HT	HEIGHT
HZ	FREQUENCY
IN	INCH OR INCHES
KW	KILOWATT
L	LENGTH
LAT	LEAVING AIR TEMPERATURE
LBS	POUNDS
LDB	LEAVING DRY BULB TEMPERATURE
LRA	LOOKED ROTOR AMPS
LWB	LEAVING WET BULB TEMPERATURE
MAX	MAXIMUM
MBH	THOUSAND BTU PER HOUR
MHP	MOTOR HORSEPOWER
MIN	MINIMUM
MM	MILLIMETER
MOT	MOTOR
NC	NORMALLY CLOSED
NC	NOT IN CONTRACT
NO	NORMALLY OPEN
NO.	NUMBER
NIS	NOT TO SCALE
PD	PRESSURE DROP
PSI	POUNDS PER SQUARE INCH
R	RISE
RA	RETURN AIR
REFR	REFRIGERANT
RH	RELATIVE HUMIDITY
RL	REFRIGERANT LIQUID
RS	REFRIGERANT SUCTION
RLA	RUNNING LOAD AMPS
RM	ROOM
RPM	REVOLUTIONS PER MINUTE
SA	SUPPLY AIR
SA	STATIC PRESSURE
SP	SPECIFICATION
SPEC	TEMPERATURE
TEMP	TEMPERATURE
TR	TOP REGISTER
TBD	TRANSFER DUCT
TV	TURNING VANES
TX	TYPICAL
TX	TOILET EXHAUST
V	VOLTS
VRF	VARIANT REFRIGERANT FLOW
VA	VENTILATION AIR
VA	VENTILATION AIR
W	WIDTH
W	WITH
W/	WITHOUT
W/O	WET BULB
WB	WATER COLUMN
WC	WATER GAUGE
WG	WATER GAUGE

MECHANICAL DRAWING LIST

SYMBOL	DESCRIPTION
ME-001	MECHANICAL SYMBOLS, NOTES, ABBREVIATIONS AND DRAWING LIST
MD-100	MECHANICAL/ELECTRICAL DEMOLITION PART PLANS
ME-100	MECHANICAL/ELECTRICAL INSTALLATION PART PLANS
ME-200	MECHANICAL PIPING AND WIRING DIAGRAMS
M-500	MECHANICAL/ELECTRICAL DETAILS
ME-301	MECHANICAL SCHEDULES
M-400	MECHANICAL SCHEDULES
M-500	MECHANICAL SCHEDULES

COMPLIANCE WITH NYS ECCC

TO THE BEST OF MY KNOWLEDGE, BELIEF AND PROFESSIONAL JUDGMENT, THIS APPLICATION IS IN COMPLIANCE WITH THE NEW YORK STATE ENERGY CONSERVATION CONSTRUCTION CODE:	PROPOSED COOLING EFFICIENCY	PROPOSED HEATING EFFICIENCY
AIR COOLED SINGLE PACKAGE/SPILT SYSTEM	11 EER	12.6 EER
DUCTLESS SPLIT SYSTEM	11 EER	12.6 EER
>=65,000 BTU/h AND <=135,000 BTU/h	10.8 EER	11.6 EER
>=135,000 BTU/h AND <=240,000 BTU/h	10.8 EER	11.6 EER

PIPE/INSULATION	MIN. THICKNESS	PROPOSED THICKNESS
REFRIGERANT PIPING	$\phi \leq 1\frac{1}{2}"; 1\frac{1}{2}"$ THICK (K < 0.27 BTU/IN-HR-FT ² -F) TABLE 503.2.8	$\phi \leq 1\frac{1}{2}"; 1\frac{1}{2}"$ THICK (K < 0.27 BTU/IN-HR-FT ² -F)

- NOTES:**
- ALL DUCTS, AIR HANDLERS AND FILTER BOXES SHALL BE SEALED.
 - JUNTS AND SEAMS SHALL COMPLY WITH SECTION 603.9 OF THE NYS MECHANICAL CODE.
 - EACH COOLING/HEATING SYSTEM SHALL BE SUPPLIED WITH THERMOSTATIC CONTROLS PER SECTION 503.2.4.1 OF NYS ECCC.
 - THERMOSTATIC CONTROLS SHALL PROVIDE A DEAD BAND RANGE OF 5°F.
 - MINIMUM AIR FLOW SHALL BE MAINTAINED TO 50% PER 503.2.4.3.1 OF NYS ECCC AND NYS ECCC.

DEMOLITION/REMOVAL NOTES

- ALL PIPING IN WALLS, FLOORS AND ROOF SHALL BE REMOVED IN ITS ENTIRETY. CONTRACTOR SHALL PERFORM ALL CUTTING AND PACKING REQUIRED FOR WORK AND RESERVE EXISTING SURFACES TO ORIGINAL CONDITION.
- AFTER REMOVING PIPING THROUGH THE FLOOR SLABS, PACK OPENING WITH APPROVED FIRE-RATED PACKING.
- THE CONTRACTOR SHALL INCLUDE IN HIS PRICE ALL COSTS ASSOCIATED WITH REMOVALS OF HVAC WORK AS DESCRIBED ON THE DRAWINGS AND IN THE SPECIFICATIONS WITH ALLOWANCES FOR UNFORESEEN DIFFICULTIES WHEN CONGEELED WORK HAS BEEN OPENED. NO CLAIMS FOR ADDITIONAL WORK ASSOCIATED WITH DEMOLITION WILL BE ACCEPTED, EXCEPT IN CERTAIN CASES CONSIDERED JUSTIFIABLE BY THE OWNER/ENGINEER.
- THE CONTRACTOR SHALL PERFORM DEMOLITION AND REMOVAL WORK WITH MINIMUM INTERFERENCE TO FUNCTIONING HVAC SYSTEMS. ALL AFFECTED SYSTEMS SHALL BE RECONNECTED AND RESTORED.
- DEMOLITION AND REMOVAL WORK SHALL BE PERFORMED IN A NEAT AND WORKMANLIKE MANNER. THE CONTRACTOR SHALL PATCH, REPAIR OR OTHERWISE RESTORE ANY DAMAGED INTERIOR OR EXTERIOR BUILDING SURFACE TO ITS ORIGINAL CONDITION.
- THE CONTRACTOR SHALL REMOVE ALL SUPPORTS, ETC. OF EXISTING EQUIPMENT THAT IS TO REMAIN. THE REMOVAL OF THESE ITEMS DISRUPTS EXISTING PIPING BYPASS CONNECTIONS NECESSARY.
- PORTIONS OF DUCTWORK TO BE ABANDONED AS A RESULT OF DEMOLITION WORK SHALL BE BLANKED OFF AS INDICATED ON DRAWINGS.
- THE CONTRACTOR SHALL NOTIFY THE OWNER AT THE APPROPRIATE TIME OF THE PROPOSED DEMOLITION AND PHASING SCHEDULE. THE CONTRACTOR SHALL REMOVE OR REDUCED OR AFFECTED UTILITIES MAY BE CARRIED OUT IN COORDINATION WITH THE PROJECT REQUIREMENTS.
- ALL EXISTING MATERIAL AND EQUIPMENT IN USABLE CONDITION, WHICH IS TO BE REUSED, SHALL BE PROPERLY IDENTIFIED AND PROPERLY STORED. THE CONTRACTOR OR SHALL BE DISPOSED OF BY THE HVAC CONTRACTOR, AS DIRECTED BY THE OWNER, IN A LEGAL AND SAFE MANNER.
- ARRANGE TO WORK CONTINUOUSLY, INCLUDING OVER TIME IF REQUIRED, TO ASSURE THAT ALL WORK SHALL BE COMPLETED WITHIN THE TIME FRAME ACTUALLY REQUIRED TO MAKE THE NECESSARY CONNECTIONS TO THE EXISTING SYSTEMS.
- THE SHUTDOWN OF EXISTING BUILDING HVAC SERVICES SHALL BE COORDINATED WITH THE OWNER. MAKE ARRANGEMENTS AT LEAST 5 BUSINESS DAYS PRIOR TO A SHUTDOWN.
- CONTRACTOR SHALL COMPLY WITH ALL FEDERAL, STATE & LOCAL REQUIREMENTS REGARDING DISPOSAL OF REFRIGERANTS.

GENERAL NOTES

- GENERAL NOTES, SYMBOL LIST AND DETAILS ARE APPLICABLE TO ALL HVAC/MECHANICAL DRAWINGS.
- DRAWINGS ARE DIAGNOSTIC. DETERMINE LOCATIONS OF SYSTEMS AND EQUIPMENT BEFORE BEGINNING WORK. THAN INTERFERES WITH WORK OF THIS CONTRACT.
- COORDINATE THIS WORK WITH THAT OF OTHER TRADES.
- NEVER ACQUIRE WORK COMPLETION OF SERVICES AND UTILITY LOCATIONS SHOWN ON DRAWINGS IS GUARANTEED. DETERMINE EXACT LOCATIONS OF EXISTING SERVICES AND UTILITIES IN FIELD, WHETHER OR NOT SHOWN ON DRAWINGS. EXERCISE CAUTION AND DEDICATE LOCATIONS OF UNMARKED UTILITY LINES AS NECESSARY TO PERFORM WORK OF THIS SECTION.
- MANUFACTURERS MODEL NUMBERS ARE SPECIFIED SOLELY TO ESTABLISH STANDARDS OF QUALITY FOR PERFORMANCE AND MATERIALS. RECOMMENDATIONS, AND INSTALLATION INSTRUCTIONS.
- EQUIPMENT INSTALLATION SHALL ADHERE TO THE MANUFACTURER'S RECOMMENDATIONS.
- PROVIDE ACCESS PANELS FOR EQUIPMENT THAT REQUIRES PERIODIC SERVICE.
- PROVIDE ALL HANGERS, ANCHORS, SUPPLEMENTAL STEEL & SUPPORTS AS REQUIRED TO SUPPORT PIPING AND EQUIPMENT FROM STRUCTURE.
- SCHEDULE WORK OF THIS SECTION TO AVOID INTERFERING WITH EXISTING OPERATIONS IN THE FACILITY.
- COORDINATE ROOF PENETRATIONS WITH OWNER AND FLASHING REQUIREMENTS. MECHANICAL CONTRACTOR TO PROVIDE FLASHING TO BE INSTALLED IN ACCORDANCE WITH PERMITS COMPLIANCE WITH BOND AND WARRANTY OF EXISTING ROOF.
- INSTALL THERMOSTATS/REMOTE CONTROLLERS 4'-6" ABOVE FINISHED FLOOR OR AS DIRECTED OTHERWISE BY ENGINEER.
- STRUCTURAL WELDING SHALL BE CONTINUOUS 1/4" FILET UNLESS REQUIRED OTHERWISE.

ELECTRICAL GENERAL NOTES

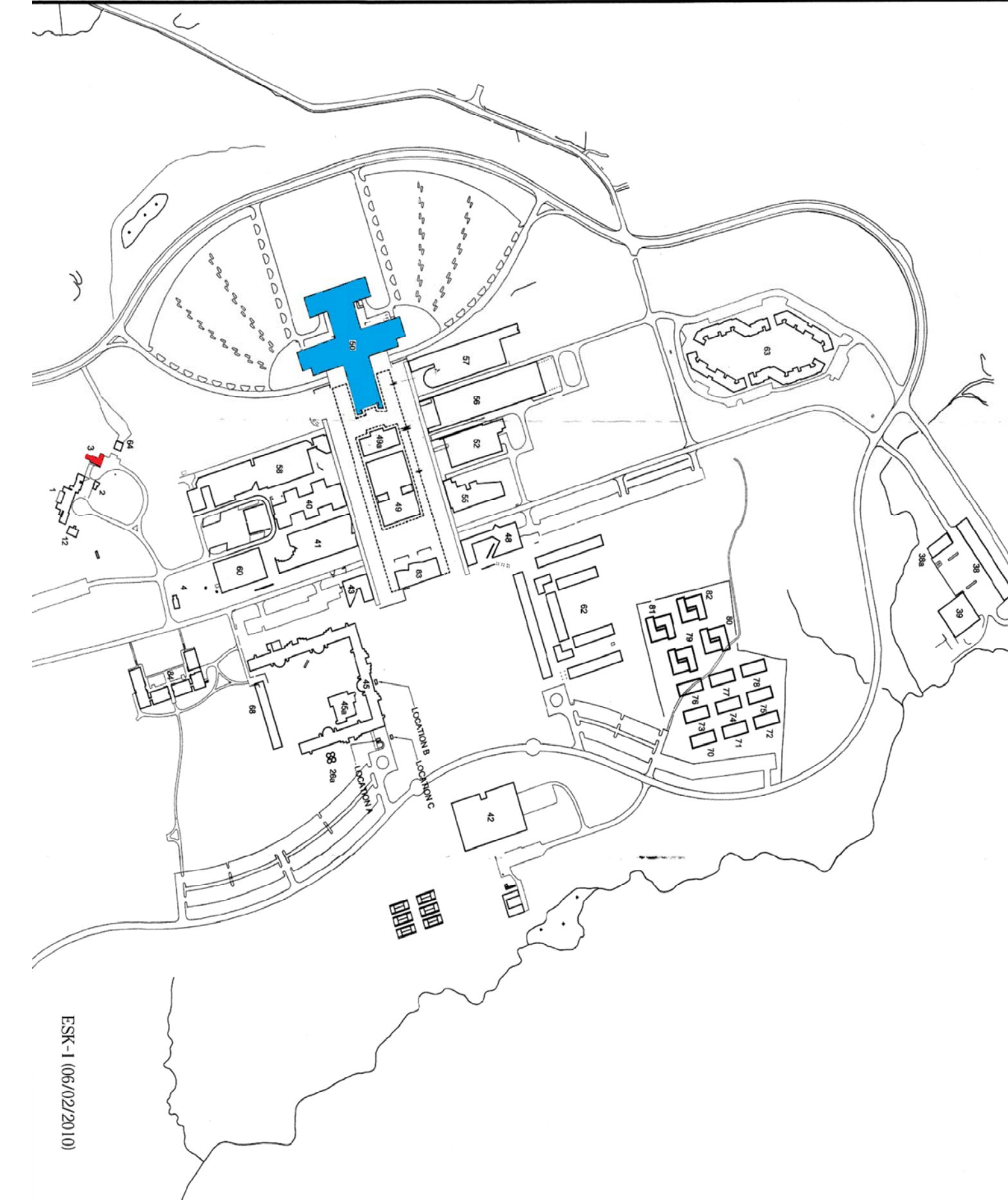
- ALL WIRING SHALL BE COPPER CONDUCTOR WITH THHN/THWN INSULATION. MINIMUM SIZE #12 AWG
- ALL CONDUIT SHALL BE EMT. MINIMUM SIZE 3/4"
- FINAL WIRING CONNECTION TO ROTATING EQUIPMENT SHALL BE FLEXIBLE AC CABLE. MAXIMUM LENGTH: 18'
- PROVIDE NEOPRENE JACKET OVER AC CABLE FOR OUTDOOR INSTALLATION.
- PERFORM ALL WORK IN ACCORDANCE WITH NFPA 70, NEC AND AUTHORITIES HAVING JURISDICTION.
- REMOVE EXISTING CONDUIT AND WIRING ASSOCIATED WITH THE A/C EQUIPMENT SLATED FOR REMOVAL.

PIPING SYSTEMS

- PITCH CONDENSATE PIPING 1" IN 12' IN DIRECTION OF FLOW.
- PROVIDE TRAPS IN CONDENSATE LINES.

PURCHASE COLLEGE BUILDING INDEX

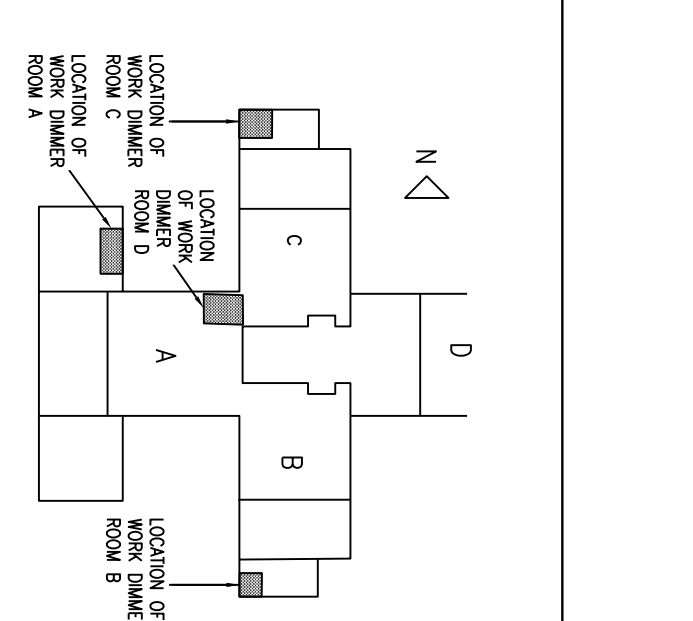
31 CAPITAL FACILITIES PLANNING
301 THE PERFORMING ARTS CENTER



ESK-1 (06/20/2010)

Rev.	Description	Date
09/03/14	ISSUED FOR CLIENT APPROVAL	09/03/14
11/10/14	ISSUED FOR BID	11/10/14

Collado ENGINEERS
2 Holland Avenue
White Plains, NY 10603
(914) 332-7658



WARNING: IT IS A VIOLATION OF THE NYS EDUCATION LAW ARTICLE 145 FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS ITEM IN ANY WAY.

Client or Agent
State University of New York College at Purchase
Purchase, New York

Project Title
SUNNY PURCHASE DIMMERS ROOMS

Drawing Title
MECHANICAL SYMBOLS, NOTES, ABBREVIATIONS AND DRAWING LIST

Scale: AS NOTED
Date: 7/30/2014
Drawing No.: ME-001.00