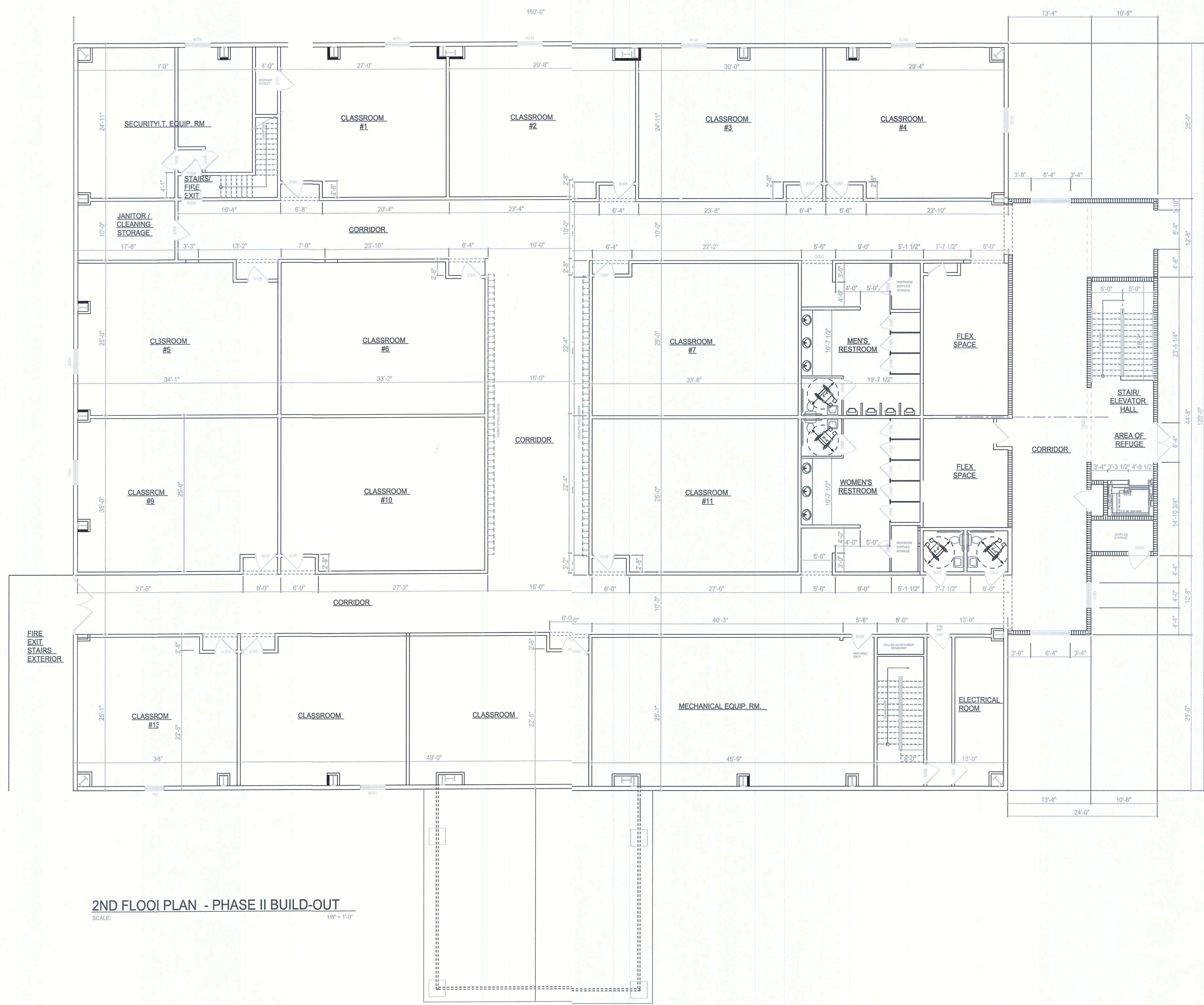


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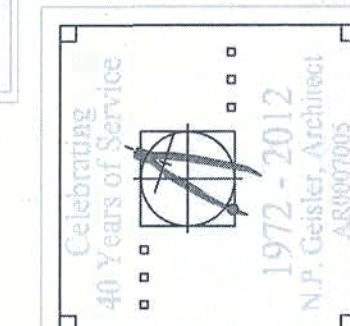
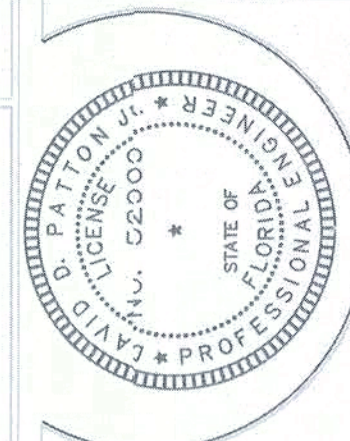


2ND FLOOR PLAN - PHASE II BUILD-OUT

SCALE: 1/8" = 1'-0"

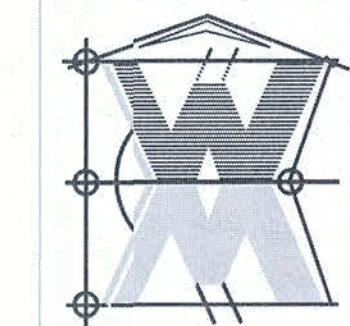
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CEGI PROJECT NO. 12-321
COK: EB-000712



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SHEET NUMBER
A.4

REVISIONS	
1	Sept 1 2012
2	
3	
4	
5	

BELMONT ACADEMY CHARTER SCHOOL
2ND FLOOR EXPANSION FOR
1478 SW WALTER AVE. LAKE CITY, FLORIDA 32024

ABBREVIATIONS		
* NOTE: ABBREVIATIONS AND SYMBOLS CONTAINED HEREIN MAY OR MAY NOT BE USED ON THIS PROJECT *		
A	AFF	ABOVE FINISHED FLOOR
	AHU	AIR HANDLING UNIT
	ATMOS	ATMOSPHERE
B	BHP	BRAKE HORSEPOWER
	BTU	BRITISH THERMAL UNIT
	BS	BIRD SCREEN
C	CHWR	CHILLED WATER RETURN
	CHWS	CHILLED WATER SUPPLY
	COMP	COMPRESSOR
D	CONC	CONCRETE
	CFM	CUBIC FEET PER MINUTE
	CEA	CONSULTING ENGINEERING ASSOCIATES
E	DET	DETAIL
	DIA	DIAMETER
	DIM	DIMENSION
F	DB	DRY BULB
	DISCH	DISCHARGE
G	ELEV	ELEVATION
	ENGR	ENGINEER
	EAT	ENTERING AIR TEMPERATURE
H	EW	ENTERING WATER TEMPERATURE
	EQUIP	EQUIPMENT
	EF	EXHAUST FAN
I	ESP	EXTERNAL STATIC PRESSURE
	FV	FACE VELOCITY
	FT	FEET
J	PFM	FEET PER MINUTE
	FLX	FLEXIBLE
K	GPM	GALLONS PER MINUTE
	HD	HEAD
	HTR	HEATER
L	HP	HORSEPOWER
	LAT	LEAVING AIR TEMPERATURE
	LWT	LEAVING WATER TEMPERATURE
M	MBH	1000 BTU PER HOUR
	MECH	MECHANICAL
	MEZZ	MEZZANINE
N	MTD	MOUNTED
	NTS	NOT TO SCALE
	OA	OUTSIDE AIR
O	PVC	POLYVINYL CHLORIDE
	PSI	POUNDS PER SQUARE INCH
	PRESS	PRESSURE
P	PD	PRESSURE DROP
	QTY	QUANTITY
Q	RM	ROOM
	RA	RETURN AIR
	RPM	REVOLUTIONS PER MINUTE
R	SCH	SCHEDULE
	SHT	SHEET
	SPECS	SPECIFICATIONS
S	SQ.FT.	SQUARE FEET
	STD	STANDARD
	SP	STATIC PRESSURE
T	STR	STRAINER
	STRUCT	STRUCTURAL
	SA	SUPPLY AIR
U	TEMP	TEMPERATURE
	TH	THERMOMETER
	T	THERMOSTAT
V	TSP	TOTAL STATIC PRESSURE
	TV	TURNING VANE
	TY	TYPICAL
W	UL	UNDERWRITER'S LABORATORIES
	VAV	VARIABLE AIR VOLUME BOX
	VD	VOLUME DAMPER
X	WB	WET BULB

SYMBOLS	
* NOTE: ABBREVIATIONS AND SYMBOLS CONTAINED HEREIN MAY OR MAY NOT BE USED ON THIS PROJECT *	
	NET INSIDE DIMENSION SIZE IN INCHES (PLAN DIM. FIRST)
	RADIUS TYPE ELBOW
	SQUARE TYPE ELBOW WITH TURNING VANES
	FLEXIBLE DUCTWORK
	MANUAL VOLUME DAMPER
	FIRE DAMPER
	MOTORIZED DAMPER
	DUCT MOUNTED SMOKE DETECTOR, PROVIDED BY DIVISION 26. INSTALLED BY DIVISION 23. SEE ELECTRICAL PLANS FOR EXACT QUANTITY.
	AIRFLOW MONITORING STATION
	VARIABLE FREQUENCY DRIVE
	STATIC PRESSURE SENSOR
	DIFFERENTIAL PRESSURE SENSOR
	WATERFLOW MONITORING STATION
	SUPPLY AIR DEVICE
	RETURN AIR DEVICE
	EXHAUST AIR DEVICE
	DENOTES DEVICE IDENTIFICATION
	DENOTES CFM
	DENOTES NECK SIZE
	VAV BOX
	ELECTRIC STRIP DUCT HEATER
	1" DOOR UNDERCUT
	SHUTOFF VALVE
	CHECK VALVE
	PRESSURE REDUCING VALVE
	THERMOMETER
	PRESSURE GAUGE
	SIGHT GLASS
	AUTOMATIC AIR VENT
	MANUAL AIR VALVE
	STRAINER
	CAP
	PLUG
	UNION
	GAUGE COCK
SYMBOLS (CONTINUED)	
	TEMP SENSOR INSTALL 48" AFF IF WALL MOUNTED
	2-WAY VALVE AND ACTUATOR
	HVAC CONTROL SYSTEM DIGITAL OUTPUT
	HVAC CONTROL SYSTEM DIGITAL INPUT
	HVAC CONTROL SYSTEM ANALOG OUTPUT
	HVAC CONTROL SYSTEM ANALOG INPUT

GENERAL NOTES	
1.	PLANS SHALL NOT BE SCALED. PLANS INDICATE THE SCHEMATIC LAYOUT AND LOCATION OF THE MECHANICAL SYSTEM COMPONENTS. UNLESS SPECIFIC DIMENSIONS ARE NOTED, THE ACTUAL LOCATION OF THESE COMPONENTS SHALL BE DETERMINED IN THE FIELD IN COORDINATION WITH THE WORK OF OTHER TRADES. THE USE OF MANUFACTURER'S SHOP DRAWINGS AND SIMILAR CERTIFIED DATA. THE ELEVATION OF EXPOSED DUCTWORK SHALL BE COORDINATED WITH THE ARCHITECT PRIOR TO ORDERING ANY DUCTWORK.
2.	NO EXCLUSIONS FROM OR LIMITATIONS IN THE LANGUAGE USED IN THE CONTRACT DOCUMENTS SHALL BE INTERPRETED AS MEANING THAT THE EQUIPMENT, APPURTENANCES, AND/OR ACCESSORIES NECESSARY FOR A COMPLETE AND OPERATIONAL SYSTEM ARE NOT TO BE PROVIDED AS REQUIRED. THE CONTRACTOR SHALL HAVE A COMPLETE SET OF THE CONTRACT DOCUMENTS, THE SEPARATE DIVISIONAL DRAWINGS AND SPECIFICATIONS DO NOT RELIEVE THE CONTRACTOR FROM THE RESPONSIBILITY TO PROVIDE THE WORK WHICH IS INDICATED ON ANY OF THE DRAWINGS OR DIVISION OF THE SPECIFICATIONS. REVIEW AND COORDINATE THE SCOPE OF WORK TO ASSURE A COMPLETE AND FUNCTIONAL SYSTEM IS INSTALLED.
3.	THE DIMENSIONS AND CONDITIONS SHOWN ON THE CONTRACT DOCUMENTS ARE BASED ON AVAILABLE EXISTING INFORMATION. AFTER WALLS, SLABS, AND/OR CEILINGS ARE REMOVED, VERIFY EXISTING CONDITIONS AND DIMENSIONS TO ESTABLISH DUCT, PIPING AND EQUIPMENT CLEARANCES. NOTIFY THE ARCHITECT OF ANY DEVIATIONS FROM THE CONTRACT DOCUMENTS.
4.	NOTIFY THE ARCHITECT OR HIS AUTHORIZED REPRESENTATIVE OF ANY DAMAGE TO THE EXISTING INSTALLATION BEFORE PROCEEDING WITH WORK.
5.	SUBMIT SHOP DRAWINGS OF ALL EQUIPMENT AND MATERIALS FOR REVIEW. WHERE MANUFACTURERS ARE LISTED IN THE PROJECT MANUAL, ONE OF THOSE MANUFACTURERS SHALL BE PROVIDED UNLESS A REQUEST FOR SUBSTITUTION HAS BEEN SUBMITTED PRIOR TO BID AND THE MANUFACTURER SUBSEQUENTLY IS LISTED AS AN ACCEPTABLE MANUFACTURER IN AN ADDENDUM. PARTIAL SUBMITTALS WILL NOT BE ACCEPTED FOR REVIEW AND APPROVAL. INSTALL AND TEST ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS. FOR ALL EQUIPMENT, WHICH HAS BEEN SCHEDULED DIRECTLY ON THE DRAWINGS, PROVIDE WITHIN THE SUBMITTAL, A PERFORMANCE SCHEDULE FOR THE PROPOSED EQUIPMENT IN THE EXACT SAME FORMAT AS INCLUDED ON THE CONTRACT DOCUMENTS. FAILURE TO PROVIDE REQUIRED PERFORMANCE SCHEDULE WILL RESULT IN REJECTION OF THE ENTIRE SUBMITTAL. SUBMIT DRAWINGS AND CUT SHEETS FOR ALL PRODUCTS ALL AT ONE TIME. INDEX ALL ITEMS TO THE PROJECT MANUAL OR DRAWINGS AS APPLICABLE. SHOP DRAWINGS THAT DEVIATE FROM THE REQUIREMENTS OF THE CONTRACT DOCUMENTS SHALL LIST ALL DIFFERENCES IN A COVER LETTER ATTACHED TO FRONT OF THE SUBMITTAL. ANY UNLISTED DEVIATIONS FOUND DURING REVIEW WILL RESULT IN THE REJECTION OF THE ENTIRE SUBMITTAL. FOR ITEMS REVIEWED AND MARKED "REJECTED" OR REVISE AND RESUBMIT, ONLY ONE ADDITIONAL SUBMITTAL WILL BE REVIEWED TWO SUBMITTALS BE REQUIRED FOR THE DESIGN PROFESSIONAL TO VERIFY THE SUBMITTAL WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS. SHOULD FURTHER SUBMITTALS BE REQUIRED FOR THE DESIGN PROFESSIONAL TO VERIFY THE SUBMITTAL WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS, THE HOURLY RATE OF \$150.00 PLUS EXPENSES WILL BE BILLED TO THE CONTRACTOR FOR THE PROFESSIONAL(S) TIME IS SPENT ON THE REVIEW.
6.	DUCTWORK, AIR DEVICES AND OTHER ITEMS OF THE AIR DISTRIBUTION SYSTEM SHALL BE SUPPORTED DIRECTLY FROM THE BUILDING STRUCTURE AND NOT FROM THE CEILING OR CEILING SUSPENSION SYSTEM. COORDINATE LOCATION OF AIR DEVICES AND LOUVERS WITH ELECTRICAL, ARCHITECTURAL, FIRE PROTECTION AND PLUMBING WORK. AIR DEVICES SHALL BE SUPPORTED FROM THE BUILDING STRUCTURE FROM AT LEAST TWO POINTS.
7.	ALL DUCTWORK SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF "SMACNA" DUCT CONSTRUCTION STANDARDS AND COMPLY WITH THE LATEST "NFPA" 90A REQUIREMENTS. ALL DUCTWORK SHALL BE LEAK TESTED IN ACCORDANCE WITH SMACNA AND ASHRAE STANDARDS, AND BE COMPLETED BY THE TEST AND BALANCE COMPANY. DUCTS WITH A LEAKAGE RATE MORE THAN 2% WILL BE REJECTED. FABRICATE DUCTWORK TO THE FOLLOWING DUCT PRESSURE CLASS: DUCT PRESSURE CLASS OPERATING PRESSURE 1/2" W.G. UP TO 1/2" W.G. 1" W.G. OVER 1/2" UP TO 1" W.G. 2" W.G. OVER 1" UP TO 2" W.G. 3" W.G. OVER 2" UP TO 3" W.G. DUCTWORK SHALL BE SEALED TO: APPLICABLE DUCT PRESSURE CLASS SEAL CLASS 2" W.G. AND BELOW A 3" W.G. A
8.	ALL DUCT DIMENSIONS SHOWN ON DRAWINGS ARE CLEAR INSIDE DIMENSIONS.
9.	SUPPLY, RETURN, EXHAUST, AND OUTSIDE AIR DUCTWORK SHALL BE GALVANIZED SHEET METAL. SEAL ALL DUCT JOINTS WITH HARDCAST. ALL SUPPLY, RETURN AND OUTSIDE AIR DUCTS SHALL BE INSULATED WITH BLANKET TYPE INSULATION WITH VAPOR BARRIER (MINIMUM INSTALLED R = 6.0). DUCT INSULATION SHALL BE LABELED AND MARKED AT REQUIRED INTERVALS AS REQUIRED BY THE FLORIDA BUILDING CODE. DUCTWORK WITHIN 6 FEET OF THE FLOOR IN MECHANICAL ROOMS SHALL BE INSULATED WITH ONE INCH THICK DUCTBOARD, MINIMUM R- VALUE = 6.0.
10.	ALL VOLUME DAMPERS SHALL BE OPPOSED BLADE TYPE. PROVIDE A ONE FOOT LONG PLASTIC STRIP OF MATERIAL FROM ALL DAMPER HANDLES TO ASSIST TEST AND BALANCE AGENCY IN IDENTIFYING ALL DAMPERS. IN AREAS WHERE THE FINAL DAMPER INSTALLATION PROHIBITS ACCESS FOR TEST AND BALANCE, PROVIDE POWER BALANCING DAMPERS AS MANUFACTURED BY UNITED ENERTECH. PROVIDE DAMPER, BATTERY PACK, JACKS AND CAT5 CABLE AS REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM.
11.	ALL DUCT ELBOWS SHALL INCLUDE AIR FLOW DIRECTIONAL VANES AS PER "SMACNA" DUCT CONSTRUCTION STANDARDS. SPLITTER VANES SHALL BE PROVIDED IN ALL ELBOWS AND DUCT OFFSETS WITH ANGLES BETWEEN 15 DEGREE AND 90 DEGREES AS PER FIG. 2-5 OF THE SMACNA MANUAL. 90 DEGREE ELBOWS SHALL HAVE TURNING VANES.
12.	PROVIDE CONICAL SPIN-IN FITTINGS AT ALL CONNECTIONS OF ROUND SHEET METAL OR FLEXIBLE SUPPLY AIR DUCTS TO RIGID RECTANGULAR DUCT.
13.	FLEXIBLE DUCTS SHALL BE FACTORY INSULATED (MINIMUM R-6) AND INCLUDE A VINYL VAPOR JACKET AND HELIX STEEL WIRE. "THERMAFLEX" TYPE M-KKE OR APPROVED EQUAL FLEXIBLE DUCT SHALL BE ATTACHED WITH THERMAFLEX STAINLESS STEEL SNAPLOCK CLAMPS. MAXIMUM LENGTH OF FLEXIBLE DUCT SHALL BE 6'-0". SUPPORT ELBOWS USING THERMAFLEX FLEXFLOW ELBOW.
14.	SMOKE AND HIGH TEMPERATURE PROTECTION OF MECHANICAL AIR DISTRIBUTION SYSTEMS. a. DUCT MOUNTED SMOKE DETECTORS SHALL BE FURNISHED AND WIRED UNDER DIVISION 26 (ELECTRICAL) AT LOCATIONS INDICATED ON THE PLANS AND AS HEREIN SPECIFIED. DUCT DETECTORS SHALL COMPLY WITH UL 268A. b. MECHANICAL PLANS INDICATE THE APPROXIMATE LOCATION OF DUCT DETECTORS. ASSIST THE SMOKE DETECTOR INSTALLER IN LOCATING AND INSTALLING THE DETECTORS IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS. WHEN RECOMMENDED CLEARANCES CAN NOT BE MAINTAINED, SIMULATE A SMOKE AIR FLOW TEST OF EACH DEVICE AND PROVIDE A COPY OF THE FIELD TEST TO THE OWNER'S REPRESENTATIVE. c. PROVIDE A MINIMUM 12" X 12" INSULATED AND DOUBLE GASKETED DUCT ACCESS DOOR ADJACENT TO EACH DUCT MOUNTED SMOKE DETECTOR TO FACILITATE INSPECTION OF DUCT DETECTOR TUBES. ACCESS DOOR SHALL NOT REQUIRE TOOLS TO BE OPENED.
15.	PROVIDE P-TRAPS AS PER DETAIL AT ALL CONDENSATE DRAIN LINE CONNECTIONS. SLOPE DRAIN LINES TOWARD THE POINT OF DISCHARGE (MIN 1/8"/FOOT). INSULATE CONDENSATE DRAIN LINES WITH 3/4" THICK SEAMLESS CLOSED CELL RUBBER PIPE INSULATION. CONDENSATE DRAIN LINES TO BE PVC. LINES SHALL BE ONE DIAMETER LARGER THAN THE UNIT DRAIN CONNECTION, BUT NOT LESS THAN 3/4 INCH. PROVIDE CLEANOUTS AT ALL CHANGES OF DIRECTION. THE FOLLOWING MINIMUM PIPE SIZES SHALL BE USED: EQUIPMENT CAPACITY MINIMUM PIPE DIAMETER UP TO 20 TONS 3/4"
16.	PROVIDE FLEXIBLE CONNECTIONS BETWEEN ALL AIR MOVING APPARATUS AND DUCTWORK. RECOMMENDED WIDTH IS 4".
17.	WHERE INDICATED ON DRAWINGS AND/OR EQUIPMENT SCHEDULES EXTERNAL STATIC PRESSURE IS DEFINED AS NOT INCLUDING LOSSES DUE TO UNIT MOUNTED FILTER(S), RETURN AIR PLENUM OR MIXING BOXES. THOSE LOSSES SHALL BE PART OF THE EQUIPMENT INTERNAL LOSSES SAME AS THOSE CAUSED BY COILS, CABINET, ETC.
18.	ALL NEW EQUIPMENT (FANS, AIR HANDLERS, CONDENSING UNITS, ETC.) SHALL BE LABELED WITH PLASTIC SIGNS, LAMINATED, ENGRAVED: 1/8" THICK BLANKS FOR SIGNS SHALL BE A MINIMUM OF 1 3/4" HIGH, WITH 1" HIGH LETTERS. LENGTH OF THE SIGN SHALL BE THE SUM OF THE LETTERS/NUMBERS PLUS 3/4" EACH END. SIGNS DESIGNATED FOR INSTALLATION ON THE OUTSIDE, IN OPEN AREAS, OR LOCATED IN A PROTECTED AREA THAT IS SUBJECT TO DIRECT SUNLIGHT, SHALL BE UV RATED, DESIGNATED AND MANUFACTURED TO BE EXPOSED TO THE ELEMENTS. SUBMITTAL DATA INDICATING THE ABOVE WILL BE REQUIRED. LABELS SHALL ALSO INCLUDE THE ROOM NUMBER, CORRESPONDING AIR HANDLER LOCATION OR AREA SERVED TO ASSIST IN THE DETERMINATION OF THE SERVICE LOCATION OF SAID EQUIPMENT. PROVIDE ADDITIONAL NAMEPLATE ON CEILING GRID DIRECTLY BELOW EQUIPMENT CONCEALED ABOVE CEILINGS TO AID IN LOCATING THE UNIT. NAMEPLATE DESIGNATION SHALL CONSIST OF UNIT NUMBER.
19.	ALL WALL MOUNTED TEMPERATURE AND HUMIDITY SENSORS SHALL BE INSTALLED AT A CENTER LINE ELEVATION OF 4'-0" ABOVE FINISHED FLOOR UNLESS OTHERWISE NOTED ON DRAWINGS. LOCATION OF THE WALL MOUNTED THERMOSTAT SHALL BE COORDINATED WITH THE OTHER TRADES FOR A NEAT APPEARANCE. FINAL LOCATION OF THERMOSTAT SHALL BE SUBJECT TO THE APPROVAL OF THE ARCHITECT OR HIS REPRESENTATIVE IN THE FIELD. WHEN SENSOR IS INSTALLED ON EXTERIOR WALLS, PROVIDE AN INSULATED SUB-BASE.
20.	PROVIDE CLEAR PLASTIC VENTILATED COVERS WITH KEY OPERATED LOCK OVER ALL THERMOSTATS AND HUMIDISTATS. FURNISH TWO SETS OF KEYS TO THE OWNER.
21.	RETAIN THE SERVICES OF A NEBB AND/OR AABC CERTIFIED TEST AND BALANCE AGENCY TO PERFORM FINAL TESTING AND BALANCING OF ALL HVAC SYSTEMS. RECORD ALL DATA ON STANDARD "AABC" OR OTHER APPROVED FORMS AND SUBMIT TO THE ARCHITECT FOR REVIEW.
22.	EQUIPMENT SERVICE ACCESS PROVIDE ADEQUATE SERVICE SPACE AROUND AIR HANDLING UNITS, VARIABLE VOLUME BOXES, ELECTRIC DUCT HEATERS AND THE PULL SIDE OF FILTERS, OR AS REQUIRED BY THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. SERVICE AREA SHALL BE CLEAR OF DUCTS, PIPES, CONDUITS, WALL STUDS, CEILING HANGERS, AND ANY OTHER CONSTRUCTION APPURTENANCE.
23.	PROVIDE A MANUAL AND A MOTORIZED DAMPER (120 VOLT) IN ALL OUTDOOR AIR INTAKE DUCTS. MOTORIZED DAMPER SHALL BE WIRED TO OPEN AFTER A ONE HOUR DELAY (ADJUSTABLE) WHEN AIR HANDLER IS ENERGIZED AND TO CLOSE WHENEVER AIR HANDLER IS DE-ENERGIZED, OR AS DETAILED IN THE CONTROLS DRAWINGS AND SEQUENCE OF OPERATION. ALL EXHAUST AIR FANS IN THE SAME ZONE AS THE AIR HANDLER SHALL BE INTERLOCKED WITH THE MOTORIZED DAMPER SUCH THAT THE EXHAUST FAN'S OPERATION IS PROHIBITED IF THE OUTSIDE AIR DAMPER IS CLOSED. REFER TO CONTROL SECTIONS FOR FURTHER REQUIREMENTS AND SCHEDULING. THE MANUAL DAMPER IN THE OUTSIDE AIR INTAKE DUCT SHALL BE USED FOR BALANCING THE OUTDOOR AIR FLOW. 120 VOLT POWER FOR MOTORIZED DAMPER TO BE PROVIDED BY DIVISION 26.
24.	ADEQUATE MEANS OF PROTECTION FOR ALL UTILITIES SHALL BE PROVIDED AND, IF UTILITIES ARE DAMAGED DURING WORKING OPERATIONS, SUCH SHALL BE REPAIRED TO THE SATISFACTION OF THE OWNER, AT NO COST TO THE CONTRACTOR.
25.	ACCESS PANELS THAT MAY BE REQUIRED FOR INSPECTION OF DUCTWORK, PIPING, DUCT MOUNTED DEVICES OR PIPE MOUNTED DEVICES SHALL BE PROVIDED AND ADEQUATELY SIZED. REFER TO THE ARCHITECTURAL CONTRACT DOCUMENTS FOR DOOR SPECIFICATIONS.
26.	ALL DUCTWORK SHALL BE STORED IN CLEAN AREAS. PROTECT ALL DUCTWORK FROM DUST AND DEBRIS WHILE IT IS STORED ON SITE. WHILE UNDER CONSTRUCTION, ALL INSTALLED DUCTWORK SHALL BE TEMPORARILY SEALED WITH VISQUEEN PRIOR TO TEST AND BALANCE IN ORDER TO LIMIT ACCUMULATION OF CONSTRUCTION DUST INSIDE THE DUCTWORK SYSTEM. IF EITHER OF THESE PROCEDURES IS NOT CONDUCTED, THE ENTIRE ASSOCIATED DUCTWORK SYSTEM AND MECHANICAL EQUIPMENT SHALL BE CLEANED TO THE OWNER'S SATISFACTION.
27.	SYSTEMS SHALL BE MAINTAINED IN ACCORDANCE WITH ASHRAE STANDARD 180-2018 - STANDARD PRACTICE FOR INSPECTION AND MAINTENANCE OF COMMERCIAL BUILDING HVAC SYSTEMS.

CODE CRITERIA	
NOTE: ALL CODES AND STANDARDS SHALL COMPLY WITH THE FLORIDA STATUTES 69A-3.012 AND THE STATE FIRE MARSHALL'S RULE. THIS LIST IS NOT INCLUSIVE OF ALL CODES AND STANDARDS THAT MAY OR MAY NOT APPLY TO THIS PROJECT. *FLORIDA BUILDING CODE (FBC), FIFTH EDITION (2017) - ALL SECTIONS *FLORIDA BUILDING CODE (FBC), FIFTH EDITION (2017) ENERGY CONSERVATION SOFTWARE: ENERGY GAUGE SUMMIT VERSION 6.00 *FLORIDA FIRE PREVENTION CODE 2017 *FLORIDA BUILDING CODE (FBC), FIFTH EDITION (2017) ACCESSIBILITY - 2012 FLORIDA ACCESSIBILITY CODE FOR BUILDING CONSTRUCTION *AMERICANS WITH DISABILITIES ACT (ADA) STANDARDS FOR ACCESSIBLE DESIGN (2010) NATIONAL FIRE PROTECTION ASSOCIATION (NFPA): *NFPA-70 (2014) NATIONAL ELECTRICAL CODE *NFPA-72 (2013) NATIONAL FIRE ALARM CODE *NFPA-90A (2015) STANDARD FOR THE INSTALLATION OF AIR-CONDITIONING AND VENTILATING SYSTEMS *NFPA-90B (2015) STANDARD FOR THE INSTALLATION OF WARM AIR HEATING AND AIR-CONDITIONING SYSTEMS AMERICAN SOCIETY OF HEATING, REFRIGERATION AND AIR CONDITIONING ENGINEERS, INC. (ASHRAE): *ASHRAE GUIDELINE 4-2008 - PREPARATION OF OPERATING AND MAINTENANCE DOCUMENTATION FOR BUILDING SYSTEMS *ASHRAE STANDARD 62.1-2019 AND APPROVED ADDENDA - VENTILATION FOR ACCEPTABLE INDOOR AIR QUALITY *ASHRAE STANDARD 90.1-2013 - ENERGY STANDARD FOR BUILDINGS EXCEPT LOW-RISE RESIDENTIAL BUILDINGS *ASHRAE STANDARD 126-2016 - METHOD OF TESTING HVAC AIR DUCTS *ASHRAE STANDARD 180-2012 - STANDARD PRACTICE FOR INSPECTION AND MAINTENANCE OF COMMERCIAL BUILDING HVAC SYSTEMS	
HVAC DESIGN CRITERIA	
LOCATION: LAKE CITY, FLORIDA	OUTDOOR °F TEMP DB/WB SUMMER WINTER 94/79 29 SUMMER INDOOR TEMP °F DB/WB 75/63 WINTER INDOOR TEMP °F DB 70
LOAD CRITERIA (OVERALL VALUES)	FLOOR INSULATION R-0 WALL INSULATION R-13 ROOF INSULATION R-25 WINDOW TYPE U-0.5, SC=0.5
COORDINATION DRAWINGS	
PRIOR TO INSTALLATION AND FABRICATION OF HVAC WORK, CONTRACTOR SHALL SUBMIT DETAILED COORDINATION DRAWINGS AT 1/4" = 1'-0" SCALE. DRAWINGS ARE TO INCLUDE, BUT NOT NECESSARILY BE LIMITED TO, THE FOLLOWING ITEMS:	
1. DETAILED SHEET METAL DRAWINGS INDICATING ALL DUCTWORK, VOLUME DAMPERS, ACCESS DOORS, GRILLES, REGISTERS AND DIFFUSERS, AIR HANDLING EQUIPMENT, PENETRATIONS THROUGH WALLS, ETC.	
2. DETAILED STRUCTURAL, LIGHTING, AND PLUMBING DRAWINGS INDICATING ALL PIPING (SANITARY, VENT, DOMESTIC WATER) LOCATIONS OF PLUMBING EQUIPMENT (INCLUDING EQUIPMENT FURNISHED BY OWNER), VENTS THROUGH ROOF, ACCESS DOORS, CLEANOUTS, ETC.	
3. THESE DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER PRIOR TO COMMENCEMENT OF WORK FOR CHECKING FOR GENERAL COMPLIANCE WITH CONTRACT DOCUMENTS. THESE DRAWINGS ARE NOT TO BE CONFUSED WITH SHOP DRAWINGS. THEY ARE NOT SHOP DRAWINGS. THEY ARE A TOOL TO AIDE THE CONTRACTORS IN THE INSTALLATION OF THEIR SYSTEMS.	
4. AFTER COORDINATION DRAWINGS ARE COMPLETED AND REVIEWED BY A/E, ANY ADDITIONAL WORK REQUIRED IN ANY OF THESE TRADES TO PROVIDE SYSTEMS THAT DO NOT CONFLICT WITH EACH OTHER OR WITH ARCHITECTURAL AND STRUCTURAL WORK SHALL BE PROVIDED BY THE CONTRACTOR AT NO COST TO THE OWNER.	
NOTES	
1. THE NOTES SHOWN ON THIS SHEET APPLY TO GENERAL CONDITIONS OF HEATING, VENTILATING AND AIR CONDITIONING WORK REQUIRED FOR THIS PROJECT.	
2. SPECIFICATIONS, PROJECT MANUALS AND DRAWINGS, REFER TO THIS SHEET FOR APPLICABLE REFERENCES.	
3. THE DESIGN DRAWINGS OF ALL CATEGORIES AND TRADES (ARCHITECTURAL, STRUCTURAL, PLUMBING, MECHANICAL, HEATING, VENTILATING AND AIR CONDITIONING AND ELECTRICAL) AND ALL SPECIFICATIONS AND SHOP DRAWINGS MUST BE COORDINATED AND BE VIEWED IN CONNECTION AND CONJUNCTION WITH EACH OTHER TO INSURE THE PROPER LOCATION OF ALL DEVICES AND EQUIPMENT. MAKE PARTICULAR NOTE OF LOCATIONS AND DIMENSIONS SHOWN ON THE ARCHITECTURAL FLOOR PLANS AND ELEVATIONS.	
4. TO THE BEST OF THE ENGINEER'S KNOWLEDGE, THE PLANS AND SPECIFICATIONS COMPLY WITH THE APPLICABLE MINIMUM BUILDING CODES AND THE APPLICABLE FIRE-SAFETY STANDARDS AS DETERMINED BY THE LOCAL AUTHORITY IN ACCORDANCE WITH SECTION 105.13.4.4 OF THE FLORIDA BUILDING CODE AND 633 FLORIDA STATUTES.	
DRAWING INDEX	
M.1	HVAC LEGENDS, NOTES, AND SYMBOLS
M.2	HVAC SECOND FLOOR PLAN
M.3	HVAC ENLARGED MECHANICAL ROOM PLAN & SECTIONS
M.4	HVAC SCHEDULES
M.5	HVAC DETAILS
M.6	HVAC CONTROL DIAGRAMS

REVISIONS

BELMONT ACADEMY FOR:
2ND FLOOR EXPANSION FOR
BELMONT ACADEMY CHARTER SCHOOL
1476 SW WALTER AVE, LAKE CITY, FLORIDA 32024

John W. Wells, P.E.
Professional Engineer, License No. 10049347
This form has been electronically signed and sealed by John W. Wells, P.E. on the date indicated in the Certificate area of Digital Signature. Printed copies of this document are not considered signed/sealed and the signature must be verified on any electronic copies.

John William Wells
2020.10.02 12:46:55
04:00'
2020.10.23 00:48

40 Years of Service
N.E. Geisler, Architect
1972 - 2012
AN0007005

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JOB NUMBER
2K1403a
DATE:
28 SEP 2020

SHEET NUMBER
M.1

REVISIONS

BELMONT ACADEMY FOR:
2ND FLOOR EXPANSION FOR
BELMONT ACADEMY CHARTER SCHOOL
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PE 0049347

40 Year of Service
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PROJECT NUMBER: 20031

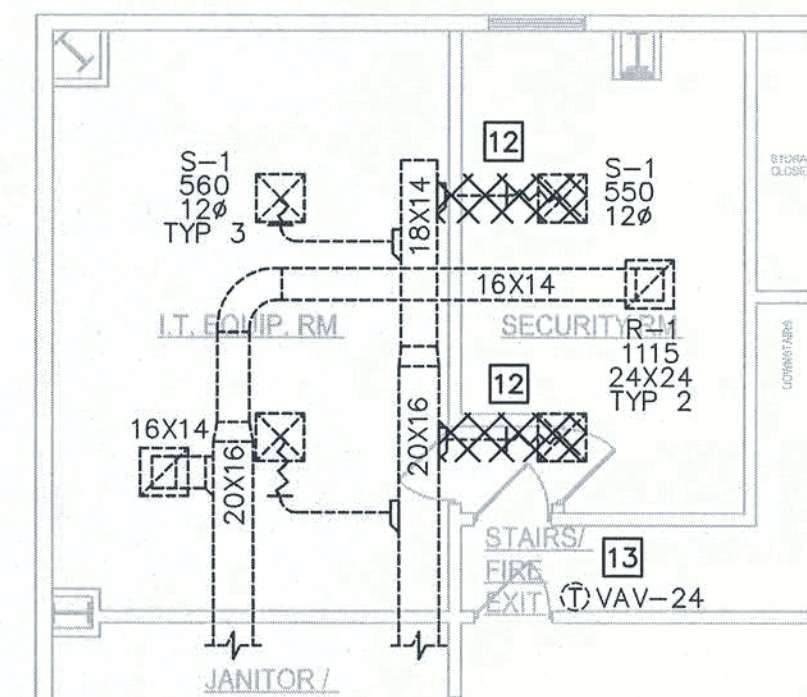
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JOB NUMBER
2K1403a
DATE:
28 SEP 2020

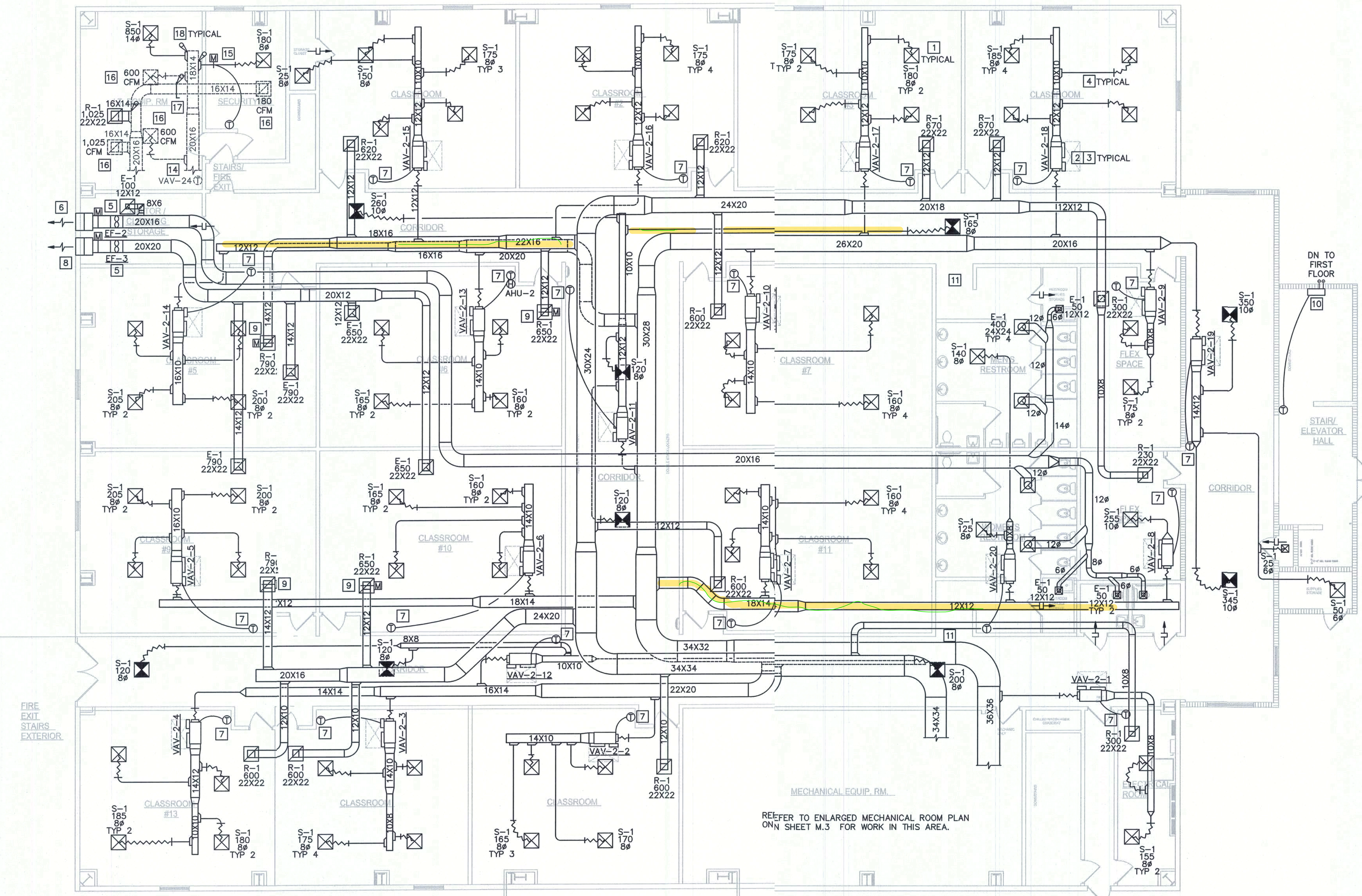
SHEET NUMBER
M.2

HVAC CODED NOTES:

- 1 DIFFUSER RUNOUT DUCT SIZE TO MATCH DIFFUSER NECK SIZE.
- 2 REFER TO VAV BOX SCHEDULE FOR INLET DUCT SIZE.
- 3 REFER TO HVAC DETAILS FOR SUPPORT OF VAV BOX.
- 4 PROVIDE OPPOSED BLADE DAMPER AT ALL SUPPLY, RETURN AND EXHAUST DUCT BRANCHES. SEE HVAC DETAILS. DAMPERS ARE NOT TO BE INCLUDED ON THE MEDIUM PRESSURE DUCTS UPSTREAM OF VAV BOXES.
- 5 REFER TO HVAC DETAILS FOR SUPPORT OF INLINE FAN.
- 6 PROVIDE 30X36 HURRICANE WIND RATED LOUVER EQUAL TO GREENHECK MODEL EHV-9010 WITH BIRD SCREEN. LOUVER COLOR AS SELECTED BY ARCHITECT. PROVIDE 12 INCH DEEP EXTERNALLY INSULATED SHEET METAL PLENUM BOX ON BACK SIDE OF LOUVER FOR DUCT CONNECTION.
- 7 PROVIDE LOCKABLE VENTILATED METAL COVER OVER TEMPERATURE AND HUMIDITY SENSORS.
- 8 PROVIDE 40X36 HURRICANE WIND RATED LOUVER EQUAL TO GREENHECK MODEL EHV-9010 WITH BIRD SCREEN. LOUVER COLOR AS SELECTED BY ARCHITECT. PROVIDE 12 INCH DEEP EXTERNALLY INSULATED SHEET METAL PLENUM BOX ON BACK SIDE OF LOUVER FOR DUCT CONNECTION.
- 9 PROVIDE MOTORIZED DAMPER IN RETURN DUCT ON BACK SIDE OF RETURN GRILLE, REFER TO EF-3 HVAC CONTROL DIAGRAM ON SHEET M.6 FOR MORE INFORMATION.
- 10 PROVIDE WALL MOUNTED SPLIT SYSTEM HEAT PUMP EQUAL TO MITSUBISHI MODEL MSZ-GLO9NA (INDOOR UNIT) / MUZ-GLO9NA (OUTDOOR CONDENSER) WITH 9,000 BTU COOLING, 10,900 BTU HEATING, 24.6 SEER, AND BACKUP ELECTRIC HEAT. PROVIDE SINGLE POINT POWER CONNECTION AT OUTDOOR CONDENSER, 208/1/60, 9 MCA, 15 MOCP. PROVIDE REFRIGERANT PIPING TO CONNECT UNITS AND ROUTE AS SHOWN, SIZE PER MANUFACTURER'S RECOMMENDATIONS. ROUTE CONDENSATE PIPING TO SPLASH BLOCK ON GRADE.
- 11 BATHROOM DOES NOT HAVE A DOOR AT ITS ENTRY, MAKE-UP AIR PASSES FREELY THROUGH BATHROOM OPENING.
- 12 REMOVE AND DISPOSE EXISTING DUCTWORK AND AIR DEVICE AS SHOWN. REPAIR AND SEAL MAIN DUCT PENETRATION AND INSULATE TO MATCH EXISTING.
- 13 PROTECT EXISTING THERMOSTAT FOR RE-USE.
- 14 RELOCATE EXISTING THERMOSTAT TO NEW LOCATION SHOWN. RE-CALIBRATE TO ENSURE PROPER FUNCTIONALITY.
- 15 INSTALL NEW MOTORIZED DAMPER. MOTORIZED DAMPER TO BE INTERLOCKED WITH NEW WALL MOUNTED THERMOSTAT.
- 16 RE-BALANCE EXISTING AIR DEVICE TO NEW AIR FLOW SHOWN.
- 17 PROVIDE NEW VOLUME DAMPER IN EXISTING RETURN AIR DUCT.
- 18 CONNECT NEW DUCTWORK TO EXISTING DUCTWORK. COORDINATE EXACT DUCT ROUTE WITH EXISTING CONDITIONS AND PROVIDE ALL OFFSETS NECESSARY.

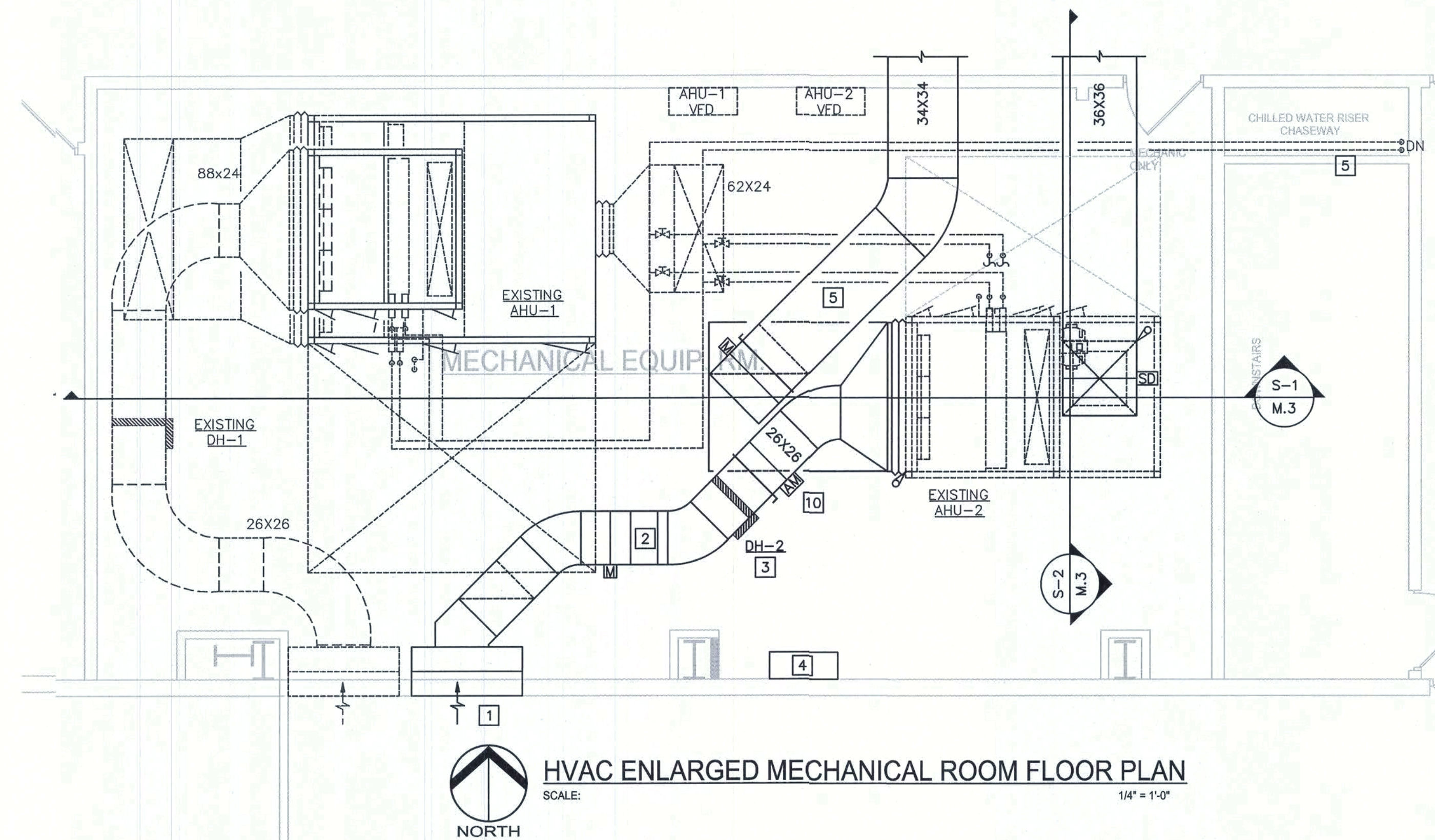
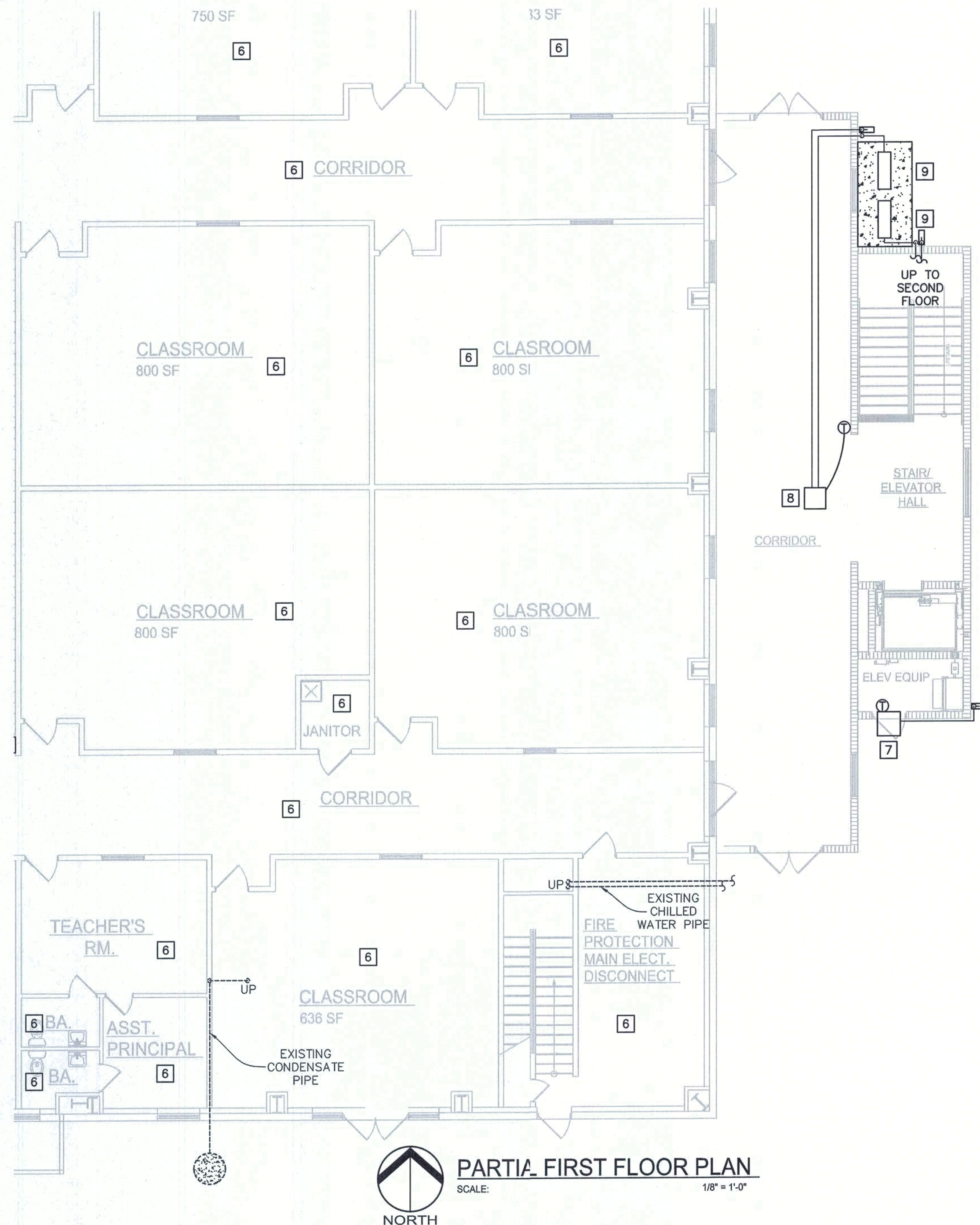


PARTIAL SECOND FLOOR DEMO PLAN
SCALE: 1/8" = 1'-0"

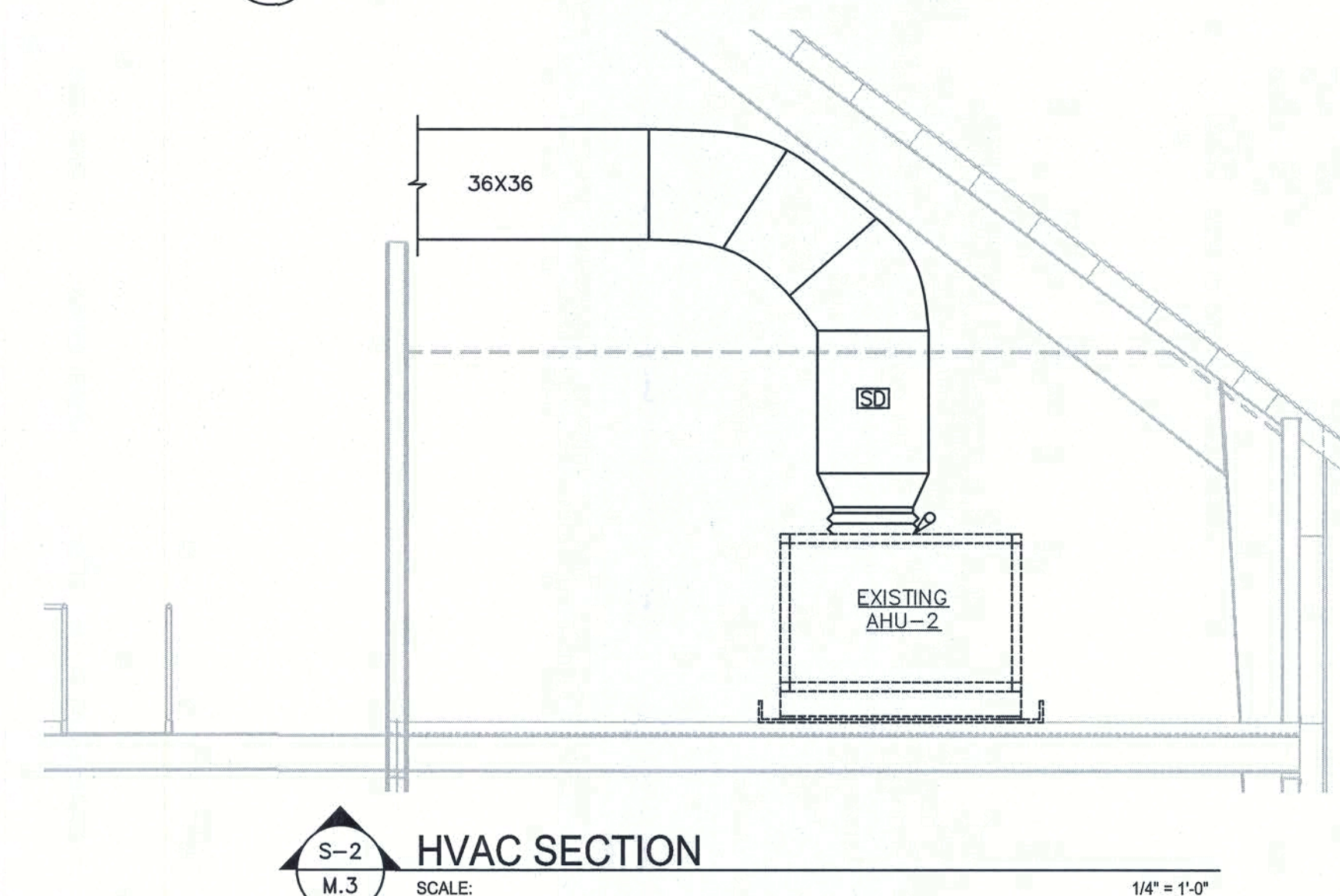
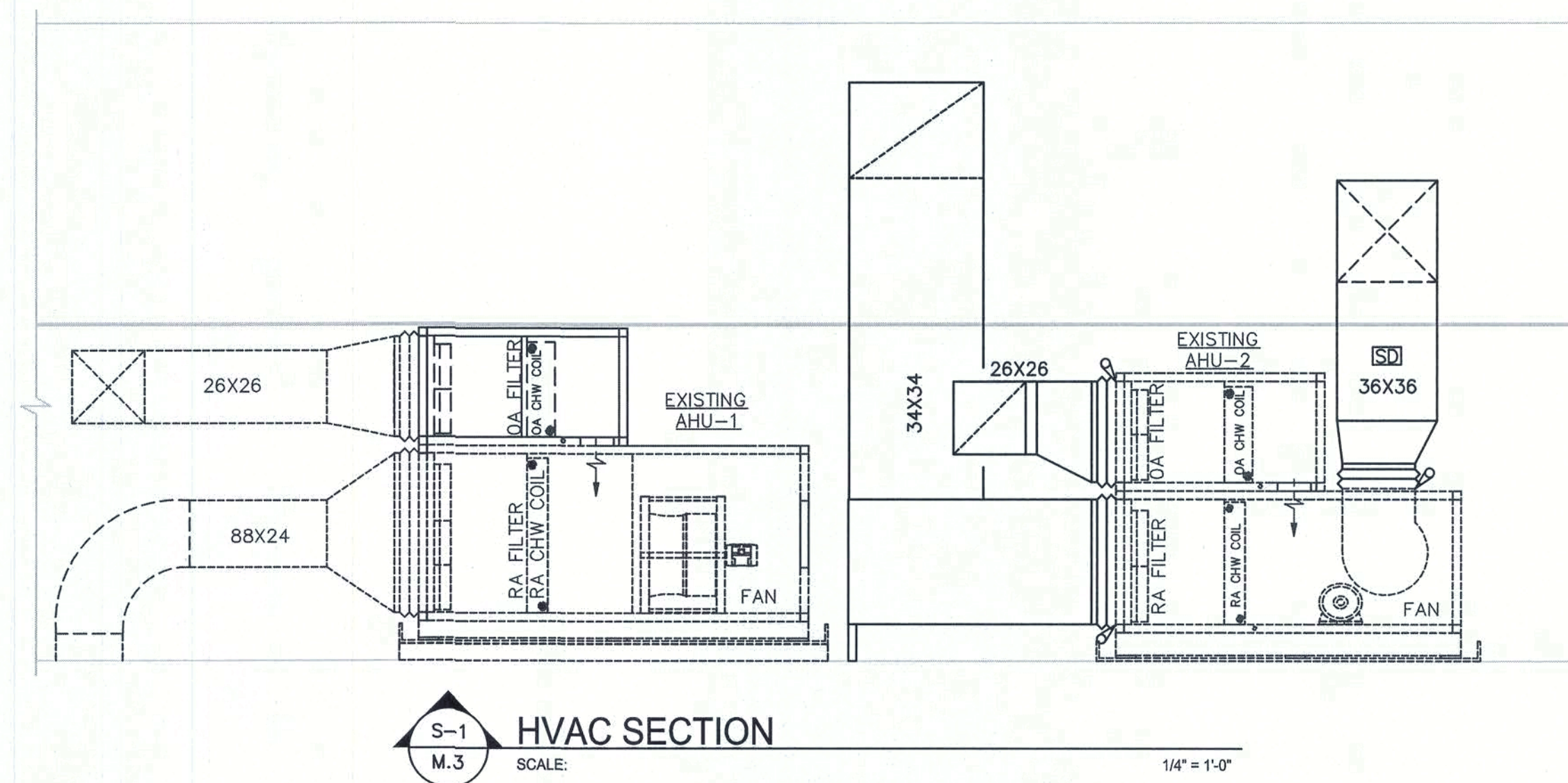


HVAC SECOND FLOOR PLAN
SCALE: 1/8" = 1'-0"

REFER TO ENLARGED MECHANICAL ROOM PLAN
ON SHEET M.3 FOR WORK IN THIS AREA.



- HVAC CODED NOTES:
- 1 PROVIDE 58X54 HURRICANE WIND RATED LOUVER EQUAL TO GREENHECK MODEL EHV-901D WITH BIRD SCREEN. LOUVER COLOR AS SELECTED BY ARCHITECT. PROVIDE 12 INCH DEEP EXTERNALLY INSULATED SHEET METAL PLENUM BOX ON BACK SIDE OF LOUVER FOR DUCT CONNECTION.
 - 2 PROVIDE MERV 14.2 DUCT MOUNTED FILTER BOX AND FILTERS EQUAL TO AAF.
 - 3 REFER TO HVAC DETAILS FOR DUCT MOUNTED ELECTRIC STRIP HEATER.
 - 4 SPACE FOR HVAC CONTROL PANELS. COORDINATE WITH DIVISION 26 TO PROVIDE 120 VOLT POWER TO THIS LOCATION.
 - 5 EXISTING CHILLED WATER PIPING TO REMAIN.
 - 6 NO NEW WORK IN THIS AREA.
 - 7 PROVIDE THROUGH WALL PACKAGED HEAT PUMP EQUAL TO FRIEDRICH MODEL YW18L34, 18,000 BTU COOLING, 16,400 BTU HEATING, 9.5 EER, 208/1/60, WITH PLUG-IN CORD. MOUNT AS HIGH AS POSSIBLE OVER DOOR. ROUTE CONDENSATE PIPING TO SPLASH BLOCK ON GRADE.
 - 8 PROVIDE CEILING CASSETTE SPLIT SYSTEM HEAT PUMP EQUAL TO MITSUBISHI MODEL PLA-A18BA6 (INDOOR UNIT) / PUZ-A18NH46 (OUTDOOR CONDENSER) WITH 18,000 BTU COOLING, 19,000 BTU HEATING, 14.2 SEER, AND BACKUP ELECTRIC HEAT. PROVIDE SINGLE POINT POWER CONNECTION AT OUTDOOR CONDENSER, 208/1/60, 13 MCA, 20 MSCP. PROVIDE REFRIGERANT PIPING TO CONNECT UNITS AND ROUTE AS SHOWN. SIZE PER MANUFACTURER'S RECOMMENDATIONS. ROUTE CONDENSATE PIPING TO SPLASH BLOCK ON GRADE.
 - 9 REFER TO DETAIL ON SHEET M.5 FOR SUPPORT OF CONDENSER.
 - 10 NEW AIRFLOW MONITORING STATION EQUAL TO EBTRON GOLD.



REVISIONS

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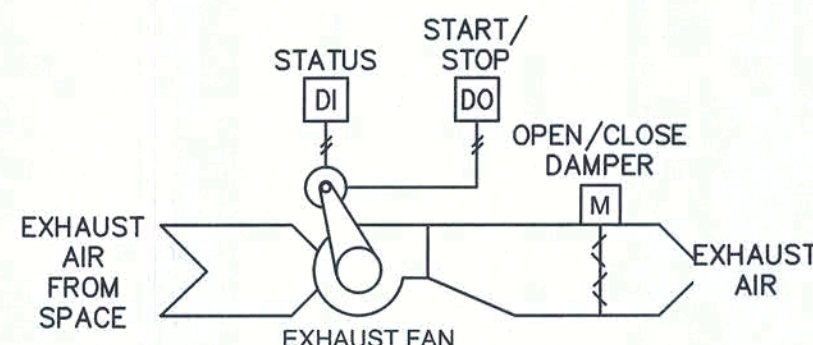
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23 SEP 2020

SHEET NUMBER
M.3

EF CONTROL DIAGRAM

TYPICAL FOR EF-2



SEQUENCE OF OPERATIONS:

EXHAUST FAN TO BE TIED INTO EXISTING KMC CONTROLS BUILDING MANAGEMENT SYSTEM AND TO BE CONTROLLED GLOBALLY BY OCCUPIED/UNOCCUPIED SCHEDULE. COORDINATE WITH OWNER FOR INITIAL SCHEDULING. PROVIDE ALL WIRING AND PROGRAMMING AS REQUIRED TO ACCOMMODATE THE FOLLOWING SEQUENCE:

ALARMS: 1. EXHAUST FAN FAILURE

OCCUPIED MODE:

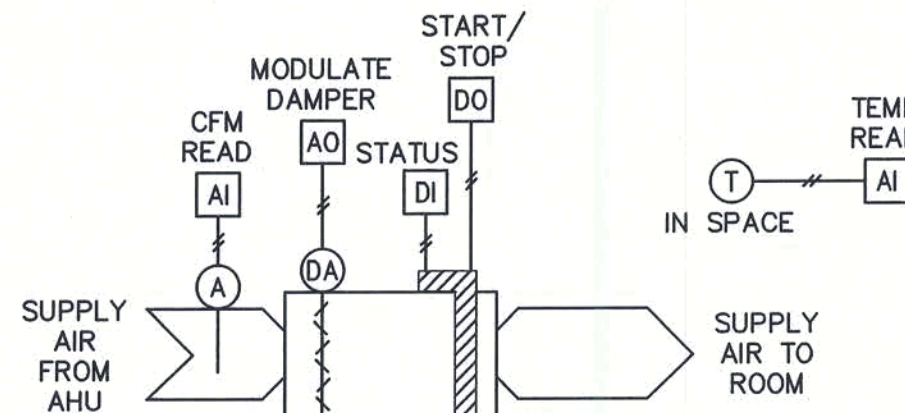
FAN SHALL RUN CONTINUOUSLY.

UNOCCUPIED MODE:

FAN SHALL BE DE-ENERGIZED.

VAV CONTROL DIAGRAM

TYPICAL FOR ALL VAV BOXES



SEQUENCE OF OPERATIONS:

VAV BOX TO BE TIED INTO EXISTING KMC CONTROLS BUILDING MANAGEMENT SYSTEM AND SHALL BE INTERLOCKED TO START/STOP AND CHANGE OVER TO COOLING OR HEATING MODE WITH ASSOCIATED AIR HANDLING UNIT SUPPLY FAN AS NOTED BELOW:

VAV-2-1 THRU VAV-2-19

AHU-2

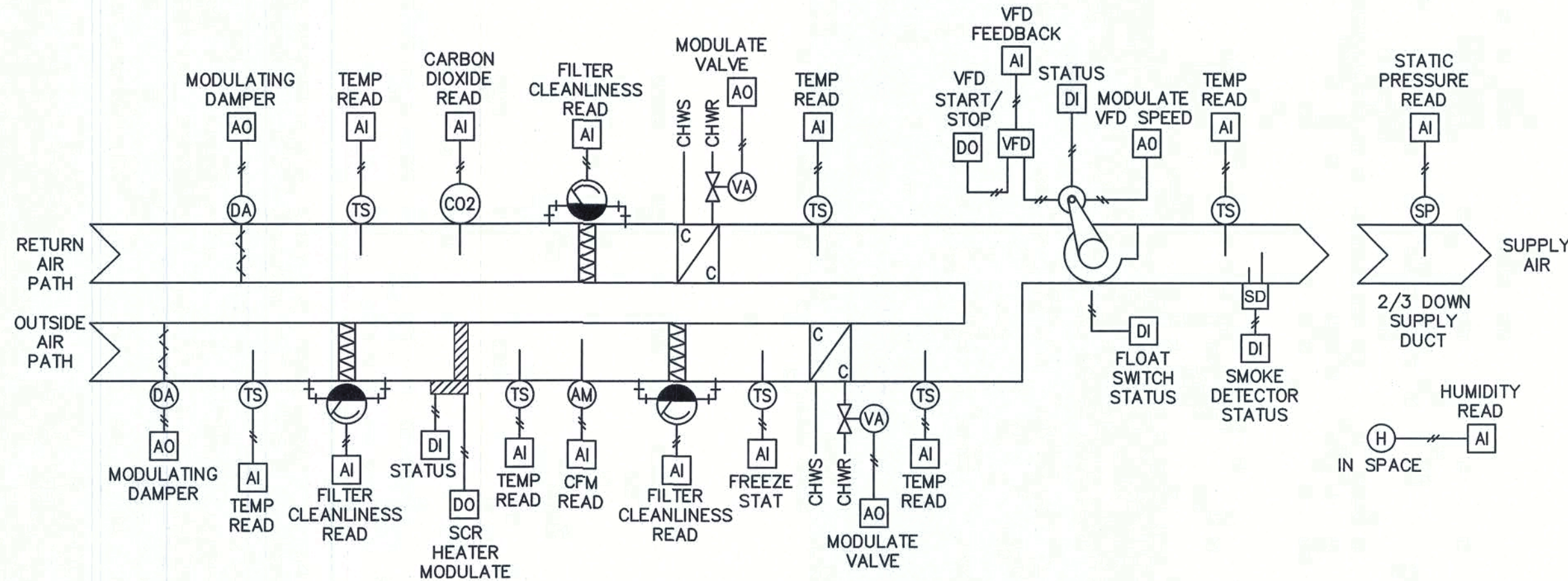
COORDINATE WITH OWNER FOR INITIAL SCHEDULING. PROVIDE ALL WIRING AND PROGRAMMING AS REQUIRED TO ACCOMMODATE THE FOLLOWING SEQUENCE:

ALARMS: 1. ELECTRIC STRIP HEATER FAILURE

IN THE COOLING MODE, THE DAMPER ACTUATOR SHALL MODULATE TO MAINTAIN THE SPACE TEMPERATURE SETPOINT OF 75 DEGREES F AS SENSED BY THE SPACE THERMOSTAT. IN THE HEATING MODE, THE DAMPER ACTUATOR SHALL MODULATE AND ELECTRIC STRIP HEATER SHALL ENERGIZE TO MAINTAIN THE SPACE TEMPERATURE SETPOINT OF 70 DEGREES F. THE THERMOSTATS SHALL BE ADJUSTABLE BY THE OCCUPANTS BY 5 DEGREES F ABOVE AND BELOW SETPOINT.

AHU CONTROL DIAGRAM

TYPICAL FOR (E) AHU-2



SEQUENCE OF OPERATIONS:

AIR HANDLING UNIT TO BE PROVIDED WITH NEW CONTROLS WHICH ARE TO BE TIED INTO THE EXISTING KMC CONTROLS BUILDING MANAGEMENT SYSTEM. AIR HANDLING UNIT TO BE CONTROLLED GLOBALLY BY OCCUPIED/UNOCCUPIED SCHEDULE AND COOLING/HEATING MODES. SYSTEM SHALL BE AN EXTENSION OF AND BE FULLY COMPATIBLE WITH THE EXISTING ENERGY MANAGEMENT SYSTEM. COORDINATE WITH FACILITIES FOR INITIAL SCHEDULING. PROVIDE ALL WIRING AND PROGRAMMING AS REQUIRED TO ACCOMMODATE THE FOLLOWING SEQUENCE:

- ALARMS:
1. DIRTY FILTER (VERIFY WITH TEST AND BALANCE AGENCY FOR STATIC PRESSURE SETPOINT)
 2. SUPPLY FAN FAILURE
 3. VFD FAILURE
 4. ELECTRIC STRIP HEATER FAILURE
 5. FLOAT SWITCH TRIP
 6. SMOKE DETECTOR(S) ACTIVATED

OCCUPIED MODE:

STARTUP:
ALL ASSOCIATED VAV BOXES SHALL ENERGIZE. THE MOTORIZED OUTSIDE AIR DAMPER SHALL REMAIN CLOSED. THE MOTORIZED RETURN AIR DAMPER SHALL BE FULLY OPEN. THE VFD SHALL THEN SLOWLY RAMP THE SUPPLY FAN UP TO THE DESIGN DUCT STATIC PRESSURE (VERIFY WITH TEST AND BALANCE AGENCY.) IN THE COOLING MODE, THE RETURN AIR CHILLED WATER COIL VALVE ACTUATOR SHALL THEN BEGIN TO MODULATE TO MAINTAIN SUPPLY AIR TEMPERATURE. IN THE HEATING MODE, THE VALVE SHALL REMAIN CLOSED. AFTER A ONE HOUR DELAY, THE MOTORIZED OUTSIDE AIR DAMPER SHALL OPEN AND BEGIN TO MODULATE IN CONJUNCTION WITH THE RETURN AIR DAMPER TO MAINTAIN REQUIRED OUTSIDE AIR FLOW.

SUPPLY FAN:
THE SUPPLY FAN SHALL BE MODULATED BY THE VFD TO MAINTAIN THE DESIGN DUCT STATIC PRESSURE.

RETURN AIR CHILLED WATER COIL:
IN THE COOLING MODE, THE RETURN AIR CHILLED WATER COOLING COIL VALVE ACTUATOR SHALL BE MODULATED TO MAINTAIN A 55 DEGREE F LEAVING AIR TEMPERATURE AS SENSED BY THE TEMPERATURE SENSOR IMMEDIATELY DOWNSTREAM OF THE COIL. IN THE HEATING MODE, THE VALVE SHALL REMAIN CLOSED.

OUTSIDE AIR CHILLED WATER COIL:
IN THE COOLING MODE, THE OUTSIDE AIR CHILLED WATER COOLING COIL VALVE ACTUATOR SHALL BE MODULATED TO MAINTAIN A 55 DEGREE F LEAVING AIR TEMPERATURE AS SENSED BY THE TEMPERATURE SENSOR IMMEDIATELY DOWNSTREAM OF THE COIL. IN THE HEATING MODE, THE VALVE SHALL REMAIN CLOSED.

OUTSIDE AIR ELECTRIC STRIP DUCT HEATER:
IN THE COOLING MODE, THE ELECTRIC STRIP DUCT HEATER SHALL BE DE-ENERGIZED. IN THE HEATING MODE, THE SOR ELECTRIC STRIP HEATER SHALL ENERGIZE AND MODULATE TO MAINTAIN A 70 DEGREE F LEAVING AIR TEMPERATURE AS SENSED BY THE TEMPERATURE SENSOR IMMEDIATELY DOWNSTREAM OF THE HEATER.

OUTSIDE AIR FLOW MONITORING STATION AND CO2 CONTROL:
THE MOTORIZED OUTSIDE AIR DAMPER AND MOTORIZED RETURN AIR DAMPER SHALL BE CONTINUOUSLY MODULATED TO PROVIDE THE REQUIRED OUTSIDE AIR FLOW AS MEASURED BY THE OUTSIDE AIR FLOW MONITORING STATION. WHEN CO2 LEVELS ARE BELOW 800 PPM, THE REQUIRED OUTSIDE AIR FLOW SHALL BE SET TO THE MINIMUM AIR FLOW SETTING. WHEN CO2 LEVELS ARE ABOVE 1,000 PPM, THE REQUIRED OUTSIDE AIR FLOW SHALL BE SET TO THE MAXIMUM AIR FLOW SETTING. REFER TO AIR BALANCE SUMMARY SCHEDULE ON SHEET M.4 FOR MINIMUM AND MAXIMUM AIR FLOW SETTINGS (VERIFY WITH TEST AND BALANCE AGENCY).

SHUTDOWN:
THE OUTSIDE AIR ELECTRIC STRIP DUCT HEATER SHALL DE-ENERGIZE. THE VFD SHALL SLOWLY RAMP THE SUPPLY FAN DOWN AND SHALL DE-ENERGIZE. THE RETURN AIR AND OUTSIDE AIR CHILLED WATER COIL VALVE ACTUATORS SHALL CLOSE. THE MOTORIZED OUTSIDE AIR DAMPER SHALL THEN CLOSE. THE RETURN AIR DAMPER SHALL FULLY OPEN. ALL ASSOCIATED VAV BOXES SHALL THEN DE-ENERGIZE.

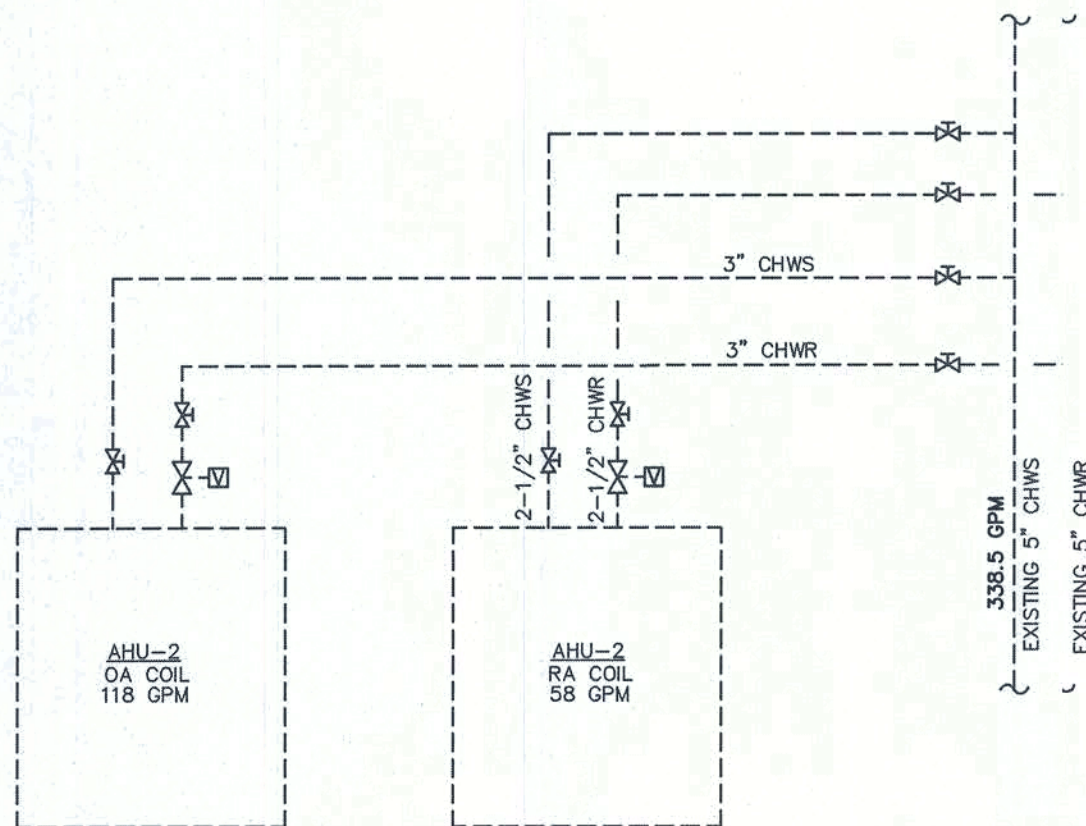
SAFETY MODE: IF WATER IS DETECTED IN THE SECONDARY DRAIN PAN AS DETECTED BY THE FLOAT SWITCH, THE SUPPLY FAN SHALL DE-ENERGIZE, RETURN AIR AND OUTSIDE AIR CHILLED WATER COIL VALVE ACTUATORS SHALL CLOSE, AND THE OUTSIDE AIR MOTORIZED DAMPER SHALL CLOSE. IF THE OUTSIDE AIR TEMPERATURE FALLS BELOW 40 DEGREES F, THE OUTSIDE AIR HEATER SHALL ENERGIZE TO MAINTAIN A MINIMUM 40 DEGREE F OUTSIDE AIR COIL ENTERING TEMPERATURE. SHOULD THE OUTSIDE AIR HEATER FAIL AND THE TEMPERATURE FALL BELOW 38 DEGREES F, CLOSE OUTSIDE AIR DAMPER AND DE-ENERGIZE ELECTRIC DUCT HEATER.

UNOCCUPIED MODE:

AIR HANDLING UNIT SUPPLY FAN SHALL BE DE-ENERGIZED. THE RETURN AIR AND OUTSIDE AIR CHILLED WATER COIL VALVE ACTUATORS SHALL BE CLOSED. THE MOTORIZED OUTSIDE AIR DAMPER SHALL BE CLOSED. THE RETURN AIR DAMPER SHALL BE FULLY OPEN. THE OUTSIDE AIR ELECTRIC STRIP DUCT HEATER SHALL BE DE-ENERGIZED. ALL ASSOCIATED VAV BOXES SHALL BE DE-ENERGIZED.

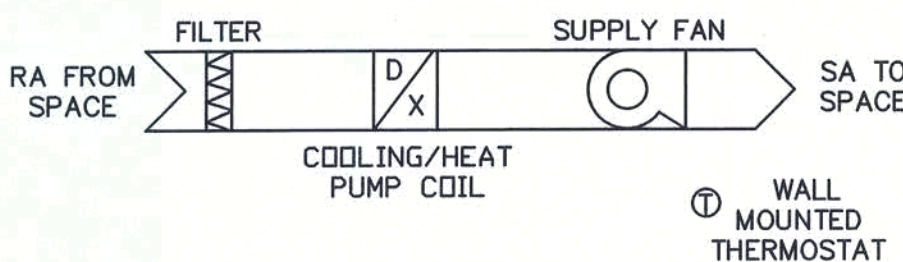
HUMIDITY CONTROL MODE: DURING UNOCCUPIED MODE, IF THE HUMIDITY RISES ABOVE 65% RH, AS SENSED BY THE SPACE HUMIDISTAT, THE AIR HANDLING UNIT SHALL REVERT TO THE OCCUPIED MODE. REVERT BACK TO UNOCCUPIED MODE SEQUENCE WHEN HUMIDITY FALLS BELOW 58% RH.

EXISTING CHILLED WATER FLOW DIAGRAM



HVAC CONTROL DIAGRAM

FOR MINI-SPLITS



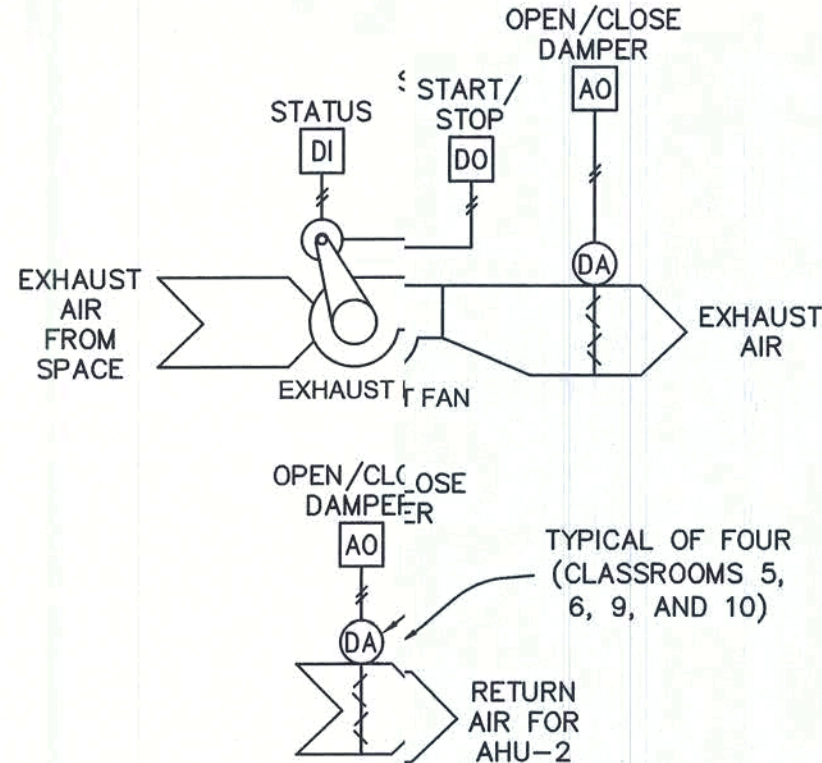
SEQUENCE OF OPERATIONS:

UNIT TO BE TIED INTO EXISTING KMC CONTROLS BUILDING MANAGEMENT SYSTEM. THE UNIT SHALL BE PROVIDED WITH FACTORY MOUNTED THERMOSTATS TO PROVIDE THE FOLLOWING SEQUENCE OF OPERATIONS:

1. THE UNITS SHALL RUN CONTINUOUSLY 24 HOURS A DAY, 7 DAYS A WEEK. THE SUPPLY FANS SHALL RUN ONLY ON A CALL FOR COOLING OR HEATING. THE UNIT SHALL MAINTAIN A CONSTANT SPACE TEMPERATURE OF 75 DEGREES F (ADJUSTABLE BY THE OCCUPANTS BETWEEN 72 AND 78 DEGREES F ONLY) 24 HOURS A DAY, 7 DAYS A WEEK.
2. UPON A CALL FOR COOLING, THE COMPRESSOR(S) SHALL BE CYCLED AND CONDENSER FAN(S) SHALL BE ENERGIZED AS REQUIRED TO MAINTAIN SPACE TEMPERATURE.
3. UPON A CALL FOR HEATING, THE HEAT PUMP SHALL BE CYCLED AS REQUIRED TO MAINTAIN SPACE TEMPERATURE. UNIT SHALL HAVE LOW AMBIENT CONTROLS AND A DEFROST HEATER.

EF CONTROL DIAGRAM

TYPICAL FOR EF-3



SEQUENCE OF OPERATIONS:

EXHAUST FAN TO BE TIED INTO EXISTING KMC CONTROL BUILDING MANAGEMENT SYSTEM AND TO BE CONTROLLED GLOBALLY BY OCCUPIED/UNOCCUPIED SCHEDULE. COORDINATE WITH OWNER FOR INITIAL SCHEDULING. PROVIDE ALL WIRING AND PROGRAMMING AS REQUIRED TO ACCOMMODATE THE FOLLOWING SEQUENCE:

ALARMS: 1. EXHAUST FAN FAILURE

OCCUPIED MODE:

FAN IS PROVIDED TO CONTROL THE OVER-PRESSURIZATION OF THE SECOND FLOOR. FAN SHALL RUN AND EXHAUST AIR MOTORIZED DAMPER SHALL OPEN ONLY WHEN THE OUTSIDE AIR MOTORIZED DAMPER ASSOCIATED WITH AHU-2 IS AT ITS MAXIMUM OPENED SETPOINT (CO2 LEVELS EXCEED LIMITS). WHENEVER FAN IS ENERGIZED, THE FOUR RETURN AIR MOTORIZED DAMPERS IN CLASSROOMS 5, 6, 9, AND 10 SHALL CLOSE.

WHEN THE OUTSIDE AIR MOTORIZED DAMPER ASSOCIATED WITH AHU-2 IS AT ITS MINIMUM OPENED SETPOINT (CO2 LEVELS ARE BELOW LIMITS), THE EXHAUST FAN SHALL BE DE-ENERGIZED, EXHAUST AIR DAMPER SHALL BE CLOSED, AND RETURN AIR DAMPERS SHALL BE OPEN.

UNOCCUPIED MODE:

THE EXHAUST FAN SHALL BE DE-ENERGIZED, EXHAUST AIR DAMPER SHALL BE CLOSED, AND RETURN AIR DAMPERS SHALL BE OPEN.

REVISIONS

BELMONT ACADEMY FOR:
2ND FLOOR EXPANSION FOR
BELMONT ACADEMY CHARTER SCHOOL
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DATE:
28 SEP 2020

SHEET NUMBER

M.6

PLUMBING FIXTURE SCHEDULE

	MINIMUM CONNECTIONS				FIXTURE	FAUCET / FLUSH VALVE	SEAT	DRAIN	TRAP	SUPPLY		CARRIER	INSULATION
	WASTE	VENT	CW	HW									
WC-1	4"	2"	1/2"	-	WATER CLOSET/ADA WHITE, VITREOUS CHINA, ELONGATED 161/2" HIGH BOWL RIM, FLOOR MOUNTED, PRESJRE ASSISTED SIPHON JET FLUSH ACTION, 1. GALLONS PER FLUSH, FULLY GLAZED 2-/8" TRAPWAY, TWO BOLT CAPS. AMERICAN STANDARD "CADET RIGHT HEIGHT" 2467.016	--	OPEN FRONT LESS COVER, ELONGATED, HEAVY-DUTY, SOLID PLASTIC, FOUR MOLDED-IN BUMPERS, SELF SUSTAINING CHECK HINGES WITH STAINLESS STEEL POSTS AND PINTLES, WHITE. OLSONITE 95SSCT	--	INTEGRAL	--		--	--
WC-2	4"	2"	1/2"	-	WATER CLOSET WHITE, VITREOUS CHINA, ELONGATED 15"HIGH BOWL RIM, WALL HUNG, BACK OUTLET GRAVITY FLUSH. COMBINATION BOWL AN TANK LESS SEAT. SIPHON JET ACTION. 28 GPF. AMERICAN STANDARD "GLENWALL VORMAX" 2882107	--	OPEN FRONT LESS COVER, ELONGATED, HEAVY-DUTY, SOLID PLASTIC, FOUR MOLDED-IN BUMPERS, SELF SUSTAINING CHECK HINGES WITH STAINLESS STEEL POSTS AND PINTLES, WHITE. OLSONITE 95SSCT	--	INTEGRAL	--		SIPHON JET TOILET CARRIER. 4" NO HUB CONNECTIONS AND 2" VENT. CORROSION RESISTANT. ADJUSTABLE COUPLING. ZURN ZN1201-N_4 ZURN ZN1202-N4	--
U-1	2"	1-1/2"	3/4"	-	URINAL/ADA WHITE, VITREOUS CHINA, 0.5 GPF, FLUSNG RIM, WASHOUT FLUSH ACTION, 3/4" INJ' SPUD, TOP SPUD. AMERICAN STANDARD "WASHBROOK" 699.001	FLUSH VALVE CHROME PLATED CAST BRASS CONSTRUCTION, NON-HOLD OPEN HANDLE, ADJUSTABLE TAILPIECE, 0.5 GPF, FOR 3/4" TOP SPUD URINALS. AMERICAN STANDARD 6045.051	--	--	INTEGRAL	--		--	--
U-2	2"	1-1/2"	3/4"	-	URINAL WHITE, VITREOUS CHINA, 0.5 GPF, FLUSNG RIM, WASHOUT FLUSH ACTION, 3/4" INJ' SPUD, TOP SPUD. AMERICAN STANDARD "WASHBROOK" 699.001	FLUSH VALVE CHROME PLATED CAST BRASS CONSTRUCTION, NON-HOLD OPEN HANDLE, ADJUSTABLE TAILPIECE, 0.5 GPF, FOR 3/4" TOP SPUD URINALS. AMERICAN STANDARD 6045.051	--	--	INTEGRAL	--		--	--
L-1	1-1/2"	1-1/2"	1/2"	1/2"	LAVATORY/ADA WHITE, WALL HUNG, VITREOUS CHINA, 20-3/4" X 18-1/4", FAUCET HOLES C 4" CENTERS, FRONT OVERFLOW, FOR CONCEALED ARMS SUPPORT. AMERICAN STANDARD "LUCERNE" 035512	CHROME FINISH, 4" CENTERSET, ALL METAL FABRICATED BODY, VANDAL RESISTANT AERATOR, VANDAL RESISTANT LEVER HANDLE, DIAMOND EMBEDDED CERAMIC DISC CARTRIDGE, 0.5 GPM. DELTA 501LF-HGMHDF	--	1-1/4", 17 GAUGE, CHROME PLATED OPEN GRID P.O. PLUG AND BRASS 1-1/4" TAILPIECE. MCGUIRE 155A	1-1/4" X 1-1/2", 17 GAUGE, ADJUSTABLE TRAP WITH CLEANOUT ANND WALL FLANGE, CHROME FINISH. MCGUIRE 8902	1/2" NOMINAL X 3/8" O.D. ANGLE SUPPLY, LOOSE KEY STOP, WALL FLANGE, CHROME PLATED. MCGUIRE 2165CCLK	ADJUSTABLE FLOOR SUPPORT WITH CONCEALED ARMS. JAR R SMITH 700 SERIES	WHITE, SINGLE PIECE CONSTRUCTION, RIGID HIGH IMPACT STAIN RESISTANT PVC TRUEBRO "LAV-SHIELD"	
L-2	1-1/2"	1-1/2"	1/2"	1/2"	LAVATORY WHITE, VITREOUS CHINA, OVAL, UNDERMOUNT, 19-1/4" X 16-1/4", FRNT OVERFLOW. AMERICAN STANDARD "OVALYN" 0496.30	CHROME FINISH, 4" CENTERSET, ALL METAL FABRICATED BODY, VANDAL RESISTANT AERATOR, VANDAL RESISTANT LEVER HANDLE, DIAMOND EMBEDDED CERAMIC DISC CARTRIDGE, 1.5 GPM. DELTA 501LF-HGMHDF	--	1-1/4", 17 GAUGE, CHROME PLATED OPEN GRID P.O. PLUG AND BRASS 1-1/4" TAILPIECE. MCGUIRE 155A	1-1/4" X 1-1/2", 17 GAUGE, ADJUSTABLE TRAP WITH CLEANOUT ANND WALL FLANGE, CHROME FINISH. MCGUIRE 8902	1/2" NOMINAL X 3/8" O.D. ANGLE SUPPLY, LOOSE KEY STOP, WALL FLANGE, CHROME PLATED. MCGUIRE 2165CCLK	ADJUSTABLE FLOOR SUPPORT WITH CONCEALED ARMS. JAR R SMITH 700 SERIES	WHITE, SINGLE PIECE CONSTRUCTION, RIGID HIGH IMPACT STAIN RESISTANT PVC TRUEBRO "LAV-SHIELD"	
BFS-1	1-1/2"	1-1/2"	1/2"	-	BOTTLE FILLER STATION/ADA SURFACE MOUNT, NON-FILTERED NON-REFRIGERATED STAINLESS. LAMINA FLOW, ANTIMICROBIAL, REAR DRAIN. MECHANICAL BOTTLE FILLER BUTTON ACTIVATION. LEAD FREE DESIGN. REFERTO ARCHITECTURAL DRAWINGS FOR MOUNTG HEIGHT. ELKAY EMASM	--	--	--	1-1/4" X 1-1/2", 17 GAUGE, ADJUSTABLE TRAP WITH CLEANOUT, CHROME FINISH. MCGUIRE 8902	CHROME PLATED SUPPLY WITH LOOSE KEY STRAIGHT STOP AND WALL FLANGE. MCGUIRE 158LK	--	--	
MB-1	3"	2"	1/2"	1/2"	MOP BASIN WHITE, MOLDED STONE, 24"x24"x10" HH, STAINLESS STEEL DRAIN BODY, COMBINTION DOME STRAINER AND STAINLESS STEELINT BASKET, 3" CONNECTION. FIAT MSB-2424 FIAT 889 CC (MOP BRACKET) FIAT 1453 BB (STAINLESS STEEL STRAER) FIAT 832 AA (HOSE AND BRACKET) FIAT MSG 2424 (STAINLESS STEEL WAL GUARDS). NOTE: INSTALL WALL GUARDS ONLY IF WALLS ARE NOT TILED.	POLISHED CHROME, COMBINATION FITTING WITH VACUUM BREAKER, 3/4" HOSE END THREADED SPOUT, WALL BRACE, PAIL HOOK, INTEGRAL STOPS, ADJUSTABLE SUPPLY ARMS. CHICAGO 897	--	--	--	--	--	--	

PLUMBING SPECIALTIES SCHEDULE

MARK	DESCRIPTION	MODEL
CO-1	WALL CLEANOUT ROUND SECURED STAINLESS STEEL ACCESS COVER AND FRAME, COATED, CAST IRON CLEANOUT TEE, NO HUB CONNECTION, WATERTIGHT ABS TAPERED THREAD PLUG.	ZURN ZN-1446-VP
CO-2	FLOOR CLEANOUT ADJUSTABLE LEVELING FLOOR CLEANOUT, DURA-COATED CAST IRON BODY, WITH GAS AND WATERTIGHT ABS TAPERED THREAD PLUG, AND ROUND SCORATED, SECURED LIGHT-DUTY POLISHED NICKEL BRONZE TOP WITH ADDITIONAL LEVELING ADJUSTMENT TO FINISHED FLOOR. VANDAL-PROOF SCREWS.	ZURN ZN1400-BZ-VP
FD-1	FLOOR DRAIN DURA-COATED CAST IRON BODY WITH BOTTOM OUTLET, COMBINATION INVERTIBLE MEMBRANE CLAMP AND ADJUSTABLE COLLAR WITH SEEFAE SLOTS AND "TYPE B" POLISHED NICKEL BRONZE STRAINER, 1/2" TRAP PRIMER CONNECTION, BACKWATER VALVE, VANDAL PROOF SECURED TOP, SEDIMENT BUCKET.	ZURN Z415B-P-V-VP-Y
TP-1	TRAP PRIMER 17 GAUGE CAST BRASS ADJUSTABLE P-TRAP WITH CLEANOUT AND 1/2" C.P. COPPER TRAP PRIMER TUBE WITH ESCUTCHEON.	JAY R. SMITH 2698
HB-1	HOSE BIBB CHROMEPLATED BRASS BODY, LOOSE KEY, BRASS VALVE, VACUUM BREAKER AND 3/4" MALE HOSE THREAD.	WOODFORD 24P
TMV-1	THERMOSTATIC MIXING VALVE LEAD FREE BRASS BODY CONSTRUCTION. ADVANCED THERMAL ACTUATOR. ADJUSTABLE TEMPERATURE SELECTION WITH LOCK DOWN. INTEGRAL CHECKS AND SCREEN. 1" SWEAT UNION CONNECTIONS. CSA B125 CERTIFIED. LISTED T ASSE 1017. TEMPERATURE SET POINT AT 110°F.	POWERS "HYDROGUARD" LFLM492-102

SHOCK ARRESTOR SCHEDULE

REF. PDI STANDARD	FIXTURE UNITS	SIZE	MANUFACTURER	MODEL
(A)	1-11	1/2"	WATTS	LF15M2-A
(B)	12-32	3/4"	WATTS	LF15M2-B
(C)	33-60	1"	WATTS	LF15M2-C
ALL UNITS SHALL BE LEAD FREE, ASSE 1010 APPROVED AND PDI RATED. ALL UNITS SHALL BE APPROVED FOR INSTALLATION WITH NO ACCESS PANEL, AND INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.				

HANGER SPACING

PIPING MATERIAL	MAXIMUM HORIZONTAL SPACING (FEET)	MAXIMUM VERTICAL SPACING (FEET)
CPVC PIPE OR TUBING, 1" OR SMALLER	3	10 ^a
CPVC PIPE OR TUBING, 1-1/4" OR LARGER	4	10 ^a
PVC PIPE	4	10 ^a
a. MIDSTORY GUIDE FOR SIZES 2" AND SMALLER.		

WATER HEATER SCHEDULE

MARK	EW-1
MANUFACTURER	A.O. SMITH
MODEL NUMBER	DEL-50
TYPE	ELECTRIC
VOLTS/PHASE/HERTZ	480/3/60
KW INPUT	10
LEAVING WATER TEMP.	120°F
STORAGE CAPACITY (GAL)	50
GAL PER HR RECOVERY @ 60°F RISE	68
DIMENSIONS	32-1/4" x 26-1/2"ø
THERMAL EXPANSION TANK	AMTROL ST-5-C

NOTES:

- UNIT SHALL BE COMPLETE PACKAGE WITH INSULATED TANK, HEATING ELEMENT(S), TEMPERATURE PRESSURE RELIEF VALVE AND ALL REQUIRED VALVES, TRAPS, AND PIPING.
- UNIT SHALL BE MOUNTED AS HIGH AS POSSIBLE ON A WALL MOUNTED PLATFORM EQUAL TO HOLDRITE #50-SWHP-W-C.
- CONTRACTOR SHALL PROVIDE ELECTRIC TIME SWITCH EQUAL TO INTERMATIC WH40.

RECIRCULATION PUMP SCHEDULE

MARK	RP-1
MANUFACTURER	BELL & GOSSETT
MODEL NUMBER	NBF-10S/LW
GALLONS PER MINUTE (GPM)	1
HEAD IN FT. OF WATER	14
CONNECTIONS	1/2" SWEAT
WATTS	52
VOLTS/PHASE/HERTZ	115/1/60
RPM	2800
TIMER KIT	TC-1
AQUASTAT	AQS-1/2

NOTES:

- MAINTENANCE FREE, IN-LINE, LEAD FREE BRONZE, WET ROTOR CIRCULATOR.
- PROVIDE 24 HOUR/7 DAY DIGITAL PROGRAMMABLE TIME CLOCK. PROGRAM TO RUN DURING OCCUPIED PERIODS ONLY.

SUMP PUMP SCHEDULE

MARK	SP-1
MANUFACTURER	LIBERTY PUMPS
MODEL NUMBER	ELV280
FLOW (GPM)	50
HEAD (FT.)	14
DISCHARGE SIZE (IN)	1-1/2
SOLIDS HANDLING SIZE (IN)	1/2
MOTOR HP	1/2
VOLT/PHASE/HERTZ	115/1/60
FULL LOAD AMPS	8.5
MINIMUM SUMP SIZE	18"ø X 30"

NOTES:

- PUMP SHALL BE SUPPLIED WITH A 25 FEET OF MULTICONDUCTOR POWER CORD.
- PUMP SHALL BE SUPPLIED WITH AN OIL DETECTOR CONTROL AND APPROVED ALARM.

REVISIONS					
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BELMONT ACADEMY EOP-
2ND FLOOR EXPANSION FOR
BELMONT ACADEMY CHARTER SCHOOL
1476 SW WALTER AVE, LAKE CITY, FLORIDA 32024

DATE
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SIGNATURE
PE 0049347

Celebrating 40 Years of Service
1972 - 2012
N.P. Geisler, Architect
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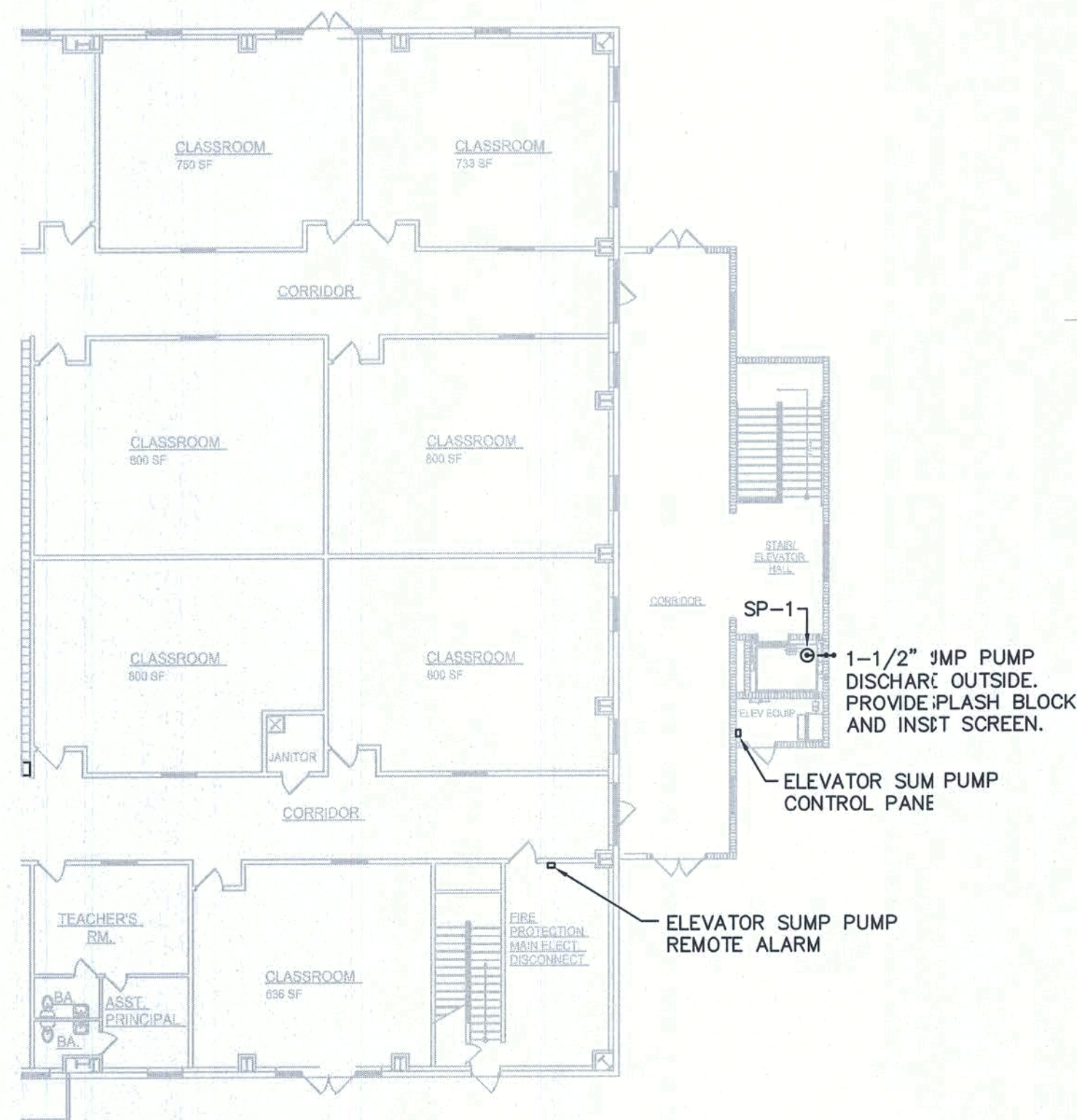
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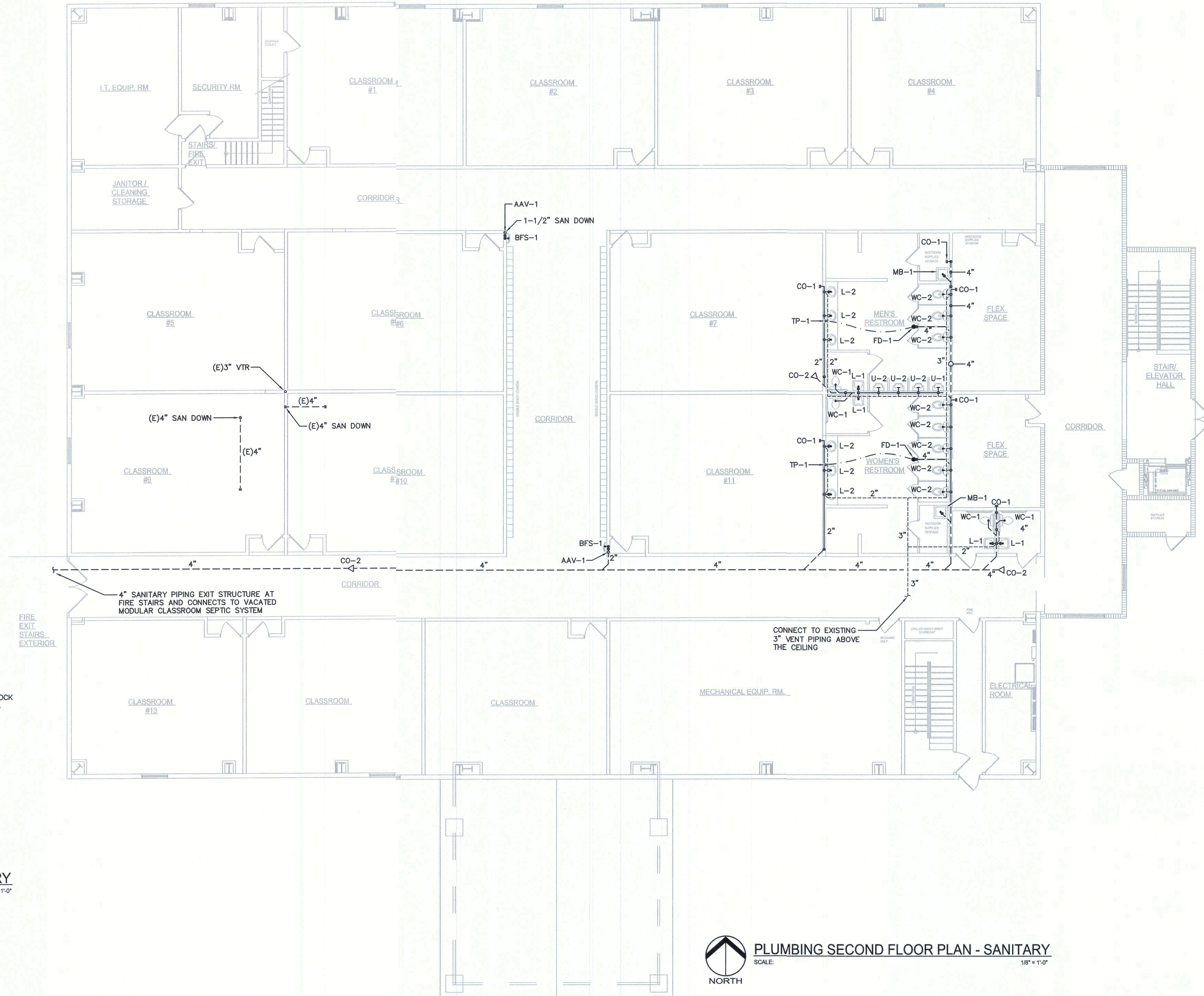
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28 SEP 2020

SHEET NUMBER
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PLUMBING FIRST FLOOR PARTIAL PLAN - SANITARY
SCALE: 1/16" = 1'-0"



PLUMBING SECOND FLOOR PLAN - SANITARY
SCALE: 1/8" = 1'-0"

REVISIONS

BELMONT ACADEMY, LLC
2ND FLOOR EXPANSION FOR
BELMONT ACADEMY CHARTER SCHOOL
1476 SW WALTER AVE LAKE CITY, FLORIDA 32024

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Celebrating
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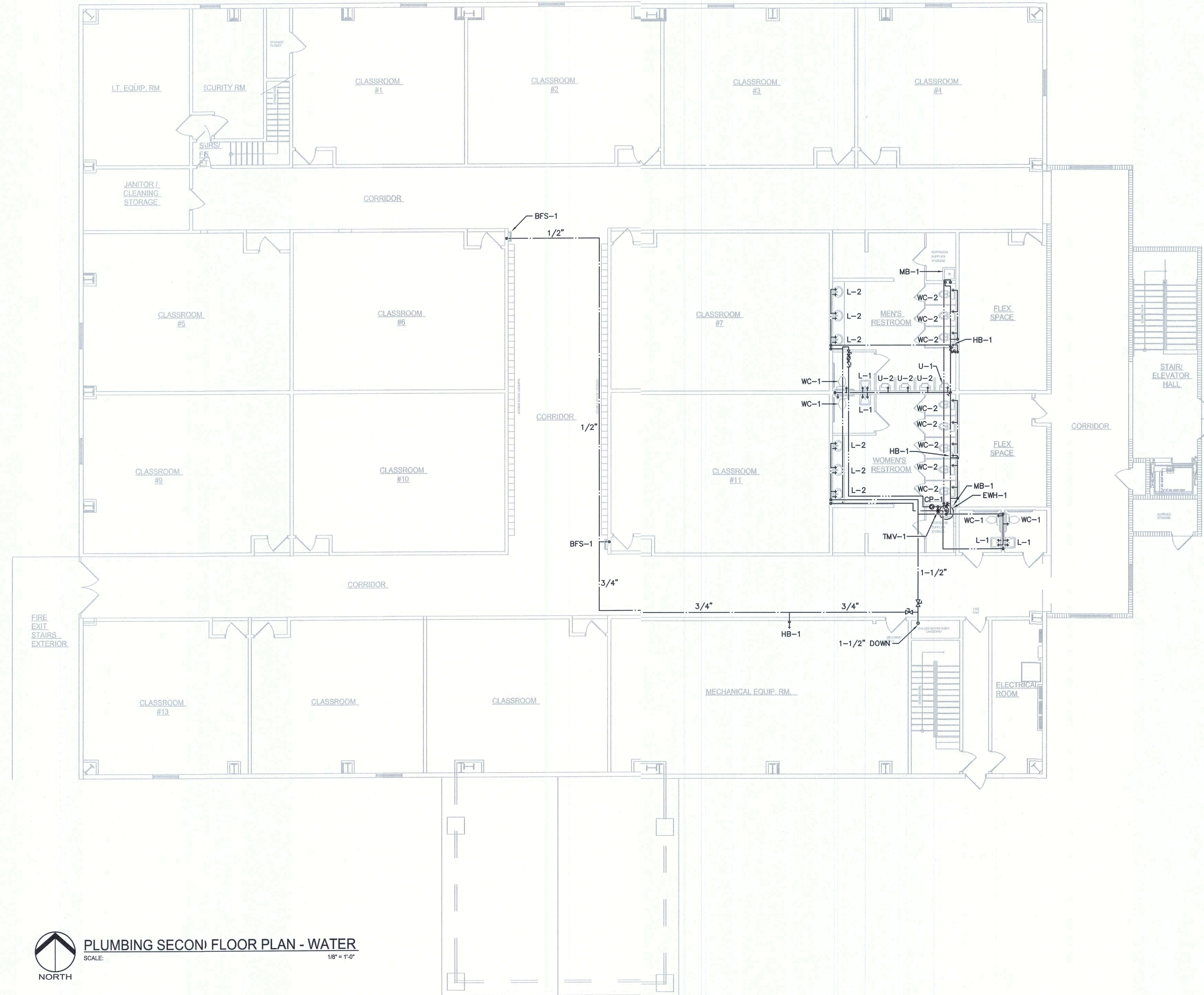
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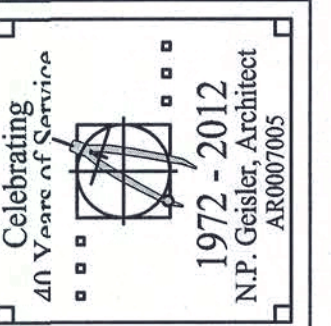


PLUMBING SECOND FLOOR PLAN - WATER
SCALE: 1/8" = 1'-0"

REVISIONS

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2ND FLOOR EXPANSION FOR
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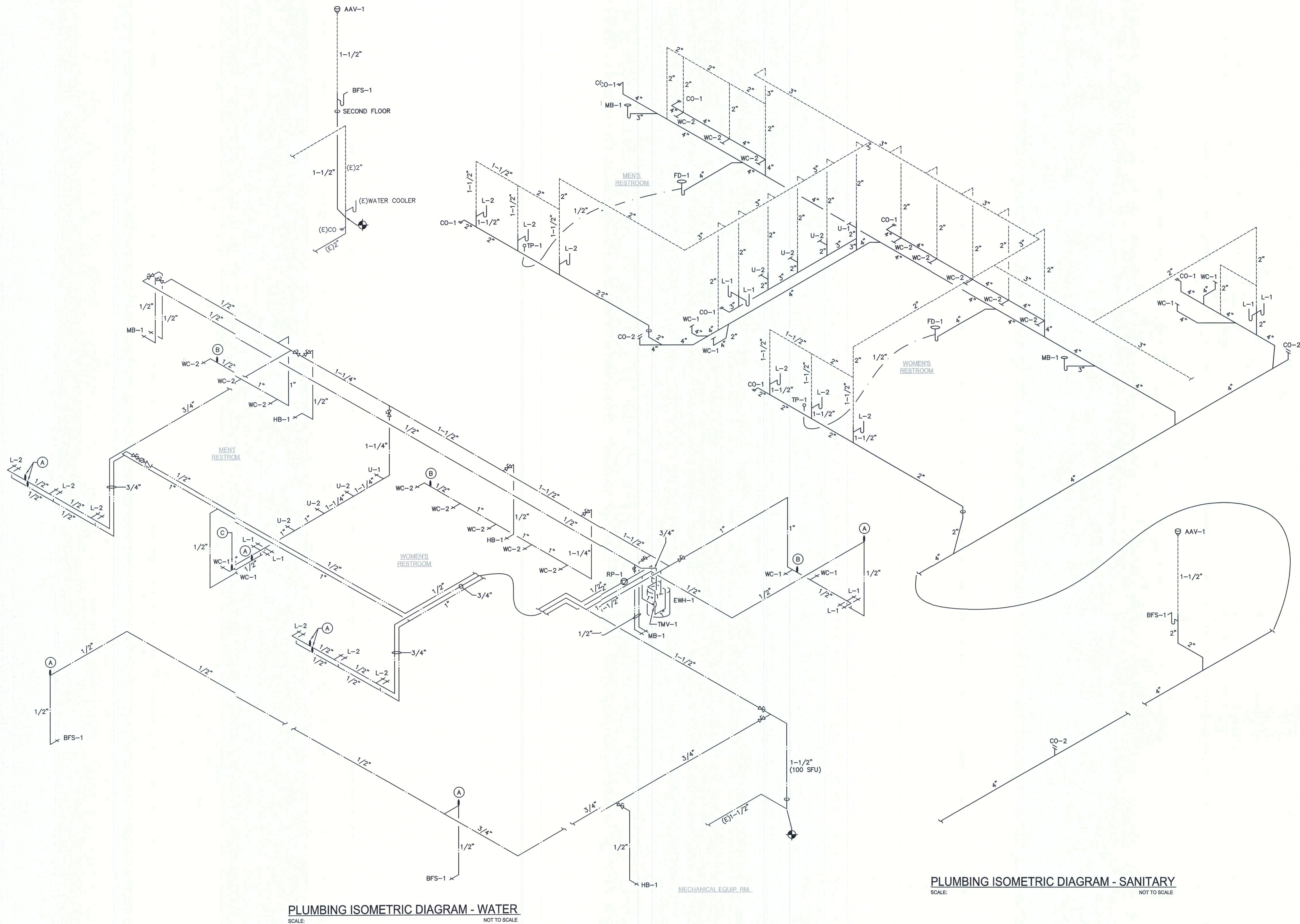


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REVISIONS

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JOB NUMBER: 2K1403a
DATE: 28 SEP 2020
SHEET NUMBER: P.5

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1. GENERAL

A. WORK REQUIRED IN THIS SECTION SHALL BE DONE IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE (NEC), LOCAL, AND STATE CODES. SEE CODE TABLE — THIS SHEET.

2. SCOPE

A. WORK UNDER THIS DIVISION SHALL INCLUDE THE FURNISHING OF ALL LABOR AND THE FURNISHING OF ALL CONDUCTORS, CONDUITS, WIRING, LIGHTING FIXTURES, SAFETY SWITCHES, AND ALL OTHER APPARATUS AND ACCESSORIES INDICATED, SPECIFIED OR REQUIRED FOR A COMPLETE POWER AND LIGHTING SYSTEM, INCLUDING ELECTRICAL WORK REQUIRED IN OTHER DIVISIONS AND PROVISIONS FOR TELEPHONES AS INDICATED.

B. "PROVIDE" IN ELECTRICAL NOTES SHALL MEAN "PROVIDE AND INSTALL" UNLESS SPECIFICALLY NOTED OTHERWISE.

3. GENERAL REQUIREMENTS

A. THIS CONTRACTOR, PRIOR TO SUBMITTING HIS BID, WILL BE HELD TO HAVE VISITED THE SITE OF THE WORK, TO HAVE EXAMINED THE DRAWINGS, SPECIFICATIONS, AND OTHER DOCUMENTS RELATIVE TO THE ENTIRE WORK; TO HAVE FAMILIARIZED HIMSELF WITH THE EXISTING CONDITIONS AND THE MANNER IN WHICH THEY WILL AFFECT HIS WORK; TO HAVE FAMILIARIZED HIMSELF WITH THE GENERAL TYPE OF CONSTRUCTION AND ITS RELATION TO HIS WORK, AS WELL AS THE RELATION OF HIS WORK TO THAT OF ALL OTHER TRADES.

4. MATERIALS AND WORKMANSHIP

A. ALL MATERIALS SHALL BE NEW AND SHALL CONFORM TO THE STANDARDS OF I.E.E.E., AND NEMA, WHERE SUCH STANDARD HAS BEEN ESTABLISHED FOR THE PARTICULAR TYPE OF MATERIAL IN QUESTION. ALL ELECTRICAL EQUIPMENT INSTALLED SHALL BE LISTED BY A NATIONALLY RECOGNIZED TESTING LABORATORY (NRTL) PER NEC ARTICLE 110.3.

B. ALL WORK SHALL BE DONE IN A WORKMANLIKE MANNER AND SHALL PRESENT A NEAT AND MECHANICAL APPEARANCE WHEN COMPLETED.

C. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR TEMPORARY POWER AND TEMPORARY LIGHTING DURING CONSTRUCTION. TEMPORARY POWER SHALL PROVIDE ADEQUATE POWER FOR NORMAL CONSTRUCTION USE. TEMPORARY LIGHTING SHALL PROVIDE ADEQUATE LIGHT SO THAT THE INDIVIDUAL TRADES WORK CAN BE COMPLETED SAFELY.

5. CODES, PERMITS, AND INSPECTIONS

A. THE INSTALLATION SHALL COMPLY WITH ALL LAWS IN EFFECT APPLYING TO ELECTRICAL INSTALLATIONS, THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE, THE NATIONAL ELECTRICAL SAFETY CODE, AND ALL LOCAL CODES.

B. ANY PERMITS REQUIRED SHALL BE OBTAINED AND AFTER COMPLETION OF THE WORK, THE OWNER SHALL BE FURNISHED A CERTIFICATE OF FINAL INSPECTION AND APPROVAL FROM THE INSPECTION AUTHORITIES.

C. ALL PERMITS FOR INSTALLATION, INSPECTION, CONNECTIONS, ETC., SHALL BE TAKEN OUT AND PAID FOR BY THE ELECTRICAL CONTRACTOR AS A PART OF THE WORK UNDER THIS DIVISION OF THE SPECIFICATIONS.

6. DRAWINGS AND SCHEDULES

A. DRAWINGS: THE ELECTRICAL DRAWINGS ARE PARTLY DIAGRAMMATIC AND INDICATE THE GENERAL ARRANGEMENT AND EXTENT OF THE ELECTRICAL WORK, BUT EXACT LOCATION AND ARRANGEMENT OF PARTS SHALL BE DETERMINED AS THE WORK PROGRESSES TO CONFORM IN THE BEST POSSIBLE MANNER, WITH THE SURROUNDINGS.

B. THE DRAWINGS ARE DESIGNED AS PER THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ADVISE THE ARCHITECT OF ANY CONFLICTS BETWEEN THE NATIONAL ELECTRICAL CODE AND LOCAL CODES. FAILURE TO DO SO DOES NOT RELIEVE THE CONTRACTOR'S OBLIGATION UNDER THIS CONTRACT AND WORK REQUIRED TO COMPLY WITH THE APPLICABLE CODES SHALL BE INSTALLED AT NO ADDITIONAL COST.

7. DISCREPANCIES

A. IN CASE OF ANY DIFFERENCE BETWEEN THE DRAWINGS AND SPECIFICATIONS, OR WHERE THE DRAWINGS AND SPECIFICATIONS ARE NOT CLEAR OR DEFINITE, THE SUBJECT SHALL BE REFERRED TO THE PROJECT ENGINEER FOR DECISION AND WRITTEN INSTRUCTIONS.

8. CONDUITS

A. RIGID GALVANIZED STEEL CONDUIT SHALL BE USED FOR ALL EXPOSED WIRING LOCATED LESS THAN 8 FEET ABOVE THE FINISHED FLOOR LEVEL, WHERE SUBJECT TO SEVERE MECHANICAL INJURY AND ALL WIRING EXPOSED TO THE ELEMENTS.

B. ALL EXPOSED CONDUIT SHALL BE RUN PARALLEL WITH WALLS OR CEILINGS.

C. ALL CONDUITS CUT SHALL BE REAMED TO REMOVE ANY SHARP EDGES THAT MAY DAMAGE THE WIRES TO BE PULLED IN.

D. BRANCH CIRCUIT WIRING RUN CONCEALED IN WALLS AND CEILINGS MAY BE INSTALLED IN UNDERWRITER'S APPROVED GALVANIZED THIN WALL CONDUIT WITH COMPRESSION OR SET—SCREW TYPE FITTINGS. SPRING OR CRIMP TYPE OR NON-FERROUS FITTINGS WILL NOT BE APPROVED.

E. ALL WIRING UNDERGROUND OR IN THE SLAB SHALL BE RUN IN RIGID THICK WALL GALVANIZED STEEL CONDUIT. P.V.C. SCHEDULE 40 CONDUIT SHALL BE PERMITTED FOR UNDERGROUND USE ONLY. USE THICK WALL 90° STEEL ELBOWS TO PIERCE SLAB.

F. CONDUIT CONNECTIONS FROM OUTLET BOXES, JUNCTION BOXES, CONDUIT, SWITCH BOXES, OR MOTOR CONTROLLER TO ROTATING OR VIBRATING MACHINERY OR EQUIPMENT SHALL BE MADE WITH FLEXIBLE METALLIC CONDUIT WHICH SHALL BE AS SHORT AS POSSIBLE WITH A MAXIMUM LENGTH OF THIRTY—SIX INCHES. FLEXIBLE CONDUIT EXPOSED TO THE WEATHER SHALL BE WEATHER—PROOF TYPE.

G. CONDUIT CONNECTIONS FROM OUTLET BOXES TO RECESSED LIGHTING FIXTURES SHALL BE MADE WITH 3/8" FLEXIBLE CONDUIT WHICH SHALL HAVE A MAXIMUM LENGTH OF 72 INCHES, UNLESS OTHERWISE NOTED.

H. PACK ALL SLEEVES FOR CONDUITS PASSING THROUGH FIRE RATED WALLS AND FLOOR SLABS WITH FIRE RESISTANT MATERIALS. ALL PENETRATIONS SHALL BE U.L. RATED.

I. CONDUITS SHALL BE A MINIMUM 3/4" CONDUIT UNLESS NOTED OTHERWISE ON PLANS. ALL EMPTY CONDUITS SHALL BE PROVIDED WITH NYLON PULL—WIRES.

J. A GREEN INSULATED COPPER GROUND CONDUCTOR SHALL BE INSTALLED IN ALL RACEWAYS.

9. WIRE AND CABLE

A. ALL CONDUCTORS SHALL BE COPPER WITH THIN INSULATION (THWN INSULATION FOR WEATHER—PROOF APPLICATIONS).

B. ALL CONDUCTORS #10 AND SMALLER SHALL BE SOLID COPPER, AND ALL CONDUCTORS #8 AND LARGER SHALL BE COPPER USING BOLTED LUGS AT TERMINALS. ALL WIRING FOR 120—VOLT, 20—AMP CIRCUITS EXCEEDING 80 FEET IN LENGTH SHALL BE #10 AWG ENTIRE CIRCUIT MINIMUM. MINIMUM WIRE SIZE SHALL BE #12 AWG UNLESS NOTED OTHERWISE.

10. OUTLET BOXES

A. CEILING OUTLET BOXES SHALL BE FOUR INCH OCTAGON TYPE OF GALVANIZED STEEL WITH A MINIMUM DEPTH OF 1 1/2". OUTLET BOXES FOR SWITCHES OR WALL RECEPTACLES SHALL BE 4" SQUARE, OF GALVANIZED STEEL, WITH A MINIMUM DEPTH OF 1 1/2". TELEPHONE OUTLET BOXES SHALL BE 4 11/16" SQUARE. WALL SWITCH OUTLETS SHALL BE MOUNTED 48" ABOVE THE FLOOR; WALL RECEPTACLES SHALL GENERALLY BE MOUNTED 18" ABOVE THE FLOOR UNLESS NOTED OTHERWISE ON DRAWINGS. OUTLET BOXES FOR EXPOSED WALL MOUNTING SHALL BE CAST METAL TYPE. OUTLET BOXES FOR CEILING FANS SHALL BE LISTED FOR SUCH USE.

11. WIRING DEVICES

A. SWITCHES: 20—AMP, 120/277 VOLT RATING, SPECIFICATION GRADE, OFFICE—WHITE IN COLOR. SWITCHES SHALL BE FLUSH, QUIET TOGGLE TYPE (HUBBELL #1221 OR EQUAL).

B. WALL RECEPTACLES: DUPLEX RECEPTACLES SHALL BE FLUSH TYPE, 15 AMPERES, 125 VOLTS RATING, WITH PARALLEL SLOTS AND DOUBLE SIDE CONTACTS. RECEPTACLES SHALL BE GROUNDING TYPE "OFFICE—WHITE" IN COLOR, SPECIFICATION GRADE (HUBBELL #5262 OR EQUAL).

C. WALL PLATES SHALL BE "OFFICE—WHITE" BAKELITE IN OFFICE AREAS, AND GALVANIZED STEEL IN SHOP AREAS.

12. SAFETY SWITCHES

A. SAFETY SWITCHES SHALL BE HEAVY OR GENERAL DUTY, FUSIBLE TYPE OR NON—FUSIBLE TYPE AS INDICATED ON DRAWINGS (SQUARE D CO. OR EQUAL).

13. PANELBOARDS

A. PANELBOARDS SHALL BE OF THE DEAD—FRONT TYPE INCORPORATING SWITCHING AND PROTECTIVE DEVICES OF THE NUMBER, RATING AND TYPE SPECIFIED HERE IN OR SHOWN ON THE DRAWINGS. PANELBOARDS SHALL HAVE GENERAL PURPOSE ENCLOSURES AND SHALL BE SUITABLE FOR FLUSH OR SURFACE MOUNTING AS INDICATED. ALL PANELBOARDS SHALL BE RATED FOR THE INTENDED VOLTAGE AND SHALL BE IN ACCORDANCE WITH THE UNDERWRITERS' LABORATORIES, INC. "STANDARD FOR PANELBOARDS" AND "STANDARD FOR CABINETS AND BOXES" AND SHALL BE SO LABELED WHERE PROCEDURES EXIST. PANELBOARDS SHALL ALSO COMPLY WITH NEMA STANDARD FOR PANELBOARDS AND THE NATIONAL ELECTRICAL CODE. THE BRANCH CIRCUIT BREAKER ARRANGEMENT IN EACH PANEL SHALL BE AS INDICATED IN THE PANEL SCHEDULES. PANELS SHALL BE AS MANUFACTURED BY SQUARE "D", CUTLER—HAMMER, OR APPROVED EQUAL.

B. THE POWER COMPANY SHALL BE CONTACTED BY THE CONTRACTOR WITHIN 10 DAYS OF THE AWARD OF THE CONTRACT TO VERIFY THE ACTUAL AVAILABLE SHORT CIRCUIT FAULT CURRENT AT THE TRANSFORMER SECONDARY BUSHINGS. THE CONTRACTOR SHALL PROVIDE ELECTRICAL DISTRIBUTION AND UTILIZATION EQUIPMENT AND PANELBOARDS WHICH HAVE A.I.C. WITHSTAND RATINGS GREATER THAN THE AVAILABLE FAULT CURRENT.

C. ALL CIRCUIT BREAKERS SHALL BE "FULL SIZE". NO TANDEM, PIGGY—BACK, TWIN OR HALF—SIZE BREAKERS WILL BE ACCEPTED. BREAKER MUST BE APPROVED PRIOR TO INSTALLATION.

D. COORDINATE THE REQUIRED SIZE OF ALL CIRCUIT BREAKERS FEEDING EQUIPMENT (MOTORS, HVAC, KITCHEN EQUIPMENT, SPECIAL PURPOSE OUTLETS, ELEVATORS, OWNER—FURNISHED EQUIPMENT, ETC.) WITH APPROVED EQUIPMENT SHOP DRAWINGS AND OWNER REPRESENTATIVES PRIOR TO ORDERING PANELBOARDS. BREAKERS SHALL BE SIZED PER THE N.E.C., THE EQUIPMENT NAME PLATE AND MANUFACTURER'S RECOMMENDATIONS. SERIES RATING OF CIRCUIT BREAKERS MUST BE APPROVED BY ENGINEER, AND MUST COMPLY WITH ALL THE REQUIREMENTS OF NEC 110.22 AND 240.86.

E. UPON COMPLETION OF INSTALLATION, INSPECT INTERIOR AND EXTERIOR OF PANELBOARDS. PROTECT INTERIORS FROM PAINT SPLATTER DURING CONSTRUCTION AND REMOVE PAINT SPLATTERS AND OTHER SPOTS, DIRT, AND DEBRIS. TOUCH—UP SCRATCHES AND MARS OF FINISH TO MATCH ORIGINAL FINISH.

14. LIGHTING FIXTURES

A. LIGHTING FIXTURES SHALL BE FURNISHED AND INSTALLED COMPLETED IN ALL RESPECTS, INCLUDING LAMPS AS LISTED IN THE FIXTURE SCHEDULE ON THE DRAWINGS. ALL FIXTURES SHALL BE PROPERLY AND CAREFULLY SUPPORTED AND ALIGNED. THIS CONTRACTOR SHALL FURNISH ALL NECESSARY SUPPORTS FOR FIXTURES.

B. LED—SOURCE LIGHT FIXTURES SHALL BE AS SPECIFIED ON PLANS. SUBSTITUTIONS REQUIRE WRITTEN APPROVAL BY ENGINEER—OF—RECORD.

C. TIME CLOCKS SHALL BE 24—HOUR, 7—DAY WITH BATTERY BACKUP. EACH DAY SHALL HAVE MINIMUM OF 2 ON AND 2 OFF PERIODS. TIME CLOCK SHALL HAVE A MANUAL OVERRIDE SWITCH. TIME CLOCK SHALL BE ENCLOSED IN NEMA ENCLOSURE SUITABLE FOR THE ENVIRONMENT. TIME CLOCK SHALL BE TORK, INTERMATIC, OR EQUAL.

D. LIGHTING CONTROLS SHALL BE AS SPECIFIED ON PLANS. CONTRACTOR SHALL PROVIDE DOCUMENTATION TO OWNER THAT THE INSTALLED LIGHTING CONTROLS MEET DOCUMENTED PERFORMANCE CRITERIA OF SECTION C405 OF FLORIDA ENERGY CODE. THIS DOCUMENTATION SHALL BE PROVIDED WITHIN 90 DAYS OF RECEIPT OF THE CERTIFICATE OF OCCUPANCY.

15. FUSES

A. FUSES SHALL BE AS MANUFACTURED BY BUSSMAN, GOULD—SHAWMUT, OR LITTLEFUSE AND SHALL BE DUAL ELEMENT, TIME DELAY OR CURRENT—LIMITING U.L. CLASS RK5 AS SPECIFIED ON THE DRAWINGS.

B. MAIN SWITCHES AND CIRCUITS EXCEEDING 600 AMPERES CAPACITY SHALL BE FUSED WITH BUSSMAN TYPE KRP—C HI—CAP CURRENT LIMITING FUSES U.L. CLASS L. THE EXACT TYPE SHALL BE AS RECOMMENDED BY THE MANUFACTURER CONSIDERING INTERRUPTING AND COORDINATION REQUIREMENTS.

16. MISCELLANEOUS EQUIPMENT WIRING

A. THE ELECTRICAL CONTRACTOR SHALL CONNECT ALL EQUIPMENT FURNISHED BY OTHERS AS INDICATED ON THE DRAWINGS.

17. TELEPHONE RACEWAYS

A. FURNISH AND INSTALL THE OUTLET AND RACEWAY SYSTEM FOR TELEPHONES AS INDICATED ON THE DRAWINGS. RACEWAYS SHALL BE OF THE SAME SPECIFICATIONS AS FOR POWER RACEWAYS AND SHALL BE PROVIDED WITH #12 GALVANIZED PULL—WIRE. NO TELEPHONE RACEWAY SHALL CONTAIN MORE THAN TWO 90° BENDS OR EQUIVALENT.

18. TESTING AND DRAWINGS

A. ALL WIRING AND EQUIPMENT FURNISHED AND INSTALLED BY THIS CONTRACTOR SHALL BE COMPLETELY TESTED AND LEFT IN PERFECT WORKING ORDER.

B. TYPEWRITTEN BRANCH CIRCUIT INDEXES SHALL BE INSTALLED IN ALL PANELS.

C. IDENTIFYING NAME PLATES WITH WHITE LETTERS ON A BLACK BACKGROUND SHALL BE INSTALLED ON ALL SAFETY SWITCHES.

D. CHANGES IN THE LOCATIONS OF CONDUITS, CONNECTIONS OR CIRCUITS AND ANY OTHER DATA DIFFERENT FROM THE CONTRACT DRAWINGS SHALL BE NOTED BY THE CONTRACTOR ON A SET OF PRINTS TO BE FURNISHED BY AND RETURNED TO THE PROJECT ENGINEER AFTER COMPLETION OF THE INSTALLATION. A COPY OF THESE AS—BUILT DOCUMENTS SHALL ALSO BE PROVIDED TO THE BUILDING OWNER.

E. CONTRACTOR SHALL PROVIDE TO THE BUILDING OWNER, AN OPERATING MANUAL FOR ALL ELECTRICAL EQUIPMENT AND A MAINTENANCE MANUAL FOR EACH PIECE OF EQUIPMENT REQUIRING MAINTENANCE. REQUIRED ROUTINE MAINTENANCE ACTIONS SHALL BE CLEARLY IDENTIFIED. FOR EACH PIECE OF EQUIPMENT REQUIRING MAINTENANCE, CONTRACTOR SHALL PROVIDE AT LEAST ONE NAME AND ADDRESS OF A QUALIFIED SERVICE AGENCY.

19. GUARANTEE

A. ALL ELECTRICAL WORK DONE UNDER THIS CONTRACT SHALL BE GUARANTEED FOR ONE YEAR BY THE ELECTRICAL CONTRACTOR, IN WRITING.

20. FINAL REVIEW

A. AT A TIME DESIGNATED BY THE ARCHITECT/ENGINEER, THE ENTIRE SYSTEM SHALL BE REVIEWED. THE CONTRACTOR SHALL BE PRESENT AT THIS REVIEW.

B. PRIOR NOTICE OF FIVE WORKING DAYS SHALL BE GIVEN FOR FINAL REVIEW. IF WORK IS NOT COMPLETED AT THE TIME FINAL REVIEW IS PERFORMED AND ADDITIONAL REVIEW(S) ARE REQUIRED, THE COST OF THE REVIEW AND ANY SUBSEQUENT REVIEW SHALL BE BORNE BY THE CONTRACTOR.

END OF SECTION.

DRAWING SCHEDULE:

- E-0 ELECTRICAL LEGEND AND NOTES
- E-1 LIGHTING PLAN
- E-2 POWER PLAN
- E-3 SYSTEM PLAN
- E-4 ELECTRICAL RISER DIAGRAMS
- E-5 ELECTRICAL SCHEDULES
- E-6 ELECTRICAL DETAILS

ELECTRICAL LEGEND

○ RECESS MOUNTED LIGHT FIXTURE

○ WALL MOUNTED LIGHT FIXTURE

□ WALL MOUNTED UPLIGHT

○ MOTOR

○ LIGHTED EXIT SIGN

L-30
○ "A" RECESSED FLUORESCENT FIXTURE (LETTER INDICATES FIXTURE TYPE — SEE SCHEDULE) (L-30 INDICATES PANEL AND CIRCUIT NUMBER)

✚ HOME RUN TO PANEL (ONE PHASE CONDUCTOR, ONE NEUTRAL CONDUCTOR, ONE EQUIPMENT GROUND CONDUCTOR)

✚ HOME RUN TO PANEL (THREE PHASE CONDUCTORS, ONE NEUTRAL CONDUCTOR, ONE EQUIPMENT GROUND CONDUCTOR)

POLES

DISCONNECT SIZE

3/2003R 150

FUSE SIZE

NEMA ENCLOSURE CLASS

ELECTRICAL SAFETY SWITCH (SQUARE D, G.E., SIEMENS)

- SIMPLEX RECEPTACLE 20—AMP, 125V (MOUNT AT 18" AFF U.N.O.)
- DUPLEX RECEPTACLE 20—AMP, 125V (MOUNT AT 18" AFF U.N.O.)
- QUADRAPLEX RECEPTACLE 20—AMP, 125V (MOUNT AT 18" AFF U.N.O.)
- GRND. FAULT INT. DPLX. RECEPT. 125V (MOUNT AT 18" AFF U.N.O.)
- DUPLEX RECEPTACLE 20—AMP, 125V (MOUNTED ABOVE COUNTER BACKSPASH)
- WEATHERPROOF/6FI DUPLEX RECEPT. 125V (MOUNT AT 18" AFF U.N.O.)
- CEILING RECEPTACLE 120V
- 250V RECEPTACLE (MOUNT AT 18" AFF U.N.O.)
- RECESSED QUAD FLOOR RECEPTACLE
- SINGLE POLE SWITCH
- THREE WAY SWITCH
- FOUR WAY SWITCH
- DIMMER SWITCH
- MOTOR—RATED SWITCH (WITH OVERLOADS)
- JUNCTION BOX
- 20A RPT. SWITCHED BY CLG. SENSOR (MOUNT AT 18" AFF U.N.O.)
- PHONE OUTLET (18" AFF U.N.O.)
- DATA OUTLET (18" AFF U.N.O.)
- CABLE TV OUTLET (18" AFF U.N.O.)

ABBREVIATIONS

CU.	COPPER	AF	ABOVE FINISHED FLOOR
E.G.	EQUIPMENT GROUND	UNO	UNLESS NOTED OTHERWISE
AC	ABOVE COUNTER	GFI	GROUND FAULT CIRCUIT INTERRUPTER
NF	NON—FUSED	AIC	AMP INTERRUPTING CAPACITY
ABG	ABOVE GRADE	AFC	AVAILABLE FAULT CURRENT
		GFP	GROUND FAULT PROTECTION

FIRE ALARM SYSTEM GENERAL NOTES

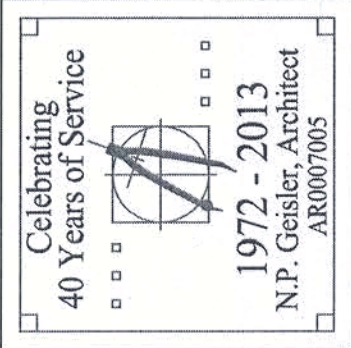
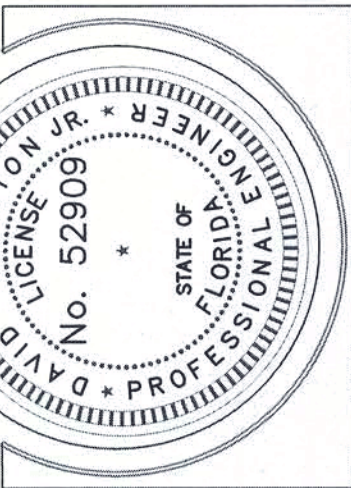
- ALL EQUIPMENT AND INSTALLATION PROCEDURES SHALL COMPLY WITH NFPA 70, NFPA 72, NFPA 72E, NEC CHAPTER 7 (ARTICLE 760), NFPA — LIFE SAFETY 101 (2000 EDITION), RULES AND REGULATIONS OF THE STATE FIRE MARSHALS' OFFICE, AND ALL LOCAL CODES.
- PROVIDE BATTERY CALCULATIONS WITH SUBMITTALS.
- EACH MANUAL FIRE ALARM BOX SHALL BE SECURELY MOUNTED. THE OPERABLE PART SHALL BE NOT LESS THAN 3 1/2 FT. AND NOT MORE THAN 4 1/2 FT. ABOVE FLOOR LEVEL. WALL—MTD. APPLIANCES SHALL HAVE THEIR BOTTOMS AT HEIGHTS ABOVE THE FINISHED FLOOR OF NOT LESS THAN 80 IN. AND NO GREATER THAN 96 IN. TOPS OF DEVICES SHALL NOT BE WITHIN 6 IN. OF CEILING.
- PROVIDE DEVICES AND WIRING WHICH REFLECT U.L. LISTING (RATED FOR FIRE SERVICE), AND FORM A COMPLETE, OPERABLE SYSTEM. SYSTEM SHALL BE NON—CODED AND ELECTRICALLY SUPERVISED.
- CIRCUIT WIRING SHALL BE CLASS "B".
- ALL FIRE ALARM WIRING SHALL BE IN CONDUIT (1/2" E.M.T. MINIMUM). CONDUCTOR TYPE SHALL BE:
 - DETECTION CIRCUITS: #16 THIN MINIMUM
 - NOTIFICATION CIRCUITS: #14 THIN STRANDED MINIMUM
 - RELEASE/AUXILIARY CIRCUITS: #14 THIN STRANDED MINIMUMALL WIRING SHALL BE LABELED AND IDENTIFIED BY CIRCUIT AT ALL TERMINATIONS.
- FIRE ALARM SYSTEM SHALL HAVE U.L. LISTED TRANSIENT VOLTAGE SURGE SUPPRESSION (TVSS) DEVICES INSTALLED IN ALL CONDUCTORS (AC POWER WIRING, TELEPHONE LINES, AND ALL WIRING ENTERING OR LEAVING THE BUILDING). ALL SURGE SUPPRESSION DEVICES SHALL BE INSTALLED EXTERNAL TO THE FIRE ALARM CONTROL PANEL (FACP) REGARDLESS OF ADDITIONAL PROTECTION INSIDE PANEL. TVSS DEVICES FOR COMMUNICATION WIRING SHALL BE INSTALLED WITH A MINIMUM OF 3' OF WIRING BETWEEN THE DEVICE AND FACP. ALL PROTECTIVE DEVICES SHALL BE CERTIFIED TO THE FOLLOWING STANDARDS:
 - (A) TELEPHONE LINES: UL497A
 - (B) SIGNALING LINE LOOPS: UL497B
 - (C) INITIATION OR NOTIFICATION CIRCUITS: UL497B
 - (D) AC POWER: UL1449 (2ND EDITION)
- PROVIDE VOLTAGE DROP CALCULATIONS FOR FINAL NOTIFICATION CIRCUIT LAYOUTS. OBSERVE MANUFACTURERS' "MAXIMUM LOOP RESISTANCES" FOR INITIATING DEVICE AND SIGNALING LINE CIRCUITS.
- PROVIDE WEATHERPROOF, AUDIBLE/VISIBLE NOTIFICATION DEVICE ON EXTERIOR OF BUILDING (LOCATION TO BE APPROVED BY THE FIRE DEPARTMENT).
- PROVIDE SMOKE DETECTOR AT LOCATION OF FIRE ALARM CONTROL PANEL.

CODE CRITERIA:

NOTE:
ALL CODES SHALL COMPLY WITH THE FLORIDA STATUTES 69A-3.012 AND THE STATE FIRE MARSHAL'S RULE.HIS LIST IS NOT INCLUSIVE OF ALL CODES AND STANDARDS THAT MAY OR MAY NOT APPLY TO THIS PROJECT.

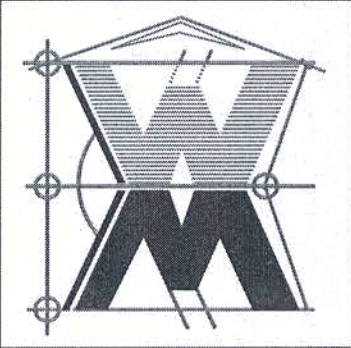
*FLORIDA BUILDING CODE (FBC) - 2017 - 6TH EDITION
*FLORIDA ENERGY EFFICIENCY CODE (2017) - 6TH EDITION
*FLORIDA FIRE PREVENTION CODE (2017) - 6TH EDITION
*FLORIDA ACCESSIBILITY CODE (2017) - 6TH EDITION

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA):
*NFPA-70 (2014) NATIONAL ELECTRICAL CODE
*NFPA-72 (2013) NATIONAL FIRE ALARM CODE



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LIGHTING PLAN GENERAL NOTES

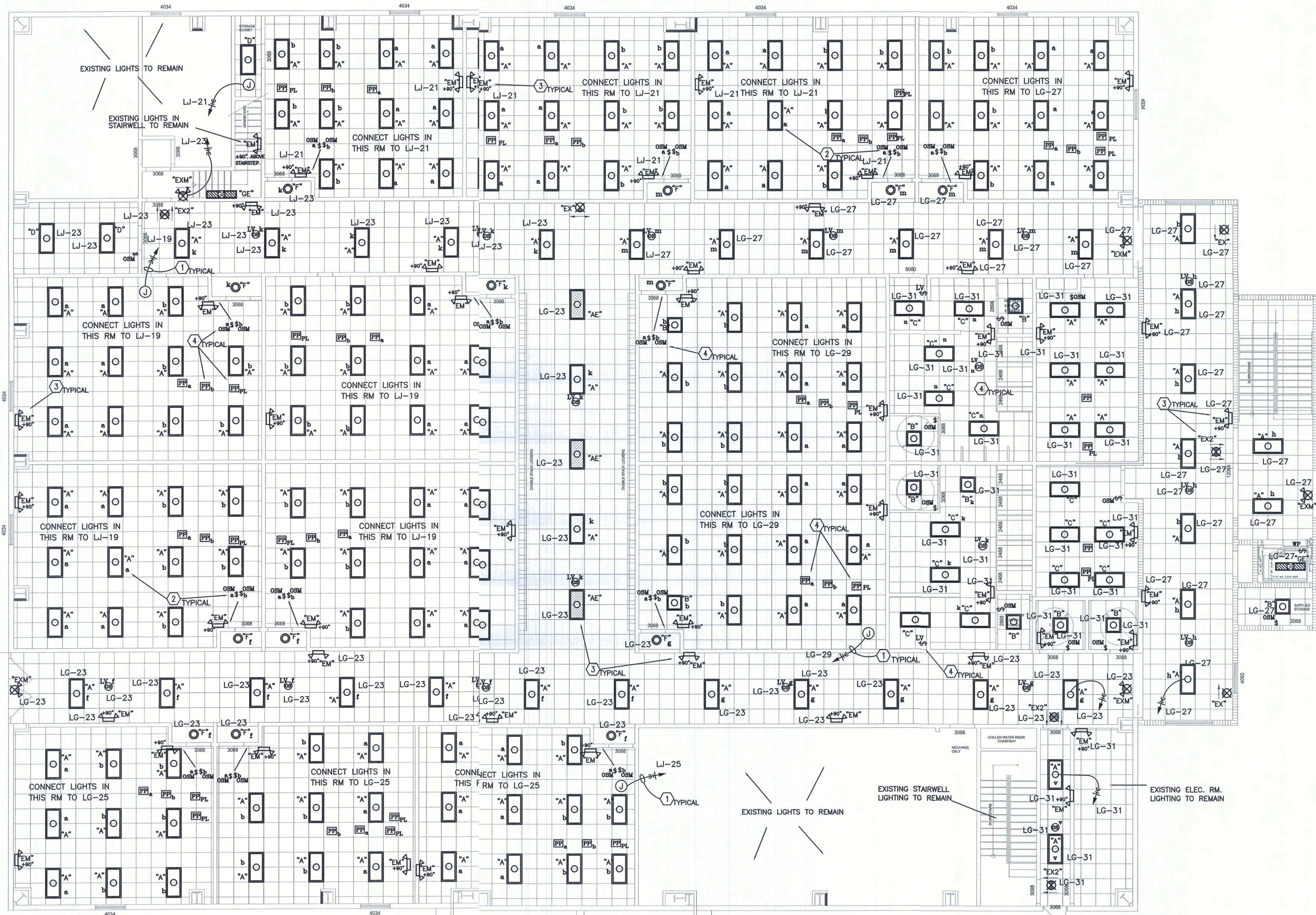
- SWITCHES SHALL CONTROL ALL "SWITCHED" LIGHT FIXTURES IN ROOM TYPICAL UNLESS NOTED OTHERWISE. SEE KEYNOTES FOR EXCEPTIONS. DIMMER SWITCHES SHALL BE COMPATIBLE WITH THE LIGHT FIXTURE CONTROLLED, AND SHALL BE APPROVED BY LIGHT FIXTURE MANUFACTURER.
- CONTRACTOR SHALL INSTALL A GREEN EQUIPMENT GROUNDING WIRE IN ALL CONDUITS AND SHALL BOND THE GROUND WIRE TO ALL DEVICES AND ELECTRICALLY WIRED EQUIPMENT. GROUNDING AND BONDING SHALL BE INSTALLED IN ACCORDANCE WITH NATIONAL ELECTRIC CODE, ARTICLE 250.
- CONTRACTOR SHALL REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR LOCATIONS OF ALL LIGHT FIXTURES. REFER TO ARCHITECTURAL LIFE SAFETY PLAN FOR ALL EXIT SIGNS.
- LIGHT FIXTURES ARE SELECTED FOR PHOTOMETRIC PERFORMANCE, QUALITY, AND AESTHETICS. SUBSTITUTIONS REQUIRE FIXTURE SAMPLES AND PHOTOMETRIC DATA AT LEAST 10 DAYS PRIOR TO BID DATE. WRITTEN APPROVAL IS REQUIRED BY THE ENGINEER PRIOR TO BID DATE. CONTACT DAN SROKA (ENVISION LIGHTING) 941-243-0608 FOR PRICING.
- PRIOR TO ORDERING MATERIALS AND EQUIPMENT, CONTRACTOR SHALL PROVIDE SUBMITTALS FOR ALL LIGHT FIXTURES, SWITCHES, AND CONTROL EQUIPMENT. SUBMITTALS SHALL INCLUDE SPECIFICATIONS SHEETS FOR ALL EQUIPMENT AND PHOTOMETRIC PERFORMANCE INFORMATION (INCLUDING ELECTRONIC IES FILES). WRITTEN APPROVAL BY THE ENGINEER-OF-RECORD IS REQUIRED PRIOR TO ORDERING EQUIPMENT.
- SEE RECESSED LAY-IN FIXTURE DETAIL (SHEET E0) FOR TROFFER INSTALLATION.

LIGHTING PLAN KEY NOTES

- 2#12 COPPER, 1#12 COPPER EQUIPMENT GROUND, 3/4" CONDUIT TO NEW CIRCUIT BREAKER IN PANEL INDICATED, TYPICAL ALL CIRCUITS UNLESS NOTED OTHERWISE.
- LOWER-CASE LETTER AT SWITCH INDICATES CONTROL OF ALL LIGHT FIXTURES IN ROOM WITH MATCHING LOWER-CASE DESIGNATION, TYPICAL. SWITCHES SHALL CONTROL ALL SWITCHED LIGHT FIXTURES IN ROOM UNLESS NOTED OTHERWISE.
- EXIT SIGNS AND EMERGENCY "TWIN-HEAD" LIGHT FIXTURES SHALL BE PROVIDED WITH EMERGENCY BATTERY BACKUP, AND SHALL BE CONNECTED TO THE LOCAL LIGHTING CIRCUIT, WIRED AHEAD OF ANY SWITCHES IN CIRCUIT.
- SEE OCCUPANCY SENSOR TABLE FOR DETAILS.
- "NL" DESIGNATION INDICATES UNSWITCHED NIGHT LIGHT.

OCCUPANCY SENSOR TABLE	
	SWITCH WITH "OS" SUPERScript SHALL BE COMBINATION WALL SWITCH/OCCUPANCY SENSOR PASSIVE-INFRARED "ACUTY" #WSX-PDT-WH
	CEILING-MOUNTED, LOW VOLTAGE, STANDARD RANGE, DUAL-TECHNOLOGY 360° OCCUPANCY SENSOR (ACUTY #CM-PDT-9, POWERPACK MP20) LOWER-CASE LETTER IDENTIFIES LIGHT FIXTURES W/ MATCHING LETTERS TO BE SWITCHED.
	CEILING-MOUNTED, LOW VOLTAGE, DUAL-TECHNOLOGY OCCUPANCY SENSOR (ACUTY #CM-PDT-10/CM-PDT-9, POWERPACK MP20). ACTIVATION OF ANY SENSOR WITH MATCHING LOWER-CASE DESIGNATION SHALL CAUSE ALL LIGHTS WITH SAME DESIGNATION TO TURN ON.
	LARGE AREA, LOW VOLTAGE, CEILING-MOUNTED, DUAL-TECHNOLOGY OCCUPANCY SENSOR (ACUTY #CM-PDT-10, POWERPACK MP20) LOWER-CASE LETTER IDENTIFIES LIGHT FIXTURES W/ MATCHING LETTERS TO BE SWITCHED.
	OCCUPANCY SENSOR WITH "OSM" SUPERScript INDICATES "ACUTY" #WSX-PDT-D-WH WITH "MANUAL-ON" REQUIREMENT.
	TWO SWITCH WALL SENSOR WITH MANUAL-ON REQUIREMENT EQUAL TO "ACUTY" #WSX-PDT-2P-WH
	CEILING-MOUNTED, LINE VOLTAGE, STANDARD RANGE, DUAL-TECHNOLOGY 360° OCCUPANCY SENSOR (ACUTY #CM-PDT-9) LOWER-CASE LETTER IDENTIFIES LIGHT FIXTURES W/ MATCHING LETTERS TO BE SWITCHED.
	ACUTY #nPP20 PL ROUTE SELECTED RECEPTACLES IN ROOM THRU DEVICE.
	ACUTY #nPP16-D-EFP PL ROUTE LIGHTS IN ROOM WITH THE SAME LOWER-CASE DESIGNATION THRU DEVICE.
	ACUTY #nPDMA.

NOTE: ALL DEVICES MAY OR MAY NOT BE USED IN THIS PROJECT.



2ND FLOOR LIGHTING PLAN
SCALE: 1/8" = 1'-0"

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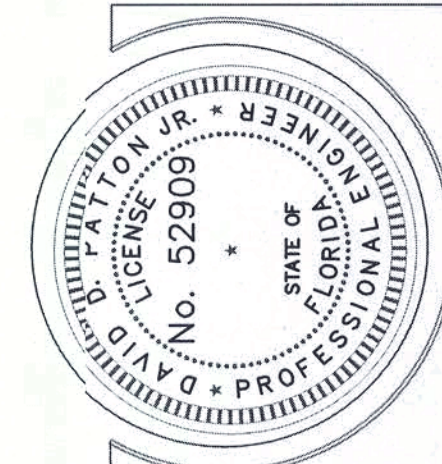
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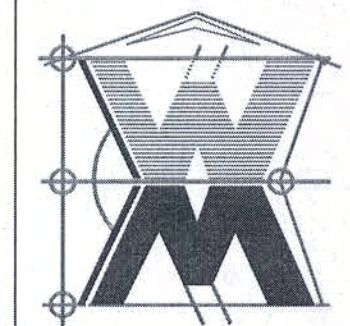
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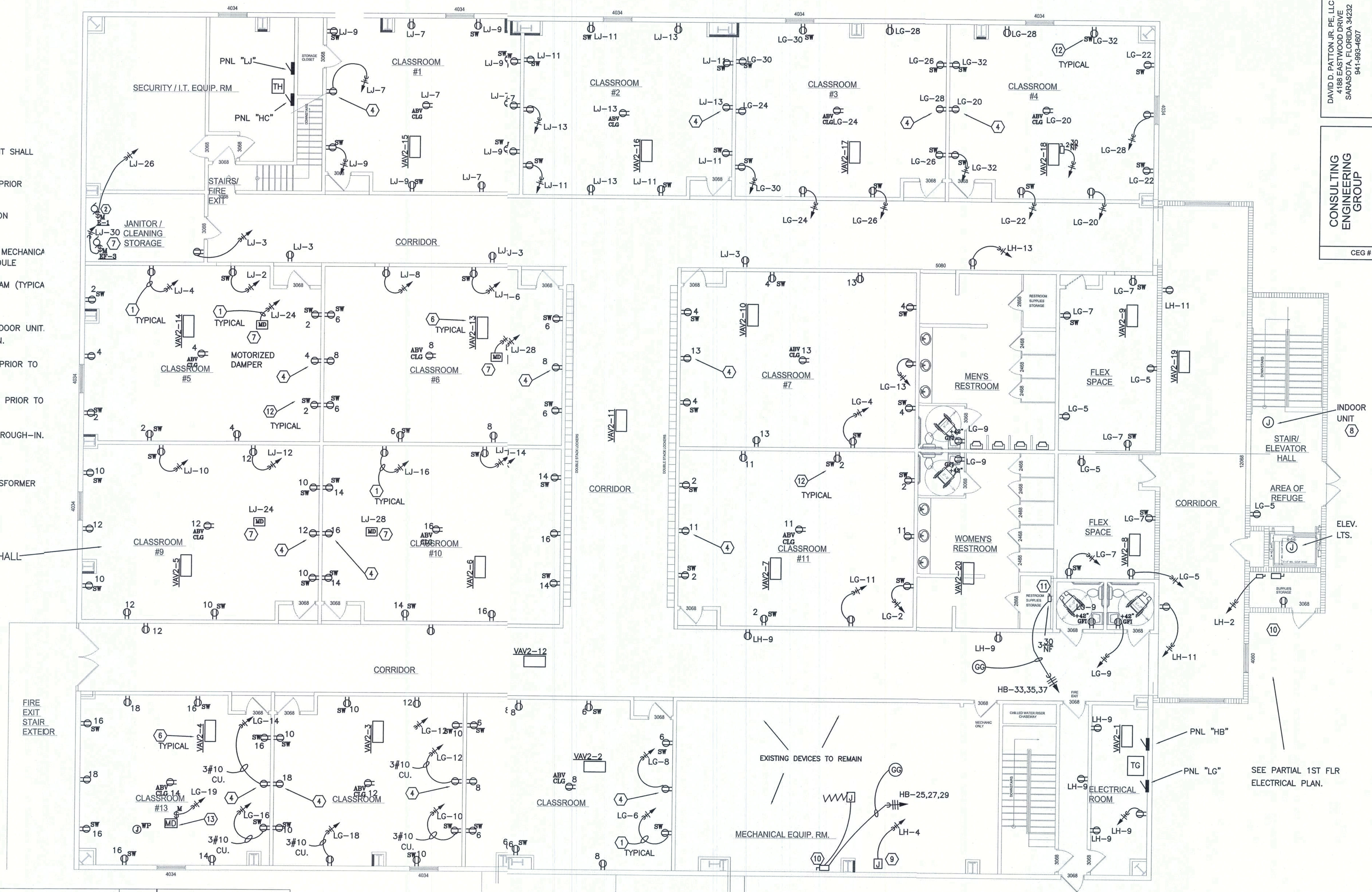
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POWER PLAN KEY NOTES

- 2#12 COPPER, 1#12 COPPER EQUIPMENT GROUND, 3/4" CONDUIT TO NEW CIRCUIT BREAKER IN PANEL INDICATED, TYPICAL ALL CIRCUITS UNLESS NOTED OTHERWISE.
- SWITCH EXHAUST FAN WITH LIGHT SWITCH.
- INSTALL RECEPTACLES INSIDE WATER COOLER ENCLOSURE. CIRCUIT SHALL BE PROTECTED WITH A GFI BREAKER.
- COORDINATE RECEPTACLE MTG. HT. WITH OWNER AND ARCHITECT PRIOR TO ROUGH-IN.
- SWITCHED RECEPTACLES CONTROLLED BY POWER PACK SHOWN ON LIGHTING PLAN.
- COORDINATE ELECTRICAL CONNECTIONS TO VAV EQUIPMENT WITH MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN. SEE VAV ELECTRICAL SCHEDULE.
- WIRING BY MECH. SEE MECHANICAL DETAIL "EF CONTROL DIAGRAM (TYPICAL FOR EF-3)".
- COORDINATE INDOOR UNIT LOCATION. POWER COMES FROM OUTDOOR UNIT. COORDINATE WITH MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN.
- COORDINATE HVAC CONTROL PANEL LOCATION WITH MECHANICAL PRIOR TO ROUGH-IN.
- COORDINATE DUCT HTR. DISCONNECT LOCATION WITH MECHANICAL PRIOR TO ROUGH-IN.
- COORDINATE 10 KW EWH LOCATION WITH MECHANICAL PRIOR TO ROUGH-IN.
- LABEL SENSOR-SWITCHED RECEPTACLES PER N.E.C. 2014.
- MOTORIZED DAMPER VOLTAGE IS ASSUMED 120V. PROVIDE TRANSFORMER CIRCUIT IF LOW VOLTAGE.

ALL ACCESSIBLE RECEPTACLES SHALL BE TAMPER-RESISTANT



FEEDER SCHEDULE	TYPE	FEEDER SIZE (SILE PHASE)	TYPE	FEEDER SIZE (THREE PHASE)
	(A)	TWO #10 COPPER, ONE #10 COPPER EQ. GND., 3/4" CONDUIT	(AA)	THREE #12 COPPER, ONE #12 COPPER EQ. GND., 3/4" CONDUIT
	(B)	TWO #8 COPPER, ONE #10 COPPER EQ. GND., 3/4" CONDUIT	(BB)	THREE #10 COPPER, ONE #10 COPPER EQ. GND., 3/4" CONDUIT
	(C)	TWO #6 COPPER, ONE #10 COPPER EQ. GND., 1" CONDUIT	(CC)	THREE #8 COPPER, ONE #10 COPPER EQ. GND., 1" CONDUIT
	(D)	TWO #4 COPPER, ONE #8 COPPER EQ. GND., 1" CONDUIT	(DD)	THREE #6 COPPER, ONE #10 COPPER EQ. GND., 1" CONDUIT
	(E)	TWO #3 COPPER, ONE #8 COPPER EQ. GND., 1 1/4" CONDUIT	(EE)	THREE #4 COPPER, ONE #8 COPPER EQ. GND., 1 1/4" CONDUIT
	(F)	TWO #1 COPPER, ONE #8 COPPER EQ. GND., 1 1/4" CONDUIT	(FF)	THREE #3 COPPER, ONE #8 COPPER EQ. GND., 1 1/4" CONDUIT
	(G)	TWO #1/0 COPPER, ONE #6 COPPER EQ. GND., 1 1/2" CONDUIT	(GG)	THREE #1 COPPER, ONE #6 COPPER EQ. GND., 1 1/2" CONDUIT
			(HH)	THREE #1/0 COPPER, ONE #6 COPPER EQ. GND., 1 1/2" CONDUIT

POWER PLAN
SCALE: 1/8" = 1'-0"

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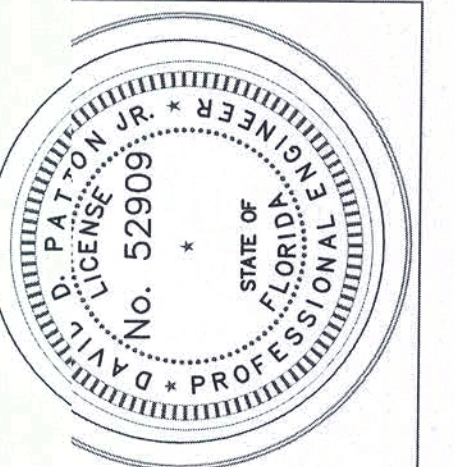
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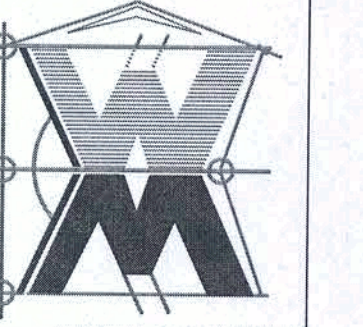
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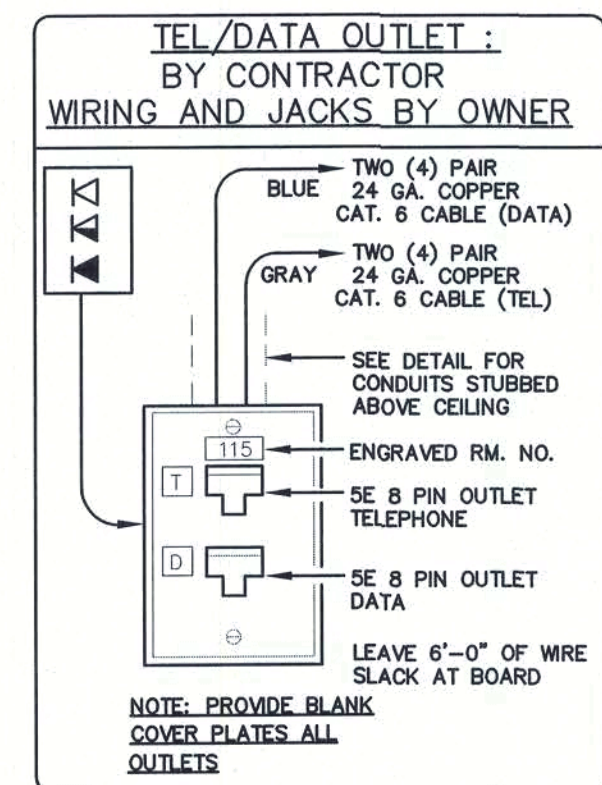
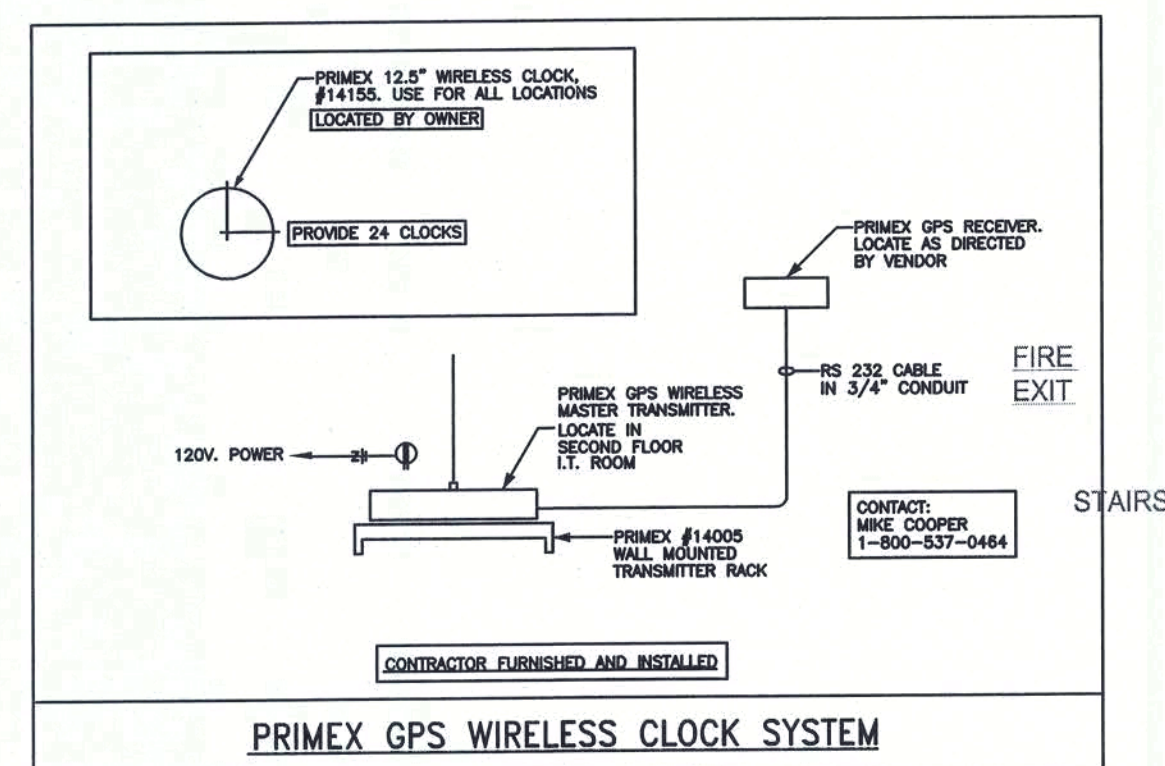
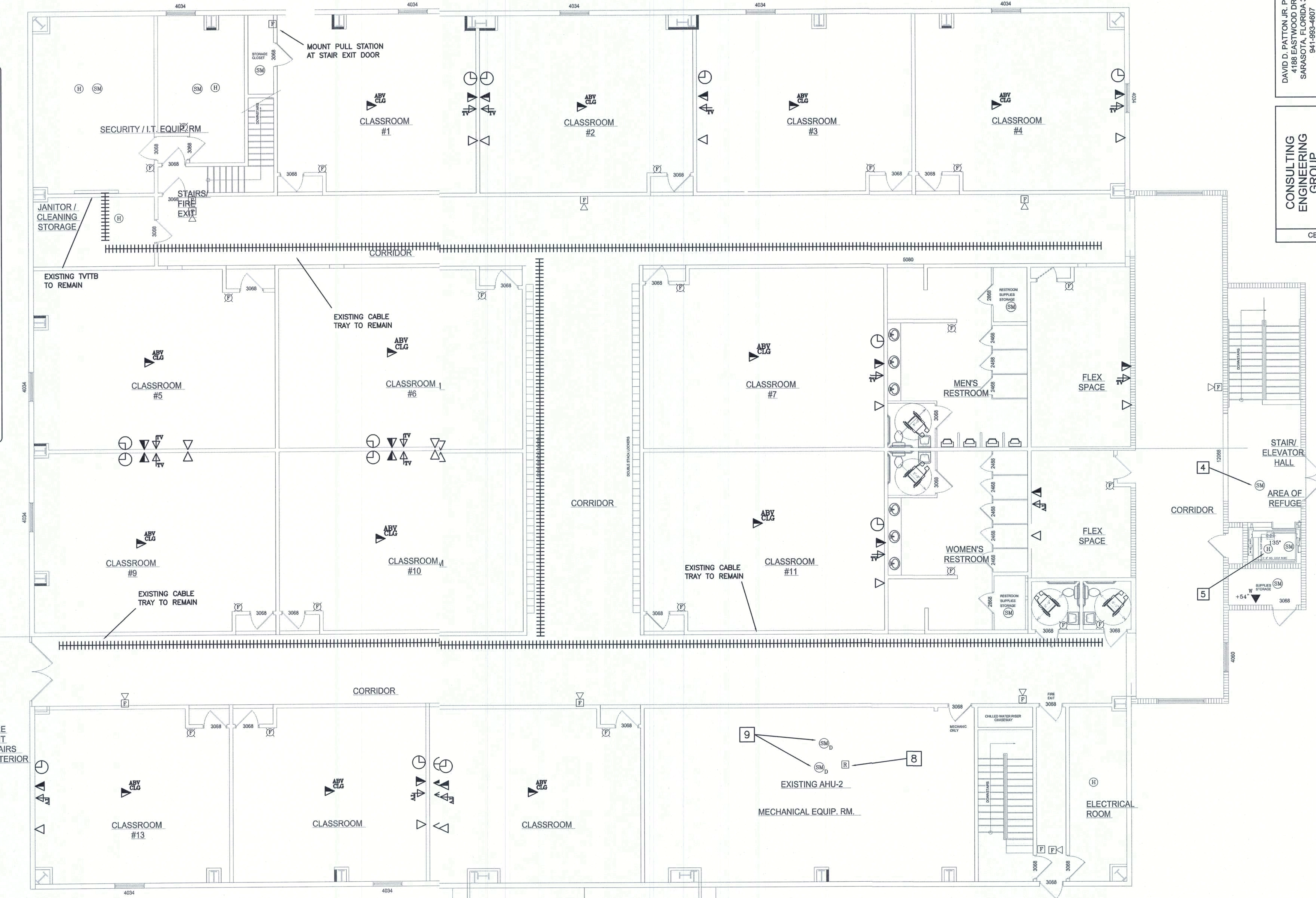
- COMMUNICATION PLAN KEY NOTES**
1. VERIFY MOUNTING HEIGHT WITH ARCHITECT / OWNER. TYPICAL ALL LOCATIONS.
 2. TYPICAL 3/4" CONDUIT STUBBED ABOVE CEILING WITH PULL STRING FOR FUTURE OWNER WIRING. TYPICAL ALL LOCATIONS.
 3. TYPICAL OUTLET FOR MONITOR VERIFY WALL HEIGHT WITH OWNER/ARCHITECT
 4. ACTIVATION OF THIS SMOKE DETECTOR SHALL CAUSE THE ELEVATOR TO MOVE TO AN ALTERNATE LEVEL.
 5. ACTIVATION OF THIS HEAT DETECTOR SHALL CAUSE THE SHUNT-TRIP BREAKER PROTECTING THE ELEVATOR MOTOR TO OPEN, CAUSING THE ELEVATOR TO BECOME DE-ENERGIZED. MOUNT DETECTOR ADJACENT TO SPRINKLER HEAD.
 6. HVAC UNITS AND EXHAUST FANS ARE TO SHUT DOWN WHENEVER THE FIRE ALARM SYSTEM GOES INTO ALARM. RELAYS AT UNITS ARE TO BE INTERCONNECTED WITH FIRE ALARM SYSTEM SO THAT THEY OPEN WHEN FIRE ALARM SYSTEM GOES INTO ALARM. RELAYS ARE TO BE WIRED INTO THE START-STOP CIRCUIT OF HVAC UNITS AND IN LINE WITH EXHAUST FANS. WIRE RELAYS FOR "FAIL-SAFE" OPERATION.
 7. ACTIVATION OF THIS SMOKE DETECTOR SHALL CAUSE THE ELEVATOR TO MOVE TO AN ALTERNATE LEVEL AND THE FIRE ALARM WARNING LIGHT TO FLASH.
 8. HVAC UNITS AND EXHAUST FANS ARE TO SHUT DOWN WHENEVER THE FIRE ALARM SYSTEM GOES INTO ALARM. RELAYS AT UNITS ARE TO BE INTERCONNECTED WITH FIRE ALARM SYSTEM SO THAT THEY OPEN WHEN FIRE ALARM SYSTEM GOES INTO ALARM. RELAYS ARE TO BE WIRED INTO THE START-STOP CIRCUIT OF HVAC UNITS AND IN LINE WITH EXHAUST FANS. WIRE RELAYS FOR "FAIL-SAFE" OPERATION.
 9. DUCT MOUNTED SMOKE DETECTORS SHALL BE MOUNTED IN THE SUPPLY AND RETURN DUCTS OF THE HVAC SYSTEM. LOCATION SHALL BE DETERMINED BY THE MECHANICAL ENGINEER. CONTRACTOR TO FURNISH, INSTALL, AND WIRE TO FIRE ALARM SYSTEM. PROVIDE REMOTE TEST-RESET SWITCH WITH PILOT LIGHT IN ACCESSIBLE AREA ON CEILING. SEE DETECTOR DETAIL - THIS SHEET.

NOTE:
CONTRACTOR SHALL CONTACT OWNERS SECURITY AND DATA PROVIDERS FOR CABLE ROUTING PRIOR TO DRY WALL INSTALLATION.

FIRE ALARM GENERAL NOTE:
DEVICES SHALL BE COMPATIBLE WITH EXISTING FACP. FOR A COMPLETE FIRE ALARM SYSTEM. SUBMIT SIGN AND SEALED SHOP DRAWINGS TO LOCAL FIRE MARSHAL WITH FULL WIRING DIAGRAMS, BATTERY CALCULATIONS AND CUT SHEETS FOR APPROVAL PRIOR TO INSTALLATION.

FIRE ALARM SYSTEM LEGEND

- ① FIRE ALARM HEAT DETECTOR
PROVIDE REQUIRED WIRING AND 3/4" CONDUIT FROM DEVICE TO FACP.
- ② FIRE ALARM SYSTEM VISIBLE-ONLY DEVICE MOUNTED AT 7'-6" AFF. MINIMUM CANDELA RATING SHALL BE 75. PROVIDE REQUIRED WIRING AND 3/4" CONDUIT FROM DEVICE TO FACP.
- ③ FIRE ALARM SYSTEM PHOTOELECTRIC SMOKE DETECTOR.
DO NOT INSTALL DETECTOR WITHIN 3' OF SUPPLY AIR DUCT. PROVIDE REQUIRED WIRING AND 3/4" CONDUIT FROM DEVICE TO FACP. SMOKE DETECTOR SHALL BE LISTED BY MANUFACTURER FOR SPACINGS AT LEAST 30'.
- ④ FIRE ALARM SYSTEM AUDIBLE/VISIBLE DEVICE MOUNTED AT 7'-6" AFF. MINIMUM CANDELA RATING SHALL BE 75. PROVIDE REQUIRED WIRING AND 3/4" CONDUIT FROM DEVICE TO FACP.
- ⑤ FIRE ALARM SYSTEM MANUAL PULL STATION MOUNTED AT 4'-0" AFF. PROVIDE REQUIRED WIRING AND 3/4" CONDUIT FROM DEVICE TO FACP.
- ⑥ FIRE ALARM SYSTEM RELAY
- ⑦ DUCT-MOUNTED SMOKE DETECTOR



SYSTEM PLAN
SCALE: 1/8" = 1'-0"

NOTE: ALL DRAWINGS NOT TO BE SCALED, WRITTEN DIMENSIONS TAKE PRECEDENCE OVER SCALED DIMENSIONS

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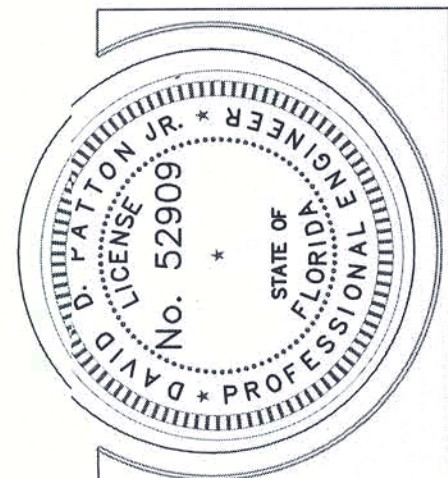
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REVISIONS
January 27, 2014

BELMONT ACADEMY PHASE II ADDITION FOR:
BELMONT ACADEMY, INC.
1476 SW WALTER AVE, LAKE CITY, FLORIDA 32024



Celebrating
40 Years of Service

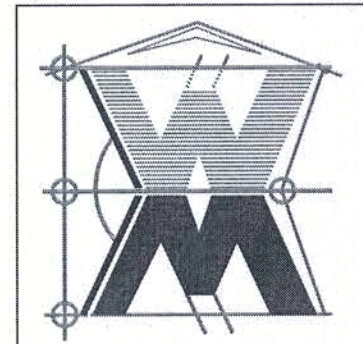
1972 - 2013
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ARCHITECTS

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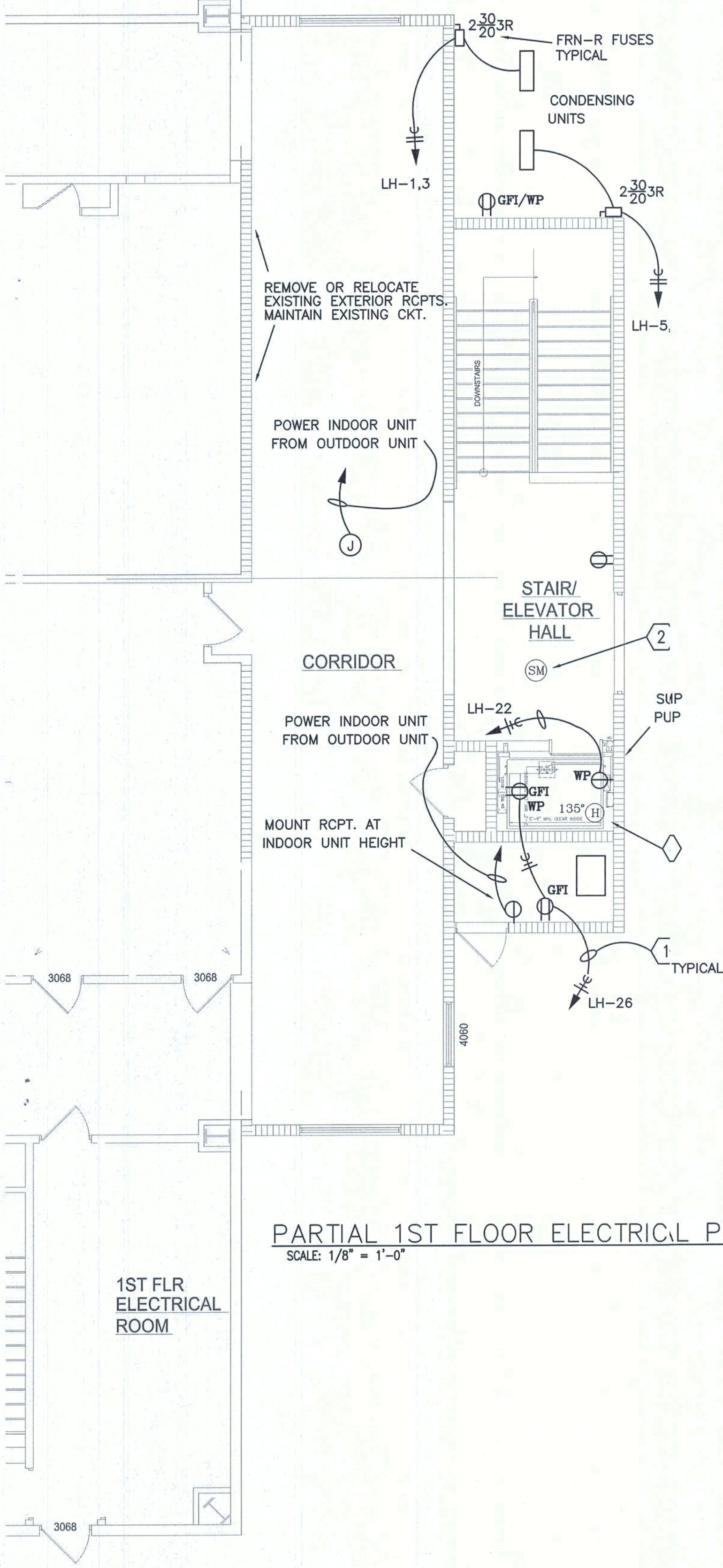
JOINT VENTURED WITH

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(386) 758-8406
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JOB NUMBER
20140121
DATE:
21 JAN 2014

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E3

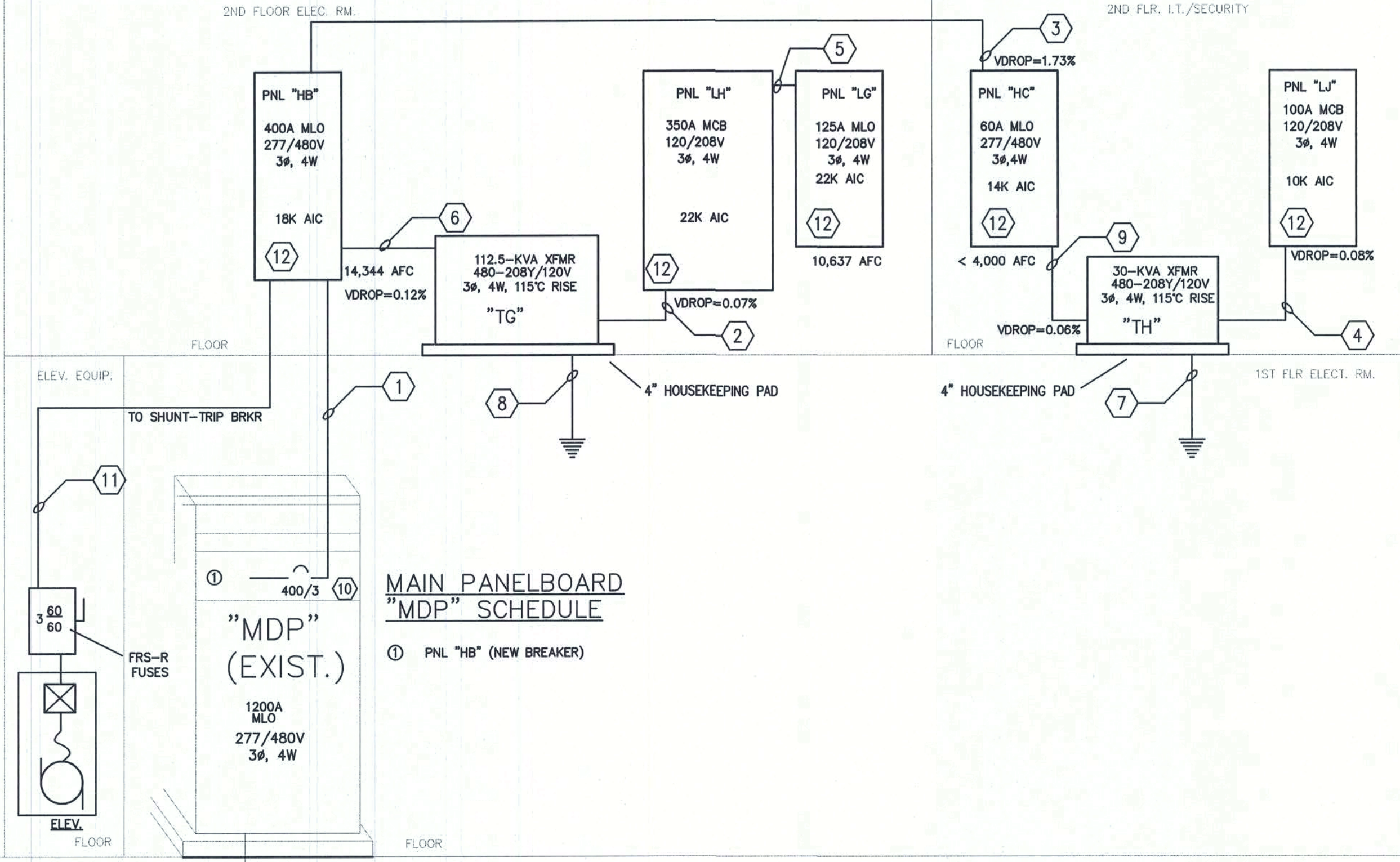
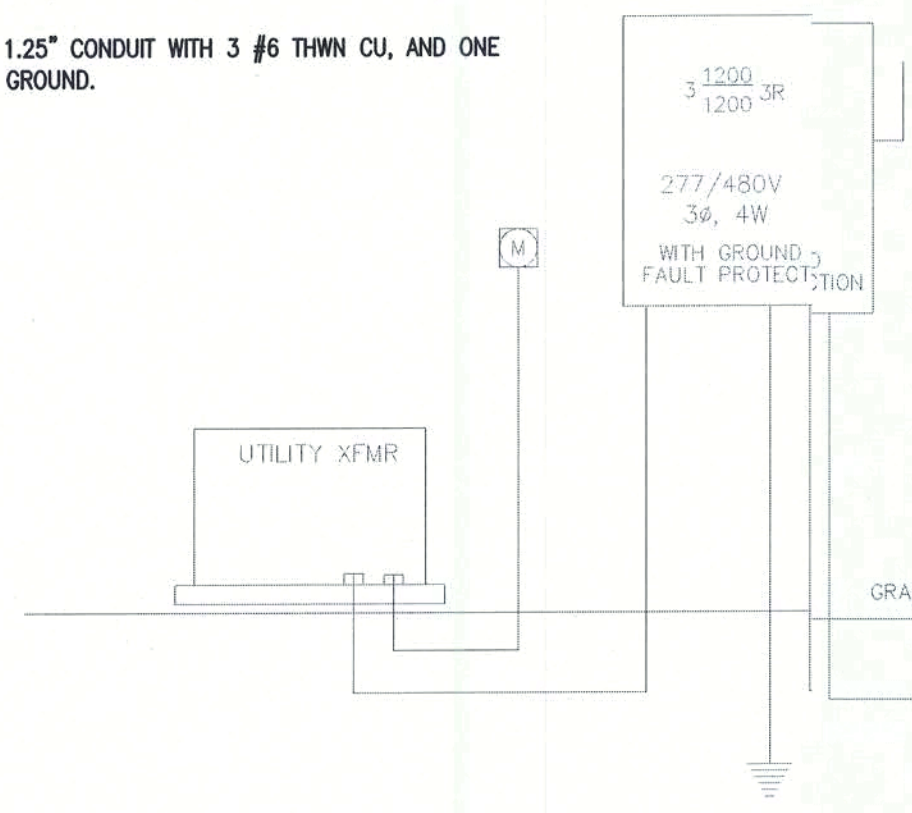


POWER PLAN KEY NOTES

- 1 2#12 COPPER, 1#12 COPPER EQUIPMENT GROUND, 3/4" CONDUIT TO NEW CIRCUIT BREAKER IN PANEL INDICATED, TYPICAL ALL CIRCTS UNLESS NOTED OTHERWISE.
- 2 ACTIVATION OF THIS SMOKE DETECTOR SHALL CAUSE THE ELVATOR TO MOVE TO AN ALTERNATE LEVEL.
- 3 ACTIVATION OF THIS HEAT DETECTOR SHALL CAUSE THE SHUT-TRIP BREAKER PROTECTING THE ELEVATOR MOTOR TO OPEN, CAUSING THE ELEVATOR TO BECOME DE-ENERGIZED. MOUNT DETECTOR ADJACENT TO SPRINKLER HEAD.

POWER RISER KEY NOTES

- 1 400 AMP FEEDER - TWO RUNS OF 2 1/2" CONDUIT WITH 3 #3/0 THWN CU, 1 #3/0 THWN CU NEUTRAL AND 1 #6 THW CU EQUIPMENT GROUND IN EACH.
- 2 350 AMP FEEDER - ONE 3" CONDUIT WITH 3 #4/0 THWN CU, 1 #4/0 THWN CU, NEUTRAL AND 1 #3 THWN CU EQUIPMENT GROUND.
- 3 60 AMP FEEDER - ONE 1.25" CONDUIT WITH 3 #6 THWN CU, 1 #6 THWN CU NEUTRAL AND 1 #10 THWN CU EQUIPMENT GROUND.
- 4 100 AMP FEEDER - ONE 1.25" CONDUIT WITH 3 #3 THWN CU, 1 #3 THWN CU NEUTRAL AND 1 #8 THWN CU EQUIPMENT GROUND.
- 5 125 AMP FEEDER - ONE 2" CONDUIT WITH FOUR #1 THWN CU AND ONE #6 THWN CU EQUIPMENT GROUND.
- 6 175 AMP FEEDER - ONE 2" CONDUIT WITH THREE #2/0 THWN CU AND ONE #6 THWN CU EQUIPMENT GROUND.
- 7 #8 CU. TO BLDG. STEEL.
- 8 #1/0 CU. TO BLDG. STEEL.
- 9 50 AMP FEEDER - ONE 1.25" CONDUIT WITH 3 #6 THWN CU, 1 #6 THWN CU NEUTRAL AND 1 #10 THWN CU EQUIPMENT GROUND.
- 10 PROVIDE NEW BREAKER AND EQUIPMENT REQUIRED TO INSTALL IN EXISTING PANEL "MDP".
- 11 ELEVATOR FEEDER - ONE 1.25" CONDUIT WITH 3 #6 THWN CU, AND ONE #10 THWN CU EQUIPMENT GROUND.
- 12 SEE PANEL SCHEDULES.

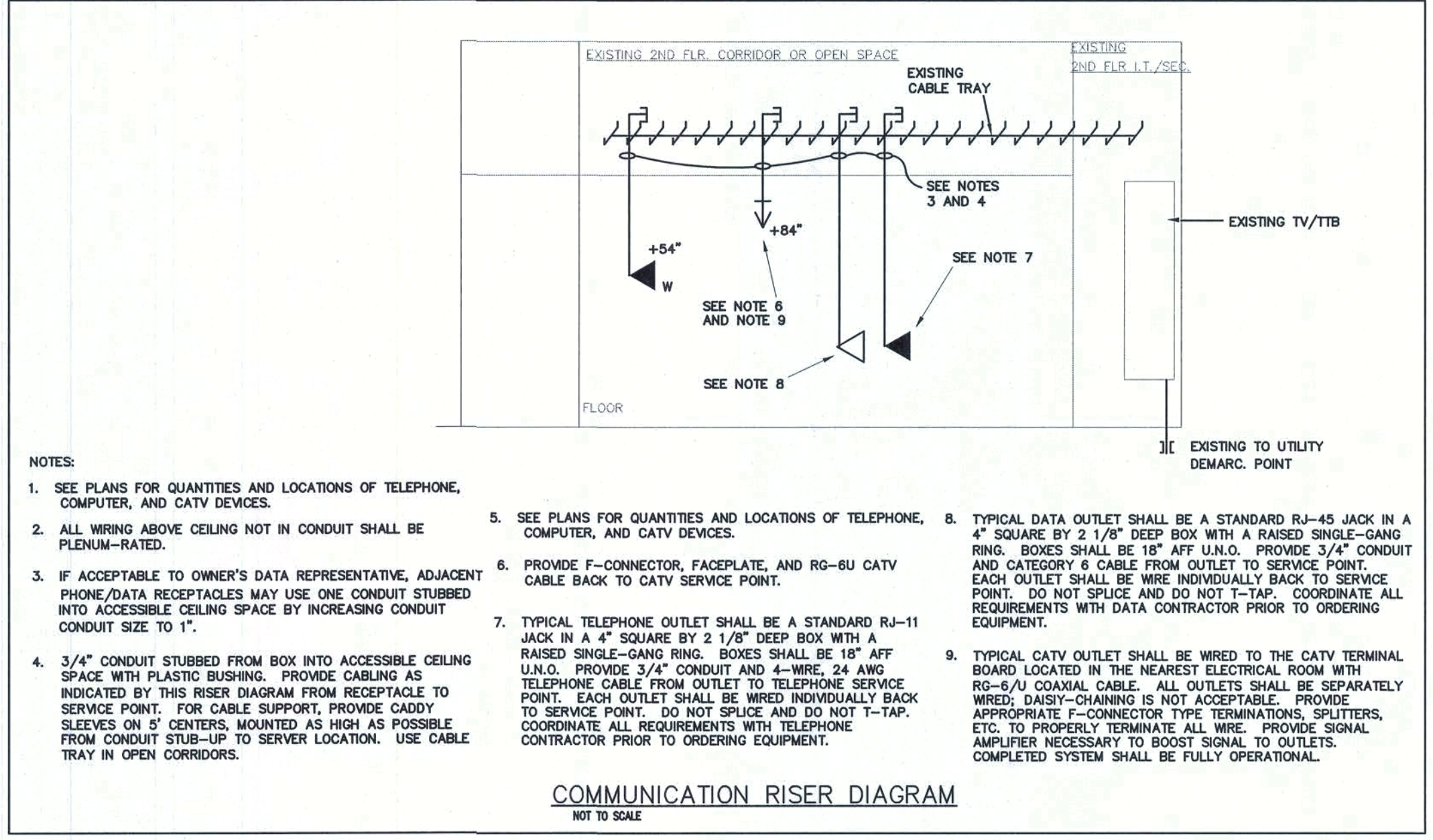


EXISTING PARTIAL POWER RISER DIAGRAM

FIXTURE SCHEDULE		
NOT ALL FIXTURES USED THIS PROJECT ALL LAMPS 120 VOLT/100 WATTS UNLESS OTHERWISE NOTED. ALL LAMPS 35000K, UNLESS OTHERWISE NOTED.		
	RECESSED TROFFER 2 X 4, DIRECT / INDIRECT / LED 4000 LUMENS, 3500K, 0-10V DIMMING DRIVER LITHONIA CAT. NO. 2BLT4 40L ADSM G2 1/10 LP835	34 WATTS
	RECESSED TROFFER 2 X 4, DIRECT / INDIRECT / LED 4000 LUMENS, 3500K, 0-10V DIMMING DRIVER EMERGENCY DRIVER LITHONIA CAT. NO. 2BLT4 40L ADSM G2 1/10 LP835 EL 14L	34 WATTS
	RECESSED TROFFER 2 X 4, DIRECT / INDIRECT / LED 3300 LUMENS, 3500K, 0-10V DIMMING DRIVER LITHONIA CAT. NO. 2BLT4 40L ADSM G2 1/10 LP835	29 WATTS
	RECESSED TROFFER 2 X 4, DIRECT / INDIRECT / LED 3300 LUMENS, 3500K, 0-10V DIMMING DRIVER EMERGENCY DRIVER LITHONIA CAT. NO. 2BLT4 40L ADSM G2 1/10 LP835 EL 14L	29 WATTS
	RECESSED 6" DOWN LIGHT / LED 1000 LUMENS, 3500K, 0-10V DIMMING DRIVER ACUITY #LDN6-35-10-L06-AR-LSS-MVOLT-1T-EZ10-TRW	11 WATTS
	RECESSED TROFFER 2 X 4, DIRECT / INDIRECT / LED 2000 LUMENS, 3500K, 0-10V DIMMING DRIVER LITHONIA CAT. NO. 2BLT2 20L ADSM G2 1/10 LP835	20 WATTS
	SURFACE VAPORTIGHT 1 X 4 / LED 4000 LUMENS, 3500K, 0-10V DIMMING DRIVER SEE PLANS FOR WALL MOUNTED NULITE LIGHTING CAT. NO. INT 4 50 L35 1/2 DIM-EM EMERGENCY BATTERY BACKUP	29 WATTS
	SURFACE MOUNTED BATTERY EXIT LIGHT / LED T-BAR HANGER RAILS / SEE PLANS FOR ARROWS EMERGENCY DRIVER LITHONIA CAT. NO. EXR LED EL M6 (SINGLE FACE)	10 WATTS
	SURFACE MOUNTED BATTERY EXIT LIGHT / LED T-BAR HANGER RAILS / SEE PLANS FOR ARROWS EMERGENCY DRIVER LITHONIA CAT. NO. EXR LED EL M6 (DUAL FACE)	10 WATTS
	BATTERY EMERGENCY LIGHT, 120 VOLTS CEILING MOUNTED WHITE ENCLOSURE, RED LETTERS (MAINTAIN POWER TO FIXTURE AT ALL 1 TIMES) LITHONIA CAT. NO. EU2L	10 WATTS
	EXIT / BATTERY EMERGENCY LIGHT, 120 VOLTS CEILING MOUNTED WHITE ENCLOSURE, RED LETTERS (MAINTAIN POWER TO FIXTURE AT ALL 1 TIMES) LITHONIA CAT. NO. LHQM-LED-R	10 WATTS

BOX	KW	VOLT	PHASE	FEEDER	CIRCUIT
VAV-2-1	2	277	1	2#12, 1#12 E.G., 3/4"C.	HB-1
VAV-2-2	3	277	1	2#12, 1#12 E.G., 3/4"C.	HB-3
VAV-2-3	4	277	1	2#12, 1#12 E.G., 3/4"C.	HB-5
VAV-2-4	4	277	1	2#12, 1#12 E.G., 3/4"C.	HB-7
VAV-2-5	4	277	1	2#12, 1#12 E.G., 3/4"C.	HC-9
VAV-2-6	3	277	1	2#12, 1#12 E.G., 3/4"C.	HC-11
VAV-2-7	3	277	1	2#12, 1#12 E.G., 3/4"C.	HB-13
VAV-2-8	2	277	1	2#12, 1#12 E.G., 3/4"C.	HB-15
VAV-2-9	3	277	1	2#12, 1#12 E.G., 3/4"C.	HB-17
VAV-2-10	3	277	1	2#12, 1#12 E.G., 3/4"C.	HB-19
VAV-2-11	3	277	1	2#12, 1#12 E.G., 3/4"C.	HB-21
VAV-2-12	2	277	1	2#12, 1#12 E.G., 3/4"C.	HB-2
VAV-2-13	3	277	1	2#12, 1#12 E.G., 3/4"C.	HC-4
VAV-2-14	4	277	1	2#12, 1#12 E.G., 3/4"C.	HC-6
VAV-2-15	4	277	1	2#12, 1#12 E.G., 3/4"C.	HC-8
VAV-2-16	4	277	1	2#12, 1#12 E.G., 3/4"C.	HB-10
VAV-2-17	4	277	1	2#12, 1#12 E.G., 3/4"C.	HB-12
VAV-2-18	4	277	1	2#12, 1#12 E.G., 3/4"C.	HB-14
VAV-2-19	4	277	1	2#12, 1#12 E.G., 3/4"C.	HB-16
VAV-2-20	2	277	1	2#12, 1#12 E.G., 3/4"C.	HB-18

VAV ELECTRICAL SCHEDULE
NOT TO SCALE



NOTE: ALL DRAWINGS NOT TO BE SCALED, WRITTEN DIMENSIONS TAKE PRECEDENCE OVER SCALED DIMENSIONS

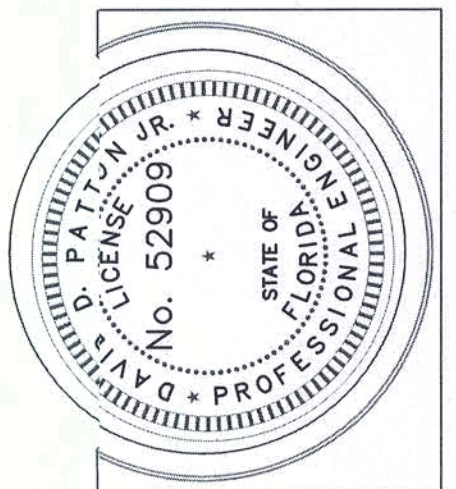
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REVISIONS
January 27, 2014

SOFTPLAN
ARCHITECTURAL DESIGN SOFTWARE

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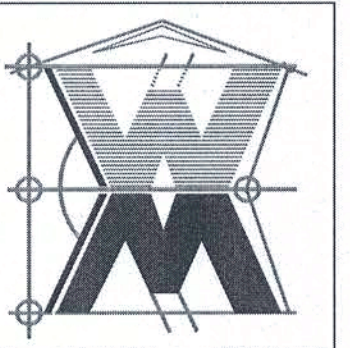
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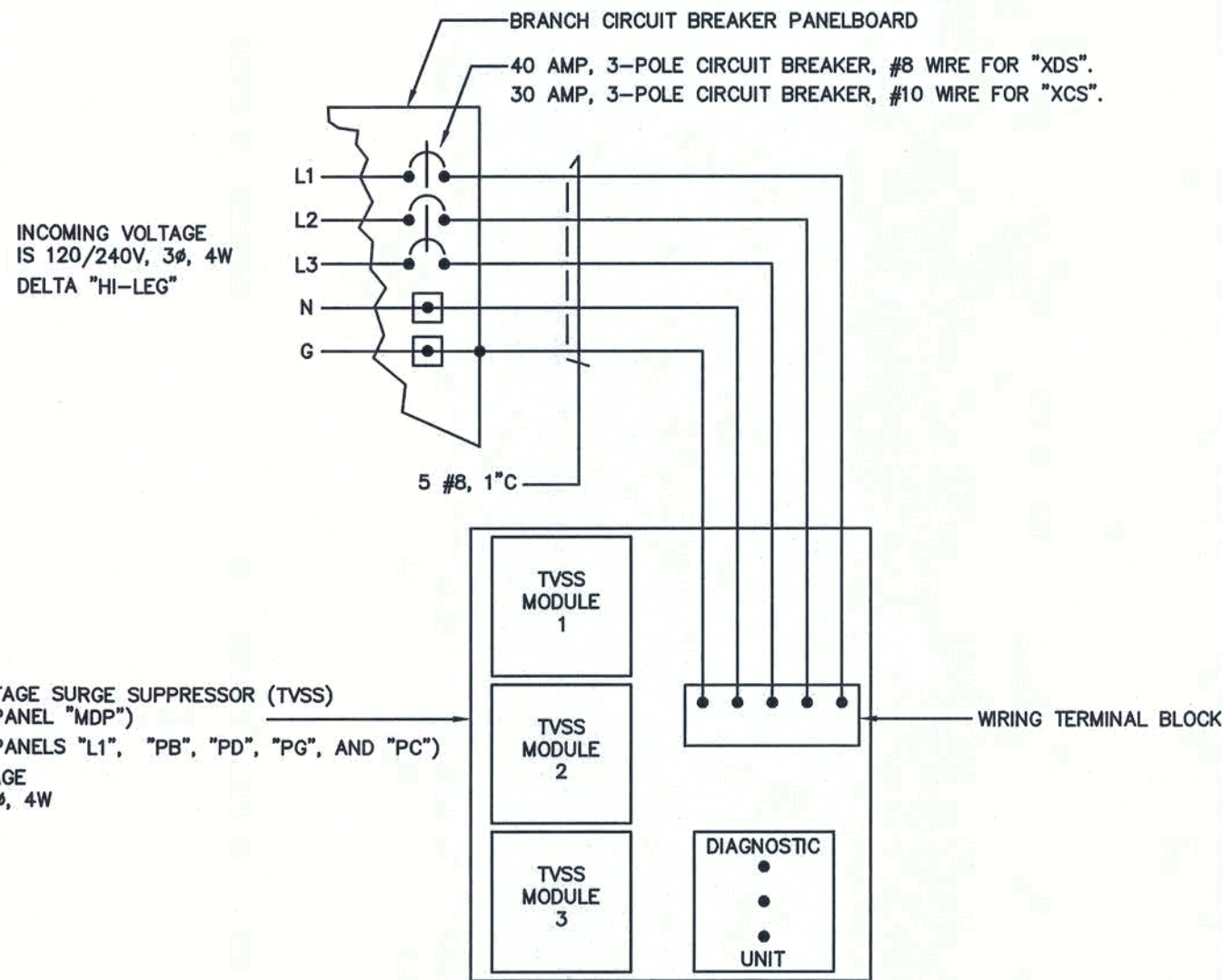
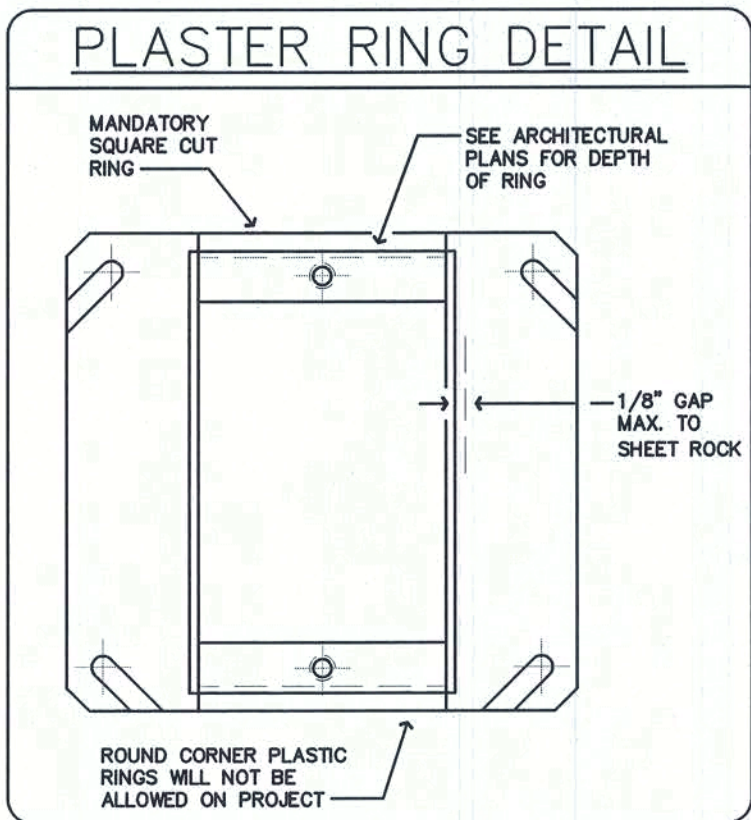
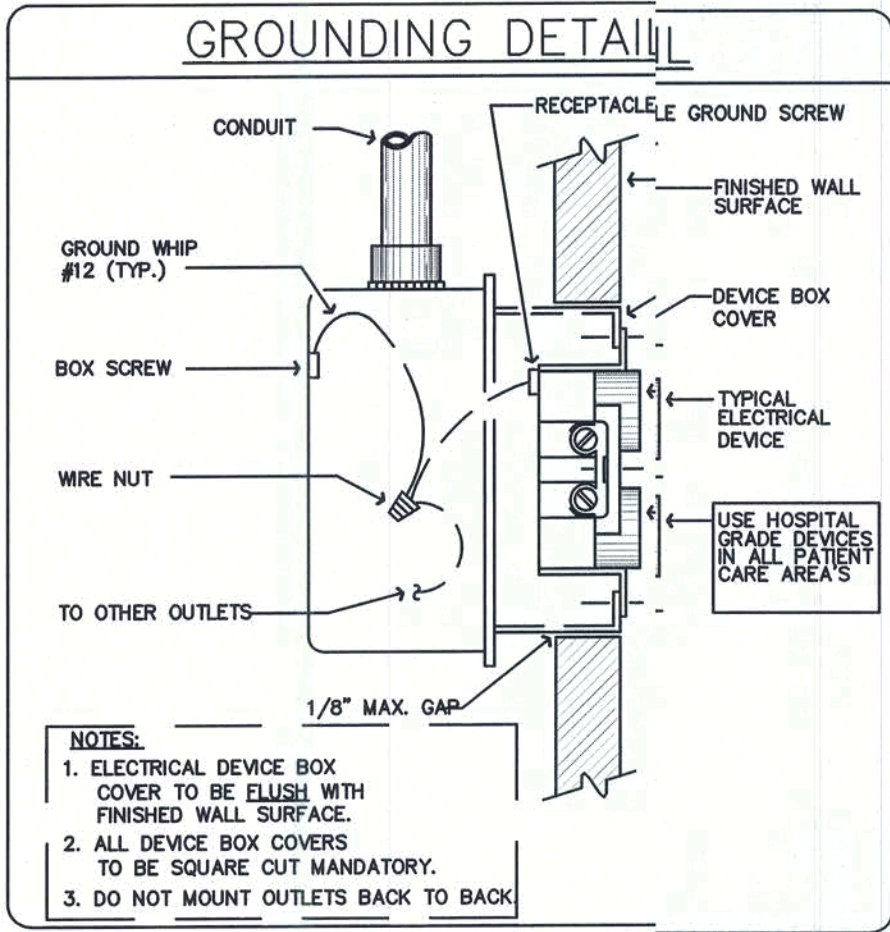
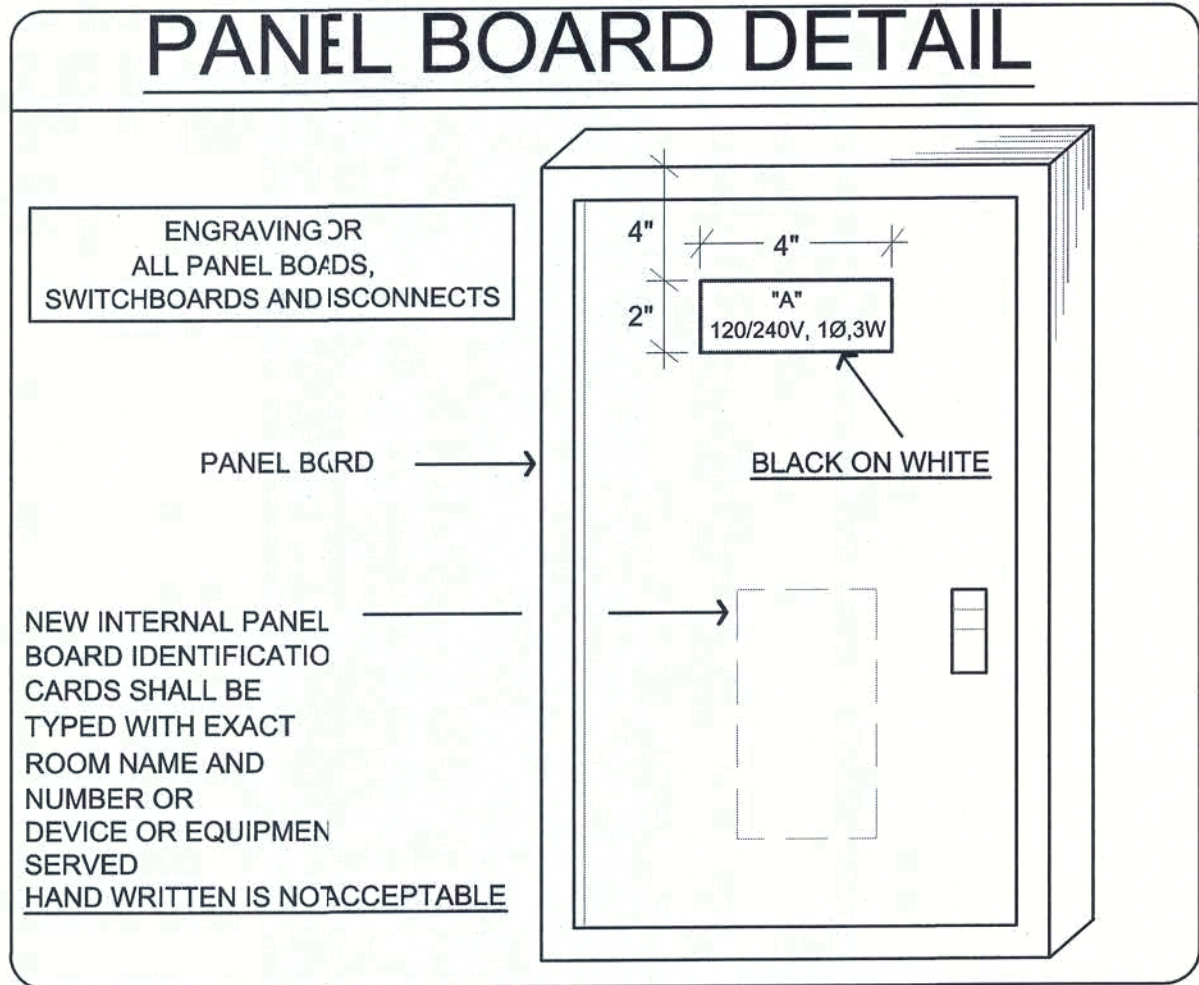
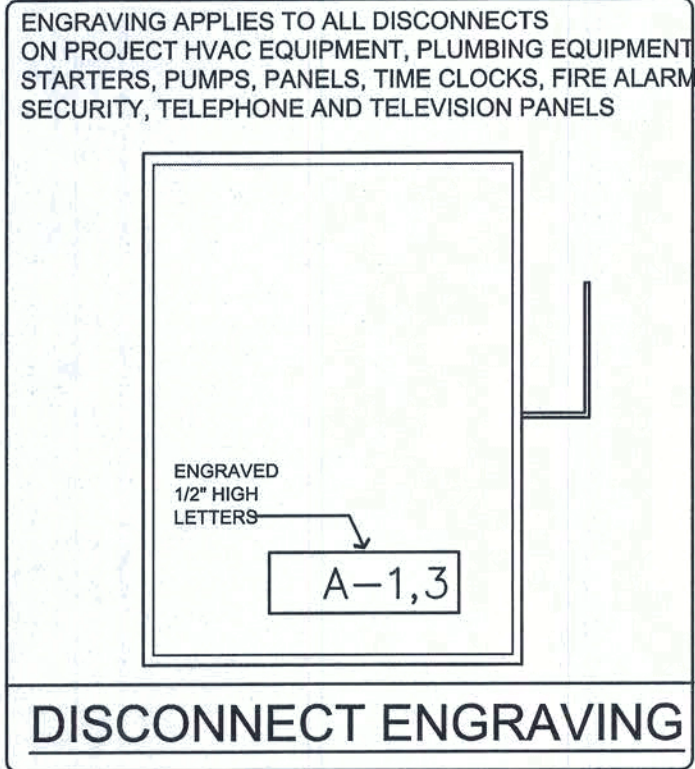
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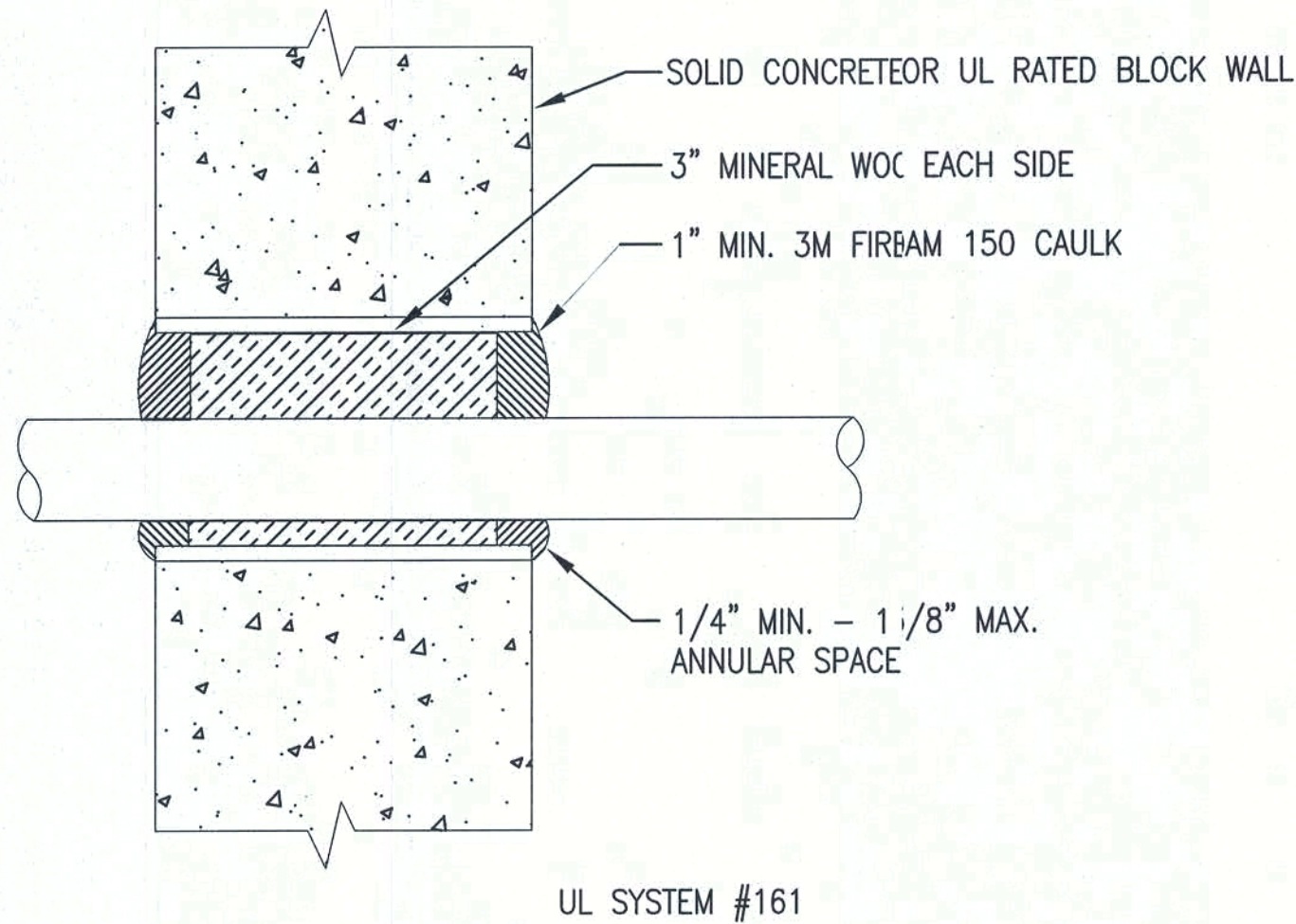
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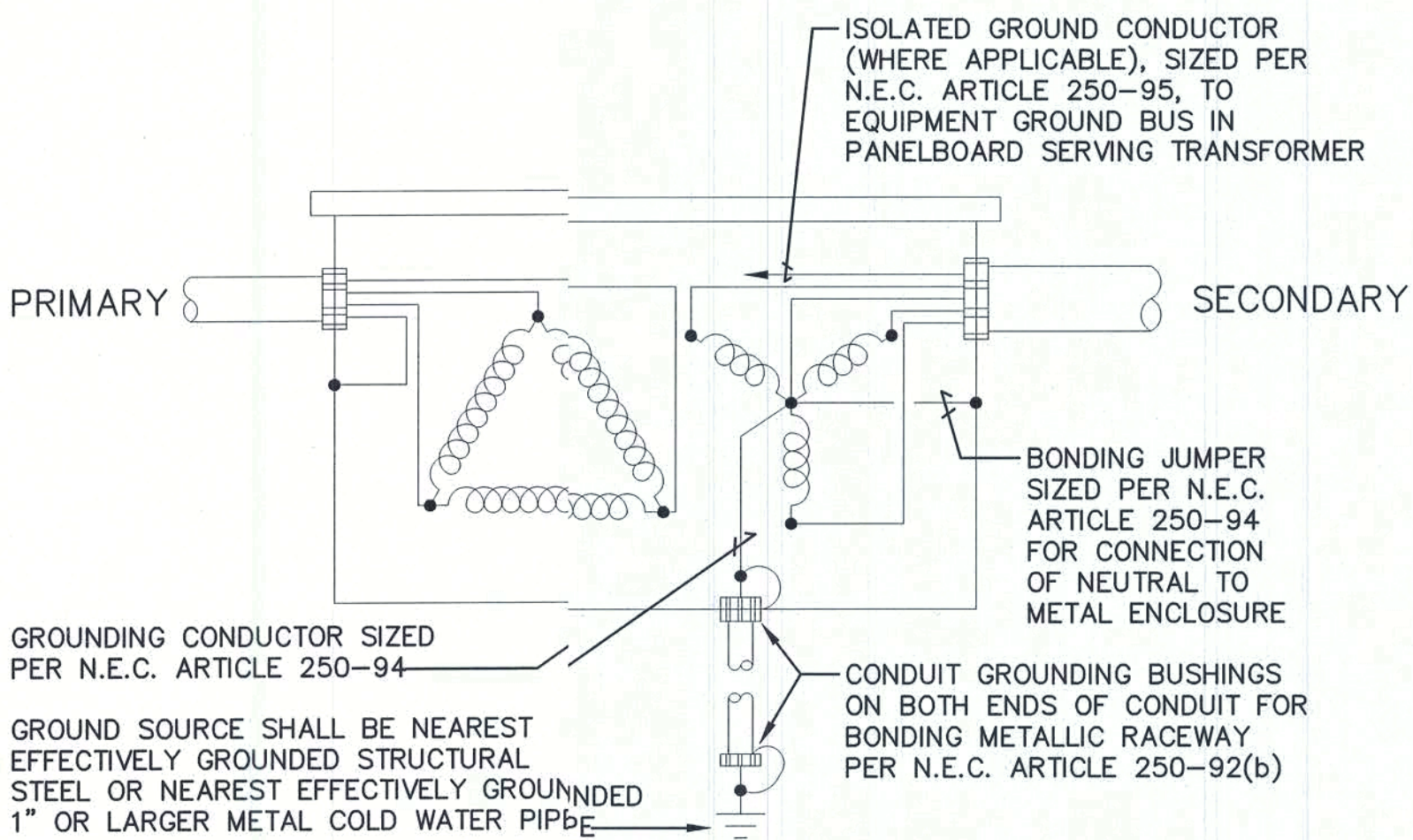
TRANSIENT VOLTAGE SURGE SUPPRESSOR (TVSS) WIRING DIAGRAM

N.T.S.



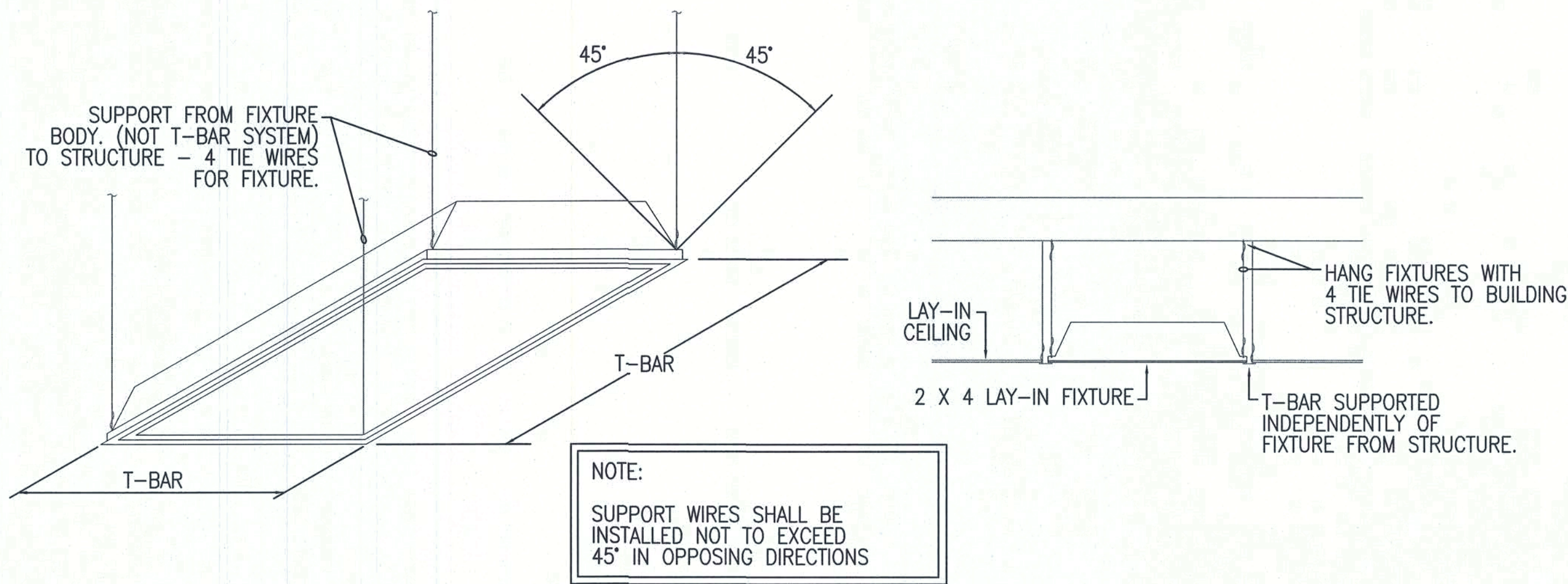
CONDUIT PENETRATION THROUGH FLOOR AND FIREWALLS

SCALE: NOT TO SCALE



TYPICAL TRANSFORMER GROUNDING DETAIL

N.T.S.



RECESSED LAY-IN FIXTURE DETAIL

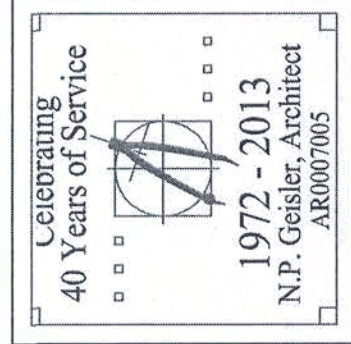
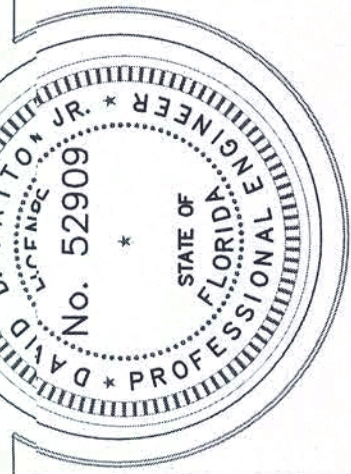
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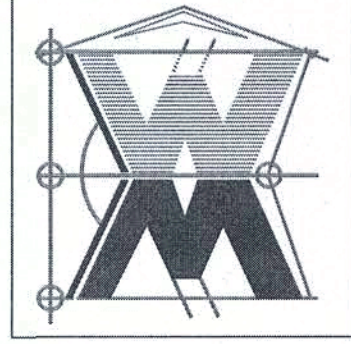
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