

LEGEND, SYMBOL LIST AND ABBREVIATIONS	
	NEW DUCTWORK (DOUBLE LINE)
	NEW DUCTWORK (SINGLE LINE)
	SUPPLY DUCTWORK DOWN
	RETURN OR EXHAUST DUCTWORK DOWN
	ELBOW WITH TURNING VANES
	VOLUME DAMPER
	DUCTWORK W/ 1" THICK ACOUSTICAL LINING
	DUCTWORK W/ 1" THICK ACOUSTICAL LINING
	MOTORIZED DAMPER
	THERMOSTAT
	UNDER CUT

LEGEND, SYMBOL LIST AND ABBREVIATIONS	
CFM	CUBIC FEET PER MINUTE
N.T.S.	NOT TO SCALE
VD	VOLUME DAMPER
DIA. OR ϕ	DIAMETER
DN.	DOWN
WMS	WIRE MESH SCREEN
MOP	MAXIMUM OVERCURRENT PROTECTION
FLA	FULL LOAD AMPS
MCA	MINIMUM CIRCUIT AMPS
MOP	MAXIMUM OVERLOAD PROTECTION
ESP	EXTERNAL STATIC PRESSURE
AD	ACCESS DOOR
VFD	VARIABLE FREQUENCY DRIVE
FSD	FIRE SMOKE DAMPER PROVIDED WITH ACCESS DOOR
CD	CONDENSATE DRAIN
AFF	ABOVE FINISH FLOOR
EG	EXHAUST AIR REGISTER
RG	RETURN AIR GRILLE
FD/AD	FIRE DAMPER W/ ACCESS DOOR
EF	EXHAUST FAN
FD/SD	FIRE W/SMOKE DAMPER
BCU	BRANCH CIRCUIT CONTROLLER UNIT
SAF	SUPPLY AIR FAN
AC	AIR CONDITIONING UNIT
CDS	CEILING DIFFUSER SUPPLY
CDR	CEILING DIFFUSER RETURN

BUILDING DEPARTMENT NOTES:

2014 - NYC BUILDING CODE

ALL WORK SHALL COMPLY WITH THE APPLICABLE SECTIONS OF THE BUILDING CODE, CITY OF NEW YORK, EFFECTIVE JULY 1, 2014 AND ALL AMENDMENTS AND RULES AND REGULATIONS OF THE DEPARTMENT OF BUILDINGS TO DATE. INSPECTIONS AND SIGN-OFF OF COMPLETED WORK SHALL BE MADE AS PER ARTICLE 28-116 OF THE GENERAL ADMINISTRATIVE PROVISIONS.

- THE FOLLOWING SPECIAL INSPECTIONS ARE REQUIRED BY THE NYC BUILDING CODE FOR HVAC SYSTEMS:
 - MECHANICAL SYSTEMS-BC 1704.16.
 - FIRESTOP, DRAFTSTOP, AND FIREBLOCK SYSTEMS - BC 1704.27.
- THE FOLLOWING PERIODIC SPECIAL INSPECTIONS ARE REQUIRED BY THE NYC BUILDING CODE FOR HVAC SYSTEMS:
 - ENERGY CODE COMPLIANCE- BC 110.3.5
 - DAMPER INTEGRAL TO BUILDING ENVELOPE.
 - DUCT PLENUM AND PIPING INSULATION AND SEALING.
 - MAINTENANCE INFORMATION
- TESTS OF MECHANICAL SYSTEMS SHALL BE PERFORMED IN ACCORDANCE WITH SECTION MC 107 AND THE FOLLOWING SECTIONS OF THE NEW YORK CITY MECHANICAL CODE:
 - VENTILATION SYSTEM BALANCING 403.8
 - REFRIGERATION SYSTEMS- MC 1108
- THE OWNER SHALL ENGAGE THE SERVICES OF A PROFESSIONAL ENGINEER TO PROVIDE THE REQUIRED SPECIAL INSPECTIONS AND TESTS
 - UPON COMPLETION OF THE VENTILATION SYSTEM:
 - A TEST SHALL BE CONDUCTED IN THE PRESENCE OF AND UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER QUALIFIED TO CONDUCT SUCH TESTS. THE TESTS SHALL SHOW COMPLIANCE WITH THE CODE REQUIREMENTS FOR VENTILATION AND THE PROPER FUNCTIONING OF ALL SMOKE DETECTION, FIRE PROTECTION AND OPERATING DEVICES BEFORE THE SYSTEM IS APPROVED.
 - THE LICENSED PROFESSIONAL ENGINEER WHO CONDUCTS THE TESTS SHALL FILE A CERTIFICATE AS TO WHETHER THE SYSTEM COMPLIES WITH THE APPLICABLE LAWS. THEY SHALL ALSO FILE WITH THIS CERTIFICATION A REPORT OF THE TEST. THE TEST AND REPORT SHALL BE MADE IN A MANNER SATISFACTORY TO THE OWNER.
- THE FOLLOWING WORK ITEMS, COMPONENTS, MATERIALS, CAPACITIES, ETC. SHALL COMPLY WITH THE REFERENCED CODE OR STANDARD:
 - DUCT CONSTRUCTION, SUPPORT- MC 603
 - AIR FILTERS-MC 605
 - PIPING AND INSULATION -MC 1201
- MINIMUM TEMPERATURE TO BE MAINTAINED IN OCCUPIED SPACES DURING HEATING SEASON: 68 DEG F
- VENTILATION FOR ALL AREAS SHALL COMPLY WITH MC 401.
- A STATEMENT SHALL BE FILED BY THE OWNER OR TENANT IN POSSESSION THAT THE VENTILATING SYSTEM WILL BE KEPT IN CONTINUOUS OPERATION AT ALL TIMES DURING THE NORMAL OCCUPANCY OF THE STRUCTURE AS REQUIRED BY CODE MC 403.3
- ALL FIRE DAMPERS SHALL BE ACCEPTED FOR USE BY THE NEW YORK CITY DEPARTMENT OF BUILDINGS SHALL BE MANUFACTURED AND INSTALLED IN ACCORDANCE WITH UL 555, STANDARD FOR FIRE DAMPERS AND CEILING DAMPERS.
- COMBINATION FIRE/SMOKE DAMPERS AND SMOKE DAMPERS SHALL BE ACCEPTED FOR USE BY THE NEW YORK CITY DEPARTMENT OF BUILDINGS SHALL BE MANUFACTURED AND INSTALLED IN ACCORDANCE WITH UL 555S.
- SMOKE DETECTORS, COMBINATION FIRE/SMOKE DAMPERS AND SMOKE DAMPERS SHALL BE INSTALLED AS REQUIRED TO CLOSE DAMPERS AND AUTOMATICALLY STOP THE FAN-MC 606
- REFER TO ARCHITECTURAL DRAWINGS FOR REQUIRED FIRE RATED WALL AND SMOKE WALL CONSTRUCTION AND LOCATION.
- THESE PLANS ARE APPROVED ONLY FOR THE WORK INDICATED ON THE APPLICATION SPECIFICATION SHEET. ALL OTHER MATTERS SHOWN ARE NOT TO BE RELIED UPON OR TO BE CONSIDERED AS EITHER BEING APPROVED OR IN ACCORDANCE WITH APPLICABLE CODES.
- TO THE BEST OF THE APPLICANT'S KNOWLEDGE, BELIEF AND PROFESSIONAL JUDGEMENT, THESE PLANS ARE IN COMPLIANCE WITH THE ENERGY CONSERVATION CONSTRUCTION CODE OF NEW YORK STATE.
- TESTS OF SOUND POWER LEVEL OR MECHANICAL EQUIPMENT SHALL BE CONDUCTED AND RESULTS SUBMITTED WHERE WINDOWS OF A DWELLING UNIT ARE WITHIN 100 FEET OF EQUIPMENT. THE SOUND PRESSURE LEVEL SHALL NOT EXCEED THE LEVELS GIVEN IN MC 928.
- MECHANICAL SYSTEMS SHALL BE COMMISSIONED PER 2016 NYCECC C403.2.2, C408.2.1, C408.2.5.4. FINAL COMMISSIONING REPORT SHALL BE DUE WITHIN 18 MONTHS OF RECEIPT OF CERTIFICATE OF OCCUPANCY.
- ALL HEATING AND COOLING LOADS CALCULATED PER ASHRAE/ACCA 183.

NOTES

- THE CONTRACTOR SHALL FURNISH AND INSTALL A COMPLETE AND OPERATIONAL MECHANICAL SYSTEM IN ACCORDANCE WITH ALL AUTHORITIES HAVING JURISDICTION AND THESE CONSTRUCTION DOCUMENTS.
- ALL WORK, MATERIAL AND EQUIPMENT SHALL COMPLY WITH BLDG. CODE AND ELECTRICAL CODE.
- ALL MATERIAL AND WORKMANSHIP SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE OF THIS WORK.
- THE WORK SHALL INCLUDE ALL LABOR, MATERIALS, EQUIPMENT, HOISTING, RIGGING, SCAFFOLDING AND SERVICES FOR A FULLY OPERATIONAL MECHANICAL SYSTEM.
- ALL WORK SHALL BE PROPERLY COORDINATED WITH OTHER TRADES AND EXISTING CONDITIONS.
- EQUIPMENT AND PIPING ARE SHOWN DIAGRAMMATICALLY AND DOES NOT SHOW ALL OFFSETS, DROPS AND RISES OF RUNS. THE CONTRACTOR SHALL ALLOW IN HIS PRICE FOR ROUTING OF PIPING TO AVOID OBSTRUCTIONS. EXACT LOCATIONS ARE SUBJECT TO APPROVAL OF THE ENGINEER COORDINATION WITH THE EXISTING SERVICES, INCLUDING THOSE OF OTHER TRADES IS REQUIRED.
- INSTALL WORK SO AS TO BE READILY ACCESSIBLE FOR OPERATION, MAINTENANCE AND REPAIR. MINOR DEVIATIONS FROM DRAWINGS MAY BE MADE TO ACCOMPLISH THIS, BUT CHANGES INVOLVING EXTRA COST SHALL NOT BE MADE WITHOUT APPROVAL.
- PLAN INSTALLATION OF NEW WORK AND CONNECTIONS TO EXISTING WORK SO AS TO INSURE MINIMUM INTERFERENCE WITH REGULAR OPERATION OF EXISTING FACILITIES. ALL SYSTEM SHUTDOWNS AFFECTING OTHER AREAS SHALL BE COORDINATED WITH BUILDING OWNER. PROVIDE TEMPORARY PIPE CAPS AND/OR CONNECTIONS TO MINIMIZE SHUTDOWN TIME.
- CONNECT NEW WORK TO EXISTING WORK IN NEAT AND APPROVED MANNER. RESTORE EXISTING WORK DISTURBED WHILE INSTALLING NEW WORK TO ACCEPTABLE CONDITION AS DETERMINED BY ENGINEER.
- DISCONNECT, REMOVE AND/OR RELOCATE EXISTING MATERIAL, EQUIPMENT AND OTHER WORK AS NOTED OR REQUIRED FOR PROPER INSTALLATION OF NEW SYSTEM.
- THE CONTRACTOR SHALL KEEP ALL EQUIPMENT AND MATERIALS, AND ALL PARTS OF THE BUILDING, EXTERIOR SPACE AND ADJACENT STREETS, SIDEWALKS AND PAVEMENTS, FREE FROM MATERIAL AND DEBRIS RESULTING FROM THE EXECUTION OF THIS WORK. EXCESS MATERIALS WILL NOT BE PERMITTED TO ACCUMULATE EITHER IN THE INTERIOR OR THE EXTERIOR.
- UNLESS OTHERWISE EXPRESSLY SPECIFIED, INCLUDE ALL CUTTING AND PATCHING OF EXISTING FLOORS, WALLS, PARTITIONS AND OTHER MATERIALS IN THE EXISTING BUILDING. THE CONTRACTOR SHALL RESTORE THESE AREAS TO ORIGINAL CONDITION.
- PROVIDE ACCESS DOORS, TO BE INSTALLED BY GENERAL CONSTRUCTION TRADE WHICH WILL BE REQUIRED FOR PROPER OPERATION AND MAINTENANCE OF ALL CONCEALED HVAC EQUIPMENT, DAMPERS, VALVES AND OTHER SIMILAR DEVICES.
- THE FINAL ACCEPTANCE WILL BE MADE AFTER THE CONTRACTOR HAS ADJUSTED HIS EQUIPMENT, BALANCED THE VARIOUS SYSTEMS, DEMONSTRATED THAT IT FULFILLS THE REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS AND HAS FURNISHED ALL THE REQUIRED CERTIFICATES OF INSPECTION AND APPROVAL AS REQUIRED BY THE STATE AND LOCAL BUILDING AUTHORITY AND/OR CONTROLLED INSPECTIONS (IF ANY).
- SUBMITTAL OF A PROPOSAL SHALL BE CONSIDERED AS EVIDENCE THAT A CAREFUL EXAMINATION OF THE PORTIONS OF THE EXISTING BUILDING, EQUIPMENT, ETC., WHICH AFFECT THIS WORK, AND THE ACCESS TO SUCH SPACES, HAS BEEN MADE AND THAT THE CONTRACTOR IS FAMILIAR WITH EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT THE EXECUTION OF THE WORK. LATER CLAIMS SHALL NOT BE MADE FOR LABOR, EQUIPMENT OR MATERIALS REQUIRED BECAUSE OF DIFFICULTIES ENCOUNTERED WHICH COULD HAVE BEEN FORESEEN DURING SUCH AN EXAMINATION. THE ON-SITE INSPECTION SHALL VERIFY EXISTING PIPING, DUCTWORK (SIZES, CLEARANCES, ETC.) AND OTHER EXISTING CONDITIONS.
- THE CONTRACTOR SHALL PERFORM ALL INSPECTIONS IN ACCORDANCE WITH GOVERNING AUTHORITIES. SECURE ALL REQUIRED PERMITS AND APPROVALS AND TRANSMIT SAME TO THE OWNER. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL FEES.
- CONTRACTOR SHALL SUBMIT PROCEDURE FOR FLUSHING THE WATER PIPING SYSTEMS PRIOR TO CONNECTION TO BUILDING PIPING SYSTEMS.
- CONTRACTOR SHALL SUBMIT "AS-BUILT" DRAWINGS, OPERATIONS AND MAINTENANCE MANUALS, TEST REPORTS, AIR AND WATER BALANCING REPORTS TO BUILDING MANAGEMENT.
- CONTRACTOR SHALL COORDINATE WITH BASE BUILDING MANAGEMENT FOR ALL SERVICE SHUTDOWNS AND AIR AND WATER BALANCING. CONTRACTOR SHALL PROVIDE MINIMUM 48 HOURS NOTICE.
- CONTRACTOR SHALL COORDINATE WITH BUILDING MANAGER REGARDING THE NOISE OR VIBRATION GENERATED DURING CONSTRUCTION.
- CONTRACTOR TO PROVIDE VOLUME DAMPERS FOR ALL DUCT MAINS AND BRANCH DUCTWORK FOR SUPPLY, RETURN AND EXHAUST AIR SYSTEM.
- ALL AIR BALANCING SHALL BE WITNESSED BY BASE BUILDING ENGINEER. CONTRACTOR SHALL ENSURE THE BASE BUILDING ENGINEER'S PRESENCE.
- THE LOCATION AND ELEVATIONS OF ALL PIPING, CONDUIT, PANELS, EQUIPMENT AND OR DUCTWORK THAT IS IN OR PASSING THROUGH BASE BUILDING SPACES AND/OR TENANT SPACES ARE TO BE COORDINATED WITH BUILDING MANAGEMENT AND INDICATED ON SHOP DRAWINGS BEFORE PROCEEDING WITH WORK.
- ALL WORK TO COMPLY WITH BUILDING ENGINEERING STANDARDS.
- CONTRACTOR SHALL NOTIFY THE BUILDING MANAGEMENT OF ANY WORK THAT WILL AFFECT ADJACENT TENANT AREAS.
- ANY CORE DRILL SHALL BE PERFORMED AFTER HOURS. CONTRACTOR SHALL COORDINATE WITH BASE BUILDING MANAGEMENT PRIOR COMMENCING OF WORK.

Property of Mechanical



MECHANICAL REQUIREMENTS

PROVIDE EQUIPMENT INDICATED ON THE DRAWINGS, AND AS REQUIRED FOR A COMPLETE FUNCTIONING SYSTEM. DEFINITIONS: FURNISH MEANS TO SUPPLY AND DELIVER TO PROJECT SITE, READY FOR INSTALLATION...

GENERAL NOTES

- A. CONTRACTORS AND SUB-CONTRACTORS SHALL CAREFULLY REVIEW THE CONSTRUCTION DOCUMENTS. INFORMATION REGARDING THE COMPLETE WORK IS DISPERSED THROUGHOUT THE DOCUMENT SET AND CANNOT BE ACCURATELY DETERMINED WITHOUT REFERENCE TO THE COMPLETE DOCUMENT SET.

SEQUENCE OF OPERATION:

- 1) AC UNITS: UNIT SHALL BE STARTED AND STOPPED BY WALL MOUNTED PROGRAMMABLE THERMOSTAT. DURING "ON" MODE UNIT THERMOSTAT SHALL ENERGIZE COMPRESSOR(S) AND SUPPLY FAN TO MAINTAIN ROOM SET POINT OF 75° ADJUSTABLE...

NOVAR SYSTEM NOTES

- NOVAR INTERFACE SUMMARY (REFER TO T.J.X SPECIFICATIONS FOR DETAIL INFORMATION.) 1. GENERAL CONTRACTOR 1.1. PROVIDE 4'X8' PLYWOOD BACKBOARD IN ELECTRIC ROOM FOR NOVAR TO MOUNT THEIR EQUIPMENT...

SCOPE OF WORK

- SCOPE OF WORK 1. THE WORK UNDER CONTRACT INCLUDES ALL LABOR, MATERIALS AND APPLIANCES NECESSARY FOR THE FURNISHING, INSTALLING AND TESTING COMPLETE AND READY FOR SAFE OPERATION OF THE SYSTEMS AS DESCRIBED IN THE SPECIFICATIONS...

SPECIFICATIONS

- SECTION 230593 – TESTING, ADJUSTING, AND BALANCING FOR HVAC 1.1 SUMMARY A. TESTING, ADJUSTING, AND BALANCING FOR THE FOLLOWING: 1. AIR SYSTEMS: CONSTANT-VOLUME. 2. CONDENSING UNITS.

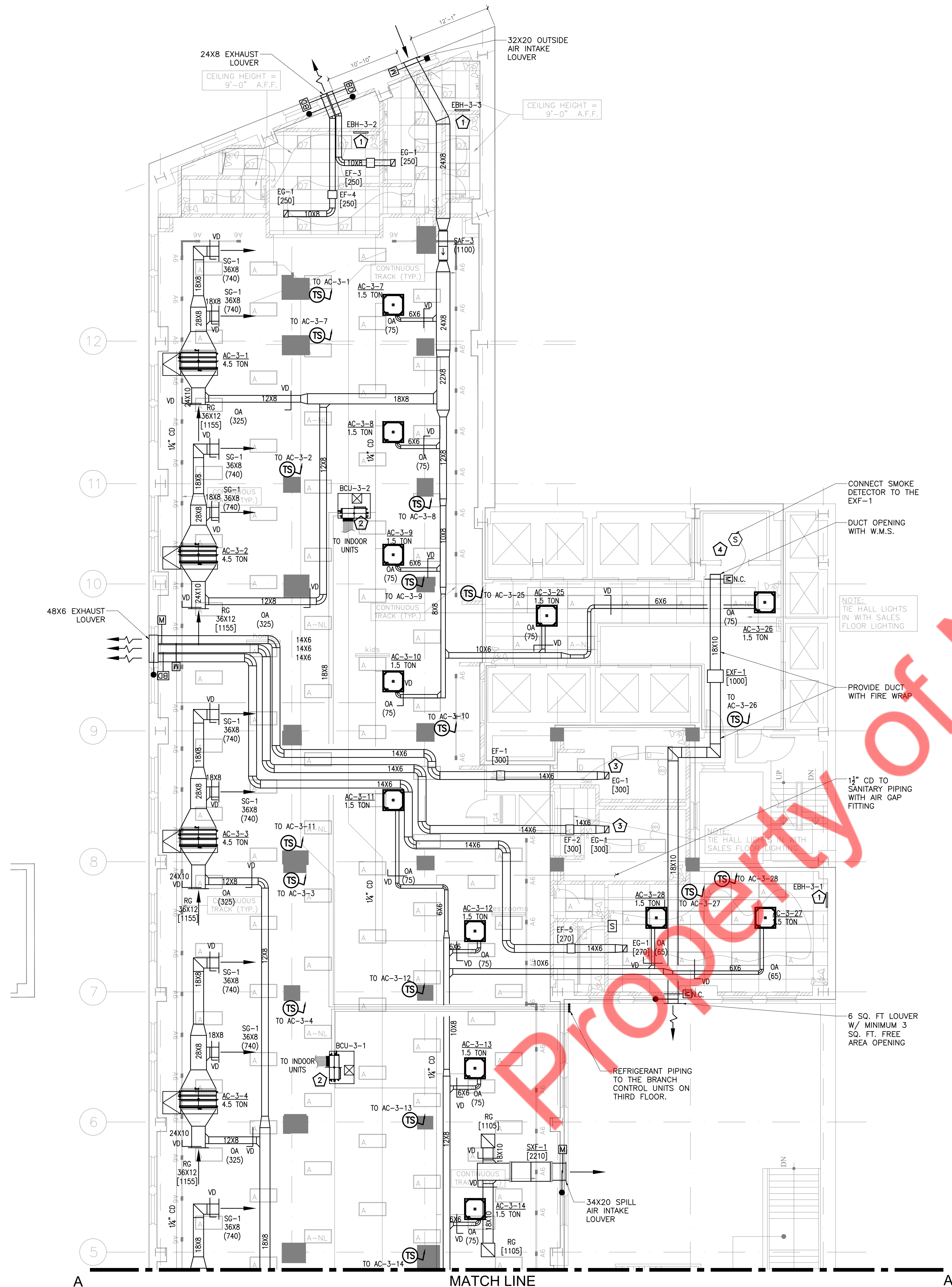
Table with 4 columns: SERVICE, INSULATION SCHEDULE - PIPING, SIZE, THICKNESS, MATERIAL, FINISH. Includes rows for REFRIGERANT PIPING and PIPING INSULATION.

SECTION 230713 – DUCT INSULATION

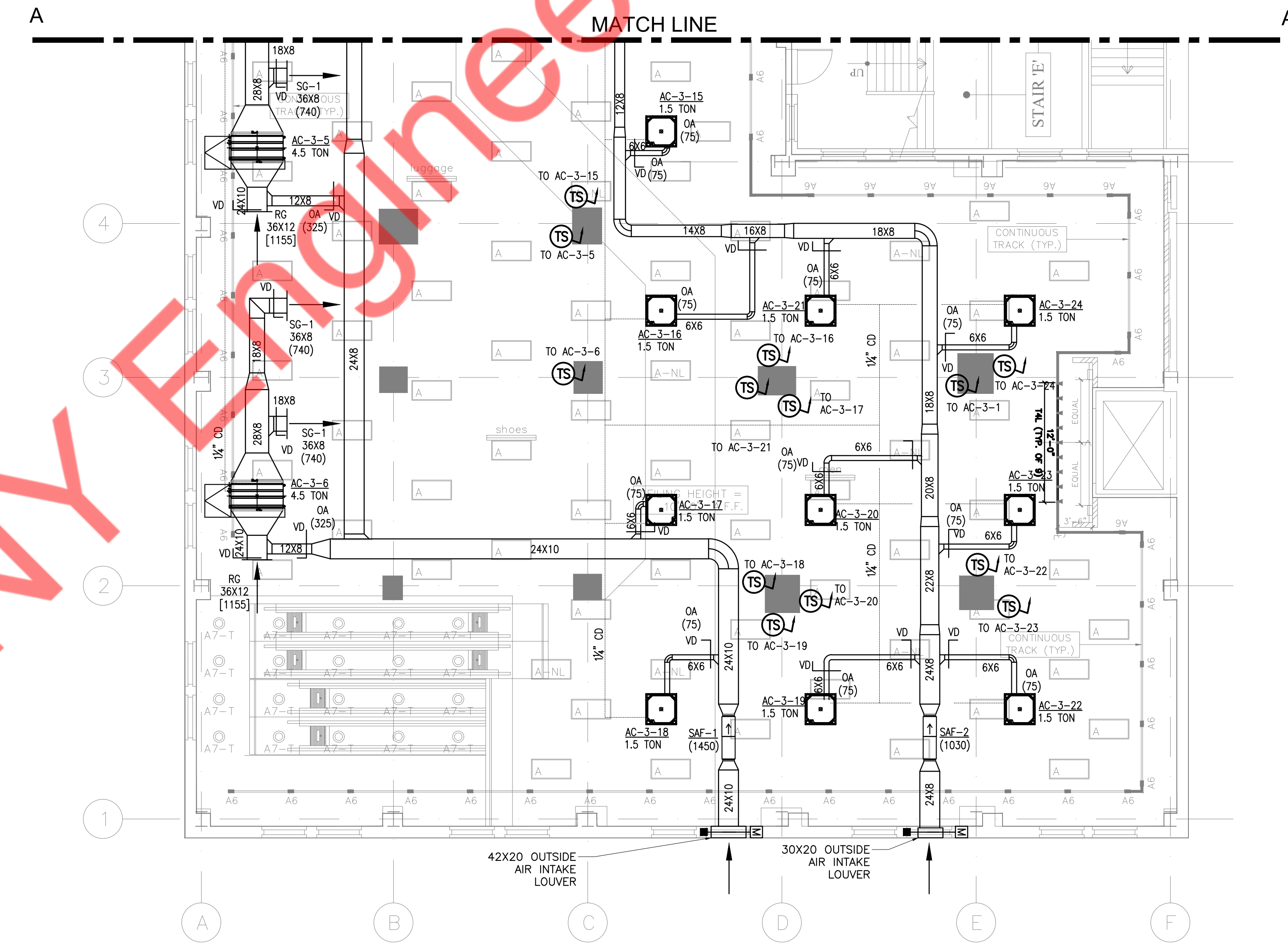
- 1.1 QUALITY ASSURANCE SURFACE-BURNING CHARACTERISTICS: ALL INSULATION SHALL HAVE COMPOSITE (INSULATION JACKET OR FACING AND ADHESIVE USED TO ADHERE THE FACING OR JACKET TO THE INSULATION) A FLAME-SPREAD INDEX OF 25, AND SMOKE-DEVELOPED INDEX OF 50 FOR INSULATION INSTALLED INDOOR, 75, AND SMOKE-DEVELOPED INDEX OF 150 FOR INSULATION INSTALLED OUTDOORS...

SECTION 233113 – METAL DUCTS

- 1.1 CONSTRUCTION A. EACH DUCT SYSTEM SHALL BE CONSTRUCTED FOR THE SPECIFIC SMOGNA DUCT PRESSURE CLASSIFICATIONS SHOWN ON THE CONTRACT DRAWINGS, WHERE NO PRESSURE CLASSES ARE SPECIFIED BY THE DESIGNER, THE SMOGNA 2-1/2 INCH WG PRESSURE CLASS IS THE BASIS OF COMPLIANCE WITH THESE STANDARDS...



1 MECHANICAL THIRD FLOOR PART PLAN
SCALE: 1/8"=1'-0"



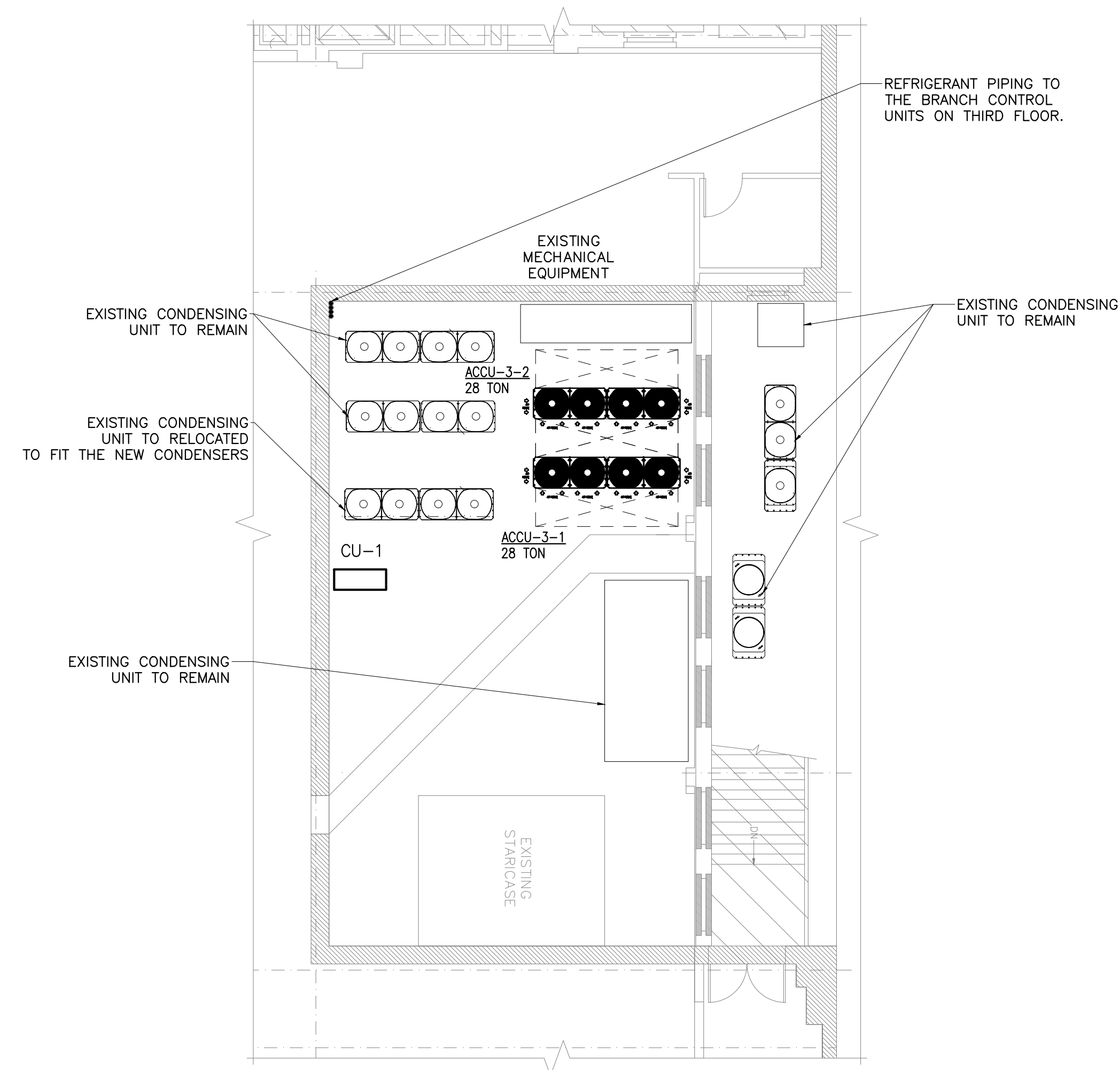
2 MECHANICAL THIRD FLOOR PART PLAN
SCALE: 1/8"=1'-0"

KEY NOTE:

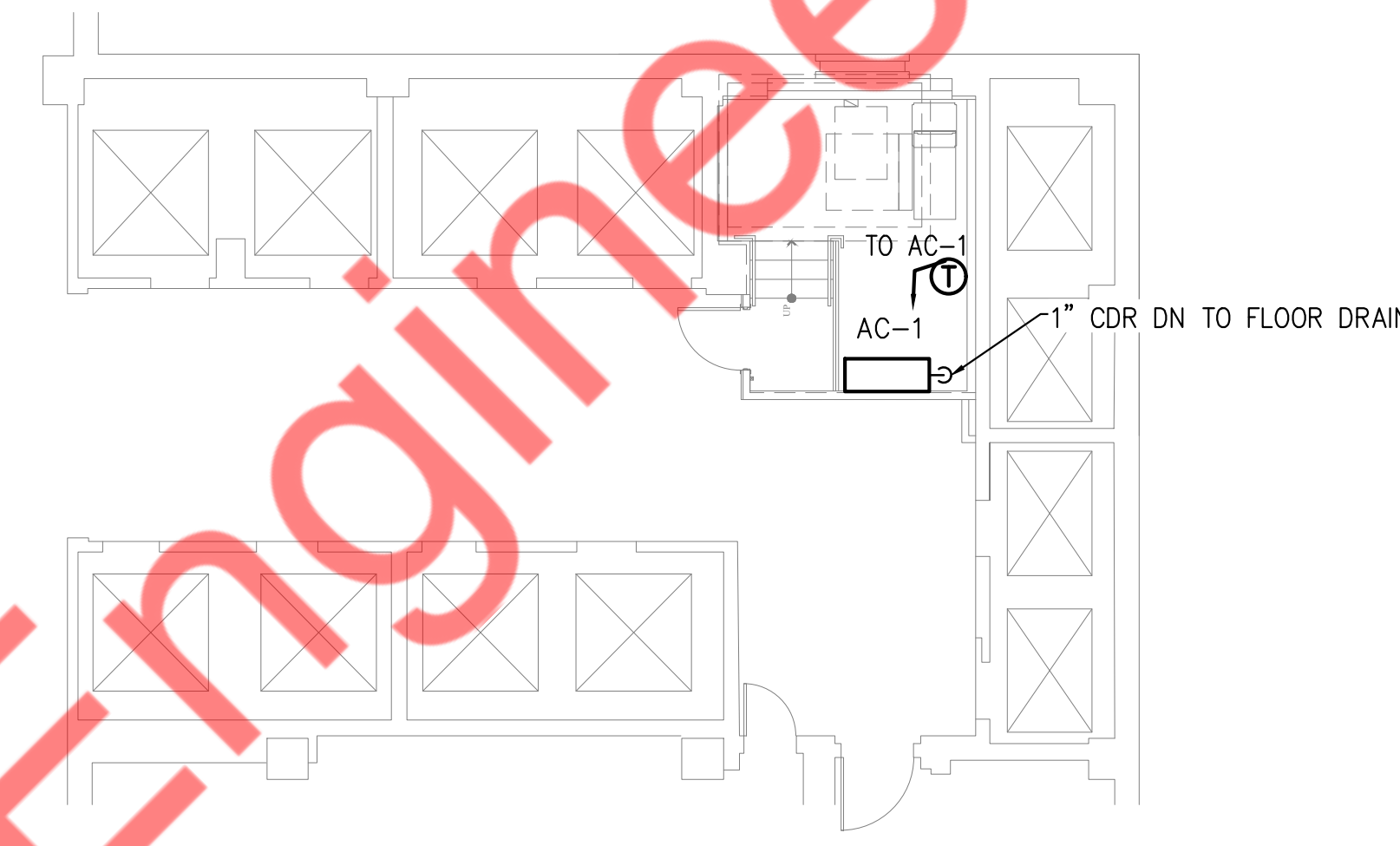
- 1 ELECTRICAL BASEBOARD HEATER @ 6" AFF. REFER ELECTRICAL DRAWING FOR ADDITIONAL INFORMATION.
- 2 CONTRACTOR TO RUN PIPING BETWEEN BRANCH CIRCUIT CONTROLLER AND RESPECTIVE INDOOR AND OUTDOOR UNITS AS PER MECHANICAL SCHEDULE.
- 3 RESTROOM EXHAUST TO BE CONTROLLED BY EMPLOYEE PANEL.
- 4 PROVIDE MIN 3 S.F.T FREE OPENING VENT WITH LOUVER AT THE TOP OF ELEVATOR HOISTWAY. CONFIRM EXACT SIZE WITH ARCHITECTS AND ELEVATOR CONSULTANT. PROVIDE MOTORIZED DAMPER AT EACH LOUVER AND CONNECT TO SMOKE DETECTOR ON TOP OF EACH ELEVATOR SHAFT TO 100% MD FULLY OPEN WHEN SMOKE DETECTOR IS TRIGGERED.

NOTES:

1. PROVIDE MANUAL SHUTOFF NEXT TO ELEVATOR CONTROL PANEL AND UL LISTED FOR EX-1 AND CONNECT TO FIRE ALARM PANEL. SMOKE CONTROL SYSTEM SHALL ACTIVATE INDIVIDUAL COMPONENTS (FAN AND DAMPERS) TO PREVENT PHYSICAL DAMAGE TO FAN, DAMPERS, DUCTS AND OTHER EQUIPMENT.



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



2 MECHANICAL 4TH FLOOR PART PLAN
SCALE: 1/8"=1'-0"

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CONDENSING UNIT SCHEDULE (BASED ON MITSUBISHI)

TAG	SERVICE	TON	MODEL NUMBER	MODULES	DESIGN COOLING OUTDOOR TEMP DB (°F)	DESIGN HEATING OUTDOOR TEMP WB (°F)	COOLING TOTAL CAPACITY (BTU/H)	HEATING CAPACITY (BTU/H)	VOLTAGE / PHASE	MCA	MOCP	WEIGHT (LBS)	SOUND DATA (dBA)	EER	COP	MODEL NO.	
ACCU-3-1	THIRD FLOOR	28	PURY-P336TSLMU-A	2	PURY-P168TLMU-A, PURY-P168TLMU-A	336	378	336,000	378,000	208/3/60	68+68	110+110	1404	64	9.9	3.19	PURY-P336TSLMU-A
ACCU-3-2	THIRD FLOOR	28	PURY-P336TSLMU-A	2	PURY-P168TLMU-A, PURY-P168TLMU-A	336	378	336,000	378,000	208/3/60	68+68	110+110	1404	64	9.9	3.19	PURY-P336TSLMU-A

- NOTES:
 1. CONTRACTOR TO FOLLOW MANUFACTURER'S RECOMMENDATIONS FOR LONG RUNS OF REFRIGERANT PIPING.
 2. REFRIGERANT PIPE SIZES SHALL BE VERIFIED BY MANUFACTURER.
 3. ALL REFRIGERANT PIPING SHALL BE INSULATED.
 4. UNITS REQUIRE SEPARATE POWER CONNECTIONS FOR CONDENSING UNIT AND EVAPORATOR.
 5. REFRIGERANT PIPING FROM BCC UNITS TO BE CAPPED OFF FOR FUTURE USE.

INDOOR UNITS

SPACE	SEE PLAN	SEE PLAN
UNIT NO	AC-3-1 TO AC-3-6	AC-3-7 TO AC-3-28
MANUFACTURER:	MITSUBISHI	MITSUBISHI
MODEL NO	PEFY-P54NMAU-E3	PLFY-EP18NEMU-E
NOMINAL COOLING CAPACITY	54,000 BTU/H	18,000 BTU/H
NOMINAL HEATING CAPACITY	60,000 BTU/H	20,000 BTU/H
SOUND PRESSURE LEVEL	45 DB (A)	43 DB (A)
H-W-D (INCH)	10-64-28	10-33-33
WEIGHT (LBS)	86	46+11
CFM	1480	636
ESP (IN)	0.6	-
(VOLT/PH/Hz)	208/230-1-60	208/230-1-60
MCA	3.31	0.43
MOP	15	15

- NOTES:
 -SUPPLY AIR CFM BASED ON HIGH SPEED.
 -REFRIGERANT R410A SHALL BE PROVIDED.
 -PROVIDE MOUNTING BRACKETS AND ALL ASSOCIATED ACCESSORIES.
 -PROVIDE SPRING-TYPE VIBRATION ISOLATORS WITH NEOPRENE BUSHINGS.
 -FOR ALL INDOOR UNITS, PROVIDE UNIT WITH TEMPERATURE SENSOR AND PROCON MELLOBEMS MINI (A1M) PROVIDED BY MITSUBISHI TO PROVIDE BACNET MSTP COMMUNICATION WITH NOVAR CONTROLLER.
 -ALL REFRIGERANT PIPING TO BE SIZED PER MANUFACTURER'S RECOMMENDATIONS.
 -PROVIDE MERV 8 FILTER FOR ALL INDOOR UNITS.

EXHAUST FAN SCHEDULE

UNIT NO:	EF-1 AND 2	EF-3 AND 4	EF-5	EXF-1
LOCATION:	THIRD FLOOR	THIRD FLOOR	THIRD FLOOR	THIRD FLOOR
MANUFACTURER:	PENNBARRY	PENNBARRY	PENNBARRY	PENNBARRY
MODEL NO.:	SX085RC	SX085RC	SX085RC	SX085RC
CFM:	300	250	270	1000
ESP (IN WG):	0.71	0.71	0.71	0.75
OPERATING POWER (HP):	-	-	-	-
RPM	1550	1550	1550	1550
ELEC DATA:	HP 1/6 V/PH/Hz 115/1/60 AMPS 1.6	1/6 115/1/60 1.6	1/6 115/1/60 1.6	1/3 115/1/60 -
WEIGHT (LBS):	35	35	35	70
ACCESSORIES:	SPEED CONTROLLER DISCONNECT SWITCH YES	FACTORY MOUNT YES	FACTORY MOUNT YES	FACTORY MOUNT YES
NOTES:				

EXHAUST/RETURN GRILLE SCHEDULE

UNIT NO:	EG-1	RG-1
FUNCTION:	EXHAUST	RETURN
MANUFACTURER:	TUTTLE AND BAILEY	TUTTLE AND BAILEY
MODEL NO.:	T70D	T70D
CFM:	250-300	1400-1500
DUCT SIZE:	12X6	36X12
NC:	16	17
REMARKS:	PROVIDE OBD--OPPOSED BLADE DAMPER	

HVAC SUMMARY

- HVAC NOVAR INTERFACE (THE HVAC CONTRACTOR'S WORK PRIOR TO THE NOVAR CONTRACTOR'S WORK):
 - THERMOSTATS:
 - THE HVAC CONTRACTOR IS TO PROVIDE AND INSTALL A PERMANENT 18/8 THERMOSTAT WIRING FROM THE LOW VOLTAGE SECTION OF EACH HVAC UNIT TO THE FINAL LOCATION OF THE THERMOSTAT (LOCATION OF THE THERMOSTATS ARE IN ACCORDANCE WITH THE PLANS PRODUCED BY NOVAR AND SUPERSEDE THE MECHANICAL PRINT LOCATIONS).
 - THE HVAC CONTRACTOR IS TO INSTALL A TEMPORARY THERMOSTAT FOR EACH HVAC UNIT AT THESE LOCATIONS FOR TESTING AND OPERATIONS.
 - THE THERMOSTATS ARE TO BE MOUNTED AT 60" A.F.F., EXCEPT IN THE FITTING ROOM WHERE THE THERMOSTAT IS TO BE MOUNTED AT 84" A.F.F.. IF THERMOSTAT LOCATIONS CONFLICTS WITH A PHONE LOCATION, INSTALL THERMOSTAT SIX TO EIGHT INCHES ABOVE THE PHONE. IF PROVIDED, CO2 SENSORS ARE TO BE INSTALLED SIX INCHES DIRECTLY ABOVE THE THERMOSTAT.
 - IN COLD WEATHER, THE HVAC CONTRACTOR IS TO PROVIDE AND INSTALL TEMPORARY A THERMOSTAT FOR RECEIVING HEATERS.
 - SMOKE DETECTORS:
 - THE HVAC CONTRACTOR IS TO SUPPLY AND INSTALL SMOKE DETECTORS FOR THE HVAC EQUIPMENT, (AS WELL AS ANY ADDITIONAL DETECTORS REQUIRED BY THE BUILDING AND FIRE OFFICIALS HAVING JURISDICTION AND GOVERNING CODE). THE SMOKE DETECTORS ARE TO BE PHOTOELECTRIC.
- AIR BALANCING:
 - UPON COMPLETION OF THE HVAC SYSTEM, AIR BALANCING IS TO BE PERFORMED BY AN INDEPENDENT CERTIFIED AIR BALANCING COMPANY.
 - THE CERTIFIED AIR BALANCING REPORT IS TO BE SUBMITTED TO THE TJX COMPANIES PROJECT MANAGER.
- THE DISPOSABLE HVAC FILTERS ARE TO BE CHANGED JUST PRIOR TO THE STORE GRAND OPENING.
- ALL ABANDONED HVAC EQUIPMENT IS TO BE PROPERLY REMOVED AND DISPOSED.
- THE SPACE ABOVE THE CEILING IS NOT TO BE USED AS A RETURN AIR PLENUM.
- ALL EQUIPMENT AND CONTROL DEVICES ARE TO BE APPROPRIATELY IDENTIFIED AND PERMANENTLY ATTACHED.
- BASEBOARD HEATERS
 - BASEBOARD HEATERS ARE TO BE FACTORY EQUIPPED WITH INTEGRAL THERMOSTATS AND ARE TO BE INSTALLED IN ALL OFFICES, LOUNGE, RESTROOMS, AND SECURITY OFFICES THAT HAVE AT LEAST ONE OUTSIDE WALL (IN CLIMATE ZONES 4 AND 5).
 - THE CIRCUITING FOR BASEBOARD HEATING IS TO BE THROUGH THE GE RELAY PANEL.
- VESTIBULE HEATERS
 - ELECTRIC VESTIBULE HEATERS ARE TO BE FACTORY EQUIPPED WITH LOW VOLTAGE CONTROLS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING: POWER CONTRACTORS, LOW VOLTAGE TRANSFORMER AND A TWO WIRE FIELD TERMINATION CONTROL POINT.
- EXHAUST FANS. EXHAUST FANS ARE TO BE CONTROLLED AS SHOWN ON TJX CRITERIA PLANS AND POWERED VIA EMPLOYEE LIGHT CONTRACTOR ON THE GE SOFTWARE CONTRACTOR PANEL.

- THE MCV SHALL HAVE PRESSURE EQUALIZATION VALVES TO REDUCE REFRIGERANT SOUNDS DURING MODE CHANGING OF CONNECTED INDOOR UNITS.
- THE MCV UNIT SHALL CONTAIN INTERNAL SUBCOOLERS WITH ELECTRONIC EXPANSION VALVES TO MAXIMIZE PERFORMANCE OF CONNECTED UNITS.
- MCU MUST BE MOUNTED INDOORS, LEVEL, WITH THE PIPES RUNNING HORIZONTALLY IN AND OUT OF UNIT.
- MCU PRODUCES CONDENSATION AND MUST BE DRAINED APPROPRIATELY. USE 1" CONDENSATE DRAIN PIPE.
- REFER REFRIGERANT DIAGRAMS FOR DETAILED LAYOUT FOR PIPING.

- GENERAL CONTRACTOR
 - PROVIDE AND INSTALL A 4'X8' PLYWOOD BACKBOARD IN THE ELECTRIC ROOM FOR NOVAR TO MOUNT THEIR EQUIPMENT. PHONE AND ETHERNET JACKS FOR THE NOVAR SAVVY CONTROLLER WILL ALSO BE LOCATED ON THIS BOARD BY A SEPARATE TJX VENDOR.
- MECHANICAL CONTRACTOR
 - HORIZONTALLY MOUNT A 2X4 J-BOX WITH CONDUIT (WIREMOLD IF EXPOSED IN FINISHED AREAS) AT THE LOCATIONS DESIGNATED ON THE NOVAR CONTROLS SITE SPECIFIC PLANS. THE J-BOXES ARE TO BE MOUNTED AT 60" A.F.F. EXCEPT IN FITTING ROOM LOCATIONS WHERE THE J-BOXES ARE TO BE MOUNTED AT 84" A.F.F.. ON THE SALES FLOOR, THE J-BOXES ARE TO BE MOUNTED ON BACK SIDE OF THE COLUMNS WHEN VIEWED FROM FRONT OF STORE.
 - PROVIDE AND INSTALL A PERMANENT STRANDED 18/8 AWG NON SHIELDED CABLE FROM EACH CONDENSING UNIT TO THE NOVAR ETM (T-STAT) LOCATION SHOWN ON THE NOVAR PLAN THAT SUPERSEDES ANY MECHANICAL PLAN LOCATIONS.
 - TEMPORARY THERMOSTATS ARE TO BE INSTALLED AT THE ETM LOCATIONS AND THE CONDENSER UNITS STARTED.
 - HVAC EQUIPMENT ARE TO HAVE HAD A MANUFACTURER'S RECOMMENDED STARTUP PROCEDURE PERFORMED AND BE OPERATIONAL IN ALL MODES BEFORE THE ARRIVAL OF THE NOVAR CONTROLS REPRESENTATIVE FOR THE FINAL NOVAR INSTALLATION.

NOTES FOR NOVAR SYSTEM

NOVAR INTERFACE SUMMARY

- GENERAL CONTRACTOR
 - PROVIDE AND INSTALL A 4'X8' PLYWOOD BACKBOARD IN THE ELECTRIC ROOM FOR NOVAR TO MOUNT THEIR EQUIPMENT. PHONE AND ETHERNET JACKS FOR THE NOVAR SAVVY CONTROLLER WILL ALSO BE LOCATED ON THIS BOARD BY A SEPARATE TJX VENDOR.
- MECHANICAL CONTRACTOR
 - HORIZONTALLY MOUNT A 2X4 J-BOX WITH CONDUIT (WIREMOLD IF EXPOSED IN FINISHED AREAS) AT THE LOCATIONS DESIGNATED ON THE NOVAR CONTROLS SITE SPECIFIC PLANS. THE J-BOXES ARE TO BE MOUNTED AT 60" A.F.F. EXCEPT IN FITTING ROOM LOCATIONS WHERE THE J-BOXES ARE TO BE MOUNTED AT 84" A.F.F.. ON THE SALES FLOOR, THE J-BOXES ARE TO BE MOUNTED ON BACK SIDE OF THE COLUMNS WHEN VIEWED FROM FRONT OF STORE.
 - PROVIDE AND INSTALL A PERMANENT STRANDED 18/8 AWG NON SHIELDED CABLE FROM EACH CONDENSING UNIT TO THE NOVAR ETM (T-STAT) LOCATION SHOWN ON THE NOVAR PLAN THAT SUPERSEDES ANY MECHANICAL PLAN LOCATIONS.
 - TEMPORARY THERMOSTATS ARE TO BE INSTALLED AT THE ETM LOCATIONS AND THE CONDENSER UNITS STARTED.
 - HVAC EQUIPMENT ARE TO HAVE HAD A MANUFACTURER'S RECOMMENDED STARTUP PROCEDURE PERFORMED AND BE OPERATIONAL IN ALL MODES BEFORE THE ARRIVAL OF THE NOVAR CONTROLS REPRESENTATIVE FOR THE FINAL NOVAR INSTALLATION.

OUTDOOR AIR INTAKE FAN SCHEDULE

UNIT NO:	SAF-1
LOCATION:	3 RD FLOOR
MANUFACTURER:	PENNBARRY
MODEL NO.:	SX100BC
CFM:	1450
ESP (IN WG):	1.0
BHP (WATTS):	0.56
RPM	2390
ELEC DATA:	MOTOR SIZE (HP) 1.0 V/PH/Hz 208/1/60
WEIGHT (LBS):	63
ACCESSORIES:	FAN GUARD YES INLET RINGS YES SPEED CONTROLLER DISCONNECT SWITCH YES, FACTORY MOUNT VIBRATION HANGERS YES (4) MOTOR COVER YES FILTERS YES
SOUND (LW):	63 125 250 500 1000 2000 4000 8000 LWA DBA SONES 71 78 79 74 69 67 64 60 78 85.6 13.9

OUTDOOR AIR INTAKE FAN SCHEDULE

UNIT NO:	SAF-2
LOCATION:	3 RD FLOOR
MANUFACTURER:	PENNBARRY
MODEL NO.:	SX100BC
CFM:	1030
ESP (IN WG):	1.0
BHP (WATTS):	0.5
RPM	1912
ELEC DATA:	MOTOR SIZE (HP) 1/2 V/PH/Hz 208/1/60
WEIGHT (LBS):	63
ACCESSORIES:	FAN GUARD YES INLET RINGS YES SPEED CONTROLLER DISCONNECT SWITCH YES, FACTORY MOUNT VIBRATION HANGERS YES (4) MOTOR COVER YES FILTERS YES
SOUND (LW):	63 125 250 500 1000 2000 4000 8000 LWA DBA SONES 71 79 74 69 67 64 60 78 85.2 13.8

OUTDOOR AIR INTAKE FAN SCHEDULE

UNIT NO:	SAF-3
LOCATION:	3 RD FLOOR
MANUFACTURER:	PENNBARRY
MODEL NO.:	SX100BC
CFM:	1100
ESP (IN WG):	1.0
BHP (WATTS):	0.94
RPM	2390
ELEC DATA:	MOTOR SIZE (HP) 1 V/PH/Hz 208/1/60
WEIGHT (LBS):	63
ACCESSORIES:	FAN GUARD YES INLET RINGS YES SPEED CONTROLLER DISCONNECT SWITCH YES, FACTORY MOUNT VIBRATION HANGERS YES (4) MOTOR COVER YES FILTERS YES
SOUND (LW):	63 125 250 500 1000 2000 4000 8000 LWA DBA SONES 71 81 83 81 75 72 70 68 83 70.8 19.0

SPILL AIR FAN

UNIT NO:	SXF-1
LOCATION:	3 RD FLOOR
MANUFACTURER:	PENNBARRY
MODEL NO.:	SX120BC
CFM:	2210
ESP (IN WG):	1.0
OPERATING POWER (WATTS):	0.75
RPM	1513
ELEC DATA:	MOTOR SIZE (HP) 3/4 V/PH/Hz 115/1/60
WEIGHT (LBS):	74
ACCESSORIES:	FAN GUARD YES INLET RINGS YES SPEED CONTROLLER DISCONNECT SWITCH YES, FACTORY MOUNT VIBRATION HANGERS YES (4) MOTOR COVER YES FILTERS YES, (SIZE 20"X25", NO.4)
SOUND (LW):	63 125 250 500 1000 2000 4000 8000 LWA DBA SONES 69 77 78 73 66 66 62 56 75 63.5 12.2

BCU BC CONTROLLERS (1Ø/208-230V/60HZ) BASIS OF DESIGN: MITSUBISHI

UNIT TAG	SERVED OUTDOOR UNITS	SERVED INDOOR UNITS	LOCATION	NO. OF PORTS	MAXIMUM CAPACITY (BTU/H)	MINIMUM CIRCUIT AMPACITY (A)	UNIT DIMENSIONS (EACH MODULE) (IN)			WEIGHT (LBS)	SOUND LEVEL MAX. (dBA)	REMARKS
BCU-3-1	ACCU-3-1	AC-3-1 TO 3-3, 3-7 TO 3-13, 3-25 TO 3-28	SALES AREA	16	54	1.65	44	12	20	172	CMB-P1016NU-HA1	SEE NOTES
BCU-3-2	ACCU-3-2	AC-3-4 TO 3-6, 3-14 TO 3-24	SALES AREA	16	54	1.65	44	12	20	172	CMB-P1016NU-HA1	SEE NOTES

- NOTES:
 1. THE MCV SHALL HAVE PRESSURE EQUALIZATION VALVES TO REDUCE REFRIGERANT SOUNDS DURING MODE CHANGING OF CONNECTED INDOOR UNITS.
 2. THE MCV UNIT SHALL CONTAIN INTERNAL SUBCOOLERS WITH ELECTRONIC EXPANSION VALVES TO MAXIMIZE PERFORMANCE OF CONNECTED UNITS.
 3. MCU MUST BE MOUNTED INDOORS, LEVEL, WITH THE PIPES RUNNING HORIZONTALLY IN AND OUT OF UNIT.
 4. MCU PRODUCES CONDENSATION AND MUST BE DRAINED APPROPRIATELY. USE 1" CONDENSATE DRAIN PIPE.
 5. REFER REFRIGERANT DIAGRAMS FOR DETAILED LAYOUT FOR PIPING.

ELECTRICAL BASEBOARD HEATER

SPACE	MEN'S & WOMEN'S RESTROOM 2 NO'S HEATER	LOUNGE CELLAR THIRD FLOOR HEATER
MANUFACTURER:	MARKEL	MARKEL
MODEL NO	M2917-84AWI	M2925-120AWI
SERIES	2900A	2900A
WATT	1750	2500
BTUS	5950	8532
VOLTS	220	220
HEATER LENGTH (IN)	80	120
WEIGHT (LBS)	22	31
NOTES	WITH T-STAT INTEGRAL SURFACE MOUNTED SET BOTTOM OF HEATER 6" AFF	

SUPPLY GRILLE SCHEDULE

UNIT NO:	SG-1
FUNCTION:	SUPPLY
MANUFACTURER:	TUTTLE AND BAILEY
MODEL NO.:	T64
CFM:	0-740
NOMINAL DUCT SIZE:	36X8
FINISH:	WHITE
MODULE SIZE:	-
THROW (FT):	17-25-38
NC:	15
REMARKS:	PROVIDE OBD--OPPOSED BLADE DAMPER

CONDENSING UNIT SCHEDULE

UNIT NO:	CU-1
LOCATION:	ROOF
MANUFACTURER:	MITSUBISHI
MODEL NO.:	PUZ-A24NH44
COOLING CAPACITY CAPACITY (BTUH):	24,000
HEATING CAPACITY CAPACITY (BTUH):	18,000
AMBIENT AIR TEMP (°F):	95
COMPRESSORS:	NO.: 1 TYPE: SCROLL
ELEC DATA:	MCA 16 MOCP 30 V/PH/Hz 208/1/60
WEIGHT (LBS):	80
ENERGY EFFICIENCY:	SEER 17 EER 10.6 COP / HSPF 3.27 / 10.8
SERIAL:	
REMARKS:	PROVIDE STEEL DRAINAGE. CONDENSING UNITS SHALL BE ATTACHED TO THE STEEL DRAINAGE BY NEOPRENE PADS MASON TYPE W OR APPROVED EQUAL.

HEAT PUMP UNIT SCHEDULE

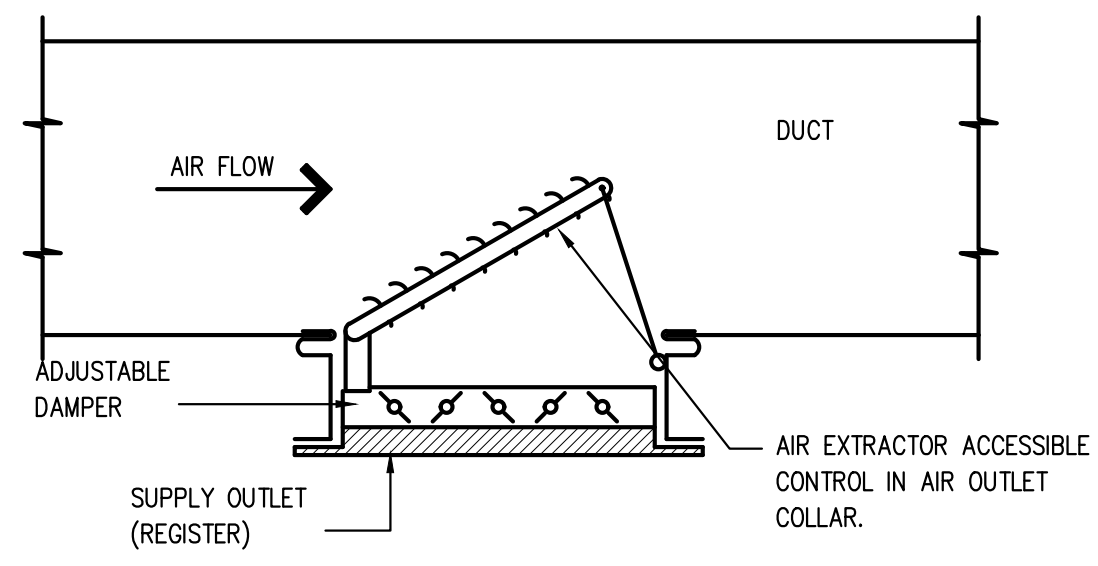
UNIT NO:	AC-1
LOCATION:	ELEVATOR MER
MANUFACTURER:	MITSUBISHI
MODEL NO.:	PKA-A24KA4
TOTAL SUPPLY (LO-MED-HI) (CFM):	635-705-775
OUTSIDE AIR (CFM):	0
EXTERNAL STATIC PRESSURE (IN WG):	NA
COOLING CAPACITY:	TOTAL BTUH: 24,000 EDB (°F) 80 EWB (°F) 67 LDB (°F) 60 LWB (°F) 59
HEATING CAPACITY: (BTUH):	N/A
ELEC DATA:	MCA 1 FLA 0.36 V/PH/Hz 208/1/60

CEILING DIFFUSERS SCHEDULE

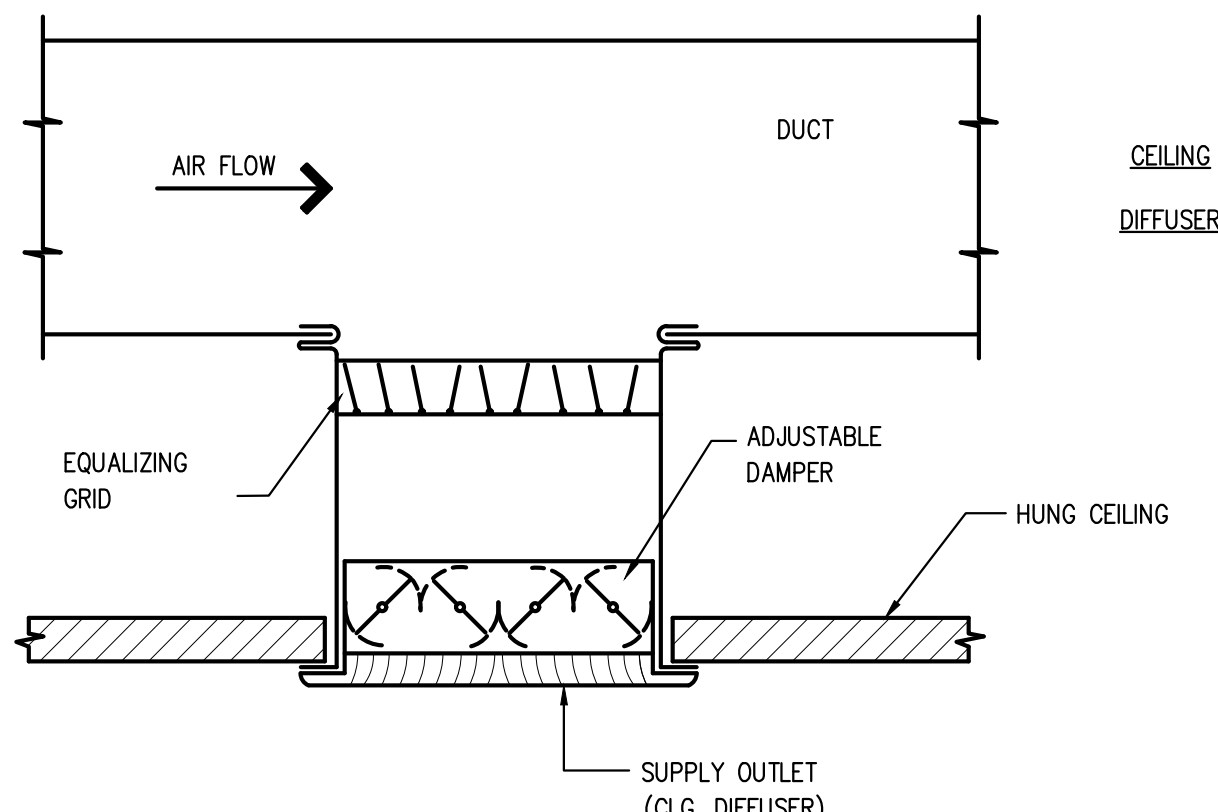
UNIT NO:	CDS
FUNCTION:	SUPPLY
MANUFACTURER:	TITUS
MODEL NO.:	TMS
CFM:	575-750
NECK SIZE:	15"Ø
FINISH:	WHITE
MODULE SIZE:	24X24
THROW (FT):	6-9-18
NC:	19
REMARKS:	PROVIDE OBD--OPPOSED BLADE DAMPER

OUTDOOR AIRFLOW RATE (MC 403.3)

SPACE	SALES	ELEVATOR LOBBY	LOUNGE
FLOOR	3RD FLOOR		
AREA (SQFT)	14476	631	540
NO. OF PEOPLE	218	7	12
CFM/PERSON OR REQUIRED	7.5	5	7.5
AREA OUTDOOR AIRFLOW RATE CFM/FT2	0.12	0.06	0.06
OCCUPANT DENSITY #/1000FT2	15	10	NA
TOTAL OA CFM REQUIRED	3375	75	130

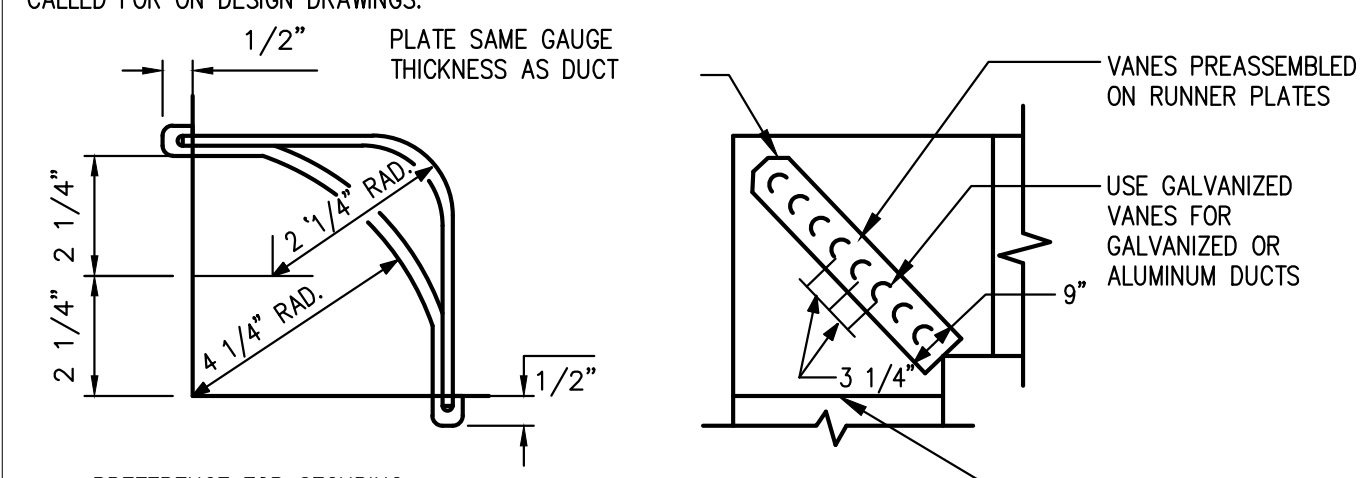


GRIDS AND DAMPERS MUST NOT DAMAGE LINERS.

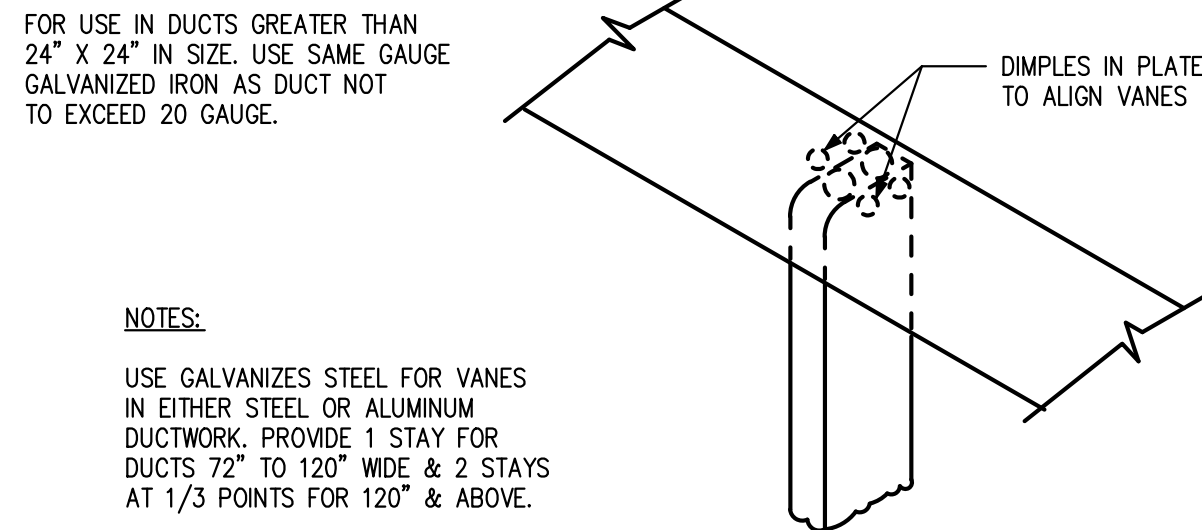


DIFFUSER AND REGISTER CONNECTIONS
NOT TO SCALE

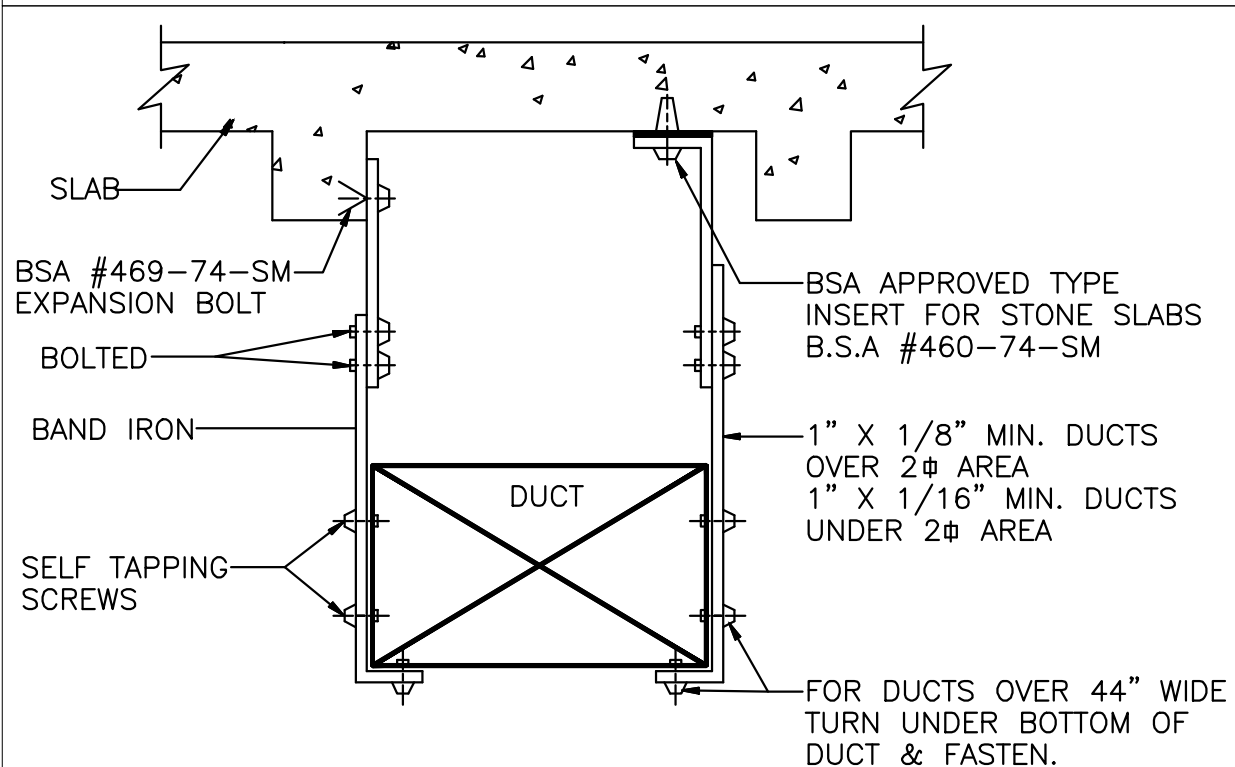
SQUARE ELBOWS ARE TO BE USED ONLY WHEN SPECIFICALLY CALLED FOR ON DESIGN DRAWINGS.



DOUBLE THICKNESS VANES FOR USE IN DUCTS GREATER THAN 24" X 24" IN SIZE. USE SAME GAUGE GALVANIZED IRON AS DUCT NOT TO EXCEED 20 GAUGE.



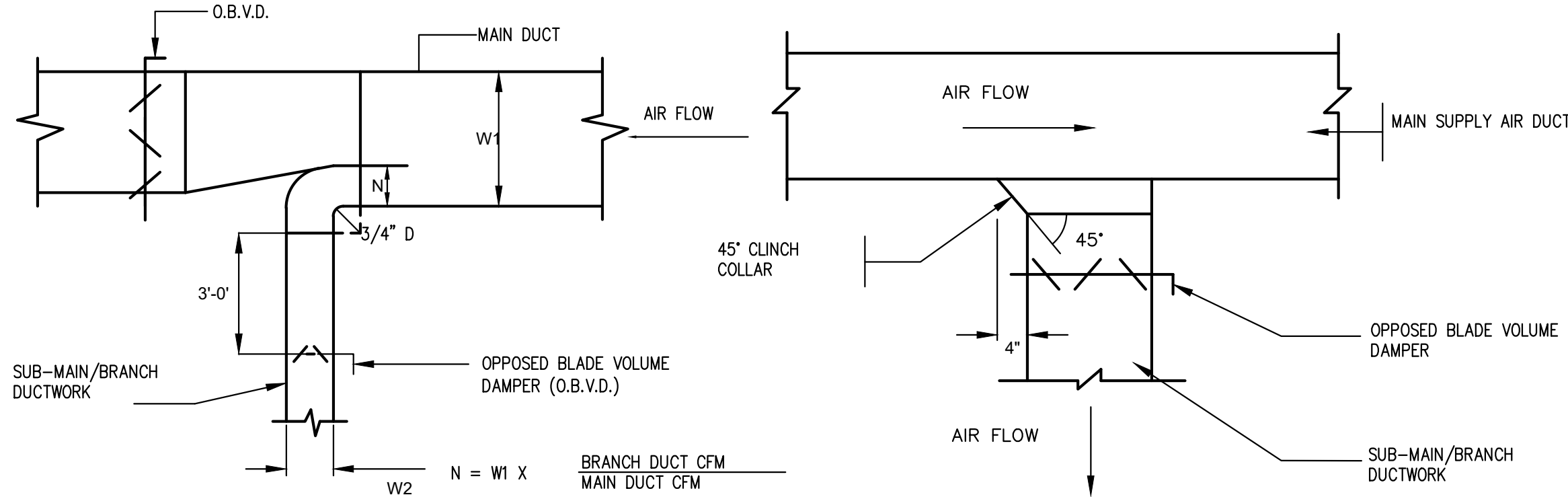
TURNING VANE DETAIL
NOT TO SCALE



HANGER STRAP SCHEDULE		
DUCT SIZE	HANGER SIZE	MAXIMUM SPACING
UNDER 2 S.F.	1" x 1/16"	8'-0"
2 S.F. TO 4 S.F.	1" x 1/8"	8'-0"
4 S.F. TO 10 S.F.	1" x 1/8"	6'-0"
OVER 10 S.F.	1" x 1/8"	4'-0"

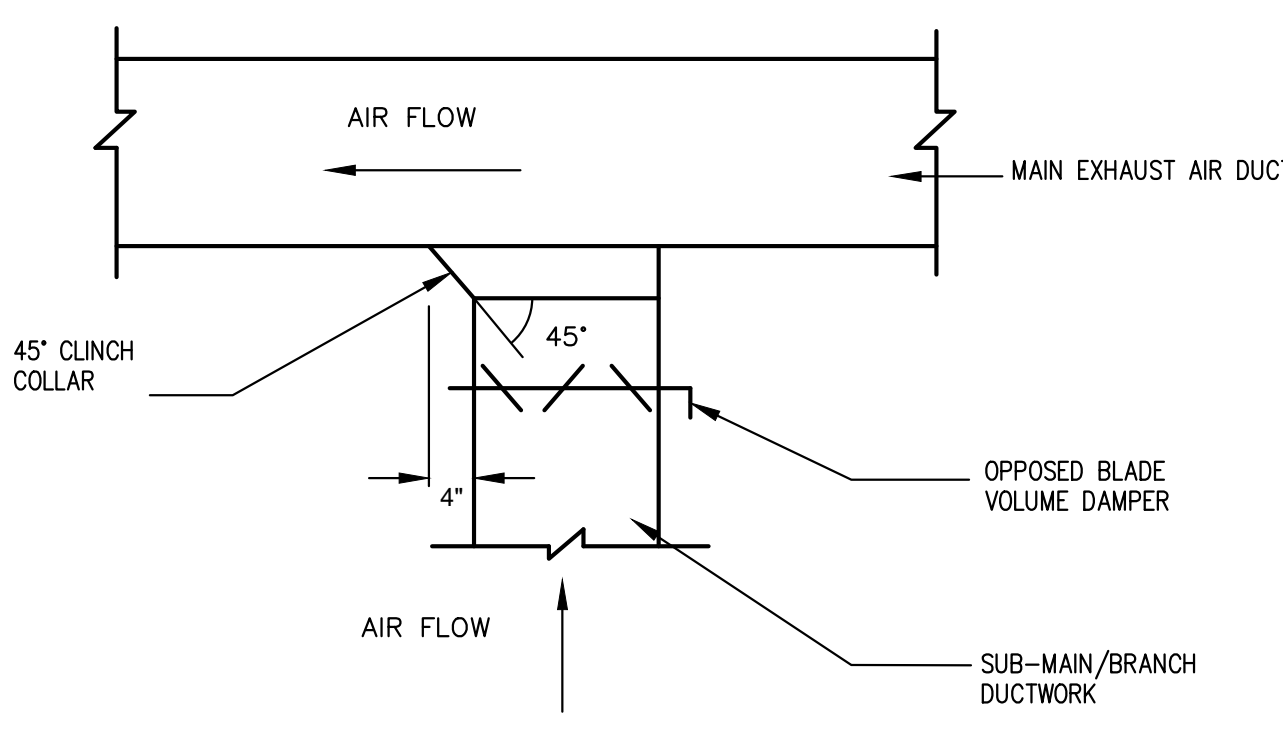
- NOTES:
- ALL ANCHORS AND INSERTS SHALL HAVE N.Y.C. BOARD OF STANDARDS AND APPEALS APPROVAL.
 - DISTANCE BETWEEN DUCT HANGERS SHALL BE IN ACCORDANCE WITH SECTION 603.10 OF THE NYC MECHANICAL CODE.
 - CONTRACTOR TO REPAIR REMOVED OR DAMAGED FIREPROOFING DURING CONSTRUCTION.

DUCT HANGING DETAIL
NOT TO SCALE



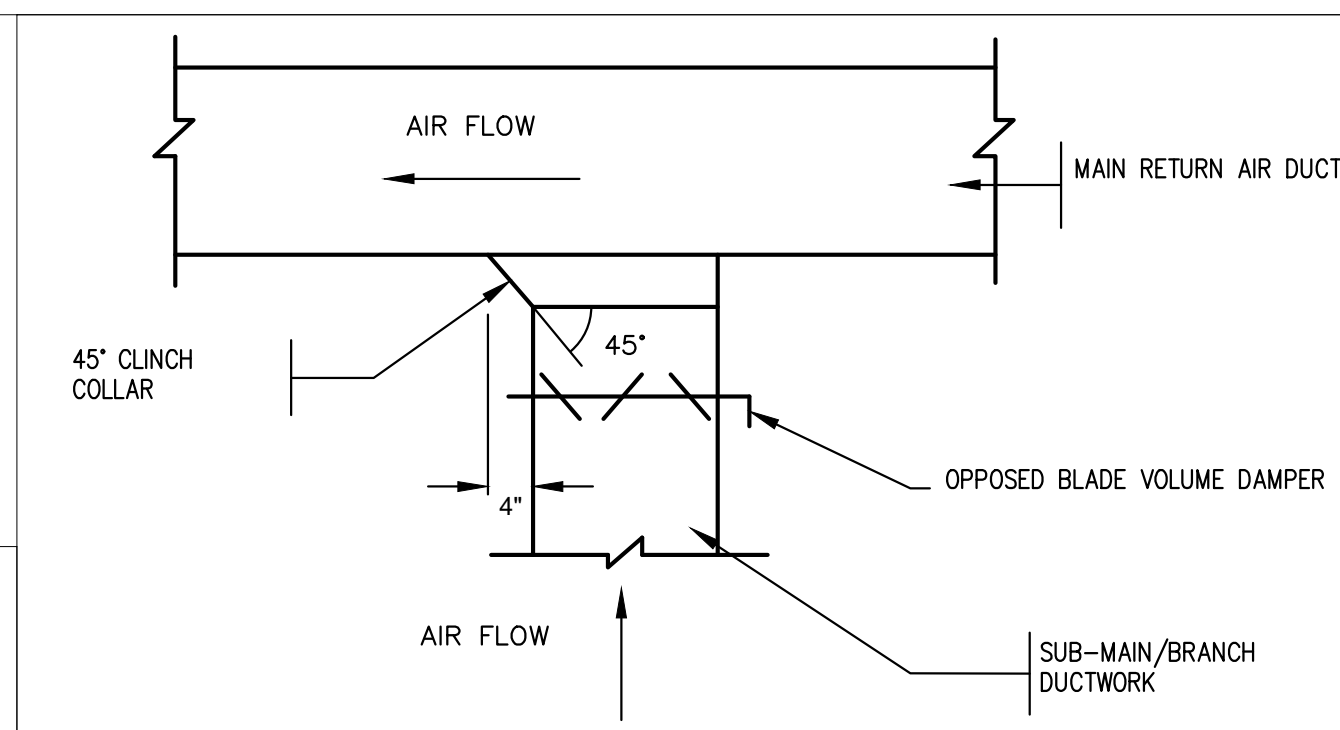
NOTE: FURNISH THIS TYPE CONNECTION WHEN SINGLE LINE DUCTWORK IS INDICATED AS THIS

SUPPLY AIR DUCTWORK SUB-MAIN/BRANCH DUCT CONNECTION
NOT TO SCALE



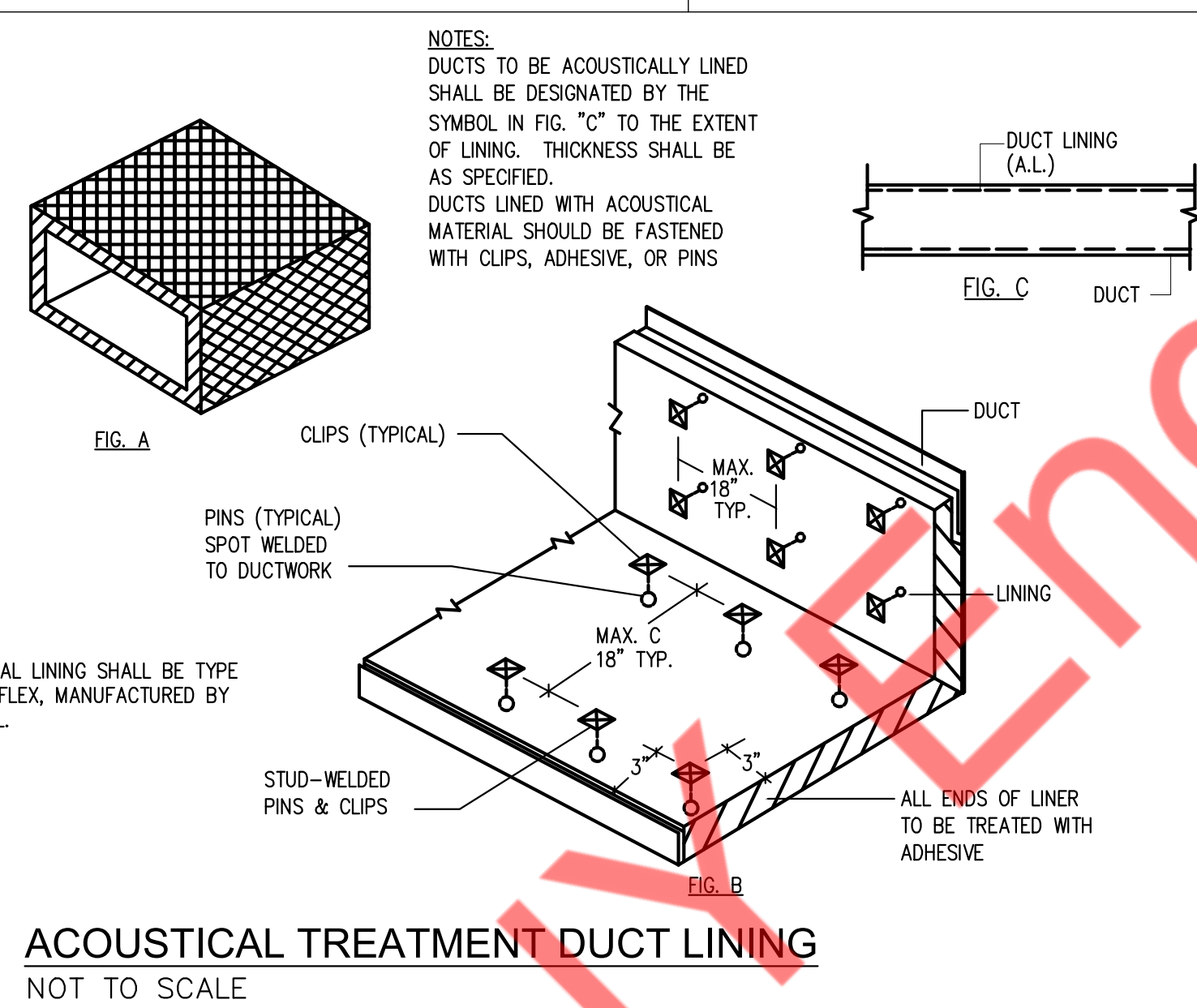
NOTE: FURNISH THIS TYPE CONNECTION WHEN SINGLE LINE DUCTWORK IS INDICATED AS THIS

EXHAUST AIR DUCTWORK SUB-MAIN/BRANCH DUCT CONNECTION
NOT TO SCALE

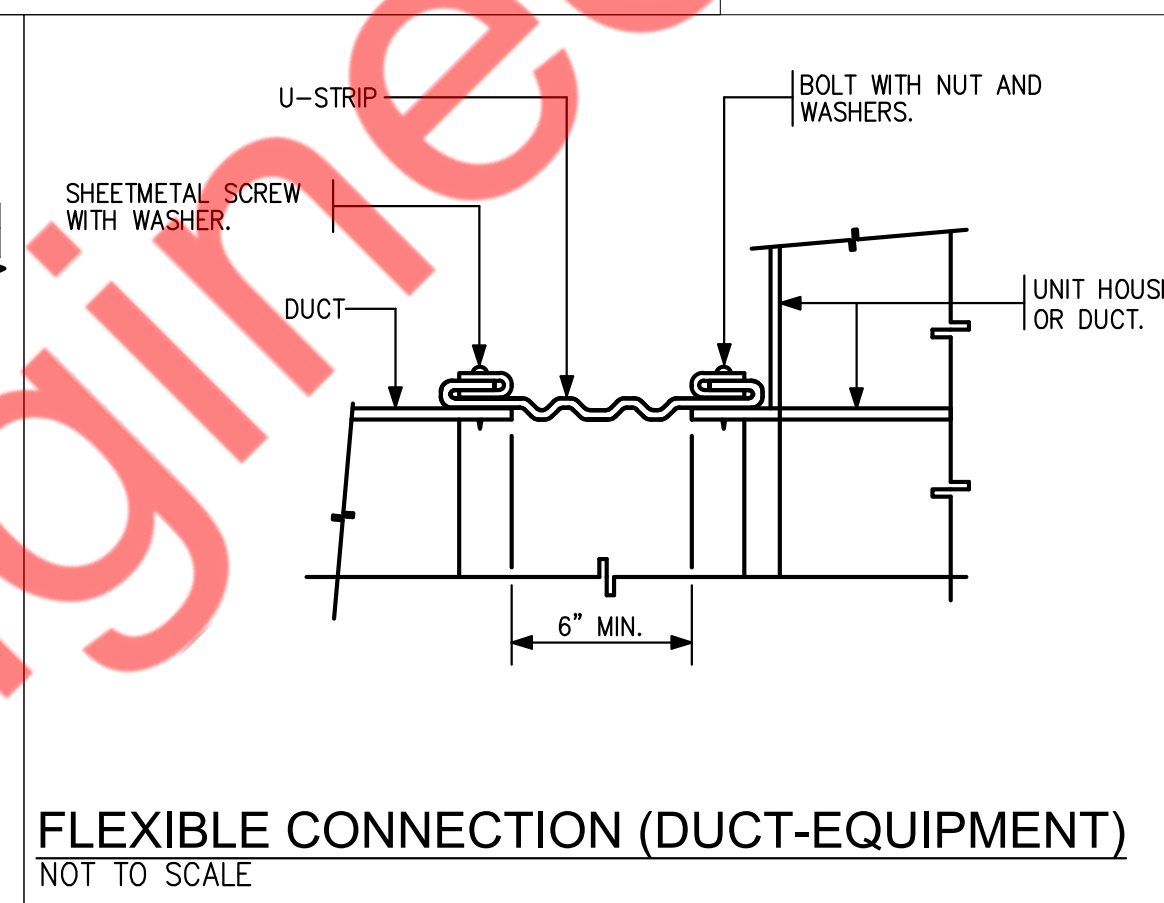


NOTE: FURNISH THIS TYPE CONNECTION WHEN SINGLE LINE DUCTWORK IS INDICATED AS THIS

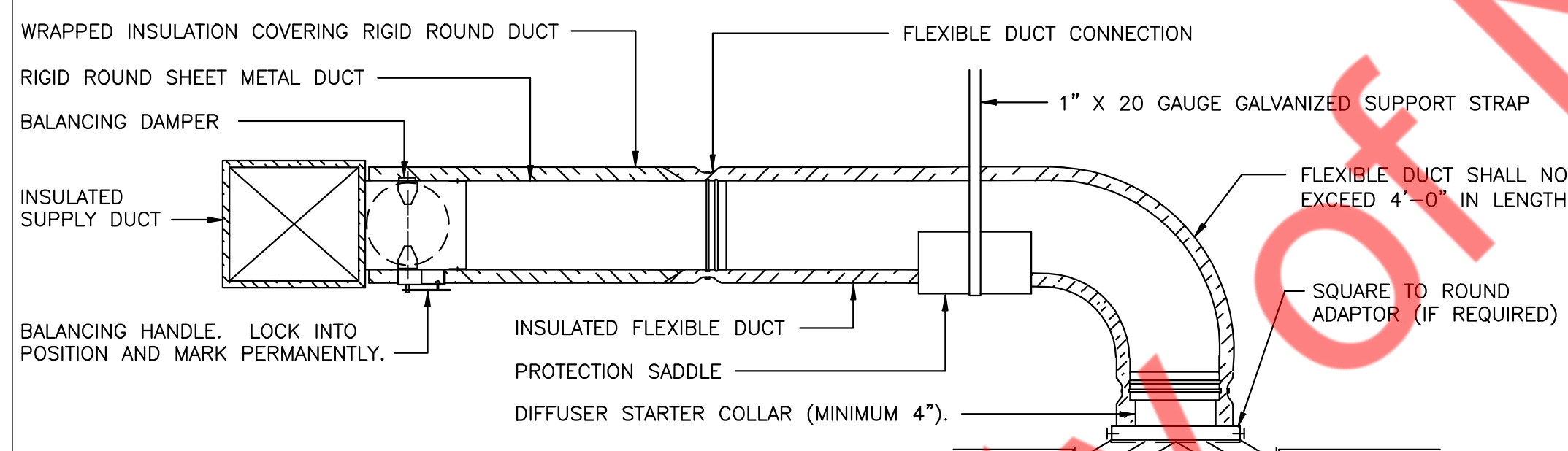
RETURN AIR DUCTWORK SUB-MAIN/BRANCH DUCT CONNECTION
NOT TO SCALE



ACOUSTICAL TREATMENT DUCT LINING
NOT TO SCALE

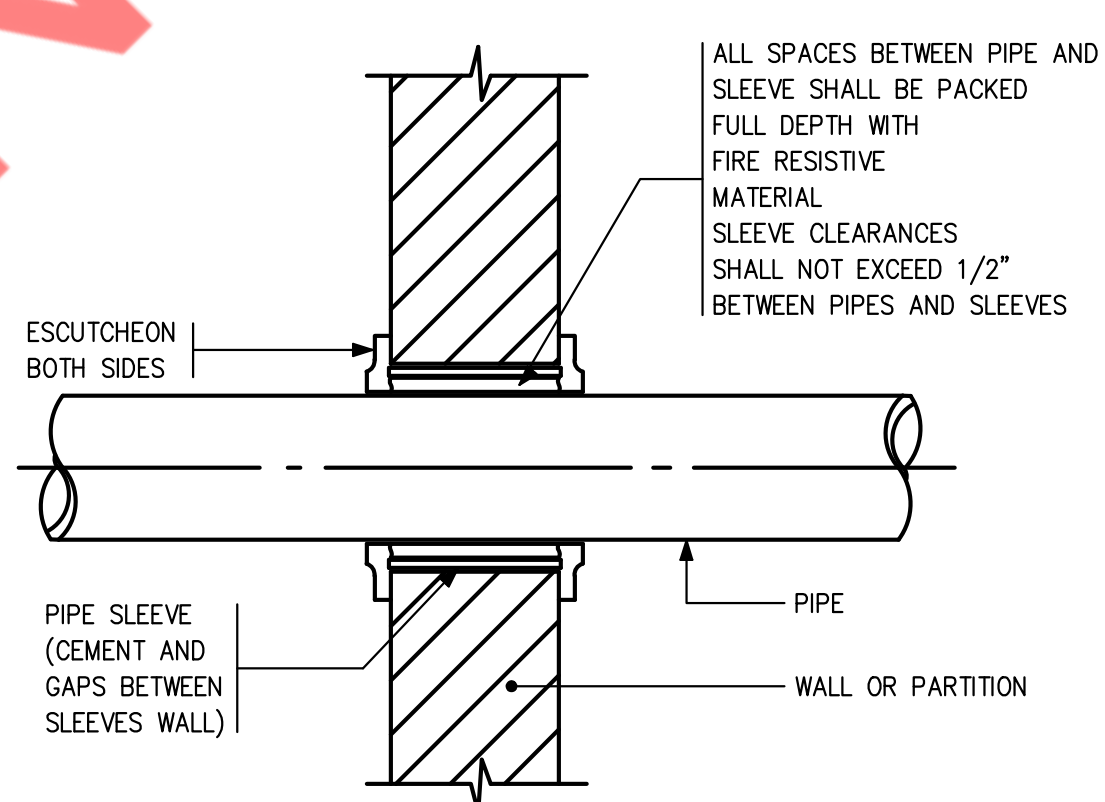


FLEXIBLE CONNECTION (DUCT-EQUIPMENT)
NOT TO SCALE

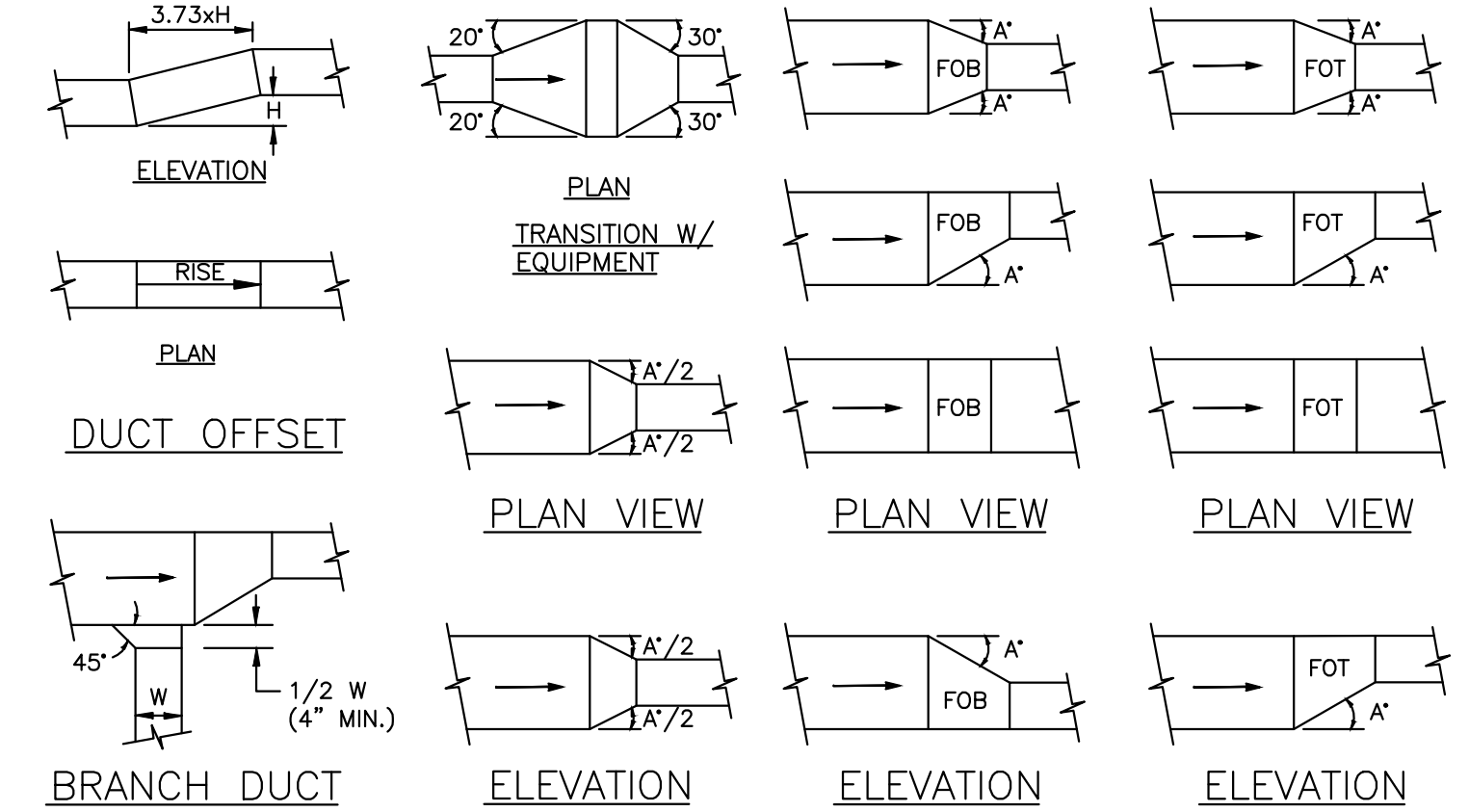


- NOTES:
- PROVIDE AT FLEXIBLE DUCT CONNECTION METAL OR "PANDUIT" DRAWBAND ON THE INTERIOR FLEXIBLE DUCT HELIX. SECURE THE INSULATION OVER THE DRAW BAND WITH AN ADDITIONAL DRAWBAND.
 - PROVIDE BEADING ON ROUND METAL DUCT 12" OR LARGER IN DIAMETER.
 - PROVIDE MINIMUM 4" COLLARS FOR ATTACHMENT OF THE FLEXIBLE DUCT TO ROUND DUCT, DAMPERS AND DIFFUSERS.
 - BAND RIGID ROUND DUCT INSULATION TO DUCT AND PROVIDE TAPE FOR INSULATION OVERLAP.

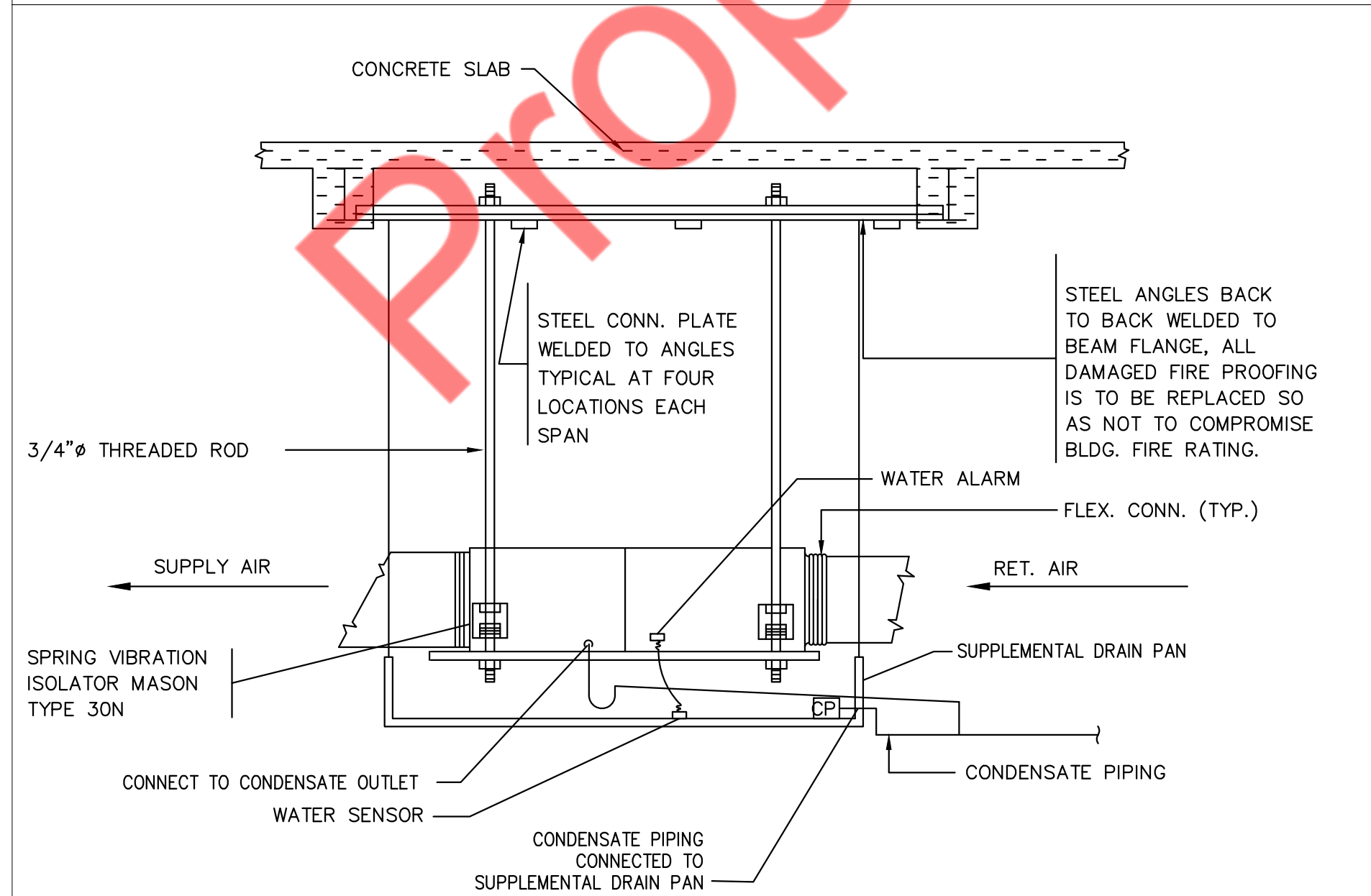
DIFFUSER CONNECTION DETAIL - FLEX DUCT
NOT TO SCALE



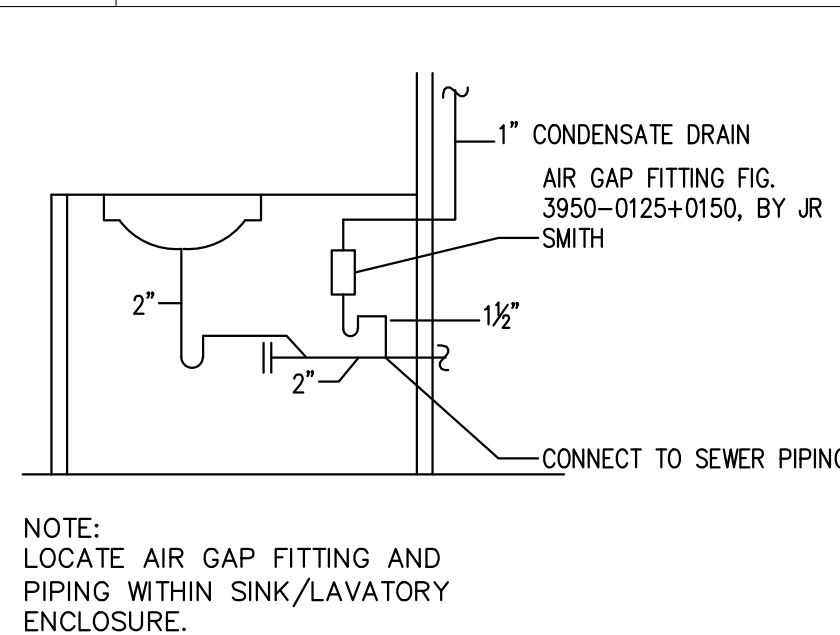
PIPING THROUGH FIRE RATED PARTITIONS & WALLS
NOT TO SCALE



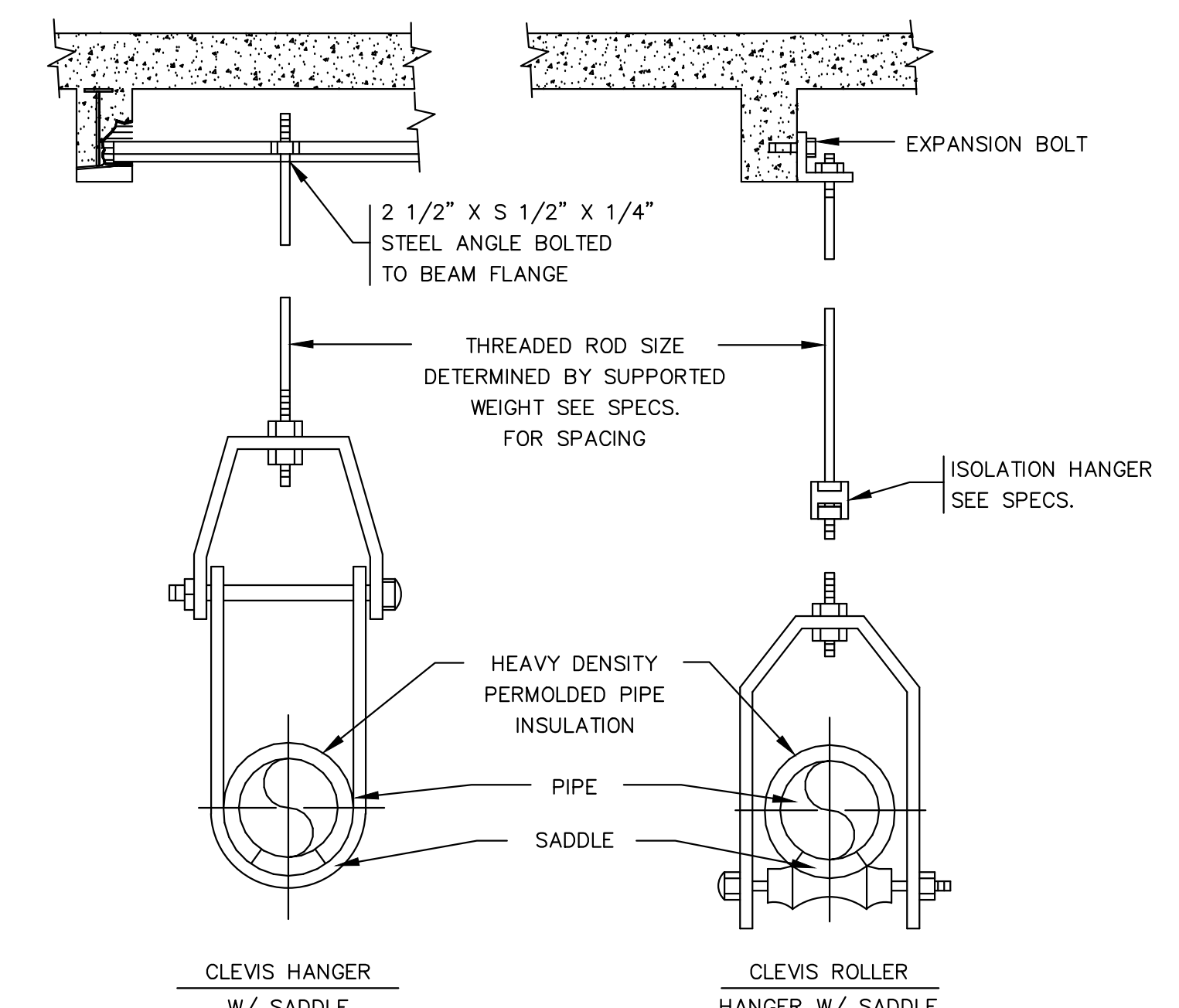
LOW VELOCITY DUCT FITTINGS DETAIL
NOT TO SCALE



A.C. UNIT INSTALLATION DETAIL



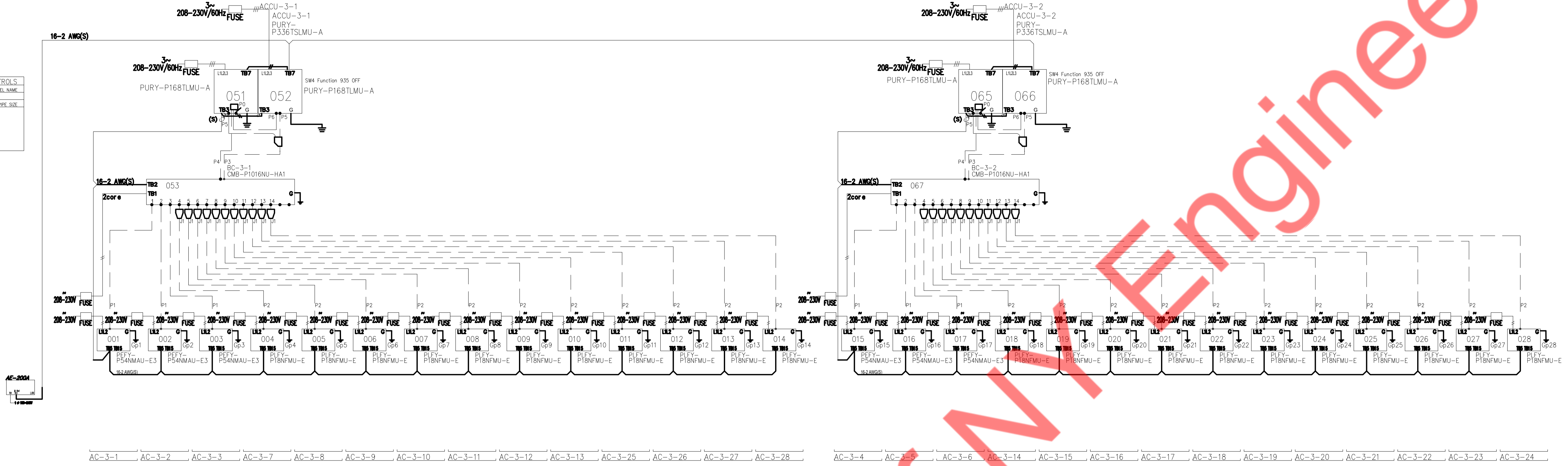
AIR GAP FITTING DETAIL



PIPE HANGING DETAIL

Additional refrigerant charge is needed depending on the size and length of extended piping.
Please refer the amount of pre-charge and the formula of calculation which is mentioned on the data book.
1.52oz (lb. AS) : 1.52oz (lb. AS) or more. 0.72oz (lb. AS) : between 1.52oz (lb. AS) and 0.72oz (lb. AS).

PIPING AND CONTROLS	
Legend: REFERENCE MODEL NAME	
NOTES	
1	1/2" / 1/2"
2	1/2" / 1/2"
3	1/2" / 1/2"
4	1/2" / 1/2"
5	1/2" / 1/2"
6	1/2" / 1/2"



REMARKS
Comments: All piping lengths are preliminary. Final piping lengths must be confirmed by contractor to determine accurate refrigerant charge and equipment derate.

Property of N Engineers

ELECTRICAL SYMBOLS LIST

ABBREVIATIONS

GENERAL NOTES
(APPLY TO ALL "E" DRAWINGS)

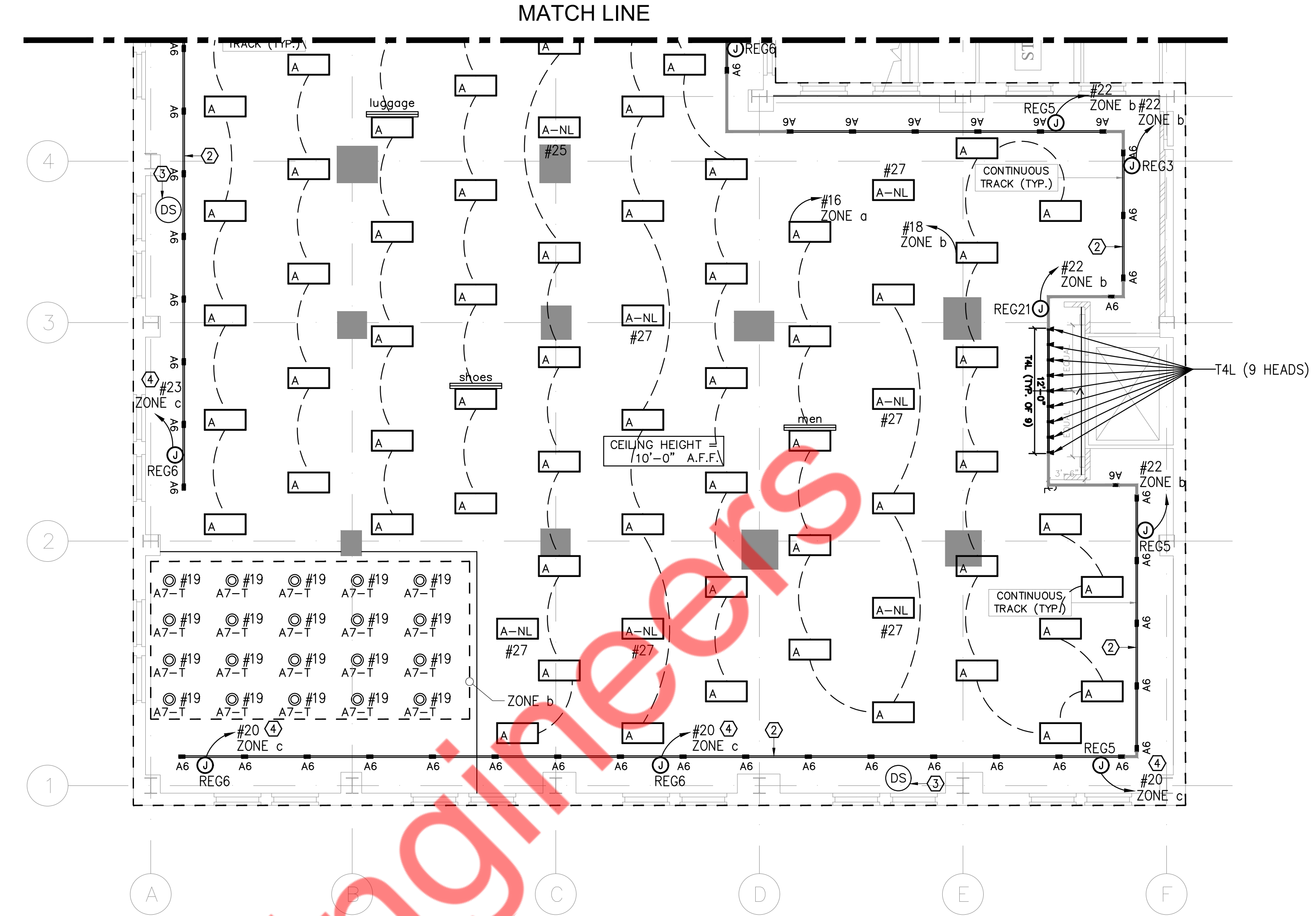
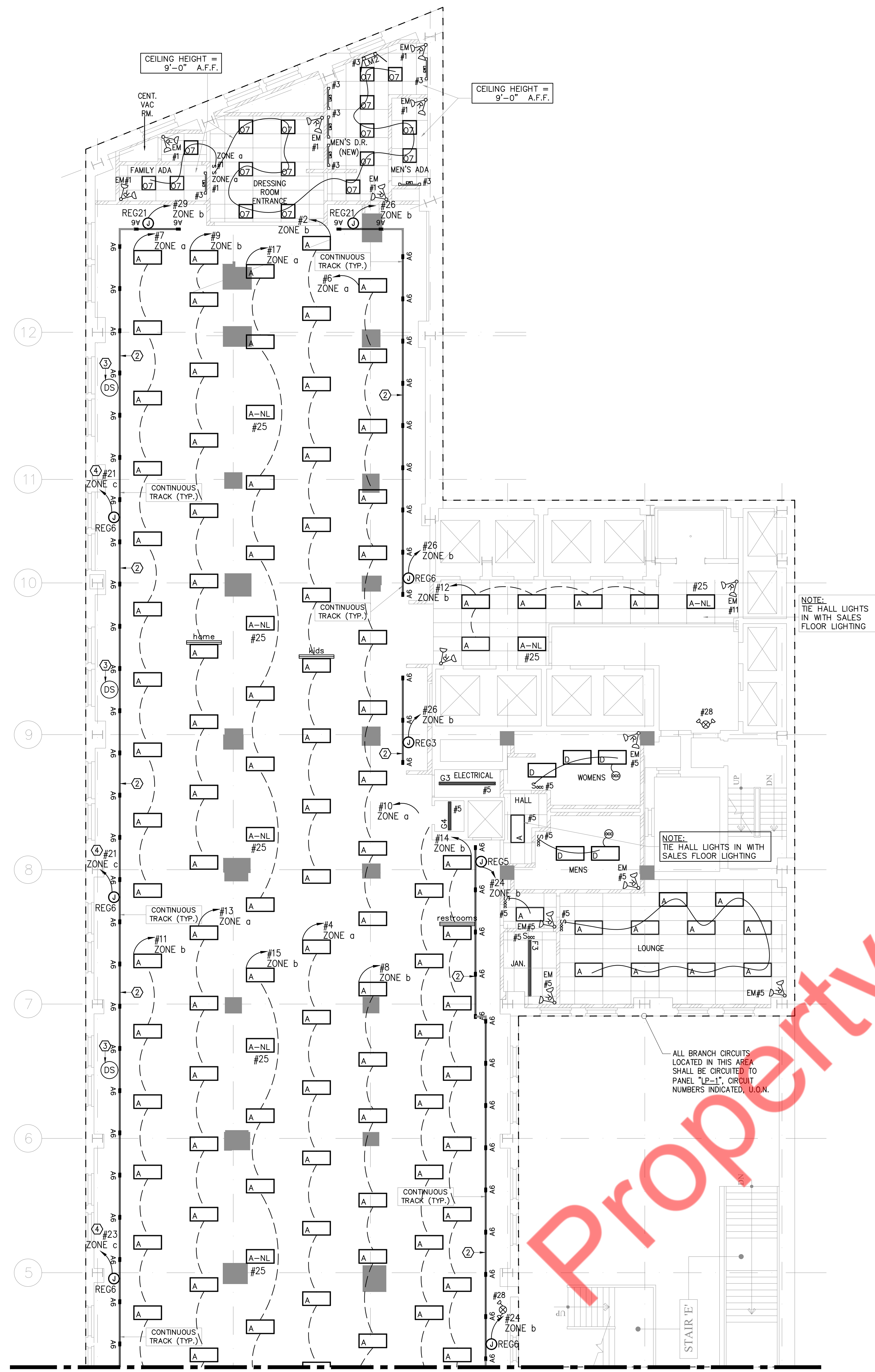
LIGHTING	
	LIGHTING FIXTURE, SEE LIGHTING FIXTURE SCHEDULE FOR DETAILS. "X-XX" - DENOTES LIGHTING FIXTURE TYPE "1" - DENOTES PANEL DESIGNATION AND CIRCUIT NUMBER "d" - DENOTES SWITCH DESIGNATION "EM" - UN-SWITCHED FIXTURE, (NORMALLY OFF) PROVIDED WITH BATTERY BACK-UP "NL" - UN-SWITCHED FIXTURE (NORMALLY ON), PROVIDED WITH BATTERY BACK-UP
	EXIT SIGN (WALL MOUNTED)
	EXIT SIGN (CEILING MOUNTED)
	EMERGENCY LIGHT WITH HEADS, BATTERY BACK UP GOOD FOR 90 MIN OPERATION, WITH SELF TESTING TECHNOLOGY AND TEST SWITCH
SWITCHES AND CONTROLS	
	20A ROCKER SWITCH, WHITE U.O.N.
	SINGLE OCCUPANCY SENSOR SWITCH (PIR) (REFER TO TJX SPECIFICATIONS FOR INFO)
	WALL MOUNTED PHOTOCCELL MOUNTED IN NEMA 3R ENCLOSURE.
	CEILING MOUNTED DUAL TECHNOLOGY OCCUPANCY SENSOR MODEL DT-305 BY WATTSTOPPER OR EQUAL. COLOR AS SELECTED BY ARCHITECT. PROVIDE REQ POWER PACK(S)
	CEILING MOUNTED DAYLIGHT SENSOR.
WIRING SYSTEMS	
	POWER OR LIGHTING CIRCUITRY HOMERUN WITH PANELBOARD DESIGNATION, NUMBER WHERE USED INDICATES CIRCUIT NUMBER. IT SHALL CONSISTS OF 1#12 Ø, 1#12 N. & 1#12 G. IN 3/4" C. UNLESS OTHERWISE NOTED.
	POWER OR LIGHTING CIRCUITRY HOMERUN WITH PANELBOARD DESIGNATION, NUMBER WHERE USED INDICATES CIRCUIT NUMBER. IT SHALL CONSISTS OF 2#12 Ø, 2#12 N. & 2#12 G. IN 3/4" C. UNLESS OTHERWISE NOTED.
	POWER OR LIGHTING CIRCUITRY HOMERUN WITH PANELBOARD DESIGNATION, NUMBER WHERE USED INDICATES CIRCUIT NUMBER. IT SHALL CONSISTS OF 3#12 Ø, 3#12 N. & 3#12 G. IN 3/4" C. UNLESS OTHERWISE NOTED.
	CONDUIT TURNING UP, SEE FLOOR PLANS FOR CONDITIONS.
	CONDUIT TURNING DOWN, SEE FLOOR PLANS FOR CONDITION.
	CONDUIT AND WIRE TO BUILDING GROUND.
	UNDERGROUND
	EXISTING
	NEW
POWER AND TELECOMMUNICATION	
	SIMPLEX RECEPTACLE, +18" AFF OR AS NOTED. SUFFIX DENOTES FOLLOWING: A- NEMA 5-15R B- NEMA 6-15R C- NEMA 14-30R D- NEMA 14-50R
	DUPLEX CONVENIENCE RECEPTACLE, +18" AFF OR AS NOTED.
	DUPLEX DEDICATED CONVENIENCE RECEPTACLE, +18" AFF OR AS NOTED.
	DUPLEX CONVENIENCE RECEPTACLE - 20A-1P, 125V, NEMA 5-20R MOUNTED FLUSH IN CEILING.
	WALL MOUNTED DOUBLE DUPLEX (QUAD) ISOLATED GROUND OUTLET.
	CEILING, WALL MOUNTED JUNCTION BOX
	WALL MOUNTED COMBINATION TELE/DATA OUTLET, 4-11/16" SQUARE OUTLET BOX, SINGLE GANG COLLAR. PROVIDE 1" E. C. MIN. UP TO 6" ABOVE ACCESSIBLE HUNG CEILING. SPACE TERMINATED IN AN INSULATED BUSHING. PROVIDE OUTLET AS REQUIRED.
	WALL MOUNTED TELEPHONE OUTLET, 4" SQUARE OUTLET BOX, WITH SINGLE GANG COLLAR. PROVIDE 1" E. C. MIN. UP TO 6" ABOVE ACCESSIBLE HUNG CEILING. SPACE TERMINATED IN AN INSULATED BUSHING. PROVIDE OUTLET AS REQUIRED.
	TELEPHONE DESK SET
	EMERGENCY TELEPHONE - WALL HUNG, RECESSED
	ELECTRIC STRIKE
	WALL MOUNTED OUTLET, 4-11/16" SQUARE OUTLET BOX, WITH SINGLE GANG COLLAR AND BLANK PLATE. PROVIDE 3/4" E. C. MIN. UP TO 6" ABOVE ACCESSIBLE HUNG CEILING. SPACE TERMINATED IN AN INSULATED BUSHING.
	EMERGENCY POWER SHUT DOWN SWITCH-STOPPER STATION, PUSH, KEY-TO-RESET EQUAL TO SS-2202PO BY STI PROVIDE STI-6600-Y CLEAR, TAMPERPROOF, SUPER TOUGH POLYCARBONATE COVER
	PLUG MOLD

MOTORS AND CONTROLS	
	AC INDOOR UNIT MOTOR AS NOTED WITH LIQUID TIGHT FLEXIBLE CONNECTION WITH JUNCTION BOX AND MOTOR SWITCH.
	AC OUTDOOR UNIT MOTOR AS NOTED WITH CONTROLLER AND DISCONNECT SWITCH WITH WEATHER PROOF.
	NON FUSED DISCONNECT SWITCH AMPERAGE, AND NUMBER OF POLES AS NOTED.
	30A/240V NON FUSED DISCONNECT SWITCH
	60A/240V NON FUSED DISCONNECT SWITCH
	100A/240V NON FUSED DISCONNECT SWITCH
	200A/240V NON FUSED DISCONNECT SWITCH
	MOTORIZED DAMPER.
	FIRE SMOKE DAMPER
	THERMAL OVERLOAD SWITCH AT MOTOR. PROVIDE THERMAL ELEMENTS AS PER MOTOR RATING.
	MANUAL MOTOR SWITCH
	ELECTRICAL HEATER, NUMBER DENOTES HEATER RATING
ANNOTATION	
	+24" INDICATES MOUNTING HEIGHT, CENTER LINE TO FINISHED FLOOR.
	KEYED NOTE REFERENCE
	DETAIL REFERENCE: DETAIL NUMBER INDICATED ON TOP, DRAWING NUMBER INDICATED ON BOTTOM
POWER DISTRIBUTION	
	DISTRIBUTION PANELBOARD, 208Y/120V-SURFACE OR FLUSH MOUNTED.
ELECTRICAL DRAWING LIST	
E-001.00	ELECTRICAL SYMBOL LIST, ABBREVIATIONS, GENERAL NOTES AND DRAWING LIST
E-100.00	THIRD FLOOR LIGHTING PLAN
E-200.00	THIRD FLOOR POWER PLAN
E-201.00	ROOF POWER PLAN
E-400.00	ELECTRICAL DETAILS
E-500.00	ELECTRICAL RISER DIAGRAM
E-600.00	ELECTRICAL PANEL SCHEDULE

AWG	AMERICAN WIRE GAUGE	FIXT	FIXTURE
C	CONDUIT	FL	FLOOR
C/B,CB	CIRCUIT BREAKER	G	GROUND
CKT	CIRCUIT	GFI	GROUND FAULT INTERRUPTER
CLG	CEILING	HC	HUNG CEILING
CU	COPPER	HP	HORSEPOWER
DIA	DIAMETER	HWH	HOT WATER HEATER
DISC	DISCONNECT	HZ	HERTZ
DN	DOWN	IC	INTERRUPTING CAPACITY
DP	DISTRIBUTION PANEL	PP	POWER PANEL
DWH	DOMESTIC WATER HEATER	PVC	POLYVINYL CHLORIDE
DWG	DRAWING	PWR	POWER
JB	JUNCTION BOX	REC	RECEPTACLE
KCMIL	ONE THOUSAND CIRCULAR MILS	RGS	RIGID GALVANIZED STEEL
KV	KILOVOLT	SECT	SECTION
KVA	KILOVOLT-AMPERES	SPDT	SINGLE POLE DOUBLE THROW
KW	KILOWATTS	SPST	SINGLE POLE SINGLE THROW
LP	LIGHTING PANEL	SPEC	SPECIFICATION
LTG	LIGHTING	SW	SWITCH
MAX	MAXIMUM	SWBD	SWITCHBOARD
MC	MOTOR CONTROLLER	SYM	SYMMETRICAL
MCB	MAIN CIRCUIT BREAKER	SYS	SYSTEMS
MER	MECHANICAL EQUIPMENT ROOM	TELE	TELEPHONE
MIN	MINIMUM	TXF	TOILET EXHAUST FAN
MLO	MAIN LUGS ONLY	TYP	TYPICAL
MTD	MOUNTED	UN	UNLESS OTHERWISE NOTED
N	NEUTRAL	V	VOLT/VOLTAGE
NIC	NOT IN CONTRACT	VA	VOLT AMPERE
NL	NIGHT LIGHT	IG	ISOLATED GROUND
NTS	NOT TO SCALE	PNL	PANEL
P	POLES	W	WATT
PB	PULLBOX	W	WIRE
PC	PERSONAL COMPUTER	WH	WALL HEATER
ø	PHASE	E	EXISTING
A	AMPERES	EA	EACH
A/C, AC	AIR CONDITIONING UNIT	EC	EMPTY CONDUIT/ ELECTRICAL CONTRACTOR
AF	AMPERE FRAME/AMP FUSE	EF	EXHAUST FAN
AF1	ABOVE FINISHED FLOOR	EM	EMERGENCY
AS	AMP SWITCH	EMT	ELECTRICAL METALLIC TUBING
AIC	AMPS INTERRUPTING CAPACITY	EQUIP	EQUIPMENT
AT	AMP TRIP	EW	ELECTRIC WATER HEATER
ATS	AUTOMATIC TRANSFER SWITCH	FA	FIRE ALARM
AUTO	AUTOMATIC	FDR	FEEDER

- ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH THE CURRENT VERSION OF THE NYC ELECTRICAL CODE, 2008 NEC WITH NYC AMENDMENTS, LOCAL JURISDICTION REQUIREMENTS, AND ALL GOVERNING LOCAL CODES, LAWS, AND REGULATIONS.
- CONTRACTOR SHALL VISIT THE SITE AND BECOME FAMILIAR WITH ALL EXISTING CONDITIONS THAT MAY AFFECT THE WORK. NO ADDITIONAL COMPENSATION WILL BE CONSIDERED FOR FAILURE TO DO SO.
- CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS, TEST REPORTS, AND CERTIFICATIONS FOR TEMPORARY AND FINAL CERTIFICATE OF OCCUPANCY.
- FIRE STOP ALL PENETRATIONS OF FIRE RATED CONSTRUCTION IN A CODE APPROVED MANNER IN ORDER TO MAINTAIN FIRE RATING. ALL PENETRATIONS SHALL BE SLEAVED AND SEALED WATERTIGHT.
- SECURE ALL SUPPORTS TO BUILDING STRUCTURE UTILIZING TOGGLE BOLTS (HOLLOW MASONRY), EXPANSION SHELDING INSERTS (CONCRETE AND BRICK), MACHINE SCREWS (METAL), BEAM CLAMPS (FRAMEWORK), WOOD SCREWS (WOOD) OR PAN THRU STRAPS (METAL DECK), NAILS, RAWL PLUGS AND WOOD PLUGS ARE NOT PERMITTED. WHERE REQUIRED BY STRUCTURE PROVIDE THRU BOLTS AND PLATES. SUPPORT HORIZONTAL RUNS OF METALLIC RACEWAYS NOT MORE THAN 10 FT APART. SUPPORT RACEWAY RISERS AT EACH FLOOR LEVEL. RUN EXPOSED RACEWAYS PARALLEL WITH OR AT RIGHT ANGLES TO WALLS.
- LEAVE WIRES WITH SUFFICIENT SLACK TO PERMIT MAKING FINAL CONNECTIONS. RACEWAYS OVER 10 FT LONG IN WHICH WIRING IS NOT INSTALLED: FURNISH FISH WIRE.
- VERIFY LOCATIONS OF OUTLETS AND SWITCHES IN FINISHED ROOMS WITH ARCHITECTURAL DRAWINGS OF INTERIOR DETAILS AND FINISH. IN CENTERING OUTLETS AND LOCATING BOXES AND OUTLETS, ALLOW FOR OVERHEAD PIPES, HUBS AND MECHANICAL EQUIPMENT. EQUIPMENT, VARIATIONS IN FIREPROOFING AND PLASTERING, WINDOW AND DOOR TRIM, PANELING, HUNG CEILINGS AND THE LIKE. CORRECT ANY INACCURACY RESULTING FROM FAILURE TO DO SO WITHOUT EXPENSE TO OWNER.
- CONTRACTOR SHALL PROVIDE A WARRANTY ON ALL MATERIALS, EQUIPMENT, AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE.
- ALL UNUSED MATERIALS AND DEBRIS SHALL BE LEGALLY REMOVED AND DISPOSED OF AWAY FROM THE PREMISES ON A DAILY BASIS.
- CONTRACTOR SHALL PATCH, PAINT, AND RESTORE EXISTING SURFACES DAMAGED DURING THE COURSE OF THIS CONSTRUCTION TO PRE-EXISTING CONDITIONS OR BETTER.
- MINIMUM SIZE OF CONDUIT SHALL BE 3/4", AND TYPE SHALL BE ELECTRICAL METALLIC TUBING (EMT), UNLESS OTHERWISE NOTED. PROVIDE NYLON DRAG LINE AND CONDUIT CAP FOR ALL EMPTY CONDUITS.
- CONNECT CONDUIT TO MOTOR CONDUIT TERMINAL BOXES WITH FLEXIBLE CONDUIT (MINIMUM 18 IN. LENGTH AND 50% SLACK). DO NOT TERMINATE IN OR FASTEN RACEWAYS TO MOTOR FOUNDATION.
- PULL AND JUNCTION BOXES WHERE INDICATED ON THE DRAWINGS, SHALL BE CONSIDERED SHOWN AT THEIR APPROXIMATE LOCATION. THE CONTRACTOR SHALL LOCATE THEM AS FIELD CONDITIONS DICTATE. ADDITIONAL PULL AND JUNCTION BOXES NOT SHOWN ON DRAWINGS SHALL BE PROVIDED WHERE REQUIRED BY APPLICABLE CODE PROVISIONS OR WHERE CALLED FOR BY FIELD CONDITIONS. PULL AND JUNCTION BOXES SHALL BE SURFACE TYPE IN UNFINISHED AREAS AND INSTALLED CONCEALED IN FINISHED AREAS, AND ALL COVERS TO PULL & JUNCTION BOXES SHALL BE READILY ACCESSIBLE.
- SUPPORT PANEL, JUNCTION AND PULLBOXES INDEPENDENTLY TO BUILDING STRUCTURE WITH NO WEIGHT BEARING ON RACEWAYS.
- FOR EXACT LOCATION AND MOUNTING HEIGHT OF LIGHTING FIXTURES AND SWITCH/RECEPTACLE OUTLETS, REFER TO ARCHITECTURAL REFLECTED CEILING AND POWER PLANS.
- ALL ELECTRICAL ACCESSORIES AND EQUIPMENT INSTALLED OUTSIDE OR EXPOSED TO WEATHER SHALL HAVE NEMA 3R ENCLOSURES AND SHALL BE TIGHTLY GASKETED FOR A COMPLETE RAIN TIGHT INSTALLATION. ALL BUILDING EXTERIOR MOUNTED RECEPTACLES SHALL BE GFCI RATED AND MOUNTED IN WEATHERPROOF ENCLOSURE.
- ALL ACCESS PANEL LOCATIONS SHALL BE REVIEWED BY ARCHITECT PRIOR TO INSTALLATION.
- ELECTRICAL CONTRACTOR SHALL COORDINATE THE LOCATION AND INSTALLATION OF NEW WORK WITH THE GENERAL CONTRACTOR AND OTHER ASSOCIATED TRADES IN A TIMELY MANNER. THE CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING ALL DIMENSIONS AND CONDITIONS PRIOR TO CONSTRUCTION. REFER TO ALL GENERAL, MECHANICAL, AND ELECTRICAL DRAWINGS AND SPECIFICATIONS FOR THIS PROJECT.
- ALL CONDUITS AND EQUIPMENT TO BE CONCEALED IN FINISHED SPACES UNLESS OTHERWISE NOTED. CONDUITS SHALL BE ENCASED IN THE CONCRETE FLOOR SLAB.
- ALL EQUIPMENT AND MATERIALS INSTALLED IN PLENUM CEILINGS SHALL BE APPROVED FOR THAT APPLICATION.
- OUTLET BOXES AND JUNCTION BOXES ON OPPOSITE SIDES OF FIRE-RATED WALLS SHALL BE SEPARATED BY A HORIZONTAL DISTANCE OF NOT LESS THAN 24 INCHES, UNLESS FIRE-RATED BOXES OR PUTTY PADS ARE UTILIZED.
- COORDINATE ALL FLOOR PENETRATIONS WITH THE STRUCTURAL AND ARCHITECTURAL DRAWINGS. CONFIRM PENETRATION LOCATIONS WITH THE ENGINEER AND OWNER BEFORE INSTALLATION.
- COORDINATE THE MOUNTING HEIGHT AND LOCATION OF RACEWAYS, COMMUNICATIONS OUTLETS, AND RECEPTACLES WITH THE ARCHITECTURAL CASEWORK DRAWINGS AND DETAILS. COORDINATE LOCATIONS OF LIGHT FIXTURES, SWITCHES, AND RELATED DEVICES WITH THE ARCHITECTURAL DRAWINGS AND DETAILS.
- REFER TO ARCHITECTURAL PLANS FOR FINAL LOCATIONS OF ALL LUMINAIRES AND SWITCHES, AND FOR ALL FINISHED CEILING HEIGHTS.
- REFER TO ARCHITECTURAL PLANS FOR FINAL LOCATIONS OF ALL ELECTRICAL DEVICES, AND FOR FINAL CEILING AND WALL HEIGHTS AND LAYOUTS.
- LIGHTING FIXTURES PROVIDED WITH EMERGENCY BATTERY PACKS AND INDICATED WITH SWITCH CONTROL SHALL BE WIRED WITH BATTERY CHARGING/SENSING CIRCUIT WIRED AHEAD OF SWITCH CONTROL.
- NUMBER(S) SHOWN AT RECEPTACLES, JUNCTION BOXES AND EQUIPMENT INDICATES CIRCUIT NUMBERS IN PANELBOARD. PROVIDE WIRE AND CONDUIT TO INTERCONNECT EQUIPMENT AND DEVICES WITH SAME CIRCUIT NUMBERS AND RUN TO PANELBOARD.
- ELEVATOR CONTROLS SHALL BE PROVIDED THAT WILL DE-ENERGIZE LIGHTING AND VENTILATION FAN WHEN THE ELEVATOR IS STOPPED, UNOCCUPIED AND WITH ITS DOORS CLOSED FOR OVER 15 MINUTES.

Property



KEY NOTES:

1. LIGHTING CONTROL PANEL (LCP), PROGRAMMABLE LIGHTING CONTROL PANEL WITH RELAYS AND DIMMING MODULES BY NOVAR. REFER TO LCP SCHEDULE FOR ZONING INFORMATION.
2. SEE ARCHITECTURAL DRAWINGS FOR LIGHTING MOUNTING HEIGHT.
3. CONNECT DAY LIGHT SENSOR TO LIGHTING CONTROL PANEL. PROVIDE WIRING IN CONDUIT AS REQUIRED.
4. PROVIDE WIRING COMPATIBLE WITH DIMMING PROTOCOL OF LIGHTING FIXTURE IN DAY LIGHT CONTROL ZONE. ALL FIXTURES IN DAY LIGHT CONTROL ZONE c MUST BE DIMMABLE.

LIGHTING LOAD CONTROL SEQUENCE

1. ZONE 'a'- EMPLOYEE LIGHTING = INTERLOCK WITH BURGLAR ALARM SYSTEM SUCH THAT WHEN THE SYSTEM IS DISARMED THE EMPLOYEE LIGHTING TURNS ON. WHEN BURGLAR ALARM SYSTEM SUCH THAT WHEN THE SYSTEM IS ARMED THE EMPLOYEE LIGHTING TURNS OFF. ZONE 'a' SHALL CONTROL THE FOLLOWING LOADS:
50% OF SALES GENERAL LIGHTING (ALTERNATING ROWS)
GENERAL LIGHTING
EF-1, EF-2, EF-3
UH-1
2. ZONE 'b'- CUSTOMER LIGHTING = CONTROLLED BY NOVAR TIME SCHEDULE AND SHALL BE CAPABLE OF MANUALLY REDUCING THE GENERAL SALES LIGHTING BY 50%. ZONE 'b' SHALL CONTROL THE FOLLOWING LOADS:
50% OF SALES GENERAL LIGHTING (ALTERNATING ROWS)
MIRROR LIGHTING
SALES TRACK LIGHTING.
3. ZONE 'c'- DAYLIGHT AREA LIGHTING = CONTROLLED BY NOVAR PHOTOCELL AND SHALL BE CAPABLE OF MANUALLY TURNING OFF THE LIGHTS IN THE DAYLIGHT AREA. ZONE 'c' SHALL CONTROL THE FOLLOWING LOADS:
SALES TRACK LIGHTING
4. ZONE 'e'- EXTERIOR LIGHTING = CONTROLLED BY NOVAR PHOTOCELL. ZONE 'e' SHALL CONTROL THE FOLLOWING LOADS:
EXTERIOR WALL PACK LIGHTING (EXCLUDING SECURITY LIGHTS INDICATED AS NIGHT LIGHTS)
STOREFRONT SIGNS
EXTERIOR CANOPY LIGHTING

LIGHTING NOTES:

1. STORE LIGHTING (SALES & SUPPORT) SHALL INCORPORATE QUANTUM ELM2 TYPE FIXTURES TO ACT AS EMERGENCY LIGHTS. NUMBER OF FIXTURES TO BE DETERMINED BY CODE.
2. NL-FIXTURES WILL BE WIRED BEFORE A SWITCH OR CONTACTOR. (FIXTURES WILL RUN 24 HOURS)
3. LAYAWAY STOCK & PROCESSING ROOM LIGHTING TO BE MOUNTED AT 13' AFF. (LIGHTING TO BE COORDINATED WITH HVAC & STRUCTURAL STEEL)
4. TYPE A4 PENDANT LIGHTING FITTED WITH LOCKING PLUG.
NEMA 15-20P 20A, 125V
NEMA 17-20P 20A, 277V
E.C. TO FURNISH AND INSTALL APPROVED LOCKING RECEPTACLE AT OPEN DECK CEILING, PER REQUIRED VOLTAGE.
NEMA 15-20R 20A, 125V
NEMA 17-20R 20A, 277V
5. SIGN HANGING SIGNS PROVIDED AND INSTALLED BY TJX.
6. SECURE EXCESS CORD WITH THE STRAP ABOVE LIGHT FIXTURE. COORDINATE WITH TJX PROJECT MANAGER.

CURRENT LIMITER SCHEDULE (LA-23-RN)

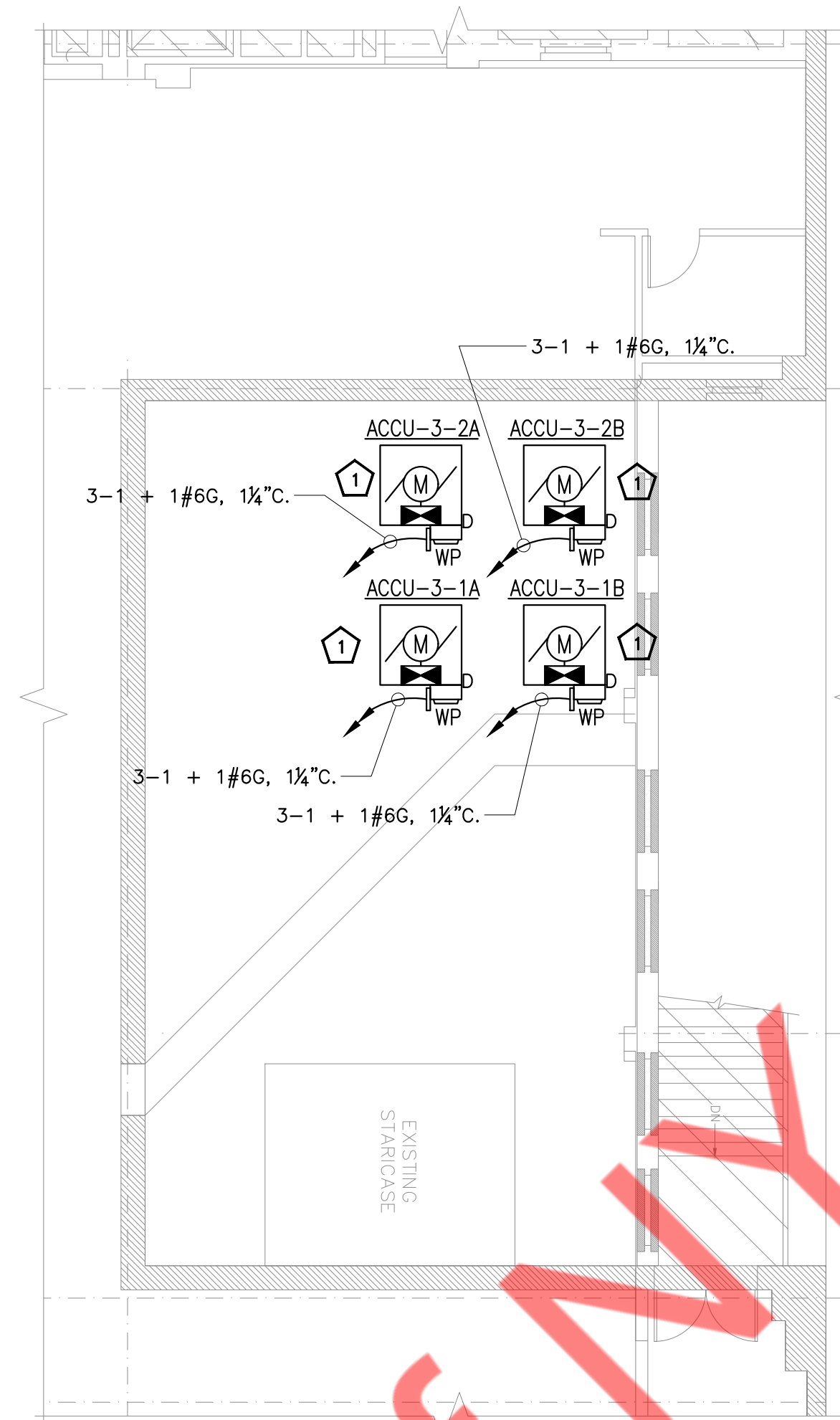
CURRENT LIMITER CIRCUIT BREAKER	AMPERE	WATTAGE
REG21	2A	240W
REG3	2.5A	300W
REG4	3A	360W
REG5	4A	480W
REG6	5A	600W

LIGHTING SCHEDULE

SYMBOL	SIZE	SYSTEM WATTAGE	SYSTEM VOLTAGE	FIXTURE MOUNTING METHOD	LAMP QUANTITY	LAMP TYPE	MANUFACTURER	SPECIFICATION NUMBER (ORDERING INFORMATION)	REMARKS
A	2' X 4'	37	MULTI-VOLTAGE	Recessed	N/A	LED	ACUITY (LITHONIA)	2ESL4 48L E21 LP835 NATJ	
A6	5-1/2" X 3-7/8"	57	120V	TRACK	N/A	LED	CONTECH	CTL184V350-P	SEE AIMING ANGLE TABLE, THIS SHEET.
D	2' X 4'	37	MULTI-VOLTAGE	Recessed	N/A	LED	ACUITY (LITHONIA)	2ESL4 F48L E21 LP835 NATJ	FOR GYPSUM BOARD CEILINGS, AND FLANGE KITS
F3	4" X 8"	45.2	MULTI-VOLTAGE	Surface	N/A	LED	ENVIROBRITE	FST806040-L-02	
LM2	LIGHTED 3-WAY MIRROR	39		Wall Mounted	N/A	LED	STYLMARK	620098-02	TJX PURCHASE. (NOT SUPPLIED BY NESCO)
LM3	LIGHTED MIRROR	40	MULTI-VOLTAGE	Wall Mounted	N/A	LED	PHILIPS	OCLM-W-66NLED30K-UV-PHD-CC(FB5) (SILVER) TJ MAXX	BRIGHT PRISM SILVER
O7	2' X 2'	20.2	MULTI-VOLTAGE	Recessed	N/A	LED	ACUITY (LITHONIA)	2RTL2 20L E21 LP830	
R	EMERGENCY	1.5	MULTI-VOLTAGE	Surface	N/A	LED	ACUITY (LITHONIA)	ELM2-LED	CAN USE ELM6-LED, ELM-LT, or other Emergency lights in the Acuity ELM family
T4L	2-7/8" X 2-1/16"	17	120V	Track	1	LED	PHILIPS/CONTECH	17PAR38/S15 3000 DIM AF SO (PHILIPS 435362)	TRACK MOUNTED SPOT LIGHT
A7-T	12"	28		FLEXIBLE CABLE	1	LED	CONTECH	GGL1232	

Property of M Engineers

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



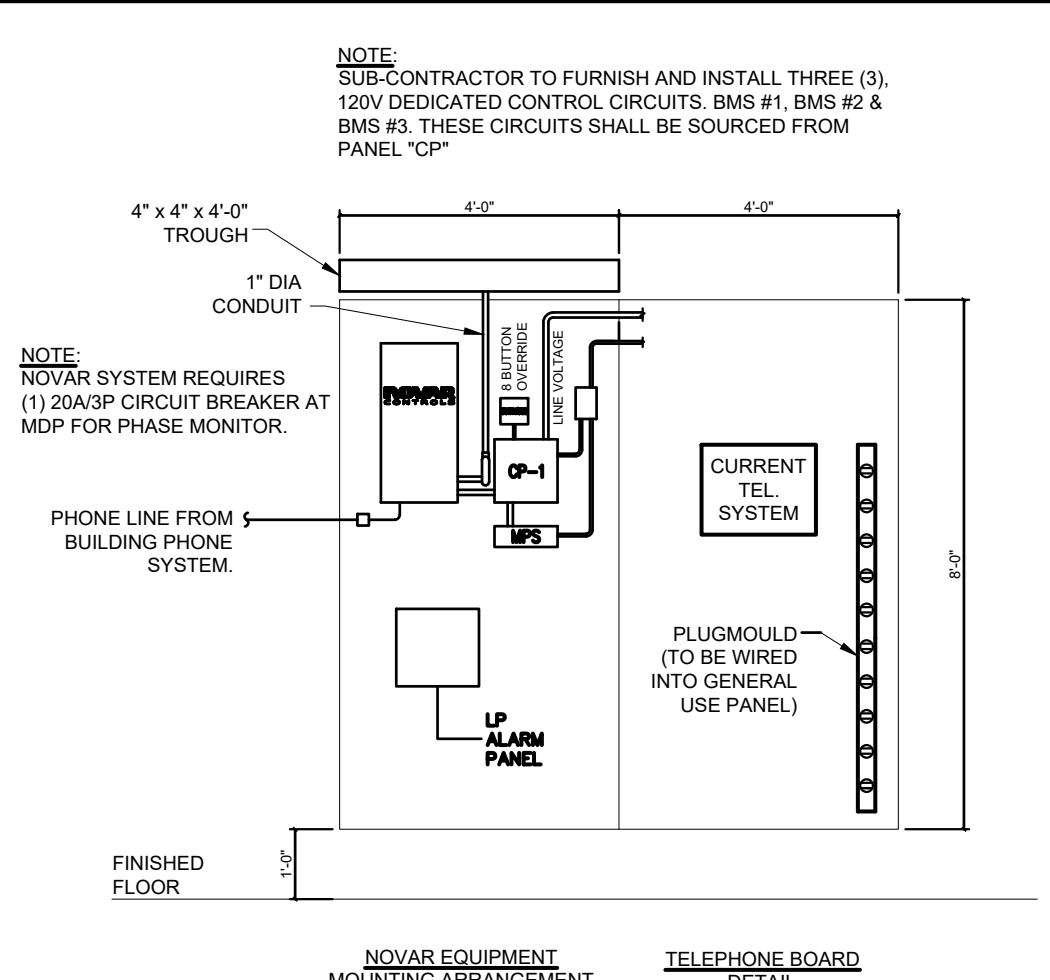
KEYED NOTES :
REFER RISER DIAGRAM E-500.00 FOR CIRCUITING.

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

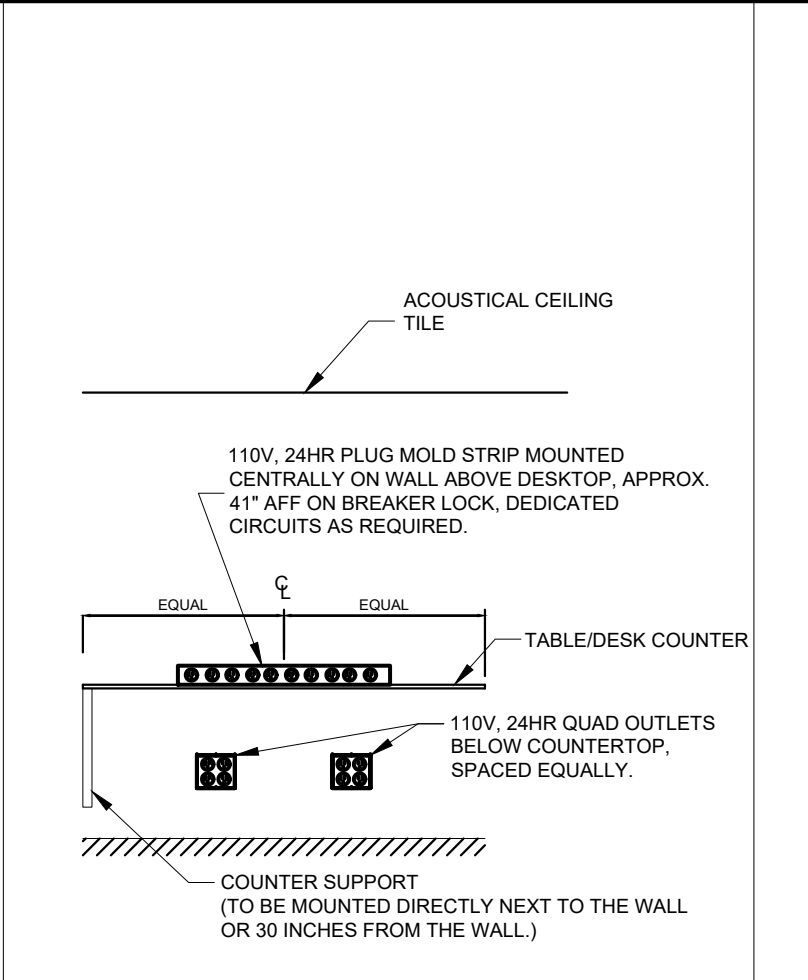
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NOVAR INTERFACE SUMMARY (REFER TO TjX SPECIFICATIONS FOR DETAIL INFORMATION)

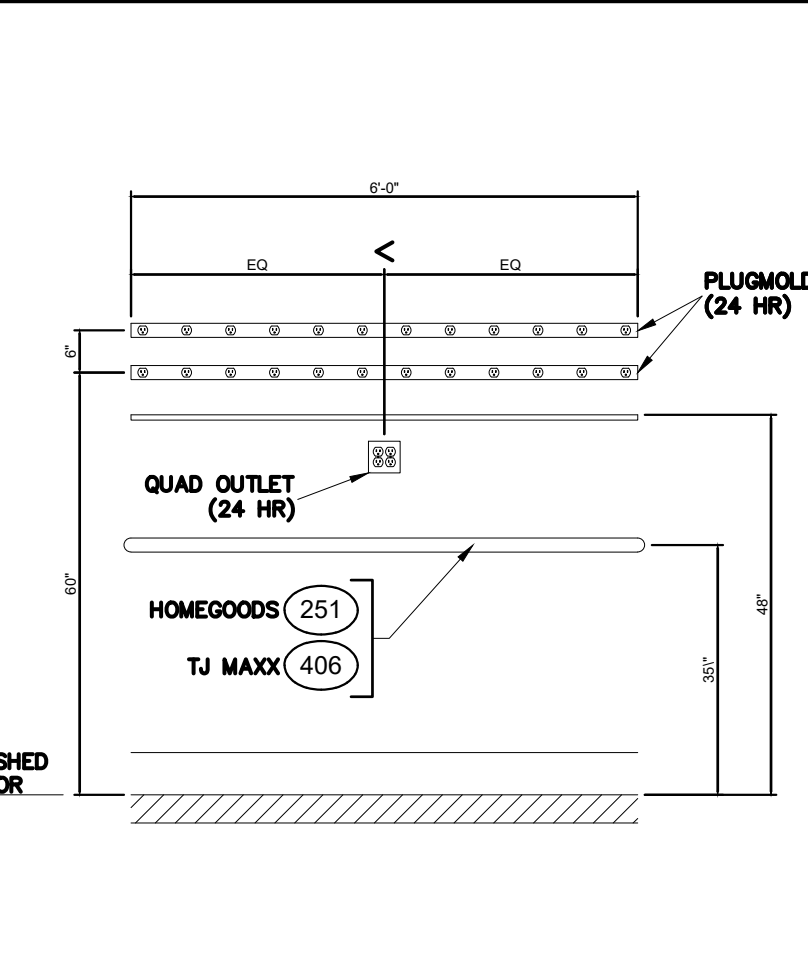
- GENERAL CONTRACTOR**
 - PROVIDE AND INSTALL A 4" X 4" X 4" YWOOD BACKBOARD IN THE ELECTRICAL ROOM FOR NOVAR TO MOUNT THEIR EQUIPMENT. PHONE AND ETHERNET JACKS FOR THE NOVAR SAVVY CONTROLLER WILL ALSO BE LOCATED ON THIS BOARD BY A SEPARATE TjX VENDOR.
- MECHANICAL CONTRACTOR**
 - HORIZONTALLY MOUNT A 24" X 18" X 1/2" CONDUIT (WIREMOLD IF EXPOSED IN FINISHED AREAS) AT THE LOCATIONS DESIGNATED ON THE NOVAR CONTROL SITS SPECIFIC PLANS. THE J-BOXES ARE TO BE MOUNTED AT 80" A.F.F. EXCEPT IN FITTING ROOM LOCATIONS WHERE THE J-BOXES ARE TO BE MOUNTED AT 84" A.F.F. ON THE SALES FLOOR, THE J-BOXES ARE TO BE MOUNTED ON BACK SIDE OF THE COLUMNS WHEN VIEWED FROM FRONT OF STORE.
 - PROVIDE AND INSTALL A PERMANENT STRANDED 18# AWG NON-SHIELDED CABLE (18/10 IF THE RTU IS EQUIPPED WITH THE UNIT FROM EACH ROOFTOP UNIT TO THE NOVAR RTU AT LOCATION SHOWN ON THE NOVAR PLAN THAT SUPERSEDES ANY MECHANICAL PLAN LOCATIONS.
 - TEMPORARY THERMOSTATS ARE TO BE INSTALLED AT THE ETM LOCATIONS AND THE ROOFTOP UNITS STARTED.
 - HVAC EQUIPMENT ARE TO HAVE HAD A MANUFACTURER'S RECOMMENDED STARTUP PROCEDURE PERFORMED AND BE OPERATIONAL IN ALL MODES BEFORE THE ARRIVAL OF THE NOVAR CONTROLS REPRESENTATIVE FOR THE FINAL NOVAR INSTALLATION.
- ELECTRICAL CONTRACTOR**
 - PROVIDE AND INSTALL A THREE PHASE CIRCUIT BREAKER (20 AMPS) FOR THE PHASE MONITOR. THIS BREAKER MAY BE INSTALLED IN A LIGHTING DISTRIBUTION PANEL IF THE PANEL IS OF THE SAME VOLTAGE AS THE MAIN DISTRIBUTION PANEL.
 - INSTALL THE NOVAR PROVIDED CURRENT TRANSFORMERS (CTS).
 - CONNECT ALL CT WIRING TO THE PHASE MONITOR.
 - MOUNT AND POWER THE PHASE MONITOR.
 - PROVIDE AND INSTALL BMS#1 (20 AMP, 1 POLE BREAKER), BMS#2 (20 AMP, 1 POLE BREAKER), AND BMS #3 (20 AMP, 1 POLE BREAKER) POWER SUPPLY. THESE BREAKERS MUST ORIGINATE FROM THE SAME PHASE.
 - THE INSTALLATION, PROGRAMMING, AND LABELING OF THE GE SOFTWARE PANEL IS THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR.



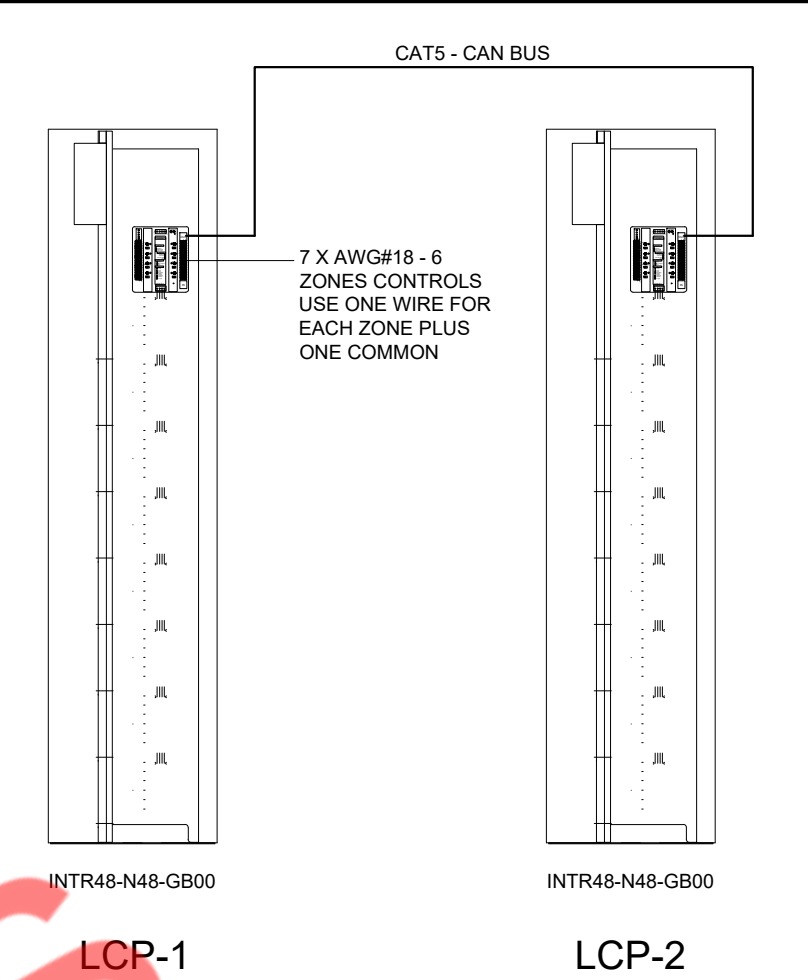
1 ELEVATION AT ELECTRICAL ROOM
E-400 NOT TO SCALE



2 DETAIL @ L.P. OFFICE
E-400 NOT TO SCALE



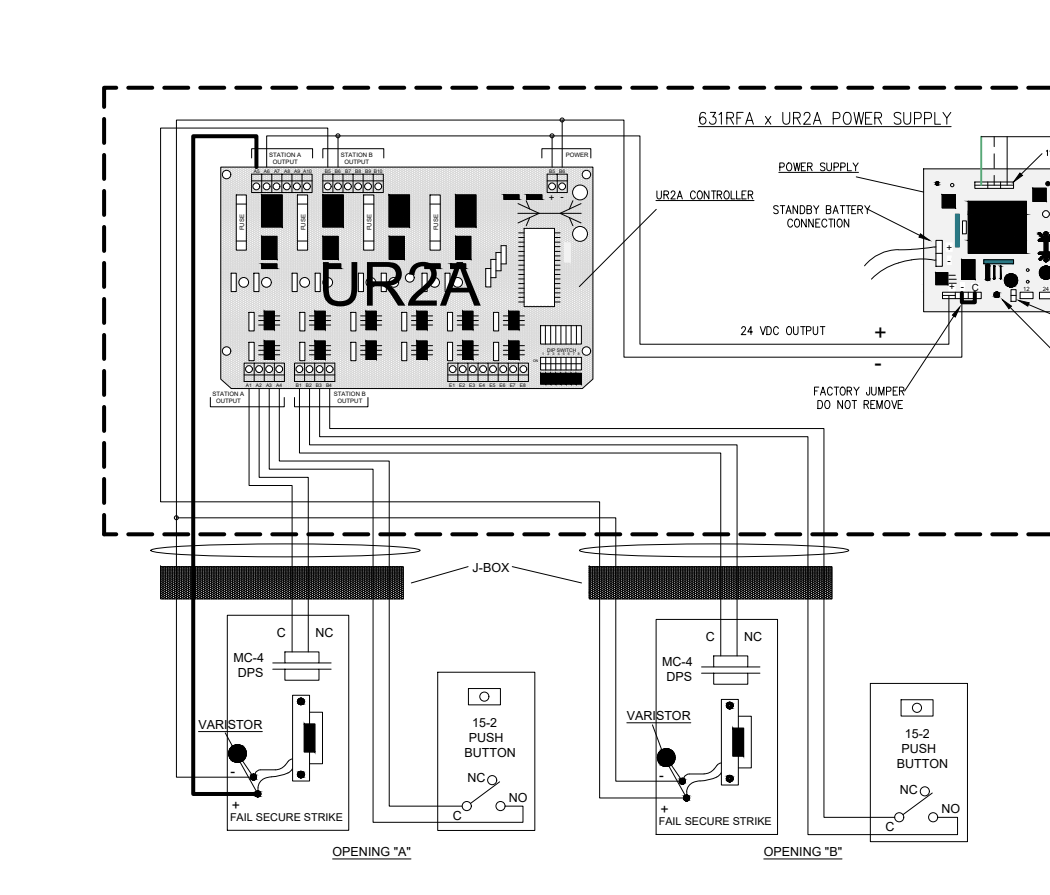
3 DETAIL @ ASSIST. MANAGERS OFFICE
E-400 NOT TO SCALE



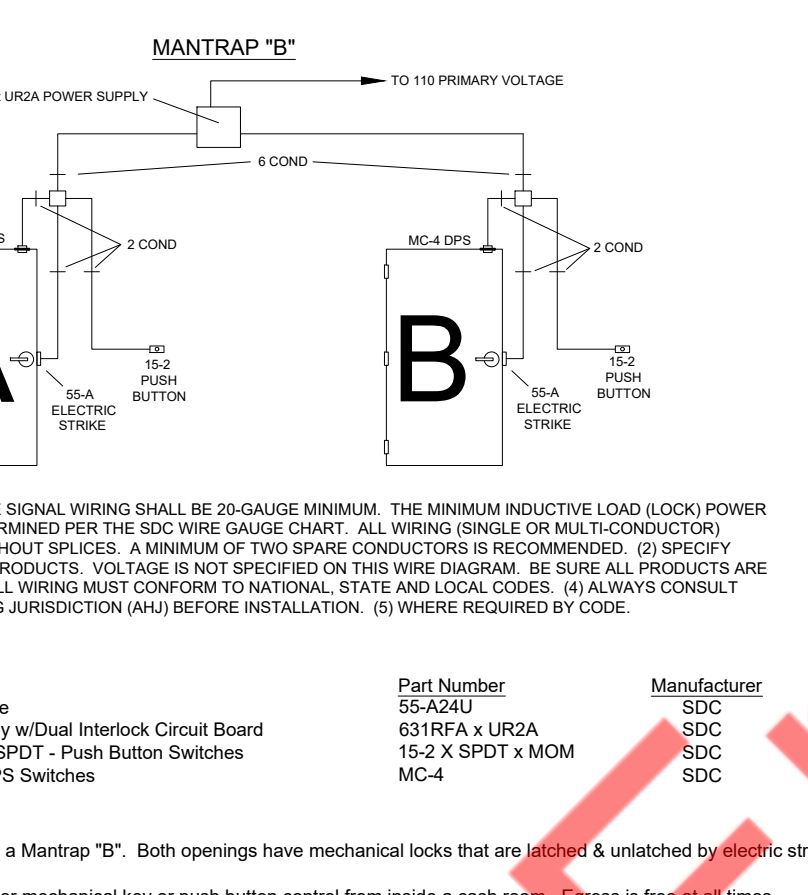
4 GE RELAY PANEL - LOW VOLTAGE WIRING
E-400 NOT TO SCALE

HVAC SUMMARY (REFER TO TjX SPECIFICATIONS FOR DETAIL INFORMATION)

- HVAC NOVAR INTERFACE (THE HVAC CONTRACTOR'S WORK PRIOR TO THE NOVAR CONTRACTOR'S WORK)**
 - THERMOSTATS**
 - THE HVAC CONTRACTOR IS TO PROVIDE AND INSTALL A PERMANENT 18/10 (18/10 IF THE RTU IS EQUIPPED WITH A CO2 SENSOR WITH THE UNIT) THERMOSTAT WIRING FROM THE LOW VOLTAGE SECTION OF EACH HVAC UNIT TO THE FINAL LOCATION OF THE THERMOSTAT LOCATION OF THE THERMOSTATS ARE IN ACCORDANCE WITH THE PLANS PRODUCED BY NOVAR AND SUPERSEDE THE MECHANICAL PRINT LOCATIONS.
 - THE HVAC CONTRACTOR TO INSTALL A TEMPORARY THERMOSTAT FOR EACH HVAC UNIT AT THESE LOCATIONS FOR TESTING AND OPERATIONS.
 - THE THERMOSTATS ARE TO BE MOUNTED AT 80" A.F.F. EXCEPT IN THE FITTING ROOM WHERE THE THERMOSTAT IS TO BE MOUNTED AT 84" A.F.F. IF THERMOSTAT LOCATIONS CONFLICTS WITH A PHONE LOCATION, INSTALL THERMOSTAT SIX TO EIGHT INCHES ABOVE THE PHONE. IF PROVIDED, CO2 SENSORS ARE TO BE INSTALLED SIX INCHES DIRECTLY ABOVE THE THERMOSTAT.
 - IN COLD WEATHER, THE HVAC CONTRACTOR IS TO PROVIDE AND INSTALL TEMPORARY THERMOSTAT FOR RECEIVING HEATERS.
 - SMOKE DETECTORS**
 - THE HVAC CONTRACTOR IS TO SUPPLY AND INSTALL SMOKE DETECTORS FOR THE HVAC EQUIPMENT, (AS WELL AS ANY ADDITIONAL DETECTORS REQUIRED BY THE BUILDING AND FIRE OFFICIALS HAVING JURISDICTION AND GOVERNING CODE). THE SMOKE DETECTORS ARE TO BE PHOTOELECTRIC.
- AIR BALANCING**
 - UPON COMPLETION OF THE HVAC SYSTEM, AIR BALANCING IS TO BE PERFORMED BY AN INDEPENDENT CERTIFIED AIR BALANCING COMPANY.
 - THE CERTIFIED AIR BALANCING REPORT IS TO BE SUBMITTED TO THE TjX COMPANIES PROJECT MANAGER.
- THE DISPOSABLE HVAC FILTERS ARE TO BE CHANGED JUST PRIOR TO THE STORE GRAND OPENING.**
- ALL ABANDONED HVAC EQUIPMENT IS TO BE PROPERLY REMOVED AND DISPOSED.**
- THE SPACE ABOVE THE CEILING IS NOT TO BE USED AS A RETURN AIR PLENUM.**
- ALL EQUIPMENT AND CONTROL DEVICES ARE TO BE APPROPRIATELY IDENTIFIED AND PERMANENTLY ATTACHED.**
- BASEBOARD HEATERS**
 - BASEBOARD HEATERS ARE TO BE FACTORY EQUIPPED WITH INTEGRAL THERMOSTATS AND ARE TO BE INSTALLED IN ALL OFFICES, LOUNGE, RESTROOMS, AND SECURITY OFFICES THAT HAVE AT LEAST ONE OUTSIDE WALL IN CLIMATE ZONES 4 AND 5.
 - THE CIRCUITING FOR BASEBOARD HEATING IS TO BE THROUGH THE GE RELAY PANEL.
- VESTIBULE HEATERS**
 - ELECTRIC VESTIBULE HEATERS ARE TO BE FACTORY EQUIPPED WITH LOW VOLTAGE CONTROLS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING: POWER CONTROLS, LOW VOLTAGE TRANSFORMER AND A TWO WIRE FIELD TERMINATION CONTROL POINT.
- EXHAUST FANS** EXHAUST FANS ARE TO BE CONTROLLED AS SHOWN ON TjX CRITERIA PLANS AND POWERED VIA EMPLOYEE LIGHT CONTRACTOR ON THE GE SOFTWARE CONTRACTOR PANEL.



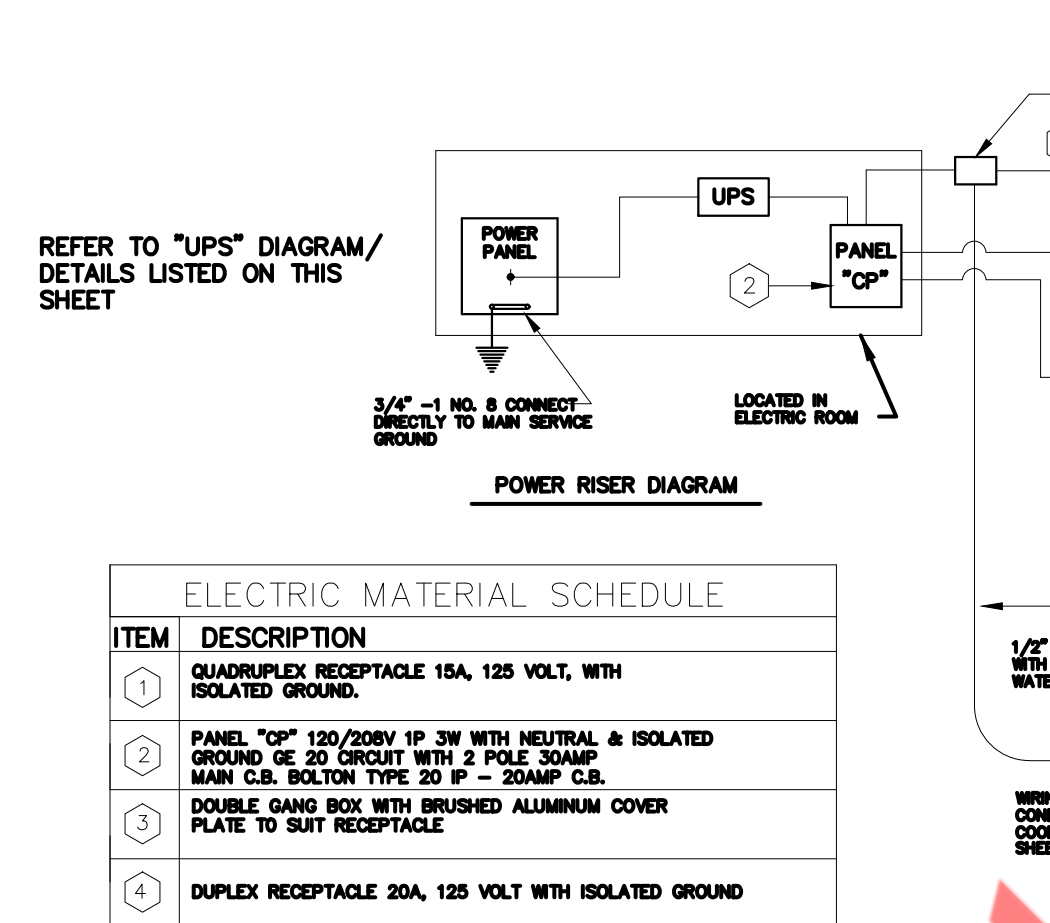
5 ELECTRICAL REQUIREMENTS FOR CASH OFFICE DOORS
E-400 NOT TO SCALE



6 P.O.S. CASH REGISTER 120 VOLT WIRING
E-400 NOT TO SCALE

LIGHTING SUMMARY (REFER TO TjX SPECIFICATIONS FOR DETAIL INFORMATION)

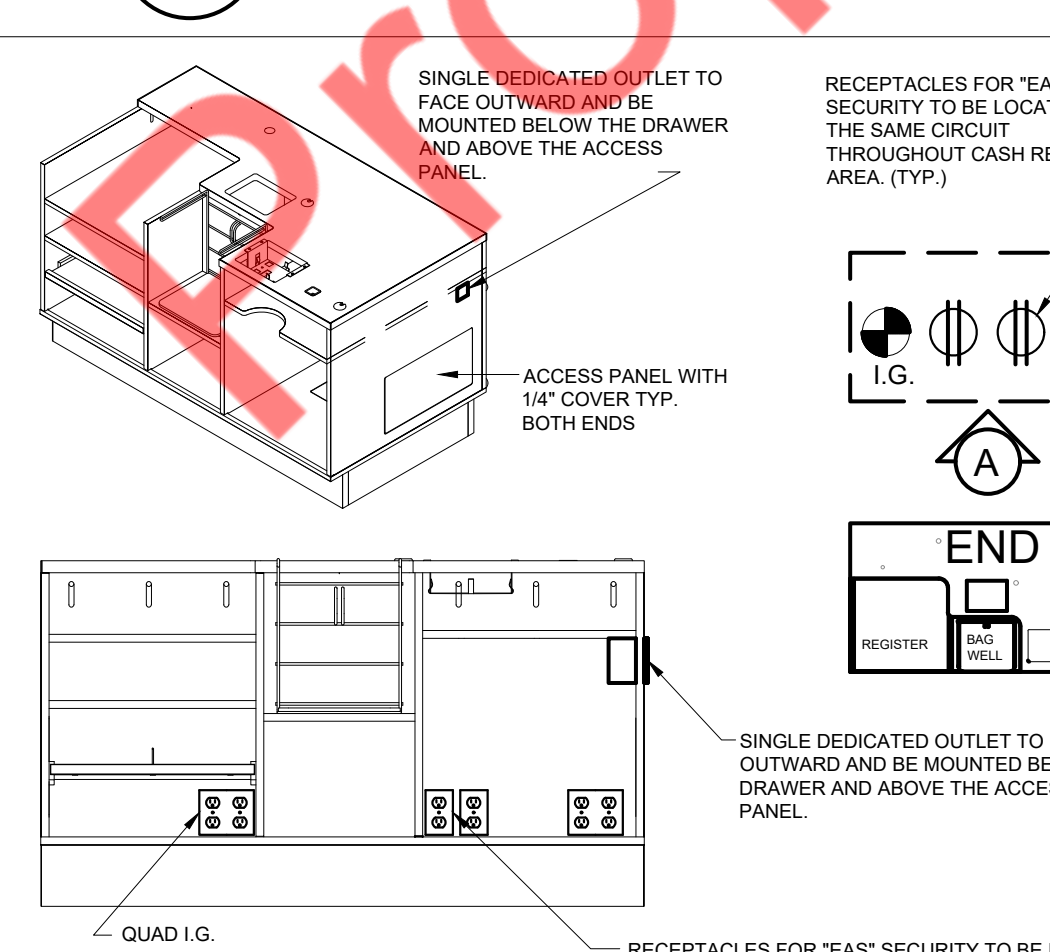
- NIGHT LIGHTING:**
 - NIGHT LIGHTS ARE TO BE ON 24 HOURS A DAY AND ONLY IN THE SALES AREA.
 - THE CIRCUIT FOR NIGHT LIGHTING IS NOT TO BE CONNECTED TO THE GE RELAY PANEL, OR EMERGENCY LIGHTING. THE NLS SHOULD BE ONLY (1) CIRCUIT IN MOST SITUATIONS.
 - NIGHT LIGHTING (NIGHT LIGHT) IS TO BE INSTALLED AT EVERY 3.00 SQUARE FEET OF SALES AREA (ROUND UP), AND SHOULD BE EVENLY DISTRIBUTED. (REFER TO TjX CRITERIA PLAN SHEET (CS) FOR EXACT QUANTITIES & LOCATIONS).
- EMERGENCY LIGHTING:**
 - EMERGENCY LIGHTING IS TO BE INSTALLED IN ACCORDANCE WITH ALL APPLICABLE CODES AND AT THE DIRECTION OF THE GOVERNING AUTHORITIES.
 - AT A MINIMUM, THE EMERGENCY LIGHTING IS TO BE AS FOLLOWS:
 - ALL ROOMS AND SPACES ARE TO HAVE AT LEAST (1) EMERGENCY LIGHT.
 - THE SALES AREA IS TO HAVE (1) EMERGENCY LIGHT PER 2,000 SQUARE FEET OF FLOOR AREA, AND SHOULD BE EVENLY DISTRIBUTED THROUGHOUT THE SPACE. PATHS OF EGRESS ARE TO BE OF PRIMARY COVERAGE.
 - THE STOCK ROOM SHOULD HAVE A MINIMUM OF (4) EMERGENCY LIGHTS.
 - THE EMERGENCY LIGHTING SYSTEM AND CIRCUITS ARE NOT TO BE CONNECTED TO THE GE RELAY PANEL AND THE CIRCUITS ARE TO BE DEDICATED WITH BREAKER LOGS INSTALLED AT THE PANEL.
 - THE EMERGENCY LIGHTS ARE TO BE LITHONIA LIGHTING, MODEL WELM2, SELF-CONTAINED BATTERY UNITS.
- SECURITY LIGHTING:**
 - EXTERIOR SECURITY LIGHTING INCLUDES EXTERIOR WALL LIGHT PACKS ATTACHED TO THE BUILDING AS NOTED ON THE PLANS. THESE ARE GENERALLY MOUNTED ABOVE ALL EGRESS DOORS FROM THE STORE.
 - THE CIRCUITING FOR THIS IS THROUGH THE GE RELAY PANEL.
 - NOVAR WILL CONTROL THIS LIGHTING BY A SEPARATE CHANNEL IN THE RELAY PANEL. THIS LIGHTING IS OVERRIDDEN BY A LIGHT SENSOR SUPPLIED AND INSTALLED BY NOVAR.
- SIGNS AND CANOPY LIGHTS:**
 - THIS INCLUDES THE BUILDING WALL LIGHTED UNDER CANOPY, ETC. SIGNS AS WELL AS ANY CANOPY LIGHTS (IF NOT BEING CONTROLLED BY THE LANDLORD'S HOUSE PANEL).
 - THESE CIRCUITS ARE TO BE RUN THROUGH THE GE RELAY PANEL.
 - NOVAR WILL CONTROL THESE CIRCUITS BY A SEPARATE CHANNEL IN THE RELAY PANEL.
- CUSTOMER LIGHTING:**
 - SALES AREA.
 - ONE HALF OF THE SALES AREA CEILING LIGHTS (ALTERNATE ROWS).
 - ALL PERIMETER LIGHTING.
 - ALL PENDANT LIGHTS.
 - JEWELRY COUNTER LIGHTING.
 - LAMP DEPARTMENT (SHOULD ON WALLS AND FLOOR GONDOLAS).
 - FLOOR OUTLETS FOR LAMP DEPARTMENT.
 - CEILING MOUNTED CHANGELIER FUTURE OUTLETS.
 - ANY SPECIALLY LIGHTING (I.E. WALL SCOOLES, ETC.).
 - OFF SALES AREA.
 - PENDANT LIGHTS IN THE FITTING ROOM.
 - LIGHTED MIRRORS IN THE FITTING ROOM.
 - THESE CIRCUITS ARE TO BE RUN THROUGH THE GE RELAY PANEL.
- EMPLOYEE LIGHTING:**
 - EMPLOYEE LIGHTING IS TO INCLUDE ALL (EXCEPT AS EXCLUDED BELOW) INTERIOR STORE LIGHTING AND BE RUN THROUGH THE GE RELAY PANEL. THE SALES AREA CEILING LIGHTS IS TO BE ALTERNATE ROWS.
 - ITEMS NOT INCLUDED IN 'EMPLOYEE LIGHTING' ARE NIGHT LIGHTING, EMERGENCY LIGHTING, EXIT LIGHTING, DOCK SECURITY LIGHTING, 'SIGNS AND CANOPY LIGHTS' AND 'CUSTOMER LIGHTING' AS DESCRIBED ABOVE.
 - EMPLOYEE LIGHTING IS TO INCLUDE ALL EXHAUST FANS EXCEPT THE ELECTRICAL ROOM EXHAUST FAN THAT IS TO BE CONTROLLED BY A STAND-ALONE LINE VOLTAGE THERMOSTAT (SET AT 80° F). THESE CIRCUITS ARE TO BE RUN THROUGH THE GE RELAY PANEL.
- G.E. SOFTWARE RELAY PANEL PROGRAMMING:**
 - SOFTWARE LIGHTING GROUPS
 - THE SCB SHALL ALLOW ANY GROUP OF RELAYS WITHIN THE PANEL TO BE ASSOCIATED ('SOFTWIRED') TO A CHANNEL USING THE FOLLOWING PROCEDURE:
 - PRESS AND HOLD THE CHANNEL PUSH BUTTON FOR SEVERAL SECONDS. THE CHANNEL LED AND THE LEDS FOR RELAYS CURRENTLY CONTROLLED BY THAT INPUT WILL BEGIN TO FLASH.
 - SELECT THE RELAYS TO BE CONTROLLED. THE LED FOR EACH RELAY 'SOFTWIRED' TO THE CHANNEL SELECTED WILL BE FLASHING ON/OFF. PRESS THE ASSOCIATED RELAY CONTROL BUTTON TO ADD/DELETE THAT RELAY TO/FROM GROUP.
 - PRESS THE CHANNEL PUSH BUTTON AGAIN. THE LED WILL STOP FLASHING AND THE CHANNEL PUSH BUTTON AND ASSOCIATED SWITCH INPUTS WILL NOW CONTROL THE RELAYS SELECTED.
 - TURNING A CHANNEL ON/OFF WILL SEQUENCE ALL OF THE RELAYS WITHIN THAT GROUP ON/OFF INDIVIDUALLY. CONTROLLING A SOFTWARE GROUP
 - EACH CHANNEL SHALL HAVE AN ASSOCIATED PUSH-BUTTON WITHIN THE PANEL TO TOGGLE THE CHANNEL ON/OFF.
 - EACH CHANNEL SHALL ALSO HAVE TWO SEPARATE SWITCH OR DRY CONTACT INPUTS THAT WILL ALLOW THE CHANNEL TO BE CONTROLLED REMOTELY.
 - THE CHANNEL SHALL RESPOND TO THE LAST INPUT.
 - THE UNIT SHALL ALLOW A 'MASTER CHANNEL' TO BE CONFIGURED TO CONTROL SEVERAL OF THE ABOVE CHANNELS BY SIMPLY INCLUDING ALL OF THE RELAYS OF THESE 'SUB CHANNELS' WITHIN THE MASTER CHANNEL GROUP STATUS.
 - EACH CHANNEL PUSH-BUTTON SHALL INCLUDE A LED STATUS INDICATION. THE LED WILL BE ON WHENEVER ALL OF THE RELAYS WITHIN THE CHANNEL GROUP ARE ON, AND SHALL GO OFF WHEN ALL OF THE RELAYS WITHIN THE CHANNEL GROUP ARE OFF.
 - EACH CHANNEL SHALL ALSO HAVE AN ASSOCIATED DRY CONTACT CLOSURE OF PILOT CONTACT WHICH TRACKS THE LED OPERATION DESCRIBED ABOVE.
 - CONTROLLING AN INDIVIDUAL RELAY
 - EACH RELAY SHALL HAVE AN ASSOCIATED CONTROL BUTTON WITH LED STATUS INDICATION MOUNTED WITHIN THE LOW VOLTAGE SECTION OF THE PANEL.



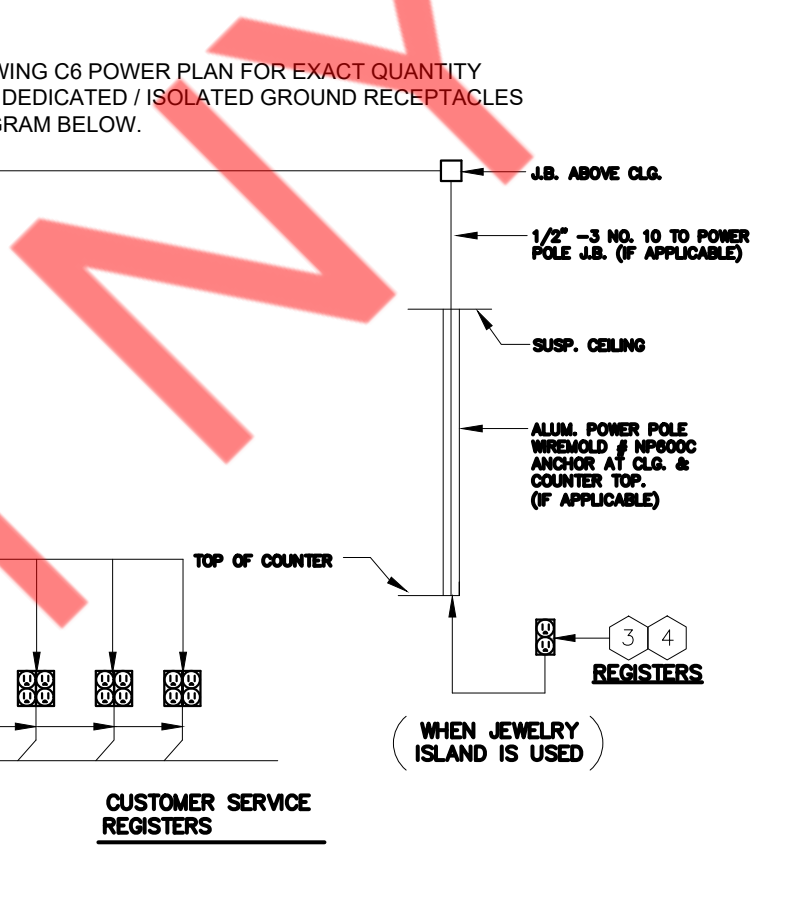
7 UPS DIAGRAM
E-400 NOT TO SCALE

ELECTRIC MATERIAL SCHEDULE

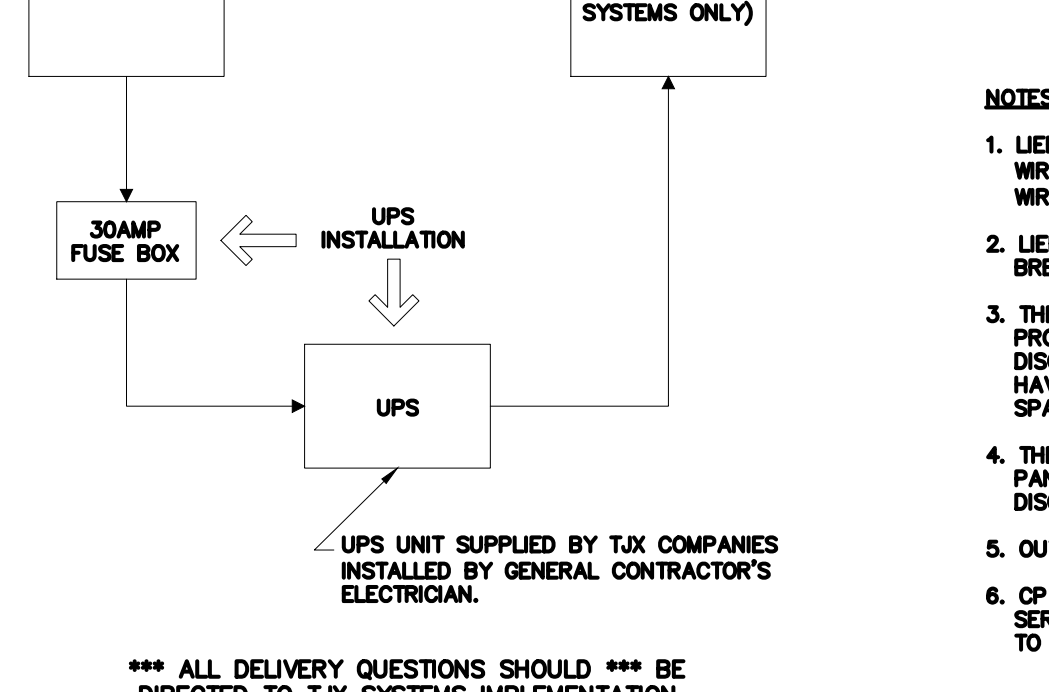
ITEM	DESCRIPTION
1	CHANGELIER RECEPTACLE 15A, 125 VOLT, WITH ISOLATED GROUND.
2	PANEL "CP" 120/200V IP 3W WITH NEUTRAL & ISOLATED GROUND. 20 CIRCUIT WITH 20 AMP MAIN CB. 30" X 36" TYPE 30 "P" - 30AMP. C.A.
3	30 AMP FUSE BOX WITH 30 AMP MAIN CB. 12" X 12" X 12" ALUMINUM COVER PLATE. 12 SAIT RECEPTACLES.
4	DUPLEX RECEPTACLE 20A, 125 VOLT WITH ISOLATED GROUND.



8 SINGLE Q CHECK OUT STAND ELEVATION 'A' @ END CHECK OUT (TYPICAL)
E-400 NOT TO SCALE



9 ELEVATION 'A' @ JEWELRY CASH COUNTER
E-400 NOT TO SCALE

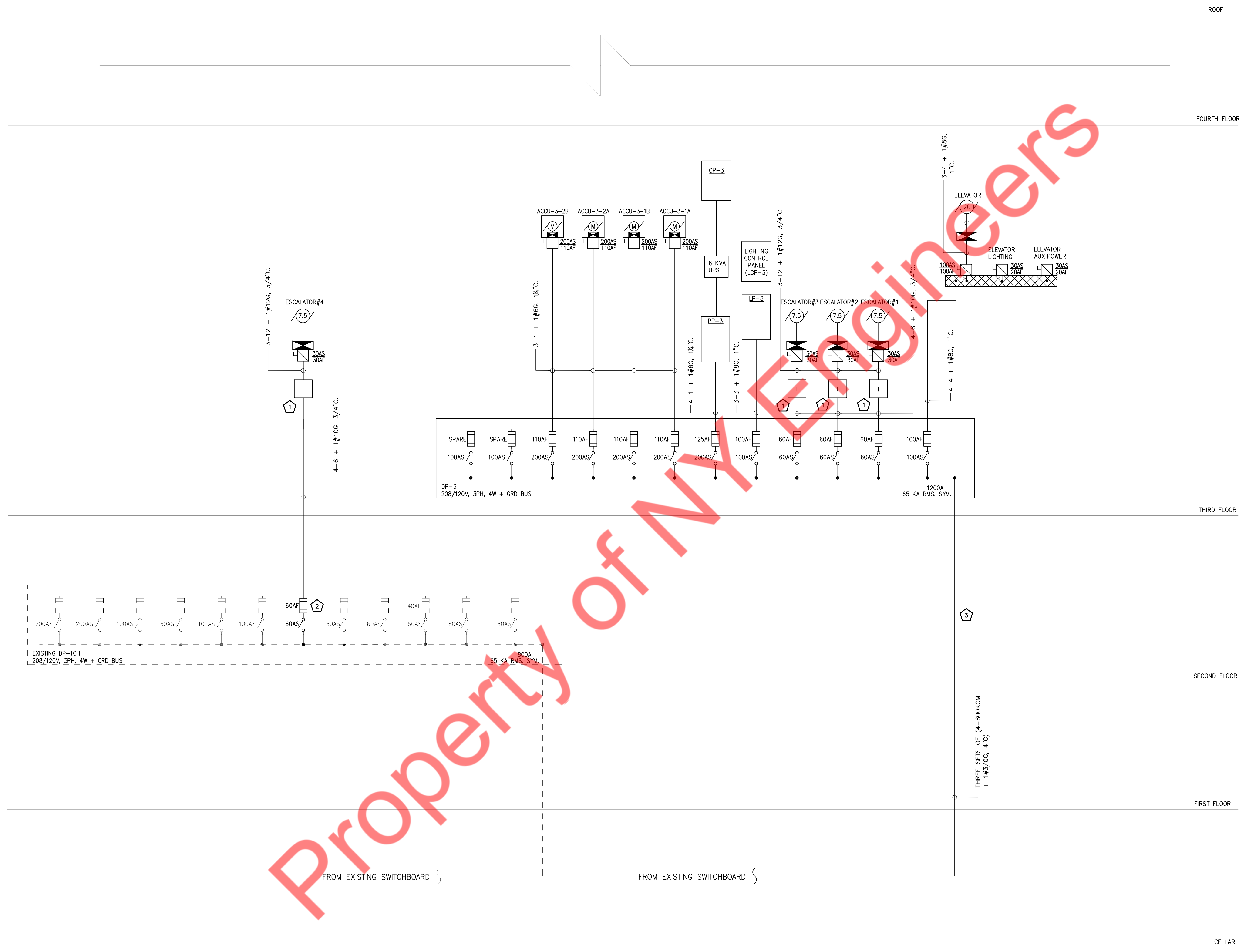


10 EMERGENCY LIGHTS WIRING DIAGRAM
E-400 NOT TO SCALE

30 AMP CP PANEL

COMPUTER EQUIPMENT ONLY	
REG 01	LAYREG 40
REG 02	LAYREG 40
REG 03	WMLREG 51
REG 04	WMLREG 51
REG 05	SYSTEMS 1
REG 06	SYSTEMS 2
REG 07	CO IDF **
BMS 1	BMS 2
BMS 3	BMS 3

8 TYPICAL CP PANEL
E-400 NOT TO SCALE



Property of NY Engineers

- KEYED WORK NOTES:**
- ① 15KVA TRANSFORMER 208V-120V/480V-3PH,4W TRANSFORMER WEIGHT - 340LBS(154KG)
 - ② CONTRACTOR TO FIELD VERIFY AND REPLACE EXISTING 30A SWITCHES (14 & 15) BY 60A SWITCH AND CONNECT TO ESCALATOR ON THIRD FLOOR.
 - ③ CONTRACTOR TO FIELD VERIFY EXACT CONDUIT ROUTING FOR DP-3 FROM CELLAR.

GE LIGHTING CONTROL PANEL SCHEDULE (LCP-3)							
DESCRIPTION	CIRCUIT NUMBER	CONTROL ZONE	RELAY NUMBER	RELAY NUMBER	CONTROL ZONE	CIRCUIT NUMBER	DESCRIPTION
LIGHTING - EMPLOYEE AREA	LP-3#1	a	1	2	b	LP-3#2	LIGHTING - SALES AREA
LIGHTING - DRESSING ROOM MIRRORS	LP-3#3	b	3	4	a	LP-3#4	LIGHTING - SALES AREA
LIGHTING - LOUNGE AREA	LP-3#5	a	5	6	a	LP-3#6	LIGHTING - SALES AREA
LIGHTING - SALES AREA	LP-3#7	a	7	8	b	LP-3#8	LIGHTING - SALES AREA
LIGHTING - SALES AREA	LP-3#9	b	9	10	a	LP-3#10	LIGHTING - SALES AREA
LIGHTING - SALES AREA	LP-3#11	b	11	12	b	LP-3#12	LIGHTING - SALES AREA
LIGHTING - SALES AREA	LP-3#13	a	13	14	b	LP-3#14	LIGHTING - SALES AREA
LIGHTING - SALES AREA	LP-3#15	b	15	16	a	LP-3#16	LIGHTING - SALES AREA
LIGHTING - SALES AREA	LP-3#17	a	17	18	b	LP-3#18	LIGHTING - SALES AREA
LIGHTING - ESCALATOR AREA	LP-3#19	b	19	20	c	LP-3#20	LIGHTING - TRACK LIGHTING
LIGHTING - TRACK LIGHTING	LP-3#21	c	21	22	b	LP-3#22	LIGHTING - TRACK LIGHTING
LIGHTING - TRACK LIGHTING	LP-3#23	c	23	24	b	LP-3#24	LIGHTING - TRACK LIGHTING
EF-1	PP-3#83	a	25	26	b	LP-3#26	LIGHTING - TRACK LIGHTING
EF-2	PP-3#84	a	27	28	a	PP-3#100	EF-4
EF-3	PP-3#98	a	29	30	a	PP-3#102	EF-5
EBH-3-1	PP-3#32,34	a	31	32	a	PP-3#40,42	EBH-3-3
			33	34			
EBH-3-2	PP-3#36,38	a	35	36	a	PP-3#86,88	SAF-1
			37	38			
SXF-1	PP-3#21	a	39	40	a	PP-3#90,92	SAF-2
EXF-1	PP-3#104	a	41	42			
EXIT LIGHT	LP-3#28	a	43	44	a	PP-3#94,96	SAF-3
SPARE			45	46			
SPARE			47	48			

PANEL: LP-3		Sections:								
208Y/120	VOLTS,	1	PHASE,							
MAIN CB	100A	MCB	BUS							
125A	MIN,	INTERRUPTING RATING	22 KAIC							
CKT NO.	TRIP AMPS	DESCRIPTION OF LOAD	LOAD TYPE	LOAD (KVA)	PER PHASE (KVA)	LOAD (KVA)	LOAD TYPE	DESCRIPTION OF LOAD	TRIP AMPS	CKT NO.
1	20	LIGHTING - EMPLOYEE AREA	L	0.4	0.72	0.37	L	LIGHTING - SALES AREA	20	2
3	20	LIGHTING - DRESSING ROOM MIRRORS	L	0.24	0.64	0.4	L	LIGHTING - SALES AREA	20	4
5	20	LIGHTING - LOUNGE AREA	L	0.68	1.08	0.4	L	LIGHTING - SALES AREA	20	6
7	20	LIGHTING - SALES AREA	L	0.37	0.82	0.45	L	LIGHTING - SALES AREA	20	8
9	20	LIGHTING - SALES AREA	L	0.37	0.87	0.5	L	LIGHTING - SALES AREA	20	10
11	20	LIGHTING - SALES AREA	L	0.4	0.73	0.33	L	LIGHTING - SALES AREA	20	12
13	20	LIGHTING - SALES AREA	L	0.4	0.92	0.52	L	LIGHTING - SALES AREA	20	14
15	20	LIGHTING - SALES AREA	L	0.33	0.63	0.3	L	LIGHTING - SALES AREA	20	16
17	20	LIGHTING - SALES AREA	L	0.26	0.66	0.4	L	LIGHTING - SALES AREA	20	18
19	20	LIGHTING - ESCALATOR AREA	L	0.45	1.85	1.4	L	LIGHTING - TRACK LIGHTING	20	20
21	20	LIGHTING - TRACK LIGHTING	L	1.2	2.16	0.96	L	LIGHTING - TRACK LIGHTING	20	22
23	20	LIGHTING - TRACK LIGHTING	L	1.2	2.28	1.08	L	LIGHTING - TRACK LIGHTING	20	24
25	20	LIGHTING - EMERGENCY LIGHTS	L	0.3	1.5	1.2	L	LIGHTING - TRACK LIGHTING	20	26
27	20	LIGHTING - EMERGENCY LIGHTS	L	0.2	0.5	0.3	L	EXIT LIGHTS	20	28
29	20	SPARE		0				SPARE	20	30
31	20	SPARE		0				SPARE	20	32
33	20	SPARE		0				SPARE	20	34
35	20	SPARE		0				SPARE	20	36
37	20	SPARE		0				SPARE	20	38
39	20	SPARE		0				SPARE	20	40
41	20	SPARE		0				SPARE	20	42
TOTAL LOAD (KVA)				7.91	7.45					
TOTAL LTG	15.36	X	1.00 DEM	=	15.36	CONNECTED LOAD	15.36			
TOTAL HVAC	0.00	X	0.90 DEM	=	0.00	DEMAND LOAD	15.3600			
TOTAL RECEPT.	0.00	X	0.50 DEM	=	0.00	20% SPARE CAPACITY	3.07			
TOTAL EQUIP.	0.00	X	0.70 DEM	=	0.00	TOTAL LOAD KVA	18.43			
TOTAL MECH.	0.00	X	0.80 DEM	=	0.00	MINIMUM SWITCH SIZE	92.3			
							RECOMMENDED SWITCH SIZE	100		

PANEL: PP-3		Sections: 3								
208Y/120	VOLTS,	3	PHASE,							
MAIN CB	125A	MCB	BUS							
125A	MIN,	INTERRUPTING RATING	22 KAIC							
CKT NO.	TRIP AMPS	DESCRIPTION OF LOAD	LOAD TYPE	LOAD (KVA)	PER PHASE (KVA)	LOAD (KVA)	LOAD TYPE	DESCRIPTION OF LOAD	TRIP AMPS	CKT NO.
1	20	RECEPTACLE	R	0.72	0.92	0.2	E	VENDING MACHINE REC.	20	2
3	20	RECEPTACLE	R	0.18	0.38	0.2	E	VENDING MACHINE REC.	20	4
5	20	RECEPTACLE	R	0.18	0.38	0.2	E	VENDING MACHINE REC.	20	6
7	20	J-BOX FOR DRYER	E	1.45	1.63		R	RECEPTACLE	20	8
9	20	J-BOX FOR DRYER	E	1.45	1.63	0.18	R	RECEPTACLE	20	10
11	20	HALL RECEPTACLE	R	0.36		0.54	R	RECEPTACLE	20	12
13	20	GFY RECEPTACLE	R	0.18	1.85	1.67	E	CENTRAL VAC UNIT	20	14
15	20	RECEPTACLE	R	0.9	1.08		R	RECEPTACLE	20	16
17	20	RECEPTACLE	R	1.08		1.26	R	RECEPTACLE	20	18
19	20	FSD + MD	E	0.5	0.68	0.18	R	RECEPTACLE	20	20
21	20	SXF-1	M	1.6	2.1	0.5	E	DHWIP-1	15	22
23	20	AC-3-1	M	0.35		0.7	M	AC-3-4	20	24
25	20	AC-3-2	M	0.35	0.7	0.35	M	AC-3-5	20	26
27	20	AC-3-3	M	0.35	0.7	0.35	M	AC-3-5	20	28
29	20	AC-3-3	M	0.35	1.25	0.9	M	EBH-3-1	30	30
31	20	AC-3-3	M	0.35	1.25	0.9	M	EBH-3-1	30	32
33	20	BCU-3-1	M	0.17	1.07	0.9	M	EBH-3-2	30	34
35	20	BCU-3-1	M	0.17	1.07	0.9	M	EBH-3-2	30	36
37	20	BCU-3-2	M	0.17	1.07	0.9	M	EBH-3-3	30	38
39	20	BCU-3-2	M	0.17	1.42	1.25	M	EBH-3-3	40	40
41	20	BCU-3-2	M	0.17	1.42	1.25	M	EBH-3-3	40	42
TOTAL LOAD (KVA)				8.1	8.56	6.07				
TOTAL LTG	0	X	1.00 DEM	=	0	CONNECTED LOAD	43.43			
TOTAL HVAC	0	X	0.90 DEM	=	0	DEMAND LOAD	28.739			
TOTAL RECEPT.	4.68	X	0.50 DEM	=	2.34	SPARE CAPACITY	8.9638			
TOTAL EQUIP.	6.17	X	0.70 DEM	=	4.319	TOTAL LOAD KVA	37.7028			
TOTAL MECH.	7.5	X	0.80 DEM	=	6	MINIMUM SWITCH SIZE	200.0			
							RECOMMENDED SWITCH SIZE	200		

PANEL: PP-3 (SEC 2)		Sections:								
208Y/120	VOLTS,	3	PHASE,							
MAIN CB	125A	MLO	BUS							
125A	MIN,	INTERRUPTING RATING	22 KAIC							
CKT NO.	TRIP AMPS	DESCRIPTION OF LOAD	LOAD TYPE	LOAD (KVA)	PER PHASE (KVA)	LOAD (KVA)	LOAD TYPE	DESCRIPTION OF LOAD	TRIP AMPS	CKT NO.
43	20	AC-3-6	M	0.35	0.4	0.05	M	AC-3-16	20	44
45	20	AC-3-6	M	0.35	0.4	0.05	M	AC-3-16	20	46
47	20	AC-3-7	M	0.05		0.1	M	AC-3-17	20	48
49	20	AC-3-7	M	0.05	0.1	0.05	M	AC-3-17	20	50
51	20	AC-3-8	M	0.05	0.1	0.05	M	AC-3-18	20	52
53	20	AC-3-8	M	0.05	0.1	0.05	M	AC-3-18	20	54
55	20	AC-3-9	M	0.05	0.1	0.05	M	AC-3-19	20	56
57	20	AC-3-9	M	0.05	0.1	0.05	M	AC-3-19	20	58
59	20	AC-3-10	M	0.05	0.1	0.05	M	AC-3-20	20	60
61	20	AC-3-10	M	0.05	0.1	0.05	M	AC-3-20	20	62
63	20	AC-3-11	M	0.05	0.1	0.05	M	AC-3-21	20	64
65	20	AC-3-11	M	0.05	0.1	0.05	M	AC-3-21	20	66
67	20	AC-3-12	M	0.05	0.1	0.05	M	AC-3-22	20	68
69	20	AC-3-12	M	0.05	0.1	0.05	M	AC-3-22	20	70
71	20	AC-3-13	M	0.05	0.1	0.05	M	AC-3-23	20	72
73	20	AC-3-13	M	0.05	0.1	0.05	M	AC-3-23	20	74
75	20	AC-3-14	M	0.05	0.1	0.05	M	AC-3-24	20	76
77	20	AC-3-14	M	0.05	0.1	0.05	M	AC-3-24	20	78
79	20	AC-3-15	M	0.05	0.1	0.05	M	AC-3-25	20	80
81	20	AC-3-15	M	0.05	0.1	0.05	M	AC-3-25	20	82
83	15	EF-1	M	0.5		1	M	EF-2	15	84
TOTAL LOAD (KVA)				1	1	1.6				

PANEL: PP-3 (SEC 3)		Sections:								
208Y/120	VOLTS,	4	PHASE,							
MAIN CB	125A	MLO	BUS							
125A	MIN,	INTERRUPTING RATING	22 KAIC							
CKT NO.	TRIP AMPS	DESCRIPTION OF LOAD	LOAD TYPE	LOAD (KVA)	PER PHASE (KVA)	LOAD (KVA)	LOAD TYPE	DESCRIPTION OF LOAD	TRIP AMPS	CKT NO.
85	20	AC-3-26	M	0.35	1.25	0.9	M	SAF-1	20	86
87	20	AC-3-26	M	0.35	1.25	0.9	M	SAF-1	20	88
89	20	AC-3-27	M	0.05		0.55	M	SAF-2	20	90
91	20	AC-3-27	M	0.05	0.55	0.5	M	SAF-2	20	92
93	20	AC-3-28	M	0.05	0.95	0.9	M	SAF-3	20	94
95	20	AC-3-28	M	0.05	0.95	0.9	M	SAF-3	20	96
97	20	HWHT-1	M	2.25	2.75	0.5	M	EF-3	15	98
99	20	HWHT-1	M	2.25	2.75	0.5	M	EF-4	15	100
101	20	CP-3 (UPS)	E	2.4		2.9	M	EF-5	15	102
103	20	CP-3 (UPS)	E	2.4	3.2	0.8	M	EXF-1	15	104
105	20	SPARE		0				SPARE	20	106
107	20	SPARE		0				SPARE	20	108
109	20	SPARE		0				SPARE	20	110
111	20	SPARE		0				SPARE	20	112
113	20	SPARE		0				SPARE	20	114
115	20	SPARE		0				SPARE	20	116
117	20	SPARE		0				SPARE	20	118
119	20	SPARE		0				SPARE	20	120
121	20	SPARE		0				SPARE	20	122
123										

PLUMBING GENERAL NOTES

- A. ALL EQUIPMENT AND MATERIALS ARE NEW UNLESS SPECIFICALLY INDICATED AS "EXISTING".
- B. ALL PLUMBING WORK SHALL BE DONE IN A NEAT, WORKMANLIKE MANNER AND SHALL CONFORM TO ALL LATEST STATE, LOCAL AND NATIONAL CODES WHICH APPLY TO WORK SHOWN. THE PLUMBING CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS, FEES, ETC., WHICH PERTAIN TO PLUMBING.
- C. COORDINATE ALL PLUMBING WORK WITH MECHANICAL, ELECTRICAL, STRUCTURAL AND ARCHITECTURAL DRAWINGS, IF ANY CONFLICTS EXIST BETWEEN THE ABOVE ITEMS AND THE WORK SHOWN. ENGINEER AND ARCHITECT SHALL BE NOTIFIED BEFORE WORK CONTINUES.
- D. ALL CUTTING AND PATCHING REQUIRED FOR PLUMBING WORK IN THE BUILDING STRUCTURE SHALL BE DONE BY PLUMBING TRADE.
- E. GUARANTEE: PLUMBING CONTRACTOR SHALL GUARANTEE ALL EQUIPMENT AND PIPING TO BE FREE FROM ANY DEFECTS FOR A PERIOD OF ONE YEAR FROM DATE OF ACCEPTANCE BY THE OWNER. ALL DEFECTS SHALL BE REPAIRED DURING THIS PERIOD AT NO ADDITIONAL COST TO THE OWNER.
- F. WORKMANSHIP: ONLY THE BEST OF WORKMANSHIP IN ACCORDANCE WITH PRESENT STANDARDS WILL BE ACCEPTABLE. ANY WORK INSTALLED AND ADJUDGED BY THE ENGINEER TO BE BELOW STANDARDS SHALL BE REMOVED AND REPLACED AT THE CONTRACTOR'S EXPENSE.
- G. THESE DRAWINGS ARE DIAGRAMS ONLY, EXACT LOCATIONS OF ALL PIPING, EQUIPMENT, FIXTURES, ETC., MUST BE FIELD VERIFIED AND SHALL BE INSTALLED TO AVOID OBSTRUCTIONS.
- H. CLEANOUTS SHALL BE INSTALLED, AS SHOWN AND AS REQUIRED BY LOCAL CODE, AND AT THE FOOT OF EACH SOIL OR WASTELINE AT CHANGE OF DIRECTION IN LINES CLEANOUT; SHALL BE FULL SIZE AS PIPE
- I. ALL FIXTURES SHALL BE NEW AND OF FIRST QUALITY, FREE OF CRACKS, BLEMISHES, OR OTHER IMPERFECTIONS. SEE FIXTURE SCHEDULE FOR MAKE AND TYPE TO BE INSTALLED.
- J. THE CONTRACTOR SHALL FURNISH AND INSTALL A PLUMBING SYSTEM COMPLETE WITH ALL EQUIPMENT, PIPING, INSULATION, CONTROLS, ACCESSORIES AND ASSOCIATED WORK IN ACCORDANCE WITH THE NEW YORK CITY ELECTRICAL AND BUILDING CODES AND WITH ALL AUTHORITIES HAVING JURISDICTION, AND THESE SPECIFICATIONS. THE WORK SHALL INCLUDE ALL LABOR, MATERIALS, EQUIPMENT, HOISTING AND RIGGING, SCAFFOLDING, AND SERVICES TO COMPLETE THE SYSTEM AND PROVIDE THE OWNER WITH A FULLY OPERATIONAL SYSTEM.
- K. CUTTING AND DRILLING:
 - 1. PROVIDE SLEEVES FOR ALL PIPES PENETRATING THROUGH WALLS, CEILINGS, FLOORS, ROOFS, AND FOUNDATIONS. SLEEVES ARE NOT REQUIRED FOR CORE DRILLED HOLES.
 - 2. PROPERLY CLOSE, FIRESTOP AND PATCH HOLES AND OPENINGS IN: FLOORS, WALLS, ROOFS AND CEILING SURFACES RESULTING FROM THE WORK. MATCH ADJACENT UNDISTURBED SURFACES.
- L. PENETRATIONS:
 - 1. PROVIDE SLEEVES FOR PIPES PASSING THROUGH CONCRETE AND MASONRY WALLS, GYPSUM-BOARD PARTITIONS, CONCRETE FLOORS AND ROOF SLABS, FOUNDATIONS AND WHERE INDICATED. CUT SLEEVES TO LENGTH FOR MOUNTING FLUSH WITH BOTH SURFACES EXCEPT AS FOLLOWS: EXTEND SLEEVES INSTALLED IN FLOORS OF MECHANICAL EQUIPMENT AREAS OR OTHER WET AREAS 2 INCHES ABOVE FINISHED FLOOR LEVEL. EXTEND CAST-IRON SLEEVE FITTINGS BELOW FLOOR SLAB AS REQUIRED TO SECURE CLAMPING RING WHERE SPECIFIED. BUILD SLEEVES INTO NEW AND EXISTING SURFACES AS THE WORK PROGRESSES. INSTALL LARGE ENOUGH SLEEVES TO PROVIDE 1/4-INCH ANNUAL CLEAR SPACE BETWEEN SLEEVE AND PIPE, CONDUIT, OR PIPE INSULATION. USE THE FOLLOWING SLEEVE MATERIALS:
 - a. STEEL PIPE SLEEVES: FOR PIPES AND TUBING SMALLER THAN 6 INCHES.
 - b. STEEL SHEET-METAL SLEEVES: FOR PIPES AND TUBING 6 INCHES AND LARGER THAT PENETRATE GYPSUM-BOARD PARTITIONS.
 - c. CAST-IRON SLEEVE FITTINGS: FOR FLOORS HAVING MEMBRANE WATERPROOFING. SECURE FLASHING BETWEEN CLAMPING FLANGES. INSTALL SECTION OF CAST-IRON SOIL PIPE TO EXTEND SLEEVE TO 2 INCHES ABOVE FINISHED FLOOR LEVEL. SEAL SPACE OUTSIDE OF SLEEVE FITTINGS WITH NONSHRINK, NONMETALLIC GROUT.
 - d. SEAL ANNUAL SPACE BETWEEN SLEEVE AND PIPES, OR PIPE INSULATION, USING ELASTOMERIC JOINT SEALANTS.
 - e. BELOW GRADE, EXTERIOR WALL, PIPE PENETRATIONS: INSTALL CAST-IRON WALL PIPES FOR SLEEVES. SEAL PIPE PENETRATIONS USING MECHANICAL SLEEVE SEALS. SIZE SLEEVE FOR 1-INCH ANNUAL CLEAR SPACE BETWEEN PIPE AND SLEEVE FOR INSTALLATION OF MECHANICAL SEALS.
 - f. FIRE BARRIER PENETRATIONS: MAINTAIN INDICATED FIRE RATING OF NEW AND EXISTING WALLS, PARTITIONS, CEILINGS, ROOFS AND FLOORS AT ALL PIPE AND CONDUIT PENETRATIONS. SEAL ALL PENETRATIONS WITH FIRESTOPPING SEALANT MATERIAL.
- M. THE CONTRACTOR SHALL PERFORM ALL CONTROLLED INSPECTIONS IN ACCORDANCE WITH GOVERNING AUTHORITIES, SECURE ALL REQUIRED PERMITS AND APPROVALS AND TRANSMIT SAME TO THE OWNER. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL FEES.
- N. FURNISH ACCESS DOORS, TO BE INSTALLED BY GENERAL CONSTRUCTION TRADE WHICH WILL BE REQUIRED FOR PROPER OPERATION AND MAINTENANCE OF ALL CONCEALED PLUMBING EQUIPMENT, TRAPS, AIR VENTS, VALVES AND OTHER SIMILAR DEVICES. PREPARE A LIST AND SUBMIT TO THE GENERAL CONTRACTOR FOR HIS INSTALLATION. COORDINATE LOCATIONS WITH THE ARCHITECT. PROVIDE 2" INSULATION FOR ALL HORIZONTAL STORM DRAINAGE PIPING AND FOR PIPING CONNECTION BETWEEN ROOF DRAIN AND STORM LEADER.
- O. THE FOLLOWING PIPING IS NOT SHOWN ON FLOOR PLANS FOR CLARITY:
 - CW & HW CONNECTIONS FROM RISERS TO FIXTURES, INCLUDING VALVES.
 - VENT LINES, ABOVE AND BELOW FLOORS.
- P. PLAN INSTALLATION OF NEW WORK AND CONNECTIONS TO EXISTING WORK SO AS TO INSURE MINIMUM INTERFERENCE WITH REGULAR OPERATION OF EXISTING FACILITIES. ALL SYSTEM SHUTDOWNS AFFECTING OTHER AREAS SHALL BE COORDINATED WITH BUILDING OWNER. PROVIDE TEMPORARY PIPE CAPS AND/OR CONNECTIONS TO MINIMIZE SHUTDOWN TIME.
- Q. CONNECT NEW WORK TO EXISTING WORK IN NEAT AND APPROVED MANNER. RESTORE EXISTING WORK DISTURBED WHILE INSTALLING NEW WORK TO ACCEPTABLE CONDITION AS DETERMINED BY ENGINEER.
- R. DISCONNECT, REMOVE AND/OR RELOCATE EXISTING MATERIAL, EQUIPMENT AND OTHER WORK AS NOTED OR REQUIRED FOR PROPER INSTALLATION OF NEW SYSTEM.
- S. THE CONTRACTOR SHALL KEEP ALL EQUIPMENT AND MATERIALS, AND ALL PARTS OF THE BUILDING, EXTERIOR SPACE AND ADJACENT STREETS, SIDEWALKS AND PAVEMENTS, FREE FROM MATERIAL AND DEBRIS RESULTING FROM THE EXECUTION OF THIS WORK. EXCESS MATERIALS WILL NOT BE PERMITTED TO ACCUMULATE EITHER IN THE INTERIOR OR THE EXTERIOR.
- T. UNLESS OTHERWISE EXPRESSLY SPECIFIED, INCLUDE ALL CUTTING AND PATCHING OF EXISTING FLOORS, WALLS, PARTITIONS AND OTHER MATERIALS IN THE EXISTING BUILDING. THE CONTRACTOR SHALL RESTORE THESE AREAS TO ORIGINAL CONDITION.
- U. THE FINAL ACCEPTANCE WILL BE MADE AFTER THE CONTRACTOR HAS ADJUSTED HIS EQUIPMENT, BALANCED THE VARIOUS SYSTEMS, DEMONSTRATED THAT IT FULFILLS THE REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS AND HAS FURNISHED ALL THE REQUIRED CERTIFICATES OF INSPECTION AND APPROVAL AS REQUIRED BY THE STATE AND LOCAL BUILDING AUTHORITY AND/OR CONTROLLED INSPECTIONS (IF ANY).
- V. SUBMITTAL OF A PROPOSAL SHALL BE CONSIDERED AS EVIDENCE THAT A CAREFUL EXAMINATION OF THE PORTIONS OF THE EXISTING BUILDING, EQUIPMENT, ETC., WHICH AFFECT THIS WORK, AND THE ACCESS TO SUCH SPACES, HAS BEEN MADE AND THAT THE CONTRACTOR IS FAMILIAR WITH EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT THE EXECUTION OF THE WORK. LATER CLAIMS SHALL NOT BE MADE FOR LABOR, EQUIPMENT OR MATERIALS REQUIRED BECAUSE OF DIFFICULTIES ENCOUNTERED WHICH COULD HAVE BEEN FORESEEN DURING SUCH AN EXAMINATION. THE ON-SITE INSPECTION SHALL VERIFY EXISTING PIPING, DUCTWORK (SIZES, CLEARANCES, ETC.) AND OTHER EXISTING CONDITIONS.

BUILDING DEPARTMENT PLUMBING NOTES

- THE PLUMBING SYSTEM (SANITARY, WASTE, VENT, WATER DISTRIBUTION) AND ALL ASSOCIATED EQUIPMENT WILL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE FULL REQUIREMENTS OF THE NEW YORK CITY PLUMBING CODE.
1. THE SANITARY SYSTEM SHALL BE PROVIDED IN FULL ACCORDANCE WITH THE GENERAL PROVISIONS OF CHAPTER 7.
 2. THE MATERIALS USED IN THE PLUMBING SYSTEMS WILL BE PROVIDED IN FULL ACCORDANCE WITH SECTION PC 303.
 3. THE INSTALLATION OF FIXTURES WILL BE IN FULL ACCORDANCE WITH SECTION PC 405.
 4. TRAPS FOR FIXTURES AND DRAIN LINES WILL BE PROVIDED AND CLEANOUTS INSTALLED WITH COMPLIANCE WITH SECTION PC 708.
 5. VERTICAL AND HORIZONTAL PIPING WILL BE HUNG AND SUPPORTED AS DIRECTED IN SPECIFICATIONS AND WITH THE FULL COMPLIANCE WITH SECTION PC 308.
 6. THE WATER SUPPLY SYSTEM OF THE SUBJECT BUILDING SHALL BE INSTALLED AND MAINTAINED IN FULL COMPLIANCE WITH CHAPTER 6.
 7. THE SANITARY DRAINAGE SYSTEM WILL BE SIZED AND INSTALLED IN FULL COMPLIANCE WITH CHAPTER 7.
 8. THE VENT PIPING FOR THE SANITARY DRAINAGE SYSTEM OF THE SUBJECT BUILDING WILL BE INSTALLED IN FULL COMPLIANCE WITH CHAPTER 9.
 9. ALL TRENCHING SHALL BE DONE IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION PC306.
 10. RAT PROOFING SHALL BE DONE IN ACCORDANCE WITH SECTION PC 304.
 12. TEMPORARY TOILET FACILITIES SHALL BE PROVIDED FOR WORKMEN AS PER SECTION PC 301.

PLUMBING ENERGY CONSERVATION NOTES

1. ALL DOMESTIC WATER PIPING ABOVE GRADE SHALL BE INSULATED WITH FIRE-RETARDANT, FACTORY-APPLIED JACKET. PROVIDE COLD WATER PIPING WITH FACTORY-APPLIED VAPOR BARRIER. INSULATION REQUIREMENT SHOULD COMPLY WITH NYC ENERGY CONSERVATION CODE 2016 SECTION C403.2.10 REFER BELOW TABLE.

MINIMUM PIPE INSULATION THICKNESS				
FLUID OPERATING TEMPERATURE RANGE AND USAGE (°F)	INSULATION CONDUCTIVITY CONDUCTIVITY BTU IN./(H·FT ² ·°F)	NOMINAL PIPE OR TUBE SIZE (INCHES)	MEAN RATING TEMPERATURE, °F	
			<1	>1
105-140	0.21-0.28	100	1.0	1.0 1.5 1.5 1.5
40-60	0.21-0.27	75	0.5	0.5 1.0 1.0 1.0

2. WATER DISTRIBUTION SYSTEM AS PER NYC ENERGY CONSERVATION CODE 2016 C404.7, HAVING ONE OR MORE RECIRCULATION PUMPS THAT PUMP WATER FROM A HEATED-WATER SUPPLY PIPE BACK TO THE HEATED-WATER SOURCE THROUGH A COLD-WATER SUPPLY PIPE SHALL BE A DEMAND-RECIRCULATION WATER SYSTEM. PUMPS SHALL HAVE CONTROLS THAT COMPLY WITH BOTH OF THE FOLLOWING:
 - a. THE CONTROL SHALL START THE PUMP UPON RECEIVING A SIGNAL FROM THE ACTION OF A USER OF A FIXTURE OR APPLIANCE, SENSING THE PRESENCE OF A USER OF A FIXTURE OR SENSING THE FLOW OF HOT OR TEMPERED WATER TO A FIXTURE FITTING OR APPLIANCE.
 - b. THE CONTROL SHALL LIMIT THE TEMPERATURE OF THE WATER ENTERING THE COLD-WATER PIPING TO 104°F (40°C).

3. AS PER NYC ENERGY CONSERVATION CODE 2016 C404.6.1 HEATED-WATER CIRCULATION SYSTEMS SHALL BE PROVIDED WITH A CIRCULATION PUMP. THE SYSTEM RETURN PIPE SHALL BE A DEDICATED RETURN PIPE OR A COLD WATER SUPPLY PIPE. CONTROLS FOR CIRCULATING HOT WATER SYSTEM PUMPS SHALL START THE PUMP BASED ON THE IDENTIFICATION OF A DEMAND FOR HOT WATER WITHIN THE OCCUPANCY. THE CONTROLS SHALL AUTOMATICALLY TURN OFF THE PUMP WHEN THE WATER IN THE CIRCULATION LOOP IS AT THE DESIRED TEMPERATURE AND WHEN THERE IS NO DEMAND FOR HOT WATER.

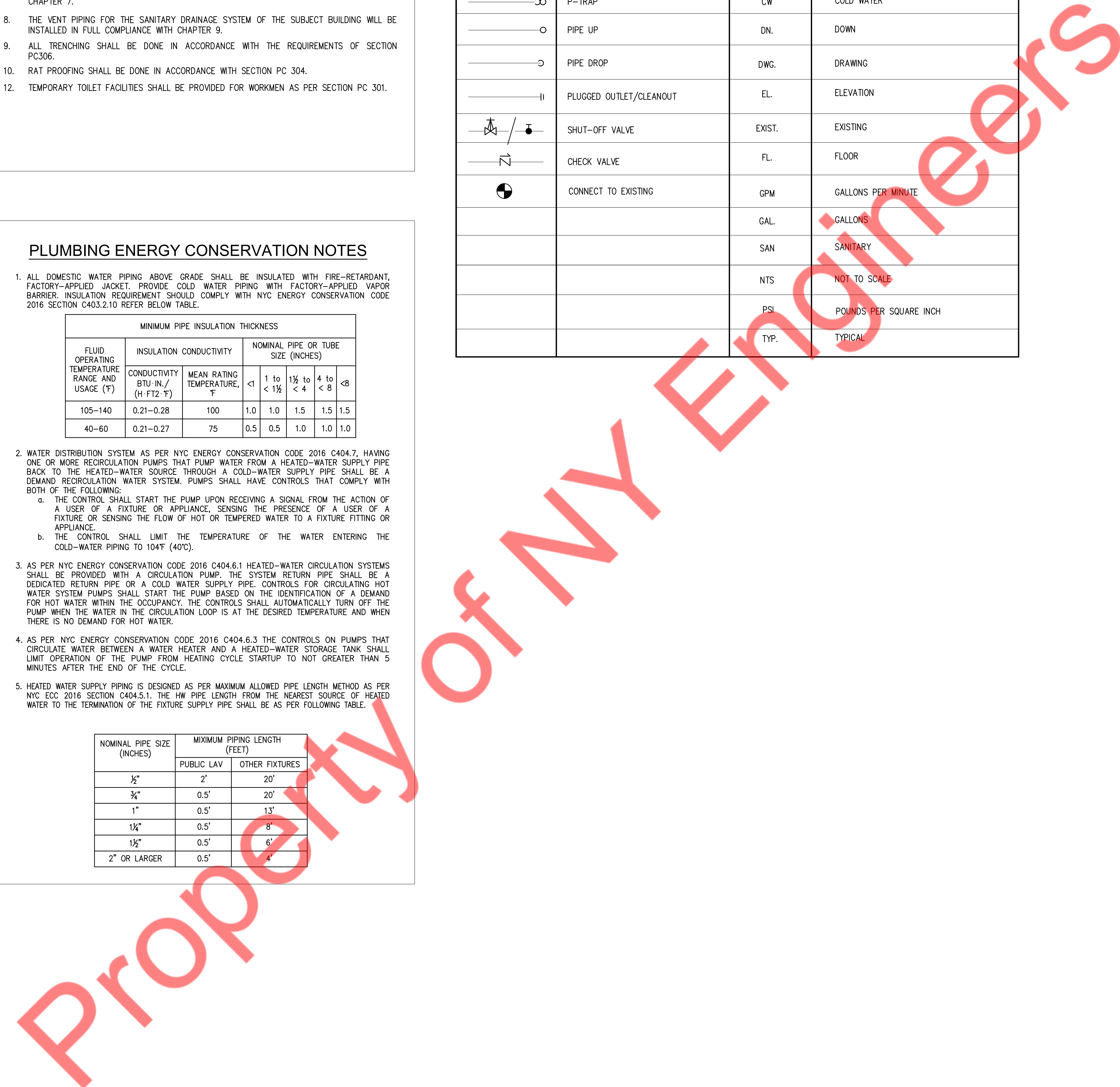
4. AS PER NYC ENERGY CONSERVATION CODE 2016 C404.6.3 THE CONTROLS ON PUMPS THAT CIRCULATE WATER BETWEEN A WATER HEATER AND A HEATED-WATER STORAGE TANK SHALL LIMIT OPERATION OF THE PUMP FROM HEATING CYCLE STARTUP TO NOT GREATER THAN 5 MINUTES AFTER THE END OF THE CYCLE.

5. HEATED WATER SUPPLY PIPING IS DESIGNED AS PER MAXIMUM ALLOWED PIPE LENGTH METHOD AS PER NYC ECC 2016 SECTION C404.5.1. THE HW PIPE LENGTH FROM THE NEAREST SOURCE OF HEATED WATER TO THE TERMINATION OF THE FIXTURE SUPPLY PIPE SHALL BE AS PER FOLLOWING TABLE.

NOMINAL PIPE SIZE (INCHES)	MIXIMUM PIPING LENGTH (FEET)	
	PUBLIC LAV.	OTHER FIXTURES
½"	2'	20'
¾"	0.5'	20'
1"	0.5'	13'
1¼"	0.5'	8'
1½"	0.5'	6'
2" OR LARGER	0.5'	4'

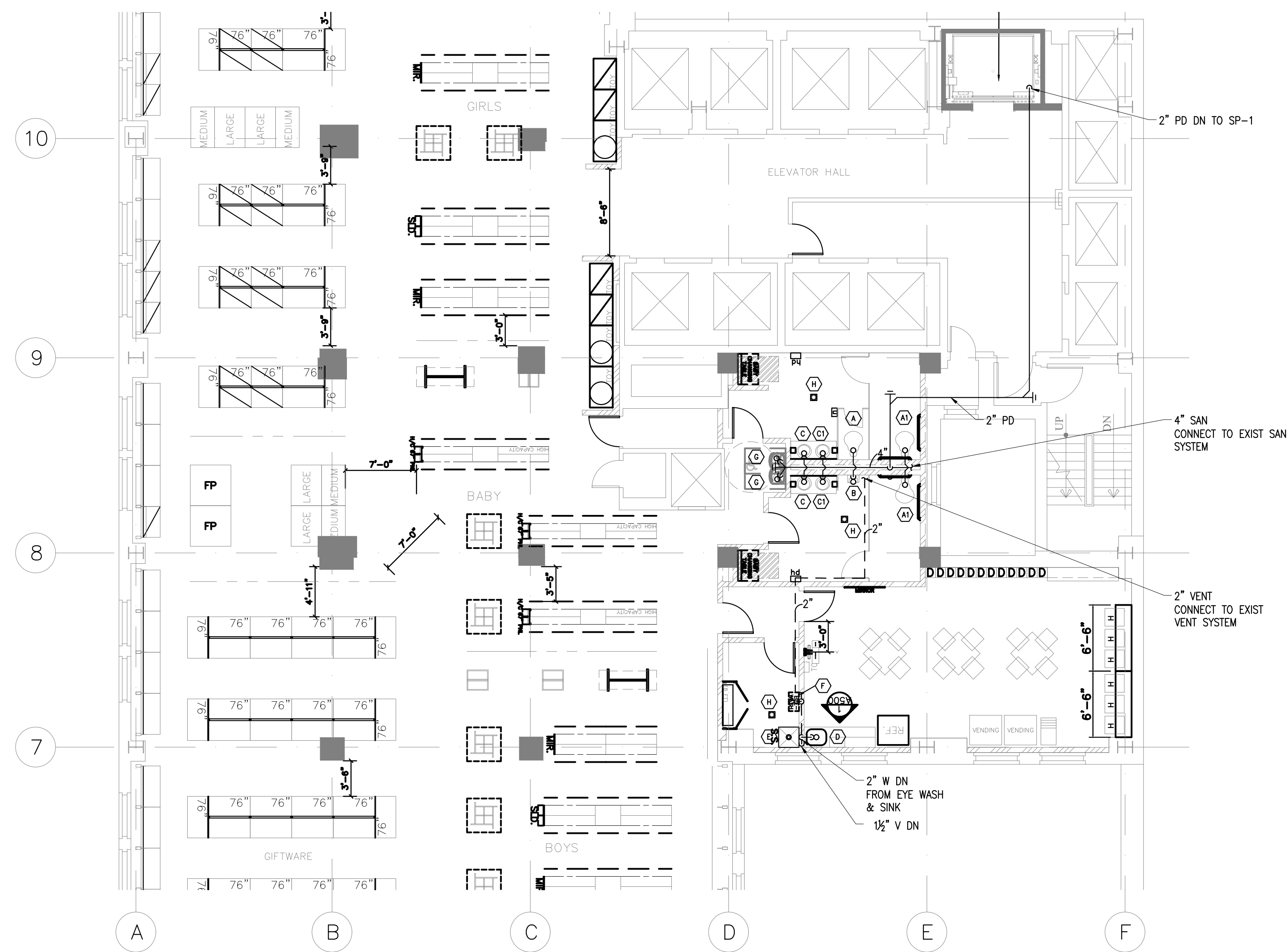
LEGENDS

SYMBOL	DESCRIPTION	ABBREVIATION	DESCRIPTION
—————	SANITARY PIPING	A.F.F.	ABOVE FINISHED FLOOR
-----	VENT PIPING	BLDG.	BUILDING
-----	COLD WATER PIPING	CFH	CUBIC FEET PER HOUR
-----	HOT WATER PIPING	CONN.	CONNECT
-----	HOT WATER RETURN PIPING	CONT.	CONTINUATION
-----	EXIST. VENT PIPING	HW	HOT WATER
-----	EXIST. SANITARY PIPING	CV	CHECK VALVE
—∞—	P-TRAP	CW	COLD WATER
—○—	PIPE UP	DN.	DOWN
—∩—	PIPE DROP	DWG.	DRAWING
— —	PLUGGED OUTLET/CLEANOUT	EL.	ELEVATION
⊥ / ⊥	SHUT-OFF VALVE	EXIST.	EXISTING
⊥	CHECK VALVE	FL.	FLOOR
⊕	CONNECT TO EXISTING	GPM	GALLONS PER MINUTE
		GAL.	GALLONS
		SAN	SANITARY
		NTS	NOT TO SCALE
		PSI	POUNDS PER SQUARE INCH
		TYP.	TYPICAL

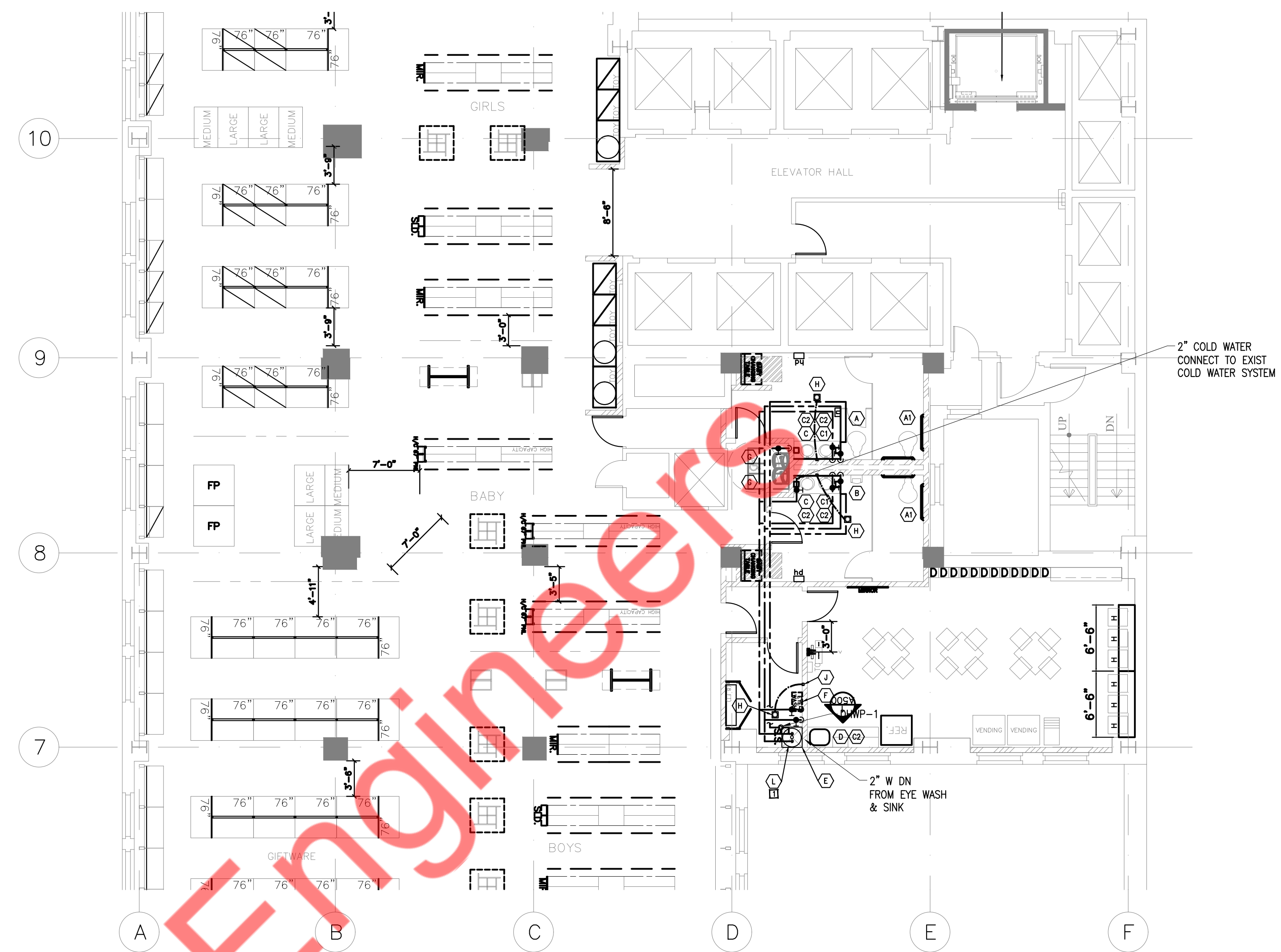


DRAWING DESCRIPTION:
PLUMBING NOTES AND LEGENDS

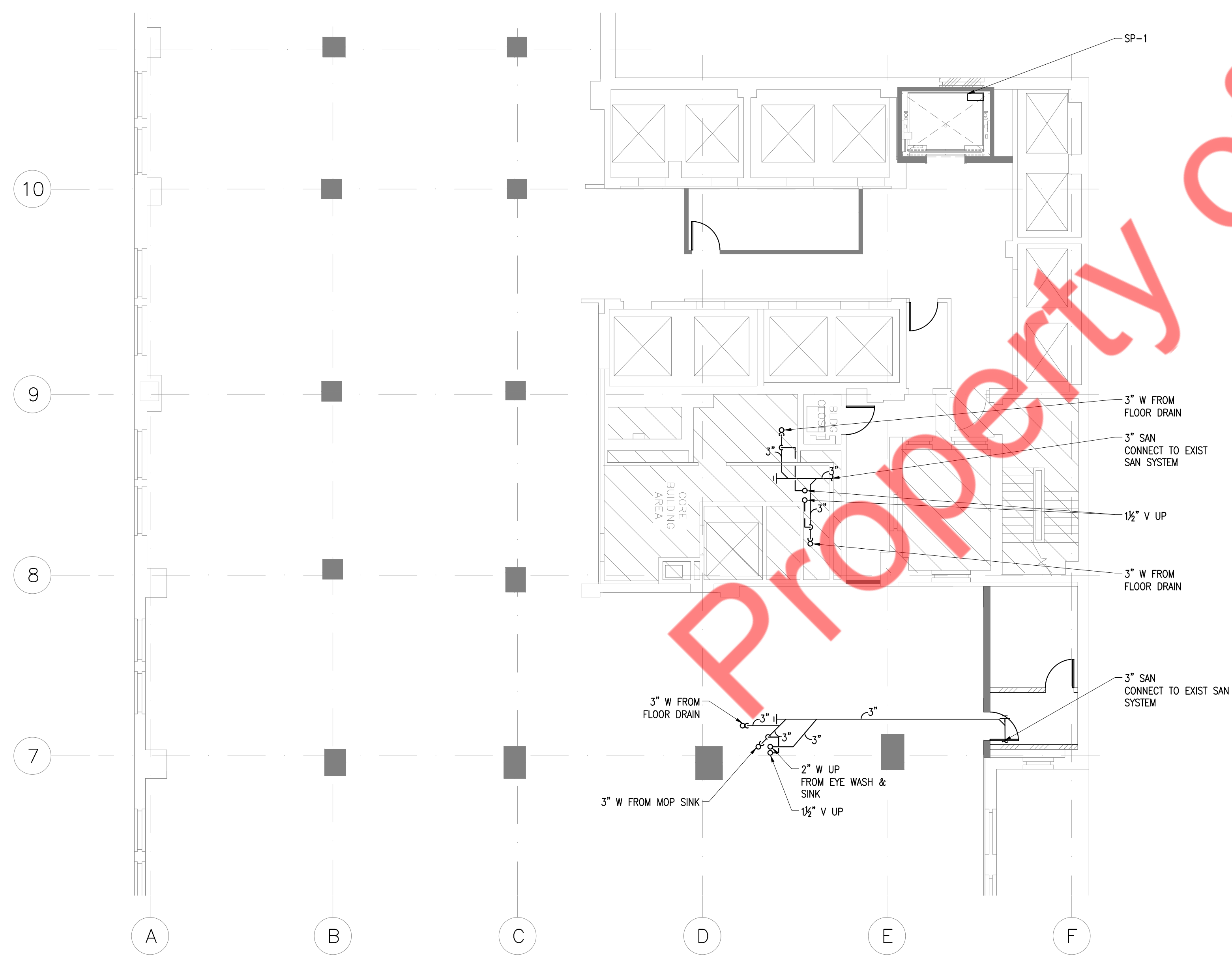
PROFESSIONAL SEAL
 USC PROJECT NO: 17088
 P-001.00
 BSCAN



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



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



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

PLUMBING PLAN NOTES

- Water heater to be installed above mop sink.

FIXTURE BRANCH SCHEDULE

FIXTURE	COLD WATER	HOT WATER	WASTE	VENT
WATER CLOSET (FLUSH VALVE)	1-1/4"	--	4"	2"
URINAL (FLUSH VALVE)	1"	--	2"	1-1/2"
LAVATORY	1/2"	1/2"	1-1/2"	1-1/2"
SINK	1/2"	1/2"	2"	1-1/2"
EYE WASH	1/2"	1/2"	1-1/4"	1-1/4"
DRINKING FOUNTAIN/WATER COOLER	1/2"	--	1-1/4"	1-1/4"
MOP BASIN	1/2"	1/2"	3"	1-1/2"

SIZES ARE MINIMUM BRANCH SIZES TO FIXTURE

PUMP SCHEDULE

DESIGNATION	No OF PUMPS	G.P.M.	T.D.H., FT.	MODEL NO. (BASED ON)	H.P.	R.P.M.	VOLTS	PHASE CYCLE	LOCATION	REMARKS	MANUFACTURER
ELEVATOR SUMP PUMP SP-2	1	10	20	SE-40	0.4	3,600	115	1 60	CELLAR ELEVATOR PIT	MULTI-OPTION OIL MINDER SYSTEM	STANCOR

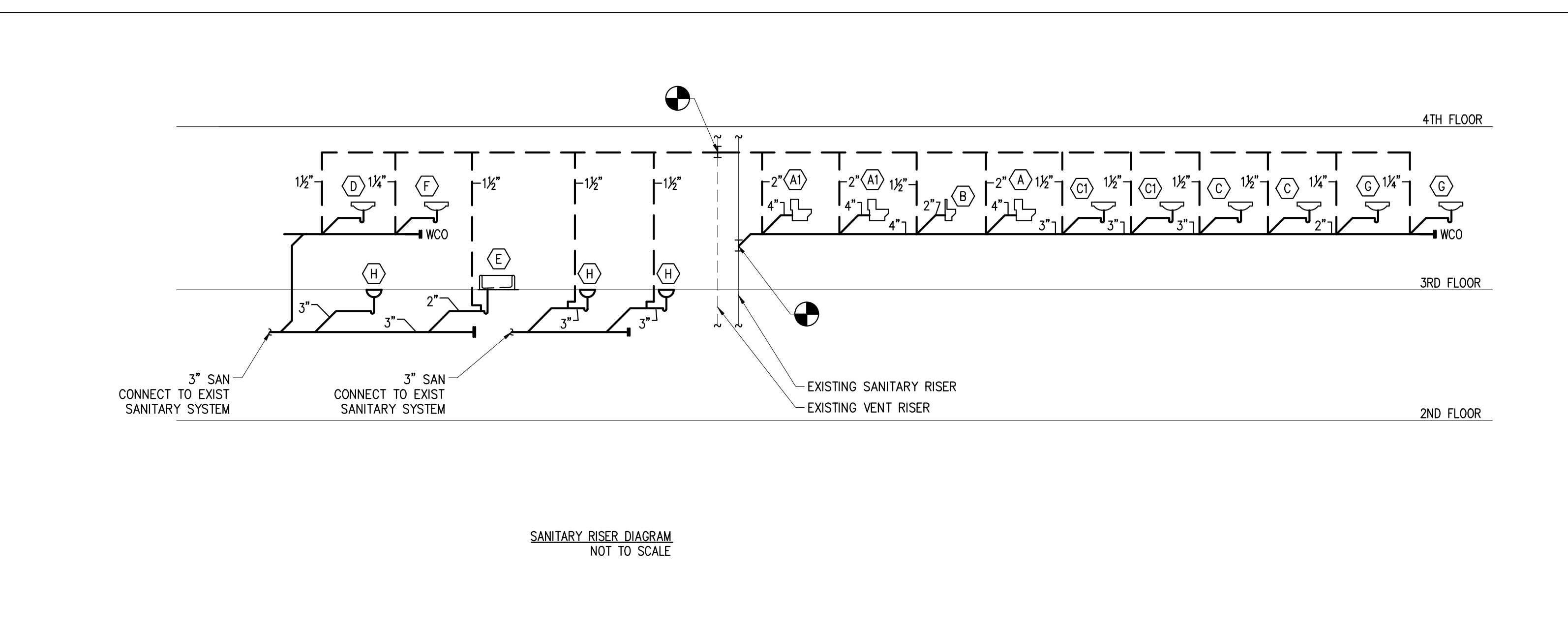
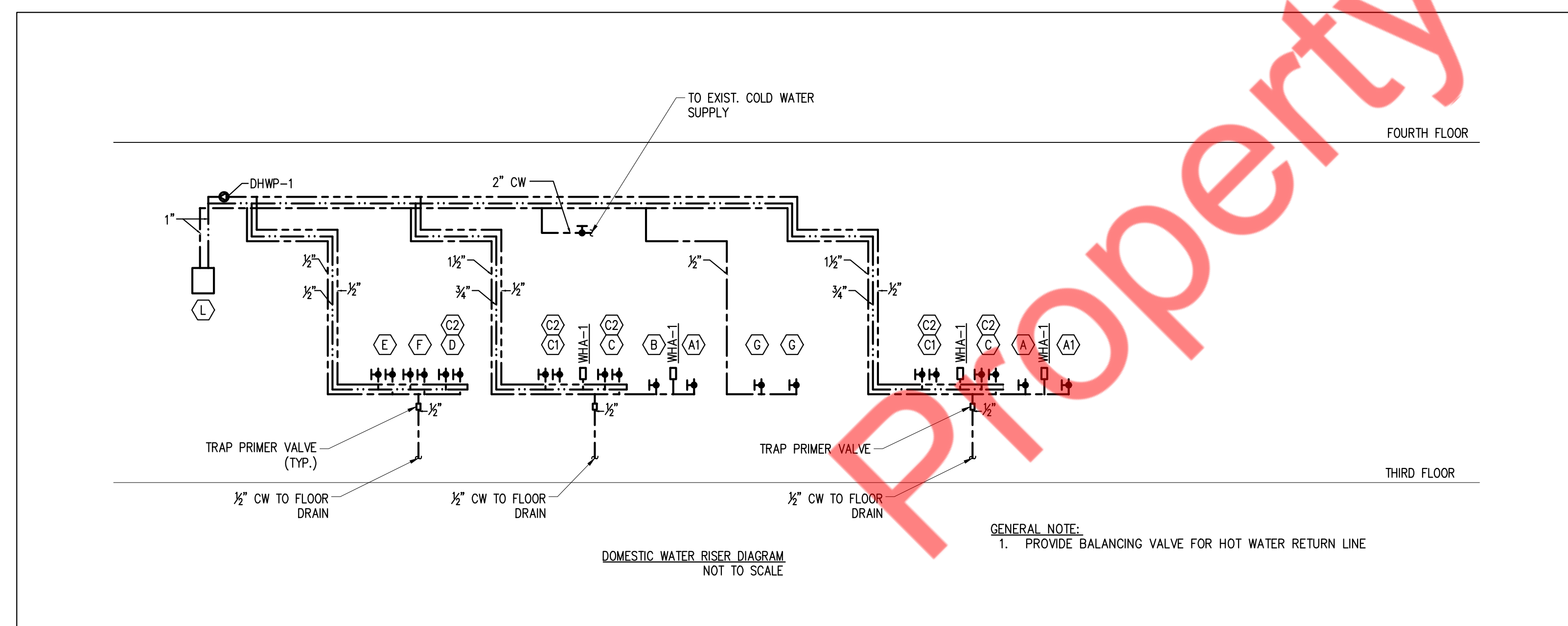
PLUMBING FIXTURE SCHEDULE

Mark	Type	Mounting	Manufacturer	Model Number	Water Usage	Description	Remarks
PROVIDE SPECIFIED FIXTURES IN THE FOLLOWING PORTION OF THE SCHEDULE. NO SUBSTITUTIONS ALLOWED.							
A	WATER CLOSET	WALL HUNG	AMERICAN STANDARD	2257.101 "AFWALL"	1.6 GPF	WHITE VITREOUS CHINA, ELONGATED SIPHON JET BOWL, 1-1/2" TOP SPUD AND RIM AT 15" AFF. SLOAN "C2" #8111-1.6/1.1 BATTERY POWERED FLUSH VALVE WITH VACUUM BREAKER, ANGLE CHECK STOP, SET SCREW AND ADAPTER. OLSONITE #855SCT OPEN FRONT SEAT LESS COVER WITH SELF-SUSTAINING CHECK HINGE.	PROVIDE WALL CARRIER AND FITTINGS AS REQUIRED FOR INSTALLATION.
A1	WATER CLOSET (ACCESSIBLE)	WALL HUNG	AMERICAN STANDARD	2257.101 "AFWALL"	1.6 GPF	WHITE VITREOUS CHINA, ELONGATED SIPHON JET BOWL, 1-1/2" TOP SPUD AND RIM AT 17" AFF. SLOAN "C2" #8111-1.6/1.1 BATTERY POWERED FLUSH VALVE WITH VACUUM BREAKER, ANGLE CHECK STOP, SET SCREW AND ADAPTER. OLSONITE #855SCT OPEN FRONT SEAT LESS COVER WITH SELF-SUSTAINING CHECK HINGE.	PROVIDE WALL CARRIER AND FITTINGS AS REQUIRED FOR INSTALLATION.
B	URINAL (ACCESSIBLE)	WALL HUNG	AMERICAN STANDARD	6590.001 "WASHBROOK"	0.5 GPF	WHITE VITREOUS CHINA, WASHOUT FLUSH, 3/4" INLET SPUD, FLUSHING RIM AND WALL HANGERS. SLOAN "ECOS" #8186-0.5 BATTERY POWERED FLUSH VALVE WITH VACUUM BREAKER AND ANGLE CHECK STOP. ROUGH-IN 15-1/4" TO RIM.	PROVIDE WALL CARRIER AND FITTINGS AS REQUIRED FOR INSTALLATION.
C	LAVATORY	SELF-RIMMING	AMERICAN STD	AQUALYN 0476.028	0.5 GPM	WHITE VITREOUS CHINA, 20"x17", FAUCET LEDGE AND FRONT OVERFLOW. PROVIDE SLOAN #BF-650 BATTERY POWERED ELECTRONIC FAUCET WITH 0.5 GPM AERATOR.	PROVIDE GRID STRAINER DRAIN WITH TAILPIECE, CHROME PLATED CAST BRASS P-TRAP WITH CLEANOUT, WASTE ARM TO WALL WITH ESCUTCHEON AND 1/4 TURN ANGLE BALL STOPS WITH METAL HANDLE.
C1	LAVATORY (ACCESSIBLE)	SELF-RIMMING	AMERICAN STD	AQUALYN 0476.028	0.5 GPM	WHITE VITREOUS CHINA, 20"x17", FAUCET LEDGE AND FRONT OVERFLOW. PROVIDE SLOAN #BF-650 BATTERY POWERED ELECTRONIC FAUCET WITH 0.5 GPM AERATOR.	PROVIDE GRID STRAINER DRAIN WITH TAILPIECE, CHROME PLATED CAST BRASS P-TRAP WITH CLEANOUT, WASTE ARM TO WALL WITH ESCUTCHEON AND 1/4 TURN ANGLE BALL STOPS WITH METAL HANDLE.
C2	MIXING VALVE	APPLICABLE NOT	SYMMONS	7-225-CK "MAXLINE"	NOT APPLICABLE	1/2" INLETS AND OUTLET, THERMOSTATIC CONTROLLER WITH INTEGRAL CHECK VALVES, ALL-BRASS BODY WITH DUAL STAINLESS STEEL STRAINER, VANDAL-RESISTANT TEMPERATURE ADJUSTMENT HANDLE.	MOUNT IN ACCESSIBLE LOCATION. SET TO 105 DEGREE F.
D	COUNTER SINK	SELF-RIMMING	ELKAY	LRAD1720-1	1.5 GPM	STAINLESS STEEL, 20"x17"x5-1/2" SINGLE COMPARTMENT SINK WITH FAUCET LEDGE AND 1 HOLE CENTERED PUNCH. KOHLER #K-15171-CP SINGLE LEVER HANDLE FAUCET AND REPLACE AERATOR WITH A 1.5 GPM AERATOR.	SET FIXTURE IN BED OF PUTTY AND PROVIDE CHROME PLATED CAST BRASS P-TRAP WITH CLEANOUT, ESCUTCHEON, 1/4 TURN ANGLE BALL STOPS WITH METAL HANDLE AND CHROME PLATED CUP STRAINER WITH TAILPIECE.
E	MOP BASIN	FLOOR	MUSTEE	63M	5.0 GPM (ESTIMATED)	ONE-PIECE MOLDED STONE, 24"x24"x8-1/2", WITH STAINLESS STEEL DRAIN AND REMOVABLE STRAINER, #63.600A SERVICE FAUCET WITH VACUUM BREAKER AND #65.700 HOSE AND HOSE BRACKET.	
F	EYE WASH	WALL	GUARDIAN	G1814-TMV	1.8 GPM	STAINLESS STEEL BOWL, 1/2" CHROME PLATED BRASS STAY OPEN BALL VALVE, POWDER COATED CAST ALUMINUM FLAG HANDLE AND WALL BRACKET, TWO POLYPROPYLENE "GS PLUS" SPRAY HEADS WITH INTEGRAL "FLIP-TOP" DUST COVERS, FILTERS, AND 1.8 GPM FLOW CONTROL. OP/RES MOUNTED ON CHROME PLATED BRASS EYEWASH ASSEMBLY, ANSI COMPLIANT SIGN, SHALL BE FULLY FACTORY ASSEMBLED AND HYDROSTATICALLY TESTED TO MEET OR EXCEED ANSI Z358.1-2009, WITH 2-YEAR WARRANTY AND 3500 THERMOSTATIC MIXING VALVE FACTORY SET TO 85 DEGREES F.	PROVIDE CHROME PLATED CAST BRASS P-TRAP WITH CLEANOUT, WASTE ARM TO WALL WITH ESCUTCHEON.
G	WATER COOLER (ACCESSIBLE)	WALL	OASIS	P8ACSL	NOT APPLICABLE	DUAL HEIGHT, FOUR PUSH PAD ACTIVATION WITH MINIMUM CAPACITY 8.0 GPH FROM 80 DEGREES F TO 50 DEGREES F WITH AMBIENT TEMPERATURE OF 90 DEGREES F UTILIZING 1/4 HP, 120 VOLT, 1 PHASE COMPRESSOR. COORDINATE WITH ARCHITECT FOR WHICH SIDE IS THE HIGH SIDE AND FINISH.	PROVIDE CHROME PLATED CAST BRASS P-TRAP WITH CLEANOUT, WASTE ARM TO WALL WITH ESCUTCHEON AND 1/4 TURN ANGLE BALL STOP WITH METAL HANDLE.
PROVIDE SPECIFIED FIXTURES OR APPROVED EQUALS IN THE FOLLOWING PORTION OF THE SCHEDULE.							
H	FLOOR DRAIN	FLOOR	JR SMITH	Z005-NB-P050	NOT APPLICABLE	WITH ROUND NICKEL BRONZE ADJUSTABLE STRAINER HEAD, CAST IRON DRAIN BODY, MEMBRANE FLASHING CLAMP AND 1/2" TRAP PRIMER CONNECTION.	PROVIDE WITH P-TRAP AND CLEAN AND POLISH STRAINER TOP AFTER INSTALLATION
J	TRAP PRIMER	NOT AVAILABLE	PRECISION PLUMBING PRODUCTS	P1-500	NOT APPLICABLE	AUTOMATIC OPERATING WITH 1/2" INLET AND OUTLET. SERVICE UP TO FOUR FLOOR DRAINS WITH DISTRIBUTION UNIT. INSTALL IN ACCESSIBLE LOCATION WITH TRAP PRIMER AS MINIMUM 6" ABOVE FLOOD LEVEL OF FLOOR DRAIN RIM	PROVIDE WITH P-TRAP AND CLEAN AND POLISH STRAINER TOP AFTER INSTALLATION
WCO	WALL CLEANOUT	WALL	JR SMITH	4402 SERIES	NOT APPLICABLE	CAST IRON BODY WITH ROUND STAINLESS STEEL COVER.	
PROVIDE SPECIFIED FIXTURES IN THE FOLLOWING PORTION OF THE SCHEDULE. NO SUBSTITUTIONS ALLOWED.							
L	WATER HEATER	NOT APPLICABLE	STATE	FC-20-10MSA "PATRIOT"	NOT APPLICABLE	20 GALLON STORAGE, 23 GPH RECOVERY AT 80 DEGREE F, 4,500 WATT HEATING INPUT WITH 208 VOLT, 1 PHASE ELECTRICAL SERVICE AND FACTORY INSTALLED T&P RELIEF VALVE.	INSTALL PER WATER HEATER DETAIL AND MANUFACTURER'S INSTRUCTIONS, AS TIGHT TO CEILING AS POSSIBLE.
M	EXPANSION TANK	NOT APPLICABLE	AMTROL	ST-5	NOT APPLICABLE	DIAPHRAGM TYPE, PRE-PRESSURIZED THERMAL EXPANSION TANK WITH A MAXIMUM WORKING PRESSURE OF 150 PSI, A MINIMUM TOTAL VOLUME OF 2.0 GALLONS AND A ACCEPT VOLUME OF 0.9 GALLONS.	
ALL PLUMBING FIXTURES SHALL BE INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTIONS.							

PLUMBING UTILITY FIXTURE SCHEDULE

DHWP-1	RECIRCULATING PUMP:	IN-LINE PUMP, 3/4" UNION CONNECTIONS, ALUMINUM AND STAINLESS STEEL CONSTRUCTION, SINGLE SPEED, 3100 RPM, 1/12 HP, 185 WATTS, 115V-1PH, 60 HZ MOTOR, 4 GPM CAPACITY WITH 17 FT. HEAD, WITH SWITCH ON WALL ADJACENT TO PUMP AND ENGRAVED PHENOLIC RESIN NAMEPLATE ATTACHED TO WALL READING: "HOT WATER RECIRCULATOR ON-OFF". PROVIDE WITH FACTORY FURNISHED TEMPERATURE AND TIMER CONTROLS.
FIXTURE:	GRUNDFOS MODEL UPS 15-55 SUC OR EQUAL BY TACO OR BELL & GOSSET.	
WHA-1	WATER HAMMER ARRESTOR:	STAINLESS STEEL CONSTRUCTION, PRE-CHARGED, PERMANENTLY SEALED. FIXTURE UNIT RATING: 12-32.
SERVICE:	PIPE SIZE: 1" P.D.I., UNIT SIZE: B.	
FIXTURE:	JAY R SMITH FIG. NO. 5010 OR EQUAL BY WATTS OR ZURN.	
TMV-1	THERMOSTATIC MIXING VALVE:	ALL BRONZE CONSTRUCTION, VIRTUAL SHUTOFF, DIAL THERMOMETER, TEMPERATURE/PRESSURE GAUGE, BALL VALVES.
SERVICE:	1" CW AND 1" HW INLETS, 1" OUTLET.	
FIXTURE:	POWERS SERIES LM490 OR EQUAL BY SYMMONS OR WATTS.	

Property of NY Engineers



BUILDING DATA												
PROJECT DESCRIPTION		BUILDING OCCUPANCY			BUILDING DESCRIPTION				PROJECT DESCRIPTION		FIRE ALARM SYSTEM FEATURES	
	NEW BUILDING	ASSEMBLY GROUP A (A1,A2,A3,A4 AND A5)	RESIDENTIAL GROUP R (R1,R2 AND R3)	26	TOTAL NUMBER OF LEVELS	ATRIUM	STAIR PRESSURIZATION	17,500	TOTAL PROJECT AREA (SF)		NON-VOICE EVACUATION	
	FIRE ALARM SYSTEM UPGRADE	BUSINESS GROUP B	STORAGE GROUP S (S1 AND S2)	26	ABOVE GROUND LEVELS	FIRST	FIRE DEPARTMENT ACCESS	THIRD	PROJECT FLOOR	X	VOICE EVACUATION	
	LIFE SAFETY SYSTEM UPGRADE	EDUCATIONAL GROUP E	UTILITY AND MISCELLANEOUS GROUP U	1	BELOW GROUND LEVELS	X	FULLY SPRINKLERED				PARTIAL/SELECTIVE EVACUATION	
	RENOVATION	FACTORY INDUSTRIAL GROUP F (F1 AND F2)	OTHER:	9	NUMBER OF ELEVATOR BANKS		PARTIALLY SPRINKLERED				GENERAL EVACUATION	
	EMERGENCY REPAIR	HIGH-HAZARD GROUP H (H1,H2,H3,H4 AND H5)		3	NUMBER OF EGRESS STAIRS		NON-SPRINKLERED				DIGITAL ALARM COMMUNICATOR	
X	TENANT ADDITION	INSTITUTIONAL GROUP I (I1,I2 AND I3)			LOW RISE BUILDING		PRE-ACTION SPRINKLER				PRE-SIGNAL SYSTEM	
	OTHER:	X MERCANTILE GROUP M		X	HIGH RISE BUILDING						FIRE FIGHTER'S TELEPHONE SYSTEM	
				360'	BUILDING HEIGHT							

FIRE ALARM SYMBOL LIST			
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
[FD]	STROBE LIGHT DEVICE, WALL MOUNTED (80" AFF)	[F]	FIRE ALARM MANUAL PULL STATION, WALL MOUNTED (48" AFF)
[FM]	WALL MOUNTED SPEAKER/STROBE COMBINATION DEVICE (80" AFF)	[TS]	TAMPER SWITCH
[S]	CEILING MOUNTED AREA SMOKE DETECTOR	[WF]	WATER FLOW SWITCH
[S _{ELV}]	CEILING MOUNTED ELEVATOR LOBBY SMOKE DETECTOR	[MM]	MONITOR MODULE
[CM]	ADDRESSABLE CONTROL MODULE	[R]	FIRE ALARM RELAY
—	SOLID THICK LINE INDICATES NEW DEVICE OR WIRING	[RAP]	REMOTE ANNUNCIATOR PANEL
—	DOTTED LINE INDICATES EXISTING DEVICE OR WIRING	[C]	CONTROLLER
[D]	DUCT SMOKE DETECTOR		

ABBREVIATIONS	
C	CONDUIT
E	EXISTING
ELV	ELEVATOR LOBBY
EMT	ELECTRIC METALLIC TUBING
ER	EXISTING TO BE RELOCATED
FA	FIRE ALARM
FCS	FIRE COMMAND STATION
FACP	FIRE ALARM CONTROL PANEL
FDS	FUSED DISCONNECT SWITCH
G	GROUND
N	NEW
NTS	NOT TO SCALE
R	REMOVE
RE	RELOCATED EXISTING
RGS	RIGID GALVANIZED STEEL
UN	UNLESS OTHERWISE NOTED
W	WIRE

TYPE OF DESIGN

INSTALLATION OF MANUAL, AUTOMATIC SMOKE DETECTION AND SPRINKLER ALARM SYSTEM USING EXISTING FACP. NO CHANGE IN USE OCCUPANCY OR EGRESS

FIRE ALARM DRAWING LIST

- FA-001.00 FIRE ALARM NOTES, BUILDING DATA, SYMBOL LIST, DRAWING LIST, ABBREVIATIONS
- FA-002.00 FIRE ALARM SYSTEM GENERAL NOTES
- FA-003.00 FIRE ALARM SPECIFICATIONS SHEET 1 OF 2
- FA-004.00 FIRE ALARM SPECIFICATIONS SHEET 2 OF 2
- FA-005.00 FIRE ALARM DETAILS
- FA-006.00 FIRE ALARM SYSTEM RISER DIAGRAM
- FA-100.00 THIRD FLOOR FIRE ALARM PLAN.

FIRE ALARM NOTES:

- ALL EQUIPMENT AND WIRING INDICATED ON THESE PLANS IS NEW (U.O.N.).
- PROVIDE WIRING AS REQUIRED BETWEEN ALL DEVICES AND EQUIPMENT AS REQUIRED TO PERFORM FIRE ALARM SYSTEM FUNCTIONS.
- WIRING FOR FIRE ALARM DEVICES IN FINISHED SPACES WITHOUT HUNG CEILING SHALL BE INSTALLED IN EMT CONDUIT.
- ALL STROBES AND HORN/STROBES SHALL BE FLUSH WALL MOUNTED FINISH BY ARCHITECT, APPROVED FOR USE IN NYC.
- ALL DUCT SMOKE DETECTORS INSTALLED IN HUNG CEILING AREA AND IN OUT OF SIGHT AREA SHALL HAVE REMOTELY INSTALLED STATUS INDICATOR LAMPS. COORDINATE EXACT LOCATION WITH ARCHITECT AND GENERAL CONTRACTOR.
- FOR WALL MOUNTED F.A. DEVICES PROVIDE 3/4" CONDUIT TERMINATED IN NEAREST ACCESSIBLE CEILING.
- WIRING FOR FIRE ALARM DEVICES IN UNFINISHED SPACES SHALL BE INSTALLED IN RGS CONDUIT UP TO 8'-0" AFF AND THEN IN EMT CONDUIT ABOVE 8'-0" AFF.
- FOR LOCATIONS AND QUANTITIES OF DEVICES REFER TO FIRE ALARM FLOOR PLANS. WHERE THERE ARE DISCREPANCIES BETWEEN THE PLANS AND THE RISER DIAGRAM, THE GREATER QUANTITY SHALL BE USED.
- CONTRACTOR SHALL VERIFY ALL WIRING WITH FIRE ALARM VENDOR AND OBTAIN WIRING DIAGRAMS BEFORE PROCEEDING WITH THE START OF ANY WORK.
- ALL WIRING SHALL BE IN ACCORDANCE WITH THE NYC ELECTRICAL CODE 760.179(D).
- PROVIDE FAN SHUT DOWN CAPABILITY FOR FANS WITH A RATING LARGER THAN 2,000 CFM. SHUT DOWN SHALL BE ACCOMPLISHED BY ONE OR MORE OUTPUT CONTROL POINTS FROM THE FIRE ALARM SYSTEM TO RELAYS FOR SHUTDOWN. PROVIDE CONTROL AND MONITORING FOR ALL RELAYS. PROVIDE POWER, CONTROL RELAYS, MONITORING AND WIRING FOR ALL FIRE/SMOKE DAMPERS.
- DUCT DETECTORS SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR ALONG WITH FURNISHING OF THE SAMPLING TUBES. DUCTWORK MODIFICATIONS AND INSTALLATION OF SAMPLING TUBES SHALL BE BY THE MECHANICAL CONTRACTOR. FOR FANS RATED LARGER THAN 2,000 CFM PROVIDE DUCT DETECTORS IN SUPPLY AND RETURN DUCTWORK.
- PROVIDE ALL REQUIRED EXPANSION PANELS, PC BOARDS, POWER SUPPLIES, BATTERIES, FUSE CUTOUPS AND BRANCH CIRCUITS, ETC. FOR A COMPLETE AND OPERATIONAL FIRE ALARM SYSTEM.
- STROBES AND HORNS SHALL BE WIRED ON ALTERNATING A-B CIRCUITING IN ALL AREAS, AS INDICATED ON THE RISER DIAGRAM.
- CONTRACTOR SHALL PERFORM ALL NYC BUILDING DEPT. FILINGS AND OBTAIN ALL APPROVALS. CONTRACTOR SHALL OBTAIN ALL REQUIRED SIGNED & SEALED NYC BUILDING DEPT. FORMS AND ALL REQUIRED SETS OF DRAWINGS FROM ENGINEER OF RECORD AND BUILDING DEPT. EXPEDITOR.
- UPON COMPLETION OF INSTALLATION THE SYSTEM SHALL BE 100% PRE-TESTED BY THE FIRE ALARM VENDOR AND THE LICENSED ELECTRICAL CONTRACTOR PRIOR TO FDNY INSPECTION.
- CONTRACTOR SHALL SUBMIT TO THE ENGINEER A MARKUP OF FA DRAWINGS INDICATING "AS-BUILT" CONDITIONS FOR ENGINEER'S REFERENCE. IN PREPARING "AS-BUILT" DRAWINGS FOR FILING, CONTRACTOR SHALL SIGN "AS-BUILT" STATING A FUNCTIONAL TEST HAS BEEN CONDUCTED OF THE FIRE ALARM SYSTEM AND THE SYSTEM OPERATES AS DESIGNED AND IN ACCORDANCE WITH THE INPUT/OUTPUT PROGRAMMING MATRIX IN ACCORDANCE WITH 3 RCNY & 105-01.

MATRIX

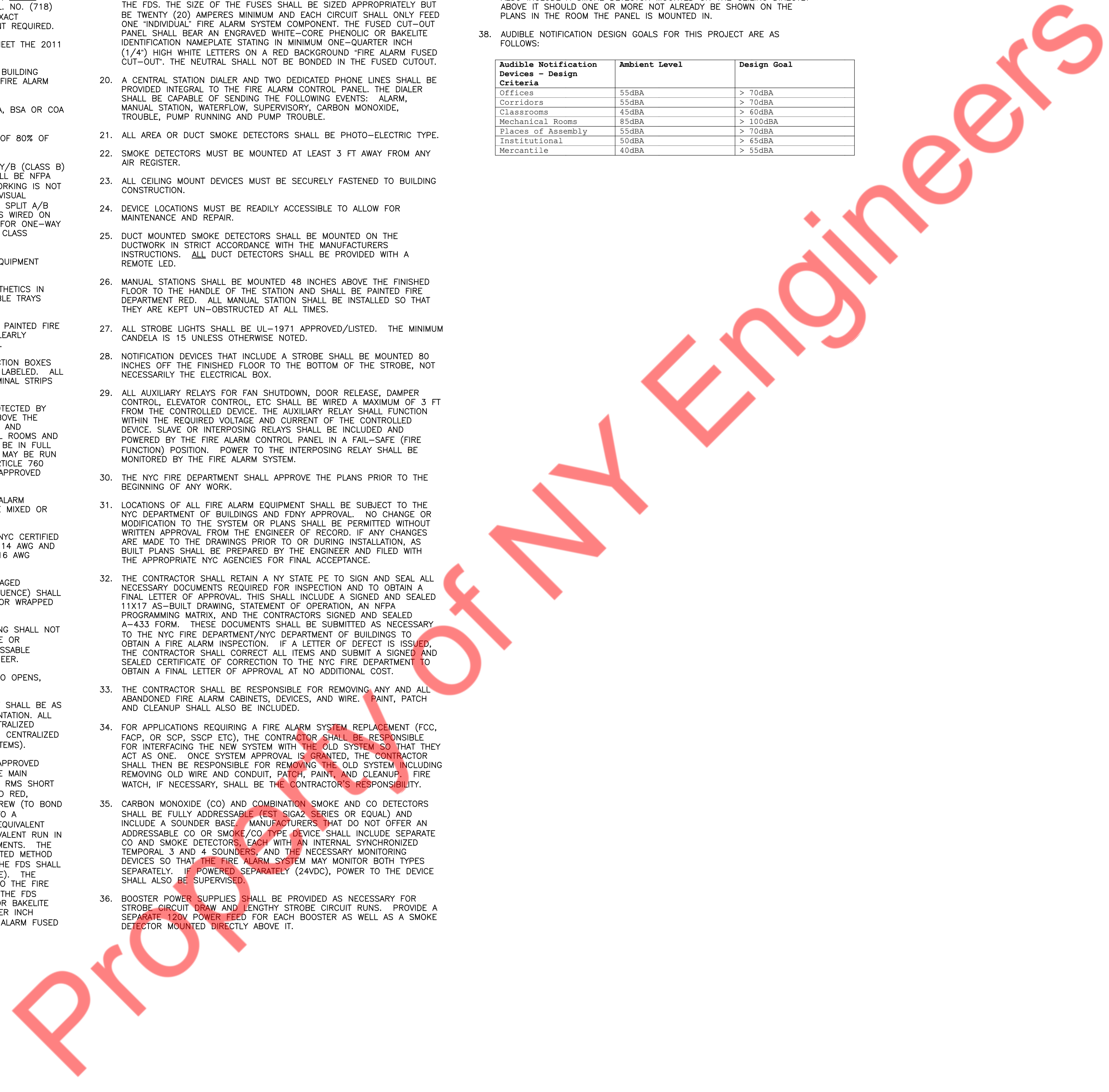
SYSTEM INPUTS INITIATING DEVICES	SYSTEM OUTPUTS INDICATING/CONTROLLED DEVICES															
	CONTROL UNIT ANNUNCIATION						NOTIFICATION									
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1 MANUAL PULL STATION	●			●	●	●	●									1
2 WATERFLOW SWITCH	●			●	●	●			●			●	●	●		2
3 DUCT SMOKE DETECTOR	●			●	●	●		●				●	●	●		3
4 AREA SMOKE DETECTOR	●			●	●	●		●				●	●		●	4
5 ELEVATOR MACHINE ROOM SMOKE DETECTOR	●	●		●	●	●		●				●	●	●		5
6 ELEVATOR LOBBY DETECTOR(S)/TOP OF ELEVATOR SHAFT DETECTORS	●	●		●	●	●		●				●	●	●		6
7 SPRINKLER CONTROL VALVE/TAMPER SWITCH		●		●	●	●				●						7
8 FIRE ALARM AC POWER FAILURE			●	●	●	●					●					8
9 FIRE ALARM SYSTEM LOW BATTERY			●	●	●	●					●					9
10 OPEN CIRCUIT			●	●	●	●					●					10
11 GROUND CIRCUIT			●	●	●	●					●					11
12 NOTIFICATION APPLIANCE CIRCUIT SHORT			●	●	●	●					●					12

FIRE ALARM NOTES :

1. ALL EQUIPMENT AND WIRING SHOWN ON THE ABOVE RISER DIAGRAM IS NEW (U.O.N.) AND IS BASED ON THE GAMEWELL FIRE CONTROL INSTRUMENTS. THE ELECTRICAL CONTRACTOR SHALL CONTACT, GLENN WALTER OF STANLEY CONVERGENT SECURITY SOLUTIONS, TEL. NO. (718) 269-7415 AND/OR GLENN.WALTER@SBINDING.COM FOR THE EXACT SPECIFICATIONS OF ALL FIRE ALARM DEVICES AND EQUIPMENT REQUIRED.
2. ALL WIRING, POWER, CONDUCTORS, CONDUITS ETC. SHALL MEET THE 2011 NYC ELECTRICAL CODE.
3. ALL WORK SHALL BE IN ACCORDANCE WITH THE 2014 NYC BUILDING CODE AND IN ACCORDANCE WITH APPENDIX Q AND K, NYC FIRE ALARM RULES, AND 2010 NFPA 72 AS AMENDED BY APPENDIX Q.
4. ALL FIRE ALARM EQUIPMENT SHALL BE NYC APPROVED (MEA, BSA OR COA APPROVED).
5. ALL FIRE ALARM CIRCUITS SHALL BE SIZED TO A MAXIMUM OF 80% OF CAPACITY.
6. ALL FIRE ALARM CIRCUITS SHALL BE WIRED NFPA STYLE 4/Y/B (CLASS B) WITH THE EXCEPTION OF THE NETWORK CIRCUIT WHICH SHALL BE NFPA STYLE 7 (CLASS A WITH ISOLATION). DUAL CLASS B NETWORKING IS NOT STYLE 7 AND WILL NOT BE APPROVED. ALL AUDIBLE AND VISUAL CIRCUITS SHALL BE STYLE Y/CLASS B AND NYC SPLIT A/B. SPLIT A/B CIRCUITS SHALL BE WIRED SO THAT EVERY OTHER DEVICE IS WIRED ON AN ALTERNATE CIRCUIT. ALL FIRE ALARM SPEAKER WIRING FOR ONE-WAY VOICE IN R2 APARTMENT BUILDINGS SHALL BE WIRED NFPA CLASS A/STYLE Z.
7. CONDUITS MAY NOT ENTER THE TOP OF ANY FIRE ALARM EQUIPMENT CABINET.
8. ALL FIRE ALARM EQUIPMENT SHALL BE INSTALLED WITH AESTHETICS IN MIND. CABINETS SHALL BE SEMI FLUSH MOUNTED AND CABLE TRAYS SHALL BE HIDDEN.
9. ALL FIRE ALARM CABINETS AND JUNCTION BOXES SHALL BE PAINTED FIRE DEPARTMENT RED. ALL FIRE ALARM CABINETS SHALL BE CLEARLY LABELED WITH A NYC APPROVED LAMINATE ENGRAVED LABEL.
10. ALL FIRE ALARM WIRE SHALL BE CLEARLY LABELED IN JUNCTION BOXES AND CABINETS. ALL TERMINALS SHALL BE NUMBERED AND LABELED. ALL CONNECTIONS SHALL BE EITHER SOLDERED, APPROVED TERMINAL STRIPS OR SCOTCH LOCKS.
11. ALL LOW VOLTAGE FIRE ALARM CONDUCTORS SHALL BE PROTECTED BY EITHER BUILDING CONSTRUCTION OR CONDUIT TO 8 FEET ABOVE THE FINISHED FLOOR. LOADING DOCKS, GARAGES, SUPPRESSION AND EXTINGUISHING SYSTEM WIRING, MECHANICAL AND ELECTRICAL ROOMS AND OTHER LOCATIONS SUBJECT TO MECHANICAL DAMAGE SHALL BE IN FULL RIGID CONDUIT. IN ALL OTHER AREAS, NYC APPROVED WIRE MAY BE RUN WITHOUT CONDUIT ABOVE 8 FT. PROVIDED IT MEETS NYC ARTICLE 760 AND CONNECTS TO BUILDING CONSTRUCTION USING A NYC APPROVED MEANS.
12. FIRE ALARM CABLES SHALL NOT BE MIXED WITH NON FIRE ALARM CABLING. LOW VOLTAGE FIRE ALARM CABLING SHALL NOT BE MIXED OR WIRED NEAR ANY AC CIRCUIT.
13. ALL LOW VOLTAGE WIRING SHALL BE FPLP 150 DEGREE C NYC CERTIFIED WIRE. ALL NOTIFICATION CIRCUITS SHALL BE A MINIMUM OF 14 AWG AND ALL OTHER LOW VOLTAGE FIRE ALARM CIRCUITS SHALL BE 16 AWG MINIMUM.
14. VERTICAL RISER CABLE FOR ALL SYSTEMS THAT INCLUDE STAGED EVACUATION (ANYTHING OTHER THAN A GENERAL ALARM SEQUENCE) SHALL BE INSTALLED IN A 2 HOUR RATED SHAFT OR ENCLOSURE OR WRAPPED WITH A 2 HOUR RATED MATERIAL.
15. POLARITY SHALL BE OBSERVED ON ALL CIRCUITS. T-TAPPING SHALL NOT BE ALLOWED ON ANY NOTIFICATION CIRCUITS (HORN, STROBE OR SPEAKER). T-TAPPING SHALL NOT BE PERMITTED ON ADDRESSABLE CIRCUITS WITHOUT THE EXPRESS PERMISSION OF THE ENGINEER.
16. ALL WIRING SHALL BE INSPECTED TO ASSURE THERE ARE NO OPENS, SHORTS OR EARTH GROUNDS.
17. SHIELDED CONDUCTORS OR RUNNING IN SEPARATE RACEWAY SHALL BE AS INSTRUCTED BY THE FIRE ALARM MANUFACTURER'S DOCUMENTATION. ALL NON-POWER LIMITED WIRING, INCLUDING CIRCUITS FOR CENTRALIZED AMPLIFIERS SHALL BE RUN IN A SEPARATE RACEWAY (NOTE: CENTRALIZED AMPLIFIERS 'AMP RACKS' ARE NOT PERMITTED ON NEW SYSTEMS).
18. FIRE ALARM EQUIPMENT SHALL BE POWERED THROUGH AN APPROVED FUSE DISCONNECT SWITCH (FDS) CONNECTED AHEAD OF THE MAIN SERVICE SWITCH. THE FDS SHALL BE HEAVY DUTY (200,000 RMS SHORT CIRCUIT AMPS) SAFETY SWITCH @60 AMPS MINIMUM, PAINTED RED, INCLUDE A GROUND AND NEUTRAL KIT WITH GROUNDING SCREW (TO BOND NEUTRAL), INCLUDE A PADLOCK WITH Y1 CYLINDER KEYED TO A NYC/FDNY 2642 KEY (USE ABUS RE-KEYABLE B3-45 OR EQUIVALENT LOCK). ALL WIRING SHALL BE #10 MINIMUM THHN OR EQUIVALENT RUN IN 3/4 INCH EMT/RGS AND IN ACCORDANCE WITH NYC REQUIREMENTS. THE GROUND TO THE FDS SHALL BE MADE USING A NYC ACCEPTED METHOD (SEE NYC ELECTRICAL CODE), AND THE GROUND WIRE TO THE FDS SHALL BE #8 MINIMUM (LARGER IF NECESSARY TO MEET FEED SIZE). THE EQUIPMENT GROUND LEAVING FROM THE FDS CONNECTING TO THE FIRE ALARM EQUIPMENT SHALL INCLUDE A #10 GREEN GROUND. THE FDS PANEL SHALL BEAR AN ENGRAVED WHITE-CORE PHENOLIC OR BAKELITE IDENTIFICATION NAMEPLATE STATING IN MINIMUM ONE-QUARTER INCH (1/4") HIGH WHITE LETTERS ON A RED BACKGROUND "FIRE ALARM FUSED DISCONNECT".
19. WHERE ADDITIONAL CIRCUITS ARE REQUIRED BY THE FIRE ALARM SYSTEM, A FUSED CUTOUT, PROPERLY SIZED SHALL BE INCLUDED, WIRED AFTER THE FDS. THE SIZE OF THE FUSES SHALL BE SIZED APPROPRIATELY BUT BE TWENTY (20) AMPERES MINIMUM AND EACH CIRCUIT SHALL ONLY FEED ONE "INDIVIDUAL" FIRE ALARM SYSTEM COMPONENT. THE FUSED CUT-OUT PANEL SHALL BEAR AN ENGRAVED WHITE-CORE PHENOLIC OR BAKELITE IDENTIFICATION NAMEPLATE STATING IN MINIMUM ONE-QUARTER INCH (1/4") HIGH WHITE LETTERS ON A RED BACKGROUND "FIRE ALARM FUSED CUT-OUT". THE NEUTRAL SHALL NOT BE BONDED IN THE FUSED CUTOUT.
20. A CENTRAL STATION DIALER AND TWO DEDICATED PHONE LINES SHALL BE PROVIDED INTEGRAL TO THE FIRE ALARM CONTROL PANEL. THE DIALER SHALL BE CAPABLE OF SENDING THE FOLLOWING EVENTS: ALARM, MANUAL STATION, WATERFLOW, SUPERVISORY, CARBON MONOXIDE, TROUBLE, PUMP RUNNING AND PUMP TROUBLE.
21. ALL AREA OR DUCT SMOKE DETECTORS SHALL BE PHOTO-ELECTRIC TYPE.
22. SMOKE DETECTORS MUST BE MOUNTED AT LEAST 3 FT AWAY FROM ANY AIR REGISTER.
23. ALL CEILING MOUNT DEVICES MUST BE SECURELY FASTENED TO BUILDING CONSTRUCTION.
24. DEVICE LOCATIONS MUST BE READILY ACCESSIBLE TO ALLOW FOR MAINTENANCE AND REPAIR.
25. DUCT MOUNTED SMOKE DETECTORS SHALL BE MOUNTED ON THE DUCTWORK IN STRICT ACCORDANCE WITH THE MANUFACTURERS INSTRUCTIONS. ALL DUCT DETECTORS SHALL BE PROVIDED WITH A REMOTE LED.
26. MANUAL STATIONS SHALL BE MOUNTED 48 INCHES ABOVE THE FINISHED FLOOR TO THE HANDLE OF THE STATION AND SHALL BE PAINTED FIRE DEPARTMENT RED. ALL MANUAL STATION SHALL BE INSTALLED SO THAT THEY ARE KEPT UN-OBSTRUCTED AT ALL TIMES.
27. ALL STROBE LIGHTS SHALL BE UL-1971 APPROVED/LISTED. THE MINIMUM CANDELA IS 15 UNLESS OTHERWISE NOTED.
28. NOTIFICATION DEVICES THAT INCLUDE A STROBE SHALL BE MOUNTED 80 INCHES OFF THE FINISHED FLOOR TO THE BOTTOM OF THE STROBE, NOT NECESSARILY THE ELECTRICAL BOX.
29. ALL AUXILIARY RELAYS FOR FAN SHUTDOWN, DOOR RELEASE, DAMPER CONTROL, ELEVATOR CONTROL, ETC SHALL BE WIRED A MAXIMUM OF 3 FT FROM THE CONTROLLED DEVICE. THE AUXILIARY RELAY SHALL FUNCTION WITHIN THE REQUIRED VOLTAGE AND CURRENT OF THE CONTROLLED DEVICE. SLAVE OR INTERPOSING RELAYS SHALL BE INCLUDED AND POWERED BY THE FIRE ALARM CONTROL PANEL IN A FAIL-SAFE (FIRE FUNCTION) POSITION. POWER TO THE INTERPOSING RELAY SHALL BE MONITORED BY THE FIRE ALARM SYSTEM.
30. THE NYC FIRE DEPARTMENT SHALL APPROVE THE PLANS PRIOR TO THE BEGINNING OF ANY WORK.
31. LOCATIONS OF ALL FIRE ALARM EQUIPMENT SHALL BE SUBJECT TO THE NYC DEPARTMENT OF BUILDINGS AND FDNY APPROVAL. NO CHANGE OR MODIFICATION TO THE SYSTEM OR PLANS SHALL BE PERMITTED WITHOUT WRITTEN APPROVAL FROM THE ENGINEER OF RECORD. IF ANY CHANGES ARE MADE TO THE DRAWINGS PRIOR TO OR DURING INSTALLATION, AS BUILT PLANS SHALL BE PREPARED BY THE ENGINEER AND FILED WITH THE APPROPRIATE NYC AGENCIES FOR FINAL ACCEPTANCE.
32. THE CONTRACTOR SHALL RETAIN A NY STATE PE TO SIGN AND SEAL ALL NECESSARY DOCUMENTS REQUIRED FOR INSPECTION AND TO OBTAIN A FINAL LETTER OF APPROVAL. THIS SHALL INCLUDE A SIGNED AND SEALED 11X17 AS-BUILT DRAWINGS, STATEMENT OF OPERATION, AN NFPA PROGRAMMING MATRIX, AND THE CONTRACTORS SIGNED AND SEALED A-433 FORM. THESE DOCUMENTS SHALL BE SUBMITTED AS NECESSARY TO THE NYC FIRE DEPARTMENT/NYC DEPARTMENT OF BUILDINGS TO OBTAIN A FIRE ALARM INSPECTION. IF A LETTER OF DEFECT IS ISSUED, THE CONTRACTOR SHALL CORRECT ALL ITEMS AND SUBMIT A SIGNED AND SEALED CERTIFICATE OF CORRECTION TO THE NYC FIRE DEPARTMENT TO OBTAIN A FINAL LETTER OF APPROVAL AT NO ADDITIONAL COST.
33. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ANY AND ALL ABANDONED FIRE ALARM CABINETS, DEVICES, AND WIRE. PAINT, PATCH AND CLEANUP SHALL ALSO BE INCLUDED.
34. FOR APPLICATIONS REQUIRING A FIRE ALARM SYSTEM REPLACEMENT (FCC, FACP, OR SCP, SSP ETC), THE CONTRACTOR SHALL BE RESPONSIBLE FOR INTERFACING THE NEW SYSTEM WITH THE OLD SYSTEM SO THAT THEY ACT AS ONE. ONCE SYSTEM APPROVAL IS GRANTED, THE CONTRACTOR SHALL THEN BE RESPONSIBLE FOR REMOVING THE OLD SYSTEM INCLUDING REMOVING OLD WIRE AND CONDUIT, PATCH, PAINT, AND CLEANUP. FIRE WATCH, IF NECESSARY, SHALL BE THE CONTRACTOR'S RESPONSIBILITY.
35. CARBON MONOXIDE (CO) AND COMBINATION SMOKE AND CO DETECTORS SHALL BE FULLY ADDRESSABLE (EST SIGAZ SERIES OR EQUAL) AND INCLUDE A SOUNDER BASE. MANUFACTURERS THAT DO NOT OFFER AN ADDRESSABLE CO OR SMOKE/CO TYPE DEVICE SHALL INCLUDE SEPARATE CO AND SMOKE DETECTORS, EACH WITH AN INTERNAL SYNCHRONIZED TEMPORAL 3 AND 4 SOUNDERS, AND THE NECESSARY MONITORING DEVICES SO THAT THE FIRE ALARM SYSTEM MAY MONITOR BOTH TYPES SEPARATELY. IF POWERED SEPARATELY (24VDC), POWER TO THE DEVICE SHALL ALSO BE SUPERVISED.
36. BOOSTER POWER SUPPLIES SHALL BE PROVIDED AS NECESSARY FOR STROBE CIRCUIT DRAW AND LENGTHY STROBE CIRCUIT RUNS. PROVIDE A SEPARATE 120V POWER FEED FOR EACH BOOSTER AS WELL AS A SMOKE DETECTOR MOUNTED DIRECTLY ABOVE IT.

37. ALL REMOTE FIRE ALARM CONTROL CABINETS (DATA GATHERING PANELS, TTBS ETC) SHALL INCLUDE AN INTERNAL TAMPER SWITCH. EACH SHALL ALSO INCLUDE A SMOKE DETECTOR MOUNTED ON THE CEILING DIRECTLY ABOVE IT SHOULD ONE OR MORE NOT ALREADY BE SHOWN ON THE PLANS IN THE ROOM THE PANEL IS MOUNTED IN.
38. AUDIBLE NOTIFICATION DESIGN GOALS FOR THIS PROJECT ARE AS FOLLOWS:

Audible Notification Devices - Design Criteria	Ambient Level	Design Goal
Offices	55dBA	> 70dBA
Corridors	55dBA	> 70dBA
Classrooms	45dBA	> 60dBA
Mechanical Rooms	85dBA	> 100dBA
Places of Assembly	55dBA	> 70dBA
Institutional	50dBA	> 65dBA
Mercantile	40dBA	> 55dBA



FIRE ALARM SYSTEM

PART 1 - GENERAL

1.1 DESCRIPTION

- A. THE REQUIREMENTS OF THE CONTRACT DOCUMENTS, INCLUDING THE GENERAL AND SUPPLEMENTARY GENERAL CONDITION AND DIVISION 1 - GENERAL REQUIREMENTS SHALL APPLY TO THE WORK OF THIS SECTION.
B. AT THE TIME OF BID, ALL EXCEPTIONS TAKEN TO THESE SPECIFICATIONS, ALL VARIANCES FROM THESE SPECIFICATION AND ALL SUBSTITUTIONS OF OPERATING CAPABILITIES OR EQUIPMENT CALLED FOR IN THESE SPECIFICATION SHALL BE LISTED IN WRITING AND FORWARDED TO THE ENGINEER. ANY SUCH EXCEPTION, VARIANCES OR SUBSTITUTIONS THAT WERE NOT LISTED AT THE TIME OF BID AND ARE IDENTIFIED IN THE SUBMITTAL, SHALL BE GROUNDS FOR IMMEDIATE DISAPPROVAL WITHOUT COMMENT.
C. THE ENTIRE SYSTEM SHALL BE INSTALLED WITH AESTHETICS IN MIND. ALL CONTROL PANELS AND REMOTE ANNUNCIATORS INSTALLED IN PUBLIC SPACES SHALL BE SEMI-FLUSH MOUNTED WITH NO EXPOSED CONDUIT OR CABLE TRAYS.

1.2 WORK INCLUDED

- A. THE WORK COVERED BY THIS SECTION OF THE SPECIFICATION SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS AND SERVICES TO FURNISH AND INSTALL A COMPLETE FIRE ALARM SYSTEM OF THE ADDRESSABLE, NON-CODED TYPE. IT SHALL BE COMPLETE WITH ALL NECESSARY HARDWARE, SOFTWARE AND MEMORY SPECIFICALLY TAILORED FOR THIS INSTALLATION. IT SHALL BE POSSIBLE TO PERMANENTLY MODIFY THE SOFTWARE ON SITE BY USING A PLUG-IN PROGRAMMER. THE SYSTEM SHALL CONSIST OF, BUT NOT BE LIMITED TO, THE FOLLOWING:
1. FIRE ALARM CONTROL PANEL AND RELATED REMOTE DATA GATHERING PANELS.
2. REMOTE ANNUNCIATORS WITH SEMI FLUSH BACKBOX.
3. ADDRESSABLE MANUAL FIRE ALARM STATIONS.
4. ADDRESSABLE ANALOG AREA SMOKE DETECTORS.
5. ADDRESSABLE ANALOG DUCT SMOKE DETECTORS.
6. ADDRESSABLE ANALOG HEAT DETECTORS.
7. MAGNETIC DOOR/CARD ACCESS RELEASE OVERRIDE CONTROL.
8. AUDIBLE NOTIFICATION APPLIANCES - SPEAKERS.
9. VISUAL NOTIFICATION APPLIANCES - STROBES.
10. CENTRAL STATION ALARM CONNECTION CONTROL.
11. AIR HANDLING SYSTEMS SHUTDOWN CONTROL.
12. MAGNETIC DOOR HOLDER RELEASE.
13. SPRINKLER SUPERVISORY SWITCHES AND TAMPER SWITCH SUPERVISION.
14. BATTERY STANDBY.
ALL NYC FIRE ALARM PERIPHERALS, SUCH AS CODE CARDS, PLACARDS, RISER DIAGRAM, NECESSARY SWITCHES, LED'S, CLOCK, FIRE SIGN, MANUAL CENTRAL OFFICE TRIP, FUSE CUTOFF, FDMY APPROVED LOCKS, WITH ENCLOSED PURGE SWITCHES SHALL BE INCLUDED IN THE SYSTEM PRICE. DATA GATHERING PANELS SHALL BE CONNECTED TO A POWER RISER WITH A FUSE CUTOFF CONNECTION OR FUSED DISCONNECT. A COMMON GROUND SHALL BE INCLUDED IN THE POWER RISER.

1.3 APPLICABLE CODES AND STANDARDS

- A. ALL EQUIPMENT SHALL BE UL LISTED FOR ITS INTENDED USE AND CONFORM TO THE LATEST UL STANDARDS.
B. UNDERWRITERS LABORATORIES INC.: THE SYSTEM AND ALL COMPONENTS SHALL BE LISTED BY UNDERWRITERS LABORATORIES INC. FOR USE IN FIRE PROTECTIVE SIGNALING SYSTEM UNDER THE FOLLOWING STANDARDS AS APPLICABLE:
UL 864/UOJZ, APOU CONTROL UNITS FOR FIRE PROTECTIVE SIGNALING SYSTEMS.
UL 268SMOKE DETECTORS FOR FIRE PROTECTIVE SIGNALING SYSTEMS.
UL 268A SMOKE DETECTORS FOR DUCT APPLICATIONS.
UL 217SMOKE DETECTORS SINGLE STATION.
UL 521 HEAT DETECTORS FOR FIRE PROTECTIVE SIGNALING SYSTEMS.
UL 228 DOOR HOLDERS FOR FIRE PROTECTIVE SIGNALING SYSTEMS.
UL 464 AUDIBLE SIGNALING APPLIANCES.
UL 1638 VISUAL SIGNALING APPLIANCES.
UL 38 MANUALLY ACTIVATED SIGNALING BOXES.
UL 346 WATERFLOW INDICATORS FOR FIRE PROTECTIVE SIGNALING SYSTEMS.
UL 1971 STANDARD FOR SIGNALING DEVICES FOR THE HEARING IMPAIRED
UL 1481 POWER SUPPLIES FOR FIRE PROTECTIVE SIGNALING SYSTEMS.
UL 1711 AMPLIFIERS FOR FIRE PROTECTIVE SIGNALING SYSTEMS.
UUKL THE FIRE ALARM SYSTEM SHALL BE UUKL FOR SMOKE CONTROL.
C. THIS INSTALLATION SHALL COMPLY WITH:
1. AMERICANS WITH DISABILITIES ACT (ADA)
2. NATIONAL ELECTRIC CODE, ARTICLE 760 WITH NYC AMENDMENTS.
3. NATIONAL FIRE PROTECTION ASSOCIATION STANDARDS: NFPA72
4. LOCAL AND STATE BUILDING CODES AND THE LOCAL AUTHORITIES HAVING JURISDICTION.
5. INTERNATIONAL STANDARDS ORGANIZATION (ISO): ISO-9001
6. THE LATEST PROVISIONS OF AND AMENDMENTS TO LOCAL LAW NO. 5, LOCAL LAW NO. 16 AND LOCAL LAW NO. 58 OF THE CITY OF NEW YORK.
7. UTILIZE MEA / BSA APPROVED FIRE ALARM EQUIPMENT
8. THE REQUIREMENTS OF THE CITY OF NEW YORK BUILDING DEPARTMENT AND THE CITY OF NEW YORK FIRE DEPARTMENT.

1.4 RELATED DOCUMENTS

- A. SECURE PERMITS AND APPROVALS PRIOR TO INSTALLATION.
B. PRIOR TO COMMENCEMENT AND AFTER COMPLETION OF WORK NOTIFY AUTHORITIES HAVING JURISDICTION.
C. SUBMIT LETTER OF APPROVAL FOR INSTALLATION BEFORE REQUESTING ACCEPTANCE OF SYSTEM.

1.5 RELATED WORK

- A. THE CONTRACTOR SHALL COORDINATE WORK IN THIS SECTION WITH ALL RELATED TRADES. WORK AND/OR EQUIPMENT PROVIDED IN OTHER SECTIONS AND RELATED TO THE FIRE ALARM SYSTEM SHALL INCLUDE, BUT NOT BE LIMITED TO:
1. SPRINKLER WATERFLOW AND SUPERVISORY SWITCHES SHALL BE FURNISHED AND INSTALLED BY THE FIRE PROTECTION CONTRACTOR, BUT WIRED AND CONNECTED BY THE ELECTRICAL CONTRACTOR. MODIFICATION OF EXISTING SPRINKLER DEVICES TO ACCOMMODATE MONITORING BY THE NEW FIRE ALARM SYSTEM SHALL BE THE RESPONSIBILITY OF THE FIRE ALARM SYSTEM INSTALLING CONTRACTOR.
2. DUCT SMOKE DETECTORS SHALL BE FURNISHED, WIRED AND CONNECTED BY THE ELECTRICAL CONTRACTOR. THE HVAC CONTRACTOR SHALL FURNISH NECESSARY DUCT OPENING TO INSTALL THE DUCT SMOKE DETECTORS.
3. NEW AIR HANDLING AND SMOKE EXHAUST SYSTEM FAN CONTROL CIRCUITS AND STATUS CONTACTS TO BE FURNISHED BY THE HVAC CONTROL EQUIPMENT.
4. ELEVATOR RECALL CONTROL CIRCUITS TO BE PROVIDED BY THE ELEVATOR CONTROL EQUIPMENT. THE OPERATION OF THE ELEVATORS SHALL BE IN ACCORDANCE WITH RS 18-1.
5. DRY PIPE/DELUGE SPRINKLER SYSTEM RELEASE VALVE CONTROL CIRCUITS AND SUPERVISION CONTACTS SHALL BE PROVIDED BY THE DRY PIPE/DELUGE SPRINKLER SYSTEM CONTROL EQUIPMENT.
6. FIRE PUMPS ((MANUAL, AUTOMATIC AND SPECIAL SERVICE) STATUS MONITORING.

- a. PUMP FAILURE (FAIL TO START) INDICATION
b. PUMP RUNNING INDICATION
c. PHASE REVERSAL INDICATION

- 6. INSTALLING DEDICATED OUTGOING RJ-31X TELEPHONE LINES (2) SHALL BE THE RESPONSIBILITY OF THE INSTALLING ELECTRICAL CONTRACTOR. ESTABLISHMENT OF CENTRAL STATION MONITORING ACCOUNT SHALL BE THE RESPONSIBILITY OF THE FIRE ALARM EQUIPMENT VENDOR.

1.6 SUBMITTALS

- A. PROVIDE LIST OF ALL TYPES OF EQUIPMENT AND COMPONENTS PROVIDED. THIS SHALL BE INCORPORATED AS PART OF A TABLE OF CONTENTS, WHICH WILL ALSO INDICATE THE MANUFACTURER'S PART NUMBER, THE DESCRIPTION OF THE PART, AND THE PART NUMBER OF THE MANUFACTURER'S PRODUCT DATASHEET ON WHICH THE INFORMATION CAN BE FOUND.
B. PROVIDE DESCRIPTION OF OPERATION OF THE SYSTEM (SEQUENCE OF OPERATION), SIMILAR TO THAT PROVIDED IN PART 2 OF THIS SECTION OF THE SPECIFICATIONS, TO INCLUDE ANY AND ALL EXCEPTIONS, VARIANCES OR SUBSTITUTIONS LISTED AT THE TIME OF BID. ANY SUCH EXCEPTIONS, VARIANCES OR SUBSTITUTIONS THAT WERE NOT LISTED AT THE TIME OF BID AND ARE IDENTIFIED IN THE SUBMITTAL, SHALL BE GROUNDS FOR IMMEDIATE DISAPPROVAL WITHOUT COMMENT. THE SEQUENCE OF OPERATION SHALL BE PROJECT SPECIFIC, AND SHALL PROVIDE INDIVIDUAL SEQUENCES FOR EVERY TYPE OF ALARM, SUPERVISORY, OR TROUBLE CONDITION THAT MAY OCCUR AS PART OF NORMAL OR OFF-NORMAL SYSTEM USE.
C. PROVIDE MANUFACTURER'S ORIGINAL PRINTED PRODUCT DATA, CATALOG CUTS AND DESCRIPTION OF ANY SPECIAL INSTALLATION PROCEDURES. PHOTOCOPIED AND/OR ILLEGIBLE PRODUCT DATA SHEETS SHALL NOT BE ACCEPTABLE. ALL PRODUCT DATASHEETS SHALL BE HIGHLIGHTED OR STAMPED WITH ARROWS TO INDICATE THE SPECIFIC COMPONENTS BEING SUBMITTED FOR APPROVAL.
D. PROVIDE MANUFACTURER'S INSTALLATION INSTRUCTION MANUAL FOR SPECIFIED SYSTEM.
E. PROVIDE SAMPLES OF VARIOUS ITEMS WHEN REQUESTED.
F. PROVIDE COPY OF NYS LICENSE TO PERFORM SUCH WORK.
G. PROVIDE COPIES OF NICET LEVEL II FIRE ALARM CERTIFICATIONS FOR THE TWO (2) TECHNICIANS ASSIGNED TO THIS PROJECT.
H. PROVIDE SHOP DRAWINGS AS FOLLOWS:

- 1. COVERSHEET WITH PROJECT NAME, ADDRESS AND DRAWING INDEX.
2. GENERAL NOTES DRAWING WITH PERIPHERAL DEVICE BACKBOX SIZE INFORMATION, PART NUMBERS, DEVICE MOUNTING HEIGHT INFORMATION, AND THE NAMES, ADDRESSES, POINT OF CONTACT, AND TELEPHONE NUMBERS OF ALL CONTRACT PROJECT TEAM MEMBERS.
3. DEVICE RISER DIAGRAM THAT INDIVIDUALLY DEPICTS ALL CONTROL PANELS, ANNUNCIATORS, ADDRESSABLE DEVICES, AND NOTIFICATION APPLIANCES. SHALL INCLUDE A SPECIFIC, PROPOSED POINT DESCRIPTION ABOVE EACH ADDRESSABLE DEVICE. SHALL INCLUDE A SPECIFIC, DISCRETE POINT ADDRESS THAT SHALL CORRESPOND TO ADDRESSES DEPICTED ON THE DEVICE LAYOUT FLOOR PLANS. DRAWING SHALL PROVIDE WIRE SPECIFICATIONS, AND WIRE TAGS SHOWN ON ALL CONDUCTORS DEPICTED ON THE RISER DIAGRAM. ALL CIRCUITS SHALL HAVE DESIGNATIONS THAT SHALL CORRESPOND WITH THOSE REQUIRE ON THE CONTROL PANEL AND FLOOR PLAN DRAWINGS. END-OF-LINE RESISTORS (AND VALUES) SHALL BE DEPICTED.
4. CONTROL PANEL TERMINATION DRAWING(S). SHALL DEPICT INTERNAL COMPONENT PLACEMENT AND ALL INTERNAL AND FIELD TERMINATION POINTS. DRAWING SHALL PROVIDE A DETAILED INDICATING WHERE CONDUIT PENETRATIONS SHALL BE MADE, SO AS TO AVOID CONFLICTS WITH INTERNALLY MOUNTED BATTERIES. FOR EACH ADDITIONAL DATA GATHERING PANEL, A SEPARATE CONTROL PANEL DRAWING SHALL BE PROVIDED, WHICH CLEARLY INDICATED THE DESIGNATION, SERVICE AND LOCATION OF THE CONTROL ENCLOSED. END-OF-LINE RESISTORS (AND VALUES) SHALL BE DEPICTED.
5. SEE SECTION 3.4 DOCUMENTATION AND TRAINING FOR OTHER DOCUMENTS RELATING TO THIS SECTION.
6. DEVICE TYPICAL WIRING DIAGRAM DRAWING(S) SHALL BE PROVIDED WHICH DEPICT ALL SYSTEM COMPONENTS, AND THEIR RESPECTIVE FIELD WIRING TERMINATION POINTS. WIRE TYPE, GAUGE, AND JACKET SHALL ALSO BE INDICATED. WHEN AN ADDRESSABLE MODULE IS USED IN MULTIPLE CONFIGURATIONS FOR MONITORING OR CONTROLLING VARIOUS TYPES OF EQUIPMENT, DIFFERENT DEVICE TYPICAL DIAGRAMS SHALL BE PROVIDED. END-OF-LINE RESISTORS (AND VALUES) SHALL BE DEPICTED.
7. DEVICE LAYOUT FLOOR PLANS SHALL BE CREATED FOR EVERY AREA SERVED BY THE FIRE ALARM SYSTEM. CAD FILES (AUTOCAD - LATEST EDITION) SHALL BE PROVIDED BY THE CONSULTING ENGINEER FOR THE USE OF THE FIRE ALARM SYSTEM EQUIPMENT VENDOR IN THE PREPARATION OF THE FLOOR PLANS. FLOOR PLANS SHALL INDICATE ACCURATE LOCATIONS FOR ALL CONTROL AND PERIPHERAL DEVICES. DRAWINGS SHALL BE NO LESS THAN 1/8" INCH SCALE. ALL ADDRESSABLE DEVICES SHALL BE DEPICTED WITH A DISCRETE ADDRESS WHICH CORRESPONDS WITH THAT INDICATED ON THE RISER DIAGRAM. ALL NOTIFICATION APPLIANCES SHALL ALSO BE PROVIDED WITH A CIRCUIT ADDRESS WHICH CORRESPONDS TO THAT DEPICTED ON THE RISER DIAGRAM. IF INDIVIDUAL FLOORS NEED TO BE SEGMENTED TO ACCOMMODATE THE 1/8" SCALE REQUIREMENTS, KEY PLANS AND BREAK-LINES SHALL BE PROVIDED ON THE PLANS IN AN ORDERLY AND PROFESSIONAL MANNER. END-OF-LINE RESISTORS (AND VALUES) SHALL BE DEPICTED.

CONTAINED IN THE TITLE BLOCK OF EACH DRAWING SHALL BE SYMBOL LEGENDS WITH DEVICE COUNTS, WIRE TAG LEGENDS, CIRCUIT SCHEDULES FOR ALL ADDRESSABLE AND NOTIFICATION APPLIANCE CIRCUITS, THE PROJECT NAME/ADDRESS, AND A DRAWING DESCRIPTION WHICH CORRESPONDS TO THAT INDICATED IN THE DRAWING INDEX ON THE COVERSHEET DRAWING. A SECTION OF EACH DRAWING TITLE BLOCK SHALL BE RESERVED FOR REVISION NUMBERS AND NOTES. THE INITIAL SUBMISSION SHALL BE REVISION 0, WITH REVISION A, B, OR C AS PROJECT MODIFICATIONS REQUIRE.

- I. BATTERY CALCULATIONS SHALL BE PROVIDED ON A PER POWER SUPPLY/CHARGER BASIS BASED ON RS 17-5 REQUIREMENTS. THESE CALCULATIONS SHALL CLEARLY INDICATE THE QUANTITY OF DEVICES, THE DEVICE PART NUMBERS, THE SUPERVISORY CURRENT DRAW, THE ALARM CURRENT DRAW, TOTALS FOR ALL CATEGORIES, AND THE CALCULATED BATTERY REQUIREMENTS. BATTERY CALCULATIONS SHALL ALSO REFLECT ALL CONTROL PANEL COMPONENT, REMOTE ANNUNCIATOR, AND AUXILIARY RELAY CURRENT DRAWS. FAILURE TO PROVIDE THESE CALCULATIONS SHALL BE GROUNDS FOR THE COMPLETE REJECTION OF THE SUBMITTAL PACKAGE.

- J. TABLE OF CONTENTS, PRODUCT DATA SHEETS, SEQUENCES OF OPERATION, BATTERY CALCULATIONS, INSTALLATION INSTRUCTIONS, LICENSES, NICET CERTIFICATIONS AND B-SIZE (BLACKLINE) REDUCED SHOP DRAWINGS SHALL BE PROVIDED BY THE FIRE ALARM VENDOR AS PART OF A SINGLE, SPIRAL BOUND SUBMITTAL BOOK. THE SUBMITTAL BOOK SHALL HAVE LAMINATED COVERS INDICATING THE PROJECT ADDRESS, SED NUMBER, SYSTEM TYPE, AND CONTRACTOR. THE BOOK SHALL CONSIST OF LABELED DIVIDERS, AND SHALL NOT EXCEED 9 1/2" IN WIDTH, AND 11 1/4" IN HEIGHT. NO LESS THAN THREE (3) SETS OF SUBMITTAL BOOKLETS SHALL BE PROVIDED TO THE CONSULTING ENGINEER FOR REVIEW AND COMMENT. ADDITIONAL COPIES MAY BE REQUIRED AT NO ADDITIONAL COST TO THE PROJECT.

- K. SCALE DRAWING SETS SHALL BE SUBMITTED ALONG WITH THE SUBMITTAL BOOKLETS. THESE DRAWINGS MAY BE EITHER D-SIZE OR E-SIZE BLUELINE DRAWINGS AND OF A SUFFICIENT RESOLUTION TO BE COMPLETELY READ. SETS SHALL BE BOUND AND FOLDED SO AS TO NOT TAKE UP MORE THAN 100 SQUARE INCHES OF SPACE. NO

LESS THAN THREE (3) SETS OF SCALE DRAWING SETS SHALL BE PROVIDED TO THE CONSULTING ENGINEER FOR REVIEW AND COMMENT. ADDITIONAL COPIES MAY BE REQUIRED AT NO ADDITIONAL COST TO THE PROJECT.

1.7 WARRANTY

- A. ALL WORK PERFORMED AND ALL MATERIAL AND EQUIPMENT FURNISHED UNDER THIS CONTRACT SHALL BE FREE FROM DEFECTS AND SHALL REMAIN SO FOR A PERIOD OF AT LEAST ONE (1) YEAR FROM THE DATE OF ACCEPTANCE OR APPROVAL BY AHJ. THE FULL COST OF MAINTENANCE, LABOR AND MATERIALS REQUIRED TO CORRECT ANY DEFECT DURING THIS ONE YEAR PERIOD SHALL BE INCLUDED IN THE SUBMITTAL BID.

PART II - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- A. THE CATALOG NUMBERS USED ARE THOSE OF THE PREFERRED FIRE ALARM MANUFACTURER EDWARDS SYSTEMS TECHNOLOGY (EST) BY GE SECURITY "OR EQUAL", AND CONSTITUTE THE TYPE AND QUALITY OF EQUIPMENT TO BE FURNISHED.
B. IF EQUIPMENT OF ANOTHER MANUFACTURER IS TO BE SUBMITTED FOR APPROVAL AS EQUAL, THE CONTRACTOR SHALL, AT THE TIME OF BID, LIST ALL EXCEPTIONS TAKEN TO THESE SPECIFICATIONS, ALL VARIANCES FROM THESE SPECIFICATIONS AND ALL SUBSTITUTIONS OF OPERATING CAPABILITIES OR EQUIPMENT CALLED FOR IN THESE SPECIFICATIONS AND FORWARD SAID LIST TO THE ENGINEER. ANY SUCH EXCEPTIONS, VARIANCES OR SUBSTITUTIONS THAT WERE NOT LISTED AT THE TIME OF BID AND ARE IDENTIFIED IN THE SUBMITTAL, SHALL BE GROUNDS FOR IMMEDIATE DISAPPROVAL WITHOUT COMMENT. FINAL DETERMINATION OF COMPLIANCE WITH THESE SPECIFICATIONS SHALL REST WITH THE ENGINEER, WHO, AT HIS DISCRETION, MAY REQUIRE PROOF OF PERFORMANCE.
C. ALTERNATE PRODUCT SUBMISSIONS MADE WITHOUT PROOF OF NO LESS THAN THREE (3) FACTORY AUTHORIZED AND CERTIFIED MANUFACTURER'S DISTRIBUTORS RESIDING WITHIN 50 MILES OF THE PROJECT JOB SITE SHALL BE REJECTED. THESE DISTRIBUTORS MUST NOT ONLY PROVIDE INSTALLATION SUPPORT, BUT MUST HAVE A SERVICE ORGANIZATION CAPABLE OF 24 HOUR EMERGENCY CALL SERVICE AND MUST HAVE BEEN CONTRACTED AND DELIVERED NO LESS THAN FIVE (5) ACCEPTED PROJECTS USING THE SUBMITTED PRODUCT OVER THE PAST YEAR.
D. ALTERNATE PRODUCT SUBMISSIONS BASED UPON USE OF A PRODUCT LINE CONSIDERED PROPRIETARY IN ITS DISTRIBUTION, DESIGN, APPLICATION SOFTWARE, OR ONGOING MAINTENANCE AND REPAIR SHALL NOT BE ACCEPTABLE. PROOF OF A PRODUCT'S NON-PROPRIETARY NATURE SHALL BE THE BURDEN OF THE CONTRACTOR AT THE TIME OF BID, AND SHALL BE IN THE FORM OF WRITTEN DOCUMENTATION. THE DETERMINATION OF A PRODUCT'S COMPLIANCE TO THIS REQUIREMENT SHALL BE EXCLUSIVELY THAT OF THE CONSULTING ENGINEER.
F. ALL PRODUCTS USED SHALL BE OF A SINGLE MANUFACTURER. SUBMISSION OF NOTIFICATION APPLIANCES, AUXILIARY RELAYS, OR DOCUMENTATION FROM OTHER THAN A SINGLE MANUFACTURER SHALL NOT BE ACCEPTABLE AND WILL BE GROUNDS FOR IMMEDIATE DISAPPROVAL WITHOUT COMMENT.
G. THE FIRE ALARM / LIFE SAFETY SYSTEM SUPPLIED UNDER THIS SPECIFICATION SHALL BE A MICROPROCESSOR-BASED. ALL CONTROL PANEL ASSEMBLIES AND CONNECTED FIELD APPLIANCES SHALL BE BOTH DESIGNED AND MANUFACTURED BY THE SAME COMPANY, AND SHALL BE TESTED AND CROSS-LISTED AS COMPATIBLE TO ENSURE THAT A FULLY FUNCTIONING LIFE SAFETY SYSTEM IS DESIGNED AND INSTALLED.

2.2 CIRCUITING GUIDELINES

- A. EACH ADDRESSABLE ANALOG LOOP SHALL BE CIRCUITED SO DEVICE LOADING IS NOT TO EXCEED 80% OF LOOP CAPACITY IN ORDER TO LEAVE ROOM SPACE FOR FUTURE DEVICES. THE LOOP SHALL HAVE CLASS B OPERATION.
B. WHERE IT IS NECESSARY TO INTERFACE CONVENTIONAL INITIATING DEVICES PROVIDE INTELLIGENT INPUT MODULES TO SUPERVISE CLASS B ZONE WIRING.
C. EACH OF THE FOLLOWING TYPES OF DEVICES OR EQUIPMENT SHALL BE PROVIDED WITH SUPERVISED CIRCUITS AS SHOWN ON THE DRAWINGS BUT SHALL BE TYPICALLY AS FOLLOWS:
1. SPRINKLER VALVE SUPERVISORY SWITCHES: PROVIDE ONE (1) SUPERVISORY MODULE CIRCUIT FOR EACH SPRINKLER VALVE SUPERVISORY SWITCH.
2. WHEN WATERFLOW AND TAMPER SWITCHES EXIST AT THE SAME LOCATION, PROVIDE ONE (1) DUAL INPUT ADDRESSABLE MODULE. WHEN ODD NUMBERS OF DEVICES EXIST AT A SINGLE LOCATION, PROVIDE ADDITIONAL SINGLE INPUT ADDRESSABLE MODULES.
D. ALARM: THE FACP CENTRAL PROCESSING UNIT (CPU) SHALL PROVIDE A GENERAL ALARM TEMPORAL 3-CODE OPERATION.
E. EACH OF THE FOLLOWING TYPES OF ALARM NOTIFICATION APPLIANCES SHALL BE CIRCUITED AS SHOWN ON THE DRAWINGS BUT SHALL BE TYPICALLY AS FOLLOWS:
1. AUDIBLE SIGNALS: PROVIDE SUFFICIENT SPARE CAPACITY TO ASSURE THAT THE ADDITION OF FIVE (5) AUDIBLE DEVICES CAN BE SUPPORTED WITHOUT THE NEED FOR ADDITION CONTROL COMPONENTS (POWER SUPPLIES, SIGNAL CIRCUIT MODULES, AMPLIFIERS, BATTERIES, ETC.)
2. VISUAL SIGNALS PROVIDE SUFFICIENT SPARE CAPACITY TO ASSURE THAT THE ADDITION OF THREE (3) VISUAL DEVICES CAN BE SUPPORTED WITHOUT THE NEED FOR ADDITION CONTROL COMPONENTS (POWER SUPPLIES, SIGNAL CIRCUIT MODULES, BATTERIES, ETC.)
3. SMOKE ALARM BELL (AT FACP): PROVIDE ONE (1) ALARM BELL CIRCUIT, WATERFLOW ALARM BELL (AT PANEL): PROVIDE ONE (1) WATERFLOW BELL CIRCUIT, SYSTEM TROUBLE BELL (AT FACP): PROVIDE ONE (1) BELL CIRCUIT.
F. EACH OF THE FOLLOWING TYPES OF REMOTE EQUIPMENT ASSOCIATED WITH THE FIRE ALARM SYSTEM SHALL BE PROVIDED WITH A FORM 'C' CONTROL RELAY CONTACT AS SHOWN ON THE DRAWINGS, BUT SHALL BE TYPICALLY AS FOLLOWS:
1. HVAC FAN SYSTEMS: PROVIDE ONE (1) SHUTDOWN CONTROL RELAY CONTACT FOR EACH HVAC FAN SYSTEM.
2. HVAC SUPPLY FANS: PROVIDE ONE (1) SHUTDOWN CONTROL RELAY CONTACT FOR EACH HVAC SUPPLY FAN.
3. HVAC RETURN FANS: PROVIDE ONE (1) SHUTDOWN CONTROL RELAY CONTACT FOR EACH HVAC RETURN FAN.
G. PROVIDE A DEDICATED 24VDC CIRCUIT TO FEED ALL AUXILIARY RELAYS REQUIRED FOR INDUCTIVE LOADS. CIRCUITS SHALL BE SUPERVISED VIA AN END-OF-LINE RELAY AND ADDRESSABLE INPUT MODULE. AUXILIARY RELAYS SHALL NOT DERIVE THEIR POWER FROM THE STARTER OR LOAD BEING CONTROLLED.

- H. EACH CONTROL OR DATA GATHERING PANEL SHALL HAVE A DEDICATED 20AMP-120VAC FEED, AN APPROPRIATE FUSE CUT OUT SHALL BE INCLUDED, WIRED AS INDICATED IN THE BUILDING CODE FOR THE CITY OF NY.

2.4 SUPPORT FOR INSTALLER AND OWNER MAINTENANCE

- A. PROVIDE A CODED ONE-MAN WALK TEST FEATURE. ALLOW AUDIBLE OR SILENT TESTING. SIGNAL ALARMS AND TROUBLES DURING TEST. ALLOW RECEIPT OF ALARMS AND PROGRAMMED OPERATIONS FOR ALARMS FROM AREAS NOT UNDER TEST.
B. PROVIDE INTERNAL SYSTEM DIAGNOSTICS AND MAINTENANCE USER INTERFACE CONTROLS TO DISPLAY/REPORT THE POWER, COMMUNICATION, AND GENERAL STATUS OF SPECIFIC PANEL COMPONENTS, DETECTORS, AND MODULES.
C. PROVIDE LOOP CONTROLLER DIAGNOSTICS TO IDENTIFY COMMON ALARM, TROUBLE, GROUND FAULT, CLASS A FAULT, AND MAP FAULTS. MAP FAULTS INCLUDE WIRE CHANGES, DEVICE TYPE CHANGES BY LOCATION, DEVICE ADDITIONS/DELETIONS AND

2.5 UL LISTED AND APPROVED EQUIPMENT

A. FIRE ALARM CONTROL PANEL REQUIREMENTS:

THE FIRE ALARM CONTROL PANEL OR PANELS AND ALL SYSTEM DEVICES (HORN-STROBES, STROBES, PULL STATIONS, SMOKE AND HEAT DETECTORS, ETC. SHALL BE EDWARDS SYSTEMS TECHNOLOGY (EST) BY GE SECURITY TYPE EST3 SERIES (OR EQUAL). ALL UNDER ONE LABEL "UL LISTED AND APPROVED" FOR THE USE OF FIRE ALARM SYSTEMS IN THIS AREA OF THE UNITED STATES OF AMERICA. THE OPERATING CONTROLS SHALL BE LOCATED BEHIND LOCKED DOOR WITH VIEWING WINDOW. ALL CONTROL MODULES SHALL BE LABELED, AND ALL ZONE LOCATIONS SHALL BE IDENTIFIED.

B. SYSTEM CONTROLLERS

THE MAIN CONTROLLER 3-CPU SHALL BE SUPERVISED, SITE PROGRAMMABLE, AND OF MODULAR DESIGN SUPPORTING UP TO 125 DETECTORS AND 125 REMOTE MODULES PER ADDRESSABLE SIGNALING LINE CIRCUIT (SLC). THE CPU SHALL SUPPORT UP TO 10 SLC'S PER PANEL FOR A TOTAL SYSTEM CAPACITY OF 2500 INTELLIGENT ADDRESSABLE POINTS. THE SYSTEM SHALL BE DESIGNED WITH PEER-TO-PEER NETWORKING CAPABILITY FOR ENHANCED SURVIVABILITY, WITH SUPPORT FOR UP TO 64 MODES, EACH WITH UP TO 2500 POINTS AND AN OVERALL CAPACITY OF 160,000 POINTS. THE CABINETS SHALL BE STEEL, WITH A RED FINISH.

C. THE SYSTEM SHALL STORE ALL BASIC SYSTEM FUNCTIONALITY AND JOB SPECIFIC DATA IN NON-VOLATILE MEMORY. ALL SITE SPECIFIC AND OPERATING DATA SHALL SURVIVE A COMPLETE POWER FAILURE INTACT. PASSWORDS SHALL PROTECT ANY CHANGES TO SYSTEM OPERATIONS.

D. THE MAIN CONTROLLER MODULE SHALL CONTROL AND MONITOR ALL LOCAL OR REMOTE PERIPHERALS. IT SHALL SUPPORT A LARGE 960 CHARACTER LCD, POWER SUPPLY, REMOTE LCD AND ZONE DISPLAY ANNUNCIATORS, PRINTERS, AND SUPPORT COMMUNICATION INTERFACE STANDARD PROTOCOL (CSI) DEVICES SUCH AS COLOR COMPUTER ANNUNCIATORS AND COLOR GRAPHIC DISPLAYS. REMOTE LCD ANNUNCIATORS SHALL ALSO DISPLAY EACH AND EVERY POINT IN THE SYSTEM AND BE SIZED WITH THE SAME NUMBER OF CHARACTERS AS IN THE MAIN FACP DISPLAY.

E. THE PANEL SHALL HAVE AN INTERFACE MODULE FOR REMOTE SITE MONITORING. THE MODULE SHALL HAVE A DIALER (ALARM COMMUNICATOR TRANSMITTER (DACT)) MODULE TO TRANSMIT ALARM, SUPERVISORY AND TROUBLE SIGNALS TO A CENTRAL MONITORING STATION (CMS). THE DACT SHALL SUPPORT DUAL TELEPHONE LINES, CONTACT I.D. COMMUNICATIONS, AND CONFIGURED FOR DUAL TONE MULTI-FREQUENCY (DTMF) OR PULSE MODES. IT SHALL BE POSSIBLE TO DELAY AC POWER FAILURE REPORTS, AUTO TEST CALL, AND BE SITE PROGRAMMABLE. THE DIALER SHALL BE CAPABLE OF TRANSMITTING EVERY INDIVIDUAL ALARM CONDITION TO THE CENTRAL STATION.

F. THE SYSTEM SHALL HAVE BUILT-IN AUTOMATIC SYSTEM PROGRAMMING TO AUTOMATICALLY ADDRESS AND MAP ALL SYSTEM DEVICES ATTACHED TO THE MAIN CONTROLLER. A MINIMUM DEFAULT SINGLE STAGE ALARM SYSTEM OPERATION SHALL BE SUPPORTED WITH ALARM SILENCE, EVENT SILENCE, DRILL, LAMP TEST, AND RESET COMMON CONTROLS.

G. ADVANCED WINDOWS-BASED SYSTEM DEFINITION UTILITY WITH PROGRAM VERSION REPORTING TO DOCUMENT ANY AND ALL CHANGES MADE DURING SYSTEM START-UP OR SYSTEM COMMISSIONING SHALL BE USED TO MAINTAIN SITE SPECIFIC PROGRAMMING. TIME AND DATE STAMPS OF ALL MODIFICATIONS MADE TO THE PROGRAM MUST BE INCLUDED TO ALLOW FULL RETENTION OF ALL PREVIOUS PROGRAM VERSION DATA. IT SHALL SUPPORT PROGRAMMING OF ANY INPUT POINT TO ANY OUTPUT POINT. THE SYSTEM SHALL SUPPORT THE USE OF BAR CODE READERS TO ASSIST CUSTOM PROGRAMMING FUNCTIONS. IT SHALL ALLOW AUTHORIZED CUSTOMIZATION OF FUNDAMENTAL SYSTEM OPERATIONS USING INITIATING EVENTS TO START ACTIONS, TIMERS, SEQUENCES AND LOGICAL ALGORITHMS. THE SYSTEM PROGRAM SHALL MEET THE REQUIREMENTS OF THIS PROJECT, CURRENT CODES AND STANDARDS, AND SATISFY THE LOCAL AUTHORITY HAVING JURISDICTION.

H. THE SYSTEM SHALL SUPPORT DISTRIBUTED PROCESSOR INTELLIGENT DETECTORS WITH THE FOLLOWING OPERATIONAL ATTRIBUTES: INTEGRAL MULTIPLE DIFFERENTIAL SENSING; AUTOMATIC ADDRESSING; ENVIRONMENTAL COMPENSATION; PRE-ALARM; DIRTY DETECTOR IDENTIFICATION; AUTOMATIC DAY/NIGHT SENSITIVITY ADJUSTMENT; NORMAL/ALARM LEDS, RELAY BASES, SOUNDER BASES AND ISOLATOR BASES.

I. THE SYSTEM SHALL USE FULL DIGITAL COMMUNICATIONS TO SUPERVISE ALL ADDRESSABLE LOOP DEVICES FOR PLACEMENT, CORRECT LOCATION, AND OPERATION. IT SHALL ALLOW SWAPPING OF "SAME TYPE" DEVICES WITHOUT THE NEED OF ADDRESSING AND IMPOSE THE "LOCATION" PARAMETERS ON REPLACEMENT DEVICE. IT SHALL INITIATE AND MAINTAIN A TROUBLE IF A DEVICE IS ADDED TO A LOOP AND CLEAR THE TROUBLE WHEN THE NEW DEVICE IS MAPPED AND DEFINED INTO THE SYSTEM.

J. EACH CONTROLLER SHALL CONTAIN A RS232C PRINTER/PROGRAMMING PORT FOR PROGRAMMING LOCALLY VIA A PC. WHEN OPERATIONAL, EACH CONTROLLER SHALL SUPPORT A PRINTER THROUGH THE RS232C PORT AND BE CAPABLE OF MESSAGE ROUTING.

K. SYSTEM CIRCUITS SHALL BE CONFIGURED AS FOLLOWS: ADDRESSABLE ANALOG SLC LOOPS CLASS B (STYLE 4); INITIATING DEVICE CIRCUITS CLASS B; NOTIFICATION APPLIANCE CIRCUITS "SPLIT" CLASS B; NETWORK COMMUNICATIONS CLASS B; ANNUNCIATOR COMMUNICATIONS CLASS B.

L. SINGLE STAGE OPERATION SHALL BE PROVIDED.

M. THE SYSTEM SHALL HAVE A UL LISTED DETECTOR SENSITIVITY TEST FEATURE, WHICH WILL BE A FUNCTION OF THE SMOKE DETECTORS AND PERFORMED AUTOMATICALLY EVERY 4 HOURS.

N. THE SYSTEM SHALL SUPPORT 100% OF ALL REMOTE DEVICES IN ALARM AND PROVIDE SUPPORT FOR A 100% COMPLIMENT OF DETECTOR ISOLATOR BASES.

O. ALL PANEL MODULES SHALL BE SUPERVISED FOR PLACEMENT AND RETURN TROUBLE IF DAMAGED OR REMOVED.

P. THE SYSTEM SHALL HAVE A CPU WATCHDOG CIRCUIT TO INITIATE TROUBLE SHOULD THE CPU FAIL.

Q. THE FIRE ALARM / LIFE SAFETY SYSTEM SHALL CODE THE NOTIFICATION APPLIANCE CIRCUITS WITH THE INDUSTRY STANDARD TEMPORAL 3 PATTERN.

R. AUDIBLE NOTIFICATION APPLIANCES SHALL BE AFFECTED BY SIGNAL SILENCE FEATURES. VISUAL SIGNAL APPLIANCE SHALL NOT BE AFFECTED BY SIGNAL SILENCE FEATURES.

S. USER INTERFACE
THE 3-LCDXL DISPLAY MODULE SHALL BE OF MEMBRANE STYLE CONSTRUCTION WITH A 24 LINE BY 40-CHARACTER (960 TOTAL CHARACTERS) LIQUID CRYSTAL DISPLAY (LCD). THE LCD SHALL USE SUPER-TWIST TECHNOLOGY AND BACKLIGHTING FOR HIGH CONTRAST VISUAL CLARITY AND A COLORED GRAY/BLACK AND WHITE DISPLAY. IN THE NORMAL MODE THE LCD SHALL DISPLAY THE TIME, A CUSTOMER FACILITY NAME, AND THE NUMBER OF HISTORY EVENTS. IN THE ALARM MODE THE LCD DISPLAY THE TOTAL NUMBER OF EVENTS AND THE TYPE OF EVENT ON DISPLAY. THE LCD SHALL RESERVE 42 CHARACTERS OF DISPLAY SPACE FOR EACH USER CUSTOM MESSAGE BY ADDRESSABLE DEVICE. THE MODULE SHALL HAVE VISUAL INDICATORS FOR THE FOLLOWING COMMON CONTROL FUNCTIONS: POWER ALARM, SUPERVISORY, MONITOR, TROUBLE, DISARM, GROUND FAULT, CPU FAIL, AND TEST. THERE SHALL BE COMMON CONTROL KEYS AND VISUAL INDICATORS FOR RESET, ALARM SILENCE, PANEL SILENCE, AND DRILL. PROVIDE FOUR PAIRS OF DISPLAY CONTROL KEYS FOR SELECTION OF EVENT DISPLAY BY TYPE (ALARM, SUPERVISORY, MONITOR AND TROUBLE) AND FORWARD / BACKWARD SCROLLING THROUGH EVENT LISTINGS. THE OPERATION OF THESE KEYS SHALL BE INTEGRATED WITH THE RELATED COMMON CONTROL INDICATORS TO FLASH THE INDICATORS WHEN INDISPAY EVENTS ARE AVAILABLE FOR DISPLAY AND TURN ON STEADY WHEN ALL EVENTS HAVE BEEN DISPLAYED. THE LCD SHALL DISPLAY THE FIRST EVENT OF THE HIGHEST PRIORITY AS WELL AS THE PREVIOUS SEVEN (7) ALARM EVENTS "HANDS FREE" IN CHRONOLOGICAL ORDER SO THAT THE ARRIVING FIREFIGHTER MAY TRACK THE FIRES PROGRESSION. PROVIDE SYSTEM FUNCTION KEYS: STATUS, REPORTS, ENABLE, DISABLE, ACTIVATE, RESTORE, PROGRAM, AND TEST. THE MODULE SHALL HAVE A NUMERIC KEYPAD, ZERO THROUGH NINE WITH DELETE AND ENTER KEYS.

AS AN ALTERNATE IF THE ABOVE CANNOT BE PROVIDED, PROVIDE UL-LISTED 864 PC GRAPHICS DISPLAY.

T. POWER SUPPLIES
THE POWER SUPPLY SHALL BE A HIGH EFFICIENCY SWITCH MODE TYPE WITH LINE MONITORING TO AUTOMATICALLY SWITCH TO BATTERIES FOR POWER FAULT OR BROWN OUT CONDITIONS. THE AUTOMATIC BATTERY CHARGER SHALL HAVE LOW BATTERY DISCHARGE PROTECTION. THE POWER SUPPLY SHALL PROVIDE INTERNAL



DRAWING DESCRIPTION:
FIRE ALARM SPECIFICATIONS
SHEET 1 OF 2

PROFESSIONAL SEAL HBC PROJECT NO: 17088

FA-003.00

BSCAN

POWER AND 24 VDC AT 7.0A CONTINUOUS FOR NOTIFICATION APPLIANCE CIRCUITS. THE POWER SUPPLY SHALL BE CAPABLE OF PROVIDING 7A TO OUTPUT CIRCUITS FOR A MAXIMUM PERIOD OF 100 MS. ALL OUTPUTS SHALL BE POWER LIMITED. THE BATTERY SHALL BE SIZED TO SUPPORT THE SYSTEM FOR 24 HOURS OF SUPERVISORY AND TROUBLE SIGNAL CURRENT PLUS GENERAL ALARM FOR 15

MINUTES.

U. AUXILIARY POWER SUPPLIES SHALL BE A HIGH EFFICIENCY SWITCH MODE TYPE WITH LINE MONITORING TO AUTOMATICALLY SWITCH TO BATTERIES FOR POWER FAILURE OR BROWN OUT CONDITIONS. THE AUTOMATIC BATTERY CHARGER SHALL HAVE LOW BATTERY DISCHARGE PROTECTION. THE POWER SUPPLY SHALL PROVIDE INTERNAL POWER AND 24 VDC AT 7.0A. CONTINUOUS FOR NOTIFICATION APPLIANCE CIRCUITS. THE POWER SUPPLY SHALL BE CAPABLE OF PROVIDING 7A TO OUTPUT CIRCUITS FOR A MAXIMUM PERIOD OF 100 MS. ALL OUTPUTS SHALL BE POWER LIMITED. THE BATTERY SHALL BE SIZED TO SUPPORT THE SYSTEM FOR 24 HOURS OF SUPERVISORY AND TROUBLE SIGNAL CURRENT PLUS GENERAL ALARM FOR 15 MINUTES.

V. NETWORK ALPHA-NUMERIC ANNUNCIATORS SHALL BE LOCATED THROUGHOUT THE FACILITY AS INDICATED ON THE PLANS. THE SYSTEM SHALL HAVE THE CAPACITY TO SUPPORT 64 NETWORK ANNUNCIATORS OR EST3 NETWORK PANEL NODES. EACH ANNUNCIATOR SHALL CONTAIN A SUPERVISED, BACK LIT, LIQUID CRYSTAL WITH A MINIMUM OF 8 LINE WITH 21 CHARACTERS PER LINE. WHERE REQUIRED, THE ANNUNCIATOR SHALL INCLUDE ADDITIONAL ZONAL ANNUNCIATION AND MANUAL CONTROL WITHOUT ADDITIONAL ENCLOSURES. THE ANNUNCIATOR SHALL SUPPORT FULL ABILITY TO SERVE AS THE OPERATING INTERFACE TO THE SYSTEM AND SHALL INCLUDE THE FOLLOWING FEATURES:

MATCHED APPEARANCE WITH OTHER SYSTEM DISPLAYS

EACH LCD DISPLAY ON EACH NODE (CABINET) IN THE SYSTEM SHALL BE CONFIGURABLE TO SHOW THE STATUS OF ANY OR ALL OF THE FOLLOWING FUNCTIONS ANYWHERE IN THE SYSTEM:

ALARM
SUPERVISORY
TROUBLE
MONITOR

W. EACH ANNUNCIATOR MUST BE CAPABLE OF SUPPORTING CUSTOM MESSAGES AS WELL AS SYSTEM EVENT ANNUNCIATION. IT MUST BE POSSIBLE TO FILTER UNWANTED ANNUNCIATION OF TROUBLE, ALARM OR SUPERVISORY FUNCTIONS ON A BY POINT OR BY GEOGRAPHIC AREA. THE ANNUNCIATORS SHALL BE MOUNTED IN STAND-ALONE ENCLOSURES OR INTEGRATED INTO THE NETWORK PANELS AS INDICATED ON THE PLANS.

2.6 COMPONENTS

A. INTELLIGENT DEVICES--GENERAL

EACH REMOTE DEVICE SHALL HAVE A MICROPROCESSOR WITH NON-VOLATILE MEMORY TO SUPPORT ITS FUNCTIONALITY AND SERVICEABILITY. EACH DEVICE SHALL STORE AS REQUIRED FOR ITS FUNCTIONALITY THE FOLLOWING DATA: DEVICE SERIAL NUMBER, DEVICE ADDRESS, DEVICE TYPE, PERSONALITY CODE, DATE OF MANUFACTURE, HOURS IN USE, TIME AND DATE OF LAST ALARM, AMOUNT OF ENVIRONMENTAL COMPENSATION LEFT/USED, LAST MAINTENANCE DATE, JOB/PROJECT NUMBER, CURRENT DETECTOR SENSITIVITY VALUES, DIAGNOSTIC INFORMATION (TROUBLE CODES) AND ALGORITHMS REQUIRED TO PROCESS SENSOR DATA AND PERFORM COMMUNICATIONS WITH THE LOOP CONTROLLER.

EACH DEVICE SHALL BE CAPABLE OF ELECTRONIC ADDRESSING, EITHER AUTOMATICALLY OR APPLICATION PROGRAMMED ASSIGNED, TO SUPPORT PHYSICAL/ELECTRICAL MAPPING AND SUPERVISION BY LOCATION. SETTING A DEVICE'S ADDRESS BY PHYSICAL MEANS SHALL NOT BE NECESSARY.

B. INTELLIGENT DETECTORS - GENERAL

THE SYSTEM INTELLIGENT DETECTORS SHALL BE CAPABLE OF FULL DIGITAL COMMUNICATIONS USING BOTH BROADCAST AND POLLING PROTOCOL. EACH DETECTOR SHALL BE CAPABLE OF PERFORMING INDEPENDENT FIRE DETECTION ALGORITHMS. THE FIRE DETECTION ALGORITHM SHALL MEASURE SENSOR SIGNAL DIMENSIONS, TIME PATTERNS AND COMBINE DIFFERENT FIRE PARAMETERS TO INCREASE RELIABILITY AND DISTINGUISH REAL FIRE CONDITIONS FROM UNWANTED DECEPTIVE NUISANCE ALARMS. SIGNAL PATTERNS THAT ARE NOT TYPICAL OF FIRES SHALL BE ELIMINATED BY DIGITAL FILTERS. DEVICES NOT CAPABLE OF COMBINING DIFFERENT FIRE PARAMETERS OR EMPLOYING DIGITAL FILTERS SHALL NOT BE ACCEPTABLE.

EACH DETECTOR SHALL HAVE AN INTEGRAL MICROPROCESSOR CAPABLE OF MAKING ALARM DECISIONS BASED ON FIRE PARAMETER INFORMATION STORED IN THE DETECTOR HEAD. DISTRIBUTED INTELLIGENCE SHALL IMPROVE RESPONSE TIME BY DECREASING THE DATA FLOW BETWEEN DETECTOR AND ANALOG LOOP CONTROLLER. DETECTORS NOT CAPABLE OF MAKING INDEPENDENT ALARM DECISIONS SHALL NOT BE ACCEPTABLE. MAXIMUM TOTAL ANALOG LOOP RESPONSE TIME FOR DETECTORS CHANGING STATE SHALL BE 0.5 SECONDS.

EACH DETECTOR SHALL HAVE A SEPARATE MEANS OF DISPLAYING COMMUNICATION AND ALARM STATUS. A GREEN LED SHALL FLASH TO CONFIRM COMMUNICATION WITH THE ANALOG LOOP CONTROLLER. A RED LED SHALL FLASH TO DISPLAY ALARM STATUS.

THE DETECTOR SHALL BE CAPABLE OF IDENTIFYING UP TO 32 DIAGNOSTIC CODES. THIS INFORMATION SHALL BE AVAILABLE FOR SYSTEM MAINTENANCE. THE DIAGNOSTIC CODE SHALL BE STORED AT THE DETECTOR.

EACH SMOKE DETECTOR SHALL BE CAPABLE OF TRANSMITTING PRE-ALARM AND ALARM SIGNALS IN ADDITION TO THE NORMAL, TROUBLE AND NEED CLEANING INFORMATION. IT SHALL BE POSSIBLE TO PROGRAM CONTROL PANEL ACTIVITY TO EACH LEVEL. EACH SMOKE DETECTOR MAY BE INDIVIDUALLY PROGRAMMED TO OPERATE AT ANY ONE OF FIVE (5) SENSITIVITY SETTINGS.

EACH DETECTOR MICROPROCESSOR SHALL CONTAIN AN ENVIRONMENTAL COMPENSATION ALGORITHM WHICH IDENTIFIES AND SETS AMBIENT "ENVIRONMENTAL THRESHOLDS" APPROXIMATELY SIX TIMES AN HOUR. THE MICROPROCESSOR SHALL CONTINUALLY MONITOR THE ENVIRONMENTAL IMPACT OF TEMPERATURE, HUMIDITY, OTHER CONTAMINATES AS WELL AS DETECTOR AGING. THE PROCESS SHALL EMPLOY DIGITAL COMPENSATION TO ADAPT THE DETECTOR TO BOTH 24 HOUR LONG TERM AND 4 HOUR SHORT TERM ENVIRONMENTAL CHANGES. THE MICROPROCESSOR SHALL MONITOR THE ENVIRONMENTAL COMPENSATION VALUE AND ALERT THE SYSTEM OPERATOR WHEN THE DETECTOR APPROACHES 80% AND 100% OF THE ALLOWABLE ENVIRONMENTAL COMPENSATION VALUE. DIFFERENTIAL SENSING ALGORITHMS SHALL MAINTAIN A CONSTANT DIFFERENTIAL BETWEEN SELECTED DETECTOR SENSITIVITY AND THE "LEARNED" BASE LINE SENSITIVITY. THE BASE LINE SENSITIVITY INFORMATION SHALL BE UPDATED AND PERMANENTLY STORED AT THE DETECTOR APPROXIMATELY ONCE EVERY HOUR.

THE INTELLIGENT ANALOG DETECTORS SHALL BE SUITABLE FOR MOUNTING ON ANY SIGNATURE SERIES DETECTOR MOUNTING BASE.

THE FIRE ALARM SYSTEM SHALL HAVE THE ABILITY TO SET ELEVATOR LOBBY IONIZATION OR MULTI SENSING SMOKE DETECTORS FOR ALARM VERIFICATION. DETECTOR IN THE ALARM VERIFICATION MODE SHALL INDICATE BY POINT IN A TEXT FORMAT AT THE MAIN CONTROL AND AT THE REMOTE LCD ANNUNCIATORS.

C. IONIZATION SMOKE DETECTOR, SIGA-IS

PROVIDE INTELLIGENT IONIZATION SMOKE DETECTORS SIGA-IS. THE ANALOG IONIZATION DETECTOR SHALL UTILIZE A UNIPOLAR IONIZATION SMOKE SENSOR TO SENSE CHANGES IN AIR SAMPLES FROM ITS SURROUNDINGS. THE INTEGRAL MICROPROCESSOR SHALL DYNAMICALLY EXAMINE VALUES FROM THE SENSOR AND INITIATE AN ALARM BASED ON THE ANALYSIS OF DATA. SYSTEMS USING CENTRAL INTELLIGENCE FOR ALARM DECISIONS SHALL NOT BE ACCEPTABLE. THE DETECTOR SHALL CONTINUALLY MONITOR ANY CHANGES IN SENSITIVITY DUE TO THE ENVIRONMENTAL AFFECTS OF DIRT, SMOKE, TEMPERATURE, AGING AND HUMIDITY. THE INFORMATION SHALL BE STORED IN THE INTEGRAL PROCESSOR AND TRANSFERRED TO THE ANALOG LOOP CONTROLLER FOR RETRIEVAL USING A LAPTOP PC OR THE SIGA-PRO SIGNATURE PROGRAM/SERVICE TOOL. THE ION DETECTOR SHALL BE RATED FOR CEILING INSTALLATION AT A MINIMUM OF 30 FT (9.1M) CENTERS AND BE SUITABLE FOR WALL MOUNT APPLICATIONS. THE ION SMOKE DETECTOR SHALL BE RATED FOR OPERATION IN CONSTANT AIR VELOCITIES FROM 0

TO 75 FT/MIN. (0-0.38 M/SEC) AND WITH INTERMITTENT AIR GUSTS UP TO 300

FT/MIN. (1.52M/SEC) FOR UP TO 1 HOUR.

THE PERCENT SMOKE OBUSTRATION PER FOOT ALARM SET POINT SHALL BE FIELD SELECTABLE TO ANY OF FIVE SENSITIVITY SETTINGS RANGING FROM 0.7% TO 1.6%. THE ION DETECTOR SHALL BE SUITABLE FOR OPERATION IN THE FOLLOWING ENVIRONMENT:

- TEMPERATURE: 320F TO 1200F (00C TO 490C)
- HUMIDITY: 0-93% RH, NON-CONDENSING
- ELEVATION: UP TO 6,000 FT. (1828 M)

E. PHOTOELECTRIC SMOKE DETECTOR, SIGA-PS

PROVIDE INTELLIGENT PHOTOELECTRIC SMOKE DETECTORS SIGA-PS. THE ANALOG PHOTOELECTRIC DETECTOR SHALL UTILIZE A LIGHT SCATTERING TYPE PHOTOELECTRIC SMOKE SENSOR TO SENSE CHANGES IN AIR SAMPLES FROM ITS SURROUNDINGS. THE INTEGRAL MICROPROCESSOR SHALL DYNAMICALLY EXAMINE VALUES FROM THE SENSOR AND INITIATE AN ALARM BASED ON THE ANALYSIS OF DATA. SYSTEMS USING CENTRAL INTELLIGENCE FOR ALARM DECISIONS SHALL NOT BE ACCEPTABLE. THE DETECTOR SHALL CONTINUALLY MONITOR ANY CHANGES IN SENSITIVITY DUE TO THE ENVIRONMENTAL AFFECTS OF DIRT, SMOKE, TEMPERATURE, AGING AND HUMIDITY. THE INFORMATION SHALL BE STORED IN THE INTEGRAL PROCESSOR AND TRANSFERRED TO THE ANALOG LOOP CONTROLLER FOR RETRIEVAL USING A LAPTOP PC OR THE SIGA-PRO SIGNATURE PROGRAM/SERVICE TOOL. THE PHOTO DETECTOR SHALL BE RATED FOR CEILING INSTALLATION AT A MINIMUM OF 30 FT (9.1M) CENTERS AND BE SUITABLE FOR WALL MOUNT APPLICATIONS. THE PHOTOELECTRIC SMOKE DETECTOR SHALL BE SUITABLE FOR DIRECT INSERTION INTO AIR DUCTS UP TO 3 FT (0.91M) HIGH AND 3 FT (0.91M) WIDE WITH AIR VELOCITIES UP TO 5,000 FT/MIN. (0-25.39 M/SEC) WITHOUT REQUIRING SPECIFIC DUCT DETECTOR HOUSINGS OR SUPPLY TUBES.

THE PERCENT SMOKE OBUSTRATION PER FOOT ALARM SET POINT SHALL BE FIELD SELECTABLE TO ANY OF FIVE SENSITIVITY SETTINGS RANGING FROM 1.0% TO 3.5%. THE PHOTO DETECTOR SHALL BE SUITABLE FOR OPERATION IN THE FOLLOWING ENVIRONMENT:

- TEMPERATURE: 320F TO 1200F (00C TO 490C)
- HUMIDITY: 0-93% RH, NON-CONDENSING
- ELEVATION: NO LIMIT

F. 4D MULTISENSOR DETECTOR, SIGA-IPHS

PROVIDE INTELLIGENT 4D MULTISENSOR SMOKE DETECTORS SIGA-IPHS. THE MULTISENSOR ANALOG DETECTOR SHALL USE A LIGHT SCATTERING TYPE PHOTOELECTRIC SMOKE SENSOR, A UNIPOLAR IONIZATION SMOKE SENSOR AND AN AMBIENT TEMPERATURE SENSOR TO SENSE CHANGES IN AIR SAMPLES FROM ITS SURROUNDINGS. THE INTEGRAL MICROPROCESSOR SHALL EMPLOY TIME BASED ALGORITHMS TO DYNAMICALLY EXAMINE VALUES FROM THE THREE SENSORS SIMULTANEOUSLY AND INITIATE AN ALARM BASED ON THAT DATA. THE 4D MULTISENSOR SHALL BE CAPABLE OF ADAPTING TO AMBIENT ENVIRONMENTAL CONDITIONS. THE TEMPERATURE SENSOR SHALL SELF-ADJUST TO THE AMBIENT TEMPERATURE OF THE SURROUNDING AIR AND INPUT AN ALARM WHEN THERE IS A CHANGE OF 65OF (350C) IN AMBIENT TEMPERATURE. SYSTEMS USING CENTRAL INTELLIGENCE FOR ALARM DECISIONS SHALL NOT BE ACCEPTABLE. THE DETECTOR SHALL CONTINUALLY MONITOR ANY CHANGES IN SENSITIVITY DUE TO THE ENVIRONMENTAL AFFECTS OF DIRT, SMOKE, TEMPERATURE, AGE AND HUMIDITY. THE INFORMATION SHALL BE STORED IN THE INTEGRAL PROCESSOR AND TRANSFERRED TO THE ANALOG LOOP CONTROLLER FOR RETRIEVAL USING A LAPTOP PC OR THE SIGA-PRO SIGNATURE PROGRAM/SERVICE TOOL. SEPARATELY MOUNTED PHOTOELECTRIC DETECTORS, IONIZATION DETECTORS AND HEAT DETECTORS IN THE SAME LOCATION ARE NOT ACCEPTABLE ALTERNATIVES. THE 4D MULTISENSOR SMOKE DETECTOR SHALL BE RATED FOR CEILING INSTALLATION AT A MINIMUM OF 30 FT (9.1M) CENTERS AND SUITABLE FOR WALL MOUNT APPLICATIONS. THE 4D MULTISENSOR SHALL BE SUITABLE FOR DIRECT INSERTION INTO AIR DUCTS UP TO 3 FT (0.91M) HIGH AND 3 FT (0.91M) WIDE AND AIR VELOCITIES UP TO 500 FT/MIN. (0-2.54 M/SEC) WITHOUT REQUIRING SPECIFIC DUCT DETECTOR HOUSINGS OR SUPPLY TUBES.

THE PERCENT SMOKE OBUSTRATION PER FOOT ALARM SET POINT SHALL BE FIELD SELECTABLE TO ANY OF FIVE SENSITIVITY SETTINGS RANGING FROM 1.0% TO 3.5%. THE INTEGRAL HEAT SENSOR SHALL CAUSE AN ALARM WHEN IT SENSSES A CHANGE IN AMBIENT TEMPERATURE OF 65OF (350C) OR REACHES IT FIXED TEMPERATURE ALARM SET POINT OF 135OF (570C) NOMINAL. THE 4D MULTISENSOR DETECTOR SHALL BE SUITABLE FOR OPERATION IN THE FOLLOWING ENVIRONMENT:

- TEMPERATURE: 320F TO 1000F (00C TO 380C)
- HUMIDITY: 0-93% RH, NON CONDENSING
- ELEVATION : UP TO 6,000 FT (1828 M)

G. STANDARD DETECTOR MOUNTING BASES, SIGA-SB / SIGA-SB4

PROVIDE STANDARD DETECTOR MOUNTING BASES SIGA-SB SUITABLE FOR MOUNTING ON NORTH AMERICAN 1-GANG, 3/8" OR 4" OCTAGON BOX AND 4" SQUARE BOX. THE BASE SHALL CONTAIN NO ELECTRONICS, SUPPORT ALL SIGNATURE SERIES DETECTOR TYPES AND HAVE THE FOLLOWING MINIMUM REQUIREMENTS:

- REMOVAL OF THE RESPECTIVE DETECTOR SHALL NOT AFFECT COMMUNICATIONS WITH OTHER DETECTORS.
- TERMINAL CONNECTIONS SHALL BE MADE ON THE ROOM SIDE OF THE BASE. BASES WHICH MUST BE REMOVED TO GAIN ACCESS TO THE TERMINALS SHALL NOT BE ACCEPTABLE.
- THE BASE SHALL BE CAPABLE OF SUPPORTING ONE (1) SIGNATURE SERIES SIGA-LED REMOTE ALARM LED INDICATOR. PROVIDE REMOTE LED ALARM INDICATORS WHERE SHOWN ON THE PLANS.

H. DUCT DETECTOR, MODEL SIGA-SD

PROVIDE MODEL SIGA-SD LOW PROFILE INTELLIGENT ADDRESSABLE DUCT SMOKE DETECTOR AS INDICATED ON THE PROJECT PLANS. PROVIDE FOR VARIATIONS IN DUCT AIR VELOCITY BETWEEN 100 AND 4,000 FEET PER MINUTE AND INCLUDE A WIDE SENSITIVITY RANGE OF .79 TO 2.46%/FT. OBUSTRATION. INCLUDE ONE FORM-C SHUNT DRY CONTACT RATED 2.0 AMPS @ 30 VDC AND ALSO INCLUDE SLAVE HIGH CONTACT RELAYS IF REQUIRED. PROVIDE AN AIR EXHAUST TUBE AND AN AIR SAMPLING INLET TUBE THAT EXTENDS INTO THE DUCT AIR STREAM UP TO TEN FEET. THE ADDRESSABLE DUCT HOUSING SHALL BE SUITABLE FOR EXTREME ENVIRONMENTS, INCLUDING A TEMPERATURE RANGE OF -20 TO 158 DEGREES F (-29 TO 70 DEGREES CELSIUS) AND OFFER A HARSH ENVIRONMENT GASKET OPTION. PROVIDE REMOTE ALARM LED INDICATORS SIGA-LED AND/OR REMOTE TEST STATION MODEL SD-TRK AS INDICATED ON THE PROJECT PLANS.

I. INTELLIGENT MODULES--GENERAL

IT SHALL BE POSSIBLE TO ADDRESS EACH INTELLIGENT SIGNATURE SERIES MODULE WITHOUT THE USE OF DIP OR ROTARY SWITCHES. DEVICES USING DIP SWITCHES FOR ADDRESSING SHALL NOT BE ACCEPTABLE. THE PERSONALITY OF MULTIFUNCTION MODULES SHALL BE PROGRAMMABLE AT SITE TO SUIT CONDITIONS AND MAY BE CHANGED AT ANY TIME USING A PERSONALITY CODE DOWNLOADED FROM THE ANALOG LOOP CONTROLLER. MODULES REQUIRING EPROM, PROM, ROM CHANGES OR DIP SWITCH AND/OR JUMPER CHANGES SHALL NOT BE ACCEPTABLE. THE MODULES SHALL HAVE A MINIMUM OF 2 DIAGNOSTIC LEADS MOUNTED BEHIND A FINISHED COVER PLATE. A GREEN LED SHALL FLASH TO CONFIRM COMMUNICATION WITH THE LOOP CONTROLLER. A RED LED SHALL FLASH TO DISPLAY ALARM STATUS. THE MODULE SHALL BE CAPABLE OF STORING UP TO 24 DIAGNOSTIC CODES WHICH CAN BE RETRIEVED FOR TROUBLESHOOTING ASSISTANCE. INPUT AND OUTPUT CIRCUIT WIRING SHALL BE SUPERVISED FOR OPEN AND GROUND FAULTS. THE MODULE SHALL BE SUITABLE FOR OPERATION IN THE FOLLOWING ENVIRONMENT:

- TEMPERATURE: 320F TO 1200F (00C TO 490C)
- HUMIDITY: 0-93% RH, NON-CONDENSING

J. SINGLE INPUT MODULE, SIGA-CT1

PROVIDE INTELLIGENT SINGLE INPUT MODULES SIGA-CT1. THE SINGLE INPUT MODULE SHALL PROVIDE ONE (1) SUPERVISED CLASS INPUT CIRCUIT CAPABLE OF A MINIMUM OF 4 PERSONALITIES, EACH WITH A DISTINCT OPERATION. THE MODULE SHALL BE SUITABLE FOR MOUNTING ON NORTH AMERICAN 2 1/2" (64MM) DEEP 1-GANG BOXES AND 1 1/2" (38MM) DEEP 4" SQUARE BOXES WITH 1-GANG COVERS. THE SINGLE INPUT MODULE SHALL SUPPORT THE FOLLOWING CIRCUIT TYPES:

- NORMALLY-OPEN ALARM LATCHING (MANUAL STATIONS, HEAT DETECTORS, ETC.)
- NORMALLY-OPEN ALARM DELAYED LATCHING (WATERFLOW SWITCHES)
- NORMALLY-OPEN ACTIVE NON-LATCHING (MONITOR, FANS, DAMPERS, DOORS, ETC.)
- NORMALLY-OPEN ACTIVE LATCHING (SUPERVISORY, TAMPER SWITCHES)

M. SINGLE INPUT SIGNAL MODULE, SIGA-CC1

PROVIDE INTELLIGENT SINGLE INPUT SIGNAL MODULES SIGA-CC1 FOR ACTIVATING NOTIFICATION APPLIANCE (HORN, STROBE AND HORN STROBE) CIRCUITS. THE SINGLE INPUT (SINGLE RISER SELECT) SIGNAL MODULE SHALL PROVIDE ONE (1) SUPERVISED CLASS B OUTPUT CIRCUIT. THE MODULE SHALL BE SUITABLE FOR MOUNTING ON NORTH AMERICAN 2 1/2" (64MM) DEEP 2-GANG BOXES AND 1 1/2" (38MM) DEEP 4" SQUARE BOXES WITH 2-GANG COVERS, OR EUROPEAN 100MM SQUARE BOXES. THE SINGLE INPUT SIGNAL MODULE SHALL SUPPORT THE FOLLOWING OPERATIONS:

- AUDIBLE/VISIBLE SIGNAL POWER SELECTOR (POLARIZED 24 VDC @ 2A)

N. CONTROL RELAY MODULE, SIGA-CR

PROVIDE INTELLIGENT CONTROL RELAY MODULES SIGA-CR. THE CONTROL RELAY MODULE SHALL PROVIDE ONE FORM "R" DRY RELAY CONTACT RATED AT 2 AMPS @ 24 VDC TO CONTROL EXTERNAL APPLIANCES OR EQUIPMENT SHUTDOWN. THE CONTROL RELAY SHALL BE RATED FOR PILOT DUTY AND RELEASING SYSTEMS. THE POSITION OF THE RELAY CONTACT SHALL BE CONFIRMED BY THE SYSTEM FIRMWARE. THE CONTROL RELAY MODULE SHALL BE SUITABLE FOR MOUNTING ON NORTH AMERICAN 2 1/2" (64MM) DEEP 1-GANG BOXES AND 1 1/2" (38MM) DEEP 4" SQUARE BOXES WITH 1-GANG COVERS.

O. INTELLIGENT MANUAL PULL STATIONS - GENERAL

IT SHALL BE POSSIBLE TO ADDRESS EACH SIGNATURE SERIES FIRE ALARM PULL STATION WITHOUT THE USE OF DIP OR ROTARY SWITCHES. DEVICES USING DIP SWITCHES FOR ADDRESSING SHALL NOT BE ACCEPTABLE. THE MANUAL STATIONS SHALL HAVE A MINIMUM OF 2 DIAGNOSTIC LEADS MOUNTED ON THEIR INTEGRAL, FACTORY ASSEMBLED SINGLE OR TWO STAGE INPUT MODULE. A GREEN LED SHALL FLASH TO CONFIRM COMMUNICATION WITH THE LOOP CONTROLLER. A RED LED SHALL FLASH TO DISPLAY ALARM STATUS. THE STATION SHALL BE CAPABLE OF STORING UP TO 24 DIAGNOSTIC CODES WHICH CAN BE RETRIEVED FOR TROUBLESHOOTING ASSISTANCE. INPUT CIRCUIT WIRING SHALL BE SUPERVISED FOR OPEN AND GROUND FAULTS. THE FIRE ALARM PULL STATION SHALL BE SUITABLE FOR OPERATION IN THE FOLLOWING ENVIRONMENT:

- TEMPERATURE: 320F TO 1200F (00C TO 490C)
- HUMIDITY: 0-93% RH, NON-CONDENSING

THE MANUAL STATION SHALL BE PAINTED WITH A ONE INCH WIDE (1" W.) WHITE STRIPE RUNNING DIAGONALLY FROM THE UPPER LEFT CORNER TO THE LOWER RIGHT CORNER.

MANUAL PULL STATION, SIGA-270

PROVIDE INTELLIGENT SINGLE ACTION, SINGLE STAGE FIRE ALARM STATIONS SIGA-270. THE FIRE ALARM STATION SHALL BE OF METAL CONSTRUCTION WITH AN INTERNAL TOGGLE SWITCH. PROVIDE A LOCKED TEST FEATURE. FINISH THE STATION IN RED WITH SILVER "PULL IN CASE OF FIRE" ENGLISH LETTERING. THE MANUAL STATION SHALL BE SUITABLE FOR MOUNTING ON NORTH AMERICAN 2 1/2" (64MM) DEEP 1-GANG BOXES AND 1 1/2" (38MM) DEEP 4" SQUARE BOXES WITH 1-GANG COVERS. ALL MANUAL STATIONS WHICH, WHEN ACTIVATED DIAL THE CENTRAL STATION SHALL BE MECHANICALLY IDENTIFIED WITH A WHITE STRIPE PER NYC CODE.

P. NOTIFICATION APPLIANCES - GENERAL

ALL APPLIANCES SHALL BE UL LISTED FOR FIRE PROTECTIVE SERVICE.

ALL STROBE APPLIANCES OR COMBINATION APPLIANCES WITH STROBES SHALL BE CAPABLE OF PROVIDING THE "EQUIVALENT FACILITATION" WHICH IS ALLOWED UNDER THE AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES (ADA/AG), AND SHALL BE UL 1971, ARRANGED PER NYC BUILDING CODE.

ALL APPLIANCES SHALL BE OF THE SAME MANUFACTURER AS THE FIRE ALARM CONTROL PANEL SPECIFIED TO INSURE ABSOLUTE COMPATIBILITY BETWEEN THE APPLIANCES AND THE CONTROL PANELS, AND TO INSURE THAT THE APPLICATION OF THE APPLIANCES ARE DONE IN ACCORDANCE WITH THE SINGLE MANUFACTURERS' INSTRUCTIONS.

ANY APPLIANCES WHICH DO NOT MEET THE ABOVE REQUIREMENTS, AND ARE SUBMITTED FOR USE MUST SHOW WRITTEN PROOF OF THEIR COMPATIBILITY FOR THE PURPOSES INTENDED. SUCH PROOF SHALL BE IN THE FORM OF DOCUMENTATION FROM ALL MANUFACTURERS WHICH CLEARLY STATES THAT THEIR EQUIPMENT (AS SUBMITTED) ARE 100% COMPATIBLE WITH EACH OTHER FOR THE PURPOSES INTENDED.

Q. STROBES, G1RF-VM SERIES

PROVIDE EST SERIES G1RF-VM SERIES LOW PROFILE WALL MOUNTED STROBES AT THE LOCATIONS SHOWN ON THE DRAWINGS. STROBES SHALL PROVIDE SYNCHRONIZED FLASH OUTPUTS. STROBE OUTPUT SHALL BE FIELD SELECTABLE AS INDICATED ON THE DRAWINGS IN ONE OF THE FOLLOWING INTENSITY LEVELS: 15/75, 15/50, 30/50, 75/50 OR 110/50. LOW PROFILE STROBES SHALL MOUNT IN A NORTH AMERICAN 1-GANG BOX OR SURFACE MOUNTED ON A MATCHING BACK BOX PROVIDED BY THE MANUFACTURER, AS DIRECTED IN THE FIELD.

• THE FIRE ALARM VENDOR MAY SELECT BELOW 75 CANDELA WHERE ALLOWED BY THE APPROPRIATE RELEASE OF ADA. 15/75 STROBES MAY BE USED IN CORRIDORS AND IN LOCATIONS WHERE 15 CANDELA IS REQUIRED PER NFPA WALL AND CEILING TABLES (SEE NFPA 72).

R. TEMPORAL HORN STROBES, G1RF-HDMV SERIES

PROVIDE EST SERIES G1RF-HDMV LOW PROFILE WALL MOUNT HORN-STROBES AT THE LOCATIONS SHOWN ON THE DRAWINGS. THE HORN-STROBE SHALL PROVIDE AN AUDIBLE OUTPUT OF 84.4 DBA AT 10 FT AT THE HIGH SETTING AND FOR SMALL ROOM SIZE LOCATIONS (AS INDICATED ON THE PLANS) A LOW DB SETTING (FIELD SELECTABLE) OF 79.4 DB AT 10 FT, WHEN MEASURED IN REVERBERATION ROOM PER UL-464. STROBES SHALL PROVIDE SYNCHRONIZED FLASH OUTPUTS. THE STROBE OUTPUT SHALL BE AS INDICATED ON THE DRAWINGS IN ONE OF THE FOLLOWING FIELD SELECTABLE INTENSITY LEVELS*: 15/75, 15/50, 30/50, 75/50 & 110/50 DEVICES. THE HORN SHALL HAVE A SELECTABLE STEADY OR SYNCHRONIZED TEMPORAL OUTPUT. LOW PROFILE HORN-STROBES SHALL MOUNT IN A NORTH AMERICAN 1-GANG BOX OR SURFACE MOUNTED ON A MATCHING BACK BOX PROVIDED BY THE MANUFACTURER, AS DIRECTED IN THE FIELD.

• THE FIRE ALARM VENDOR MAY SELECT BELOW 75 CANDELA WHERE ALLOWED BY THE APPROPRIATE RELEASE OF ADA. 15/75 STROBES MAY BE USED IN CORRIDORS AND IN LOCATIONS WHERE 15 CANDELA IS REQUIRED PER NFPA WALL AND CEILING TABLES (SEE NFPA 72).

S. REMOTE RELAYS

MULTI-VOLTAGE CONTROL RELAYS, MR-100 SERIES

PROVIDE REMOTE CONTROL RELAYS CONNECTED TO SUPERVISED ANCILLARY CIRCUITS FOR CONTROL OF FANS, DAMPERS, DOOR RELEASES, ETC. RELAY CONTACT RATINGS SHALL BE SPDT AND RATED FOR 10 AMPERES AT 115 VAC. A SINGLE RELAY MAY BE ENERGIZED FROM A VOLTAGE SOURCE OF 24 VDC, 24 VAC, 115 VAC, OR 230 VAC. A RED LED SHALL INDICATE THE RELAY IS ENERGIZED. A METAL ENCLOSURE SHALL BE PROVIDED.

T. MULTI-VOLTAGE CONTROL RELAYS, MR-200 SERIES

PROVIDE REMOTE CONTROL RELAYS CONNECTED TO SUPERVISED ANCILLARY CIRCUITS FOR CONTROL OF FANS, DAMPERS, DOOR RELEASES, ETC. RELAY CONTACT RATINGS SHALL BE DPDT AND RATED FOR 10 AMPERES AT 115 VAC. A SINGLE RELAY MAY BE ENERGIZED FROM A VOLTAGE SOURCE OF 24 VDC, 24 VAC, 115 VAC, OR 230 VAC. A RED LED SHALL INDICATE THE RELAY IS ENERGIZED. A METAL ENCLOSURE SHALL BE PROVIDED.

U. ELECTROMAGNETIC DOORHOLDERS - GENERAL

ELECTROMAGNETIC DOORHOLDERS SUBMITTED FOR USE MUST HAVE WRITTEN PROOF OF THEIR COMPATIBILITY FOR THE PURPOSES INTENDED. SUCH PROOF SHALL BE IN THE FORM OF DOCUMENTATION FROM ALL MANUFACTURERS THAT CLEARLY STATES THAT THEIR EQUIPMENT (AS SUBMITTED) IS 100% COMPATIBLE WITH EACH OTHER FOR THE PURPOSES INTENDED.

V. WALL MOUNTED, 1504/1505/1508/1509 SERIES

PROVIDE FLUSH, SEMI-FLUSH OR SURFACE WALL MOUNTED ELECTROMAGNETIC DOORHOLDER/RELEASES RATED AT 24 VAC/DC AS DIRECTED BY THE CONSULTING ENGINEER. FINISH SHALL BE BRUSHED ZINC.

W. CODE CARDS AND HOLDERS: SHALL BE RED PAINTED, STEEL, FRAME CODE CARD HOLDER WITH CLEAR, ACRYLIC WINDOW AND A MINIMUM FIVE INCH WIDE BY EIGHT INCH HIGH (5" W X 8"H) CODE CARD. EACH CODE CARD SHALL BE OF ADEQUATE SIZE TO LIST THE ALL THE ALARM CODES AND AREA DESCRIPTIONS

SERVED BY EACH ALARM INITIATING CIRCUIT IN THE BUILDING. PROVIDE ONE (1) CODE CARD AND HOLDER AT EACH MANUAL FIRE ALARM STATION IN THE BUILDING, AT THE REMOTE ANNUNCIATOR PANEL AND AT THE FACP.

OPERATING INSTRUCTION/RISER DIAGRAM HOLDERS: SHALL BE RED PAINTED STEEL, FRAME HOLDER WITH CLEAR, ACRYLIC WINDOW WITH NINE INCH BY TWELVE INCH (9" X 12") DIMENSIONS. ONE (1) HOLDER SHALL BE PROVIDED FOR THE FIRE ALARM CONTROL PANEL (FACP)/SYSTEM OPERATING INSTRUCTIONS AND ONE (1) HOLDER SHALL BE PROVIDED FOR A REDUCED COPY (8-1/2" X 11") OF THE FIRE ALARM SYSTEM RISER DIAGRAM. THE OPERATING INSTRUCTION AND RISER DIAGRAM HOLDERS SHALL BE MOUNTED ADJACENT TO THE FIRE ALARM CONTROL PANEL (FACP).

Y. FIRE ALARM SYSTEM FUSED CUT-OUT:

THE CONTRACTOR SHALL PROVIDE AN INDIVIDUAL CARTRIDGE FUSED CUT-OUT PANEL WITH THREE (3) POLES AND A REMOVABLE, SOLID COPPER, NEUTRAL BAR IN FUSE GAP FOR THE FCS AND REMOTE TRANSFORMERS. FUSED CUT-OUTS SHALL BE PROVIDED WITH SILVER SAND FUSES, CURRENT LIMITING TYPE WITH AN INTERRUPTING CAPACITY RATING OF 200,000 AMPS (R.M.S. SYMMETRICAL). THE SIZE OF THE FUSES SHALL BE THIRTY (30) AMPERES.

THE FUSED CUT-OUT PANEL SHALL BEAR AN ENGRAVED WHITE-OPRE PHENOLIC OR BAKELITE IDENTIFICATION NAMEPLATE STATING IN MINIMUM ONE-QUARTER INCH (1/4") HIGH WHITE LETTERS ON A RED BACKGROUND "FIRE ALARM FUSED CUT-OUT".

A FOUR (4) WIRE FEEDER SHALL BRING THREE PHASE 120/208 VOLT SERVICE TO THE FUSED CUT-OUT. THE FEEDER SHALL BE TAPPED OFF THE MAIN BUILDING SERVICE AHEAD OF THE MAIN SERVICE SWITCH BUT AFTER THE CURRENT TRANSFORMERS (METERING TRANSFORMERS).

ART III - EXECUTION

1.1 INSTALLATION

A. THE ENTIRE SYSTEM SHALL BE INSTALLED IN A WORKMANLIKE MANNER, IN ACCORDANCE WITH APPROVED MANUFACTURER'S WIRING DIAGRAM. THE CONTRACTOR SHALL FURNISH ALL CONDUIT, WIRING, OUTLET BOXES, JUNCTION BOXES, CABINETS AND SIMILAR DEVICES NECESSARY FOR THE COMPLETE INSTALLATION. ALL WIRING SHALL BE OF THE TYPE RECOMMENDED BY THE MANUFACTURER, APPROVED BY THE LOCAL FIRE DEPARTMENT, RS17-3, AND SPECIFIED WITH IN. ALL CONDUIT AND WIRE SHALL MEET THE REQUIREMENTS OF RS17-3 AS REQUIRED BY THE APRIL 13, 2003 AMENDMENTS.

B. ALL PENETRATION OF FLOOR SLABS AND FIREWALLS SHALL BE SLEEVED (1" CONDUIT MINIMUM) FIRE STOPPED IN ACCORDANCE WITH ALL LOCAL FIRE CODES.

C. END OF LINE RESISTORS SHALL BE FURNISHED AS REQUIRED FOR MOUNTING AS DIRECTED BY THE MANUFACTURER. DEVICES CONTAINING END-OF-LINE RESISTORS SHALL BE APPROPRIATELY LABELED. DEVICES SHOULD BE LABELED SO REMOVAL OF THE DEVICE IS NOT REQUIRED TO IDENTIFY THE EOL DEVICE.

D. ALL MANUAL PULL STATIONS SHALL BE MOUNTED 48 INCHES ABOVE THE FINISHED FLOOR, AS MEASURED TO THE HANDLE. ALL MANUAL PULL STATIONS THAT PROVIDE CENTRAL STATION CONNECTION SHALL INCLUDE A WHITE STRIP PER NYC CODE REQUIREMENTS.

E. ALL AUDIO/VISUAL DEVICES SHALL BE MOUNTED 80 INCHES ABOVE THE FINISHED FLOOR, AS MEASURED TO THE LENS. DEVICES SHALL BE MOUNTED NO LESS THAN 6 INCHES FROM THE CEILING. AUDIO VISUAL DEVICES SHALL BE MOUNTED PER RS-3.

F. NO AREA SMOKE DETECTORS SHALL BE MOUNTED WITHIN 36 INCHES OF ANY HVAC SUPPLY, RETURN AIR REGISTER OR LIGHTING FIXTURE.

G. NO AREA SMOKE OR HEAT DETECTOR SHALL BE MOUNTED WITHIN 12 INCHES OF ANY WALL. ALL DETECTORS SHALL BE INSTALLED IN STRICT ACCORDANCE WITH NFPA 72 AS AMENDED IN RS-3 GUIDELINES FOR SUCH DEVICES.

H. ALL MECHANICAL ROOMS, BOILER ROOMS, GYMNASIUMS, WIRING CLOSETS, CUSTODIAN ROOMS, ATTIC SPACES, ETC. OR AREAS WITH NO HUNG CEILINGS SHALL BE PIPED WITH 3/4" CONDUIT AND INSTALLED AS NECESSARY BY RS17-3. ALL AREAS IN PUBLIC VIEW SHALL BE IN METAL CONDUIT. ALL BOXES MUST BE PAINTED RED AND LABELED "INTERIOR FIRE ALARM".

I. ALL ADDRESSABLE MODULES SHALL BE MOUNTED WITHIN 36 INCHES OF THE MONITORED OR CONTROLLED POINT OF TERMINATION. THIS SHALL INCLUDE, BUT IS NOT NECESSARILY LIMITED TO, FAN SHUTDOWN, ELEVATOR RECALL, SHUNT TRIP SPRINKLER STATUS POINTS, OR DOOR RELEASE. LABEL ALL ADDRESSABLE MODULES AS TO THEIR FUNCTION.

J. NEW DOOR HOLDERS SHALL DERIVE THEIR 24VAC/VDC POWER FROM A SEPARATE POWER SUPPLY HOUSED IN A DEDICATED, METAL ENCLOSURE. THE POWER SUPPLY SHALL HAVE A 120VAC FEED, AND IS TO BE CENTRALLY LOCATED TO SERVE DOOR HOLDERS ON A PER FLOOR OR AREA BASIS. ALL EXISTING DOOR HOLDERS SHALL BE CONNECTED TO NEW FACP. E.C. SHALL EXTEND ALL EXISTING WIRING IN ORDER TO MAKE THIS WORK. LOCATIONS AND QUANTITIES OF DOOR HOLDER POWER SUPPLIES SHALL BE REFERENCED AND SUBMITTED IN THE SUBMISSION PACKAGE FOR APPROVAL BY THE CONSULTING ENGINEER.

K. ALL LOW VOLTAGE WIRING TERMINATED TO THE FIRE ALARM SYSTEM SHALL BE PLENUM RATED WITH NO EXCEPTIONS AND NO LESS THAN NO. 12 AWG IN SIZE FOR NAC CIRCUITS AND 16 AWG FOR INITIATING CIRCUITS, AND SOLID COPPER PER RS17-3. EXPOSED WIRE ABOVE 8FT AFT SHALL BE 150 DEGREES C AND AS SPECIFIED IN RS17-3.

L. ALL LINE VOLTAGE (120VAC) WIRING SHALL BE NO LESS THAN NO. 12 AWG IN SIZE, AND SOLID COPPER. THIS SHALL INCLUDE ALL SYSTEM GROUNDING. FACP MUST HAVE A DEDICATED FUSE CUT OUT ARRANGED PER NYC CODE.

M. ALL WIRING SHALL BE COLOR-CODED THROUGHOUT, TO NATIONAL ELECTRICAL CODE STANDARDS AND RS17-3.

N. POWER-LIMITED/NON-POWER-LIMITED NEC WIRING STANDARDS SHALL BE OBSERVED.

O. ALL JUNCTION BOX COVERS SHALL BE PAINTED RED AND LABELED "INTERIOR FIRE ALARM SYSTEM".

P. FIRE ALARM SYSTEM WIRING SHALL NOT CO-MINGLE WITH ANY OTHER SYSTEM WIRING IN THE FACILITY. CONDUITS SHALL NOT BE SHARED UNDER ANY CIRCUMSTANCE. ONLY WHEN FIRE ALARM WIRING ENTERS THE ENCLOSURE OF A MONITORED OR CONTROLLED SYSTEM WILL CO-HABITATION BE PERMITTED (I.E. AT FAN STARTERS OR ELEVATOR CONTROLLERS). THIS WILL BE FIELD INSPECTED BY THE PROJECT ENGINEER.

Q. FIRE ALARM CONTROL PANEL ENCLOSURES SHALL HAVE ENGRAVED LABELS INDICATING, "INTERIOR FIRE ALARM SYSTEM", AND THE AREAS OF THE BUILDING SERVED BY THAT PANEL.

R. AUXILIARY RELAYS SHALL BE APPROPRIATELY LABELED TO INDICATE "FIRE ALARM SYSTEM" AND THEIR SPECIFIC FUNCTION (I.E. FAN S-1 SHUTDOWN).

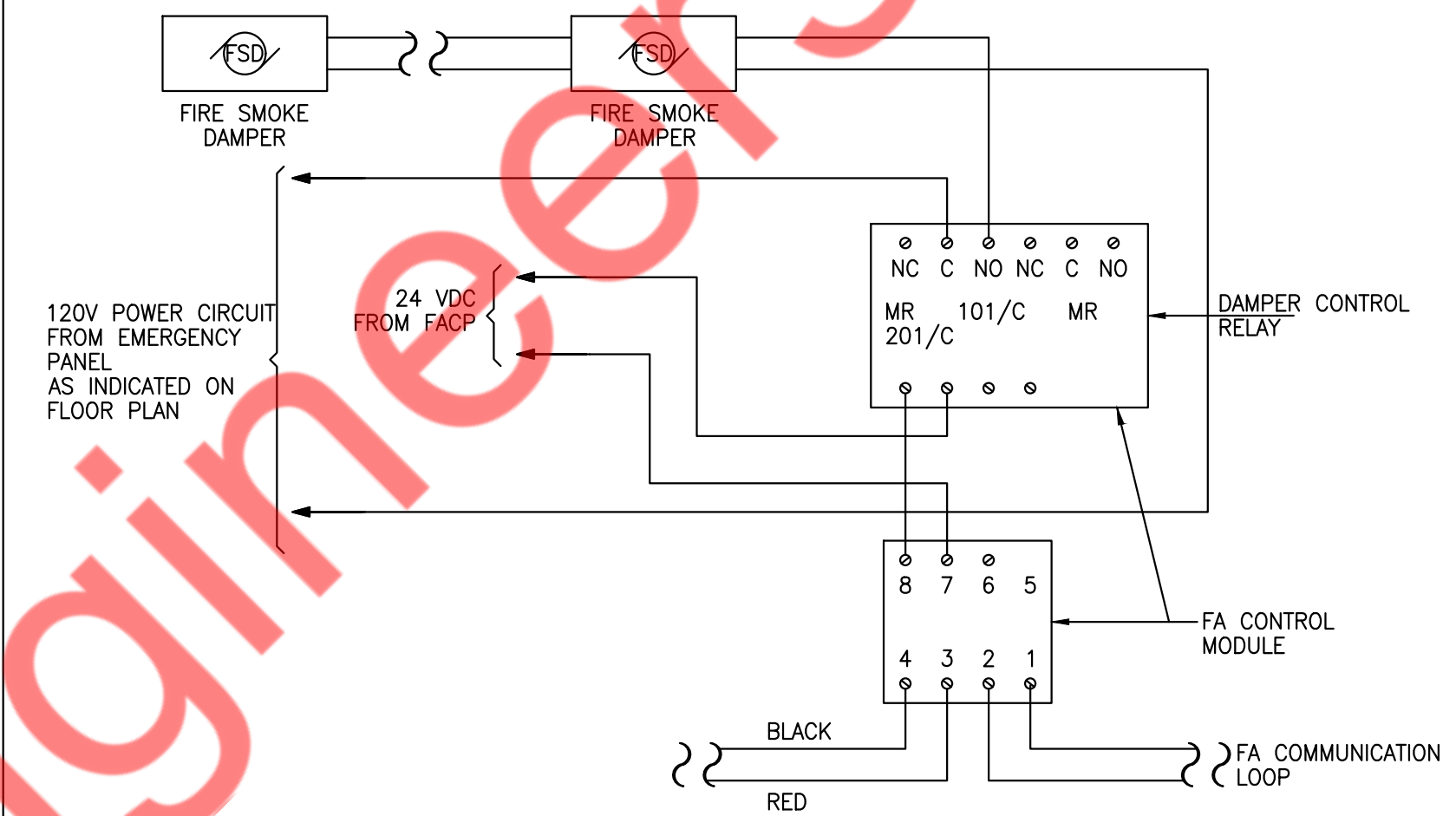
S. ALL FIRE ALARM WIRING SHALL BE CONTINUOUS AND UNSPLICED. TERMINATIONS SHALL ONLY OCCUR AT FIRE ALARM DEVICES OR CONTROL PANEL ENCLOSURES UNDER TERMINAL SCREWS. ALL OTHER SPLICING METHODS ARE SPECIFICALLY DISALLOWED (I.E. PLASTIC WIRENUTS).

T. ALL FIRE ALARM WIRING SHALL BE INSTALLED USING A DEDICATED SYSTEM OF SUPPORTS (I.E. BRIDLE RINGS). FIRE ALARM WIRING SHALL NOT BE BUNDLED OR STRAPPED TO EXISTING CONDUIT, PIPE OR WIRE IN THE FACILITY. THIS WILL BE FIELD INSPECTED BY THE PROJECT ENGINEER.

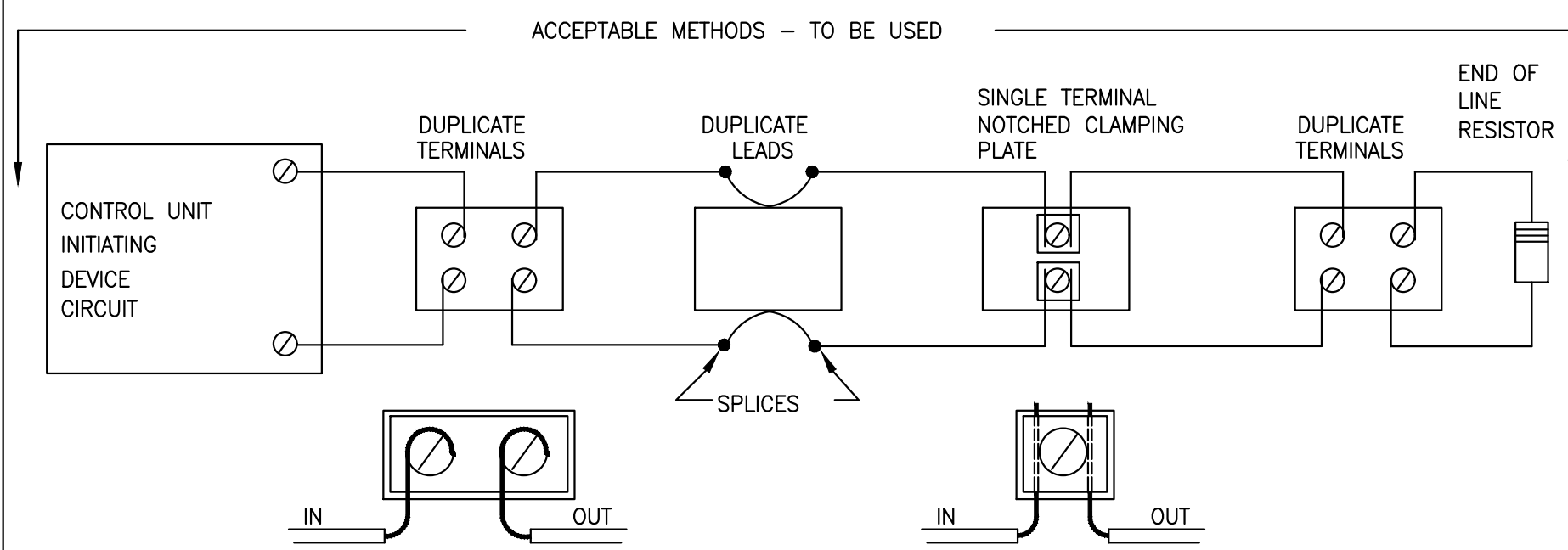
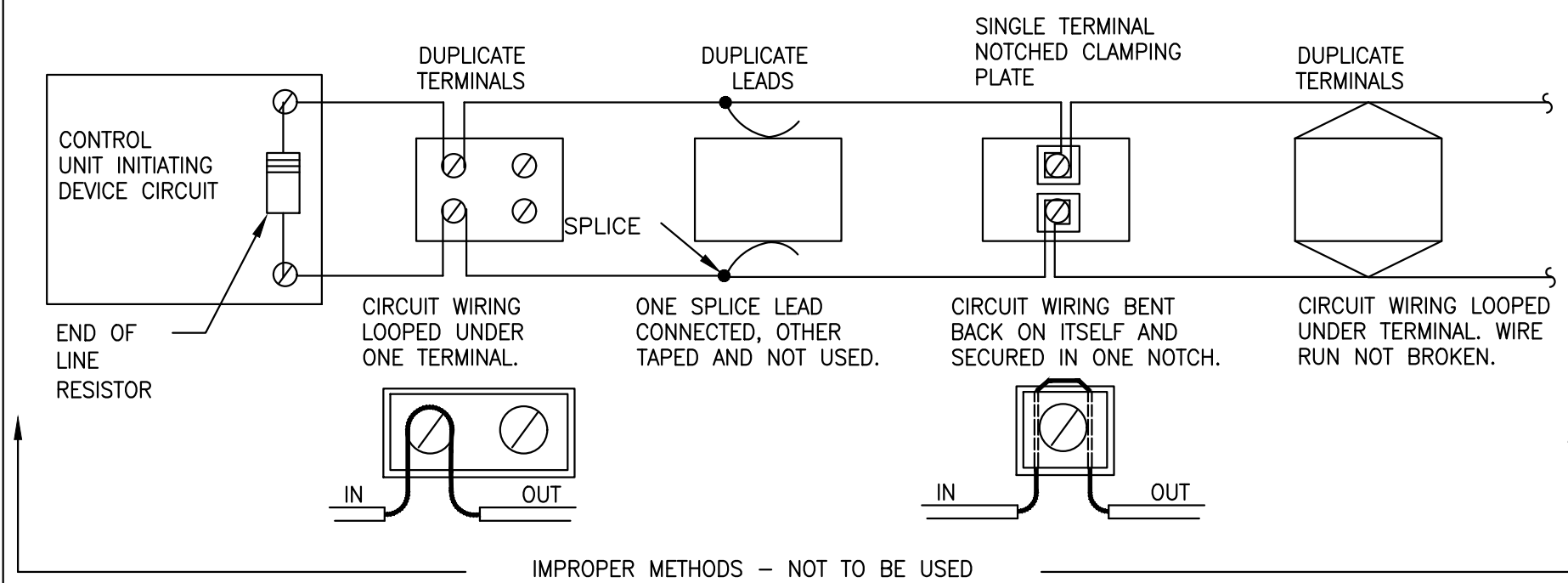
U. ALL FIRE ALARM WIRING SHALL BE SLEEVED WHEN PASSING THROUGH ANY WALL, USING CONDUIT SLEEVES (1" MIN.) WITH BUSHINGS, AND FIRE STOPPED IN ACCORDANCE WITH CODE.

V. THE SYSTEM SHALL BE ARRANGED TO RECEIVE POWER FROM ONE THREE WIRE 120 VAC, 20 A SUPPLY. ALL LOW VOLTAGE OPERATION SHALL BE PROVIDED FROM THE FIRE ALARM CONTROL PANEL.

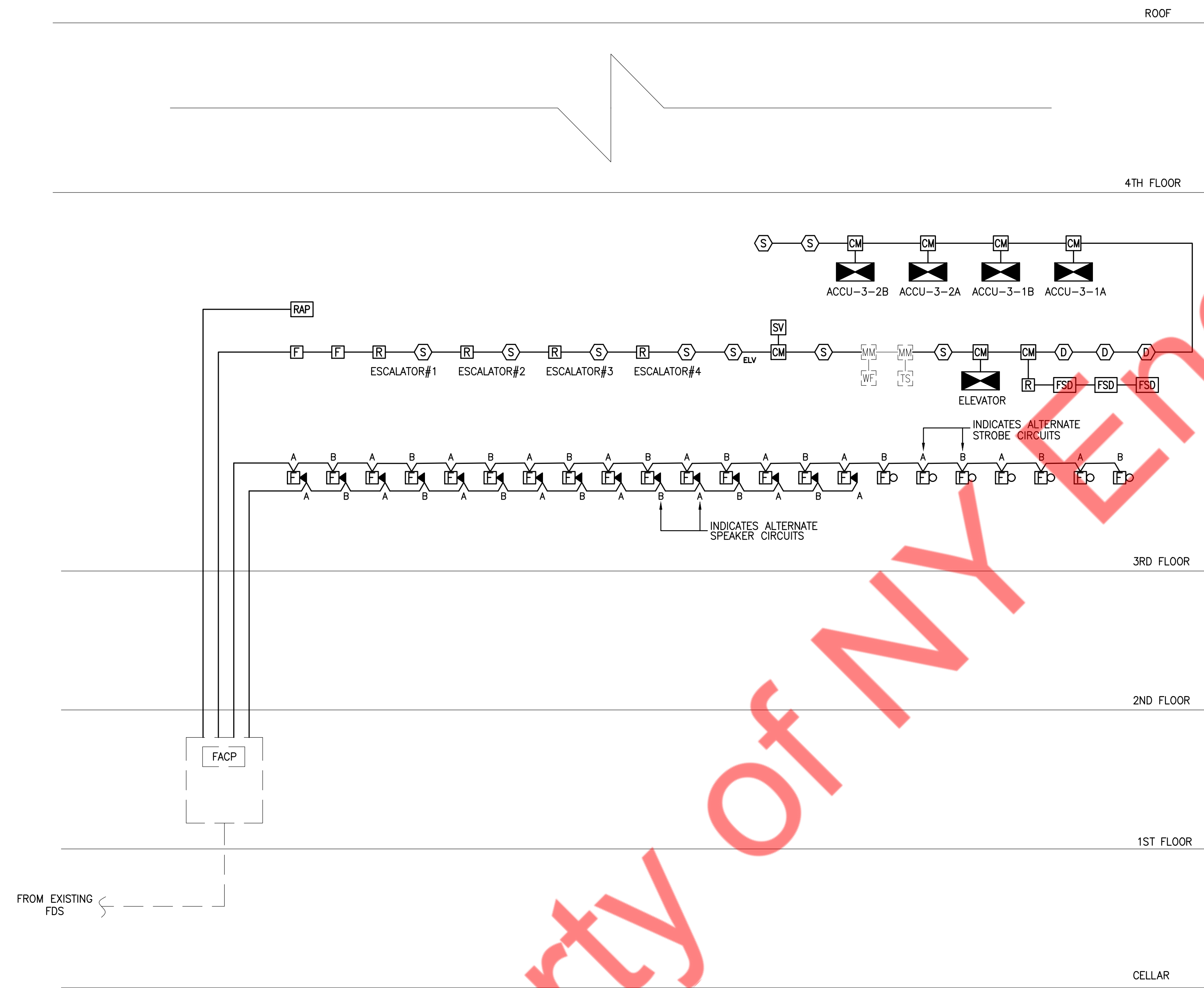
W. ALL FIRE ALARM DEVICES SHALL BE ACCESSIBLE FOR PERIODIC MAINTENANCE. SHOULD A DEVICE LOCATION INDICATED ON THE CONTRACT DRAWINGS NOT MEET THIS REQUIREMENT, IT SHALL BE THE RESPONSIBILITY OF THE INSTALLING CONTRACTOR TO BRING IT, IN WRITING, TO THE ATTENTION OF THE PROJECT ENGINEER. FAILURE TO BRING SUCH ISSUES TO THE ATTENTION OF THE PROJECT



2 TYPICAL BLOCK WIRING DIAGRAM FOR FIRE/SMOKE DAMPER CONTROL
FA-005 N.T.S



1 WIRING TERMINATION METHOD
FA-005 N.T.S

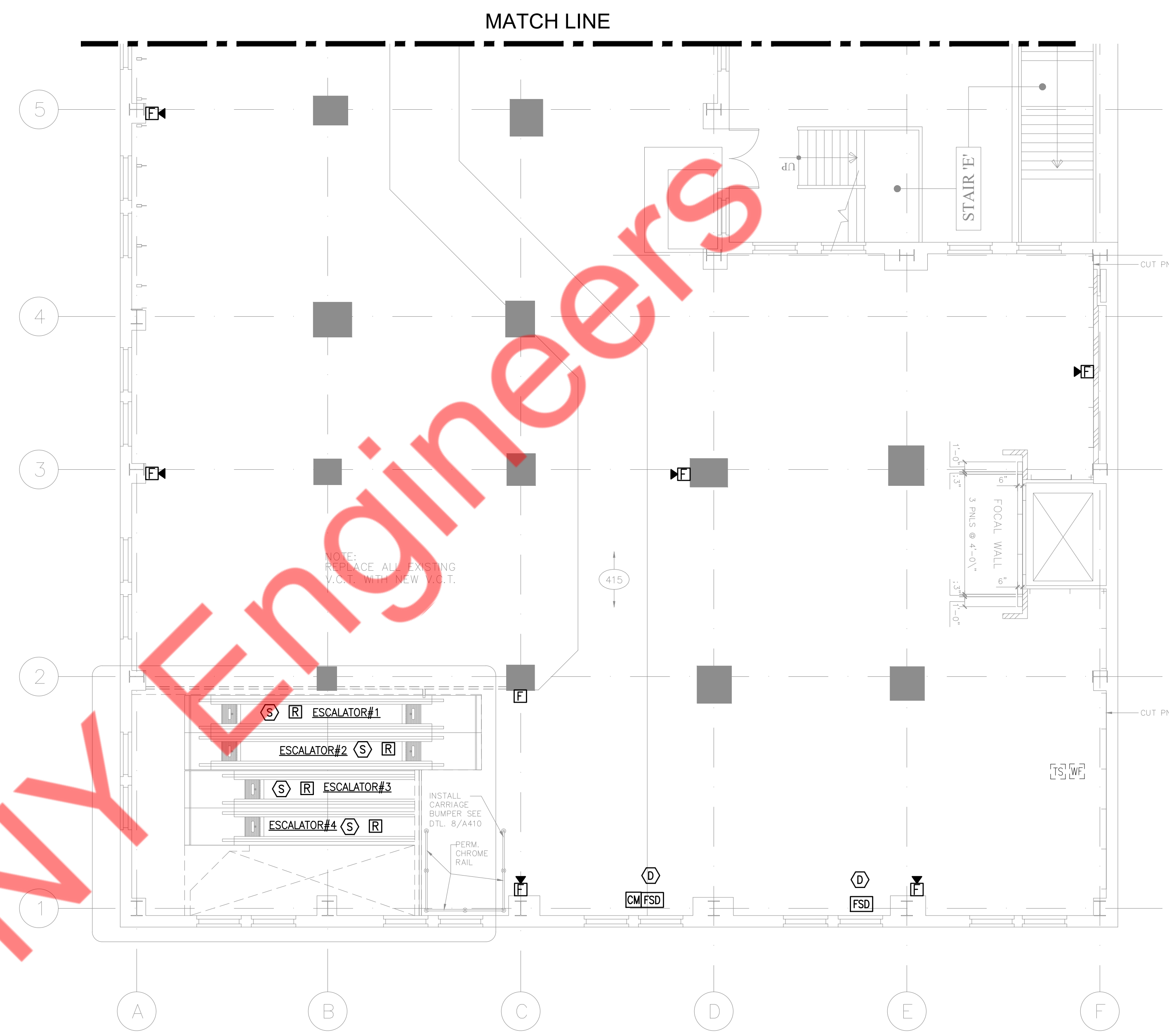
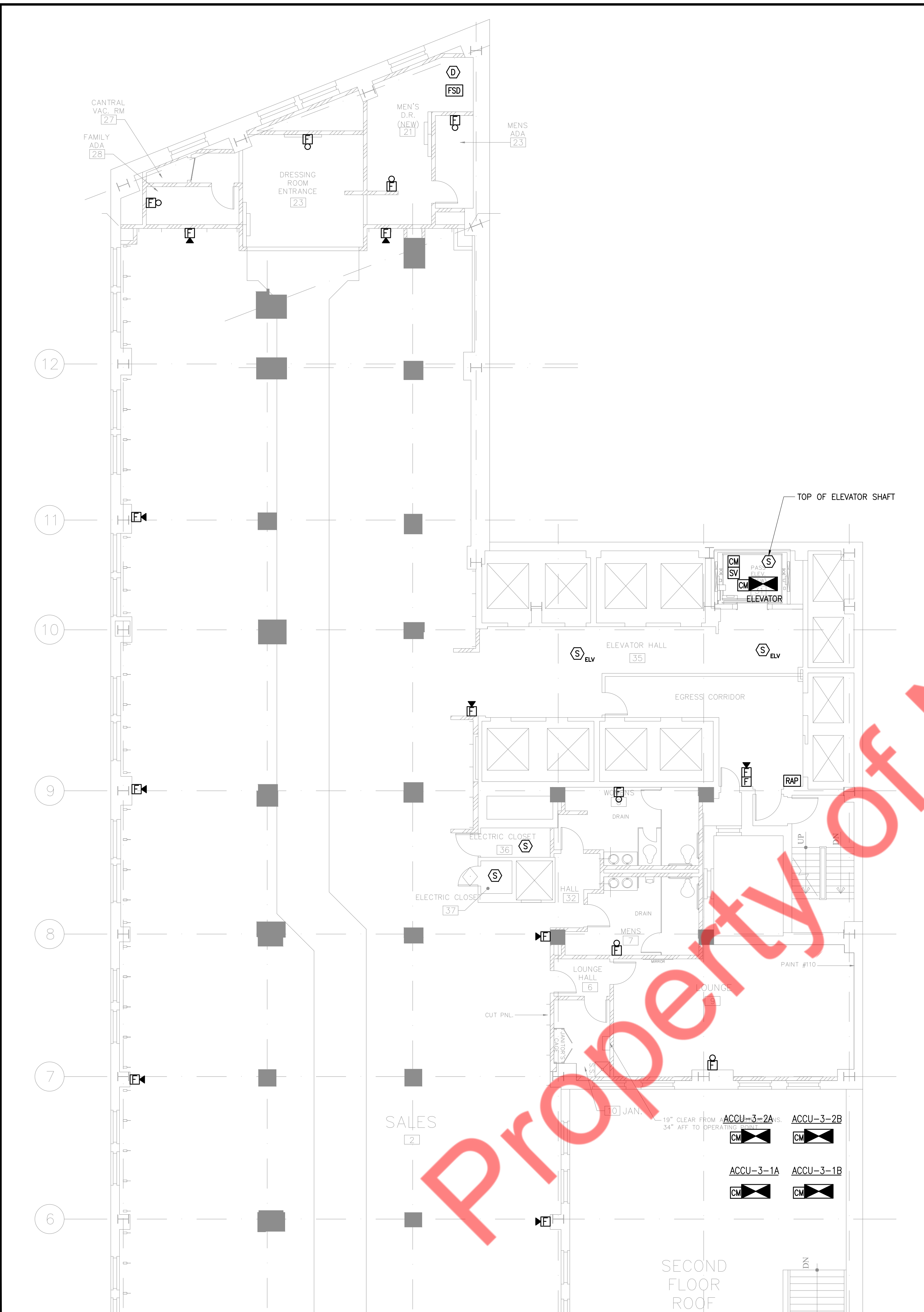


FIRE ALARM RISER NOTES:

1. ALL COMPONENTS REQUIRED TO MAKE SYSTEM WORKABLE SHALL BE INCLUDED IN BID PRICE.
2. EACH FA RELAY SHALL HAVE MINIMUM OF THREE SETS OF 2 CONTACT 10A RATED @ 120V (TYPICAL).
3. ALL DUCT SMOKE DETECTORS INSTALLED IN HUNG CEILING AREA AND IN OUT OF SIGHT AREA SHALL HAVE REMOTELY INSTALLED STATUS INDICATOR LAMPS. COORDINATE EXACT LOCATION WITH ARCHITECT AND GENERAL CONTRACTOR.
4. FOR WALL MOUNTED F.A. DEVICES PROVIDE 3/4" CONDUIT TERMINATED IN NEAREST ACCESSIBLE CEILING.
5. ALL FIRE ALARM WIRING SHALL BE INSTALLED IN CONDUIT WHERE REQUIRED BY NYC ELECTRICAL CODE 760.131.
6. THIS RISER DIAGRAM IS A SCHEMATIC REPRESENTATION OF THE FIRE ALARM SYSTEM. REFER TO FLOOR PLANS FOR EXACT QUANTITY OF DEVICES.
7. ALL FIRE ALARM CONDUITS SHALL BE MINIMUM 3/4".
8. ALL FIRE ALARM CIRCUITS SHALL BE WIRED NFPA STYLE 4/Y/B (CLASS B) WITH THE EXCEPTION OF THE NETWORK CIRCUIT WHICH SHALL BE NFPA STYLE 7 (CLASS A WITH ISOLATION). DUAL CLASS B NETWORKING IS NOT STYLE 7 AND WILL NOT BE APPROVED.

FIRE ALARM SYSTEM RISER DIAGRAM
N.T.S.

Property of NY Engineers



1 THIRD FLOOR FIRE ALARM PLAN
SCALE: 1/8"=1'-0"

DRAWING NOTES:

- REFER TO DWG. FA-001.00 FOR FIRE ALARM NOTES, SYMBOL LIST, ABBREVIATIONS, BUILDING DATA AND MATRIX.
- FINAL CONDUIT/CABLE ROUTING SHALL BE DETERMINED IN-FIELD, AND PRIOR TO THE COMMENCEMENT OF WORK, COORDINATED WITH OTHER TRADE CONTRACTORS AND THE OWNER.
- ALL STROBES, INCLUDING COMBINATION SPEAKER/STROBES SHALL BE 75CD U.O.N.
- SPEAKER LAYOUT SHALL MEET DESIGN MINIMUM OF 15DBA ABOVE AMBIENT.
- SPEAKERS SHALL BE PROGRAMMED TO SOUND TEMPORAL 3 TONE.
- LANDLORD TO SUBMIT LETTER OF APPROVAL OF BASE SYSTEM.

DRAWING DESCRIPTION:
THIRD FLOOR FIRE ALARM PLAN

PROFESSIONAL SEAL	HBC PROJECT NO: 17088
	FA-100.00
	BSCAN



GENERAL NOTES:

- 1. ALL SPRINKLER WORK SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF N.F.P.A.-13, AND ALL LOCAL AUTHORITIES.
2. CONTRACTOR SHALL FIELD VERIFY EXACT ELEVATION, LOCATION AND PIPE SIZES OF EXISTING SPRINKLER HEADS AND PIPING BEFORE INSTALLATION OF NEW WORK.
3. CONTRACTOR SHALL COORDINATE WITH OTHER TRADES AND SHALL INSTALL NEW WORK TO CLEAR DUCTWORK AND LIGHTING FIXTURES.
4. ALL SPRINKLER WORK SHALL COMPLY WITH BUILDING STANDARDS AND REQUIREMENTS.
5. GENERAL CONTRACTOR SHALL COORDINATE FINAL FURNITURE/EQUIPMENT HEIGHT ELEVATIONS AND LOCATIONS WITH SPRINKLER INSTALLATION. ENGINEER SHALL BE NOTIFIED WHEN FURNITURE/EQUIPMENT IS LESS THAN 18" TO UNDERSIDE OF CEILING.
6. THE SPRINKLER SYSTEMS ARE TO BE HYDROSTATIC TESTED FOR A (2) HOUR MINIMUM AT 200 LBS. PRESSURE AND ARE TO BE WITNESSED BY AUTHORIZED BUILDING PERSONNEL. COORDINATE ALL TESTING WITH BUILDING MANAGER.
7. PIPES SIZES SHOWN ARE BASED ON DESIGN PIPING LAYOUTS ONLY. ACTUAL PIPE SIZES SHALL BE DETERMINED BY CONTRACTORS HYDRAULIC CALCULATIONS BASED ON HIS INSTALLATION DRAWINGS. CONTRACTOR SHALL ALLOW FOR THIS AND INCLUDE THIS IN HIS CONTRACT PRICE.
8. DRAWING INDICATES SPRINKLER SYSTEM DESIGN ONLY. CONTRACTOR RESPONSIBLE FOR OFFSETS, DROPS AND RISES FOR COORDINATION WITH OTHER TRADES.
9. G.C. SHALL COORDINATE AND ARRANGE FOR DRAINING AND DEACTIVATION OF EXISTING SPRINKLER SYSTEM WITH BUILDING MANAGEMENT AS REQUIRED.
10. G.C. SHALL BE RESPONSIBLE FOR ALL FINAL TESTS AND INSPECTIONS OF COMPLETED WORK REQUIRED BY THE BUILDING MANAGEMENT PRIOR TO OCCUPANCY OF SPACE.
11. ALL SPRINKLER WORK SHALL BE TESTED AND MADE OPERATIONAL PRIOR TO CARPET AND FURNITURE INSTALLATION. G.C. SHALL REPAIR AND/OR REPLACE ALL FINISHES DAMAGED BY DEFECTIVE SPRINKLER WORK AT HIS EXPENSE.
12. G.C. SHALL PROPERLY TEST AND INSPECT EXISTING SPRINKLER SYSTEM PRIOR TO COMMENCEMENT OF WORK AND SHALL NOTIFY BUILDING MANAGEMENT IMMEDIATELY IF REPAIR OF EXISTING SPRINKLER SYSTEM IS REQUIRED.
13. ALL BURNING, CUTTING, SOLDERING AND WELDING SHALL BE COORDINATED WITH BUILDING FIRE SYSTEMS WITH BUILDING MANAGEMENT, AS REQUIRED.
14. G.C. SHALL COORDINATE ARRANGEMENTS FOR TEMPORARY DISCONNECT AND RECONNECT WITH MANAGEMENT PRIOR TO COMMENCEMENT OF WORK.
15. G.C. SHALL BE RESPONSIBLE FOR OBTAINING PERMITS AND APPROVALS REQUIRED BY BUILDING INSPECTOR AND FIRE MARSHALL IN CONJUNCTION WITH CHANGES TO EXISTING SPRINKLER SYSTEM.
16. REFER TO ENGINEERING DRAWINGS FOR SPRINKLER HEADS, LIGHT SENSORS AND FIRE DETECTION DEVICES.
17. PIPE SIZE TO BE MINIMUM OF ONE INCH (1").
18. ALL SERVICE SHUTDOWNS SHALL BE BY BASE BUILDING ENGINEERS. MINIMUM OF 48 HOURS NOTICE IS REQUIRED TO THE BUILDING OFFICE PRIOR TO SHUT DOWN.
19. ALL WORK TO BE DONE DURING THE HOURS DESIGNATED BY OWNER.
20. EXISTING PIPING SERVING ADJACENT AREAS NOT IN AREA OF WORK SHALL REMAIN ACTIVE AND WITHOUT DISTURBANCE.
21. UPON COMPLETION OF ALL SPRINKLER WORK, CONTRACTOR SHALL TEST AND INSPECT ENTIRE SPRINKLER SYSTEM. ENTIRE SYSTEM SHALL BE FULLY OPERATIONAL AND APPROVED IN COMPLIANCE WITH ALL A.H.J.
22. UPON SUCCESSFUL COMPLETION OF ALL TESTING, CONTRACTOR SHALL PRIME AND PAINT ALL EXPOSED SPRINKLER PIPING, COLOR AND FINISH SHALL BE AS PER ARCHITECT.
23. CONTRACTOR SHALL INCLUDE IN HIS BID THE COST TO PROVIDE (5) FIVE ADDITIONAL SPRINKLERS INSTALLED, EXACT LOCATIONS OF THESE SPRINKLER HEADS SHALL BE DETERMINED IN FIELD.

BUILDING DEPARTMENT SECTION 28-104.8.4 TENANT PROTECTION PLAN:

- CONSTRUCTION DOCUMENTS FOR ALTERATIONS OF BUILDINGS IN WHICH ANY DWELLING UNIT WILL BE OCCUPIED DURING CONSTRUCTION SHALL INCLUDE A TENANT PROTECTION PLAN. SUCH PLAN SHALL CONTAIN A STATEMENT THAT THE BUILDING CONTAINS DWELLING UNITS THAT WILL BE OCCUPIED DURING CONSTRUCTION AND SHALL INDICATE IN SUFFICIENT DETAIL THE SPECIFIC UNITS THAT ARE OR MAY BE OCCUPIED DURING CONSTRUCTION, THE MEANS AND METHODS TO BE EMPLOYED TO SAFEGUARD THE SAFETY AND HEALTH OF THE OCCUPANTS, INCLUDING, WHERE APPLICABLE, DETAILS SUCH AS TEMPORARY FIRE-RATED ASSEMBLIES, OPENING PROTECTIVES, OR DUST CONTAINMENT PROCEDURES. THE ELEMENTS OF THE TENANT PROTECTION PLAN MAY VARY DEPENDING ON THE NATURE AND SCOPE OF THE WORK BUT AT A MINIMUM SHALL MAKE DETAILED AND SPECIFIC PROVISIONS FOR:
1. EGRESS. AT ALL TIMES IN THE COURSE OF CONSTRUCTION PROVISION SHALL BE MADE FOR ADEQUATE EGRESS AS REQUIRED BY THIS CODE AND THE TENANT PROTECTION PLAN SHALL IDENTIFY THE EGRESS THAT WILL BE PROVIDED. REQUIRED EGRESS SHALL NOT BE OBSTRUCTED AT ANY TIME EXCEPT WHERE APPROVED BY THE COMMISSIONER.
2. FIRE SAFETY. ALL NECESSARY LAWS AND CONTROLS, INCLUDING THOSE WITH RESPECT TO OCCUPIED DWELLINGS, AS WELL AS ADDITIONAL SAFETY MEASURES NECESSITATED BY THE CONSTRUCTION SHALL BE STRICTLY OBSERVED.
3. HEALTH REQUIREMENTS. SPECIFICATION OF METHODS TO BE USED FOR CONTROL OF DUST, DISPOSAL OF CONSTRUCTION DEBRIS, PEST CONTROL AND MAINTENANCE OF SANITARY FACILITIES, AND LIMITATION OF NOISE TO ACCEPTABLE LEVELS SHALL BE INCLUDED.
3.1 THERE SHALL BE INCLUDED A STATEMENT OF COMPLIANCE WITH APPLICABLE PROVISIONS OF LAW RELATING TO LEAD AND ASBESTOS.
4. COMPLIANCE WITH HOUSING STANDARDS, THE REQUIREMENTS OF THE NEW YORK CITY HOUSING MAINTENANCE CODE, AND WHERE APPLICABLE, THE NEW YORK STATE MULTIPLE DWELLING LAW SHALL BE STRICTLY OBSERVED.
5. STRUCTURAL SAFETY. NO STRUCTURAL WORK SHALL BE DONE THAT MAY ENDANGER THE OCCUPANTS.
6. NOISE RESTRICTIONS. WHERE HOURS OF THE DAY OR THE DAYS OF THE WEEK IN WHICH CONSTRUCTION WORK MAY BE UNDERTAKEN ARE LIMITED PURSUANT TO THE NEW YORK CITY NOISE CONTROL CODE, SUCH LIMITATIONS SHALL BE STATED.

BUILDING DEPARTMENT SPRINKLER NOTES

- 1. THE INSTALLATION, COMPONENTS, SIZING, SPACING, CLEARANCES, POSITION AND TYPE OF SYSTEMS SHALL CONFORM TO THE 2014 NEW YORK CITY BUILDING CODE APPENDIX Q, SECTION BC Q102 AND SECTION BC903.
2. ONLY APPROVED MATERIALS SHALL BE USED AS PER CHAPTER 6 OF APPENDIX Q, SECTION BCQ102.
3. DIRECT CONNECTION OF SPRINKLERS TO THE PUBLIC WATER SYSTEM SHALL CONFORM TO SECTION BCQ102.1 SEE 15.2.1 AND 15.1.1 (6).
4. SPRINKLER SHALL BE PROTECTED AGAINST FREEZING AND INJURY AS PER APPENDIX Q, SECTION BCQ102, SEC 8.15.3 AND 6.2.8.
5. INSPECTION AND TESTS OF SPRINKLERS SHALL BE CONDUCTED AS SEC. 901.5 AND APPENDIX Q, SEC. BCQ102, CH. 16.
6. THE OCCUPANCY OF THE AREAS TO BE SPRINKLERED IN ACCORDANCE WITH SECTION 5.2 AND A.5.2 OF APPENDIX Q SECTION BCQ102.
7. WATER SUPPLY TEST PIPES AND GAUGES SHALL BE PROVIDED AS PER SECTION 8.16.1 AND 8.16.4 OF APPENDIX Q, SECTION BCQ102.
8. PIPING, FITTINGS, SPECIFICATIONS, PIPE SCHEDULES, SYSTEM TEST PIPES, PROTECTION AGAINST CORROSION, DAMAGE, VALVES, HANGERS, SPRINKLERS GUARDS AND SHIELDS SHALL BE AS PER APPENDIX Q SECTION BCQ102, CHAPTERS 6 AND 9.
9. STOCK OF EXTRA SPRINKLERS WILL BE FURNISHED AS PER SECTION 6.2.9 APPENDIX Q, SECTION BCQ102 (REQUIRED FOR EACH TEMPERATURE RATING).
10. SPRINKLER ALARM SHALL BE IN ACCORDANCE WITH SECTION 8.16.1 OF APPENDIX Q, SECTION BCQ102.
11. SPACING, LOCATION AND POSITION OF SPRINKLER WILL BE AS PER SECTION 8 OF APPENDIX Q, SECTION BCQ102.
12. ALL BLIND SPACES EXCEEDING 6" IN WIDTH OR DEPTH WHICH CONTAIN COMBUSTIBLE MATERIAL WILL BE SPRINKLERED.
13. ALL PIPE PASSING THROUGH WALLS WILL COMPLY WITH SECTION BC712.
14. THERE IS NO HIGH PILED STORAGE AS DEFINED IN SECTION 3-3.12 OF APPENDIX Q, SECTION BC Q102.
15. DISTANCE OF SPRINKLERS FROM HEAT SOURCE SHALL BE IN AS PER TABLES 9.3.2.5 (a) AND 8.3.2.5 (b).
16. AS PER SECTION BC903.1.2 PROVIDE DIRECTION OF WATER SUPPLY LETTER WITH FLOW TEST DATE IF THERE IS A DIRECT CONNECTION TO THE STREET WATER SUPPLY.
17. ALL PIPES PASSING THROUGH FOUNDATION WALLS SHALL BE PROTECTED AS PROVIDED BY SECTION 305.5 OF THE PLUMBING CODE.
18. THIS APPLICATION IS NOT FILED AS A RESULT OF ACTION BY THE FIRE COMMISSIONER AS AUTHORIZED BY BS & A TO MODIFY THE CERTIFICATE OF OCCUPANCY NOR IS SUCH ACTION PENDING.
19. ALL VALVES SHALL BE IDENTIFIED AS REQUIRED BY SECTION 6.7.4 OF APPENDIX Q, SECTION BCQ102.
20. DRAINAGE SHALL CONFORM TO SECTION 8.15.2 OF APPENDIX Q, SECTION BCQ102.
21. A ONE PIECE REDUCING FITTING OF GOOD DESIGN SHOULD BE USED WHEREVER A CHANGE IS MADE IN THE SIZE OF PIPE, AS PER SECTION 6.4.6 OF APPENDIX Q, SECTION BCQ102.
22. ALL VALVES ON CONNECTIONS TO WATER SUPPLIES TO SPRINKLER SHALL BE APPROVED O.S. & Y, OR APPROVED INDICATOR TYPE.
23. DRAIN VALVES AND TEST VALVES SHALL BE APPROVED TYPE AS PER 6.7.3 OF APPENDIX Q, SECTION BCQ102.
24. HANGERS SHOULD BE SUPPORTED BY WROUGHT IRON U TYPE OR APPROVED ADJUSTABLE HANGERS. HANGERS SHALL BE OF THE TYPE APPROVED FOR USE WITH THE PIPE OR TUBE INVOLVED, AS PER CHAPTER 9, OF APPENDIX Q, SECTION BCQ102.
25. PROVISIONS SHOULD BE MADE TO FACILITATE FLUSHING SYSTEM PIPING BY PROVIDING FLUSHING CONNECTIONS CONSISTING OF A CAPPED NIPPLE 4" LONG ON END OF A CROSS MAIN AS PER SECTION 8.14.16 OF APPENDIX Q, SECTION BCQ102.
26. SPRINKLER SHALL BE AN APPROVED TYPE AS PER SECTION 8.3 OF APPENDIX Q, SECTION BCQ102.
27. TEMPERATURE RATING SHALL COMPLY WITH SECTION 8.3.2 OF APPENDIX Q, SECTION BCQ102.
28. 18" MINIMUM CLEARANCE TO BELOW SPRINKLER DEFLECTOR AS PER SECTION 8.5.6 OF APPENDIX Q, SECTION BCQ102.
29. SPACING AND LOCATION OF SPRINKLERS SHALL COMPLY WITH CHAPTER 8 OF APPENDIX Q, SECTION BCQ102.
30. SPRINKLER SYSTEM COMPLIES WITH NFPA 13-2007 AS MODIFIED BY APPENDIX Q, SECTION BCQ102.
31. SOURCES OF WATER SUPPLY FOR SPRINKLER SYSTEMS AS PER CHAPTER 15 OF APPENDIX Q, SECTION BCQ102.
32. PIPE SCHEDULE SYSTEMS SHALL BE IN ACCORDANCE WITH SECTION 14.5 OF APPENDIX Q, SECTION BCQ102.
33. HYDRAULICALLY DESIGNED SYSTEMS SHALL BE IN ACCORDANCE WITH CHAPTER 14 OF APPENDIX Q, SECTION BCQ102.
34. MINIMUM BRANCH PIPE SIZE TO BE ONE INCH (1").
35. THIS APPLICATION IS MADE ONLY FOR WORK INDICATED ON THE SPECIFICATION SHEET. ALL OTHER MATTERS SHOWN ARE NOT TO BE RELIED UPON OR TO BE CONSIDERED AS EITHER BEING APPROVED OR IN ACCORDANCE WITH APPLICABLE CODES.
36. SPRINKLER PIPING FOR DEDICATED SPRINKLER PIPING AND VALVES HANDLES SHOULD BE AS PER NYC BC SECTION 903.6

SPRINKLER SPECIFICATIONS:

- PART 1 - GENERAL
1.01 REQUIREMENTS
A. THE SPRINKLER CONTRACTOR SHALL BE A LICENSED, AUTHORIZED INSTALLER OF SPRINKLER SYSTEMS AND SHALL HAVE A MINIMUM OF FIVE YEARS EXPERIENCE IN THE INSTALLATION OF SPRINKLER SYSTEMS IN NEW JERSEY.
B. BEFORE SUBMITTING HIS BID, THE SPRINKLER CONTRACTOR SHALL VISIT THE SITE AND SHALL FULLY FAMILIARIZE HIMSELF WITH, AND BECOME FAMILIAR WITH THE DIFFICULTIES THAT WILL ATTEND THE EXECUTION OF THIS WORK. CONTRACTOR SHALL PERFORM THIS PRIOR TO SUBMITTING HIS PROPOSAL. SUBMISSION OF A PROPOSAL WILL BE CONSTRUED AS EVIDENCE THAT SUCH AN EXAMINATION HAS BEEN MADE, AND LATER CLAIMS WILL NOT BE RECOGNIZED FOR EXTRA LABOR, EQUIPMENT OR MATERIALS REQUIRED BECAUSE OF DIFFICULTIES ENCOUNTERED WHICH COULD HAVE BEEN FORESEEN HAD SUCH AN EXAMINATION BEEN MADE.
C. UPON REVIEW OF THE DRAWINGS AND SPECIFICATIONS, PRIOR TO SUBMITTING HIS PROPOSAL, THE SPRINKLER CONTRACTOR SHALL INFORM ARCHITECT AND/OR ENGINEER OF ANY DISCREPANCIES OR REQUEST CLARIFICATION IN WRITING, IF NECESSARY, CONCERNING THE INTENT OF THE PLANS AND SPECIFICATIONS TO PROVIDE A COMPLETE SPRINKLER SYSTEM INSTALLATION. LATER CLAIMS WILL NOT BE RECOGNIZED FOR EXTRA LABOR, EQUIPMENT OF MATERIALS SHOULD SUCH PROCEDURE NOT BE FOLLOWED.
D. THE SCHEDULING OF THE SPRINKLER WORK SHALL BE COORDINATED WITH BUILDING MANAGEMENT, WITH OTHER CONTRACTORS AND WITH THE ENGINEER.
E. NECESSARY SHUT-DOWNS OF BASE BUILDING SPRINKLER SYSTEM MUST BE COORDINATED WITH BUILDING MANAGEMENT. SHUT-DOWNS OF BASE BUILDING SYSTEMS SHALL TAKE PLACE AFTER OR BEFORE NORMAL BUSINESS HOURS AND SHALL BE CONSIDERED OVERTIME WORK. THE CONTRACTOR MUST GIVE BUILDING MANAGEMENT AND NEW YORK CITY FIRE DEPARTMENT 48 HOURS NOTICE PRIOR TO SHUT-DOWN OF SPRINKLER, OR OTHER SYSTEMS.
1.02 WORK INCLUDED
A. WORK SHALL INCLUDE ALL SPRINKLER WORK FURNISHED AND INSTALLED AS INDICATED ON THE PLANS AND AS SPECIFIED HEREIN.
1. ALL WORK SHALL COMPLY WITH REQUIREMENTS OF THE 2015 INTERNATIONAL BUILDING CODE (NJ EDITION), N.F.P.A. STANDARD NO. 13, N.A. FIRE DEPARTMENT AND OWNERS INSURANCE RATING ORGANIZATION.
2. PROVIDE COMPLETE NEW SPRINKLER SYSTEM CONNECTING TO EXISTING SPRINKLER SYSTEM FLOOR CONTROL VALVE ASSEMBLY.
3. THESE DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL LOCATION OF WORK. SCALED DIMENSIONS SHALL NOT BE USED. ANY DIMENSIONS NOT SHOWN SHALL BE OBTAINED FROM FIELD MEASUREMENTS.
4. PROVIDE COMPUTER GENERATED HYDRAULIC CALCULATIONS IN ACCORDANCE WITH NFPA STANDARDS.
1.03 SHOP DRAWINGS AND SUBMITTALS
A. THE CONTRACTOR SHALL SUBMIT, FOR APPROVAL, FULLY COORDINATED SHOP DRAWINGS, CAPACITY, DATA, AND CATALOG CUTS OF THE FOLLOWING:
1. PIPE AND FITTINGS
2. VALVES
3. HANGERS AND SUPPORTS
4. SPRINKLER PIPING LAYOUT
5. TESTS
6. SPRINKLER HEADS
7. HYDRAULIC CALCULATIONS
1.04 BUILDING DEPARTMENT FILING, PERMITS AND CERTIFICATES
A. THE SPRINKLER CONTRACTOR SHALL FILE ALL REQUIRED DRAWINGS AND HYDRAULIC CALCULATIONS WITH THE BUILDING DEPARTMENT AND BE RESPONSIBLE FOR OBTAINING FINAL APPROVAL.
B. ARRANGE FOR INSPECTION AND TESTS OF ANY AND ALL PARTS OF THE WORK AS REQUIRED BY AUTHORITIES HAVING JURISDICTION AND PAY ALL CHARGES FOR SAME.
1.05 INSPECTION AND TESTING
A. THE SPRINKLER SYSTEM SHALL BE INSPECTED AND TESTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE 2015 INTERNATIONAL BUILDING CODE (NJ EDITION) AND NFPA-13.
B. THE SPRINKLER SYSTEM SHALL BE SUBJECT TO A HYDROSTATIC PRESSURE TEST FOR A PERIOD OF TWO HOURS AT A PRESSURE OF AT LEAST 200 PSIG OR 50 PSI IN EXCESS OF THE MAXIMUM PRESSURE TO BE MAINTAINED WHEN THE MAXIMUM PRESSURE IN THE SYSTEM IS IN EXCESS OF 150 PSI AS PER NFPA.
C. THE BUILDING DEPARTMENT SHALL BE NOTIFIED THAT THE SYSTEM IS READY FOR REINSPECTION AND TESTING. THE BUILDING DEPARTMENT INSPECTOR SHALL WITNESS THE TEST. FINAL APPROVAL OF THE SPRINKLER SYSTEM SHALL BE OBTAINED FROM BUILDING DEPARTMENT, AND FIRE DEPARTMENT.
PART 2 - MATERIALS
2.01 GENERAL
A. THE SPRINKLER SYSTEM SHALL BE COMPLETE WITH ALL PIPE, FITTINGS, VALVES, DRAINAGE SYSTEM AND VALVES, HANGERS AND SUPPORTS, ALSO, MISCELLANEOUS WORK ITEMS, SUCH AS, SIGNS AS REQUIRED, VALVE TAGS, ETC., AND ALL OTHER RELATED EQUIPMENT, APPARATUS AND MATERIAL ITEMS NECESSARY FOR COMPLETE, APPROVED TYPE SYSTEM, READY FOR FUTURE EXTENSION.
B. ALL PIPE, FITTINGS, HANGERS, SUPPORTS, SPRINKLER HEADS, ETC., SHALL CONFORM TO THE NATIONAL FIRE PROTECTION ASSOCIATION'S REQUIREMENTS AS TO TYPES OF MATERIALS, ARRANGEMENT, SIZES AND INSTALLATION. PIPING PENETRATING FIRE RATED PARTITIONS SHALL HAVE OPENING SEALED WITH UL APPROVED FIREPROOF SEALANT.
2.02 SPRINKLER PIPING
A. ALL SPRINKLER PIPING SHALL BE SCHEDULE 40, THREADED IN ACCORDANCE WITH NFPA 13. PIPE SHALL BE UL/FW APPROVED.
B. STEEL PIPE SHALL BE BETHLEHEM STEEL CO., ALLED TUBE, BERGER INDUSTRIES OR APPROVED.
C. ALL SPRINKLER FITTINGS AND COUPLINGS SHALL BE THREADED CAST IRON SPRINKLER FITTINGS, DESIGNED AND MANUFACTURED FOR A WATER WORKING PRESSURE OF 175 POUNDS. FITTING SHALL BE UL/FW APPROVED. CONTRACTOR MAY USE VICTAULIC GROOVED COUPLINGS AND FITTINGS ON SCHEDULE 40 PIPE.
2.03 CUTTING AND PATCHING
DO ALL CUTTING AND CORE DRILLING NECESSARY FOR THE INSTALLATION OF SPRINKLER WORK. ACCURATELY LAYOUT WORK FOR WHICH CUTTING IS REQUIRED. PATCH AND RESTORE ANY DAMAGE WORK TO LIKE NEW CONDITION.
2.04 INSERTS, HANGERS, ETC.
A. ALL SPRINKLER PIPING SHALL BE SUBSTANTIALLY SUPPORTED AND SHALL COMPLY WITH THE STANDARDS FOR THE NATIONAL FIRE PROTECTION ASSOCIATION FOR THE INSTALLATION OF SPRINKLER SYSTEMS.
B. HANGERS AND THEIR COMPONENTS SHALL BE FERROUS. HANGERS SHALL BE ADJUSTABLE FLAT IRON TYPE OF CLEVIS TYPE.
C. SPRINKLER PIPING OR HANGERS SHALL NOT BE USED TO SUPPORT NON-SYSTEM COMPONENTS.
D. SPRINKLER PIPING SHALL BE SUBSTANTIALLY SUPPORTED FROM THE BUILDING STRUCTURE WHICH MUST SUPPORT THE ADDED LOAD OF THE WATER-FILLED PIPE PLUS A MINIMUM OF 250 LBS. APPLIED AT THE POINT OF HANGING. CONTRACTOR SHALL SUBMIT DETAIL OF SUPPORT FOR REVIEW AND APPROVAL.
E. SPRINKLER PIPING SHALL BE SUPPORTED INDEPENDENTLY OF THE CEILING SHEATHING.
F. WHEN SPRINKLER PIPING IS INSTALLED BELOW DUCTWORK, PIPING SHALL BE SUBSTANTIALLY SUPPORTED FROM THE BUILDING STRUCTURE, NOT FROM THE DUCTWORK.
G. MAXIMUM DISTANCE BETWEEN HANGERS SHALL NOT EXCEED 12 FT. FOR 1 AND 1-1/4" SIZES NOR 15' FOR SIZES 1-1/2" AND LARGER.
H. EXPANSION SHIELDS FOR SUPPORTING PIPES UNDER CONCRETE CONSTRUCTION MAYBE USED IN A HORIZONTAL POSITION IN THE SIDES OF BEAMS, IN CONCRETE HAVING GRAVEL OR CRUSHED STONE AGGREGATE. EXPANSION SHIELDS MAY BE USED IN THE VERTICAL POSITION TO SUPPORT PIPES 4" OR LESS IN DIAMETER.

- 2.05 ESCUTCHEONS
PROVIDE ESCUTCHEONS ON ALL EXPOSED PIPING PASSING THROUGH WALLS, PARTITIONS, FLOORS AND CEILINGS. ESCUTCHEON SHALL BE HELD IN PLACE BY INTERNAL TENSION OR SET SCREW.
2.06 AS-BUILT DRAWINGS
PREPARE AND SUBMIT "AS BUILT" DRAWINGS AT THE COMPLETION OF THE PROJECT.
2.07 SPRINKLER HEADS
A. SPRINKLERS SHALL BE RATED FOR ORDINARY TEMPERATURES (135/165 DEG. F.) EXCEPT AS REQUIRED NEAR HEATERS OR LOCATIONS WHERE ELEVATED TEMPERATURES MAY NORMALLY BE EXPECTED OR AS OTHERWISE INDICATED ON THE CONTRACT DRAWINGS.
B. SPRINKLER HEADS SHALL BE BY TYCO SPRINKLER CO., INC. MANUFACTURE OR APPROVED EQUAL, UL AND FM APPROVED, AS FOLLOWS:
1. SPRINKLER HEADS IN FINISHED CEILINGS WITH CONCEALED PIPING SHALL BE AUTOMATIC TYCO MODEL TY3531.
2. SPRINKLER HEADS IN AREAS WITHOUT HUNG CEILINGS SHALL BE UPRIGHT TYCO MODEL TY3121.
3. PROVIDE SPARE SPRINKLER EMERGENCY CABINETS CONFORMING TO NFPA 13.
4. SPRINKLER EMERGENCY CABINETS SHALL BE OF TYCO SPRINKLER CO., INC. OR APPROVED EQUAL, UL AND FM APPROVED.
5. CABINET SHALL BE CONSTRUCTED OF 22 GAUGE STEEL WITH PRIME COAT AND MANUFACTURER'S BAKED ENAMEL FINISH IN COLOR SELECTED BY THE ARCHITECT.
6. CABINET SHALL CONTAIN A MINIMUM OF 6 SPRINKLER HEADS OF EACH TYPE EMPLOYED.
C. CABINET SHALL CONTAIN A MINIMUM OF 6 SPRINKLER HEADS OF EACH TYPE EMPLOYED.
2.08 PRESSURE GAUGE
A. ASHCROFT SERIES 1079, OR APPROVED OTHER, 4-1/2" DIAMETER, 0-200 P.S.I. RANGE, 20 P.S.I. INTERVALS.
PART 3 - EXECUTION
3.01 GUARANTEE
AS PER NFPA 13D.
A. GUARANTEE FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF ACCEPTANCE BY THE OWNER, ALL MATERIALS, APPARATUS AND WORKMANSHIP WHETHER FURNISHED BY HIMSELF OR BY HIS SUBCONTRACTORS AND HE SHALL REPLACE OR REPAIR IN A MANNER APPROVED BY THE ARCHITECTS, WITHOUT COST TO THE OWNER, ANY PART OR PARTS OF THE WORK WHICH MAY PROVE DEFECTIVE OR UNSATISFACTORY WITH IN THE PERIOD OF THE GUARANTEE.
3.02 INSTALLATION
A. PIPING
1. INSTALL PIPING AS SHOWN ON THE CONTRACT DRAWINGS AND STRAIGHT AND DIRECT AS POSSIBLE, FORMING RIGHT ANGLES OR PARALLEL LINES WITH BUILDING WALLS, NEARLY SPACED, WITH RISERS PLUMB AND TRUE.
2. SPRINKLER PIPING SHALL BE INSTALLED SO THAT THE SYSTEM CAN BE DRAINED.
3. PIPE SHALL BE REMOVED BY REAMING.
4. BEFORE INSTALLING PIPE, THOROUGHLY CLEAN THE INSIDE FREE OF CUTTING AND FOREIGN MATTER, CUT ALL PIPE SQUARE AND SMOOTH AND MAKE UP ALL JOINTS TO REQUIRED LIMITS.
B. PIPE JOINTS
1. THREADED JOINTS SHALL BE MADE UP OF TIGHT USING PIPE JOINT TELON COMPOUND OR TAPE, APPLIED ON THE MALE THREADS ONLY.
GENERAL NOTES:
1. ALL SPRINKLER WORK SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF N.F.P.A.-13 AND ALL LOCAL AUTHORITIES.
2. CONTRACTOR SHALL FIELD VERIFY EXACT LOCATION OF EXISTING SPRINKLER FLOOR CONTROL VALVE ASSEMBLY BEFORE INSTALLATION OF NEW WORK.
3. CONTRACTOR SHALL COORDINATE WITH OTHER TRADES AND SHALL INSTALL NEW WORK TO CLEAR DUCTWORK AND LIGHTING FIXTURES.
4. ALL SPRINKLER WORK SHALL COMPLY WITH BUILDING STANDARDS AND REQUIREMENTS.
5. DRAWING INDICATES SPRINKLER SYSTEM DESIGN ONLY. CONTRACTOR RESPONSIBLE FOR OFFSETS, DROPS AND RISES FOR COORDINATION WITH OTHER TRADES.
6. PIPES SIZES SHOWN ARE BASED ON SCHEDULE OF PIPE SIZE PIPING LAYOUTS ONLY. ACTUAL PIPE SIZES SHALL BE DETERMINED BY CONTRACTORS HYDRAULIC CALCULATIONS BASED ON HIS INSTALLATION DRAWINGS. CONTRACTOR SHALL ALLOW FOR THIS AND INCLUDE THIS IN HIS CONTRACT PRICE.
7. GENERAL CONTRACTOR SHALL COORDINATE FINAL FURNITURE/ EQUIPMENT HEIGHT ELEVATIONS AND LOCATIONS WITH SPRINKLER INSTALLATION. ENGINEER SHALL BE NOTIFIED WHEN FURNITURE/EQUIPMENT IS LESS THAN 18" TO UNDERSIDE OF CEILING PRIOR TO INSTALLATION.
8. COMPOSITE DRAWINGS
CONTRACTOR SHALL BE GIVEN A SEPARA TRANSPARENCIES TO IMPOSE THEIR WORK FOR A COORDINATED ALLOCATION OF SPACE. PROCEDURE SHALL INCLUDE HVAC CONTRACTOR TO INDICATE DUCT WORK, PIPING, STRUCTURAL AND ARCHITECTURAL DETAILS. SEPARA SHALL BE GIVEN TO PLUMBERS, SPRINKLER AND ELECTRICAL TRADES WHO WILL DRAW HIS WORK ON DRAWINGS. HVAC CONTRACTORS SHALL HOLD A COORDINATION MEETING WITH ALL CONTRACTORS TO ELIMINATE INTERFERENCE OR CONFLICTS IN INSTALLING WORK. IF UNABLE TO EACH AGREEMENT ISSUE, ARCHITECT SHALL MAKE BINDING DECISION.
9. CONTRACTOR SHALL COORDINATE SPRINKLER MAIN AND BRANCHES WITH NEW CONSTRUCTION TO AVOID CONFLICTS WITH CEILING HEIGHTS, DUCTWORK, LIGHTING FIXTURES, BEAMS. CONTRACTOR TO ADJUST PIPING ACCORDINGLY TO ACCOMMODATE NEW CONSTRUCTION.

- SPRINKLER NOTES:
AS PER NFPA 13D.
1. 8.6.2 BATHROOMS
SPRINKLERS SHALL NOT BE REQUIRED IN BATHROOMS WHERE THE BATHROOM AREA DOES NOT EXCEED 55 FT.2.
2. 8.6.3 CLOSETS.
SPRINKLERS SHALL NOT BE REQUIRED IN CLOTHES CLOSETS, LINEN CLOSETS, AND PANTRIES THAT MEET ALL OF THE FOLLOWING CONDITIONS:
(1) THE AREA OF THE SPACE DOES NOT EXCEED 24 SQ. FT.
(2) THE LEAST DIMENSION DOES NOT EXCEED 3 FT.
(3) THE WALLS AND CEILINGS ARE SURFACED WITH NONCOMBUSTIBLE OR LIMITED COMBUSTIBLE MATERIALS AS DEFINED IN NFPA 220, STANDARD ON TYPES OF BUILDING CONSTRUCTION.

- 3.03 INSPECTION AND TESTING
A. THE SPRINKLER SYSTEM SHALL BE INSPECTED AND TESTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE 2015 INTERNATIONAL BUILDING CODE (NJ EDITION) AND NFPA-13.
B. THE SPRINKLER SYSTEM SHALL BE SUBJECT TO A HYDROSTATIC PRESSURE TEST FOR A PERIOD OF TWO HOURS AT A PRESSURE OF AT LEAST 200 PSIG OR 50 PSI IN EXCESS OF THE MAXIMUM PRESSURE TO BE MAINTAINED WHEN THE MAXIMUM PRESSURE IN THE SYSTEM IS IN EXCESS OF 150 PSI AS PER NFPA.
C. THE BUILDING DEPARTMENT SHALL BE NOTIFIED THAT THE SYSTEM IS READY FOR REINSPECTION AND TESTING. THE BUILDING DEPARTMENT INSPECTOR SHALL WITNESS THE TEST. FINAL APPROVAL OF THE SPRINKLER SYSTEM SHALL BE OBTAINED FROM BUILDING DEPARTMENT, AND FIRE DEPARTMENT.

- GENERAL NOTES:
1. ALL SPRINKLER WORK SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF N.F.P.A.-13 AND ALL LOCAL AUTHORITIES.
2. CONTRACTOR SHALL FIELD VERIFY EXACT LOCATION OF EXISTING SPRINKLER FLOOR CONTROL VALVE ASSEMBLY BEFORE INSTALLATION OF NEW WORK.
3. CONTRACTOR SHALL COORDINATE WITH OTHER TRADES AND SHALL INSTALL NEW WORK TO CLEAR DUCTWORK AND LIGHTING FIXTURES.
4. ALL SPRINKLER WORK SHALL COMPLY WITH BUILDING STANDARDS AND REQUIREMENTS.
5. DRAWING INDICATES SPRINKLER SYSTEM DESIGN ONLY. CONTRACTOR RESPONSIBLE FOR OFFSETS, DROPS AND RISES FOR COORDINATION WITH OTHER TRADES.
6. PIPES SIZES SHOWN ARE BASED ON SCHEDULE OF PIPE SIZE PIPING LAYOUTS ONLY. ACTUAL PIPE SIZES SHALL BE DETERMINED BY CONTRACTORS HYDRAULIC CALCULATIONS BASED ON HIS INSTALLATION DRAWINGS. CONTRACTOR SHALL ALLOW FOR THIS AND INCLUDE THIS IN HIS CONTRACT PRICE.
7. GENERAL CONTRACTOR SHALL COORDINATE FINAL FURNITURE/ EQUIPMENT HEIGHT ELEVATIONS AND LOCATIONS WITH SPRINKLER INSTALLATION. ENGINEER SHALL BE NOTIFIED WHEN FURNITURE/EQUIPMENT IS LESS THAN 18" TO UNDERSIDE OF CEILING PRIOR TO INSTALLATION.
8. COMPOSITE DRAWINGS
CONTRACTOR SHALL BE GIVEN A SEPARA TRANSPARENCIES TO IMPOSE THEIR WORK FOR A COORDINATED ALLOCATION OF SPACE. PROCEDURE SHALL INCLUDE HVAC CONTRACTOR TO INDICATE DUCT WORK, PIPING, STRUCTURAL AND ARCHITECTURAL DETAILS. SEPARA SHALL BE GIVEN TO PLUMBERS, SPRINKLER AND ELECTRICAL TRADES WHO WILL DRAW HIS WORK ON DRAWINGS. HVAC CONTRACTORS SHALL HOLD A COORDINATION MEETING WITH ALL CONTRACTORS TO ELIMINATE INTERFERENCE OR CONFLICTS IN INSTALLING WORK. IF UNABLE TO EACH AGREEMENT ISSUE, ARCHITECT SHALL MAKE BINDING DECISION.
9. CONTRACTOR SHALL COORDINATE SPRINKLER MAIN AND BRANCHES WITH NEW CONSTRUCTION TO AVOID CONFLICTS WITH CEILING HEIGHTS, DUCTWORK, LIGHTING FIXTURES, BEAMS. CONTRACTOR TO ADJUST PIPING ACCORDINGLY TO ACCOMMODATE NEW CONSTRUCTION.

- 2.04 INSERTS, HANGERS, ETC.
A. ALL SPRINKLER PIPING SHALL BE SUBSTANTIALLY SUPPORTED AND SHALL COMPLY WITH THE STANDARDS FOR THE NATIONAL FIRE PROTECTION ASSOCIATION FOR THE INSTALLATION OF SPRINKLER SYSTEMS.
B. HANGERS AND THEIR COMPONENTS SHALL BE FERROUS. HANGERS SHALL BE ADJUSTABLE FLAT IRON TYPE OF CLEVIS TYPE.
C. SPRINKLER PIPING OR HANGERS SHALL NOT BE USED TO SUPPORT NON-SYSTEM COMPONENTS.
D. SPRINKLER PIPING SHALL BE SUBSTANTIALLY SUPPORTED FROM THE BUILDING STRUCTURE WHICH MUST SUPPORT THE ADDED LOAD OF THE WATER-FILLED PIPE PLUS A MINIMUM OF 250 LBS. APPLIED AT THE POINT OF HANGING. CONTRACTOR SHALL SUBMIT DETAIL OF SUPPORT FOR REVIEW AND APPROVAL.
E. SPRINKLER PIPING SHALL BE SUPPORTED INDEPENDENTLY OF THE CEILING SHEATHING.
F. WHEN SPRINKLER PIPING IS INSTALLED BELOW DUCTWORK, PIPING SHALL BE SUBSTANTIALLY SUPPORTED FROM THE BUILDING STRUCTURE, NOT FROM THE DUCTWORK.
G. MAXIMUM DISTANCE BETWEEN HANGERS SHALL NOT EXCEED 12 FT. FOR 1 AND 1-1/4" SIZES NOR 15' FOR SIZES 1-1/2" AND LARGER.
H. EXPANSION SHIELDS FOR SUPPORTING PIPES UNDER CONCRETE CONSTRUCTION MAYBE USED IN A HORIZONTAL POSITION IN THE SIDES OF BEAMS, IN CONCRETE HAVING GRAVEL OR CRUSHED STONE AGGREGATE. EXPANSION SHIELDS MAY BE USED IN THE VERTICAL POSITION TO SUPPORT PIPES 4" OR LESS IN DIAMETER.

SPRINKLER SCHEDULE table with columns: SYMBOL, NAME, COVERAGE, AREA, METAL, TEMPERATURE (°F), K-FACTOR, NPT, MFG, MODEL#, APPROVALS. Includes rows for CONCEALED and UPRIGHT sprinklers.

NOTE: COORDINATE ALL SPRINKLER COLOR FINISHES WITH ARCHITECT.

DESIGN CRITERIA SUMMARY table with columns: DESIGN CRITERIA SUMMARY, HYDRAULIC CALCULATIONS BASED ON THE FOLLOWING: OCCUPANCY: ORDINARY HAZARD II, MINIMUM DESIGN DENSITY: 0.2 GPM/SQ. FT., DESIGN AREA OF APPLICATION: 1500 SQ. FT.

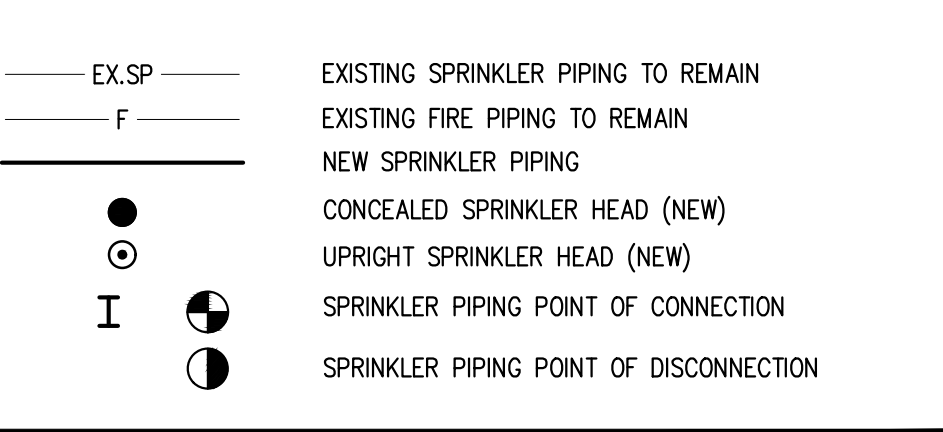
SPACING BETWEEN SPRINKLER HEADS table with columns: SPACING BETWEEN SPRINKLER HEADS, OCCUPANCY HAZARD II: 13' MAX., NOTE: MAXIMUM DISTANCE BETWEEN SPRINKLER HEADS & WALLS IS 1/2 THE DISTANCE BETWEEN HEADS.

PROTECTION AREA OF SPRINKLER HEADS table with columns: PROTECTION AREA OF SPRINKLER HEADS, ORDINARY HAZARD II (HYDRAULIC): 130 SQ. FT.

SPRINKLER DRAWING LIST table with columns: SP-001.00 SPRINKLER GENERAL NOTES, SYMBOLS AND ABBREVIATIONS; SP-002.00 SPRINKLER SPECIFICATIONS; SP-100.00 THIRD FLOOR SPRINKLER PLAN; SP-300.00 SPRINKLER DETAILS & RISER DIAGRAM.

SPRINKLER NOTES table with columns: SPRINKLER NOTES: AS PER NFPA 13D. 1. 8.6.2 BATHROOMS... 2. 8.6.3 CLOSETS...

SPRINKLER LEGEND & ABBREVIATIONS



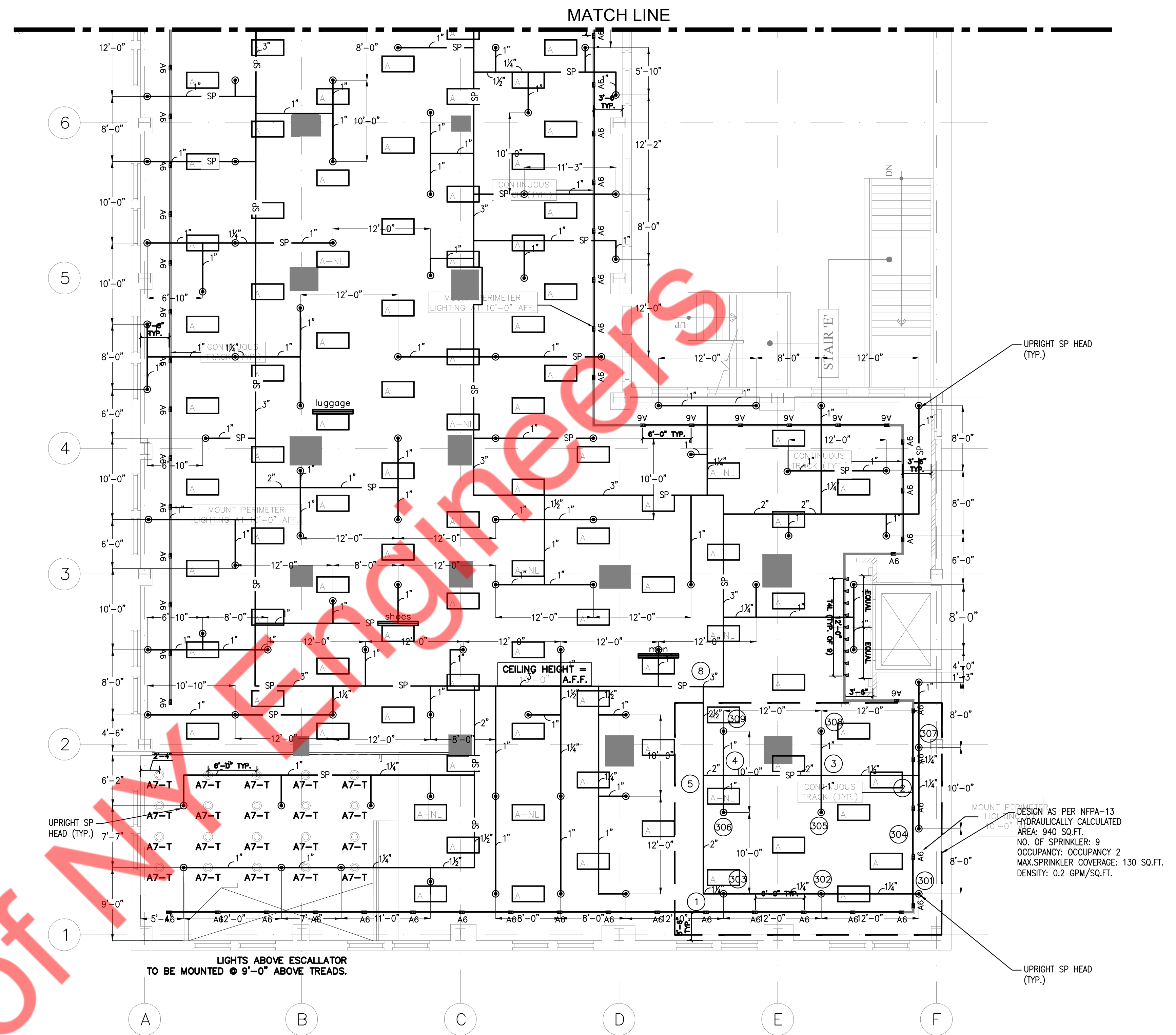
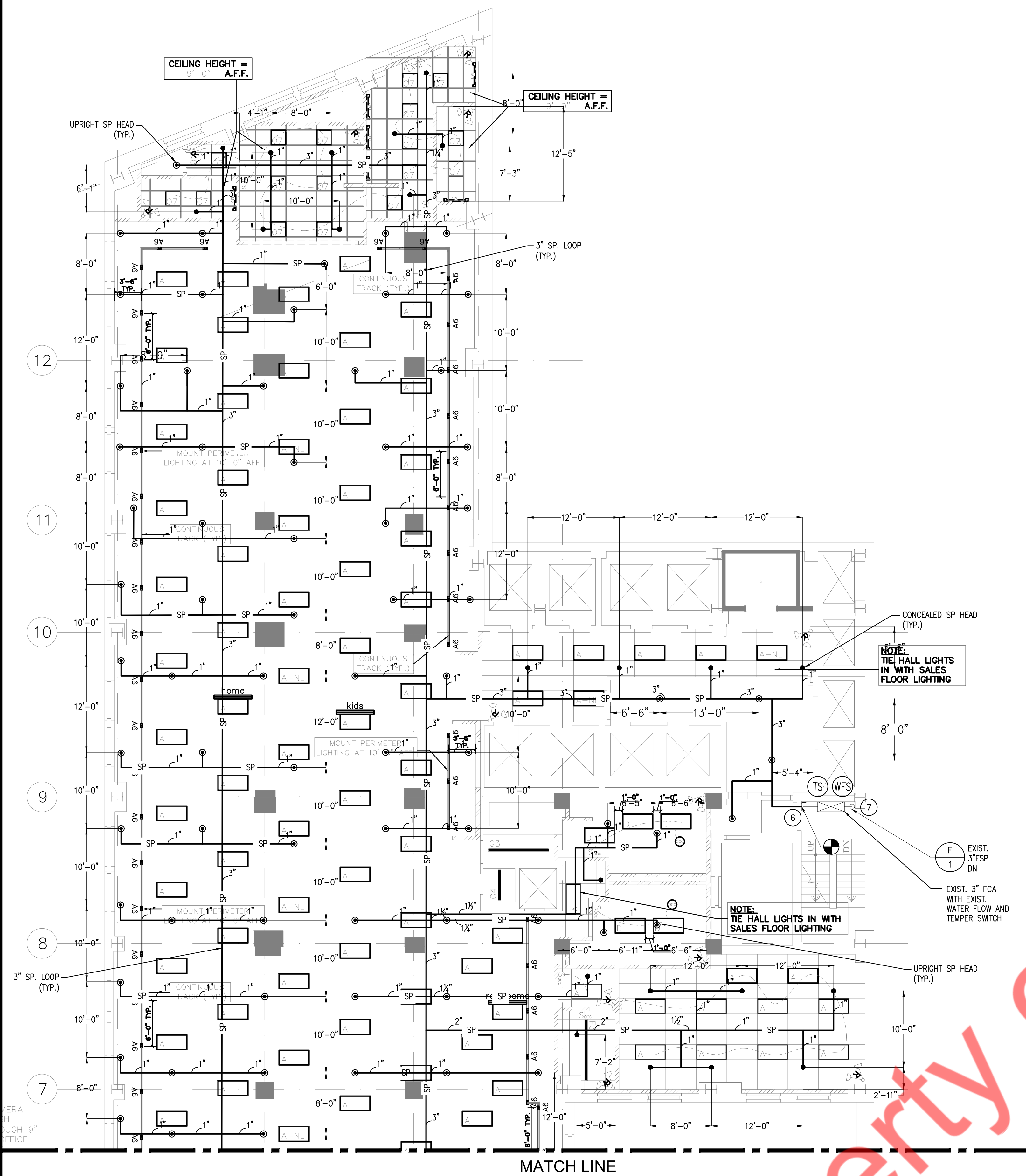
SPECIAL INSPECTION SPINKLER NOTE:
1. SPECIAL INSPECTION OF SPRINKLER SYSTEM TO BE PERFORMED IN ACCORDANCE WITH NY CITY BUILDING CODE SECTION BC 1704-23.
2. FIRE RESISTANT PENETRATION AND JOINTS IN ACCORDANCE WITH NY CITY BUILDING CODE BC 1704-27.
3. FINAL INSPECTION IN ACCORDANCE WITH NY CITY BUILDING CODE BC 110.5 DIRECTIVE FROM 14 OF 1975 AND 1 RCNY § 101-10.

GENERAL NOTES:
1. 2016 NYC FCC COMPLIANCE: NEW YORK CITY CONSERVATION CODE.
TO THE BEST OF MY KNOWLEDGE, BELIEF AND PROFESSIONAL JUDGMENT, ALL WORK UNDER THIS APPLICATION IS EXEMPT FROM THE NYC ECC IN ACCORDANCE WITH ONE OF THE FOLLOWING: FA, FP, SD, SP, FS, EQ, CC, 01/BPP, 01/PPP



DRAWING DESCRIPTION: SPRINKLER GENERAL NOTES, LEGENDS, SYMBOLS AND ABBREVIATIONS

PROFESSIONAL SEAL, PROJECT NO: 17088, SP-001.00, BSCAN



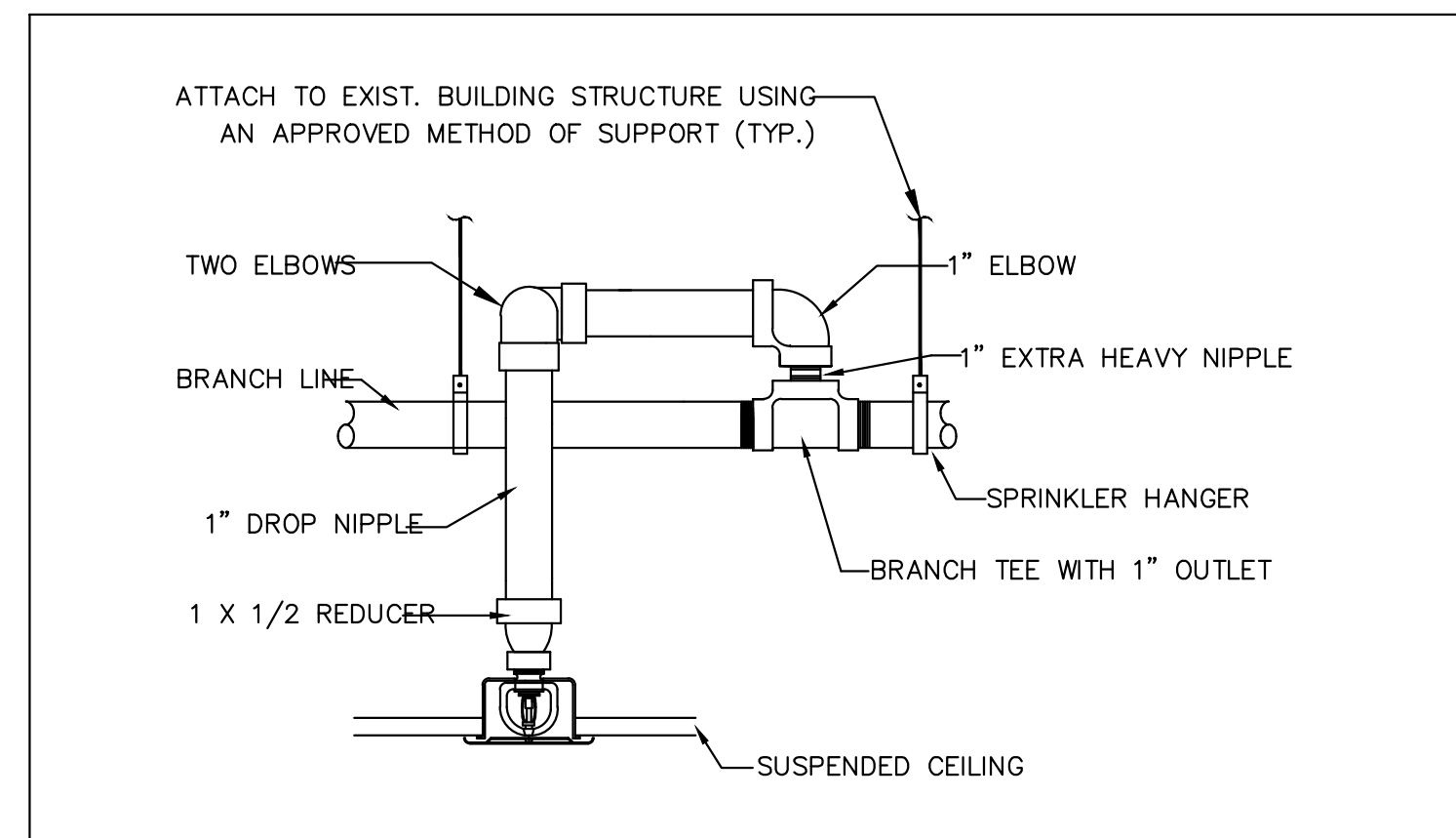
Property of TJ-maxx

1 THIRD FLOOR SPRINKLER PLAN
SCALE: 1/8"=1'-0"

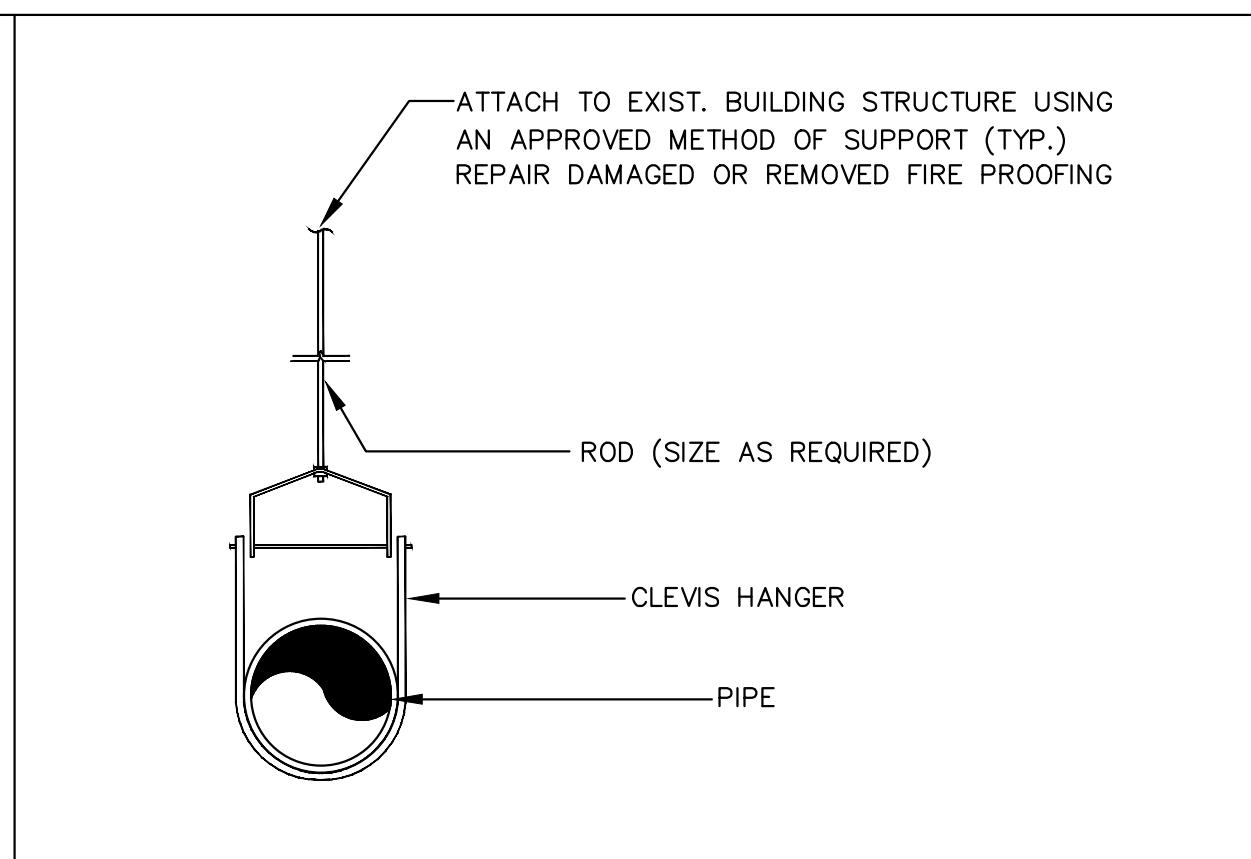
GENERAL NOTE-

- CONTRACTOR TO FIELD VERIFY THE EXISTING SYSTEM PIPING & ROUTING AND CONNECT NEW SPRINKLER PIPING AS SHOWN IN THE PLAN.
- ALL EXISTING SPRINKLER HEADS ON THE FLOOR TO BE DEMOLISHED ALONG WITH ASSOCIATED PIPING AND FITTINGS.

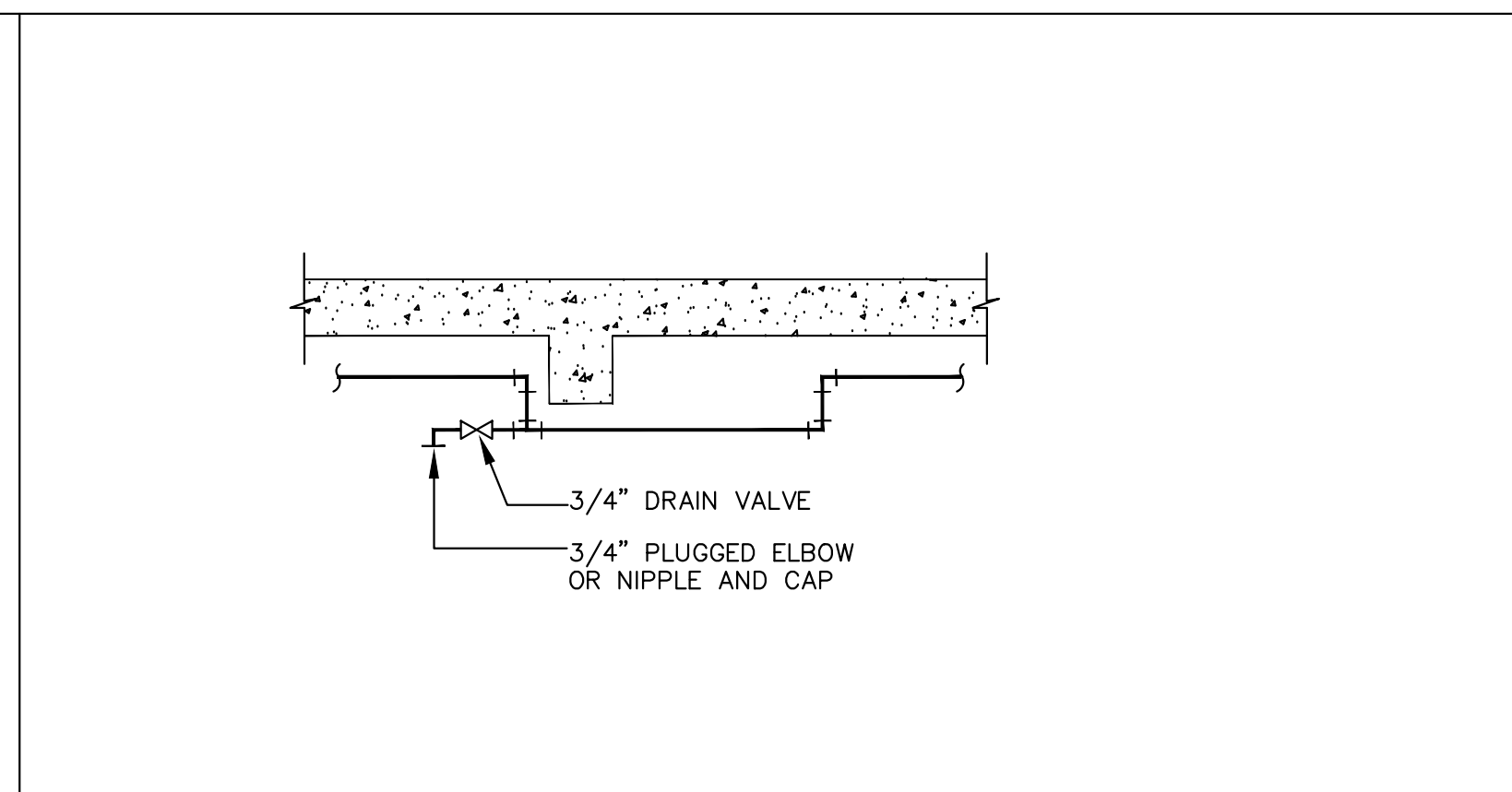
SPRINKLER HEADS COUNT	
SPK. HEAD TYPE	QTY.
NEW CONCEALED	23
NEW UPRIGHT	170



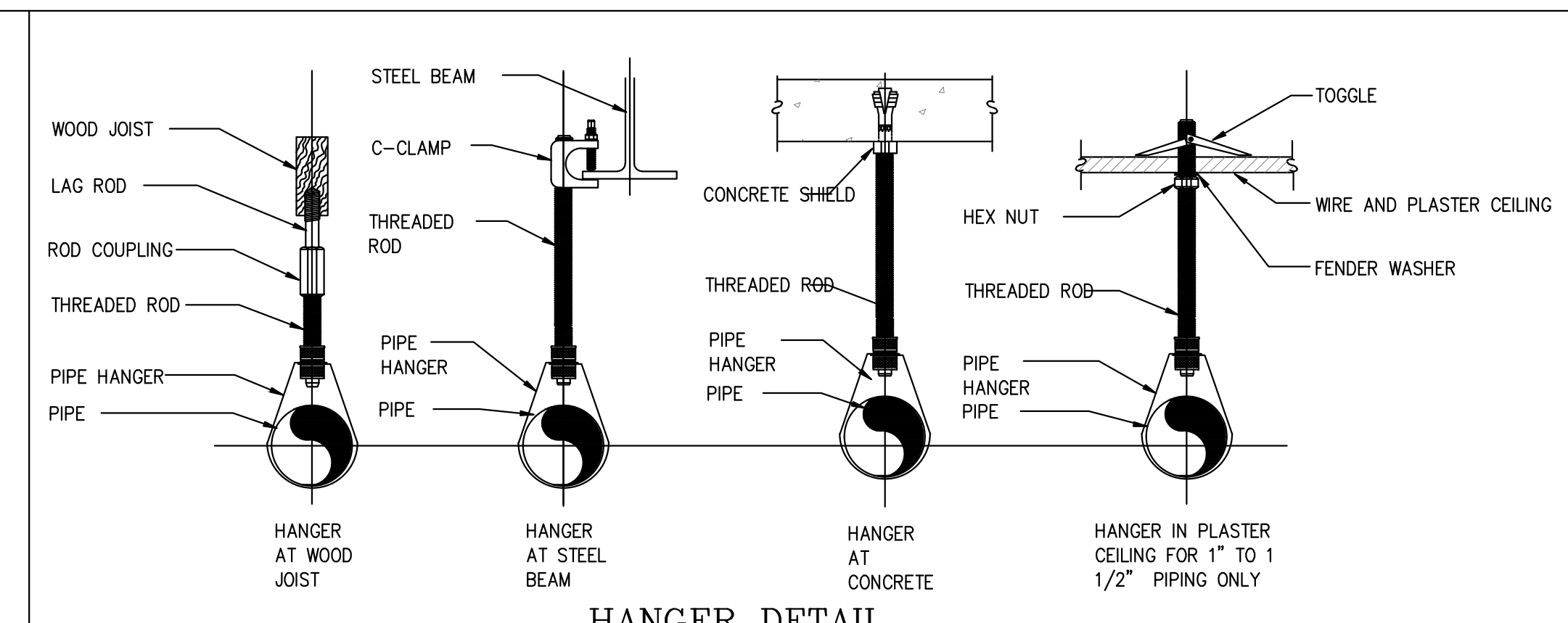
1 SPRINKLER HEAD IN SUSPENDED CEILING DETAIL
SP-300 N.T.S



2 TYPICAL HANGER DETAILS
SP-300 N.T.S



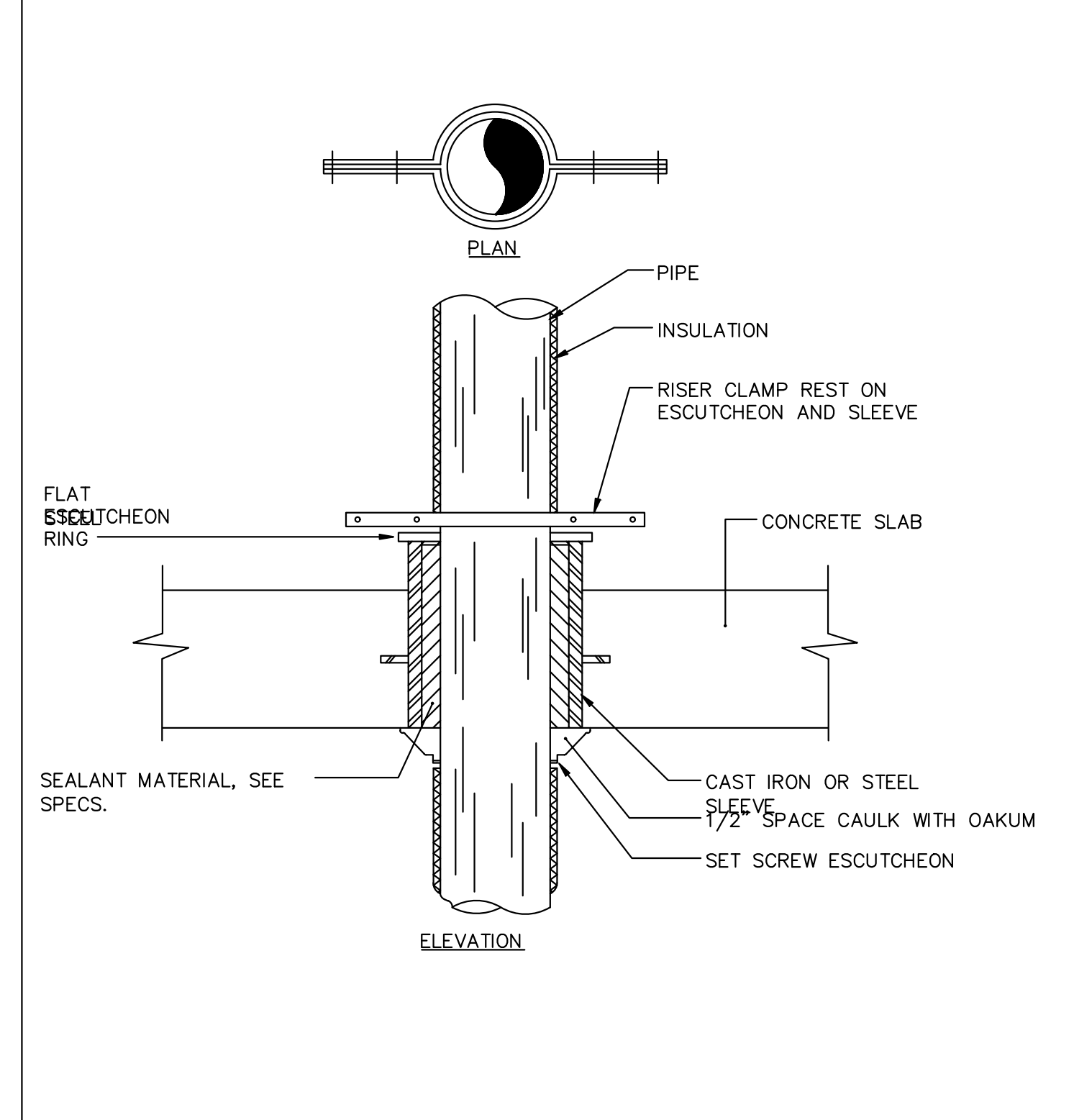
3 TYPICAL DRAIN CONNECTION FOR TRAPPED LINES ON WET PIPE SPRINKLER SYSTEMS
SP-300 N.T.S



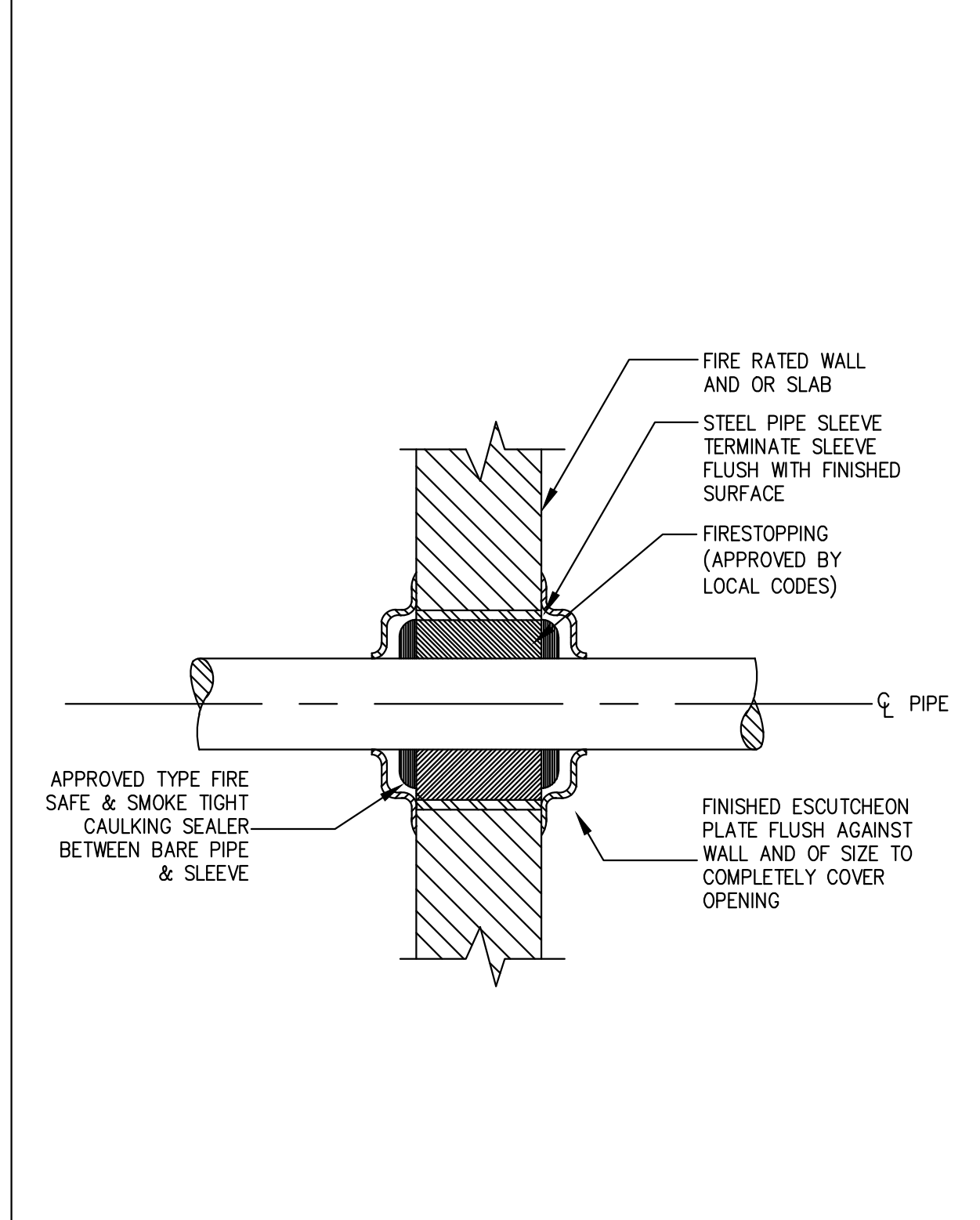
HANGER DETAIL
NOT TO SCALE

ROD SCHEDULE								
PIPE SIZE	ROD SIZE	SPACING	PIPE SIZE	ROD SIZE	SPACING	PIPE SIZE	ROD SIZE	SPACING
1/2"	3/8"	5'-8"	1 1/2"	3/8"	8'-10"	4"	5/8"	12'-15"
3/4"	3/8"	5'-8"	2"	3/8"	10'-12"	5"	5/8"	12'-15"
1"	3/8"	5'-8"	2 1/2"	1/2"	10'-12"	6"	3/4"	12'-15"
1 1/4"	3/8"	6'-10"	3"	1/2"	10'-12"			

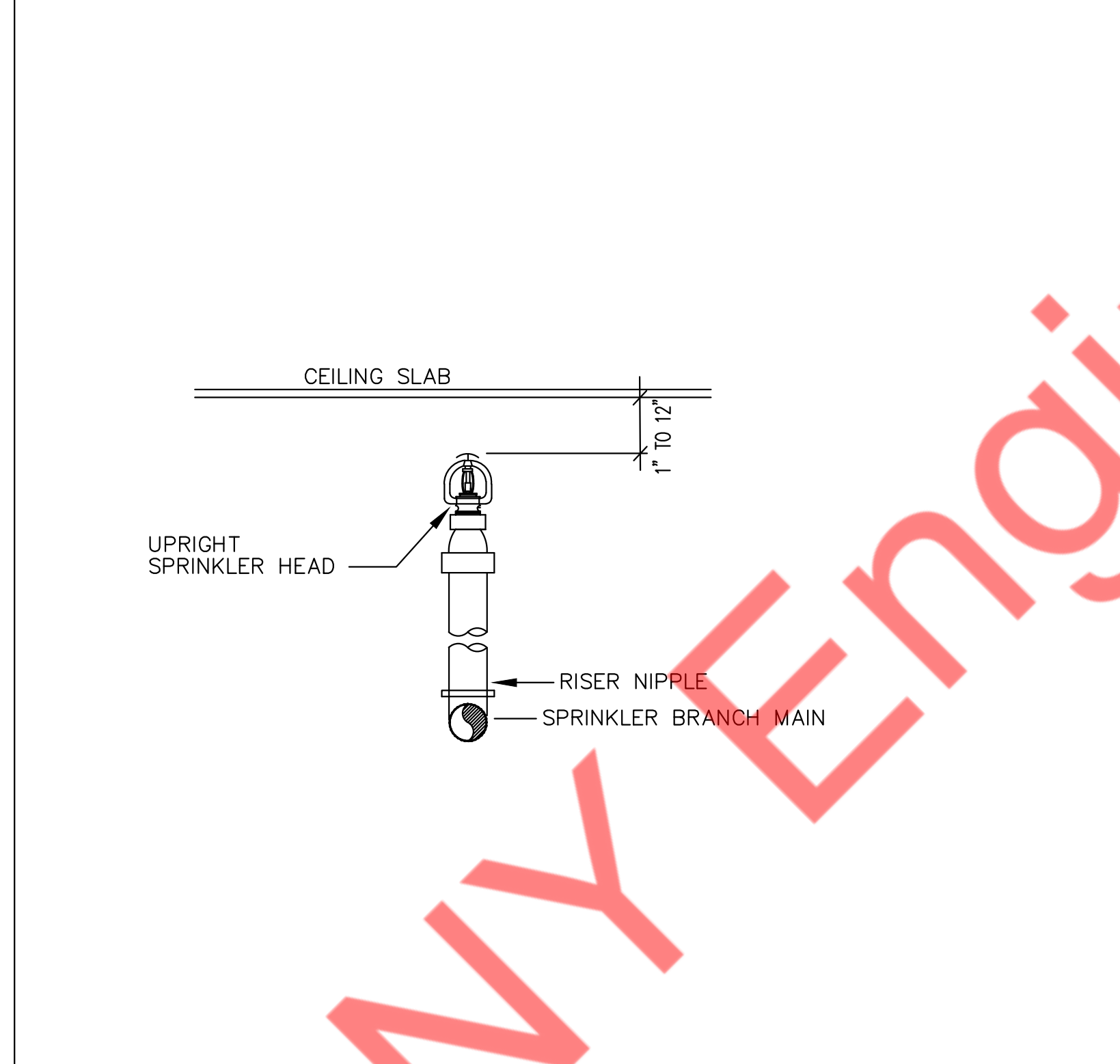
4 TYPICAL HANGER DETAIL AND ROD SCHEDULE
SP-300 N.T.S



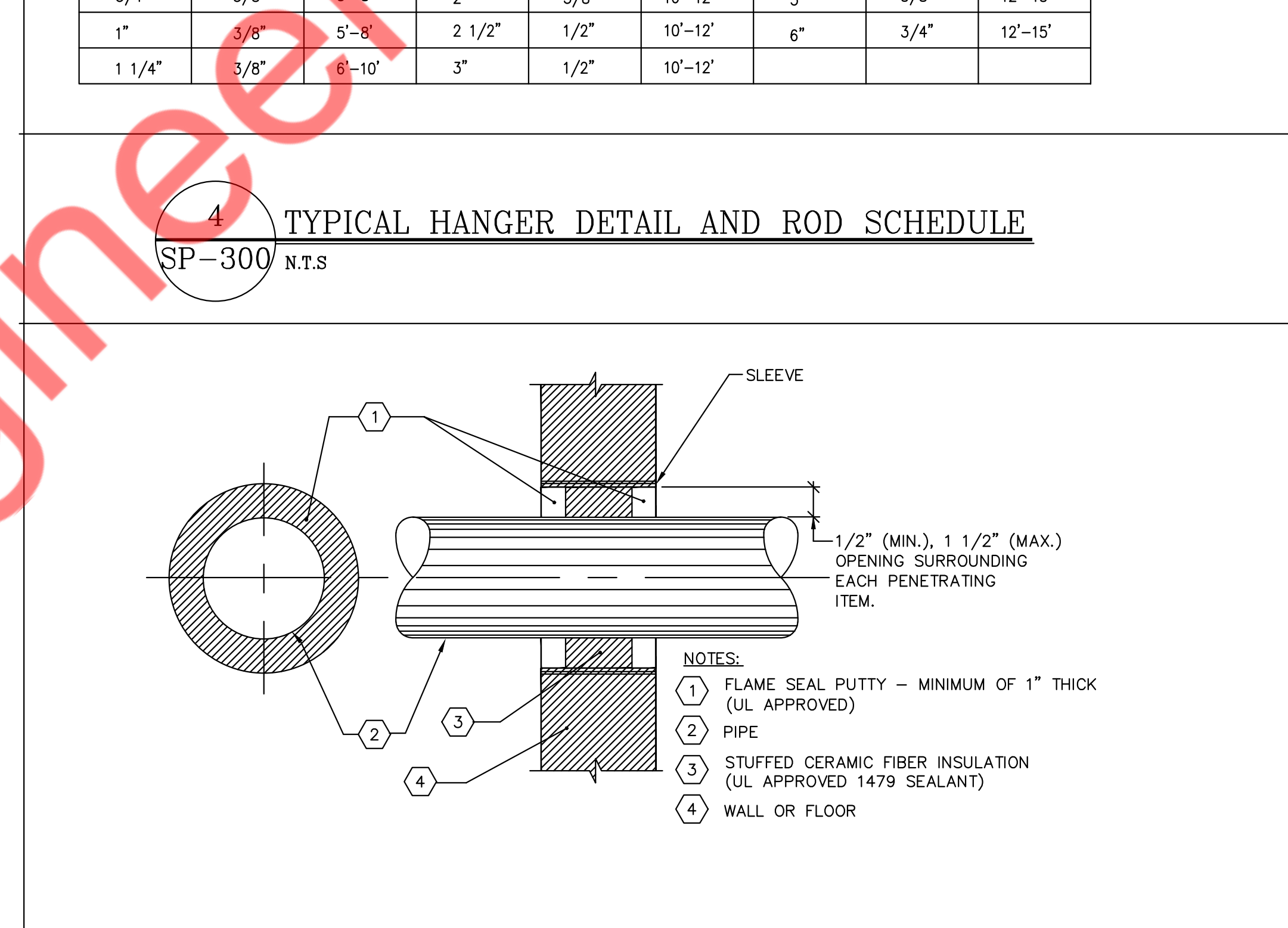
5 SPRINKLER RISER CLAMP DETAIL
SP-300 N.T.S



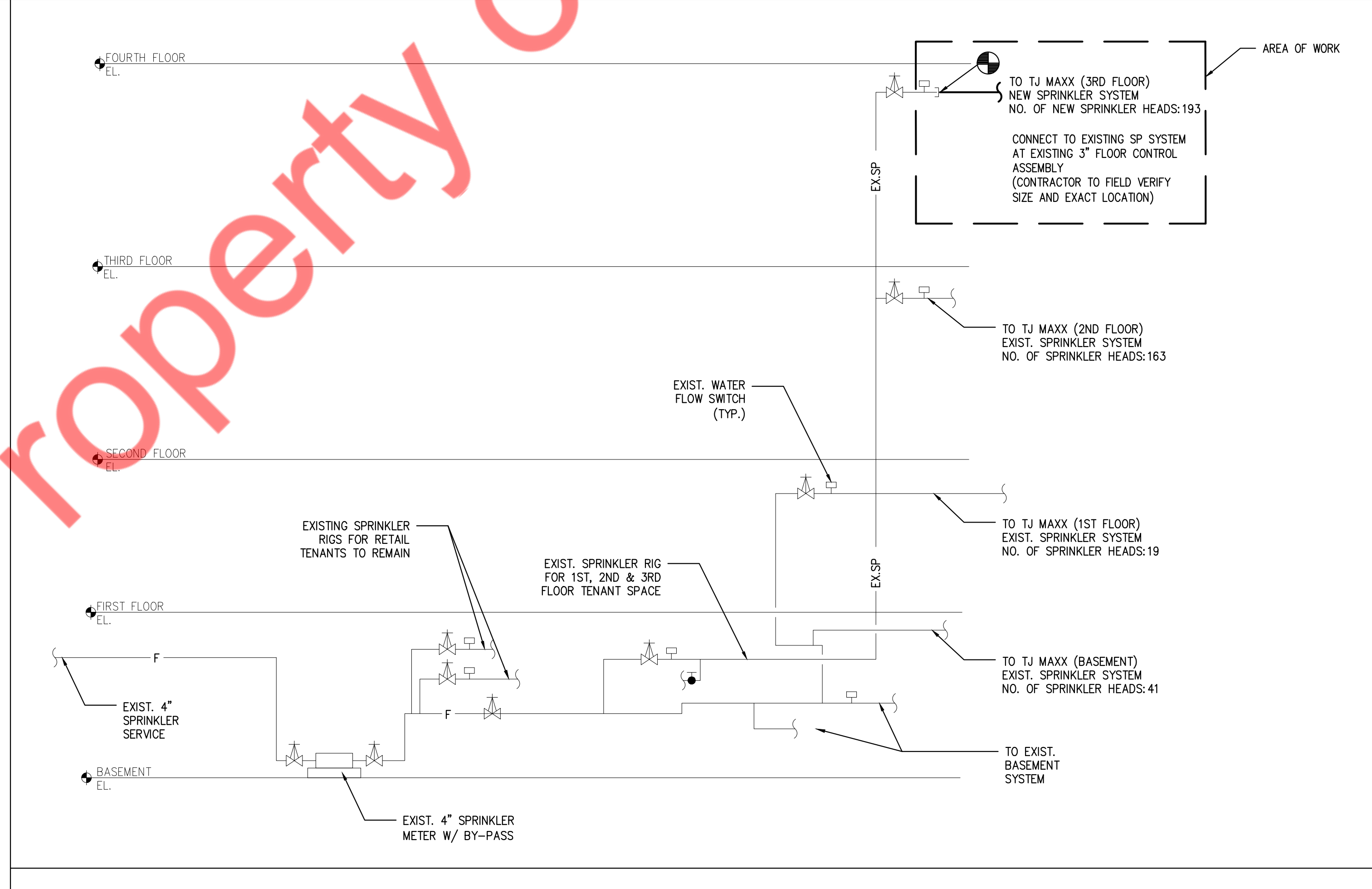
6 TYPICAL PIPE THRU RATED WALL DETAIL
SP-300 N.T.S



7 SPRINKLER HEAD DETAIL UPRIGHT
SP-300 N.T.S



8 FIRE STOPPING DETAIL FOR FIRE/SMOKE RATED WALL/FLOOR OPENINGS
SP-300 N.T.S



9 SPRINKLER RISER DIAGRAM
SP-300 N.T.S