THE TOWN OF GLASTONBURY, CONNECTICUT

Facilities & Maintenance Building Emergency Service Modifications – Glastonbury

State of CT. Project # 53-191, Contract 2
Town Project # GL-2018-22

2109 MAIN STREET, GLASTONBURY, CT.

SILVER / PETRUCELLI + ASSOCIATES
Architects/Engineers/Interior Designers

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100% Construction Documents
April 13th, 2018

ABBREVIATIONS

A.B.	ANCHOR BOLT
A.C.P.	ASBESTOS CEMENT PIPE
ADJ.	ADJUSTABLE
A.F.F.	ABOVE FINISH FLOOR
A.C.T.	ACOUSTICAL CEILING TILE
ALUM.	ALUMINUM
APPROX.	APPROXIMATE
ARCH.	ARCHITECTURAL
ASPH.	ASPHALT
AVG.	AVERAGE
BSMT.	BASEMENT
BD.	BOARD
BRG.	BEARING
BRK.	BRICK
BIT.	BITUMINOUS
BLK.	BLOCK
BLDG.	BUILDING
B.S.	BOTH SIDES
C.I.	CAST IRON
C.I.P.	CAST IN PLACE CONCRETE
C.B.	CATCH BASIN
C.B.R.	CATCH BASIN TO BE REMOVED
CLG.	CEILING
℄	CENTER LINE
C. BD.	CHALK BOARD
C.C.	CURB CUT
C.O.	CLEAN OUT
COL.	COLUMN
CONC.	CONCRETE
CONF.	CONFERENCE
C.M.U.	CONCRETE MASONRY UNIT
CONT.	CONTINUOUS, CONTINUE
C.J.	CONTROL JOINT/ CONSTRUCTION JOINT
CONTR.	CONTRACTOR
DET.	DETAIL
DIA.	DIAMETER
DIM.	DIMENSION
DR.	DOOR
DN.	DOWN
DWG.	DRAWING
E	ELECTRICAL
EA.	EACH
EXCTR.	EXISTING CEILING TO REMAIN
ED.	EDUCATION
ELEC.	ELECTRICAL
E.F.	EACH FACE
E.J.	EXPANSION JOINT
EL.	ELEVATION
ELEV.	ELEVATION
EMER.	EMERGENCY
ENCL.	ENCLOSURE
ENL.	ENLARGED
ENT.	ENTRANCE
EP.	EPOXY PAINT
EQ.	EQUAL
ES.	EXPOSED STRUCTURE
E.T.R.	EXISTING TO REMAIN
E.W.	EACH WAY
E.W./E.F.	EACH WAY/EACH FACE
EXAM.	EXAMINATION
EXIST	EXISTING
EXP.	EXPANSION
EXT.	EXTERIOR
FDN.	FOUNDATION
F.F.	FINISHED FLOOR
FIN.	FINISH, FINISHED
FIXT.	FIXTURE
FL.	FLOOR
FT.	FOOT
F.S.	FAR SIDE
FTG.	FOOTING
G	GAS
GA.	GAGE, GAUGE
GEN.	GENERAL
G.C.	GENERAL CONTRACTOR
GYP.	GYPSUM
GYP. BD.	GYPSUM BOARD
H.C.	HANDICAPPED
HD.	HEADED
HDWR.	HARDWARE
HGT.	HEIGHT
H.P.	HIGH POINT
H.M.	HOLLOW METAL
HORIZ.	HORIZONTAL, HORIZONTALLY
H.B.	HOSE BIBB
HR.	HOUR
HYD.	HYDRANT
INSUL.	INSULATION, INSULATED
INT.	INTERIOR
INV.	INVERT
JAN.	JANITOR
K.P.	KICK PLATE
LAM.	LAMINATE
L.F.	LINEAL FOOT
LG.	LONG
LOC.	LOCATION
L.P.	LOW POINT
LTG.	LIGHTING
MAS.	MASONRY
MAX.	MAXIMUM
MECH.	MECHANICAL
M.H.	MANHOLE
MIN.	MINIMUM
MISC.	MISCELLANEOUS
M.O.	MASONRY OPENING
MTD.	MOUNTED
N.A.	NOT APPLICABLE
N.I.C.	NOT IN CONTRACT
NO.	NUMBER
NOM.	NOMINAL
N.S.	NEAR SIDE
N.T.S.	NOT TO SCALE
O.C.	ON CENTER
O.C.C.	OCCUPANT
O.D.	OUTSIDE DIAMETER
OPNG.	OPENING
P.C.B.	PAINTED CONCRETE BLOCK
P.G.B.	PAINTED GYPSUM BOARD
PL.	PLATE
PLUMB.	PLUMBING
PLYWD.	PLYWOOD
PREP.	PREPARATION
P.T.	PRESSURE TREATED
PTD.	PAINTED
P.V.C.	POLYVINYL CHLORIDE
R.	RISER
RAD.	RADIUS
R.C.P.	REINFORCED CONCRETE PIPE
R.D.	ROOF DRAIN
REINF.	REINFORCEMENT
REQD.	REQUIRED
R.H.	ROOF HATCH
R.L.	ROOF LEADER
RM.	ROOM
S.	STORM
SAN.	SANITARY
S.C.	SEALED CONCRETE
SCHED.	SCHEDULE
SECT.	SECTION
S.F.	STEP FOOTING
SIM.	SIMILAR
S.O.G.	SLAB ON GRADE
SPEC.	SPECIFICATIONS
SQ.	SQUARE
SQ. FT.	SQUARE FEET
STL.	STEEL
STRUCT.	STRUCTURAL
SUSP.	SUSPENDED, SUSPENSION
S.W.	SHEAR WALL
S.W.F.	SHEAR WALL FOOTING
T.	TELEPHONE
T&B	TOP & BOTTOM
TECH.	TECHNOLOGY
T.O.	TOP OF
T.O.F.	TOP OF FRAME
T.O.S.	TOP OF STEEL
T/S	TOP OF SLAB
T/W	TOP OF WALL
TYP.	TYPICAL
U.O.N.	UNLESS OTHERWISE NOTED
V.B.	VINYL BASE
V.C.T.	VINYL COMPOSITE TILE
VERT.	VERTICAL
V.I.F.	VERIFY IN FIELD
W.	WATER
W/	WITH
W.C.J	WALL CONTROL JOINT
WD.	WOOD
WF.	WIDE FLANGE
W.W.F.	WELDED WIRE FABRIC
W.W.M.	WELDED WIRE MESH
@	AT
Φ	DIAMETER

SYMBOL LEGEND

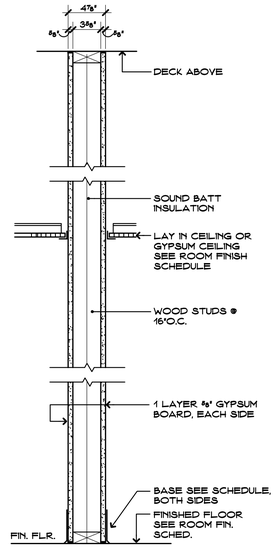
- XXX — ROOM NUMBER
- XX — DOOR NUMBER
- XX — DEMOLITION NOTE
- XX — WINDOW TYPE
- XX / XX — DETAIL NUMBER / DRAWING NUMBER
- XX — CONSTRUCTION NOTE
- X / X — SECTION / DETAIL DRAWING NUMBER
- XX / XX — WALL SECTION DRAWING NUMBER
- XX / XX — INTERIOR / EXT. ELEVATION DRAWING NUMBER
- REFERENCE POINT
- XX — WALL TYPE
- X — REVISION MARK

GRAPHIC LEGEND

- CONCRETE
- CONCRETE MASONRY UNITS
- BRICK
- STONE
- METALS
- COMPACTED GRAVEL
- EARTH
- PLYWOOD
- ACOUSTICAL TILE
- WOOD FRAMING - THROUGH MEMBER
- WOOD FRAMING - INTERRUPTED MEMBER
- FINISHED WOOD
- BATT INSULATION
- RIGID INSULATION
- GYPSUM BOARD

GENERAL NOTES

1. FOR SPECIFIC WALL DESIGNATIONS AND RATED DESIGNS, SEE THIS DWG A1.
2. GENERAL NOTES FOUND ANYWHERE IN THE CONTRACT DOCUMENTS RELATE TO ALL DRAWINGS AND SPECIFICATIONS.
3. ALL MATERIALS & EQUIPMENT ARE NEW UNLESS OTHERWISE NOTED AS 'EXISTING'.
4. ALL EXISTING UTILITIES & EQUIPMENT LOCATIONS ARE APPROXIMATE - CONTRACTOR TO FIELD VERIFY.
5. ASSUME THAT ALL OF THE EXISTING STEEL IS PAINTED WITH LEAD BASED PAINT. CONTRACTOR IS RESPONSIBLE FOR THE PROPER SAFETY PRECAUTIONS WHEN DISTURBING THE PAINT. THIS INCLUDES THE STATE OF CONNECTICUT AND OSHA.
6. ALL MATERIALS USED IN THE SCOPE OF WORK MUST NOT CONTAIN ANY ASBESTOS AND THE CONTRACTOR MUST CERTIFY THAT TO THE BEST OF HIS/HER KNOWLEDGE THAT MATERIALS USED IN THE SCOPE OF WORK ARE ASBESTOS FREE.
7. PROVIDE ALL TEMPORARY PARTITIONS AND PROTECTION METHODS TO INSURE THAT THE OWNERS MATERIALS, EQUIPMENT AND OPERATIONS ARE PROTECTED AND REMAIN OPERATIONAL DURING CONSTRUCTION.
8. THE DRAWINGS AND THE SPECIFICATIONS ARE COMPLEMENTARY - WHAT IS REQUIRED BY ONE IS REQUIRED BY BOTH.



TYPE 1

3-1/2" WOOD STUDS @ 16" O.C.
SOUND ATTENUATED BATTS
⅝" GWB TYPE 'X', PTD. EA SIDE
(1) HOUR FIRE RATED.
UL 465

LIST OF DRAWINGS

Project Title:

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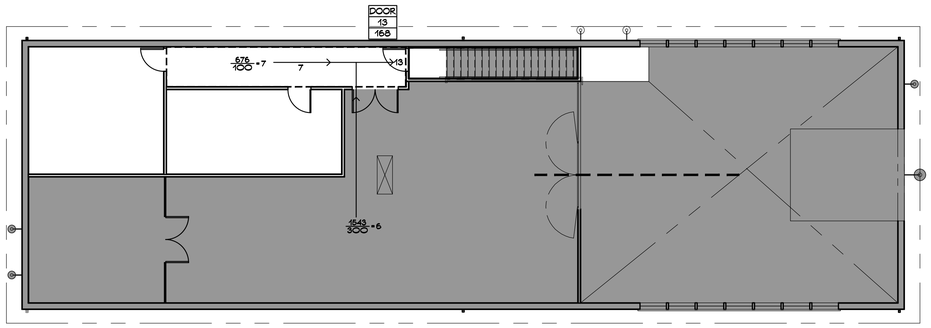
Revision:	*Description:*	*Date:*	*Revised By:*

Drawing Title: GENERAL INFORMATION

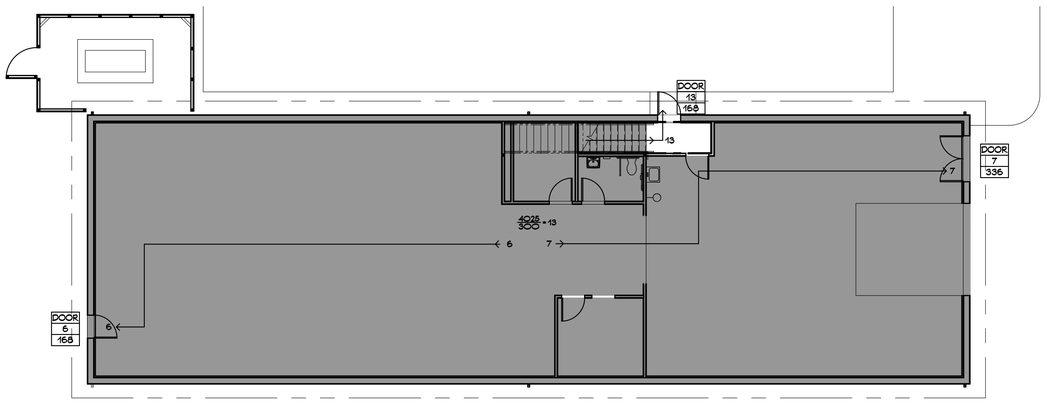
Date: 4.13.18
Scale: AS NOTED
Drawn By: DW
Project Number: 17.007

Drawing Number: A1



EGRESS FLOOR PLAN
SCALE: 1/8" = 1'-0"
1
A2

NORTH



BUILDING CODE INFORMATION

DATE OF ORIGINAL CONSTRUCTION: 2016

1. **USE GROUP CLASSIFICATION (Chapter 3)**
   (Primary): F1 / B
   (Incidental):

2. **CONSTRUCTION TYPE (Chapter 6)**
   Minimum Type Required: VB
   Actual Type Provided (existing):
   (new):

3. **BUILDING HEIGHT (Chapter 5)**
   Allowable Height (story/feet): 2 ST / 40'
   Actual Height (story/feet): 34'-0"
   (Stories Above Grade): 2

4. **BUILDING AREA (Chapter 5)**
   a) Building Area (first floor)
   New construction: 0 sq.ft.
   Total floor: sq.ft.

5. **AREA MODIFICATIONS TO TABLE 503**

	N	E	W	S
Total Perimeter =	115 ft.	30 ft.	30 ft.	115 ft.
Open Perimeter =	115 ft.	30 ft.	30 ft.	115 ft.

Total Frontage (F) 300 ft. (building perimeter which fronts on a public way or open space having 20 feet open min.)
Perimeter (P) 300 ft. (perimeter of the entire building)

Width of open space (W) = 30

If=100[F/P−0.25]W/30
100[300 /300 −0.25]30 /30= 75

% Frontage increase (If) = 75 %

% of Allowable Tabular Area, At (table 503)	100 %
% of Increase for frontage, If (506.2)	75 %
% of Increase for automatic sprinklers, Is (506.3)	%
Total percentage factor	75 %
Conversion factor (Total percentage factor + 100)	1.75

6. **ALLOWABLE AREAS – ASSEMBLY USES, USE GROUP A-3 (FIRE AREA #1)** (Allowable Area 506.4)
   a) ALLOWABLE AREA per floor (Aa)
   1.75 (conversion factor) x 8,500 (tabular area, Table 503) = 23,375 sq. ft.
   b) ACTUAL TOTAL FLOOR AREA (Proposed) 4,025 sq. ft.
   c) ALLOWABLE FLOOR AREA (all stories)
   23,375 (Allowable area per floor (Aa)) x 2 (number of stories (maximum 3)) = 46,750 sq. ft.

7. **FIRE-RESISTANCE RATED REQUIREMENTS FOR BUILDING ELEMENTS**
   TABLE 302.1.1 – requires a 2 hour separation between A-3 & B

1) Structural frame	0 Hr(s)
2) Bearing Walls Exterior	0 Hr(s)
Interior	0
3) Non-Bearing Walls/Partitions Exterior	0 Hr(s)
4) Non-Bearing Walls/Partitions Interior	0 Hr(s)
5) Floor Construction Including Beams	0 Hr(s)
6) Roof Construction Including Beams	0 Hr(s)

8. **OCCUPANCY LOAD**
   Design Total for Building: 26
   Total Exit Capacity for Building: 672

9. **ACCESSIBLE BUILDING**: X Designated / Non Designated

10. **SPRINKLER PROTECTION**: NO — Entire Building / Limited Area

11. **CODES TO WHICH THIS PROJECT WAS DESIGNED**

State Building Code w/Supplement	2016
State Fire Code w/Supplement	2016
State Health Code	MOST CURRENT
OSHA	MOST CURRENT
Section 504	N.A.
ADA	MOST CURRENT

12. **THRESHOLD BUILDING CONDITIONS**: Yes / No: X

SYMBOL LEGEND FOR CODE INFORMATION

- ACCESSIBLE AREA OR EXIT
- 840 / 20 = 42 AREA IN S.F. / OCC. LOAD FACTOR — ROOM OCCUPANCY LOAD
- 42 ACTUAL EGRESS OCC. OF DOOR / 168 MAX. ALLOWABLE EGRESS OCC. OF DOOR — EXIT CAPACITY
- 1 HOUR FIRE RATED WALL CEILING/WALLS RESIST THE PASSAGE OF SMOKE
- CEILING/WALLS RESIST THE PASSAGE OF SMOKE
- MAXIMUM TRAVEL DISTANCE
- 120 — DIRECTION OF TRAVEL

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Drawing Title: CODE PLANS & INFORMATION

Date: 4.13.18
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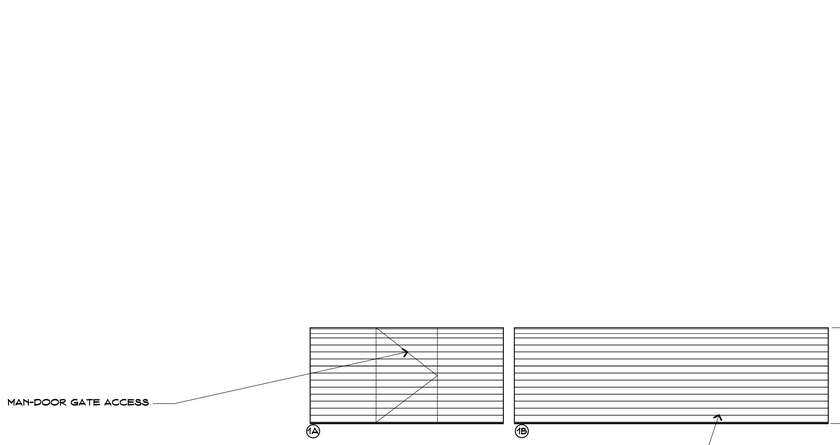
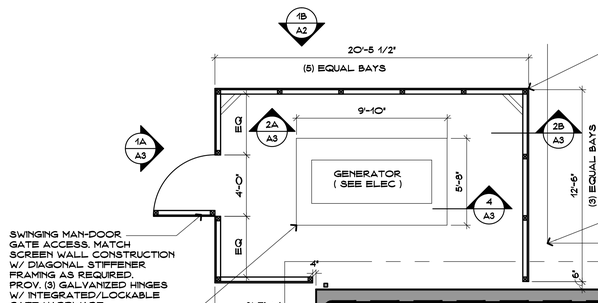
Project Number: 17.007
Drawing Number: A2



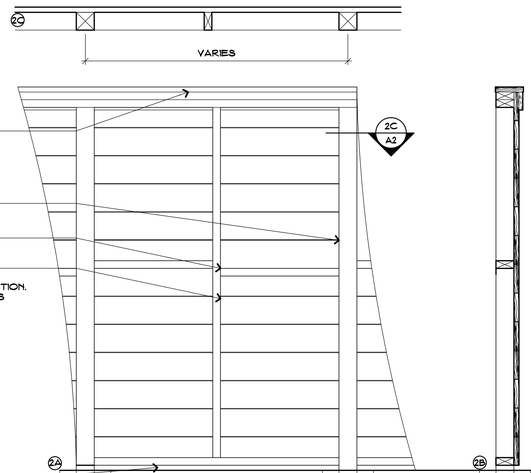
SCREEN WALL ELEVATIONS (1/A3)

SCALE: 1/4" = 1'-0"



SWINGING MAN-DOOR GATE ACCESS. MATCH SCREEN WALL CONSTRUCTION W/ DIAGONAL STIFFENER FRAMING AS REQUIRED. PROV. (3) GALVANIZED HINGES W/ INTEGRATED/LOCKABLE GATE HARDWARE.

REINFORCED CONCRETE GENERATOR PAD, COORDINATE PAD SIZE WITH GENERATOR REQUIREMENTS.



DOUBLE P.T. TOP PLATE W/ 5/4 CAP, BUILT UP FASCIA. MITER ALL CORNERS.

MAINTAIN 1/8" GAP BETWEEN ALL BOARDS.

PROVIDE INTERMEDIATE FRAMING & BRIDGING.

5/4 X 6" CEDAR DECK BOARDS, PAINTED ON ALL SIDES PRIOR TO CONSTRUCTION. ALTERNATE EXPOSED ENDS AT CORNERS.

HOLD BOTTOM FRAMING / TRIMBOARDS / 2" OFF GRADE.

NEW P.T. WOOD FRAMED FENCE ENCLOSURE W/ PAINTED CEDAR DECKING. PROV. HIGH AND LOW 2X CORNER BRACING AS REQUIRED FOR A STABLE CONSTRUCTION.

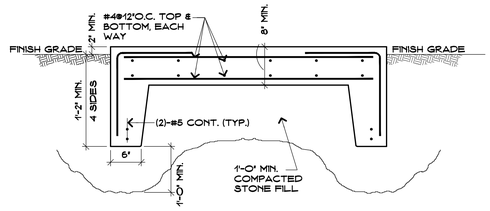
8" DIAMETER CONCRETE FOUNDATION, 42" BELOW GRADE, SET IN COMPACTED STONE. PROV. GALV. STANDOFF POST, CONCEAL BEHIND FINISH TRIMBOARDS.

EDGE OF EXTG PAVING, NEW ENCLOSURE SHALL BE 2'-0" MIN AWAY.

NEW DOWNSPOUTS, MATCH EXISTING SIZE AND COLOR. TYP OF (2) ADDED PER GUTTER. PROV. COMPLETE CONNECTION TO EXTG PVC LINES/ MATCH EXISTING.

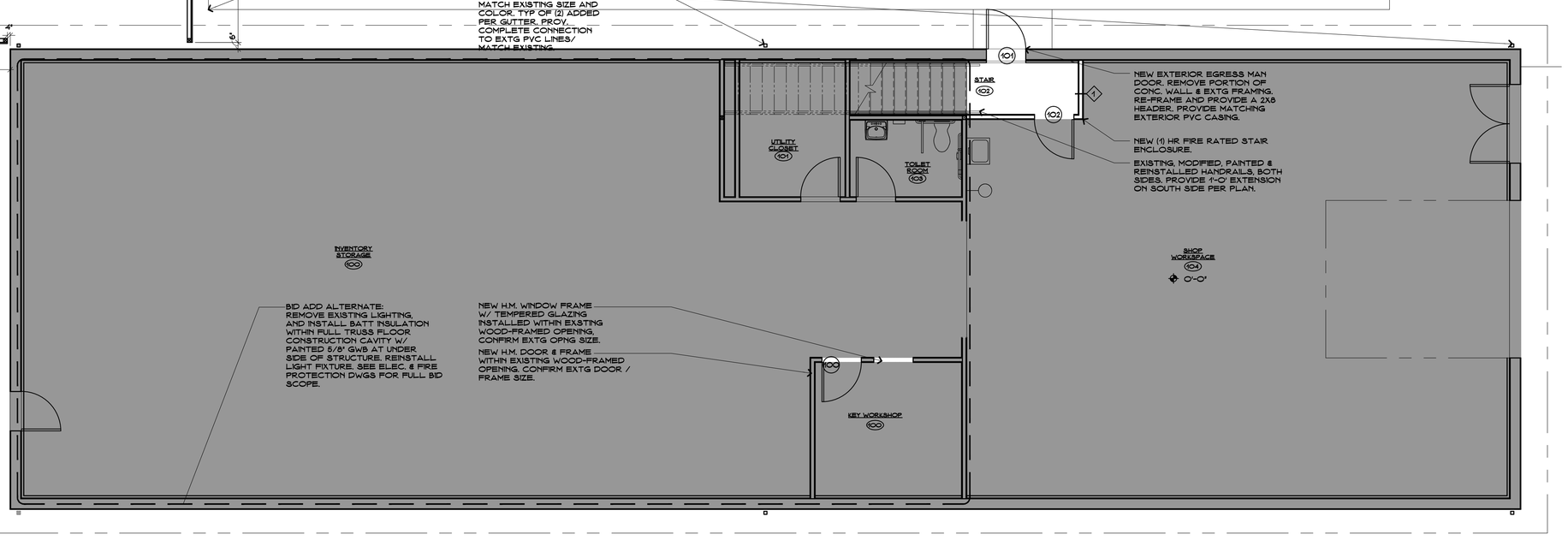
SCREEN WALL DETAILS (2/A3)

SCALE: 1" = 1'-0"



TYPICAL CONC. EQUIP. PAD ON GRADE (4/A3)

SCALE: 3/4" = 1'-0"



NEW EXTERIOR EGRESS MAN DOOR. REMOVE PORTION OF CONC. WALL & EXTG FRAMING. RE-FRAME AND PROVIDE A 2X8 HEADER. PROVIDE MATCHING EXTERIOR PVC CASING.

NEW (1) HR. FIRE RATED STAIR ENCLOSURE.

EXISTING, MODIFIED, PAINTED & REINSTALLED HANDRAILS, BOTH SIDES. PROVIDE 1'-0" EXTENSION ON SOUTH SIDE PER PLAN.

BID ADD ALTERNATE: REMOVE EXISTING LIGHTING, AND INSTALL BATT INSULATION WITHIN FULL TRUSS FLOOR CONSTRUCTION CAVITY W/ PAINTED 5/8" GWB AT UNDER SIDE OF STRUCTURE. REINSTALL LIGHT FIXTURE. SEE ELEC. & FIRE PROTECTION DWGS FOR FULL BID SCOPE.

NEW H.M. WINDOW FRAME W/ TEMPERED GLAZING INSTALLED WITHIN EXSTING WOOD-FRAMED OPENING, CONFIRM EXTG OPNG SIZE.

NEW H.M. DOOR & FRAME WITHIN EXISTING WOOD-FRAMED OPENING. CONFIRM EXTG DOOR / FRAME SIZE.

FIRST FLOOR PLAN (3/A3)

SCALE: 1/4" = 1'-0"

NORTH

NOTE: ALL DIMENSIONS TAKEN TO FACE OF STUD U.O.N.

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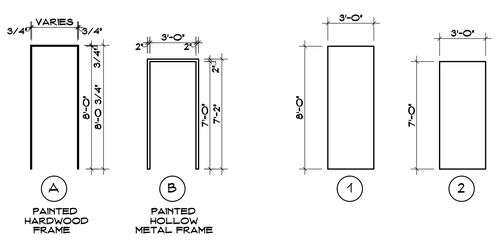
Revision:	Description:	Date:	Revised By:

Drawing Title:

FIRST FLOOR PLAN & SCREEN WALL DETAILS

Date: 4.13.18
Scale: AS NOTED
Drawn By: DW
Project Number: 17.007

Drawing Number: A3



DOOR SCHEDULE

DOOR NUMBER	DOOR SIZE 3'-0" X 8'-0"	6'-0" X 8'-0"	12'-0" X 14'-0"	3'-0" X 7'-0"	DOOR PAIRED	DOOR TYPE	DOOR MATERIAL	DOOR GLAZING	FRAME TYPE - SEE FRAME ELEV.	FRAME MATERIAL	FRAME DETAIL/SHEET NO. HEAD DETAIL	FRAME DETAIL/SHEET NO. JAMB DETAIL	FRAME DETAIL/SHEET NO. SADDLE DETAIL	FRAME GLAZING	FIRE RATING RESISTS PASSAGE OF SMOKE	FIRE RATING "B" LABELED (90 MINUTE)	FIRE RATING "B" LABELED (60 MINUTE)	FIRE RATING "C" LABELED (45 MINUTE)	FIRE RATING "C" LABELED (20 MINUTE)	HARDWARE - SEE SPECIFICATIONS FIRE CODE PANIC RELEASE LATCH	FIRE CODE LATCHING/LOCKABLE	FIRE CODE AUTOMATIC CLOSER	FIRE CODE ELECTRO-MECH. CLOSER	DISABLED REQUIREMENTS DELAYED ACTION CLOSER	DISABLED REQUIREMENTS PUSH/PULL	DISABLED REQUIREMENTS LEVER HANDLES/LOCK.	DISABLED REQUIREMENTS KICK PLATES	DISABLED REQUIREMENTS TACTILE WARNING	DISABLED REQUIREMENTS ACCESSIBLE THRESHOLD	SIGNAGE (MOUNTING HEIGHT: 48" A.F.F.)	REMARKS
100				•	2	HM		B	HM	A/A4	B/A4								•	•				•	•		•				
101	•				1	FB		A	WD										•	•				•	•						
102				•	3	HM		C	HM	C/A4	D/A4							•	•	•				•	•						
201				•	2	HM		B	HM	A/A4	B/A4								•	•				•	•				•	OFFICE	
202				•	2	HM		B	HM	A/A4	B/A4								•	•				•	•				•	OFFICE	
203				•	•	2	HM		B	HM	A/A4	B/A4								•	•				•	•				•	STORAGE	
204				•	3	HM		C	HM	C/A4	D/A4							•	•	•				•	•						

LEGEND — HM - HOLLOW METAL; FB - FIBERGLASS; TEMP - TEMPERED; INSUL - INSULATED; WD - WOOD

- ● - INDICATES NEW WORK
- ○ - INDICATES EXISTING TO REMAIN
- □ - INDICATES EXISTING TO BE REMOVED & REPLACED
- ■ - INDICATES EXISTING TO BE REMOVED

EXISTING DOOR INFO. / NEW DOOR INFO.

ROOM FINISH SCHEDULE

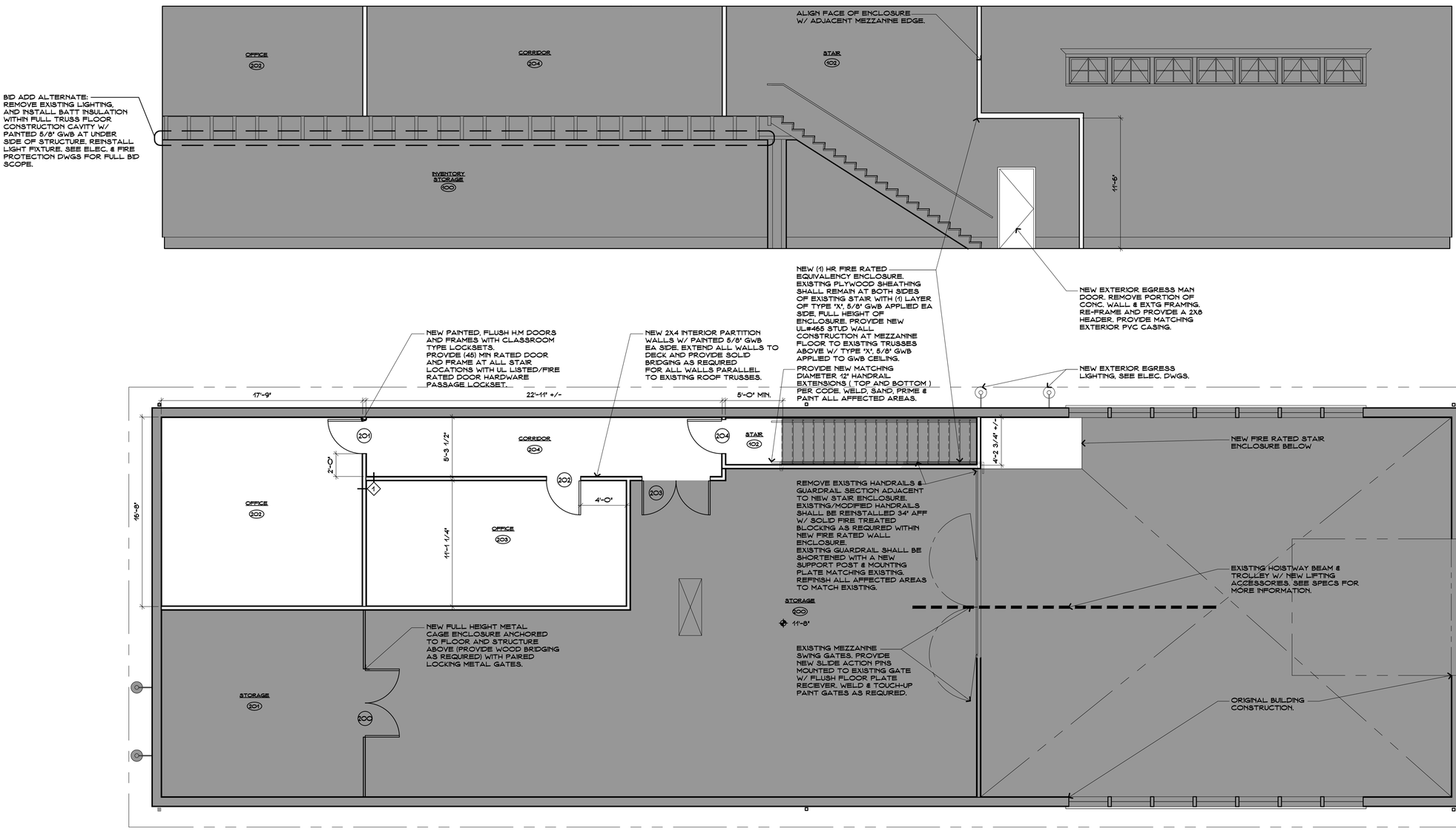
ROOM NO.	ROOM NAME	FLOOR FLR. FIN.	FLOOR BASE	WALL FINISH EAST	WALL FINISH SOUTH	WALL FINISH WEST	WALL FINISH NORTH	CEILING MAT'L.	NOTES
200	STORAGE								
201	STORAGE			M.C.			G.W.B.		
202	OFFICE		R.B.	G.W.B.	G.W.B.				
203	OFFICE		R.B.	G.W.B.	G.W.B.	G.W.B.	G.W.B.		
204	CORRIDOR			G.W.B.	G.W.B.	G.W.B.			

LEGEND

- E.S. - EXPOSED STRUCTURE
- G.W.B. - GYPSUM WALL BOARD, PAINTED.
- S.C. - SEALED CONCRETE
- PLY - PLYWOOD
- R.T. - RUBBER TREADS
- R.B. - RUBBER BASE
- M.C. - METAL CAGED WALL

NOTES

1. ALL NEW HM DOORS & FRAMES TO BE PAINTED



SECOND FLOOR PLAN (1/A4)

SCALE: 1/4" = 1'-0"

NORTH NOTE: ALL DIMENSIONS TAKEN TO FACE OF STUD U.O.N.

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Revision:	Description:	Date:	Revised By:

Drawing Title: SECOND FLOOR PLAN, SCHEDULES, AND DOOR TYPES

Date: 4.13.18
Scale: AS NOTED
Drawn By: DW
Project Number: 17.007
Drawing Number: A4

PIPE AND FITTING SCHEDULE

DESCRIPTION	SIZE	PIPE		FITTING		REMARKS
		TYPE	SCHEDULE	TYPE	RATING	
WET SPRINKLER PIPING	2" AND SMALLER	STL-BLK	40	MIT	STD	ALL PIPING TO BE PAINTED PER ARCHITECT
WET SPRINKLER PIPING	2-1/2" AND LARGER	STL-BLK	10	GRV	STD	--
DRY SPRINKLER PIPING	2" AND SMALLER	STL-BLK	40	MIT	STD	--
DRY SPRINKLER PIPING	2-1/2" AND LARGER	STL-BLK	40	GRV	STD	--
DRAIN PIPING	ALL	GALV.	40	MIT/GRV	STD	ALL FITTINGS MUST BE GALVANIZED
FIRE DEPARTMENT CONNECTION PIPING	ALL	GALV.	40	MIT/GRV	STD	ALL FITTINGS MUST BE GALVANIZED

NOTES:

1. ALL EXPOSED PIPING AND FITTINGS WITHIN FINISHED AREAS SHALL BE CUSTOM PAINTED IN ACCORDANCE WITH NFPA, OWNERS PAINTING REQUIREMENTS AND COORDINATED WITH ARCHITECT.

2. ALL PIPING IN RETURN AIR CEILING PLENUM INSTALLATIONS SHALL BE UL LISTED FOR THIS APPLICATION.

ABBREVIATIONS	DESCRIPTION	ABBREVIATIONS	DESCRIPTION
CI	CAST IRON	GRV	GROOVED JOINT SYSTEM FITTINGS/COUPLINGS
CLDI	CEMENT LINED DUCTILE IRON	GALV.	GALVANIZED STEEL
DI	DUCTILE IRON	MIT	MALLEABLE IRON THREADED
DMJ	DUCTILE IRON MECHANICAL JOINT	STD	STANDARD
FL	FLANGED	STL-BLK	BLACK STEEL

VALVE SCHEDULE

DESCRIPTION	SIZE	TYPE				CLASS	REMARKS
		OSEY	BUTTERFLY	CHECK	BALL		
WET SPRINKLER PIPING	2" AND SMALLER	OSEYT	BFVT	CVT	BVT	175PSI	--
WET SPRINKLER PIPING	2-1/2" AND LARGER	OSEYG	BFVG	CVG	BVG	175PSI	--
DRY SPRINKLER PIPING	2" AND SMALLER	OSEYT	BFVT	CVT	BVT	175PSI	--
DRY SPRINKLER PIPING	2-1/2" AND LARGER	OSEYG	BFVG	CVG	BVG	175PSI	--
DRAIN PIPING	ALL	--	--	--	BVT	175PSI	--
FIRE DEPARTMENT CONNECTION PIPING	ALL	--	--	CVG	--	175PSI	--

ABBREVIATION	DESCRIPTION	ABBREVIATION	DESCRIPTION
BVF	BALL VALVE FLANGED - FULL PORT, BRONZE	CVF	CHECK VALVE FLANGED
BVG	BALL VALVE GROOVED - FULL PORT, BRONZE	CVG	CHECK VALVE GROOVED
BVT	BALL VALVE THREADED - 2-PIECE, FULL PORT, 400PSI, BRONZE	CVT	CHECK VALVE THREADED - BRONZE
BFVF	BUTTERFLY VALVE FLANGED	OSEYF	OSEY RAISING STEM VALVE FLANGED
BFVG	BUTTERFLY VALVE GROOVED	OSEYG	OSEY RAISING STEM VALVE GROOVED
BFVT	BUTTERFLY VALVE THREADED	OSEYT	OSEY RAISING STEM VALVE THREADED

BACKFLOW PREVENTER SCHEDULE

MARK	SIZE	LOCATION	SERVICE	BODY MATERIAL	TEMPERATURE RANGE	MAX WORKING PRESSURE	MANUFACTURER		REMARKS
							MODEL		
BFP-1	4"	WATER SERVICE ROOM	FIRE PROTECTION WATER	STAINLESS STEEL	33°F-140°F	175PSI	WATTS		--
							MODEL 857DDAOSY		

SPRINKLER HEAD SCHEDULE

TYPE	STYLE	RESPONSE	COVERAGE	COLOR	DISCHARGE COEFFICIENT (K)	ORIFICE	TEMP.	MANUFACTURE		REMARKS
								MODEL	SIN	
PENDENT	CONCEALED	QUICK	STANDARD	WHITE	5.6K	1/2"	155°F	VICTAULIC		
								V38	V3802	--
DRY PENDENT	CONCEALED	QUICK	STANDARD	WHITE	5.6K	1/2"	155°F	VICTAULIC		
								V39	V3902	--
UPRIGHT	EXPOSED	QUICK	STANDARD	BRASS	5.6K	1/2"	175°F	VICTAULIC		
								V27	V2704	-

NOTES:
1. FINAL COLORS TO BE SELECTED BY ARCHITECT.

2. IN AREAS WITH FINISHED CEILINGS CONCEALED, PENDENT SPRINKLER HEADS AND CONCEALED PIPING SHALL BE UTILIZED, UNLESS OTHERWISE INDICATED ON PLANS

3. IN AREAS WITHOUT CEILINGS, EXPOSED UPRIGHT SPRINKLER HEADS AND EXPOSED PIPING SHALL BE UTILIZED. UL LISTED HEAD GUARDS SHALL BE PROVIDED IN AREAS SUBJECT TO DAMAGE (I.E. MECHANICAL ROOMS, GYMS, ETC.,)

4. FLEXIBLE SPRINKLER HEADS ASSEMBLIES (IF USED) SHALL BE 6" IN LENGTH, UL LISTED AND HAVE A STAINLESS STEEL BRAID SIMILAR TO VICTAULIC VICFLEX AGS BRAIDED SERIES. FLEXIBLE SPRINKLER ASSEMBLIES EQUIVALENT LENGTH MUST BE TAKING IN ACCOUNT WHEN PRODUCING HYDRAULIC CALCULATIONS.

5. PROVIDE HIGH-TEMPERATURE CLASSIFICATION SPRINKLERS IN HIGH-TEMPERATRUE ZONES, AND PROVIDE INTERMEDIATE-TEMPERATURE CLASSIFICATION SPRINKLER IN INTERMEDIATE TEMPERATURE ZONES ADJACENT TO FINALIZED UNIT HEATER LOCATION (BY MECH DIV.). INSTALL IN ACCORDANCE WITH NFPA 13.

FIRE PROTECTION DESIGN CRITERIA

FIRE PROTECTION CONTRACTOR SHALL OBTAIN RECENT AREA FLOW TEST RESULTS (WITHIN ONE YEAR OF START OF CONSTRUCTION) OR SHALL ARRANGE WITH THE WATER UTILITY FOR A NEW WATER FLOW TEST. SPRINKLER SYSTEMS SHALL BE HYDRAULICALLY CALCULATED BASED ON THE FOLLOWING CRITERIA. INCLUDE ANY/ALL FIRE MARSHAL AND OWNER REQUIREMENTS. CONTRACTOR RESPONSIBLE FOR DOCUMENTING SIZE AND LENGTH OF EXISTING FIRE PROTECTION WATER SUPPLY INCLUDING VALVING, ETC. AS NECESSARY IN ORDER TO PERFORM HYDRAULIC CALCULATIONS. THE FIRE PROTECTION WATER SERVICE SHALL BE CONNECTED TO AN EXISTING SPRINKLER FIRE MAIN. THE FIRE PROTECTION CONTRACTOR SHALL CONDUCT A CURRENT FLOW TEST FOR USE IN THE HYDRAULIC CALCULATIONS AND DOCUMENT THE RESULTS.

WHERE DISTRIBUTION PIPING CAN BE RUN ON WARM SIDE OF BUILDING INSULATION, AND SPACE TO BE PROTECTED IS NOT EXPOSED TO FREEZING:

STANDARD DESIGN CRITERIA
LIGHT HAZARD AREAS:
OFFICES, HALLWAYS, LOBBYS, ETC.
MINIMUM DENSITY OF 0.10 GPM/SQ.FT. OVER THE MOST REMOTE 1500 SQ.FT.
PLUS 100 GPM FOR HOSE DEMAND. MAXIMUM COVERAGE PER SPRINKLER HEAD IS
196 SQ.FT.

ORDINARY HAZARD (GROUP I) AREAS:
STORAGE ROOMS
MINIMUM DENSITY OF 0.20 GPM/SQ.FT. OVER THE MOST REMOTE 1500 SQ.FT.
PLUS 250 GPM FOR HOSE DEMAND. MAXIMUM COVERAGE PER SPRINKLER HEAD IS
130 SQ.FT.

WHERE DISTRIBUTION PIPING AND SPACE TO BE PROTECTED ARE EXPOSED TO FREEZING:

PROVIDE DRY PIPE SPRINKLER SYSTEM, ALL PENDENT AND SIDEWALL HEADS SHALL BE DRY TYPE.

FIRE PROTECTION GENERAL NOTES

GENERAL

UTILIZE CONCEALED PENDENT SPRINKLERS AND PIPING IN AREAS WITH FINISHED CEILINGS, AND EXPOSED PIPING AND UPRIGHT SPRINKLERS IN AREAS WITHOUT CEILINGS. CONCEALED SPRINKLER HEADS LOCATED IN ACOUSTICAL TILES TO UTILIZE FLEX HOSE PIPING 6' IN LENGTH. PROVIDE AND INSTALL SPRINKLERS UNDER AND ABOVE ALL OBSTRUCTIONS IN ACCORDANCE WITH NFPA 13.

ACTIVATION OF A FLOW SWITCH SHALL RESULT AS AN 'ALARM' INDICATION AT THE FIRE ALARM CONTROL PANEL AND THE FIRE ALARM ANNUNCIATOR PANEL. THE SPRINKLER CONTRACTOR SHALL EXAMINE ALL CONTRACT DOCUMENTS AND SHALL VERIFY ALL CONDITIONS IN THE FIELD. THE SPRINKLER

FIRE PROTECTION PLANS ARE INTENDED TO INDICATE TOTAL COVERAGE AND MAY OR MAY NOT INDICATE ALL SPRINKLER HEADS. SPRINKLER HEADS INDICATED ON DRAWINGS ARE DIAGRAMMATIC AND SHALL NOT BE NOT BE COUNTED FOR BID (IT IS NOT THE INTENT OF THESE DRAWINGS TO SHOW ENTIRE PIPING LAYOUT, PROPOSED MAINS AND DEVICES INDICATED ONLY). THE CONTRACTOR SHALL PROVIDE A COMPLETE SPRINKLER SYSTEM WITH COMPLETE SPRINKLER COVERAGE, INDICATED OR NOT. ITEMS AND SERVICES NOT SHOWN ON DRAWINGS OR SPECIFICATIONS BUT REQUIRED TO RENDER THE WORK COMPLETE, IN ACCORDANCE WITH NFPA, INSURANCE COMPANY REQUIREMENTS AND OWNERS, READY FOR OPERATION, SHALL BE PROVIDED AND INSTALLED. THE CONTRACTOR SHALL PROVIDE COMPLETE SPRINKLER COVERAGE AS REQUIRED INCLUDING BUT NOT LIMITED TO: CRAWL SPACES, CONCEALED COMBUSTIBLE SPACES, SHAFTS, AND ALL CLOSETS.

DRAWINGS ARE DIAGRAMMATIC AND INDICATE A GENERAL ARRANGEMENT OF WORK AND ARE NOT TO BE CONSIDERED SUBCONTRACTOR DOCUMENTS. IT IS THE INTENT OF THESE DOCUMENTS TO INCLUDE THE PROVISION AND INSTALLATION OF ALL NECESSARY WORK AND MATERIALS FOR COMPLETE, OPERATIONAL AND CODE COMPLIANT SYSTEMS BY THE CONTRACTOR. GENERAL DESIGN CONCEPTS INDICATED "MUST BE FOLLOWED OR BETTERED". THE BID SHALL INCLUDE OFFSETS, ADDITIONAL PIPING, VALVES AND EQUIPMENT AND COMPONENTS AS REQUIRED TO MEET CONSTRUCTION CONDITIONS FOR PROPER OPERATION. DO NOT SCALE DRAWINGS. CONSULT ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR SPACE CONDITIONS AND ADDITIONAL REQUIREMENTS.

WHEN A CONFLICT BETWEEN THE DRAWINGS, NOTES AND/OR SPECIFICATIONS OCCUR, THE "MORE STRINGENT" AND/OR LARGER QUANTITY AND/OR "MORE EXPENSIVE SHALL APPLY". THE REQUIREMENTS LISTED WITHIN NOTES OR SPECIFICATIONS SHALL BE REQUIRED, PROVIDED AND INSTALLED WHETHER SPECIFICALLY INDICATED ON THE DRAWINGS OR NOT.

THE CONTRACTOR SHALL COORDINATE SPRINKLER HEAD LOCATIONS WITH THE LATEST ARCHITECTURAL REFLECTED CEILING PLANS. ANY DISCREPANCIES SHALL BE BROUGHT BACK TO THE ARCHITECT/ ENGINEER. DO NOT SCALE DRAWINGS FOR DIMENSIONS NOT INDICATED. REFER TO ARCHITECT FOR RESOLUTION FOR ANY DIMENSIONS NOT INDICATED.

IT IS THE INTENTION OF THE SPECIFICATIONS AND DRAWINGS TO PROVIDE FOR FINISHED WORK, TESTED AND READY FOR OPERATION.

THE DESIGN OF ALL FIRE SUPPRESSION SYSTEMS WILL BE IN ACCORDANCE WITH THE LOCAL AND STATE BUILDING CODE, NFPA 13, FM GLOBAL. USE ONLY UL/FM SPRINKLERS, MATERIALS AND DEVICES, UNLESS NOTED OTHERWISE.

CONCEALED SPRINKLERS AND PIPING SHALL BE INSTALLED IN AREAS WITH FINISHED CEILINGS. AREAS WITH EXPOSED CONSTRUCTION SHALL HAVE EXPOSED PIPING AND SPRINKLERS (CUSTOM COLOR)

THE SPRINKLER CONTRACTOR IS REQUIRED TO VISIT THE SITE AT THE TIME OF BID, TO EXAMINE CONDITIONS, AND BECOME FAMILIAR WITH THE JOB, NOTING DEGREE OF DIFFICULTY IN GETTING EQUIPMENT (INCLUDING LIFTS AND SCAFFOLDS) IN AND OUT OF THE BUILDING. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT OR ENGINEER IN WRITING PRIOR TO SUBMITTING A BID.

NOTIFY PROPER AUTHORITIES (INCLUDING BUT NOT LIMITED TO, THE LOCAL A.H.J., INSURANCE COMPANY, ETC.) OF ANY FIRE PROTECTION "SHUT DOWNS". SCHEDULE ALL WORK TO MINIMIZE THE LENGTH OF TIME THAT THE FIRE PROTECTION SYSTEM(S) WILL BE OUT OF SERVICE. RETURN THE SPRINKLER SYSTEM BACK IN SERVICE AT THE END OF EACH WORKING DAY. IF A FIRE WATCH IS REQUIRED BY THE LOCAL A.H.J, BUILDING MANAGER, ETC. IT SHALL BE PROVIDED BY THE GENERAL CONTRACTOR. FIRE WATCH SCHEDULING AND PERSONNEL SHALL BE COORDINATED WITH THE LOCAL A.H.J., BUILDING MANAGER AND INSURANCE COMPANY.

ARRANGE PIPING TO FACILITATE FLUSHING. PROVIDE READILY ACCESSIBLE DRAIN AND FLUSHING CONNECTIONS AS REQUIRED BY NFPA 13. PROVIDE AND INSTALL AUXILIARY DRAINS WITH PROVISIONS FOR COMPLETE DRAINAGE. PIPE ALL DRAINS TO AN APPROVED LOCATION.

INSPECTOR'S TEST CONNECTIONS, DRAIN VALVES AND CONTROL VALVES SHALL BE READILY ACCESSIBLE AND INSTALLED NOT OVER 4'-7-0" ABOVE THE FINISHED FLOOR. PROVIDE ALL VALVES WITH IDENTIFICATION SIGNS. SUPERVISORY SWITCHES SHALL BE ON ALL CONTROL VALVES. PIPE ALL DRAIN PIPING (INSPECTORS TEST CONNECTIONS, ETC. TO THE EXTERIOR ENSURE DRAINAGE DOES NOT CAUSE DAMAGE TO BUILDING OR SITE.

INSTALL A PRESSURE GAUGE WITH A BLEEDER MAINTENANCE VALVE AT THE TOP OF ALL RISERS.

PROVIDE A HEAD GUARD ON SPRINKLERS IN AREAS SUBJECT TO MECHANICAL DAMAGE (I.E. SPRINKLERS IN MECHANICAL ROOMS, ETC.)

REFER TO ADDITIONAL NOTES ON ARCHITECTURAL DRAWINGS.

THE CONTRACTOR SHALL COORDINATE SPRINKLER WORK WITH THE OWNERS PHASING SCHEDULE PRIOR TO COMMENCEMENT OF ANY WORK. ALL PHASED SECTIONS OF WORK SHALL COMPLY WITH THE OWNERS SCHEDULE AND BE TESTED, INSPECTED, READY FOR OPERATION IN ACCORDANCE WITH NFPA, OWNERS INSURANCE COMPANY AND A.H.J. REQUIREMENTS.

THE CONTRACTOR SHALL PROVIDE COMPLETE SIGNED AND SEALED (BY LICENSED P.E.) DRAWINGS INDICATING ALL PIPING AND SPRINKLER HEADS. CONTRACTOR SHALL SECURE AND PAY COSTS OF PERMITS, CERTIFICATES, LICENSES, INSPECTIONS AND APPROVALS.

INSTALL SPRINKLERS BELOW DUCTS, AND/OR COMBINATIONS OF DUCTS/EQUIPMENT IN ACCORDANCE WITH THE OBSTRUCTION REQUIREMENTS OF NFPA 13.

PROVIDE SPRINKLER PROTECTION IN ORDER TO AVOID ALL OBSTRUCTIONS IN ACCORDANCE WITH NFPA 13, INCLUDING LIGHTING, CEILING FIXTURES, STRUCTURAL MEMBERS, ETC. WITHIN ALL HAZARD OCCUPANCIES.

ALL DRAIN PIPING AND ANY PIPING SUBJECT TO ALTERNATE WETTING AND DRYING WITHOUT NITROGEN SHALL BE GALVANIZED.

ALL SYSTEM COMPONENTS SHALL BE CAPABLE OF WITHSTANDING A MINIMUM WORKING PRESSURE OF 175 PSI.

THE CONTRACTOR SHALL SEAL AROUND ALL NEW PENETRATIONS THROUGHOUT THE BUILDING WITH SEALANT OF FIRE AND/OR SMOKE RETARDANT TYPE EQUAL IN FIRE RATING TO THE STRUCTURE BEING PENETRATED. SEALANT SHALL BE A UL LISTED ASSEMBLY.

WORK OF THIS SECTION SHALL BE GOVERNED BY THE CONTRACT DOCUMENTS. PROVIDE MATERIALS, LABOR, EQUIPMENT AND SERVICES NECESSARY TO FURNISH, DELIVER AND INSTALL ALL WORK AS SPECIFIED AND AS REQUIRED BY JOB CONDITIONS. WHERE A CONFLICT EXISTS BETWEEN THESE NOTES, THE DRAWINGS AND THE SPECIFICATIONS, THE MORE STRINGENT REQUIREMENT SHALL APPLY.

PERFORM THE WORK IN ACCORDANCE WITH THE REQUIREMENTS OF THE CONTRACT GENERAL CONDITIONS AND WITH THE PROVISIONS OF ALL APPLICABLE LOCAL, STATE AND FEDERAL CODES AND LAWS.

WORK SHALL INCLUDE ALL INCIDENTALS, LABOR, MATERIAL, EQUIPMENT, APPLIANCES, SERVICES, HOISTING, SCAFFOLDING, SUPPORTS, TOOLS, CONSUMABLE ITEMS, FEES, LICENSES, AND ADMINISTRATIVE TASKS REQUIRED TO COMPLETE AND MAKE OPERABLE WORK SHOWN ON THE DRAWINGS, SPECIFIED HEREIN, AND AS REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM.

STORE MATERIALS INSIDE AND PROTECTED FROM DEBRIS, WEATHER AND MOISTURE.

THIS CONTRACTOR SHALL PROVIDE AND INSTALL ALL POWER AND CONTROL WIRING REQUIRED FOR EQUIPMENT OPERATION NOT SPECIFICALLY PROVIDED BY OTHERS BUT REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM. THIS CONTRACTOR SHALL PROVIDE MOTOR STARTERS FOR INSTALLATION BY OTHERS. COORDINATE REQUIREMENTS.

ALTERATION WORK AND DEMOLITION

EXISTING PIPING AND SPRINKLERS SHOWN DO NOT NECESSARILY REFLECT EXACT FIELD CONDITIONS. FIELD VERIFY EXTENT AND LOCATION OF WORK TO BE REMOVED.

ALL EQUIPMENT, PIPING, ETC. TO BE REMOVED, SHALL BE DISPOSED OF, TURNED OVER TO THE OWNER OR SALVAGED AS DIRECTED BY THE OWNER. EQUIPMENT, PIPING, DEVICES, ETC. SHALL NOT BE REMOVED FROM THE PREMISES WITHOUT THE OWNERS APPROVAL.

NO EXISTING PIPE MAY BE CUT OR DAMAGED WHEN ENCOUNTERED ALONG THE ROUTE DESIGNED FOR NEW SERVICE. ANY EXISTING PIPING SEVERED OR DAMAGED SHALL BE REPLACED INCLUDING DAMAGED AREAS. ANY UNUSED OUTLETS SHALL BE PROPERLY CAPPED.

UPON COMPLETION OF REMOVALS AND MODIFICATIONS, ALL PIPING TO REMAIN SHALL BE PROPERLY PLUGGED, VALVE, CAPPED AND/OR BY PASSED SUCH THAT UPON COMPLETION OF WORK ALL SYSTEMS TO REMAIN, REMAIN OPERATIONAL.

REMOVE & REPLACE ANY EXISTING SPRINKLER PIPING WHICH DOES NOT PASS THE REQUIRED HYDROSTATIC PRESSURE TESTS CONDUCT VISUAL INTERNAL INSPECTIONS ON AT LEAST 5% OF ANY EXISTING PIPING TO REMAIN.
NO DEAD ENDS SHALL BE LEFT ON ANY PIPING SYSTEMS UPON COMPLETION OF WORK.

EXISTING EXPOSED PIPING SYSTEMS NOT TO BE REUSED, AND NOT SPECIFICALLY NOTED FOR REMOVAL SHALL BE COMPLETELY REMOVED.

ALL SYSTEMS SHALL BE LEFT IN WORKING ORDER TO THE SATISFACTION OF THE OWNER UPON COMPLETION OF ALL NEW WORK.

ALL EXISTING EXPOSED, UNNECESSARY PIPING RELATED TO NEW WORK SHALL BE COMPLETELY REMOVED.

RE-ROUTE OR REMOVE ALL EXISTING PIPING AND SYSTEMS WHERE NECESSARY TO AVOID NEW EQUIPMENT, STRUCTURAL OR MASONRY WORK AS REQUIRED BY THE PROPOSED ALTERATIONS.

COORDINATION DRAWINGS

DEVELOP AND SUBMIT COORDINATION DRAWINGS AS OUTLINED.

SHEET METAL PLUMBING AND FIRE PROTECTION SHOP DRAWINGS THAT HAVE BEEN COORDINATED WITH ARCHITECTURAL AND STRUCTURAL DRAWINGS SHALL BE SUBMITTED TO ENGINEER FOR REVIEW. DRAWINGS "MUST BE RETURNED FROM ENGINEER EITHER REVIEWED" OR "FURNISH AS CORRECTED" PRIOR TO BEING USED AS BASIS FOR COORDINATION DRAWINGS.

AFTER SHEET METAL AND PIPING DRAWINGS HAVE BEEN REVISED PER ENGINEERS COMMENTS, REPRODUCIBLE COPIES SHALL BE SENT TO THE TRADES IN THE FOLLOWING SEQUENCE FOR THE INCLUSION OF THEIR WORK:

-MECHANICAL SHEET METAL
-PLUMBING PIPING
-MECHANICAL PIPING
-SPRINKLER PIPING
-ELECTRICAL WORK

AFTER ALL TRADES HAVE INCLUDED THEIR WORK ON THE COORDINATION DRAWING AND NOTED CONFLICTS, ALL TRADES SHALL MEET TO RESOLVE CONFLICTS AND AGREE TO ACCEPTABLE SOLUTIONS. EACH TRADE SHALL SIGN COORDINATION DRAWINGS. ITEMS NOT SHOWN ON COORDINATION DRAWING IS RESPONSIBILITY OF OMITTING CONTRACTOR AND CONTRACTOR IS SUBJECT TO ADDITIONAL COSTS INCURRED BY OTHER TRADES.

THE ARCHITECT AND ENGINEER ARE NOT PART OF THE COORDINATION DRAWING PROCESS. THE ENGINEER WILL PROVIDE ASSISTANCE FOR NOTED CONFLICTS ONLY. COORDINATION DRAWINGS ARE NOT TO BE CONSIDERED PIPING OR DUCT SHOP DRAWINGS. THE CONTRACTOR IS REQUIRED TO SUBMIT NON-DUAL PIPING AND DUCTWORK SHOP DRAWINGS FOR REVIEW BY THE ENGINEER. PIPING AND DUCTWORK SHOP DRAWINGS SHALL FOLLOW THE DESIGN INTENT OF THE CONTRACT DOCUMENTS.

SUBMIT FINAL SIGNED COORDINATION DRAWING TO ENGINEER FOR REVIEW. ENGINEER WILL REVIEW COORDINATION DRAWINGS FOR GENERAL ARRANGEMENT AND FOR NOTED CONFLICTS ONLY. SPECIFIC INSTALLATION REQUIREMENTS WILL BE REVIEWED ONLY IN INDIVIDUAL TRADE SHOP DRAWINGS.

WHERE CONFLICTS OCCUR BETWEEN DRAWINGS AND SPECIFICATIONS, OR WITHIN EITHER DOCUMENT, THE CONTRACTOR SHALL ASK FOR AND OBTAIN A WRITTEN CLARIFICATION FROM THE ENGINEER PRIOR TO SUBMITTING HIS BID. OTHERWISE, THE ITEMS OR ARRANGEMENTS OF SUPERIOR QUALITY, GREATER QUANTITY OR HIGHER COST SHALL PREVAIL AND BE INCLUDED IN THE CONTRACT PRICE.

ANY WORK FABRICATED OR INSTALLED PRIOR TO SIGN OFF BY ALL TRADES WHICH IS DEEMED TO BE IN CONFLICT WITH COORDINATION DRAWINGS SHALL BE REMOVED AND RE-INSTALLED IN CONFORMANCE WITH COORDINATION DRAWINGS.

EACH CONTRACTOR (MENTIONED ABOVE) IS RESPONSIBLE FOR THE COORDINATION OF HIS SUB-CONTRACTORS.

THE OVERALL COORDINATION OF THE COORDINATION PROCESS IS THE RESPONSIBILITY OF THE CONTRACTOR. THE ENGINEER IS NOT RESPONSIBLE FOR THE COORDINATION PROCESS. THE ENGINEER WILL RESPOND TO QUESTIONS THAT ARISE FROM THE COORDINATION PROCESS. DRAWINGS SUBMITTED WILL BE REVIEWED FOR CLEARLY IDENTIFIED CONFLICTS ONLY. SOLUTIONS TO CONFLICTS WILL NOT BEAR ADDITIONAL COST.

AS BUILT DRAWINGS

PROVIDE A COMPLETE SET OF AS-BUILT DRAWINGS REFLECTING AS INSTALLED CONDITIONS. AS-BUILT DRAWINGS SHALL INDICATE ALL INSTALLED CONDITIONS OF SYSTEMS WITHIN THIS DISCIPLINE. DRAWINGS SHALL BE OF SIMILAR SCALE AS THE CONSTRUCTION DOCUMENTS AND INCLUDE DETAILS AS NECESSARY TO CLEARLY REFLECT THE INSTALLED CONDITION. DRAWINGS SHALL BE BOUND IN A COMPLETE AND CONSECUTIVE SET. SUPPLEMENTAL SKETCHES AND LOOSE PAPER WORK WILL NOT BE ACCEPTABLE AND WILL BE RETURNED FOR REVISION. THE CONTRACTOR SHALL COMPLY WITH THE ENGINEERS COMMENTS TO PRODUCE A CLEAR AND CONCISE SET OF DRAWINGS. DRAWINGS SHALL BE SUBMITTED IN BOTH HARD COPY AND ELECTRONIC (AUTO-CAD AND/ VERSION AS REQUIRED BY THE OWNER) VERSION. NUMBER OF COPIES OF EACH AS REQUESTED BY THE OWNER.

INCLUDE ALL CHANGES OF ALL DEVIATIONS BETWEEN THE WORK INDICATED AND THE WORK INSTALLED INCLUDING APPROVED CONTRACT MODIFICATIONS AND SUBSTITUTIONS.

INDICATE VALVES AND CONTROL DEVICES LOCATED AND NUMBERED COORDINATED WITH SUBMITTED VALVE CHARTS.
SUBMIT A COMPLETE MAINTENANCE MANUAL OF ALL EQUIPMENT INSTALLED UNDER THIS CONTRACT.

PROVIDE AND INSTALL ACCESS DOORS FOR EACH VALVE, DRAIN, OR FIRE PROTECTION DEVICE REQUIRING ACCESS. ACCESS DOORS SHALL BE RIGID CONSTRUCTION WITH TWO HINGES AND A LATCH. IN PLENUM CASES, PROVIDE FELT BETWEEN THE DOOR AND FRAME TO MAKE AN AIR TIGHT SEAL. ACCESS DOORS SHALL BE RATED TO THE SAME OR GREATER RATING OF THE PARTITION IN WHICH THEY ARE INSTALLED. ACCESS DOORS SHALL BE FLUSH MOUNTED, PRIME COATED WITH RUST INHIBITIVE PAINT, CONCEALED FRAME, FLUSH SCREW DRIVER OPERATED LOCKS WITH METAL CAMS AND ANCHORS AS REQUIRED.

ACCESS DOOR SIZES SHALL BE:
12" X 12" AT EASILY ACCESSIBLE ITEMS
18" X 18" WHERE PARTIAL BODY ACCESS IS REQUIRED
24" X 24" WHERE FULL BODY ACCESS IS REQUIRED

HANGERS AND SUPPORT
SPRINKLER PIPING IN A SUBSTANTIAL MANNER FROM BUILDING STRUCTURE, AND INDEPENDENT OF THE CEILING SYSTEM. PROVIDE EARTHQUAKE/SEISMIC BRACING IN ACCORDANCE WITH NFPA 13 AND THE LOCAL CODE. DO NOT USE SPRINKLER PIPING OR HANGERS TO SUPPORT NON-SYSTEM COMPONENTS.

SEISMIC RESTRAINT: PROVIDE SEISMIC RESTRAINT AND EXPANSION OF ALL FIRE PROTECTION EQUIPMENT AND SYSTEMS IN ACCORDANCE WITH APPLICABLE NFPA STANDARDS, OWNERS INSURANCE COMPANY, STATE, FEDERAL AND LOCAL BUILDING CODE REQUIREMENTS. SUBMIT SHOP DRAWINGS SIGNED AND SEALED BY A LICENSED PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF THE PROJECT INDICATING ALL NECESSARY COMPONENT CUTS, PLAN LOCATIONS AND CALCULATIONS FOR A COMPLETE SYSTEM.

PROVIDE ALL NECESSARY STRUCTURAL MEMBERS INCLUDING ADDITIONAL STRUCTURAL SUPPORT TO SUPPORT PIPING AND EQUIPMENT. HANGERS AND SUPPORTS SHALL BE OF AN APPROVED DESIGN NECESSARY TO SUPPORT PIPING, EQUIPMENT AND TO KEEP PIPING IN PROPER ALIGNMENT AND PREVENT TRANSMISSION OF INJURIOUS THRUSTS AND VIBRATIONS. IN ALL CASES WHERE HANGERS, BRACKETS, ETC., ARE SUPPORTED FROM CONCRETE CONSTRUCTION, DO NOT WEAKEN CONCRETE OR PENETRATE WATERPROOFING. ALL HANGERS AND SUPPORTS SHALL BE CAPABLE OF SCREW ADJUSTMENT AFTER PIPING IS ERECTED. HANGERS SUPPORTING PIPING EXPANDING INTO LOOPS, BENDS AND OFFSETS SHALL BE SECURED TO THE BUILDING STRUCTURE IN SUCH A MANNER THAT HORIZONTAL ADJUSTMENT PERPENDICULAR TO THE RUN OF PIPING SUPPORTED MAY BE MADE TO ACCOMMODATE DISPLACEMENT DUE TO EXPANSION. ALL SUCH HANGERS SHALL BE FINALLY ADJUSTED BOTH IN THE VERTICAL AND HORIZONTAL DIRECTION, AS REQUIRED.

PROVIDE ADDITIONAL SUPPORT FOR PIPING AND EQUIPMENT WHEN DECK IS NOT CAPABLE OF SUPPORT.

BEAM CLAMPS - HANGERS SUPPORTED FROM STEEL SHALL BE CENTER LOADING BEAM CLAMPS FOR HANGERS SUPPORTING PIPING 2 INCHES. FOR PIPING 2-1/2 INCHES AND LARGER, I BEAM CLAMPS SHALL BE FORGED STEEL. 'C' CLAMPS ARE PERMITTED ONLY WHEN PROVIDED WITH RESTRAINING STRAP. BAR JOIST HANGERS SHOULD BE UTILIZED WHEN HANGING FROM BAR JOIST CONSTRUCTION.

ALL HANGERS AND SUPPORTS SHALL BE HOT DIPPED GALVANIZED. ALL THREADED ROD AND HARDWARE SHALL BE HOT DIPPED GALVANIZED.

PROVIDE AND INSTALL EXPANSION COMPENSATION FOR ALL PIPING. SUBMIT PLANS, CALCULATIONS AND EQUIPMENT DATA.

FIRE PROTECTION ABBREVIATIONS

ABBREVIATION	DESCRIPTION
A.F.F.	ABOVE FINISHED FLOOR
B.F.F.	BELOW FINISHED FLOOR
BLDG	BUILDING
CONT	CONTINUED
CV	CHECK VALVE
DIA.	DIAMETER
DN	DOWN
DWG	DRAWING
EA	EACH
EX.	EXISTING
F.F.	FINISHED FLOOR
FLR.	FLOOR
F.P.C.	FIRE PROTECTION CONTRACTOR
FT	FEET
GPM	GALLONS PER MINUTE
MAX.	MAXIMUM
MIN.	MINIMUM
MISC.	MISCELLANEOUS
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NTS	NOT TO SCALE
OSY	OUTSIDE SCREW AND YOKE
PSI	POUNDS PER SQUARE INCH
RAD.	RADIUS
SF	SQUARE FEET
TYP.	TYPICAL
U.O.N.	UNLESS OTHERWISE NOTED
V.I.F.	VERIFY IN FIELD
Ø	DIAMETER

NOTE: SOME SYMBOLS AND ABBREVIATIONS SHOWN MAY NOT PERTAIN TO THIS PROJECT

FIRE PROTECTION DEMOLITION NOTES

1. NOTIFY PROPER AUTHORITIES (INCLUDING BUT NOT LIMITED TO: THE LOCAL A.H.J., INSURANCE COMPANY, ETC.) OF ANY FIRE PROTECTION "SHUT DOWNS". SCHEDULE ALL WORK TO MINIMIZE THE LENGTH OF TIME THAT THE FIRE PROTECTION SYSTEM(S) WILL BE OUT OF SERVICE. RETURN THE SPRINKLER SYSTEM BACK IN SERVICE AT THE END OF EACH WORKING DAY.

2. THIS JOB IS A RENOVATION OF EXISTING FACILITY.

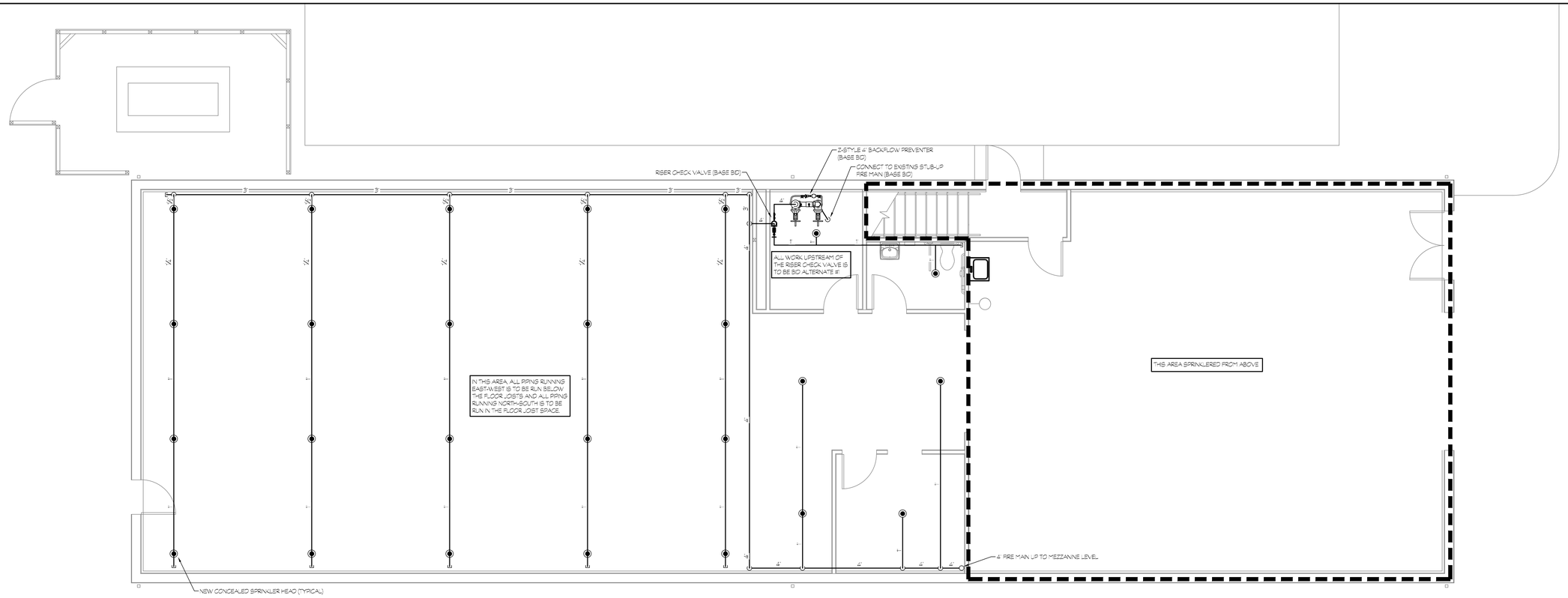
3. THE CONTRACTOR SHALL VISIT THE SITE AND BECOME THOROUGHLY FAMILIAR WITH ALL EXISTING CONDITIONS. THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ANY ASSUMPTIONS, OMISSIONS, OR ERRORS HE MAKES AS A RESULT OF HIS FAILURE TO BECOME FULLY FAMILIAR WITH EXISTING CONDITIONS.

6. THE SPRINKLER CONTRACTOR SHALL REMOVE AND PROPERLY DISPOSE OF ALL EXISTING SPRINKLER PIPING, HANGERS, HEADS, ETC. AS INDICATED (VERIFY IN FIELD) CAP ANY UNUSED OUTLETS.

7. THE CONTRACTOR SHALL PROPERLY CAP AND TERMINATE ANY UNUSED DRAIN AND FIRE PROTECTION WATER SUPPLIES (IN ACCORDANCE WITH LOCAL WATER AUTHORITY REQUIREMENTS).

FIRE PROTECTION SYMBOL LEGEND

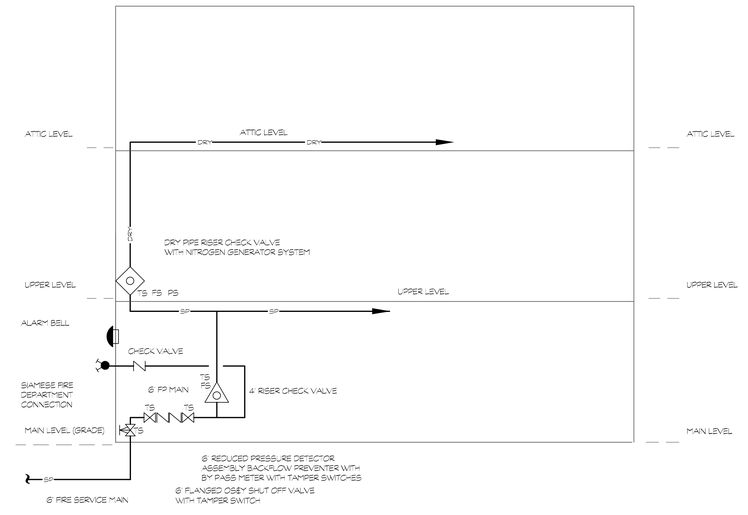
SYMBOL	DESCRIPTION
	BALL VALVE
	CHECK VALVE
	GATE VALVE
	OSY VALVE
	POINT OF NEW CONNECTION
	POINT OF DISCONNECTION
	PIPE DOWN
	P



MAIN LEVEL FIRE PROTECTION PLAN (1/F2)

SCALE: 1/4" = 1'-0"

NORTH



MAIN PIPING SCHEMATIC RISER DIAGRAM (2/F2)

SCALE: 1/4" = 1'-0"

Project Title:

Facilities & Maintenance Building Emergency Service Modifications – Glastonbury
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Revision:	Description:	Date:	Revised By:

Drawing Title:

FIRE PROTECTION MAIN LEVEL FLOOR PLAN

Date: 4.13.18
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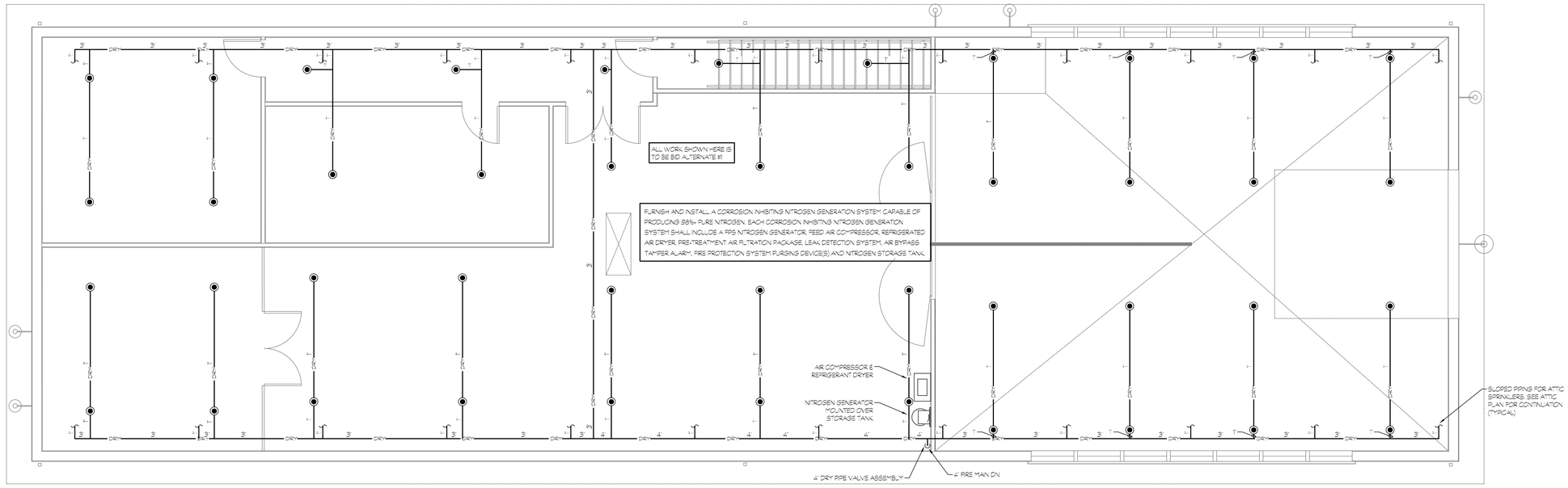
Drawn By: SAM
Project Number: 17.007

Drawing Number: F2

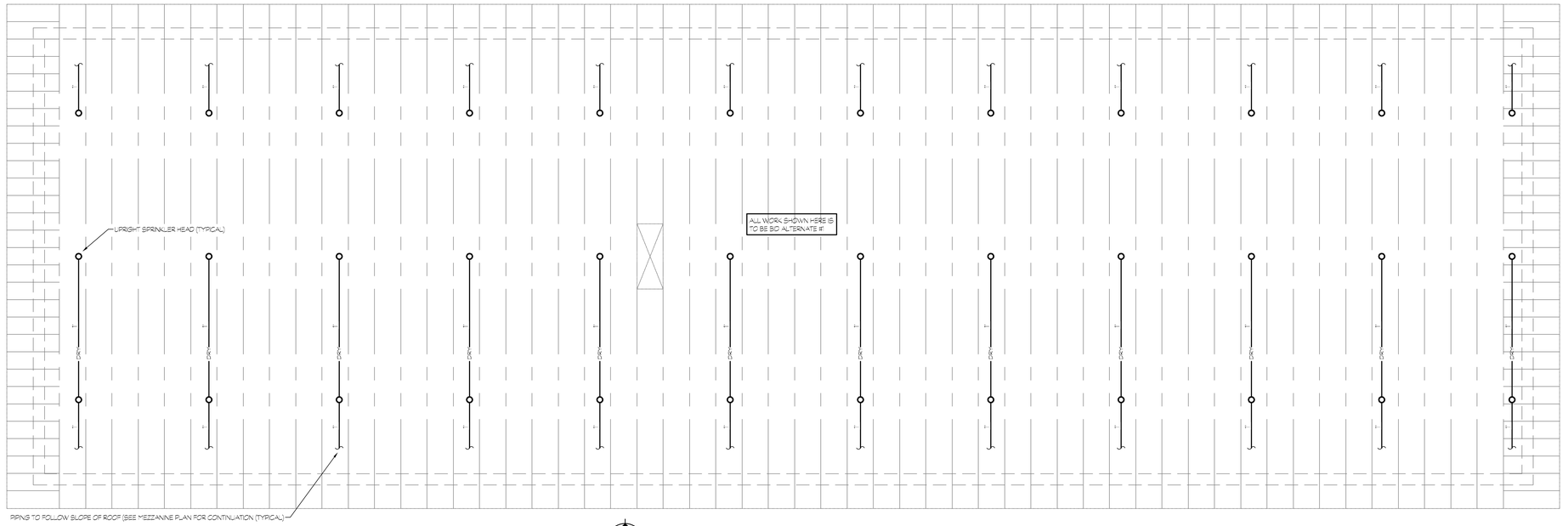


NORTH

MEZZANINE FIRE PROTECTION PLAN

SCALE: 1/4" = 1'-0"

1 / F3



NORTH

ATTIC FIRE PROTECTION PLAN

SCALE: 1/4" = 1'-0"

2 / F3

Project Title:

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FIRE PROTECTION MEZZANINE AND ATTIC PLANS

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Drawn By: SAM
Project Number: 17.007

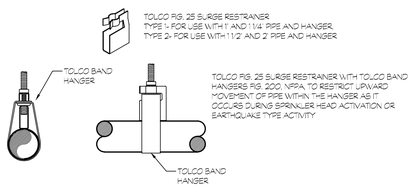
Drawing Number: F3

SEISMIC PIPING HANGER BRACING DETAIL

NOT TO SCALE

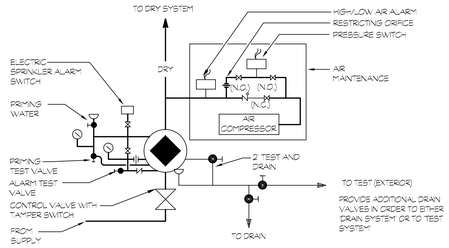
EARTHQUAKE BRACE AND SURGE RESTRAINT COMPONENTS

TOLCO FIG. 1000 FAST CLAMPS U.L. LISTED, MUST BE USED WITH TOLCO U.L. LISTED ATTACHMENTS FIG. 909 OR FIG. 910 SWIVEL FITTINGS OR FIG. 975 OR FIG. 908 STRAIGHT FITTINGS.



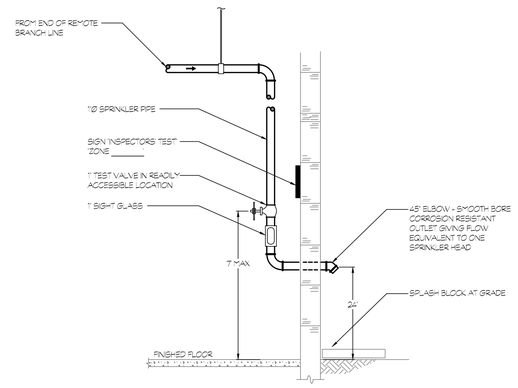
DRY PIPE VALVE SCHEMATIC

NOT TO SCALE



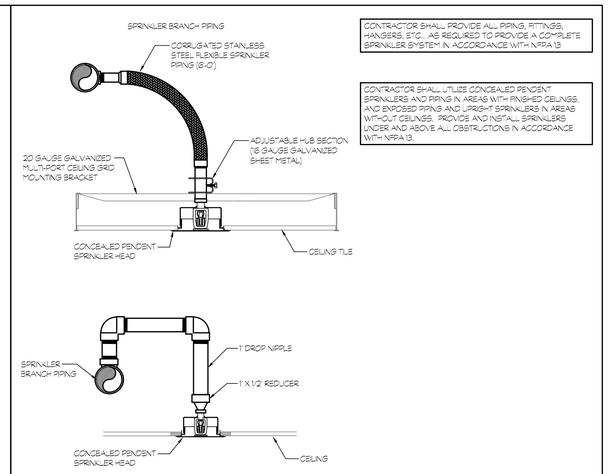
INSPECTORS TEST CONNECTION DETAIL

NOT TO SCALE



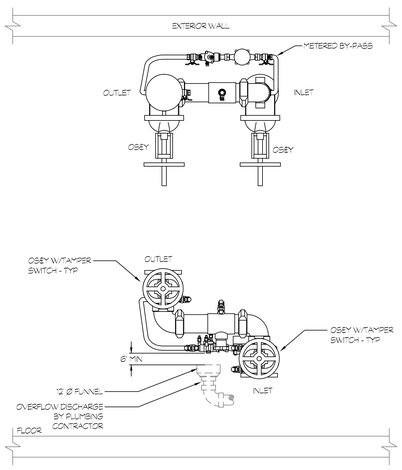
CONCEALED PENDENT SPRINKLER HEAD DETAILS

NOT TO SCALE



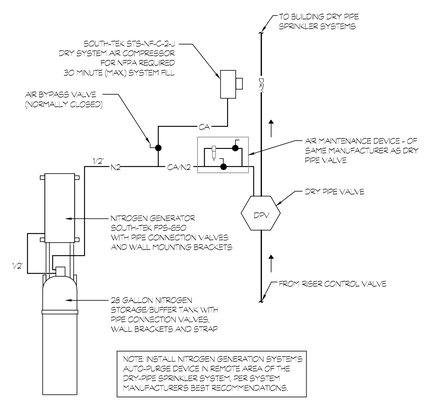
BACKFLOW PREVENTION DETAIL

NOT TO SCALE



NITROGEN GENERATION SYSTEM SCHEMATIC

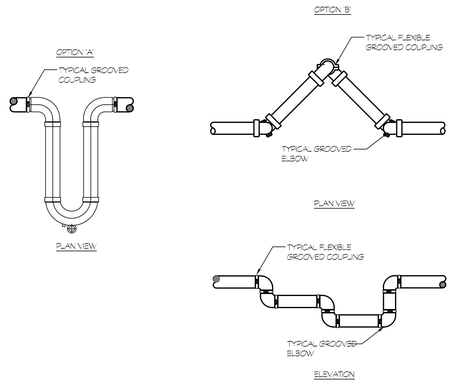
NOT TO SCALE



SEISMIC SEPARATION ASSEMBLY

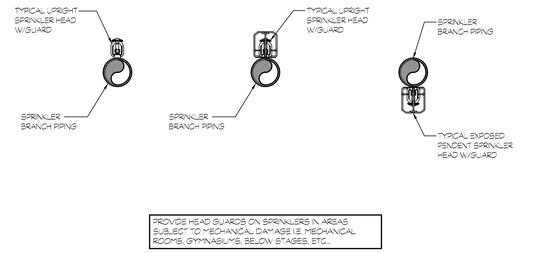
NOT TO SCALE

PROVIDE SEISMIC SEPARATION ASSEMBLIES WHERE ANY FIRE PROTECTION PIPING CROSSES SEISMIC SEPARATION JOINTS ABOVE GROUND IN ACCORDANCE WITH NFPA 13. INSTALL ALL ASSEMBLIES PER MANUFACTURES REQUIREMENTS. CALCULATE & DESIGN ASSEMBLIES TO PROVIDE FOR THE DIFFERENTIAL MOTIONS DURING SEISMIC CONDITIONS.



EXPOSED SPRINKLER HEAD DETAILS

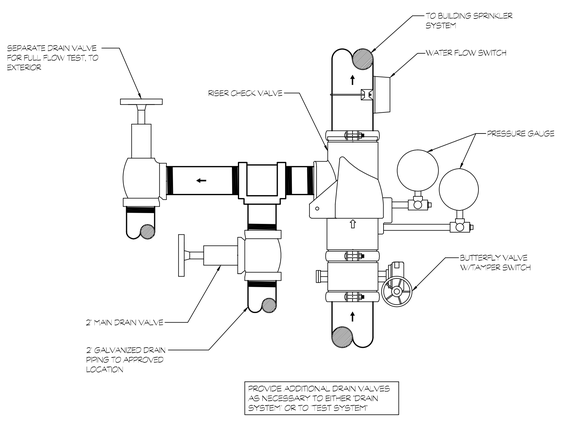
NOT TO SCALE



PROVIDE HEAD GUARDS ON SPRINKLERS IN AREAS SUBJECT TO MECHANICAL DAMAGE I.E. MECHANICAL ROOMS, GYMNASIUMS, BELOW STAGES, ETC...

RISER CHECK VALVE ASSEMBLY

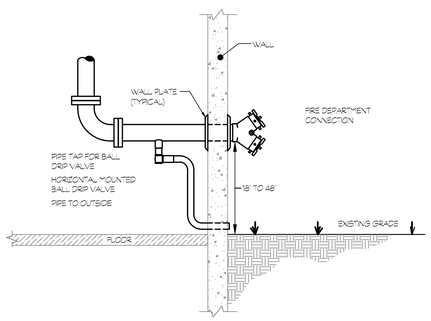
NOT TO SCALE



PROVIDE ADDITIONAL DRAIN VALVES AS NECESSARY TO EITHER 'DRAIN SYSTEM' OR TO 'TEST SYSTEM'

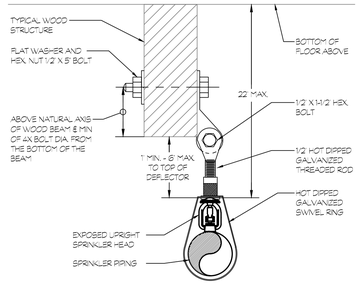
WALL MOUNTED FIRE DEPARTMENT CONNECTION

NOT TO SCALE



PIPE HANGER DETAIL (WOOD STRUCTURE)

NOT TO SCALE



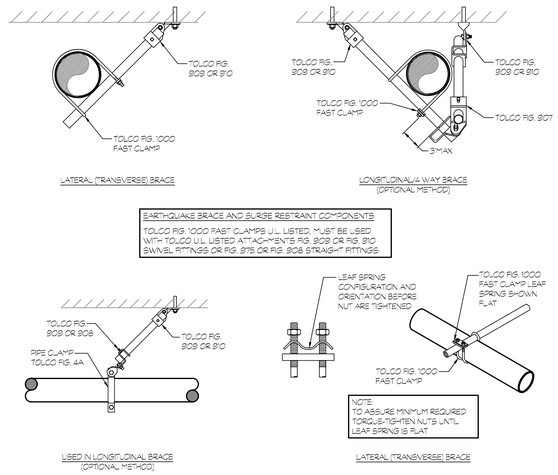
GENERAL NOTES:

ALL HANGERS SHALL COMPLY WITH NFPA 13

DISTANCE BETWEEN HANGERS SHALL BE IN COMPLIANCE WITH NFPA 13

SEISMIC PIPING HANGER BRACING DETAIL

NOT TO SCALE



EARTHQUAKE BRACE AND SURGE RESTRAINT COMPONENTS

TOLCO FIG. 1000 FAST CLAMPS U.L. LISTED, MUST BE USED WITH TOLCO U.L. LISTED ATTACHMENTS FIG. 909 OR FIG. 910 SWIVEL FITTINGS OR FIG. 975 OR FIG. 908 STRAIGHT FITTINGS.

NOTE:
TO ASSURE MINIMUM REQUIRED TORQUE-TIGHTEN NUTS UNTIL LEAF SPRING IS FLAT

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Drawing Title: FIRE PROTECTION DETAILS

Date: 4.13.18
Scale: AS NOTED
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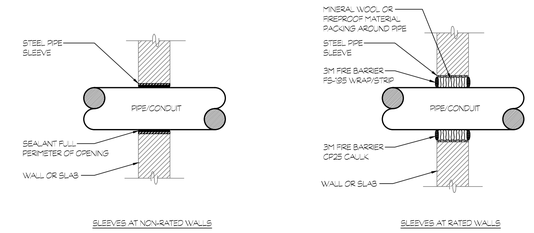
Project Number: 17.007
Drawing Number: F4



SLEEVES AT NON-RATED WALLS

SLEEVES AT RATED WALLS

GENERAL NOTES:

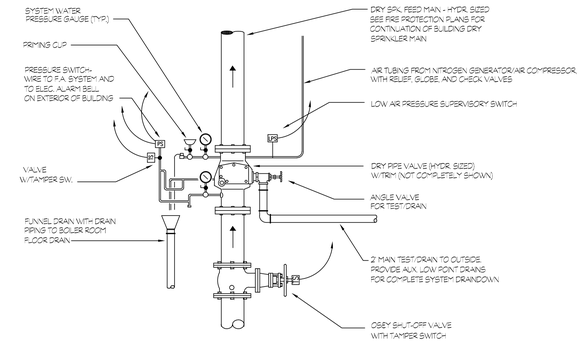
PROVIDE UL LISTED, FM APPROVED FIRE/SMOKE PENETRATION ASSEMBLIES IN ACCORDANCE WITH UL1479, ASTM E84 REQUIREMENTS FOR WALL TYPE RATING AND PIPE SIZES.

FIRE STOPPING SHALL HAVE A RATING EQUAL TO OR GREATER THAN THE WALL BEING PENETRATED. REFER TO ARCHITECTURAL DRAWINGS FOR WALL RATINGS.

FOR WALL PENETRATIONS AT RATED WALLS SEE SPECIFICATION SECTIONS 'SEALANTS' AND 'FIRESTOPPING'

PIPE PENETRATION DETAIL

NOT TO SCALE



NOTE

ALL EQUIPMENT, PIPING, VALVES, SUPERVISORY AND ALARM DEVICES, ETC. SHALL BE PROVIDED BY THE SPRINKLER CONTRACTOR UNLESS OTHERWISE NOTED.

WIRING SHALL BE BY THE ELECTRICAL CONTRACTOR.

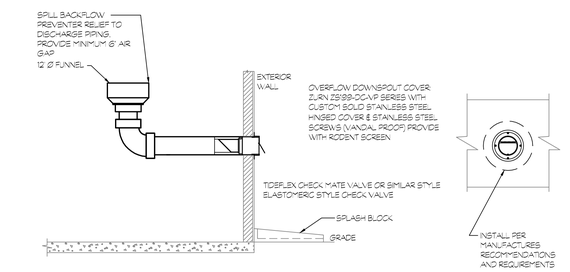
NOT ALL TRIM IS SHOWN. PROVIDE ALL TRIM, SUPPORT EQUIPMENT, ETC. REQUIRED FOR A COMPLETE AND CORRECTLY FUNCTIONING INSTALLATION PER NFPA 13 AND MFR'S INSTALLATION INSTRUCTIONS.

REFER TO N.2 GEN SYSTEM SCHEMATIC THIS SHEET, FOR INTERFACE OF THAT SYSTEM WITH THE DRY-PIPE SPRINKLER SYSTEM.

DETAIL OF DRY PIPE RISER AND DRY PIPE VALVE ASSEMBLY

NOT TO SCALE

INSTALL OVERFLOW SET UP SERVING THE FIRE PROTECTION BACKFLOW PREVENTER (FIRE PROTECTION BACKFLOW PREVENTER SHALL BE PROVIDED AND INSTALLED BY THE FIRE PROTECTION CONTRACTOR). COORDINATE HEIGHT OF RP BFP WITH FIRE PROTECTION CONTRACTOR TO ACCOMMODATE OVERFLOW DISCHARGE PIPING PRIOR TO INSTALLATION OF EITHER ONE.



BACKFLOW PREVENTION OVERFLOW PIPING DETAIL

NOT TO SCALE

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Revision:	Description:	Date:	Revised By:

Drawing Title:

FIRE PROTECTION DETAILS

Date: 4.13.18
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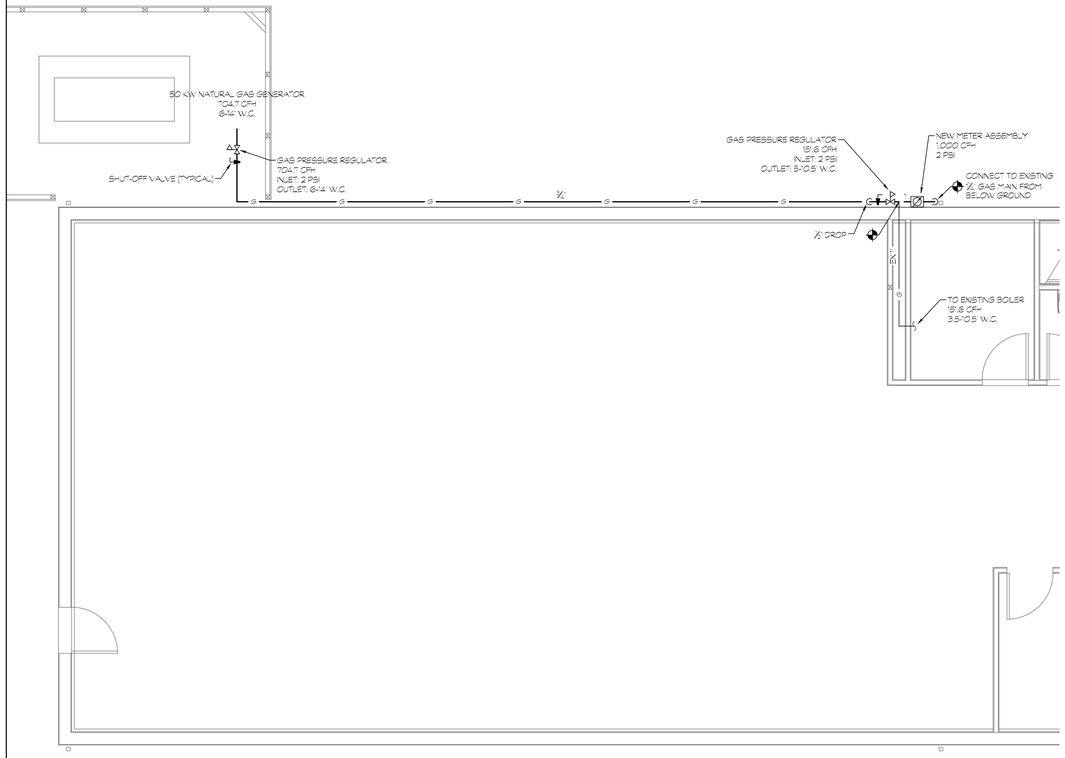
Drawn By: SAM
Project Number: 17.007

Drawing Number: F5

PARTIAL DEMOLITION PLAN 3 / P1

SCALE: 1/4" = 1'-0"

NORTH



PARTIAL RENOVATION PLAN 2 / P1

SCALE: 1/4" = 1'-0"

NORTH

PLUMBING GENERAL NOTES

GENERAL

THE INTENT OF THESE CONTRACT DOCUMENTS (SPECIFICATIONS AND DRAWINGS) IS FOR THE CONTRACTOR TO FURNISH AND INSTALL COMPLETE PLUMBING SYSTEMS. ALL SYSTEMS SHALL BE COMPLETE IN ALL RESPECTS, OPERATING, TESTED, ADJUSTED, APPROVED BY THE AUTHORITIES HAVING JURISDICTION AND READY FOR BENEFICIAL USE BY THE OWNER.

WHEN A CONFLICT BETWEEN THE DRAWINGS, NOTES AND/OR SPECIFICATIONS OCCUR, THE MORE STRINGENT, AND/OR LARGER QUANTITY AND/OR MORE EXPENSIVE SHALL APPLY. THE REQUIREMENTS LISTED WITH NOTES OR SPECIFICATIONS SHALL BE REQUIRED, PROVIDED AND INSTALLED WHETHER SPECIFICALLY INDICATED ON THE DRAWINGS OR NOT.

ITEMS AND SERVICES NOT SHOWN ON DRAWINGS OR SPECIFICATIONS BUT REQUIRED TO RENDER THE WORK COMPLETE AND READY FOR OPERATION, SHALL BE PROVIDED WITHOUT ADDITIONAL COST.

WORK OF THIS SECTION SHALL BE GOVERNED BY THE CONTRACT DOCUMENTS. PROVIDE MATERIALS, LABOR, EQUIPMENT AND SERVICES NECESSARY TO FURNISH, DELIVER AND INSTALL ALL WORK AS SPECIFIED AND AS REQUIRED BY JOB CONDITIONS. WHERE A CONFLICT EXISTS BETWEEN THESE NOTES, THE DRAWINGS AND THE SPECIFICATIONS, THE MORE STRINGENT REQUIREMENT SHALL APPLY.

DRAWINGS ARE DIAGRAMMATIC AND INDICATE A GENERAL ARRANGEMENT OF WORK AND ARE NOT TO BE CONSIDERED SUB-CONTRACTOR DOCUMENTS. IT IS THE INTENT OF THESE DOCUMENTS TO INCLUDE THE PROVISION AND INSTALLATION OF ALL NECESSARY WORK AND MATERIALS FOR COMPLETE, OPERATIONAL AND CODE COMPLIANT SYSTEMS BY THE CONTRACTOR. GENERAL DESIGN CONCEPTS INDICATED MUST BE FOLLOWED OR BETTERED. THE BID SHALL INCLUDE OFFSETS, ADDITIONAL PIPING, VALVES AND EQUIPMENT AND COMPONENTS AS REQUIRED TO MEET CONSTRUCTION CONDITIONS FOR PROPER OPERATION. DO NOT SCALE DRAWINGS. CONSULT ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR SPACE CONDITIONS AND ADDITIONAL REQUIREMENTS.

PERFORM THE WORK IN ACCORDANCE WITH THE REQUIREMENTS OF THE CONTRACT GENERAL CONDITIONS AND WITH THE PROVISIONS OF ALL APPLICABLE LOCAL, STATE, AND FEDERAL CODES AND LAWS.

WORK SHALL INCLUDE ALL INCIDENTALS, LABOR, MATERIAL, EQUIPMENT, APPLIANCES, SERVICES, HOISTING, SCAFFOLDING, SUPPORTS, TOOLS, CONSUMABLE ITEMS, FEES, LICENSES, AND ADMINISTRATIVE TASKS REQUIRED TO COMPLETE AND MAKE OPERABLE WORK SHOWN ON THE DRAWINGS, SPECIFIED HEREIN AND AS REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM.

ALL EQUIPMENT, MATERIALS AND RELATED SYSTEMS COMPONENTS SHALL BE NEW UNLESS SPECIFICALLY NOTED OTHERWISE.

STORE MATERIALS INSIDE AND PROTECTED FROM DEBRIS, WEATHER AND MOISTURE.

REPAIR AND/OR REPLACE AT NO COST TO OWNER ALL EQUIPMENT AND MATERIALS DAMAGED DURING CONSTRUCTION.

ALTERATION WORK AND DEMOLITION

ALL EQUIPMENT, PIPING, ETC. TO BE REMOVED, SHALL BE DISPOSED OF, TURNED OVER TO THE OWNER OR SALVAGED AS DIRECTED BY THE OWNER. EQUIPMENT, PIPING, DEVICES, ETC. SHALL NOT BE REMOVED FROM THE PREMISES WITHOUT THE OWNERS APPROVAL.

UPON COMPLETION OF REMOVALS AND MODIFICATIONS, ALL PIPING TO REMAIN SHALL BE PROPERLY PLUGGED, VALVED, CAPPED AND/OR BY PASSED SUCH THAT UPON COMPLETION OF WORK ALL SYSTEMS TO REMAIN, REMAIN OPERATIONAL.

ALL SYSTEMS SHALL BE LEFT IN WORKING ORDER TO THE SATISFACTION OF THE OWNER UPON COMPLETION OF ALL NEW WORK.

RE-ROUTE OR REMOVE ALL EXISTING PIPING AND SYSTEMS WHERE NECESSARY TO AVOID NEW EQUIPMENT, STRUCTURAL OR MASONRY WORK AS REQUIRED BY THE PROPOSED ALTERATIONS.

ALL WORK AND ACTION DEPICTED AND DESCRIBED SHALL BE PERFORMED BY THE CONTRACTOR UNLESS SPECIFICALLY NOTED OTHERWISE.

THE PLUMBING CONTRACTOR SHALL VERIFY THESE DRAWINGS WITH EXISTING FIELD CONDITIONS OF PLUMBING SERVICE LINES BEFORE PROCEEDING WITH CONSTRUCTION.

THE DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL ARRANGEMENT OF SYSTEMS AND WORK INCLUDED IN THE CONTRACT. THE CONTRACTOR SHALL COORDINATE LOCATIONS OF EQUIPMENT WITH ALL TRADES BEFORE STARTING CONSTRUCTION. ANY MODIFICATIONS TO THE EQUIPMENT LAYOUT REQUIRED FOR INSTALLATION ARE TO BE PERFORMED AT NO ADDITIONAL COST TO THE OWNER. COORDINATE ALL PIPING AND CONDUITS LEAVING THE BUILDING WITH THE SITE CONTRACTOR BEFORE INSTALLATION.

THE OVERALL COORDINATION OF THE COORDINATION PROCESS IS THE RESPONSIBILITY OF THE CONTRACTOR. THE ENGINEER IS NOT RESPONSIBLE FOR THE COORDINATION PROCESS. THE ENGINEER WILL RESPOND TO QUESTIONS THAT ARISE FROM THE COORDINATION PROCESS. DRAWINGS SUBMITTED WILL BE REVIEWED FOR CLEARLY IDENTIFIED CONFLICTS ONLY. SOLUTIONS TO CONFLICTS WILL NOT BEAR ADDITIONAL COST.

SHOP DRAWINGS

CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO BE APPROVED, REVISED, OR RESUBMITTED AS PER THE ENGINEERS COMMENTS, PRIOR TO CONSTRUCTION, INCLUDING BUT NOT LIMITED TO THE FOLLOWING:

-PIPING -FITTINGS
-VALVES -HANGERS/SUPPORTS

AS BUILT DRAWINGS

PROVIDE A COMPLETE SET OF AS-BUILT DRAWINGS REFLECTING AS INSTALLED CONDITIONS. AS-BUILT DRAWINGS SHALL INDICATE ALL INSTALLED CONDITIONS OF SYSTEMS WITHIN THIS DISCIPLINE. DRAWINGS SHALL BE OF SIMILAR SCALE AS THE CONSTRUCTION DOCUMENTS AND INCLUDE DETAILS AS NECESSARY TO CLEARLY REFLECT THE INSTALLED CONDITION. DRAWINGS SHALL BE BOUND IN A COMPLETE AND CONSECUTIVE SET. SUPPLEMENTAL SKETCHES AND LOOSE PAPERWORK WILL NOT BE ACCEPTABLE AND WILL BE RETURNED FOR REVISION. THE CONTRACTOR SHALL COMPLY WITH THE ENGINEERS COMMENTS TO PRODUCE A CLEAR AND CONCISE SET OF DRAWINGS. DRAWINGS SHALL BE SUBMITTED IN BOTH HARD COPY AND ELECTRONIC (AUTO-CAD VERSION AS REQUIRED BY THE OWNER) VERSION. NUMBER OF COPIES OF EACH AS REQUESTED BY THE OWNER.

INCLUDE ALL CHANGES AND AN ACCURATE RECORD, ON REPRODUCTIONS OF THE CONTRACT DRAWINGS OR APPROPRIATE SHOP DRAWINGS, OF ALL DEVIATIONS, BETWEEN THE WORK SHOWN AND WORK INSTALLED.

HANGERS AND SUPPORT

PROVIDE ALL NECESSARY STRUCTURAL MEMBERS INCLUDING ADDITIONAL STRUCTURAL SUPPORT TO SUPPORT PIPING AND EQUIPMENT. HANGERS AND SUPPORTS SHALL BE OF AN APPROVED DESIGN NECESSARY TO SUPPORT PIPING, EQUIPMENT AND TO KEEP PIPING IN PROPER ALIGNMENT AND PREVENT TRANSMISSION OF INJURIOUS THRUSTS AND VIBRATIONS. ALL HANGERS AND SUPPORTS SHALL BE CAPABLE OF SCREW ADJUSTMENT AFTER PIPING IS ERECTED. HANGERS SUPPORTING PIPING EXPANDING INTO LOOPS, BENDS AND OFFSETS SHALL BE SECURED TO THE BUILDING STRUCTURE IN SUCH A MANNER THAT HORIZONTAL ADJUSTMENT PERPENDICULAR TO THE RUN OF PIPING SUPPORTED MAY BE MADE TO ACCOMMODATE DISPLACEMENT DUE TO EXPANSION. ALL SUCH HANGERS SHALL BE FINALLY ADJUSTED BOTH IN THE VERTICAL AND HORIZONTAL DIRECTION, AS REQUIRED.

BAND IRON, TIE WIRE, METAL STRAPPING OR WIRE STRAPPING SHALL NOT BE PERMITTED TO SUPPORT PIPING OR EQUIPMENT.

PIPING GENERAL

NO PIPING SHALL BE COVERED UNTIL TESTED APPROVED BY THE AUTHORITIES HAVING JURISDICTION.

ALL PIPING SHALL BE RUN PERPENDICULAR AND/OR PARALLEL TO FLOORS, INTERIOR WALLS, ETC. PIPING AND VALVES SHALL BE GROUPED NEATLY AND SHALL BE RUN AS TO MAXIMIZE HEADROOM OR PASSAGE CLEARANCE.

ALL PIPE LINES MADE WITH SCREWED FITTINGS MUST BE PROVIDED WITH A SUFFICIENT NUMBER OF FLANGES AND/OR UNIONS TO ALLOW FOR EASY AND CONVENIENT DISMANTLING OF THE SYSTEM WITHOUT BREAKING FITTINGS.

CAP ALL PIPE AND EQUIPMENT OUTLET'S DURING CONSTRUCTION AND KEEP LINES AND INSIDE OF EQUIPMENT FREE OF FOREIGN MATERIALS.

THE DRAWINGS INDICATE SCHEMATICALLY THE SIZE AND LOCATION OF PIPING. PIPING SHALL BE SET UP AND DOWN AND OFFSET AS REQUIRED TO MEET CONSTRUCTION CONDITIONS.

THIS CONTRACTOR SHALL INFORM HIMSELF FROM THE GENERAL CONSTRUCTION SPECIFICATIONS AND PLANS, OF THE EXACT DIMENSION OF FINISHED WORK AND OF THE HEIGHT OF FINISHED CEILINGS IN ALL ROOMS WHERE EQUIPMENT OR PIPES ARE TO BE PLACED AND ARRANGE HIS WORK IN ACCORDANCE WITH THE SCHEDULE OF INTERIOR FINISHES, AS INDICATED ON THE ARCHITECTURAL DRAWINGS.

UNIONS AND/OR FLANGES SHALL BE INSTALLED AT EACH PIECE OF EQUIPMENT, IN BYPASSES AND IN LONG PIPING RUNS (100 FEET OR MORE) TO PERMIT DISASSEMBLY FOR ALTERATION AND REPAIRS.

WHEREVER DISSIMILAR METALS ARE JOINED TOGETHER AN APPROVED DIELECTRIC FITTING SHALL BE USED. THE DIELECTRIC FITTING SHALL BE A LISTED ASSEMBLY.

GAS PIPING

INSTALL GAS PIPING, AND GAS PIPING SPECIALTIES IN ACCORDANCE WITH NFPA 54, NFPA 58, AND AUTHORITIES HAVING JURISDICTION.

PROVIDE AND INSTALL INDEPENDENT GAS PRESSURE REGULATOR VENTS TO THE EXTERIOR AS REQUIRED IN NFPA 54/58 AND THE REGULATOR MANUFACTURERS REQUIREMENTS.

LOCATE GAS PIPING WITH ADEQUATE SEPARATION BETWEEN ELECTRICAL CABLES, EQUIPMENT, AND CONDUIT.

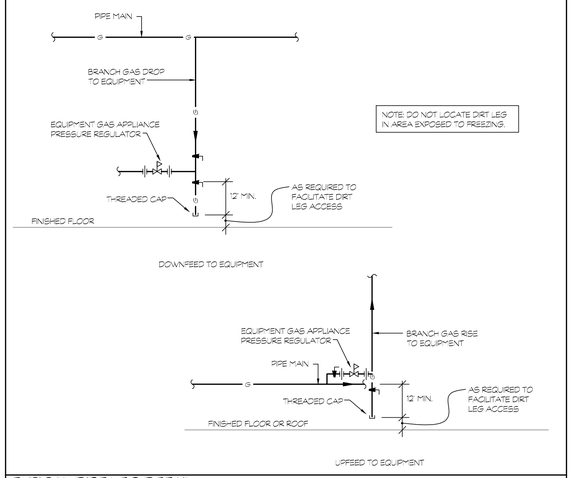
SLOPE GAS PIPING TO LOW POINTS WITHOUT TRAPS. PROVIDE DRIPS (PIPE TEE, NIPPLE, AND CAP) AT BOTTOM OF ALL VERTICAL RISERS AND DROPS.

MAKE BRANCH CONNECTIONS TO MAINS FROM TOP OR SIDE, NOT FROM BOTTOM OF MAIN.

PROVIDE AND INSTALL GAS SHUT-OFF VALVES FOR THE PROPER AND SAFE CONTROL OF THE SYSTEM.

VERIFICATION: BEFORE MAKING A GAS CONNECTION, VERIFY THAT EQUIPMENT IS COMPATIBLE WITH THE TYPE AND PRESSURE OF GAS BEING SUPPLIED.

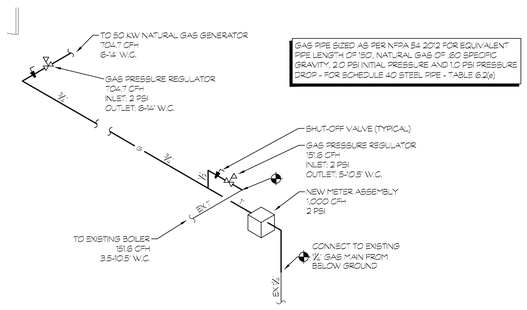
PURGING: PURGE GAS TO SAFE LOCATION.



NOTE: DO NOT LOCATE DIRT LEG IN AREA EXPOSED TO FREEZING.

TYPICAL DIRT LEG DETAIL

NOT TO SCALE



GAS PIPE SIZED AS PER NFPA 54-2012 FOR EQUIVALENT PIPE LENGTH OF 150', NATURAL GAS OF .60 SPECIFIC GRAVITY, 2.0 PSI INITIAL PRESSURE AND 1.0 PSI PRESSURE DROP - FOR SCHEDULE 40 STEEL PIPE - TABLE 6.2(e)

PIPE AND FITTING SCHEDULE

DESCRIPTION	SIZE	PIPE		FITTING		REMARKS
		TYPE	SCHEDULE	TYPE	RATING	
GAS PIPING	2" AND SMALLER	STL-BLK	SCH. 40	THREADED	CLASS 150	--

VALVE SCHEDULE

DESCRIPTION	SIZE	TYPE						CLASS	REMARKS
		GATE	GLOBE	CHECK	BALL	PLUG	BALANCE		
GAS	2 AND SMALLER	--	--	--	--	THREADED	--	125PSI	--

PIPE HANGER SPACING TABLE

PIPE MATERIAL	PIPE SIZES (INCHES)	HORIZONTAL PIPE MAX. HANGER DISTANCE (FT)	VERTICAL PIPE MAX. HANGER DISTANCE (FEET)
STEEL PIPE	ALL	12'-0"	15'-0"

GAS APPLIANCE SCHEDULE

QTY.	DESCRIPTION	GAS MBTU
1	EXISTING BOILER	151.6
1	50 KW GENERATOR	704.7
1	AVAILABLE FOR FUTURE BOILER (IF REQUIRED)	143.7
	TOTAL DEMAND	1,000

Project Title:

Facilities & Maintenance Building Emergency Service Modifications – Glastonbury
State of CT. Project # 53-191 Town Project # GL-2018-22
Glastonbury, CT.
2109 Main Street, Glastonbury, CT.

SILVER / PETRUCELLI + ASSOCIATES
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Revision:	Description:	Date:	Revised By:

Drawing Title:

PLUMBING PLANS, SCHEDULES, NOTES AND DETAILS

Date: 4.13.18
Scale: AS NOTED
Drawn By: SAM
Project Number: 17.007

Drawing Number: P1

ABBREVIATIONS

(NOT ALL SYMBOLS ARE USED)

(###)	CFM	FA	FACE AREA	NO	NORMALLY OPEN
ABV	ABOVE	FBO	FURNISHED BY OTHERS INSTALLED BY HVAC SUBCONTRACTOR	NTS	NOT TO SCALE
AC	AIR COMPRESSOR			OA	OUTSIDE AIR
ACU–#	AIR CONDITIONING UNIT	FC	FORWARD CURVE	OAT	OUTDOOR AIR TEMPERATURE
AD	ACCESS DOOR	FCU	FAN COIL UNIT	OAI	OUTDOOR AIR INTAKE
AF	AIRFOIL	FD	FIRE DAMPER WITH ACCESS DOOR	OBD	OPPOSED BLADE DAMPER
AFC	ADJUSTABLE FREQUENCY CONTROLLER	FF	FINAL FILTER	OD	OUTSIDE DIMENSION
AFF	ABOVE FINISHED FLOOR	FIBO	FURNISHED AND INSTALLED BY OTHERS	O.E. T.D.	OPEN END TRANSFER DUCT
AFMS	AIR FLOW MEASURING STATION	FIN FL	FINISH FLOOR	P–#	PUMP
AHU–#	AIR HANDLING UNIT	FL	FLOOR	PB	PUSH BUTTON
AL	ACOUSTIC LINING	FLA	FULL LOAD AMPERES	PBD	PARALLEL BLADE DAMPER
ALD	AUTOMATIC LOUVER DAMPER	FLEX	FLEXIBLE	PD	PRESSURE DROP
APD	AIR PRESSURE DROP	FPF	FINS PER FOOT	PF	PREFILTER
AUTO	AUTOMATIC	FPV	FAN POWERED VAV BOX	PH	PHASE
B–#	BOILER	FT	FEET	PHC	PREHEAT COIL
BC	BACKWARD CURVED	F.T.	FLOAT & THERMOSTATIC TRAP	PPH	POUND PER HOUR
BD	BELT DRIVE	FTR	FIN TUBE RADIATION	PRV	PRESSURE REDUCING VALVE
BMCS	BUILDING MANAGEMENT & CONTROL SYSTEM	FV	FACE VELOCITY	PSI	POUND PER SQUARE INCH
IBT	INVERTED BUCKET TRAP	GC	GENERAL CONTRACTOR	RA	RETURN AIR
BTU	BRITISH THERMAL UNIT	GIH	GRAVITY INTAKE HOOD	RAF–#	RETURN AIR FAN
C–#	CHILLER	GPH	GALLONS PER HOUR	RAT	RETURN AIR TEMPERATURE
CAP	CAPACITY	GPM	GALLONS PER MINUTE	REG	REGISTER
CB–#	CHILLED BEAM	GWLS	GEOTHERMAL WATER LOOP SUPPLY	RH	RELATIVE HUMIDITY
CC–#	COOLING COIL	GWLR	GEOTHERMAL WATER LOOP RETURN	RHC	REHEAT COIL
CD	CEILING DIFFUSER	H/C	HEATING/COOLING	RM	ROOM
CFM	CUBIC FEET PER MINUTE	H–#	HUMIDIFIER	RP	RADIANT PANEL
CG	CEILING GRILLE	H–O–A	HAND–OFF–AUTOMATIC	RPM	REVOLUTIONS PER MINUTE
CLG	CEILING	HC–#	HEATING COIL	RS	RISE
CONV–#	HOT WATER CONVECTOR	hd	FEET OF HEAD	RTU–#	ROOFTOP AIR CONDITIONING UNIT
CP	CONDENSATE RECEIVER/PUMPING SYSTEM	HP	HORSEPOWER	SA	SUPPLY AIR
CR	CEILING REGISTER	HTG	HEATING	SAF–#	SUPPLY AIR FAN
CT–#	COOLING TOWER	HTR	HEATER	SAT	SUPPLY AIR TEMPERATURE
CTD	CEILING TRANSFER DUCT	HV–#	HEATING AND VENTILATING UNIT	SB	SECURITY BARS
CUH–#	CABINET UNIT HEATER HOT WATER	HVAC	HEATING, VENTILATING & AIR CONDITIONING	VSC	VERTICAL SPLIT CASE
CV	CONTROL VALVE			HSC	HORIZONTAL SPLIT CASE
CW	COLD WATER	HX–#	HEAT EXCHANGER CONVERTOR	SD	SMOKE DAMPER
D&T	DRIP AND TRAP	ID	INSIDE DIMENSION	SG	SUPPLY GRILLE
dB	DECIBELS	IN	INCHES	SP	STATIC PRESSURE
DB	DRY BULB	IV	INLET GUIDE VANES	SQ FT	SQUARE FOOT (AREA)
DD	DIRECT DRIVE	KW	KILOWATT	ST	SINGLE POLE SWITCH
DDC	DIRECT DIGITAL CONTROL	kWH	KILOWATT HOUR	T	TEMPERATURE W/THERMAL OVERLOAD
DIFF	DIFFUSER	LD	LINEAR DIFFUSER	SWR	SIDE WALL REGISTER
DL	DOOR LOUVER	LIN	LINEAR	T'STAT	THERMOSTAT
DN	DOWN	LRA	LOCKED ROTOR AMPERES	TD	TEMPERATURE DIFFERENCE
DOAS	DEDICATED OUTDOOR AIR SYSTEM	LPR	LOW PRESSURE RETURN	TEMP	TEMPERATURE
DP	DEWPOINT TEMPERATURE	LPS	LOW PRESSURE SUPPLY	TG	AIR TRANSFER GRILLE
DR	DROP	LVG	LEAVING	TOT	TOTAL
DTWS	DUAL TEMPERATURE WATER SUPPLY	LWT	LEAVING WATER TEMPERATURE	TN–HR	TON HOUR REFRIGERATION
DTWR	DUAL TEMPERATURE WATER RETURN	MAN	MANUAL	TRD	TRANSFER DUCT
DX	DIRECT EXPANSION	MAT	MIXED AIR TEMPERATURE	TT	THERMOSTATIC TRAP
EF–#	EXHAUST FAN	MAX	MAXIMUM	TYP	TYPICAL
EAT	ENTERING AIR TEMPERATURE	MBH	1000 BTU'S	UC	UNDERCUT DOOR
EER	ENERGY EFFICIENCY RATIO	MCA	MINIMUM CIRCUIT AMPACITY	UH–#	UNIT HEATER HOT WATER
EG	EXHAUST GRILLE	MD	MOTORIZED DAMPER	UV–#	UNIT VENTILATOR
EHC–#	ELECTRIC HEATING COIL	MER	MECHANICAL EQUIPMENT ROOM	VAV–#	VARIABLE AIR VOLUME
ENT	ENTERING	MEZZ	MEZZANINE	VD	VOLUME DAMPER
HEPA	HIGH EFFICIENCY PARTICULATE FILTER	MFS	MAXIMUM FUSE SIZE	VE	VOLUME EXTRACTOR
ER	EXHAUST REGISTER	MIN	MINIMUM	VFD	VARIABLE FREQUENCY DRIVE
ES	END SUCTION	MOT	MOTOR	VI	VIBRATION ISOLATOR
ESP	EXTERNAL STATIC PRESSURE	MUA	MAKE–UP AIR	VSF	VARIABLE SPEED FAN SWITCH
ET–#	EXPANSION TANK	MV	MOTORIZED VALVE	W/	WITH
EUH–#	ELECTRIC UNIT HEATER	NC	NORMALLY CLOSED	WB	WET BULB
EWT	ENTERING WATER TEMPERATURE	NC	NOISE CRITERIA	WFM	WATER FLOW MEASURING STATION
EXT	EXTERNAL	NFA	NET FREE AREA	WMS	WIRE MESH SCREEN
EX	EXISTING	NIC	NOT IN THIS CONTRACT	WPD	WATER PRESSURE DROP
EXH	EXHAUST			WT	WEIGHT (LBS)
F°	DEGREES FAHRENHEIT			ZD	ZONE DAMPER
F&B	FACE & BYPASS DAMPER				

MATERIAL NOTES

1. PACKED–ANGLE VALVES SHALL BE 500–PSIG WORKING PRESSURE AND 275 DEG F (135 DEG C) WORKING TEMPERATURE; FORGED–BRASS OR BRONZE BODY, FORGED–BRASS SEAL CAPS WITH COPPER GASKET, BACK SEATING, RISING STEM AND SEAT, MOLDED STEM PACKING, AND WITH SOLDER–END CONNECTIONS.
2. CHECK VALVES SMALLER THAN NPS 1 (DN 25) 400–PSIG OPERATING PRESSURE AND 285 DEG F OPERATING TEMPERATURE; CAST–BRASS BODY, WITH REMOVABLE PISTON, POLYTETRAFLUOROETHYLENE SEAT, AND STAINLESS–STEEL SPRING; GLOBE DESIGN. VALVE SHALL BE STRAIGHT–THROUGH PATTERN, WITH SOLDER–END CONNECTIONS. CHECK VALVES, NPS 1 (DN 25) AND LARGER SHALL BE 400–PSIG OPERATING PRESSURE AND 285 DEG F OPERATING TEMPERATURE; CAST–BRONZE BODY, WITH CAST–BRONZE OR FORGED–BRASS BOLTED BONNET; FLOATING PISTON WITH MECHANICALLY RETAINED POLYTETRAFLUOROETHYLENE SEAT DISC. VALVE SHALL BE STRAIGHT–THROUGH OR ANGLE PATTERN, WITH SOLDER–END CONNECTIONS.
3. SERVICE VALVES SHALL BE 500–PSIG PRESSURE RATED; FORGED–BRASS BODY WITH COPPER STUBS, BRASS CAPS, REMOVABLE VALVE CORE, INTEGRAL BALL CHECK VALVE, AND WITH SOLDER–END CONNECTIONS.
4. PRESSURE RELIEF VALVES SHALL BE STRAIGHT–THROUGH OR ANGLE PATTERN, BRASS BODY AND DISC, NEOPRENE SEAT, AND FACTORY SEALED AND ASME LABELED FOR STANDARD PRESSURE SETTING.
5. THERMOSTATIC EXPANSION VALVES SHALL COMPLY WITH ARI 750; BRASS BODY WITH STAINLESS–STEEL PARTS; THERMOSTATIC–ADJUSTABLE, MODULATING TYPE; SIZE AND OPERATING CHARACTERISTICS AS RECOMMENDED BY MANUFACTURER OF EVAPORATOR, AND FACTORY SET FOR SUPERHEAT REQUIREMENTS; SOLDER–END CONNECTIONS; WITH SENSING BULB, DISTRIBUTOR HAVING SIDE CONNECTION FOR HOT–GAS BYPASS LINE, AND EXTERNAL EQUALIZER LINE.
6. HOT–GAS BYPASS VALVE SHALL BE PULSATING–DAMPENING DESIGN, STAINLESS–STEEL BELLOWS AND POLYTETRAFLUOROETHYLENE VALVE SEAT; ADJUSTABLE; SIZED FOR CAPACITY EQUAL TO LAST STEP OF COMPRESSOR UNLOADING; WITH SOLDER–END CONNECTIONS. (IF REQUIRED PER MFGR)
7. STRAINER SHALL BE STRAIGHT– OR ANGLE–TYPE STRAINERS: 500–PSIG WORKING PRESSURE; FORGED–BRASS OR STEEL BODY WITH STAINLESS–STEEL WIRE OR BRASS–REINFORCED MONEL SCREEN OF 80 TO 100 MESH IN LIQUID LINES UP TO 1–1/8 INCHES, 60 MESH IN LARGER LIQUID LINES, AND 40 MESH IN SUCTION LINES; WITH SCREWED CLEANOUT PLUG AND SOLDER–END CONNECTIONS.
8. MOISTURE/LIQUID INDICATORS SHALL BE RATED FOR 500–PSIG MAXIMUM WORKING PRESSURE AND 200 DEG F OPERATING TEMPERATURE; ALL–BRASS BODY WITH REPLACEABLE, POLISHED, OPTICAL VIEWING WINDOW WITH COLOR–CODED MOISTURE INDICATOR; WITH SOLDER–END CONNECTIONS.
9. REPLACEABLE–CORE FILTER–DRYERS SHALL BE 500–PSIG MAXIMUM WORKING PRESSURE; HEAVY GAGE PROTECTED WITH CORROSION–RESISTANT–PAINTED STEEL SHELL, FLANGED RING AND SPRING, DUCTILE–IRON COVER PLATE WITH STEEL CAP SCREWS; WROUGHT–COPPER FITTINGS FOR SOLDER–END CONNECTIONS; WITH REPLACEABLE–CORE KIT, INCLUDING GASKETS. THE FILTER–DRYER CARTRIDGE SHALL BE PLEATED MEDIA WITH SOLID–CORE SIEVE WITH ACTIVATED ALUMINA, ARI 730 RATED FOR CAPACITY.
10. PROVIDE RECEIVERS, 6–INCH DIAMETER AND SMALLER WITH THE FOLLOWING CHARACTERISTICS: ARI 495, UL LISTED, STEEL, BRAZED, 400–PSIG PRESSURE RATING, WITH TAPPINGS FOR INLET, OUTLET, AND PRESSURE RELIEF VALVE OR AS REQUIRED BY CONDENSING UNIT MANUFACTURER.
11. REFRIGERANT SHALL BE TYPE AS INDICATED ON SCHEDULES.
12. REFRIGERANT PIPING INSULATION SHALL BE ARMAFLEX, 1" WALL THICKNESS, AND WITH A FIELD APPLIED 20 MIL THICK PVC JACKET. ADHESIVE SHALL BE PER MANUFACTURER REQUIREMENTS.

SYMBOL LEGEND

(NOT ALL SYMBOLS ARE USED)

P	PRESSURE/TEMPERATURE PORT	OR	PIPE UNION		MECHANICAL NOTE REFERENCE, NUMBER INDICATES NOTE
T	TEMPERATURE GAUGE/ TEMPERATURE INDICATOR	AV	AIR VENT, AUTOMATIC	C_F	CUBIC FEET PER MINUTE
	PRESSURE GAUGE		AIR VENT, MANUAL		DUCT STATIC PRESSURE
	BUTTERFLY VALVE	OR	PUMP OR FAN	VD	VOLUME DAMPER
	SHUT–OFF VALVE		STRAINER	BD	BACKDRAFT DAMPER
	ANGLE GATE VALVE		STRAINER, BLOW OFF		DEMOLITION
	GLOBE VALVE		1" DOOR UNDERCUT	MD	MOTORIZED DAMPER
	BALL OR BUTTERFLY VALVE		RETURN GRILLE		SUPPLY OR OUTSIDE AIR DUCT UP OR CSD
	ANGLE GLOBE VALVE	T	THERMOSTAT OR SPACE TEMPERATURE SENSOR		SUPPLY OR OUTSIDE AIR DUCT DOWN
M	TWO WAY MOTORIZED CONTROL VALVE	P	PRESSURE SENSOR		RETURN OR EXHAUST DUCT UP OR CRG/CRR
M	THREE WAY MOTORIZED CONTROL VALVE		DIRECTION OF FLOW		RETURN OR EXHAUST DUCT DOWN
	CHECK VALVE		METER	FC	FLEXIBLE CONNECTION
	OS & Y	DIA. OR ø	DIAMETER		DUCT TRANSITION
	SAFETY RELIEF VALVE (PRESS. & TEMP.)	OR	THERMOMETER		RECTANGULAR TO ROUND TRANSITION
	DRAIN VALVE W/ HOSE COUPLING W/CAP		PIPE TEE, OUTLET UP		DUCT WORK, DIRECTION OF FLOW
	CAP		PIPE ELBOW, TURNED UP		POSITIVE PRESSURE DUCT
	PIPE CONNECTION BOTTOM		PIPE TEE, OUTLET DOWN		NEGATIVE PRESSURE DUCT
	PIPE CONNECTION TOP	HWS	HOT WATER SUPPLY	R	CHANGE OF ELEVATION, RISE (R) DROP (D)
	PIPE COUPLING (JOINT)	HWR	HOT WATER RETURN		LINED DUCT WORK
	ELBOW, 90°	CWS	CONDENSER WATER SUPPLY		SINGLE LINE LINED DUCT WORK
	PIPE ELBOW, TURNED DOWN	CWR	CONDENSER WATER RETURN		DIRECTION OF SUPPLY OR OUTSIDE AIR
	PIPE TEE		POINT OF CONNECTION		DIRECTION OF RETURN OR EXHAUST AIR
X / XXX	AIR OUTLET TYPE / CFM		RETURN OR EXHAUST DUCT UP		AIR TERMINAL UNIT
H	HUMIDISTAT/HUMIDITY SENSOR		SUPPLY OR OUTSIDE AIR DUCT UP	S	DUCT SMOKE DETECTOR
H	DUCT MOUNTED HUMIDITY SENSOR	SD	SMOKE DAMPER	FD	FIRE DAMPER WITH ACCESS DOOR AS REQUIRED
CO2	DUCT MOUNTED CARBON DIOXIDE SENSOR	FSD	COMBINATION FIRE AND SMOKE DAMPER		DUCT ACCESS DOOR
HWS	HOT WATER SUPPLY	45 CHWS	45°F CHILLED WATER SYSTEM SUPPLY	57 CHWS	57°F CHILLED WATER SYSTEM SUPPLY
HWR	HOT WATER RETURN	45 CHWR	45°F CHILLED WATER SYSTEM RETURN	57 CHWR	57°F CHILLED WATER SYSTEM RETURN
	PIPE ANCHOR		PIPE GUIDE		FLEXIBLE DUCT WORK

GENERAL

1. THE INTENT OF THESE CONTRACT DOCUMENTS IS FOR THE CONTRACTOR TO FURNISH AND INSTALL COMPLETE MECHANICAL SYSTEMS. THESE MECHANICAL SYSTEMS INCLUDE HVAC AND ALL ASSOCIATED SPECIAL SYSTEMS. ALL SYSTEMS SHALL BE COMPLETE IN ALL RESPECTS, OPERATING, TESTED, ADJUSTED, APPROVED BY THE AUTHORITIES HAVING JURISDICTION AND READY FOR BENEFICIAL USE BY THE OWNER.
2. THE CONTRACTOR SHALL OBTAIN AND REVIEW ALL CONTRACT DOCUMENTS, INCLUDING PROJECT MANUAL, PLANS AND SPECIFICATIONS OF ALL TRADES BEFORE SUBMITTING BID. REFER TO SPECIFICATIONS, PROJECT MANUAL AND PLANS, INCLUDING ALL EQUIPMENT SCHEDULES FOR MECHANICAL AND ELECTRICAL INFORMATION. CONTRACTOR SHALL WALK THROUGH BUILDING PRIOR TO SUBMITTING BID.
3. ALL OF THE CONTRACT DRAWINGS AND SPECIFICATIONS ARE COMPLEMENTARY TO FORM A TOTAL DESIGN PACKAGE. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR/CONSTRUCTION MANAGER TO DETERMINE WHICH TRADE CONTRACTOR IS RESPONSIBLE FOR VARIOUS PORTIONS OF THE WORK.
4. ALL WORK AND ACTION DEPICTED AND DESCRIBED SHALL BE PERFORMED BY THE CONTRACTOR UNLESS SPECIFICALLY NOTED OTHERWISE.
5. PROVIDE SUPPORT/BRACING OF EQUIPMENT AND BUILDING SERVICES FOR SEISMIC RESTRAINT AS REQUIRED BY CODE.
6. OBTAIN AND PAY FOR ALL REQUIRED PERMITS AND INSPECTIONS.
7. ALL EQUIPMENT, MATERIALS AND RELATED SYSTEMS COMPONENTS SHALL BE NEW UNLESS SPECIFICALLY NOTED OTHERWISE.
8. REPAIR AND/OR REPLACE AT NO COST TO OWNER ALL EQUIPMENT, BUILDING ELEMENTS, TREES SHRUBS, ETC AND MATERIALS DAMAGED DURING CONSTRUCTION.
9. THE DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL ARRANGEMENT OF SYSTEMS AND WORK INCLUDED IN THE CONTRACT. THE CONTRACTOR SHALL COORDINATE LOCATIONS OF EQUIPMENT WITH ALL TRADES BEFORE STARTING CONSTRUCTION. ANY MODIFICATIONS TO THE EQUIPMENT LAYOUT REQUIRED FOR INSTALLATION ARE TO BE PERFORMED AT NO ADDITIONAL COST TO THE OWNER.
10. REFER TO THE ARCHITECTURAL DRAWINGS FOR THE EXACT LOCATION OF LIGHT FIXTURES AND MOUNTING HEIGHTS OF EQUIPMENT. INCLUSIVE OF RECEPTACLES, SWITCHES, THERMOSTATS, ETC. ALL SUCH EQUIPMENT AND COLORS SHALL BE COORDINATED WITH THE ARCHITECT. CONTACT ARCHITECT FOR CLARIFICATION OF MOUNTING REQUIREMENTS, IF INFORMATION IS NOT CONTAINED IN THE DRAWINGS.
11. ALL WORK SHALL BE PERFORMED IN COMPLIANCE WITH THE APPLICABLE CODES IN THE ORDINANCES AND THE REGULATORY AGENCIES HAVING JURISDICTION.
12. ALL EQUIPMENT SHALL BE LOCATED IN ACCESSIBLE LOCATIONS. WHEN A PIECE OF EQUIPMENT MUST BE LOCATED ABOVE AN INACCESSIBLE CEILING OR WALL THEN THE APPROPRIATE ACCESS DOOR SHALL BE PROVIDED. THESE SHALL BE COORDINATED WITH THE ARCHITECT.
13. WHEN CONFLICTS OCCUR BETWEEN THE DRAWINGS AND/OR SPECIFICATIONS IT SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER. THE CONTRACTOR SHALL CARRY AS PART OF THE BID THE LARGER QUANTITY AND/OR MORE EXPENSIVE ITEM(S).
14. CONTRACTORS SHALL COORDINATE THEIR WORK WITH ALL OWNER–FURNISHED EQUIPMENT, INCLUDING REQUIRED SERVICE CONNECTIONS, RECEPTACLES, ETC. BEFORE INSTALLATION.
15. CONTRACTORS SHALL PROVIDE ALL REQUIRED SLEEVES AND SEALS FOR PIPES OR CONDUIT PENETRATING WALLS OR FLOOR SLABS WITH FIRE STOPPING SEALANT WHERE REQUIRED.
16. PROVIDE VIBRATION ISOLATORS FOR ALL PIPING SUPPORTS CONNECTED TO AND WITHIN 50 FEET OF ISOLATED EQUIPMENT THROUGHOUT MECHANICAL EQUIPMENT ROOMS.
17. LOCATE ALL TEMPERATURE, PRESSURE AND FLOW MEASURING DEVICES IN ACCESSIBLE LOCATIONS WITH STRAIGHT SECTION OF PIPE OR DUCT UP/DOWN STREAM AS RECOMMENDED BY THE MANUFACTURER FOR GOOD ACCURACY.
18. PROVIDE ACCESS PANELS FOR INSTALLATION IN WALLS AND CEILINGS, WHERE REQUIRED, TO SERVICE DAMPERS, VALVES, SMOKE DETECTORS AND OTHER CONCEALED MECHANICAL EQUIPMENT.
19. ALL EQUIPMENT, PIPING, DUCT WORK SHALL BE SUPPORTED AS DETAILED, SPECIFIED AND REQUIRED TO PROVIDE A VIBRATION FREE INSTALLATION.
20. INSTALL COMPLETE OPERATING SYSTEMS. PROVIDE ALL COMPONENTS, DEVICES, CONTROLS, RELAYS, TRANSFORMERS, ETC., WHETHER INDICATED OR NOT, FOR COMPLETE SYSTEMS AS INTENDED BY THE CONSTRUCTION DOCUMENTS.
21. ALL NEW EQUIPMENT SPECIFIED IN THE SCHEDULES SHALL BE CONNECTED TO THE EXISTING BUILDING AUTOMATION SYSTEM.

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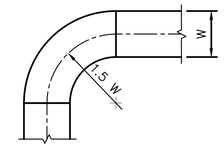
Revision:	Description:	Date:	Revised By:

Drawing Title:

General Mechanical Notes, Legend and Abbreviations

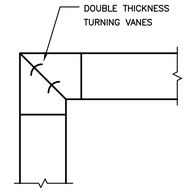
Date: 4.13.18
Scale: NTS
Drawn By: MZ
Project Number: 17.007

Drawing Number: M-1



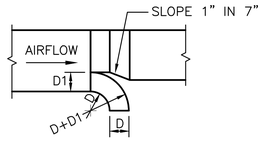
FULL RADIUS ELBOW

SUPPLY AND RETURN DUCTS



SQUARE ELBOW

SUPPLY AND RETURN DUCTS



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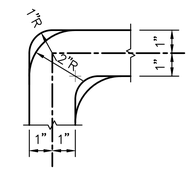
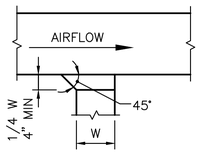


TYP. TURNING VANE

SUPPLY AND RETURN DUCTS



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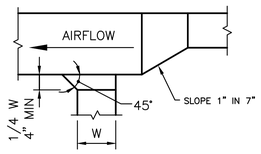

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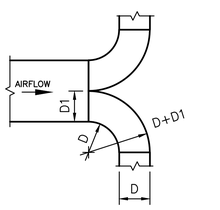
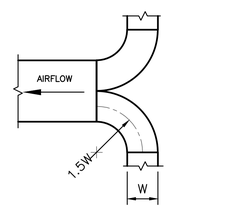


LONG RADIUS TEE



LONG RADIUS TEE

RETURN DUCTS ONLY

4 M2 TYPICAL DUCT DETAIL

SCALE: N.T.S

HVAC SPECIFICATIONS

1) ALL DUCTWORK AND ACCESSORIES SHALL BE CONSTRUCTED, FABRICATED AND INSTALLED IN ACCORDANCE WITH THE LATEST SMACNA STANDARDS FOR 2" PRESSURE CLASS.

2. AIR CONDITIONED SUPPLY, RETURN AND OUTSIDE AIR DUCTS SHALL BE GALVANIZED STEEL AND INSULATED WITH FIBERGLASS, MINIMUM R-VALUE SHALL BE 5 UNLESS REQUIRED BY THE LOCAL AUTHORITIES. THE MANUACTURERS PRINTED R-VALUE MUST BE ON THE EXTERIOR FOR INSPECTION. DUCT SHALL HAVE FOIL MANUACTURERS PRINTED R-VALUE MUST BE ON THE EXTERIOR FOR INSPECTION. DUCT SHALL HAVE FOIL FACING ON EXTERIOR SIDE TO PREVENT MOISTURE INTO FIBERGLASS. DUCT INSULATION SYSTEM INSTALLATION STRETCH OUT SHALL COMPLY WITH ASTM C-1290. 24" WIDE OR MORE DUCT WIDTH: DUCT WRAP SHALL BE SECURED TOT HE BOTTOM OF THE DUCT WITH MECHANCIAL FASTENERS TO PREVENT INSULATION SAGGING.

3. PROVIDE INSULATED FLEXIBLE DUCT CONNECTION BETWEEN DUCT SYSTEM AND SUPPLY AIR DEVICES. THIS FLEXIBLE DUCT SHALL NOT EXCEED 5'-0" IN LENGTH. PROVIDE ADDITIONAL EQUIVALENT RECTANGULAR OR ROUND NON-FLEXIBLE SHEET METAL DUCT EXTENSION AS REQUIRED TO MEET THIS REQUIREMENT. MINIMUM R-VALUE FOR FLEXIBLE DUCT SHALL BE 3.5 UNLESS A HIGHER R-VALUE IS REQUIRED BY THE LOCAL AUTHORITIES.

4. PROVIDE SINGLE THICKNESS TURNING VANES IN ALL DUCT ELBOWS (45 DEG. AND 90 DEG.) TURNING VANES SHALL COMPLY WITH SMACNA STANDARDS.

5. ALL SUPPLY, RETURN AND OUTSIDE DUCT WORK SHALL BE LINED WITH 1" THICK FIBERGLASS AEROFLEX DUCT LINER WITH SMOOTH NEOPRENE COATED SURFACES AS SHOWN ON PLANS. APPLY LINER USING ADHESIVE AND SECURE WITH MECHANICAL FASTENERS SUITABLE FOR ADHESIVE, MECHANICAL OR WELDED ATTACHEMENT TO DUCT. DUCT LINER AND ADHESIVE SHALL COMPLY WITH NFPA STANDARD 90A.

6. FLEXIBLE DUCTWORK SHALL BE FACTORY GLASS FIBER INSULATED ASSEMBLY WITH VAPOR BARRIER JACKET AND MAXIMUM THERMAL CONDUCTANCE OF .23 BTUH/ SQUARE FT PER DEG F. IT SHALL BE CONSTRUCTED OF MACHINE WOUND SPIRAL ALUMINUM HELIX OR REINFORCED ALUMINUM FOIL FABRICS MECHANICALLY LOCKED INTO ALUMINUM SPIRAL HELIX.

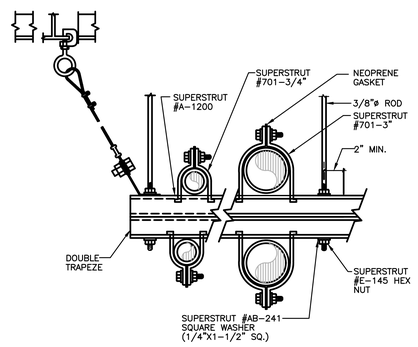
7. FLEXIBLE DUCT SHALL BE SUITABLE FOR 3" WC POSITIVE WORKING PRESSURE AND SHALL BE LISTED AS CLASS 1 BY UL. AT A FLAME SPREAD NOT TO EXCEED 25 AND A SMOKE DEVELOPED NOT TO EXCEED 50 AND BE IN COMPLIANCE WITH NFPA 90A.

8. MANUFACTURES : GENFLEX TYPE IHPL, THERMAFLEX TYPE M-KC, OR FLEXMASTER TYPE II OR III.

9. FLEXIBLE DUCT SHALL BE CONNECTED TO SHEETMETAL DUCTWORK WITH STAINLESS STEEL DUCT CLAMP WITH SWIVEL ACTION SCREW OR 100% NYLON SELF-LOCKING DUCT CLAMP BY PANDUIT CORPORATION OR EQUAL.

10. SPIN-IN DUCT CONNECTION, WITH ROUND DAMPER, SHALL BE PROVIDED AT ALL CONNECTIONS BETWEEN NEW FLEXIBLE DUCTWORK AND SHEET METAL DUCTWORK EXCEPT CONNECTIONS DOWNSTREAM OF VOLUME DAMPERS.

11. ALL NEW DUCTWORK SHALL BE FIELD VERIFIED PRIOR TO FABRICATION, PURCHASE OR INSTALALTION. NO ALLOWANCE SHALL BE GIVEN FOR UNUSED DUCTWORK.



5 M2 TRAPEZE HANGER ASSEMBLY

SCALE: N.T.S

SPLIT SYSTEM SPECIFICATIONS

1. Fabricate and label refrigeration system to comply with ASHRAE 15, "Safety Standard for Refrigeration Systems."

2. The Air Conditioner system shall consist of a horizontal discharge. Unit shall have a variable speed compressor.

3. The cabinet shall be formed from high strength molded plastic with smooth finish, flat front panel design with access for filter. Cabinet color shall be white. The unit shall be wall mounted by means of a factory supplied, pre-drilled, mounting plate.

4. The evaporator coil shall be of nonferrous construction with pre-coated aluminum strake fins on copper tubing. The multi-angled heat exchanger shall have a modified fin shape that reduces air resistance for a smoother, quieter airflow. All tube joints shall be brazed with PhosCopper or silver alloy. The coils shall be pressure tested at the factory. A condensate pan and drain shall be provided under the coil. An optional drain pan level switch (DPLS1), designed to connect to the control board, shall be provided if required, and installed on the condensate pan to prevent condensate from overflowing. [Option: A condensate mini-pump shall be provided to provide a means of condensate disposal when a gravity drain is not available.]

5. The casing shall be constructed from galvanized steel plate, finished with an electrostatically applied, thermally fused acrylic or polyester powder coating for corrosion protection and have a Munsell 3Y 7.8/1.1 finish.

1. REFER TO DRAWING M-1 FOR ADDITIONAL NOTES.

AIR SYSTEM BALANCE

AFTER COMPLETION OF MECHANICAL WORK, CONTRACTOR SHALL PROVIDE AN AIR BALANCE REPORT, SIGNED AND SEALED, TO THE BUILDING OWNER BASED ON THE VALUES ON THE DRAWINGS. THE REPORT SHALL BE DONE BY EITHER THE AABC OR NEBB PROCEDURE. THE BALANCER SHALL BE A CERTIFIED TAB PERSON LICENSED IN THE STATE OF CONNECTICUT. THE REPORT SHALL COMPLY WITH THE LATEST REQUIREMENTS OF ASHRAE.

FIRESTOPPING NOTES:

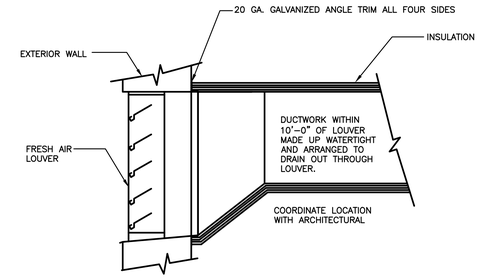
1. PROVIDE FIRESTOPPING PER ASTME-814 & UL 1479 RATING.

STRUCTURAL NOTES:

1. CONTRACTOR TO CORE DRILL A 2"ø MAXIMUM HOLE FOR REFRIGERANT PIPING. CONTRACTOR IS NOT TO DRILL THROUGH EXISTING REINFORCEMENT. IF REINFORCEMENT IS ENCOUNTERED, STOP DRILLING AND PATCH HOLE WITH NON-SHRINKABLE GROUT. RELOCATE CORE DRILL IF NECESSARY.

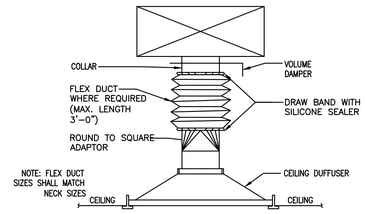
PIPING NOTES

1. CONTRACTOR SHALL PROVIDE ALL PIPING, VALVES, FITTINGS, HANGERS, AND ETC. AS NECESSARY TO PROVIDE FULLY FUNCTIONING AIR COOLED REFRIGERATION SYSTEMS AS INDICATED.
2. CONTRACTOR SHALL FURNISH AND INSTALL MATERIAL FOR LABELING OF PIPING ACCORDING TO MPTN COLOR CODED STANDARDS.
3. REFRIGERANT PIPING SHALL BE DRAWN-TEMPER COPPER TUBE, ASTM B280, TYPE ACR. FITTINGS SHALL BE WROUGHT COPPER, ASME B16.22. UNION SHALL BE WROUGHT COPPER, ASME B16.22. BRONZE FILLER METAL SHALL BE AWS A5.8, CLASSIFICATION BAG-1 (SILVER).
4. CONTRACTOR SHALL INSTALL ALL VALVES, BYPASS CONTROLS, SOLENOID VALVES, RECEIVERS, DRYERS, FITTINGS, TRAPS, ETC. AS NECESSARY FOR A FULLY FUNCTIONAL REFRIGERATION SYSTEM. PROVIDE PIPING INSULATION.
5. SLOPE REFRIGERANT PIPING AS FOLLOWS:
   a) INSTALL HORIZONTAL SUCTION LINES WITH A UNIFORM SLOPE DOWNWARD TO COMPRESSOR.
   b) INSTALL TRAPS AND DOUBLE RISERS TO ENTRAIN OIL IN VERTICAL RUNS.
   c) LIQUID LINES MAY BE INSTALLED LEVEL.
6. INSTALL PIPING WITH ADEQUATE CLEARANCE BETWEEN PIPE AND ADJACENT WALLS AND HANGERS OR BETWEEN PIPES FOR INSULATION INSTALLATION. USE SLEEVES THROUGH FLOORS, WALLS, OR CEILINGS, SIZED TO PERMIT INSTALLATION OF FULL-THICKNESS INSULATION.
7. INSTALL PIPING AS SHORT AND DIRECT AS POSSIBLE, WITH A MINIMUM NUMBER OF JOINTS, ELBOWS, AND FITTINGS.
8. INSTALL BYPASS AROUND MOISTURE-LIQUID INDICATORS IN LINES LARGER THAN NPS (DN 50). VERIFY WITH MFGR. PRIOR.
9. INSTALL THE FOLLOWING PIPE ATTACHMENTS:
   a) ADJUSTABLE STEEL CLEVIS HANGERS FOR INDIVIDUAL HORIZONTAL RUNS.
   b) STRUT SUPPORT FOR TRAPEZE MOUNTING OF REFRIGERANT PIPING.
10. INSTALL PIPE HANGERS WITH THE FOLLOWING MAXIMUM SPACING AND MINIMUM ROD SIZES:
    a) NPS 1/2: MAXIMUM SPAN, 60 INCHES; MINIMUM ROD SIZE, 1/4 INCH.
    b) NPS 5/8: MAXIMUM SPAN, 60 INCHES; MINIMUM ROD SIZE, 1/4 INCH.
    c) NPS 1: MAXIMUM SPAN, 72 INCHES; MINIMUM ROD SIZE, 1/4 INCH.
    d) NPS 1-1/4: MAXIMUM SPAN, 96 INCHES; MINIMUM ROD SIZE, 3/8 INCH.



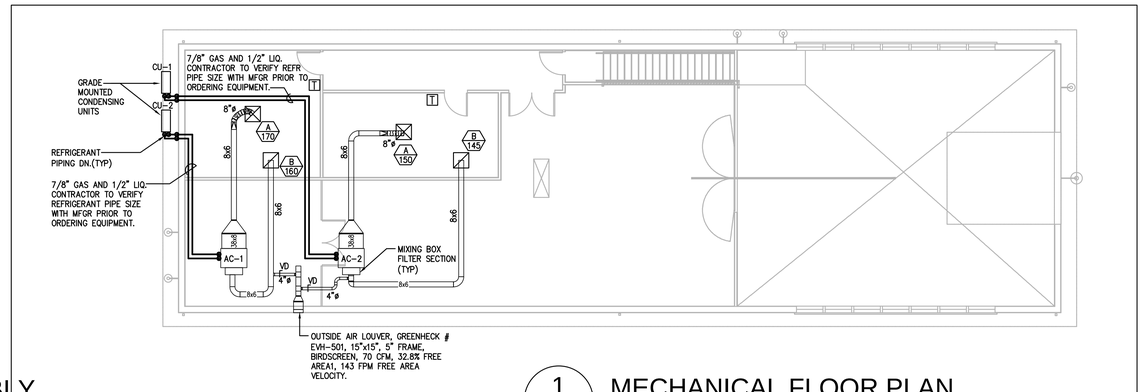
3 M2 EXTERIOR LOUVER ASSEMBLY DETAIL

SCALE: NTS



2 M803 TYPICAL DIFFUSER CONNECTION

SCALE: NTS



1 M2 MECHANICAL FLOOR PLAN

SCALE: N.T.S

DUCTLESS SPLIT SYSTEM AIR CONDITIONING

SYMBOL	TOTAL COOLING CAPACITY (Btu/h)	TOTAL HEATING CAPACITY (Btu/h)	EAT (DB/WB)	AMBIENT AIR TEMP (°F)	ELECTRICAL							MANUFACTURER & MODEL	LOCATION	WEIGHT	REMARKS
					CONDENSING UNIT			FAN COIL UNIT			REFRIG. TYPE				
					VOLTS/ø	MCA	MOCP	VOLTS/ø	WATTS	MCA	MOCP				
AC-1	9,000	11,400	80/67	95	---	---	---	208-230/1	85	1.16		R410A	MITSUBISHI PEAD-A09AA7	CEILING	245	1,2,3,4,5,6,7
CU-1	---	---	---	95	208-230/1	12	15	--	--	--	--	R410A	MITSUBISHI SUZ-KA09NAR1	GRADE	300	
AC-2	9,000	11,400	80/67	95	---	---	---	208-230/1	85	1.16		R410A	MITSUBISHI PEAD-A09AA7	CEILING	245	1,2,3,4,5,6,7
CU-2	---	---	---	95	208-230/1	12	15	--	--	--	--	R410A	MITSUBISHI SUZ-KA09NAR1	GRADE	300	

1. PROVIDE WITH INDIRECT CONDENSATE DRAINS WITH AIRGAP.
2. PROVIDE WITH SECONDARY/AUXILLARY DRAIN PAN AS REQUIRED PER CODE.
3. PROVIDE WITH PAR-33MAA-J REMOTE CONTROLLER.
4. PROVIDE WITH PAC-UKPRC001-CN-1 BUILDING MANAGEMENT CONTROLLER.
5. PROVIDE WITH FBL1-1 FILTER BOX.
6. PROVIDE WITH DRAIN PAN LEVEL SENSOR DPLS2.
7. PROVIDE WITH MAXBLUE CONDENSATE PUMP, 100 FT OF 1/2" TUBING AND CHECK VALVE. CONNECT TO NEAREST CODE APPROVED DRAIN.

RETURN GRILLE SCHEDULE

TAG	SIZE	CFM RANGE	TYPE	STATIC PRESS (IN. WG.)	MODEL	MANUFACTURER	NOTES
B	12x12	75 - 180	RETURN	.10	80	TITUS	1,2,3,4

1. PROVIDE WITH NECK MOUNTED DAMPER.
2. STANDARD FINISH SHALL BE WHITE.
3. MATERIAL SHALL BE ALUMINUM.
4. SURFACE MOUNT.

SUPPLY GRILLE SCHEDULE

TAG	SIZE	CFM RANGE	TYPE	STATIC PRESS (IN. WG.)	MODEL	MANUFACTURER	NOTES
A	12x12	75 - 180	SUPPLY	.10	LCMD	PRICE HVAC	1,2,3,4

1. PROVIDE WITH OPTIONAL FACE ADJUSTABLE DAMPER.
2. STANDARD FINISH SHALL BE WHITE.
3. MATERIAL SHALL BE ALUMINUM.
4. SURFACE MOUNT.

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State of CT. Project # 53-191 Town Project # GL-2018-22
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Revision:	Description:	Date:	Revised By:

Drawing Title:

Mechanical Notes, Floor Plan, Details and Schedules

Date: 4.13.18
Scale: AS INDICATED
Drawn By: MZ
Project Number: 17.007

Drawing Number: M-2

ELECTRICAL SYMBOLS

(NOT ALL SYMBOLS ARE USED)

- ELECTRICAL PANEL, 120/208 VOLT
- UTILITY COMPANY COMBINATION METER/SERVICE SWITCH (CL&P APPROVED)
- XX/XX TELE/DATA OUTLET. SUBLETTER 'V' INDICATES VOICE AND SUBLETTER 'DD' INDICATES DATA
- W TELEPHONE OUTLET. SUBLETTER 'W' INDICATES WALL MOUNTED
- MOTION SENSOR
- TV TELEVISION OUTLET
- CAM SECURITY CAMERA
- F FIRE ALARM PULL STATION
- FIRE ALARM HORN STROBE DEVICE
- FIRE ALARM STROBE DEVICE
- S FIRE ALARM SMOKE DETECTOR
- FACP FIRE ALARM CONTROL PANEL
- CO FIRE ALARM CARBON MONOXIDE DETECTOR

ABBREVIATIONS

A	AMPERES
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
C	CONDUIT
CAM	CAMERA
CR	CARD READER
D	DATA
ER	EXISTING TO REMAIN
JB	JUNCTION BOX
M/B	MAIN BREAKER
M.L.O.	MAIN LUG ONLY
MS	MOTION SENSOR
MTD	MOUNTED
NL	NEW LOCATION
PNL	PANELBOARD
RELOC	RELOCATE/RELOCATED AT THE SAME HEIGHT (PER NEC REQUIREMENTS)
RL	RELOCATE EXISTING
RR	REMOVE AND REINSTALL
TV	TELEVISION OUTLET
V	VOICE
U.O.N.	UNLESS OTHERWISE NOTED
W.P.	WEATHERPROOF

GENERAL NOTES - ELECTRICAL

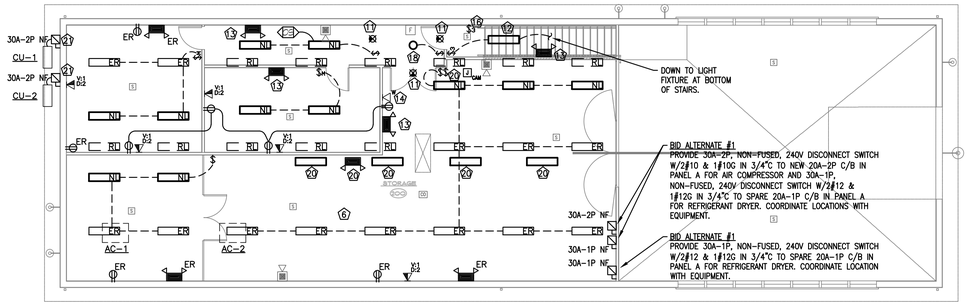
1. SPECIFICATION SECTIONS, GENERAL CONDITIONS, SUPPLEMENTAL GENERAL CONDITIONS AND DRAWINGS ARE INTEGRAL PARTS OF CONTRACT DOCUMENTS.
2. SYSTEM COMPONENTS ARE LOCATED APPROXIMATELY ON DRAWINGS. BASE ACTUAL LOCATIONS ON FIELD VERIFICATION OF EXISTING BUILDING CHARACTERISTICS INCLUDING BUT NOT LIMITED TO STRUCTURAL, MECHANICAL, ELECTRICAL & ARCHITECTURAL COMPONENTS.
3. ALL WORK AND ACTION DEPICTED AND DESCRIBED IN CONTRACT DOCUMENTS SHALL BE PERFORMED BY THE CONTRACTOR UNLESS SPECIFICALLY NOTED OTHERWISE.
4. REFERENCE TO SPECIFIC SUB-CONTRACTORS SUCH AS 'MECHANICAL', 'ELECTRICAL', ETC. ARE INTENDED TO SUGGEST POSSIBLE DIVISION OF RESPONSIBILITY. PRIME CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION AND EXECUTION OF ALL WORK.
5. OBTAIN AND PAY FOR ALL REQUIRED PERMITS AND INSPECTIONS.
6. ALL EQUIPMENT, MATERIALS AND RELATED SYSTEM COMPONENTS SHALL BE NEW UNLESS NOTED OTHERWISE.
7. REPAIR AND REPLACE AT NO COST TO OWNER ALL EQUIPMENT AND MATERIALS DAMAGED DURING CONSTRUCTION.
8. CIRCUITING DEPICTED FOR RECEPTACLES & LIGHTING FIXTURES DEFINES GROUPING OF FIXTURES, DEVICES AND COMPONENTS AND REQUIRED CONDUCTORS. CIRCUITING IS NOT INTENDED TO DEFINE CONDUIT LOCATIONS.
9. STUDY THE PROJECT MANUAL & DRAWINGS OF OTHER DISCIPLINES NCLUDING ARCHITECTURAL, STRUCTURAL, CIVIL & MECHANICAL.
10. PROVIDE SUPPORT/BRACING OF EQUIPMENT AND BUILDING SERVICES FOR SEISMIC RESTRAINT AS REQUIRED BY CODE.
11. ALL WORK SHALL BE PERFORMED IN COMPLIANCE WITH THE APPLICABLE CODES IN THE ORDINANCES AND THE REGULATORY AGENCIES HAVING JURISDICTION.
12. CONTRACTORS SHALL PROVIDE ALL REQUIRED SLEEVES AND SEALS FOR PIPES OR CONDUIT PENETRATING WALLS OR FLOOR SLABS WITH UL LISTED FIRE STOPPING SEALANT WHERE REQUIRED.
13. ELECTRICAL CONDUITS & BOXES SHALL BE CONCEALED IN WALLS OR ABOVE CEILINGS WHEREVER POSSIBLE.
14. FURNISH AND INSTALL GFCI RECEPTACLES LOCATED IN AREAS WHERE RECEPTACLES ARE INSTALLED WITHIN 1.8M (6 FT.) OF THE OUTSIDE EDGE OF THE SINK.
15. ALL PENETRATIONS THRU RATED WALLS & CEILINGS SHALL BE SEALED USING U.L. LISTED METHODS APPROPRIATE FOR INDICATED RATING.
16. NO PENETRATIONS ARE ALLOWED INTO STAIR ENCLOSURES EXCEPT AS REQUIRED FOR SERVICES UTILIZED IN THE STAIR.
17. ALL DEVICES WITHIN EXISTING AND NEW RATED WALLS (ON BOTH SIDES) SHALL BE SURFACE MOUNTED, REFER TO CODE PLANS FOR WALL RATING.

OTHER ELECTRICAL NOTES

1. CONTRACTOR SHALL COORDINATE THE LOCATION AND QUANTITY OF ALL MECHANICAL EQUIPMENT WITH THE MECHANICAL CONTRACTOR. PROVIDE POWER WIRING TO ALL NEW EQUIPMENT. REFER TO MECHANICAL DRAWINGS FOR EXACT LOCATIONS AND INFORMATION.
2. ALL FIXTURES SHALL BE SUPPORTED INDEPENDENTLY OF THE FINISHED CEILING OR STRUCTURE AND SHALL BE SEISMICALLY SUPPORTED AS REQUIRED BY CODE AND THE AUTHORITY HAVING JURISDICTION.
3. ALL BRANCH CIRCUIT WIRING SHOWN IS DIAGRAMMATIC. EXACT ROUTING SHALL BE FIELD COORDINATED TO CLEAR THE WORK OF OTHER TRADES.
4. IT IS NOT THE INTENTION TO SHOW EVERY FITTING, HANGER, WIRE OR DEVICE. ALL SUCH ITEMS SHALL BE FURNISHED AND INSTALLED AS NECESSARY FOR A COMPLETE SYSTEM.
5. CONTRACTOR SHALL DETERMINE THE QUANTITY OF CONDUCTORS REQUIRED FOR PROPER OPERATION OF ALL SWITCHING SCHEMES.
6. NO CONDUIT SHALL BE ALLOWED IN CONCRETE SLABS, UNLESS SPECIFICALLY APPROVED BY THE STRUCTURAL ENGINEER.
7. LABEL ALL UNUSED BREAKERS AS SPARE AND TRIP TO THE OFF POSITION.
8. ALL DEVICE COLORS SHALL BE WHITE.
9. ALL PANEL DIRECTORIES SHALL BE UPDATED AT THE COMPLETION OF THE PROJECT IN ACCORDANCE WITH NEC 408.4.
10. CONTRACTOR SHALL COORDINATE ALL CAMERA LOCATIONS WITH OWNER BEFORE ROUGHING IN.
11. CONTRACTOR SHALL REMOVE EXISTING INVERTER FOR EXTERIOR LIGHTS AND TURN OVER TO OWNER.

ELECTRICAL KEYNOTES (X)

1. EXISTING 400A MANUAL TRANSFER SWITCH TO BE REMOVED AND REPLACE WITH 400A, SERVICE ENTRANCE RATED AUTOMATIC TRANSFER SWITCH BY CUMMINS. REFER TO ONE-LINE RISER ON DRAWING E2 FOR FURTHER INFORMATION.
2. EXISTING 400A MAIN CIRCUIT BREAKER CABINET TO REMAIN.
3. EXISTING 400A MAIN LUG PANEL "A" TO REMAIN.
4. NEW CUMMINS 50KW NATURAL GAS FIRED GENERATOR ON PAD. GENERATOR TROUBLE ALARM SHALL BE REMOTELY MONITORED THROUGH FIRE ALARM SYSTEM. GENERATOR SHALL HAVE 175A OUTPUT CIRCUIT BREAKER, LEVEL 1 ENCLOSURE, 6 AMP BATTERY CHARGER, COOLANT HEATER AND CRANKCASE HEATER.
5. NEW FIRE ALARM CONTROL PANEL. SYSTEM SHALL BE BY THE SAME MANUFACTURER AS THE TOWN OF GLASTONBURY TOWN HALL SYSTEM AND SHALL ALARM LOCALLY. SYSTEM SHALL MONITOR GENERATOR FOR TROUBLE STATUS.
6. EXISTING LIGHTING AND POWER LOCATIONS IN THESE AREAS SHALL REMAIN.
7. NEW PV SYSTEM INVERTER. COORDINATE EXACT LOCATION WITH OWNER IN FIELD.
8. INSTALL 150A-3P CIRCUIT BREKAER IN POSITION 38/40/42 FOR PHOTOVOLTAIC SYSTEM. CIRCUIT BREAKER SHALL BE CLEARLY LABELED "PV SYSTEM FEED".
9. PROVIDE 200A, 240V, NEMA 3R DISCONNECT ON EXTERIOR OF BUILDING NEXT TO UTILITY METER FOR PV SYSTEM DISCONNECT. PROVIDE LABEL ON SWITCH STATING "PHOTOVOLTAIC SYSTEM DISCONNECT SWITCH". REFER TO PV SYSTEM GENERAL NOTES ON DRAWING E2 FOR FURTHER INFORMATION.
10. PROVIDE BASELITE MC12/21A/BAX/UGR/B13/SQLWTM/LED10W/3K/120/277V LED LIGHT FIXTURE. FIXTURE MOUNTING HEIGHT SHALL MATCH EXISTING. EXACT LOCATION OF FIXTURES TO BE DETERMINED IN FIELD. CONNECT NEW FIXTURE TO EXTERIOR BUILDING LIGHTING CIRCUIT.
11. PROVIDE NEW EXIT SIGN TO MATCH EXISTING AS CLOSE AS POSSIBLE IN LOCATION INDICATED. EXIT SIGN SHALL BE WIRED AHEAD OF SWITCH LEG. TYPICAL OF FIVE.
12. PROVIDE NEW LIGHT FIXTURES IN STAIRWELL TO MATCH EXISTING AS CLOSE AS POSSIBLE IN LOCATION INDICATED. CONNECT TO CLOSEST LIGHTING CIRCUIT.TYPICAL OF TWO.
13. PROVIDE NEW EMERGENCY LIGHT FIXTURES TO MATCH EXISTING AS CLOSE AS POSSIBLE IN LOCATION INDICATED. EMERGENCY LIGHT SHALL BE WIRED AHEAD OF SWITCH LEG. TYPICAL OF FIVE.
14. PROVIDE 2#12 & 1#12G IN 3/4"C FROM NEW RECEPTACLES TO SPARE 20A-1P CIRCUIT BREAKER IN PANEL A.
15. EXISTING LIGHT SWITCH TO REMAIN. EXTEND/ALTER CONDUIT/WIRING TO NEW LIGHT FIXTURE AS REQUIRED TO MAINTAIN SWITCHING.
16. RELOCATE EXISTING LIGHT SWITCH TO LOCATION INDICATED ON PLAN. EXTEND/ALTER CONDUIT/WIRING TO NEW SWITCH LOCATION AS REQUIRED TO MAINTAIN SWITCHING.
17. PROVIDE NEW FOUR-WAY LIGHT SWITCH FOR STAIRWELL FIXTURES. PROVIDE ADDITIONAL WIRING TO NEW LIGHT FIXTURE AS REQUIRED.
18. PROVIDE NEW 6" ROUND LED DOWNLIGHT EQUAL TO JUNO 6CLR6S 15LM 35K 80CRI 120 ZT WWH. CONNECT TO CLOSEST LIGHTING CIRCUIT.
19. EXISTING AIR COMPRESSOR TO BE RELOCATED TO THE RIGHT OF THE MANIFOLD, RELOCATE EXISTING DISCONNECT SWITCH AND EXTEND/ALTER CONDUIT/WIRING AS REQUIRED TO NEW COMPRESSOR LOCATION. COORDINATE LOCATION OF DISCONNECT SWITCH IN FIELD.
20. PROVIDE LED STRIPLIGHT FIXTURES IN ATTIC EQUAL TO COLUMBIA LRO4-35LW-EU. PROVIDE SWITCH IN STORAGE AREA AND LABEL SWITCH "ATTIC LIGHTS". CONNECT FRIXTURES TO MEZZANINE LIGHTING CIRCUIT. PROVIDE NEW EMERGENCY LIGHT AFFIXED TO ROOF STRUCTURE NEAR ATTIC HATCH.
21. PROVIDE 30A-2P, NON-FUSE, 240V, NEMA 3R DISCONNECT ON BUILDING EXTERIOR FOR OUTDOOR CONDENSING UNITS, PROVIDE 2#12 & 1#12G IN 3/4"C TO NEW 20A-2P C/B IN PANEL A FOR CONDENSER CU-1 AND 2#12 & 1#12G IN 3/4"C TO NEW 20A-2P C/B IN PANEL A FOR CONDENSER CU-2. PROVIDE 2#12 & 1#12G IN 3/4"C FROM EACH CONDENSER TO CORRESPONDING AC UNIT ABOVE MEZZANINE CEILING FOR AC CONTROL.

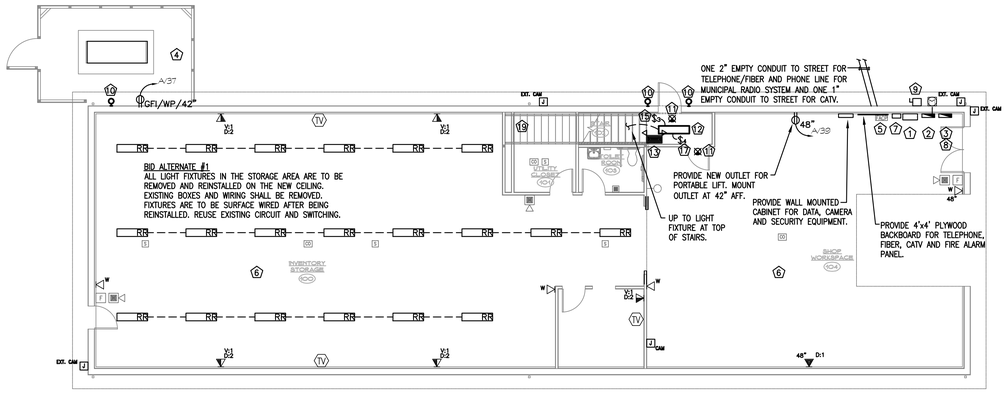


SECOND FLOOR ELECTRICAL PLAN

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

2 / E1

NORTH

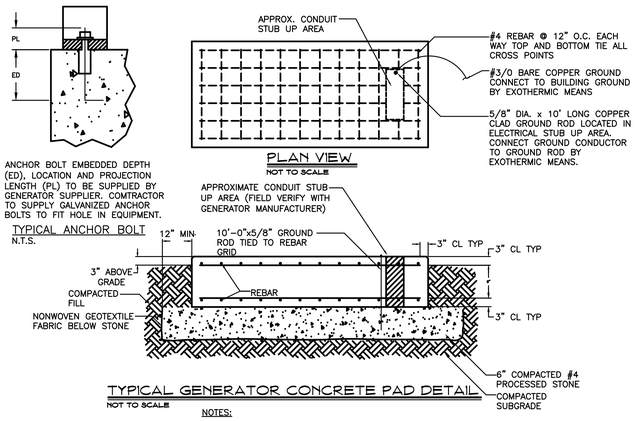


FIRST FLOOR ELECTRICAL PLAN

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

1 / E1

NORTH

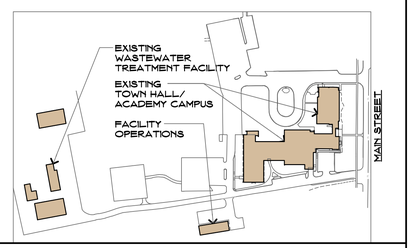


TYPICAL GENERATOR CONCRETE PAD DETAIL

NOT TO SCALE

NOTES:

1. INSPECT AND COMPACT ALL SOIL. PROVIDE 6" BASE OF ITEM #4 PROCESSED STONE, COMPACTED.
2. ALL EXPOSED EDGES SHALL BE 3/4" CHAMFER.
3. CONCRETE SHALL BE 4000 PSI @ 7 DAYS.
4. LENGTH AND WIDTH OF PAD TO BE 12" WIDER ON EACH SIDE THAN GENERATOR ENCLOSURE.



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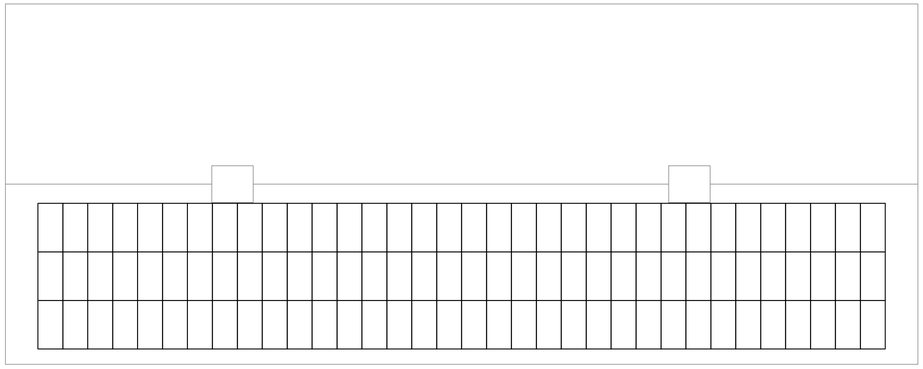
Revision:	Description:	Date:	Revised By:

Drawing Title:

POWER AND SYSTEMS FLOOR PLANS - ELECTRICAL

Date: 4.13.18
Scale: AS NOTED
Drawn By: GK
Project Number: 17.007
Drawing Number: E1

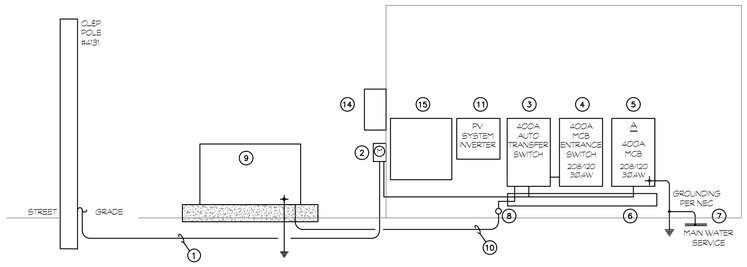


NORTH

PHOTOVOLTAIC SYSTEM ROOF PANEL PLAN

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

1 E2



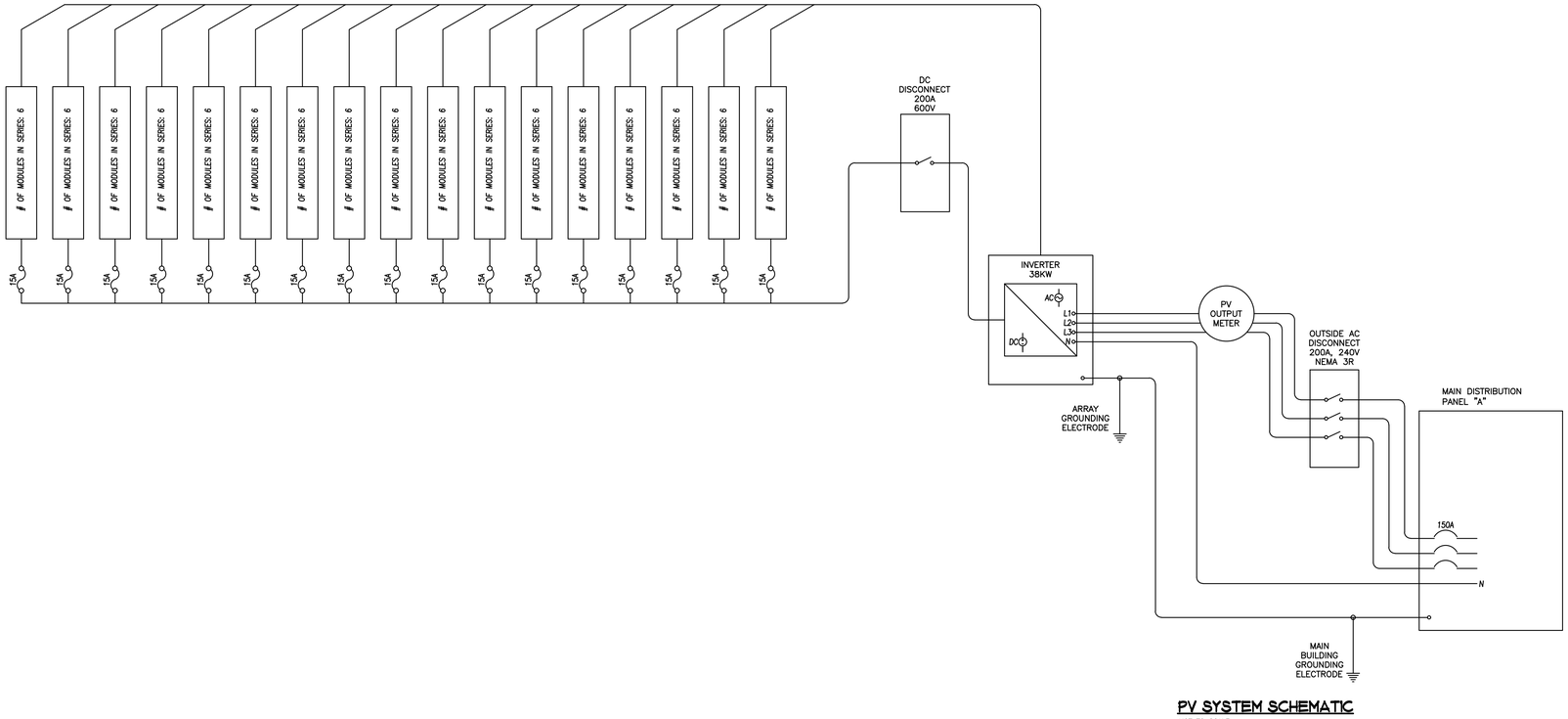
ELECTRICAL ONE-LINE POWER RISER DIAGRAM

SCALE: N.T.S.

2 E2

POWER RISER NOTES:

1. EXISTING SECONDARY SERVICE FROM UTILITY POLE TO METER SOCKET.
2. EXISTING UTILITY COMPANY METER ON THE EXTERIOR OF THE BUILDING.
3. EXISTING 400A SQUARE D MANUAL TRANSFER SWITCH TO BE REMOVED AND REPLACED WITH 400A, SERVICE ENTRANCE RATED, CUMMINS AUTOMATIC TRANSFER SWITCH.
4. EXISTING 400A, 208/120V, 3ø, 4W SQUARE D MAIN DISCONNECT CIRCUIT BREAKER.
5. EXISTING 400A, 208/120V, 3ø, 4W, 42 POLE PANEL "A".
6. EXISTING WIREWAY TO REMAIN.
7. EXISTING SERVICE GROUND TO REMAIN.
8. EXISTING 4" SPARE PVC CONDUIT WITH PULL STRING TO BE USED FOR NEW GENERATOR FEEDER.
9. NEW 50KW, 208/120V NATURAL GAS FIRED STANDBY GENERATOR. CONTRACTOR SHALL PROVIDE POURED CONCRETE PAD. COORDINATE EXACT LOCATION IN FIELD. SEE DETAIL ON THIS SHEET. FURNISH & INSTALL GROUND PER NEC ARTICLE 250 AND UTILITY REQUIREMENTS. PROVIDE 5/8" X 10' DRIVEN COPPER GROUND ROD.
10. 4#2/0 & 1#4GND (175A) IN EXISTING 4" PVC CONDUIT.
11. PV SYSTEM INVERTER.
12. SEAL ALL CONDUITS AS REQUIRED BY CODE.
13. PROVIDE PULL STRINGS AND CONDUIT END COVERS FOR ALL SPARE OR EMPTY CONDUITS.
14. PHOTOVOLTAIC SYSTEM EXTERNAL DISCONNECT SWITCH ON BUILDING EXTERIOR NEXT TO UTILITY METER.
15. PROVIDE BLACK PAINTED, 4'X4'X3/4" PLYWOOD BACKBOARD. ANCHOR AS REQUIRED FOR SEISMIC LOAD.



PV SYSTEM SCHEMATIC

NOT TO SCALE

PV MODULE RATINGS @ STC	
OPEN-CIRCUIT VOLTAGE (Voc):	52.8
OPERATING VOLTAGE (Vmp):	43.2
OPERATING CURRENT (Imp):	8.80
SHORT-CIRCUIT CURRENT (Isc):	9.34
MAXIMUM POWER (W):	380
Voc TEMP COEFF (mV OR %/°C) =	0.23

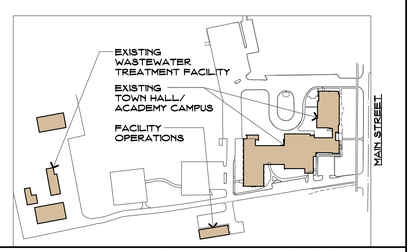
SOURCE COMBINER RATINGS	
MAX OCPD RATING (A):	15
OCPD AMPERAGE RATING (A):	15
OCPD VOLTAGE RATING (V):	600

INVERTER RATINGS	
MAX DC VOLT RATING (V):	600
MAX POWER @ 40°C (W):	20000
NORMAL AC VOLTAGE (V):	208
MAX AC CURRENT (A):	36
MAX OCPD RATING (A):	50

WIRE SELECTION FOR DC AND AC CONDUCTORS (ALL CU)	
10 AWG USE-2 OUTDOOR RATED WIRE	
GROUND WIRE:	6 AWG STRANDED
AC RUN:	4 #8 AWG IN 1" CONDUIT
DC RUN:	2 #8 AWG IN 1" CONDUIT

PV SYSTEM GENERAL NOTES

1. ALL INVERTERS SHALL BE IEEE 929 COMPLIANT AND SHALL BE INSPECTED BY LOCAL UTILITY BEFORE COMMISSIONING, TESTING AND OPERATION OF THE SYSTEM.
2. ALL OUTDOOR EQUIPMENT SHALL BE PROPERLY GROUNDED PER THE REQUIREMENTS OF NEC ARTICLE 250 & 690.
3. NEC ARTICLE 690.9 (A). ALL CIRCUITS CONNECTED TO MORE THAT ONE SOURCE SHALL HAVE OVERCURRENT DEVICES LOCATED CLOSE TO PROVIDE OVERCURRENT PROTECTION FROM ALL SOURCES.
4. NEC ARTICLE 690.18 DUE TO THE FACT THAT PV MODULES ARE ENERGIZED WHENEVER THEY ARE EXPOSED TO LIGHT, PV CONTRACTOR SHALL DISABLE THE ARRAY DURING INSTALLATION AND SERVICE BY SHORT CIRCUITING, OPEN CIRCUITING, OR COVERING THE ARRAY WITH AN OPAQUE COVERING.
5. PHOTOVOLTAIC SYSTEM SHALL BACKFEED THE DISTRIBUTION SYSTEM ON SITE PER THE REQUIREMENTS OF NEC ARTICLE 690.64 (B). ALL BACKFEED BREAKERS SHALL BE IDENTIFIED AS SUCH AND SHALL BE SECURED IN PLACE BY AN ADDITIONAL FASTENER PER THE REQUIREMENTS OF NEC 408.16 (F) & 408.36 (F).
6. NEC ARTICLE 690.56 (B) A PLACARD SHALL BE PROVIDED ON THE EXTERIOR AND INTERIOR OF THE UTILITY MAIN SERVICE DISCONNECT LOCATION WITH THE FOLLOWING TEXT: CAUTION SOLAR PHOTOVOLTAIC (PV) SYSTEM INSTALLED. WHEN POWER DISCONNECTED, SOLAR PV MODULES AND WIRING IN CONDUIT TO INVERTER MAY REMAIN ENERGIZED DURING DAYLIGHT HOURS. PHOTOVOLTAIC SYSTEM DISCONNECTS ARE LOCATED ON THE BUILDING EXTERIOR NEAR THE GENERATOR.
7. NEC ARTICLE 690.14. EACH DC DISCONNECT SHALL BE LABELED WITH: "SOLAR PHOTOVOLTAIC POWER SYSTEM EMERGENCY DC DISCONNECT." LABEL SHALL BE A 1" X 4" MINIMUM WITH UV RESISTANT BLACK LETTERS ON YELLOW BACKGROUND.
8. NEC ARTICLE 690.53 A PLACARD, MINIMUM 3" X 3", UV RESISTANT, AND INCLUDING BLACK LETTERS AND A YELLOW BACKGROUND, SHALL BE PROVIDED BESIDE THE DC DISCONNECT.
9. DC DISCONNECT AT THE INVERTER WILL BE READILY ACCESSIBLE AFTER THE INSTALLATION IS COMPLETE. PROVIDE A WARNING SIGN AT THIS DISCONNECT PER NEC ARTICLE 690.17.
10. CONTRACTOR TO PROVIDE GROUND FAULT PROTECTION FOR ROOF MOUNTED PHOTOVOLTAIC ARRAYS PER NEC ARTICLE 690.5.
11. WHERE MORE THAN ONE NOMINAL VOLTAGE SYSTEM EXISTS, THE DIFFERENT SYSTEMS SHALL BE IDENTIFIED BY PHASE AND SYSTEM.
12. PHOTOVOLTAIC SOURCE CURRENTS MUST BE RATED AT BOTH 125% OF THE PARALLEL MODULE AND AT A CONTINUOUS LOAD OF ANOTHER 125% FOR A TOTAL OF 156% OF THE LOAD.
13. PROVIDE PERMANENT PLAQUE OR DIRECTORY PROVIDING THE LOCATION OF THE SERVICE DISCONNECTING MEANS AND THE PHOTOVOLTAIC SYSTEM DISCONNECT MEANS IF THEY ARE NOT IN THE SAME LOCATION PER NEC ARTICLE 690.56.
14. INSTALLATION OF PV PANEL ARRAYS SHOULD RESIST SLIDING AND POP-UP RESULTING FROM SEISMIC EVENTS AND SHOULD COMPLY WITH CBC SECTION 1613A AND ASCE STANDARD 7-05 CHAPTER 13.
15. PV SYSTEM INSTALLER WILL BE RESPONSIBLE FOR FURNISHING AND INSTALLING ALL RELATED EQUIPMENT, CABLES, ADDITIONAL CONDUITS, BOXES, WIREWAYS, AND ALL OTHER ACCESSORIES NECESSARY FOR A COMPLETE AND OPERATIONAL PHOTOVOLTAIC SYSTEM.
16. PV SYSTEM CONTRACTOR SHALL COORDINATE ALL WORK WITH THE ENGINEER, CONSTRUCTION MANAGER, AND OTHER CONTRACTORS TO INSURE THAT PV SYSTEM IS INSTALLED AS SPECIFIED IN THESE DOCUMENTS.



Project Title:

Facilities & Maintenance Building Emergency Service Modifications – Glastonbury
State of CT. Project # 53-191 Town Project # GL-2018-22
Glastonbury, CT.
2109 Main Street, Glastonbury, CT.

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Revision:	Description:	Date:	Revised By:

Drawing Title:

PHOTOVOLTAIC ROOF PLAN, DETAILS AND NOTES

Date: 4.13.18
Scale: AS NOTED
Drawn By: GK
Project Number: 17.007
Drawing Number: E2