


RAYTHEON WAREHOUSE
FARMINGTON, NM


JULY 16, 2015

DRAWING	DESCRIPTION
MEPFP0.00	TITLE SHEET
MPFP1.01	MECHANICAL, PLUMBING & FIRE PROTECTION SITE PLAN
M2.01	HVAC MAIN LEVEL
M2.02	HVAC MEZZANINE LEVEL & COORDINATION PLAN
M3.01	MECHANICAL GAS PIPING
M4.01	MECHANICAL HVAC SCHEDULES & DETAILS SHEET 1 OF 2
M4.02	MECHANICAL HVAC SCHEDULES & DETAILS SHEET 2 OF 2
M4.03	MECHANICAL CO & EXHAUST TYPICAL DUCT ISOMETRIC
P2.01	PLUMBING UNDER FLOOR
P3.01	PLUMBING MAIN LEVEL
P3.02	PLUMBING MEZZANINE LEVEL
P4.01	PLUMBING SCHEDULES & DETAILS
E1.01	ELECTRICAL SITE PLAN
E2.01	ELECTRICAL LIGHTING MAIN LEVEL
E2.02	ELECTRICAL LIGHTING MEZZANINE LEVEL
E3.01	ELECTRICAL POWER MAIN LEVEL
E3.02	ELECTRICAL POWER MEZZANINE LEVEL
E4.01	ELECTRICAL LOW VOLTAGE PLAN
E4.02	ELECTRICAL SECURITY PLAN
E4.03	ELECTRICAL LOW VOLTAGE DETAILS
E4.04	BILL OF MATERIAL FOR IT INSTALLATION
E5.01	ELECTRICAL SCHEDULES SHEET 1 OF 3
E5.02	ELECTRICAL SCHEDULES SHEET 2 OF 3
E5.03	ELECTRICAL SCHEDULES SHEET 3 OF 3
E6.01	ELECTRICAL UNDER FLOOR CONDUIT PLAN
E6.02	ELECTRICAL ENLARGED PLANS
E7.01	ELECTRICAL 1-LINE DIAGRAM
E8.01	ELECTRICAL LIGHTNING PROTECTION PLAN
FP2.01	FIRE PROTECTION GENERAL NOTES
FP2.02	FIRE PROTECTION MAIN LEVEL
FP2.03	FIRE PROTECTION SPRINKLER HEAD PIPING
FP2.04	FIRE PROTECTION MAIN LEVEL ISOMETRIC
FP2.05	FIRE PROTECTION CEILING LEVEL COORDINATION
FP5.01	FIRE PROTECTION DETAILS
FP5.02	FIRE PROTECTION ROOM DETAILS
FP5.03	FIRE PROTECTION CEILING LEVEL & RISER ISOMETRIC

RAYTHEON WAREHOUSE

10059 HWY 371 SOUTH
FARMINGTON, NM 87401

MECHANICAL, ELECTRICAL, PLUMBING & FIRE PROTECTION
TITLE SHEET

-SHEET-

MEPFP0.00

NO.

DATE

COMMENTS

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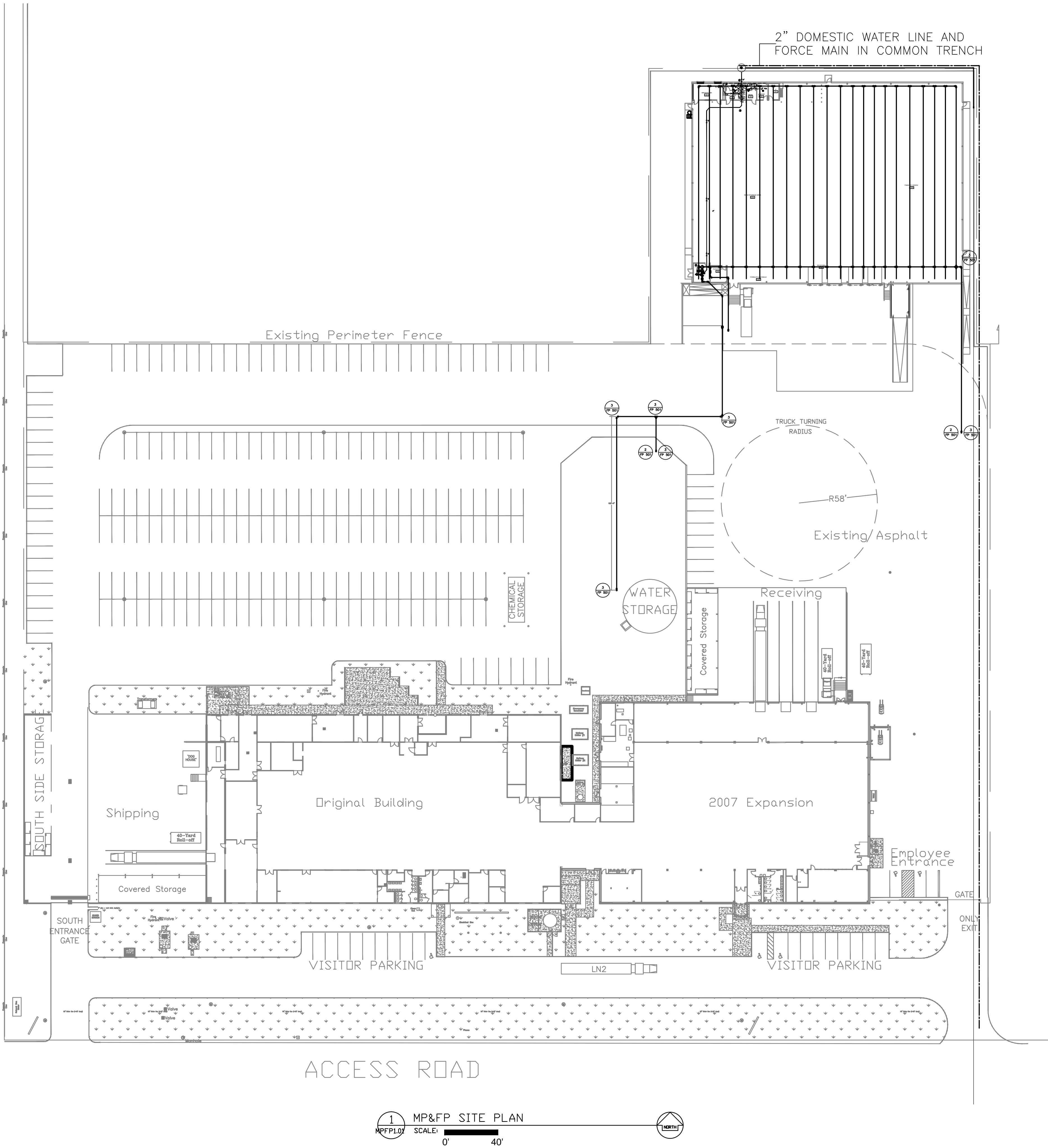
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R² ARCHITECTURAL DESIGN

730 SAN MATEO BLVD. SE STE-1

ALBUQUERQUE, NEW MEXICO 87108

TEL: 505.884.9694 FAX: 888.892.5814



1 MP&FP SITE PLAN
MPFP1.01 SCALE: 0' 40'

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17053
PROFESSIONAL ENGINEER
JULY 16, 2015

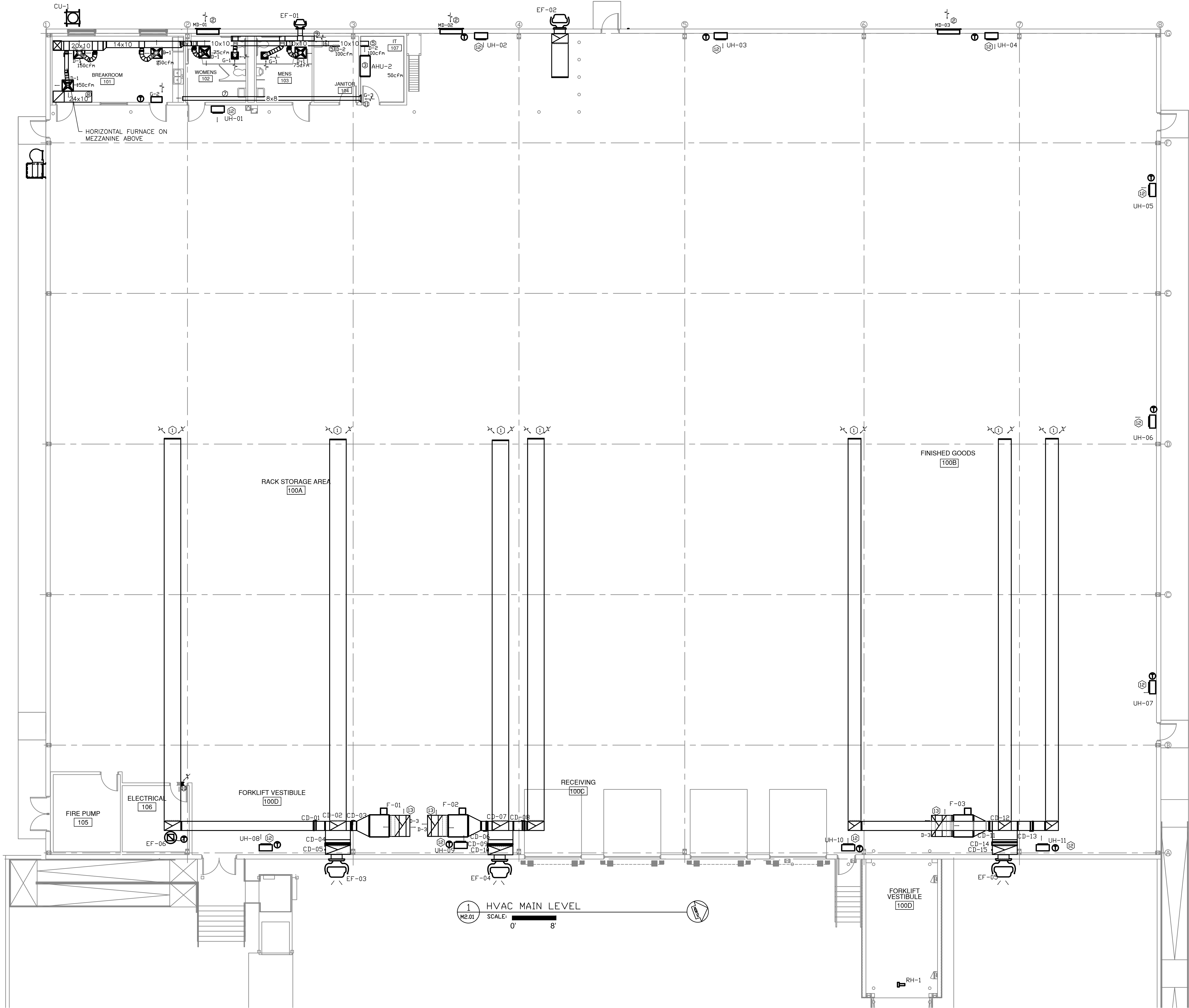
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RAYTHEON WAREHOUSE
10059 HWY 371 SOUTH
FARMINGTON, NM 87401
MECHANICAL, PLUMBING & FIRE PROTECTION SITE PLAN

SHEET-
MPF1.01

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- KEY NOTES
1. PROVIDE BIRD SCREEN AT END OF DUCT.
 2. GREENHECK RELIEF DAMPER. 4'X4' MOTORIZED. TYPICAL OF 3. INTERLOCKED EACH DAMPER WITH EXHAUST FANS (MD-01/EF-03, MD-02/EF-04 & MD-03/EF-05).
 3. IT ROOM COOLING CABINET. LOCATE HIGH ON WALL. COORDINATE LOCATION WITH IT EQUIPMENT. PIPE TO CONDENSING UNIT ON MEZZANINE. INSULATE ALL LINES. PROVIDE TSTAT ON WALL AWAY FROM AIR STREAM AS MUCH AS POSSIBLE.
 4. EXHAUST DUCT FOR VDC EXHAUST. 54"X20" DUCT WITH INTERNAL BRACING FROM EXHAUST FAN TO 2' AFF. INSTALL 24"X48" INTAKE GRILL AT BOTTOM. INSTALL CO SENSOR TO ACTIVATE EXHAUST. COORDINATE INSTALLATION WITH OTHER TRADES. INSTALL DUAL DAMPER TO SELECT AIR FROM FLOOR FOR CO EXHAUST OR FROM CEILING AREA FOR COOLING. SEE DETAIL AND OVERVIEW ON SHEET M201B.
 5. 12"X4" SIDEWALL DIFFUSER WITH DAMPER. DUCT IN JANITOR & IT ROOMS WILL BE EXPOSED BELOW CEILING.
 7. TRANSFER DUCT FROM IT ROOM TO ABOVE CEILING OF BREAK ROOM. PROVIDE GRILL AT IT ROOM PENETRATION. PROVIDE 1" SOUND DEADENING INSIDE DUCT.
 8. 24"X10" RETURN DUCT ATTACHED AT CEILING. PROVIDE 1" SOUND DEADENING TO INSIDE OF DUCT. EXTEND DUCT AT LEAST 6' INTO SPACE.
 9. PROVIDE 48 SO IN (MINIMUM) EXHAUST GRILL WITH DAMPER AT WALL PENETRATION.
 10. 12"X12" TRANSFER GRILL ABOVE DOOR.
 11. 12"X12" SIDE WALL GRILL FOR RETURN AIR.
 12. GAS FIRED UNIT HEATER WITH WALL MOUNTED THERMOSTAT BELOW. PROVIDE SHUTOFF VALVE, DIRT LEG AND REGULATION DOWN TO 7" WC, AND FLEXIBLE PIPE CONNECTION TO THE BRANCH LINE. MOUNT PER MANUFACTURER'S REQUIREMENTS. PROVIDE FLUE PENETRATION THROUGH WALL PER MANUFACTURER'S REQUIREMENTS.
 13. PROVIDE EXHAUST LOUVER WITH DIRECTIONAL VANES FOR 60 DEGREE DOWNTURN AND 3 DIRECTIONS. MATCH OUTPUT DUCT SIZE TO ACTUAL FAN.

- GENERAL NOTES
1. A TOTAL OF 11 185MBH UNIT HEATERS AROUND PERIMETER PROVIDE BASIC HEAT TO KEEP BUILDING ABOVE 40F AT COLDEST SPOT. UNITS MOUNTED AT 15' AFF AND DIRECTS OUT AND DOWN WITH APPROXIMATELY 50' OF THROW. INTERIOR OF BUILDING IS ALLOWED TO FLOAT TO WHATEVER TEMPERATURE IT IS. REQUIRED FRESH AIR IS PROVIDED BY EF-01 @ 4,000 CFM CONTINUOUS.
 2. EMERGENCY CO EXHAUST IS PROVIDED BY (3) 12,000 CFM EXHAUST FANS MOUNTED AT THE EAVES NEAR THE OVEHEAD DOORS AND OPERATE ON A CO MONITOR.
 3. COOLING IS ACHIEVED BY UTILIZING THE (3) CO EXHAUST FANS TO EXHAUST AIR FROM THE CEILING. SOURCE OF EXHAUST AIR IS CONTROLLED BY A DUAL DAMPER THAT SELECTS FLOOR AIR FOR CO AND CEILING AIR FOR COOLING. SOURCE AT CEILING IS DUCTED TO 25% ACROSS CEILING. RELIEF DAMPERS ARE INSTALLED IN THE WEST WALL AT EAVE HEIGHT TO ALLOW OUTSIDE AIR IN AND ARE INTERLOCKED WITH EXHAUST DAMPERS. COOLING CONSISTS OF 36,000 CFM (2 AIR CHANGES PER HOUR) WHEN OUTSIDE AIR IS 10F COOLER THAN INSIDE AIR AT CEILING. FANS CAN HAVE MANUAL OPERATION FOR NEUTRAL TEMPERATURE OPERATION.
 4. DUCT IS ROUTED IN EACH TRUSS BAY TO MAINTAIN MAXIMUM 120F TEMPERATURE IN BAY AT ROOF.
 5. DURING HEATING SEASON THE CO DUCT TO THE FLOOR IS OPEN AND THE DUCT FROM THE CEILING TO THE EXHAUST FAN IS CLOSED. THE DAMPER TO THE RECIRCULATING FAN IF OPEN. THIS ALLOWS CEILING AIR TO BE RECIRCULATED DOWN TO THE FLOOR TO REDUCE STRATIFICATION. CO SYSTEM OPERATES INDEPENDENTLY.
 6. DUCTS AT CEILING TO BE RUN ADJACENT TO STRUCTURE WHERE EVER POSSIBLE. COORDINATE DUCTWORK WITH LIGHTING. LIGHTS TYPICALLY TO BE ADJUSTED TO MISS DUCTWORK.
 7. MECHANICAL CONTRACTOR RESPONSIBLE FOR ELECTRICAL CONTROL WIRING FOR MECHANICAL DEVICES.

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17053
PROFESSIONAL ENGINEER

JULY 16, 2015

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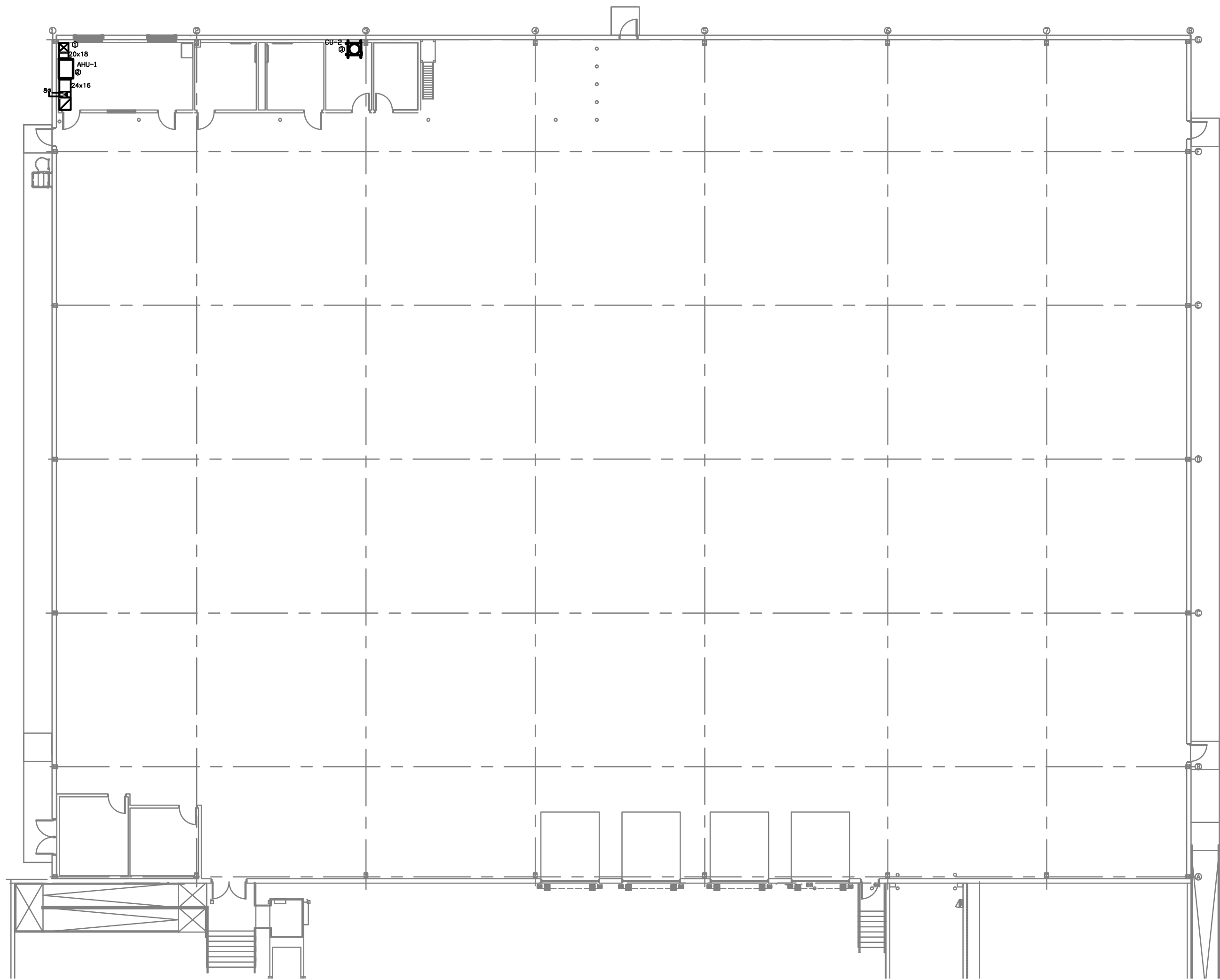
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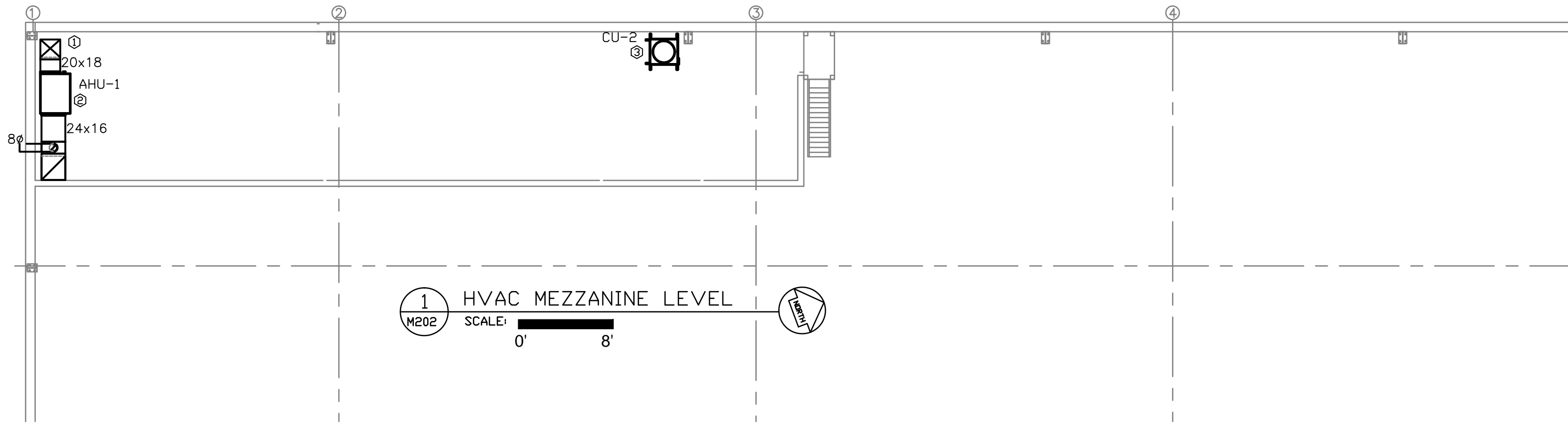
RAYTHEON WAREHOUSE
10059 HWY 371 SOUTH
FARMINGTON, NM 87401
HVAC MAIN LEVEL

SHEET-
M2.01

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1 LIGHTING & DUCTWORK COORDINATION LAYOUT
SCALE: 1/16" = 1' - 0"



1 HVAC MEZZANINE LEVEL
SCALE: 0' 8'

- KEY NOTES
1. PROVIDE TURNING VANES
 2. FURNACE IS LAID OUT HORIZONTAL. CONTRACTOR MAY INSTALL VERTICAL PROVIDED A DUCT LAYOUT IS PROVIDED AND APPROVED BY OWNER.
 3. CONDENSING UNIT FOR IT ROOM COOLING. LOCATE ABOVE IT ROOM ADJACENT TO OUTSIDE WALL AND COLUMN.

RAYTHEON WAREHOUSE
10059 HWY 371 SOUTH
FARMINGTON, NM 87401

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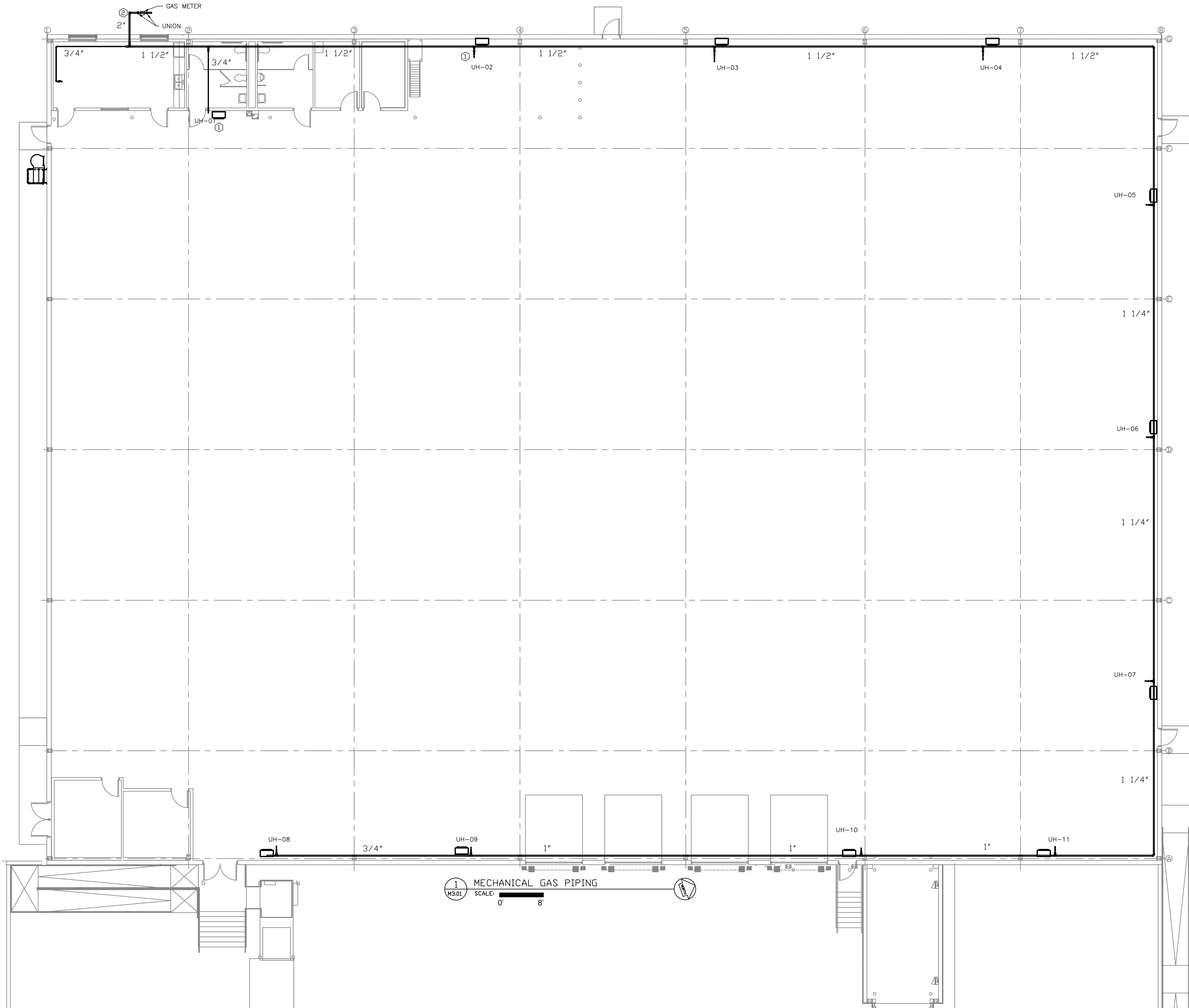
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LICENSED PROFESSIONAL ENGINEER

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JULY 16, 2015

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KEY NOTES

1.

GAS FIRED UNIT HEATER WITH WALL MOUNTED THERMOSTAT BELOW. PROVIDE SHUTOFF VALVE, DIRT LEG AND REGULATION DOWN TO 7" WC, AND FLEXIBLE PIPE CONNECTION TO THE BRANCH LINE. MOUNT PER MANUFACTURER'S REQUIREMENTS. PROVIDE FLUE PENETRATION THROUGH WALL PER MANUFACTURER'S REQUIREMENTS.

2.

SERVICE GAS REGULATED TO 2 PSI.

RAYTHEON WAREHOUSE

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FARMINGTON, NM 87401

MECHANICAL GAS PIPING

NO.

DATE

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MEZZANINE LEVEL AIR HANDLING AND COOLING UNIT SCHEDULE														
AIR HANDLING UNIT									COOLING UNIT					
UNIT NO.	MFG	MODEL NO.	CFM SUPPLY	CFM O.A.	GAS HEAT BTUH	BLOWER		ESP W.C."	UNIT NO.	MODEL NO.	COOL TONS	ELECTRIC		NOTES
						HP	VOLT/P					MCA/FUSE	VOLT/P	
AHU-1	BRYANT	986TA30040F	800	80	60/58	3/4	120/1	0.5"	CU-1	116BNA024	2	17.6/25	208/1	1

NOTES:
1. BRYANT HIGH EFFICIENCY, CONDENSING TYPE GAS FIRED FURNACE WITH FILTER SECTION AND FILTER, LINE SETS, AIR COOLED CONDENSING UNIT, CONDENSATE PIPING TO OUTSIDE, DX COOLING COIL MODEL CNPVP SERIES @ .29" MAX. P.D. (WET), 3" NO DISK PVC VENT AND COMBUSTION AIR INTAKE PIPING AND CONCENTRIC TERMINATION KIT, INTAKE/VENT SHALL ROUTE THRU ROOF. FIELD VERIFY EXACT LOCATION WITH GENERAL CONTRACTOR. AHU LOCATED ON MEZZANINE, CONDENSING UNIT ON GROUND AT WEST SIDE OF BUILDNG.

IT ROOM COOLING UNIT SCHEDULE													
AIR HANDLING UNIT									COOLING UNIT				
UNIT NO.	MFG	MODEL NO.	CFM SUPPLY	CFM O.A.	BLOWER		ESP W.C."	UNIT NO.	MODEL NO.	COOL TONS	ELECTRIC		NOTES
					HP	VOLT/P					MCA/FUSE	VOLT/P	
AHU-2	mitsubishi	PKA-A12GAL	490	0	FRACT	120/1	0.5"	CU-2	PUY-A12NHA	0.75	13/15	208/1	1

NOTES:
1. MITSUBISHI (OR EQUAL) SPLIT SYSTEM AIR CONDITIONING UNIT WITH INDOOR UNIT, CONDENSING UNIT, LINE SET AND CONDENSATE PIPING TO OUTSIDE.

MECHANICAL FAN SCHEDULE														
TAG	DESCRIPTION	FLOW RATE	STATIC PRESSURE		MOTOR DATA		ELECTRICAL DATA			MAXIMUM	BASIS OF DESIGN		WEIGHT	NOTES
			EXTERNAL	NO FLOW	LOAD	SPEED	MCA	MOCP	VOLTAGE	LOUDNESS				
		CFM	IN WG	IN WG	HP	RPM	AMPS	AMPS		SONES	MANUFACTURER	MODEL OR SERIES		
EF-01	EXHAUST FAN	350	0	0	3/8	1075	4.0	20	120/1/60	5	GREENHECK	CW-065	26	
EF-02	SIDEWALL EXHAUST FAN	4,000	0	0	2	1075	5.0	15	120/1/60	14	GREENHECK	CW-161	36	
EF-03	EXHAUST FAN	12,000	0.3	1.7	3	1630	8.0	20	480/3/60	24	GREENHECK	CWB-300	313	
EF-04	EXHAUST FAN	12,000	0.3	1.7	3	1630	8.0	20	480/3/60	24	GREENHECK	CWB-300	313	
EF-05	EXHAUST FAN	12,000	0.3	1.7	3	1630	8.0	20	480/3/60	24	GREENHECK	CWB-300	313	
EF-06	UPDRAFT FAN	150	0	0	3/8	1075	2.0	20	120/1/60	3	GREENHECK	CUE-060	26	
F-01	INLINE FAN	15,000	0.3	0	15	700	21.0	30	480/3/60	35	GREENHECK	BDF-200	560	1
F-02	INLINE FAN	15,000	0.3	0	15	700	21.0	30	480/3/60	35	GREENHECK	BDF-200	560	1
F-03	INLINE FAN	15,000	0.3	0	15	700	21.0	30	480/3/60	35	GREENHECK	BDF-200	560	1

NOTES:
1. PREFERRED MOUNTING – TRAPEZE

MECHANICAL GRILL & DIFFUSER SCHEDULE											
Quantity	ID	SIZE	FINISH	FACE BARS		MANUFACTURER	MODEL	MATERIAL	DISCHARGE PATTERN	DESCRIPTION	NOTES
				ANGLE	STYLE						
5	D-1	24"X24"	OFF WHITE			TITUS	TMS-3	STEEL	4-WAY		1
2	D-2	12X4							-		
1	D-3	46"X46	OFF WHITE			TITUS	TMS	STEEL	3-WAY		1
2	G-1					TITUS				12"X12" LAY-IN	
1	G-2		OFF WHITE		1/2" GRID	TITUS	50F	ALUMINUM	-		2
1	G-3	12X4				TITUS			-		

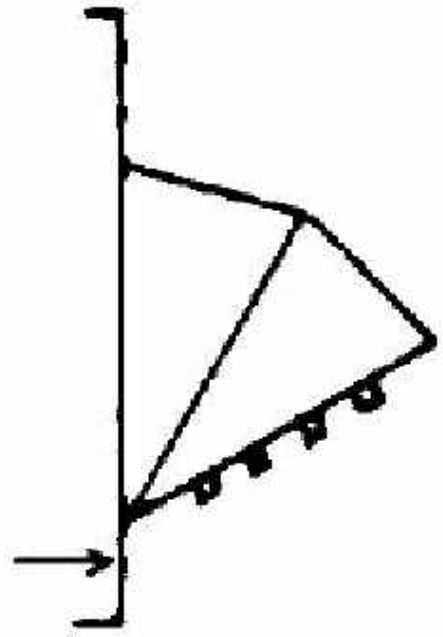
NOTES
1. CEILING DIFFUSER WITH RADIAL DAMPER AND TYPE 3 FRAME FOR LAY-IN CEILING.
2. 1/2x1/2"x1/2" EGG GRATE STYLE GRILLE WITH TYPE 3 BORDER (LAY-IN CEILING).

MECHANICAL UNIT HEATER SCHEDULE														
ID	BASIS OF DESIGN			LOCATION	ELECTRICAL DATA			CONTROL	Gas Input (MBtu-h)	Gas Outputt (MBtu-h)	WEIGHT	REMARKS	NOTES	
	MANUFACTURER	MODEL NUMBER	DESCRIPTION		VOLTAGE	FLA	MOCP							
UH-01	REZNOR	UDAP 225	DOWN DRAFT UNIT HEATER	MOUNTED 15' AFF	480V/1P	2.0	15	MECH	225	186	203		1	
UH-02	REZNOR	UDAP 225	DOWN DRAFT UNIT HEATER	MOUNTED 15' AFF	480V/1P	2.0	15	MECH	225	186	203		1	
UH-03	REZNOR	UDAP 225	DOWN DRAFT UNIT HEATER	MOUNTED 15' AFF	480V/1P	2.0	15	MECH	225	186	203		1	
UH-04	REZNOR	UDAP 225	DOWN DRAFT UNIT HEATER	MOUNTED 15' AFF	480V/1P	2.0	15	MECH	225	186	203		1	
UH-05	REZNOR	UDAP 225	DOWN DRAFT UNIT HEATER	MOUNTED 15' AFF	480V/1P	2.0	15	MECH	225	186	203		1	
UH-06	REZNOR	UDAP 225	DOWN DRAFT UNIT HEATER	MOUNTED 15' AFF	480V/1P	2.0	15	MECH	225	186	203		1	
UH-07	REZNOR	UDAP 225	DOWN DRAFT UNIT HEATER	MOUNTED 15' AFF	480V/1P	2.0	15	MECH	225	186	203		1	
UH-08	REZNOR	UDAP 225	DOWN DRAFT UNIT HEATER	MOUNTED 15' AFF	480V/1P	2.0	15	MECH	225	186	203		1	
UH-09	REZNOR	UDAP 225	DOWN DRAFT UNIT HEATER	MOUNTED 15' AFF	480V/1P	2.0	15	MECH	225	186	203		1	
UH-10	REZNOR	UDAP 225	DOWN DRAFT UNIT HEATER	MOUNTED 15' AFF	480V/1P	2.0	15	MECH	225	186	203		1	
UH-11	REZNOR	UDAP 225	DOWN DRAFT UNIT HEATER	MOUNTED 15' AFF	480V/1P	2.0	15	MECH	225	186	203		1	

NOTES:
1. PROVIDE FACTORY OPTION STEPDOWN TRANSFORMER FROM 480/115V.

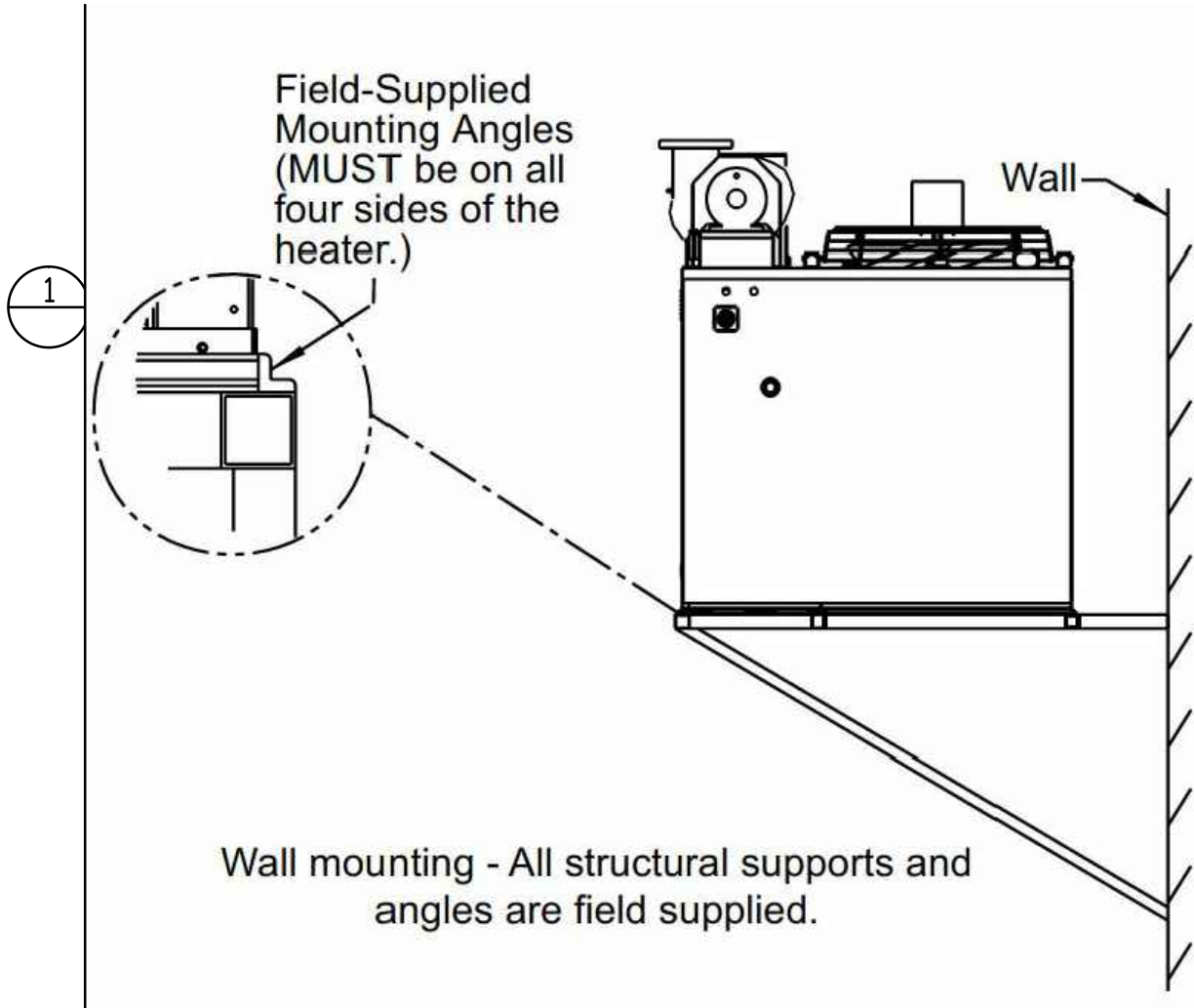
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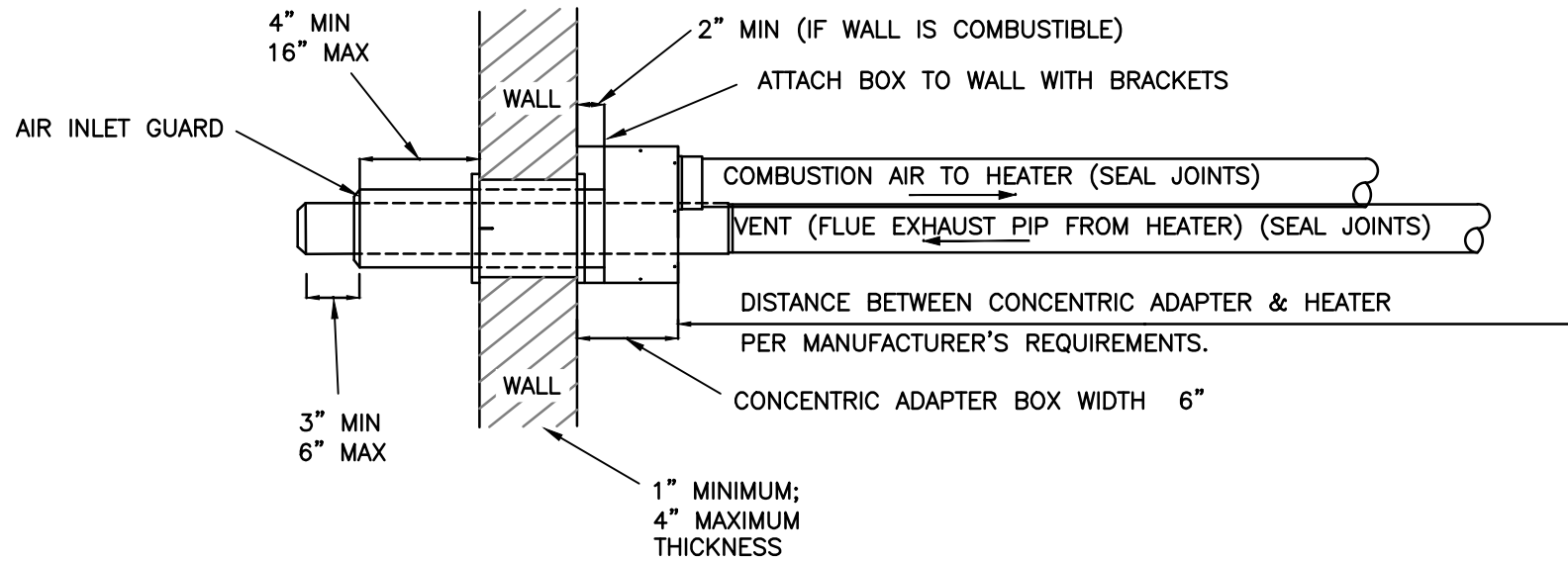


Optional Down-
turn Nozzle
with 50°-90°
Range of Air
Deflection

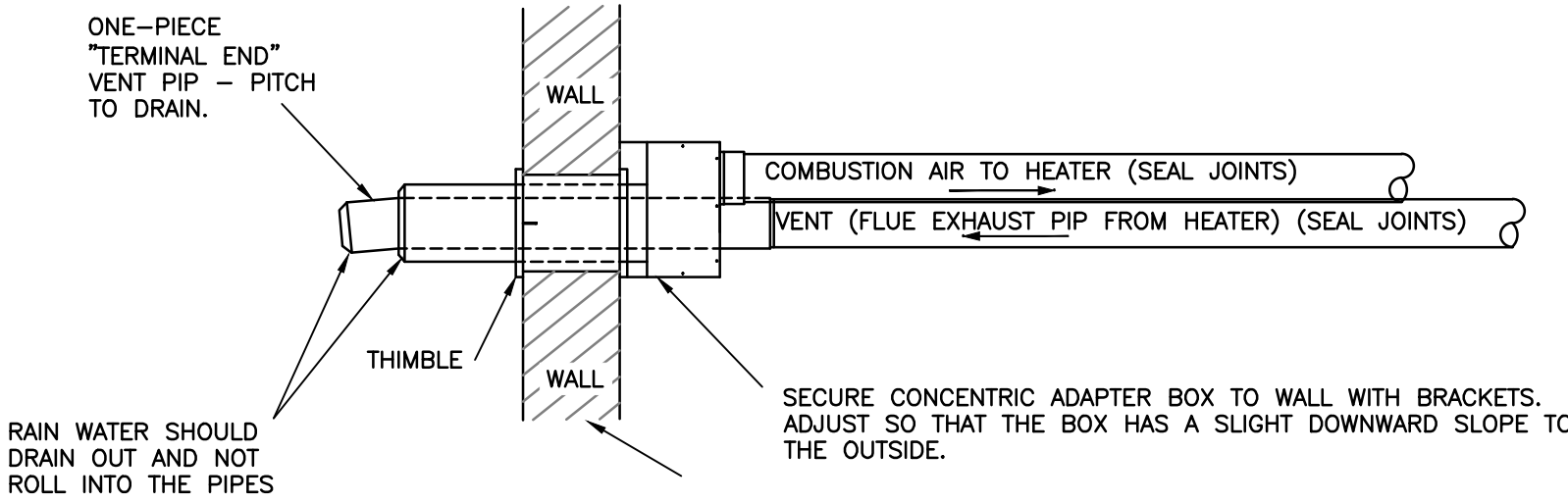
3 UNIT HEATER OUTLET DETAIL
SCALE: NTS



4 UNIT HEATER MOUNTING DETAIL
SCALE: NTS



1 UNIT HEATER FLUE DETAIL TOP VIEW
SCALE: NTS

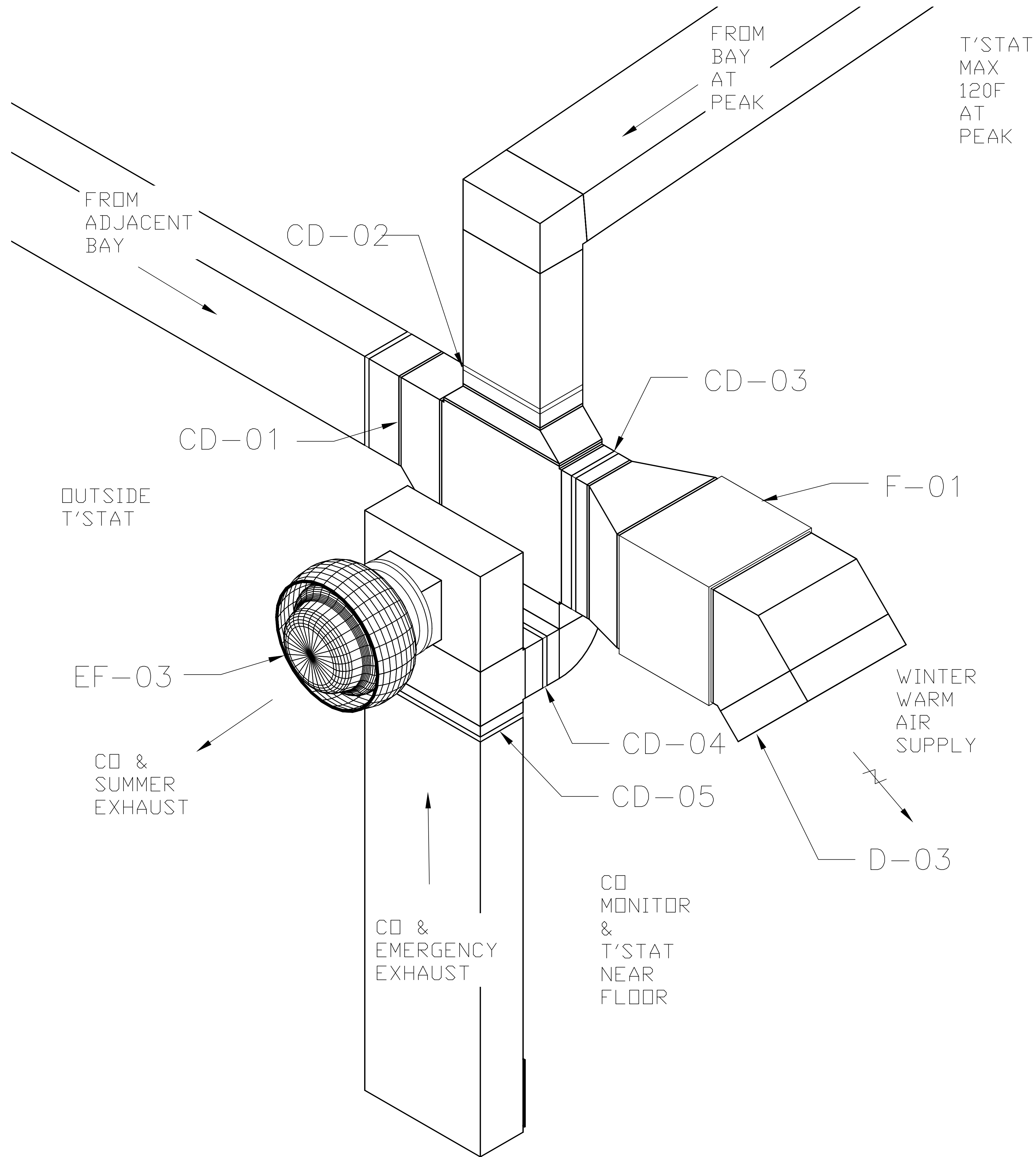


2 UNIT HEATER FLUE DETAIL SIDE VIEW
SCALE: NTS

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RAYTHEON WAREHOUSE 10059 HWY 371 SOUTH FARMINGTON, NM 87401 MECHANICAL HVAC SCHEDULES & DETAILS SHEET 2 OF 2	DRAWN BY: CHECKED BY: DATE: 07/16/15 SCALE: AS SHOWN
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1 CO-EXHAUST-DESTRATIFICATION DUCT LAYOUT (TYPICAL)
SCALE: NTS

OPERATION

GENERAL REQUIREMENTS:

- PROVIDE HEATING TO KEEP BUILDING FROM FREEZING; NO COOLING
- PROVIDE CODE REQUIRED AIR CHANGES AND FRESH AIR (.06CFM/SQFT FRESH AIR)
- PROVIDE EMERGENCY CO EVACUATION
- MAINTAIN FIRE SUPPRESSION MAXIMUM TEMPERATURE OF 120F AT THE CEILING SOLAR HEATING.
- MINIMIZE COST OF HVAC INITIAL INSTALLATION FOR THE FACILITY

DESIRED OBJECTIVES:

- PROVIDE MEASURE OF COOLING (AT NIGHT) TO ELIMINATE NEED FOR EVAPORATIVE COOLERS.
- PROVIDE DESTRATIFICATION TO REDUCE HEATING REQUIREMENTS AND DERIVE BENEFIT OF
- ACCOUNT FOR SOLAR GAIN AND HEATING FROM LIGHTING

1. GENERAL CONDITIONS:

- DAMPERS D-01 & D-02 ARE BALANCING DAMPERS
- DAMPER D-03 IS MANUAL DAMPER TO CLOSE OFF F-01
- DAMPERS D-04 & D-05 LINKED AND CONTROLLED BY CO SYSTEM
- EXHAUST FAN EF-03 - 12,000 CFM (TYPICAL OF 3 EACH)
- FAN F-01 - 14,000 CFM (3 SUCH = APPROXIMATELY 2 AIR CHANGES/HOUR)

2.SUMMER OPERATION - NORMAL CONDITION:

- DAMPER D-03 CLOSED; FAN F-01 OFF
- DAMPER D-04 OPEN
- DAMPER D-05 CLOSED
- EXHAUST FAN EF-03 CONTROLLED BY THERMOSTAT
- OPERATION: WHEN THE TEMPERATURE INSIDE THE BUILDING EXCEEDS SET POINT AND THE OUTSIDE AIR IS MORE THAN 10F COOLER THAN THE INSIDE THEN THERMOSTAT TURNS ON EF-03 AND THE HOT AIR FROM THE CEILING IS EXHAUSTED THROUGH EF03. RELIEF AIR IS BROUGHT IN THROUGH THE RELIEF DAMPERS ON THE WEST SIDE OF THE BUILDING. DURING NIGHT TIME HOURS OPERATION WILL COOL THE BUILDING.
- DAMPERS D-04 & D-05 ARE LINKED TOGETHER AND SET SUCH THAT FAILURE WOULD RESULT IN D-05 BEING OPEN AND D-04 BEING CLOSED.
- IF THERE IS AN INCREASE IN CO THAT REQUIRES EXHAUSTING DAMPERS D-04 AND D-05 REVERSE AND AIR IS PULLED FROM THE FLOOR AND EXHAUSTED THROUGH EF-03.
- RELIEF DAMPERS ON WEST SIDE OF BUILDING OPENED WHEN EF-03 ON.

3.WINTER OPERATION: (INDEPENDENT OF PERIMETER (UNIT HEATER) HEATING)

- DAMPER D-03 OPEN (MANUAL)
- DAMPER D-04 CLOSED
- DAMPER D-05 OPEN
- NORMAL OPERATION: RECIRCULATING FAN F-01 PULLS AIR FROM THE CEILING AND DIRECTS IT DOWNWARD TOWARD THE FLOOR AND ALONG THE EAST WALL. FAN F-01 IS CONTROLLED BY A DIFFERENTIAL THERMOSTAT THAT DETERMINES WHEN THE TEMPERATURE DIFFERENTIAL BETWEEN THE CEILING AND THE FLOOR IS MORE THAN A SET LEVEL THE FAN COMES ON. (MAXIMUM CEILING TEMPERATURE <120F)

4.CO OPERATION:

- DAMPERS D-04 & D-05 OPERATE SUCH THAT D-04 CLOSES AND D-05 OPENS. EXHAUST FAN EF-03 OPERATES TO PULL CO FROM FLOOR AND EXHAUST. RELIEF DAMPERS OPEN.

WITH THE USE OF 2 FANS THIS SYSTEM WILL PROVIDE EMERGENCY CO EVACUATION, EXHAUSTING OF HOT AIR DURING THE SUMMER AND DE-STRATIFICATION OF HOT AIR DURING THE WINTER. THE SYSTEM ALSO ALLOWS FOR EXHAUSTING THE BUILDING IF THERE IS AN INSTANCE OF CONTAMINATION OF THE AIR IN THE BUILDING. IT ALSO MOVES ALL EQUIPMENT FROM THE ROOF AND CEILING AND RELOCATES IT ALONG THE PERIMETER WALLS FOR ACCESS FOR MAINTENANCE AND REPAIR. GAS PIPING WOULD BE RUN AT 15' AFF ALONG THE PERIMETER OF THE BUILDING WITH INDIVIDUAL REGULATORS AT EACH UNIT HEATER. WATER PIPING WOULD BE LIMITED TO HOSE BIBBS AND CAN BE RUN IN PEX UNDER THE SLAB. ELECTRICAL DISTRIBUTION WOULD BE GREATLY REDUCED WITH NO ELECTRICAL ON THE ROOF OR AT THE CEILING EXCEPT FOR WAPS AND LIGHTING. IT IS ANTICIPATED THAT ELECTRICAL PANEL H2 WOULD BE ELIMINATED ALSO.



R² ARCHITECTURAL DESIGN
730 SAN MATEO BLVD. SE STE-1
ALBUQUERQUE, NEW MEXICO 87108
TEL: 505.884.9694 FAX: 888.892.5814

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RAYTHEON WAREHOUSE
10059 HWY 371 SOUTH
FARMINGTON, NM 87401
MECHANICAL CO & EXHAUST TYPICAL DUCT ISOMETRIC

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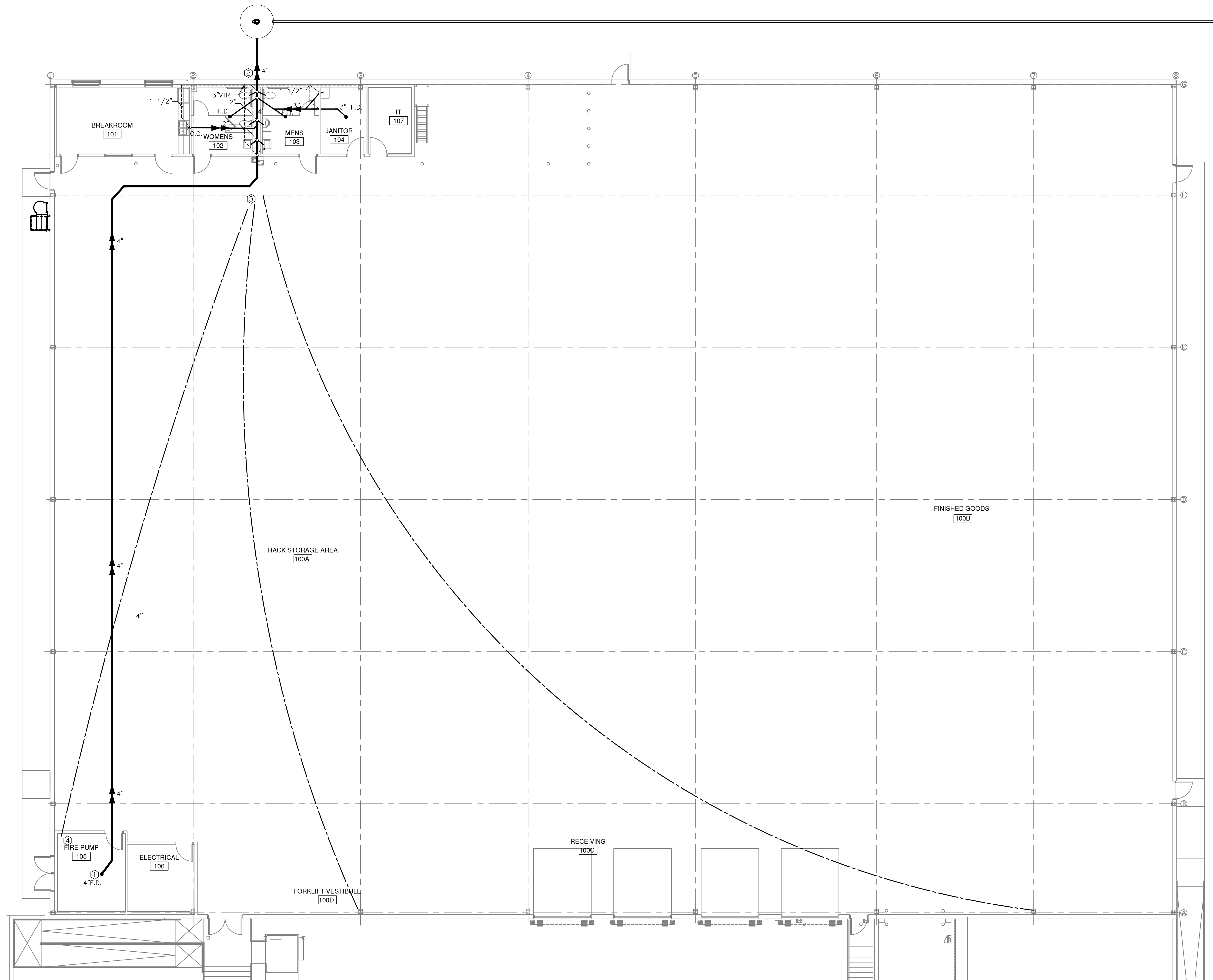
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RAYTHEON WAREHOUSE
10059 HWY 371 SOUTH
FARMINGTON, NM 87401
PLUMBING UNDERFLOOR

**-SHEET-
P2.01**



① KEY NOTES

1. COORDINATE LOCATION WITH FIRE PROTECTION FOR PUMP DRAIN.
2. INVERT TO BE MINIMUM OF 9' TO ALLOW FOR SEPTIC FROM FURTHEST LOCATION IN BUILDING.
3. 1" PEX UNDERFLOOR TO HOSE BIBBS. TO EXTEND TO OUTSIDE WALL AND RISE TO WATER MANIFOLD. ROUTE INTERIOR TO SPACE TO PROTECT FROM FREEZING.
4. RISE IN FIRE PUMP ROOM TO SHUTOFF VALVE AND HOSE BIBB. EXTEND TO EXTERIOR FREEZE PROOF HOSE BIBB.

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KEY NOTES
1. FROST PROOF HOSE BIBB. MOUNT ADJACENT TO STRUCTURE TO PROVIDE PROTECTION FOR PIPING.
2. DOMESTIC WATER BOOSTER PUMP. MOUNT ON 2" PAD. PROVIDE SHUTOFF ON INLET AND OUTLET. PIPE OUTLET UP TO COLD WATER MANIFOLD. LOCATE MANIFOLD ON WALL ADJACENT AND ABOVE UNIT.

RAYTHEON WAREHOUSE

10059 HWY 371 SOUTH
FARMINGTON, NM 87401

PLUMBING MAIN LEVEL

5th SHEET-

P3.01

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EDWARD J. HENDERSON, JR.

NEW MEXICO

17053

REGISTERED PROFESSIONAL ENGINEER

EDWARD J. HENDERSON, JR.

7/16, 2015

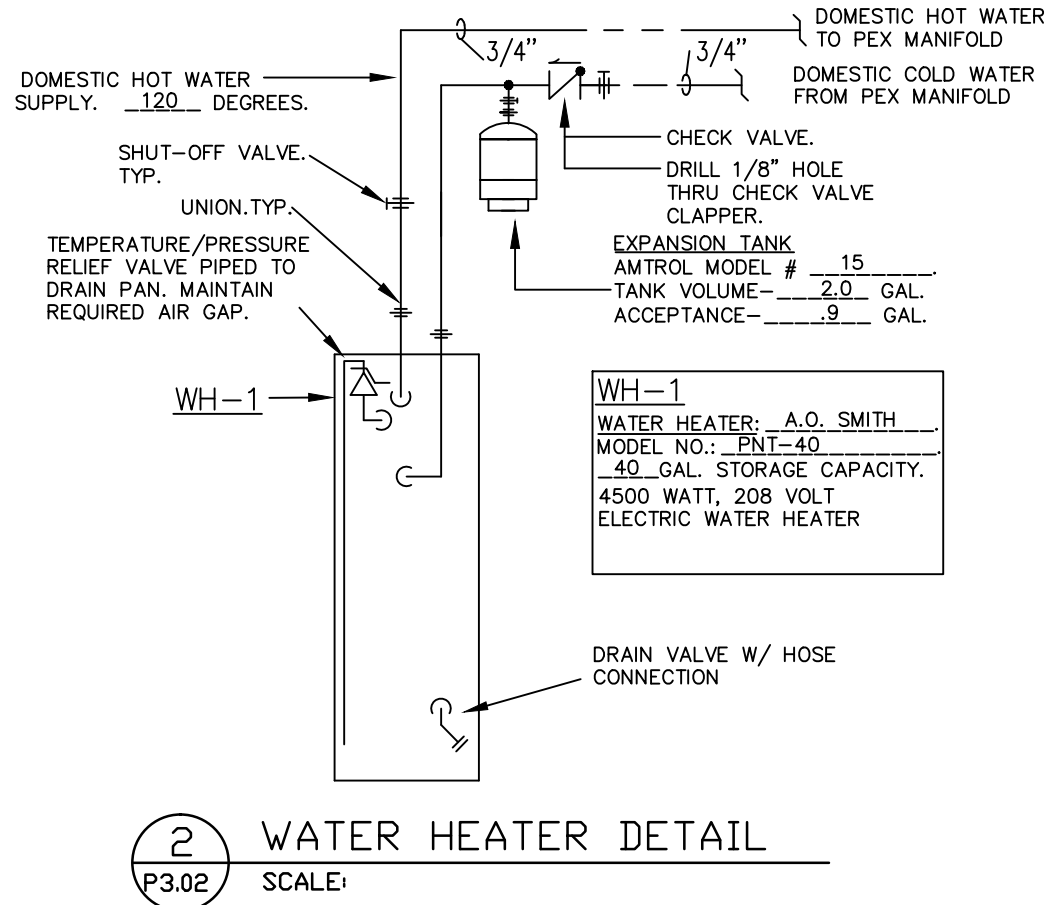
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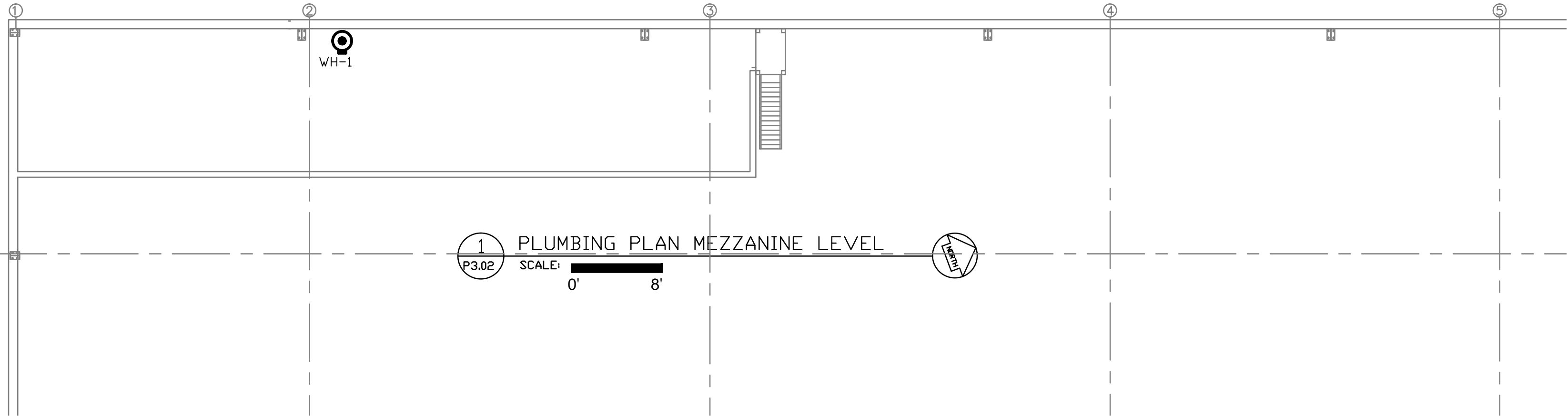
MEZZANINE LEVEL PLUMBING WATER HEATER SCHEDULE													
TAG	GAS REQUIREMENTS		ELECTRICAL DATA			HYDRONIC REQUIREMENTS					BASIS OF DESIGN		OPERATING
	INPUT	OUTPUT	MCA	MOCP	VOLTAGE	STORAGE	CAPACITY	EWI	LWT	GPH	DEG. F	MANUFACTURER	MODEL OR SERIES
	MBH	MBH	AMPS	AMPS		GALLONS	DEG. F	DEG. F					
WH-1	0	0	35.0	35	208/1/60	40	0 °F	0 °F	0	0 °F	AO SMITH	PNT-40	420



- GENERAL NOTES
1.

WATER HEATER ON MEZZANINE LEVEL.
2.

PIPE DOMESTIC WATER THROUGH PRESSURE TANK IN ROOM 104. SET PRESSURE ON PRESSURE TANK TO 60 LB.



RAYTHEON WAREHOUSE

10059 HWY 371 SOUTH
FARMINGTON, NM 87401

PLUMBING MEZZANINE LEVEL

5th SHEET -

P3.02

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EDWARD J. HENDERSON, JR.

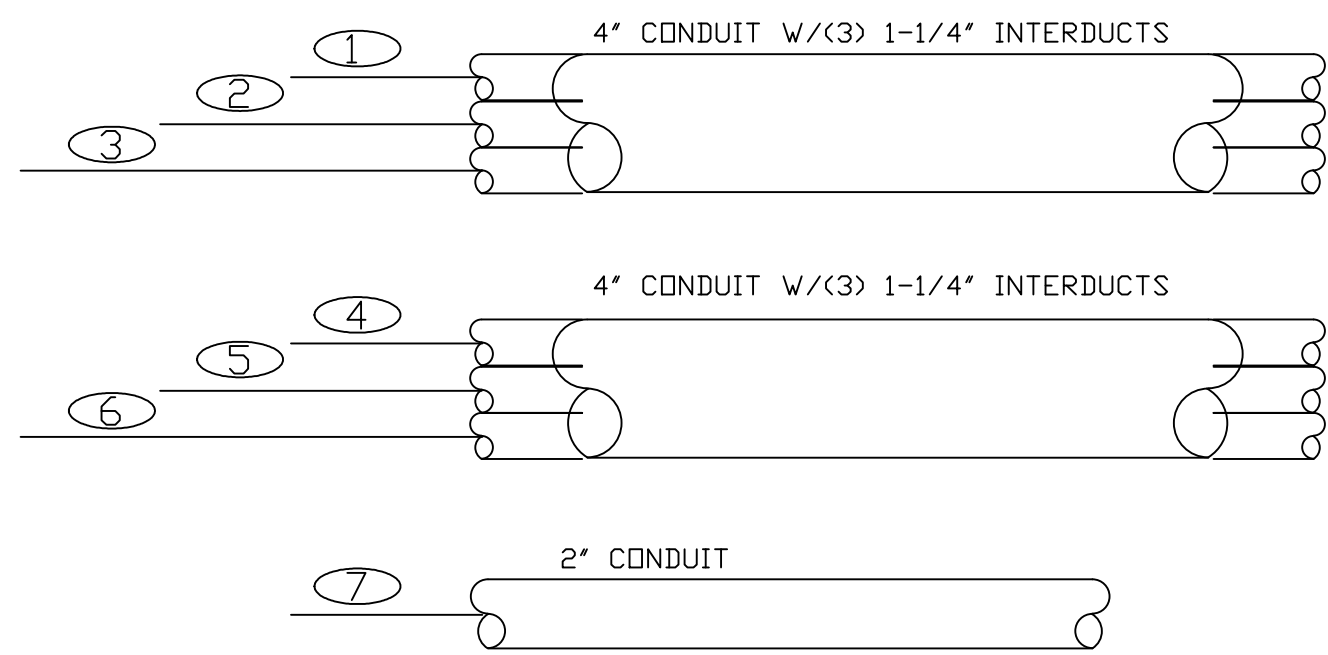
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PROFESSIONAL ENGINEER

JULY 16, 2015

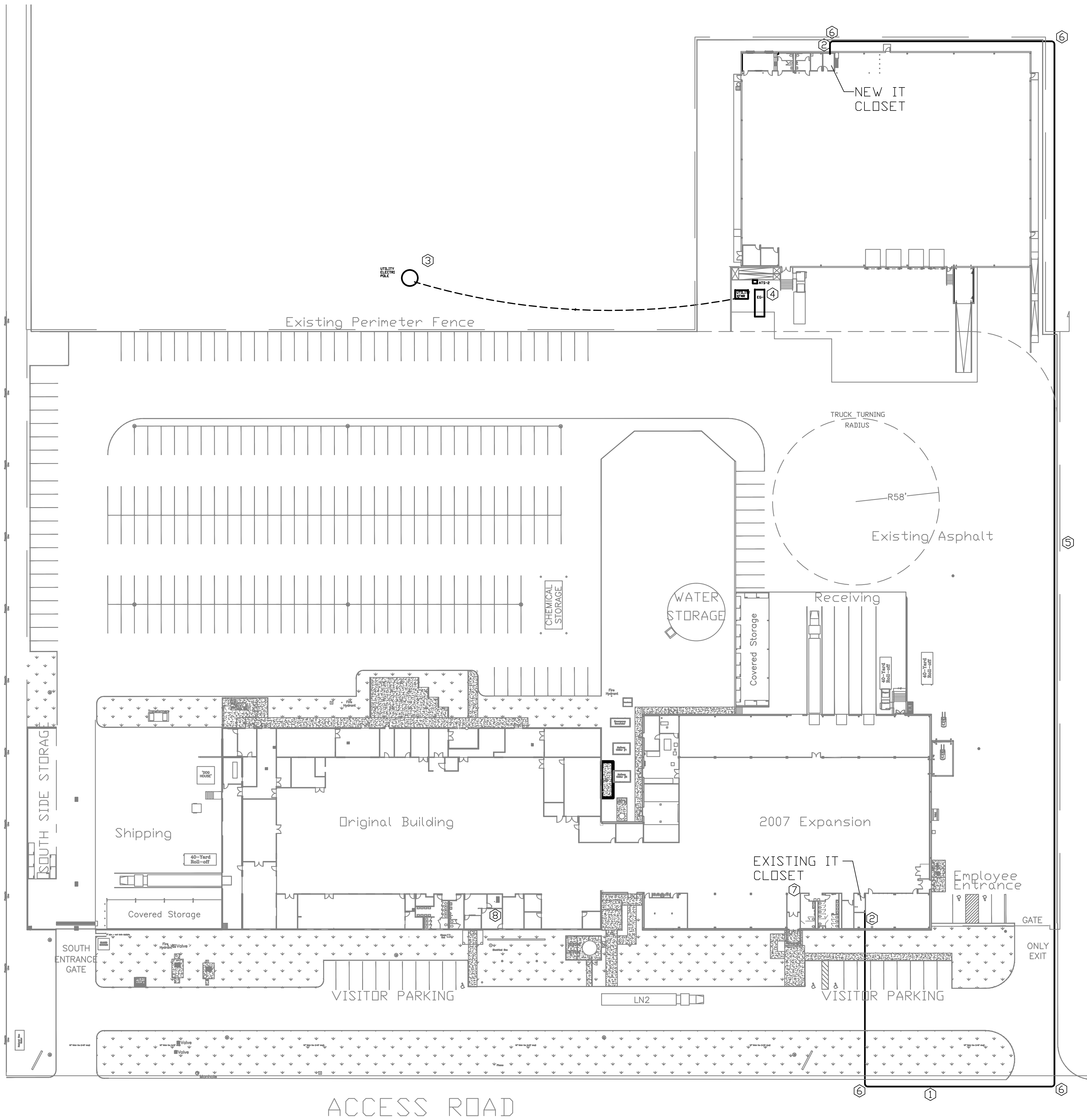
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2 CONDUIT FILL DETAIL
E1.01 SCALE:

CONDUIT FILL

1. SECURITY CABLE (1) 4C SHIELDED
FIRE ALARM CABLE (1) 4C #14 CU ("IN")
P/A CABLE (1) 4C #16GA SHIELDED
BUILDING CONTROL CABLE (1) CAT6
2. FIRE ALARM CABLE (1) 4C #14 CU ("OUT")
SINGLE MODE FIBER 26 STRANDS
MULTI MODE FIBER 24 STRANDS
3. EMPTY SPACE
4. EMPTY SPACE
5. EMPTY SPACE
6. EMPTY SPACE
7. 100 PAIR COPPER.



1 ELECTRICAL SITE PLAN
E1.01 SCALE: 0' 40'

KEY NOTES

1. CONDUIT BETWEEN BUILDINGS TO BE (2) 4" CONDUIT WITH (3) 1 1/4" INTERDUCT CONDUITS IN EACH, AND (1) 2" CONDUIT FOR 100 PAIR COPPER WIRE.
2. BOTH 4" AND 2" CONDUITS TO RISE OUTSIDE BUILDING TO 24" AFF AND EXTEND INTO IT ROOM. TERMINATE IN 8"x8"x4" BOX ON EXTERIOR WALL OF IT ROOM. INDIVIDUAL CABLES TO BE CONTINUED IN INDIVIDUAL CONDUITS AS DESIGNATED. FINAL ROUTE INSIDE EXISTING BUILDING TO BE COORDINATED WITH OWNER'S REPRESENTATIVE PRIOR TO ROUGH-IN. EXISTING ELECTRICAL UTILITY POLE. VERIFY LOCATION ON CIVIL PLAN. PROVIDE UNDERGROUND CONDUITS TO UTILITY TRANSFORMER PER UTILITY REQUIREMENTS.
3. SEE SHEET E3.01 FOR ELECTRICAL THIS AREA.
4. HANDHOLE ACCESS FOR (2) 4" AND (1) 2" CONDUITS MIDWAY ON E/W CONDUIT RUN.
5. ALL CONDUIT (45° & 90°) BENDS TO HAVE LONG SWEEPS INSTALLED.
6. LOCATION OF FIRE ALARM & SECURITY CONNECTION POINT. ROUTE CONDUITS AND CABLES FROM TERMINATION POINT IN IT ROOM.
7. LOCATION OF VIDEO AND P/A CONNECTION POINT. ROUTE CONDUITS AND CABLES FROM TERMINATION POINT IN IT ROOM.
8. LOCATION OF VIDEO AND P/A CONNECTION POINT. ROUTE CONDUITS AND CABLES FROM TERMINATION POINT IN IT ROOM.

FIBER CABLE INSTALLATION NOTES

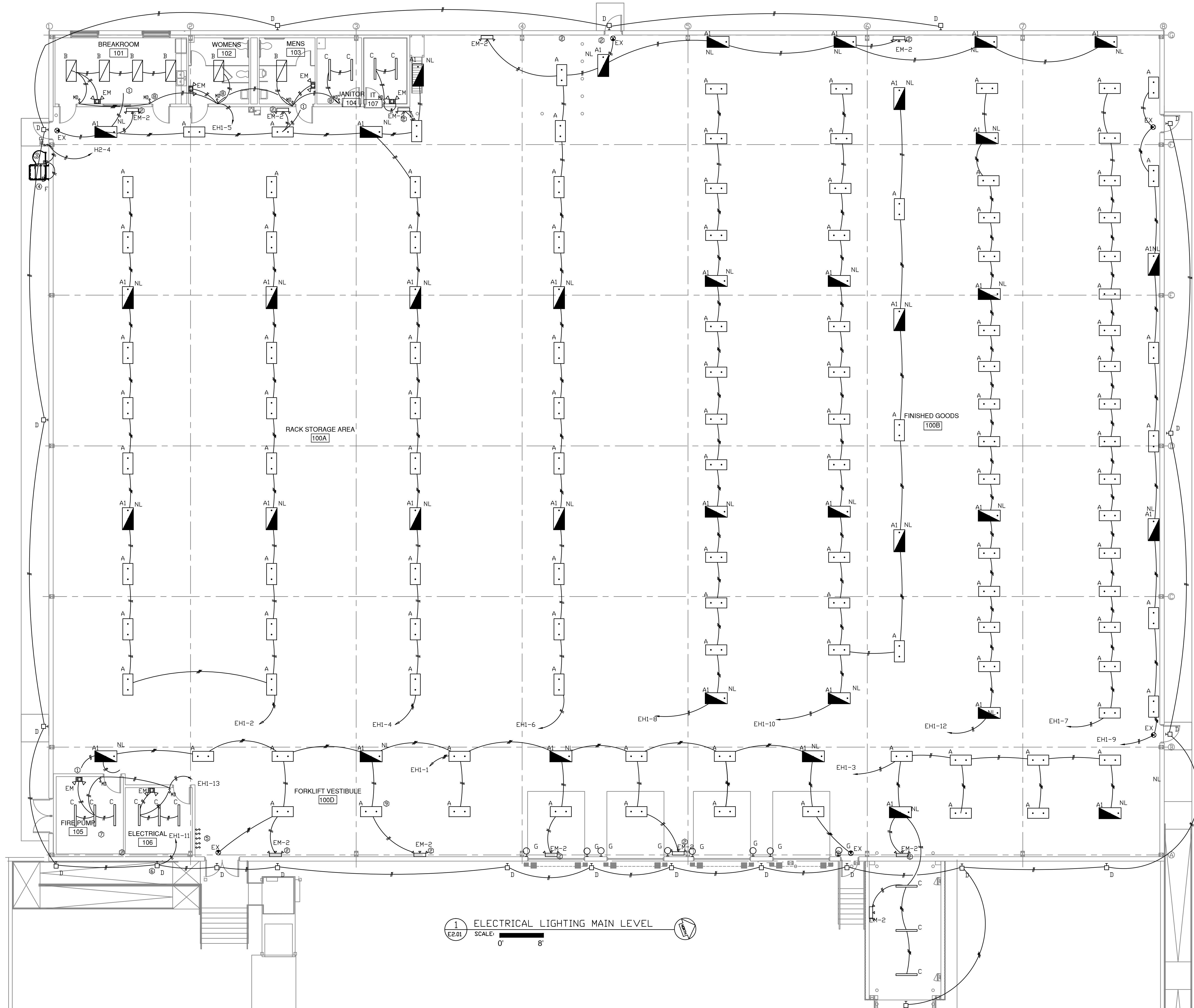
1. THE FIBER FEED CABLE SHALL BE RUN FROM THE NEW WAREHOUSE BUILDING TO THE MAIN BUILDING INTO THE NORTH CLOSET, VIA INTERDUCT IN A NEW 4" CONDUIT CONNECTING BOTH BUILDINGS. THE FIBER WILL BE PULLED IN ONE OF THREE INTERDUCTS THAT WILL BE INSTALLED INTO THE NEW CONDUIT.
2. THE FIBER CABLES SHALL BE INDOOR/OUTDOOR RATED CABLE AND WILL BE TERMINATED IN THE RACK SYSTEM ON BOTH ENDS IN AN LIU FIBER PANEL WITH ANAEROBIC CONNECTORS.
3. THE 36 STRANDS SINGLE MODE FIBER SHALL BE TERMINATED WITH LC SINGLE MODE CONNECTORS ON BOTH ENDS. THE 24 STRANDS MULTI MODE FIBER SHALL BE TERMINATED WITH ST MULTI MODE CONNECTORS ON BOTH ENDS. PROVIDE A SOFT SERVICE LOOP AT BOTH ENDS SECURED WITH A WALL MOUNTED FIBER RING. FROM THE SERVICE LOOP RUN THE FIBER INTO THE RACK MOUNTED LIU AND TERMINATE WITH THE LC CONNECTORS.
4. AFTER TERMINATION IS COMPLETE TEST ALL STRANDS OF FIBER FOR SERVICE.
5. THE COPPER 100 PAIR DIRECT BURIED CABLE SHALL BE TERMINATED IN BOTH CLOSETS WITH AN INDOOR SPLICE CASE TO TRANSITION TO A GAS/CARBON PROTECTOR (SEE MATERIALS LIST) FROM THE TAIL OF THE PROTECTOR TO A NEW 100 PAIR 110 BLOCK THE CABLE WILL BE TERMINATED INTO THE 110 WALL FIELD.

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1 ELECTRICAL LIGHTING MAIN LEVEL
E2.01 SCALE: 0' 8'

KEY NOTES

1. EXTEND CIRCUIT TO FIXTURE OVER MEZZANINE.
2. MOUNT AT 12" AFF OR ABOVE DOOR AS LOW AS POSSIBLE. AIM FIXTURES DOWN AISLE. COORDINATE LOCATION AND AIMING WITH OWNER PRIOR TO INSTALL. AND AT COMMISSIONING.
3. MOUNT FIXTURE TO RAILING AT 8' ABOVE INTERMEDIATE PLATFORM. VERIFY LOCATION WITH OWNER'S REPRESENTATIVE PRIOR TO ROUGH-IN.
4. MOUNT FIXTURE TO RAILING AT 8' ABOVE CENTER PLATFORM AND 4' ABOVE TOP OF TOP RAILING. VERIFY LOCATION WITH OWNER'S REPRESENTATIVE PRIOR TO ROUGH-IN.
5. LIGHT CONTROL SWITCHES FOR OVERHEAD LIGHTS. LIGHTS TO BE COORDINATED WITH WATSTOPPER PANEL TO PROVIDE INDIVIDUAL ZONE CONTROL OF EACH INDIVIDUAL CIRCUIT AND TO CONTROL ALL LIGHTS WITH ONE SWITCH OPERATION.
6. CIRCUIT EXTERIOR LIGHTS THROUGH P/E AND TIME CLOCK. TIME CLOCK TO BE MOUNTED AT NE CORNER OF ELECTRIC ROOM. PHOTO/ELECTRIC MOUNTED AT SE CORNER OF BUILDING ON FIXTURE AS NOTED.
7. FIRE RATED ROOM. SEAL ALL PENETRATIONS PER CODE.
8. INTERLOCK SWITCH WITH CONTROL OF FAN EF-01 SUCH THAT EACH ROOM INDIVIDUALLY CONTROLS THE FAN AND RETAINS POWER TO THE FAN FOR A MINIMUM OF 10 MINUTES AFTER DEACTIVATION OF THE LIGHT.
9. COORDINATE LIGHTS ALONG EAST WALL WITH HVAC EQUIPMENT AND DUCT WORK.

GENERAL NOTES

1. LIGHT FIXTURES ARE ORIENTED TO COORDINATE WITH STORAGE AISLES. CONTRACTOR TO COORDINATE LIGHTS FIXTURES WITH FINAL LAYOUT OF STORAGE AISLES.
2. LIGHTING CONTROL PANEL TO BE INTERLOCKED WITH THE EMERGENCY AUTOMATIC TRANSFER SWITCH SUCH THAT IF THE TRANSFER SWITCH TRANSFERS ALL LIGHTS SHALL BE LOCKED ON.
3. COORDINATE LIGHTING WITH DUCTWORK. DUCTWORK TO BE INSTALLED ADJACENT TO STRUCTURE AS MUCH AS POSSIBLE. TYPICALLY LIGHTING TO BE ADJUSTED TO MISS DUCTWORK.

DAVID A. EYE
NEW MEXICO
17593
REGISTERED ELECTRICAL ENGINEER

JULY 16, 2015

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730 SAN MATEO BLVD. SE STE-1
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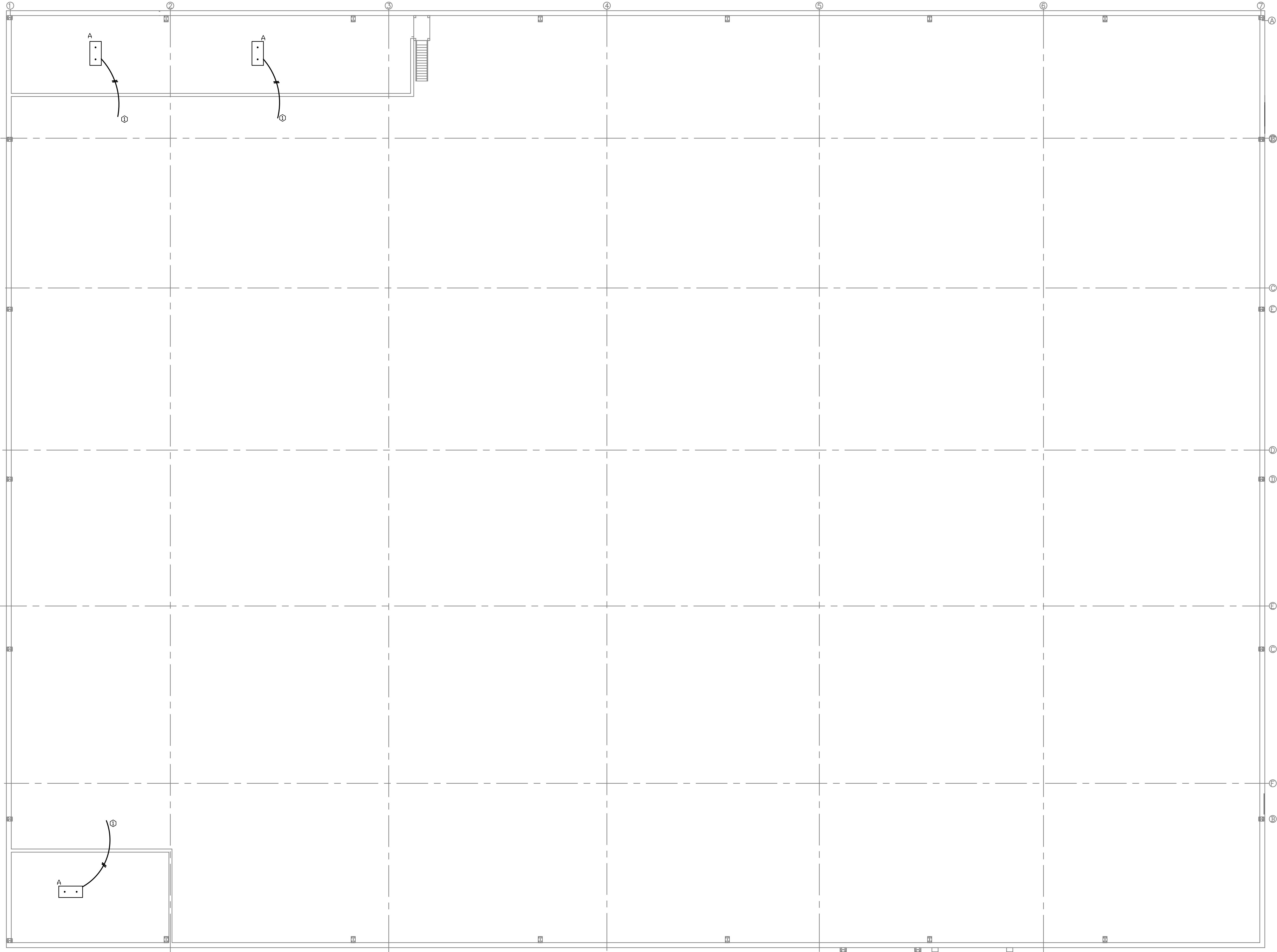
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RAYTHEON WAREHOUSE
10059 HWY 371 SOUTH
FARMINGTON, NM 87401
ELECTRICAL LIGHTING MAIN LEVEL

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E2.01

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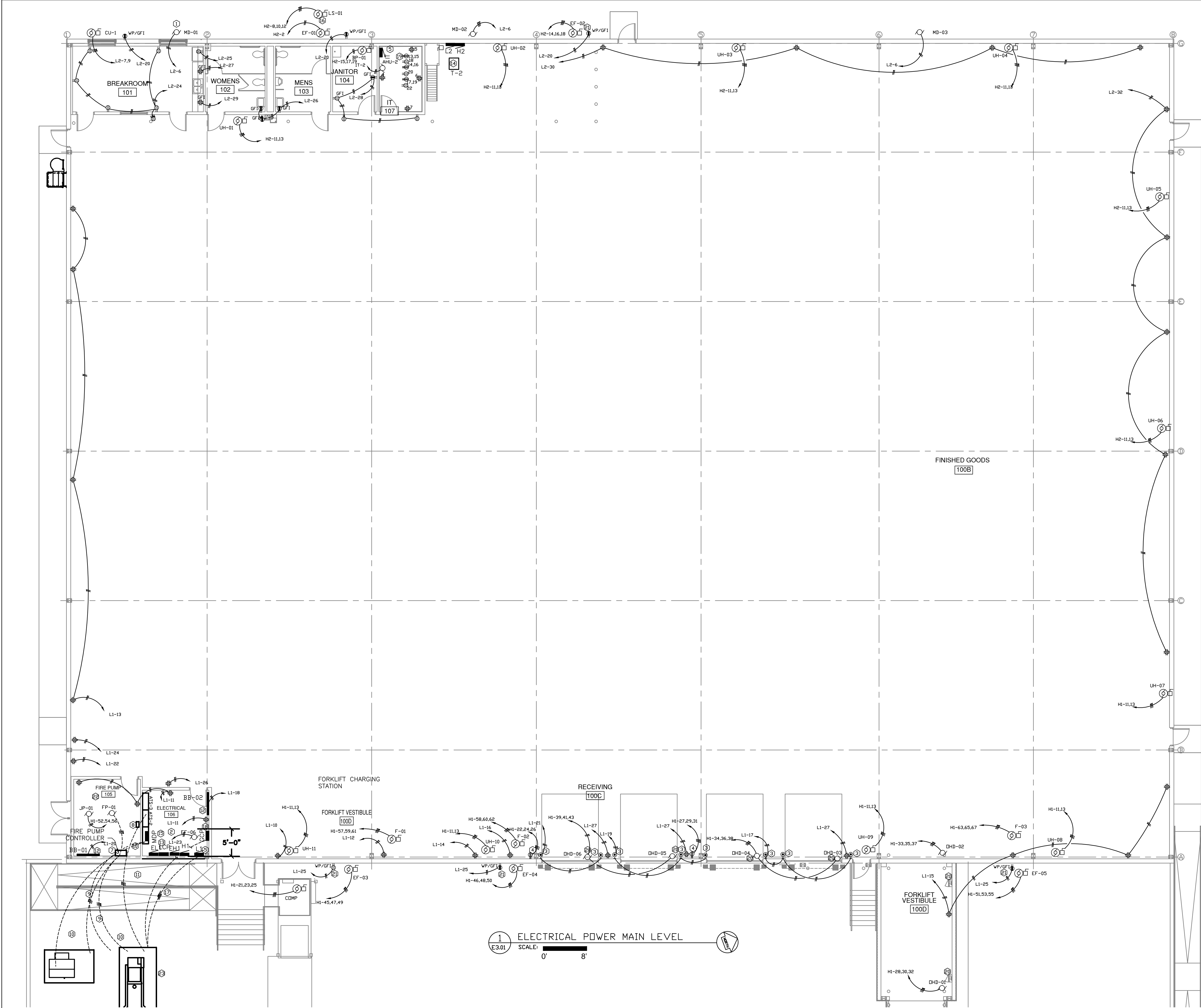
1 ELECTRICAL LIGHTING MEZZANINE LEVELS
SCALE: 0' 8'

KEY NOTES	
1.	EXTEND CIRCUIT FROM LIGHTS. SEE MAIN FLOOR PLAN FOR CIRCUIT EXTENSION.

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1 ELECTRICAL POWER MAIN LEVEL
E3.01 SCALE: 0' 8'

- KEY NOTES
- POWER FEED FROM UTILITY TO INCLUDE 3 POWER FEEDS TO ATS-1, ATS-2 & ATS-1 EACH IN INDIVIDUAL CONDUIT. ALSO 1 1/2" CONDUIT WITH DEDICATED CIRCUITS AS REQUIRED FOR GENERATOR. PROVIDE 1" CONDUIT FOR GENERATOR CONTROL AND INDICATION.
 - TRANSFORMERS ET-1 & T-1 MOUNTED ABOVE ELECTRIC ROOM.
 - RECEPTACLE FOR DOCK LIGHT.
 - ELECTRIC FORK LIFT CHARGING STATION. VERIFY EXACT LOCATION.
 - STORM COPPER SCGB5 (4"x12") GROUND BAR, OR EQUIVALENT, MOUNTED AT 36" AFF. MOUNT TO COLUMN STEEL IN ACCESSIBLE LOCATION. MOUNT 2ND GROUND BAR (AS PER BDM) IN IT ROOM & CONNECT TO GROUND BAR IN ELECTRIC ROOM.
 - COOLING COIL AT CEILING. COORDINATE WITH MECHANICAL CONTRACTOR FOR EXACT LOCATION.
 - FIRE PUMP CONTROLLER.
 - JOCKEY PUMP CONTROLLER
 - 200A FEED TO FIRE PUMP CONTROLLER
 - 600A FEED TO MAIN PANEL
 - 100A FEED TO EMERGENCY TRANSFER SWITCH.
 - BERKO OBD1000-HBBT1 1KW BASE BOARD HEATER. 120V WITH INTERNAL THERMOSTAT.
 - LIGHTING CONTROL PANEL (LCP). WATTSTOPPER LENC245; LMCP24 115/27 7-24HD, WITH LENC245 ENCLOSURE AND LMCT-100 WIRELESS CONFIGURATION TOOL. CIRCUIT LIGHTING CIRCUITS THROUGH LCP TO PANEL EH1. LIGHTING CONTROL PANEL TO BE INTERLOCKED WITH THE EMERGENCY AUTOMATIC TRANSFER SWITCH SUCH THAT IF THE TRANSFER SWITCH TRANSFERS ALL LIGHTS SHALL BE LOCKED ON.
 - MOUNT TRANSFORMER ABOVE PANELS ON WALL BRACKET PER APPLICABLE CODES.
 - INSTALL MDP, ATS-2 & ATS-3 ALONG WALL. INSTALL ON 3" HOUSE CLEANING PAD. MDP TO BE SQ D (OR EQUAL) I-LINE 600A PANEL WITH INTERNAL 160KA SPD.
 - DUAL PUMP. LEAD LAG LIFT STATION BY CIVIL. SEE CIVIL PLANS FOR SPECIFIC LOCATION AND REQUIREMENTS. CONTROL BY CIVIL. COORDINATE WITH CIVIL FOR SPECIFIC REQUIREMENT REGARDING EXPLOSION PROOF WIRING.
 - THREE DEDICATED CIRCUITS TO GENERATOR FOR REQUIRED GENERATOR CIRCUITS.
 - GENERATOR CONTROL CABINET. PROVIDE 1" CONDUIT TO GENERATOR FOR CONTROL WIRES. COORDINATE WITH GENERATOR SUPPLIER. CIRCUIT AS REQUIRED.
 - MOUNTED AT CEILING ABOVE RACK. TYPICAL OF (3) L5-20R & (3) L6-20R.
 - OVERHEAD DOOR CONTROL. PROVIDE CONDUIT FROM OVERHEAD DOOR CONTROLLER LOCATION AS REQUIRED FOR CONTROL OFF DOOR. COORDINATE WITH DOOR PROVIDER.
 - MOUNT EQUIPMENT MAINTENANCE RECEPTACLE HIGH ADJACENT TO EQUIPMENT.
 - FIRE RATED ROOM. SEAL ALL PENETRATIONS PER CODE.
 - GENERATOR SHALL BE SUPPLIED WITH DAY TANK ONLY. NO UNDERGROUND FUEL STORAGE TANK.

- GENERAL NOTES
- UTILITY AND GENERATOR POWER CONDUITS SHALL NOT SHARE A COMMON TRENCH.
 - LIGHTING CONTROL PANEL TO BE INTERLOCKED WITH THE EMERGENCY AUTOMATIC TRANSFER SWITCH SUCH THAT IF THE TRANSFER SWITCH TRANSFERS ALL LIGHTS SHALL BE LOCKED ON.

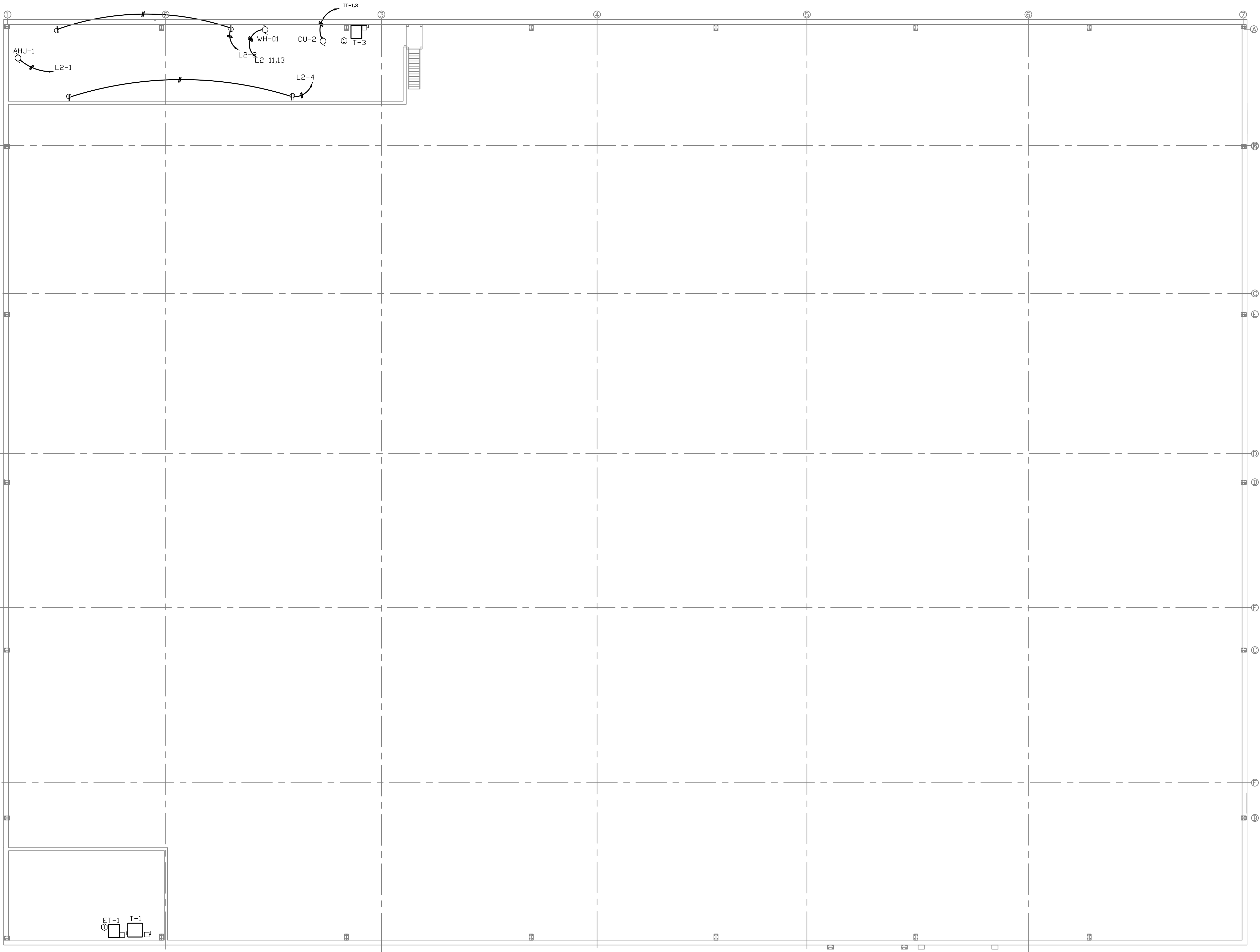
R² ARCHITECTURAL DESIGN
730 SAN MATEO BLVD. SE STE-1
ALBUQUERQUE, NEW MEXICO 87108
TEL: 505.884.9694 FAX: 888.892.5814

NO.	DATE	COMMENTS
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DRAWN BY:	CHECKED BY:	DATE:	SCALE:
		07/16/15	AS SHOWN

RAYTHEON WAREHOUSE
10059 HWY 371 SOUTH
FARMINGTON, NM 87401
ELECTRICAL POWER MAIN LEVEL

7/16/2015 2:19:59 PM



1 ELECTRICAL POWER MEZZANINE LEVELS
E302 SCALE: 0' 8'

KEY NOTES	
1.	INSTALL TO PROVIDE CLEARANCE FOR CONDUITS FROM BELOW TO BE ROUTED UP BEHIND TRANSFORMERS.

DAVID A. EYE
NEW MEXICO
17593
ELECTRICAL ENGINEER

JULY 16, 2015

RAYTHEON WAREHOUSE

10059 HWY 371 SOUTH
FARMINGTON, NM 87401

ELECTRICAL POWER MEZZANINE LEVEL

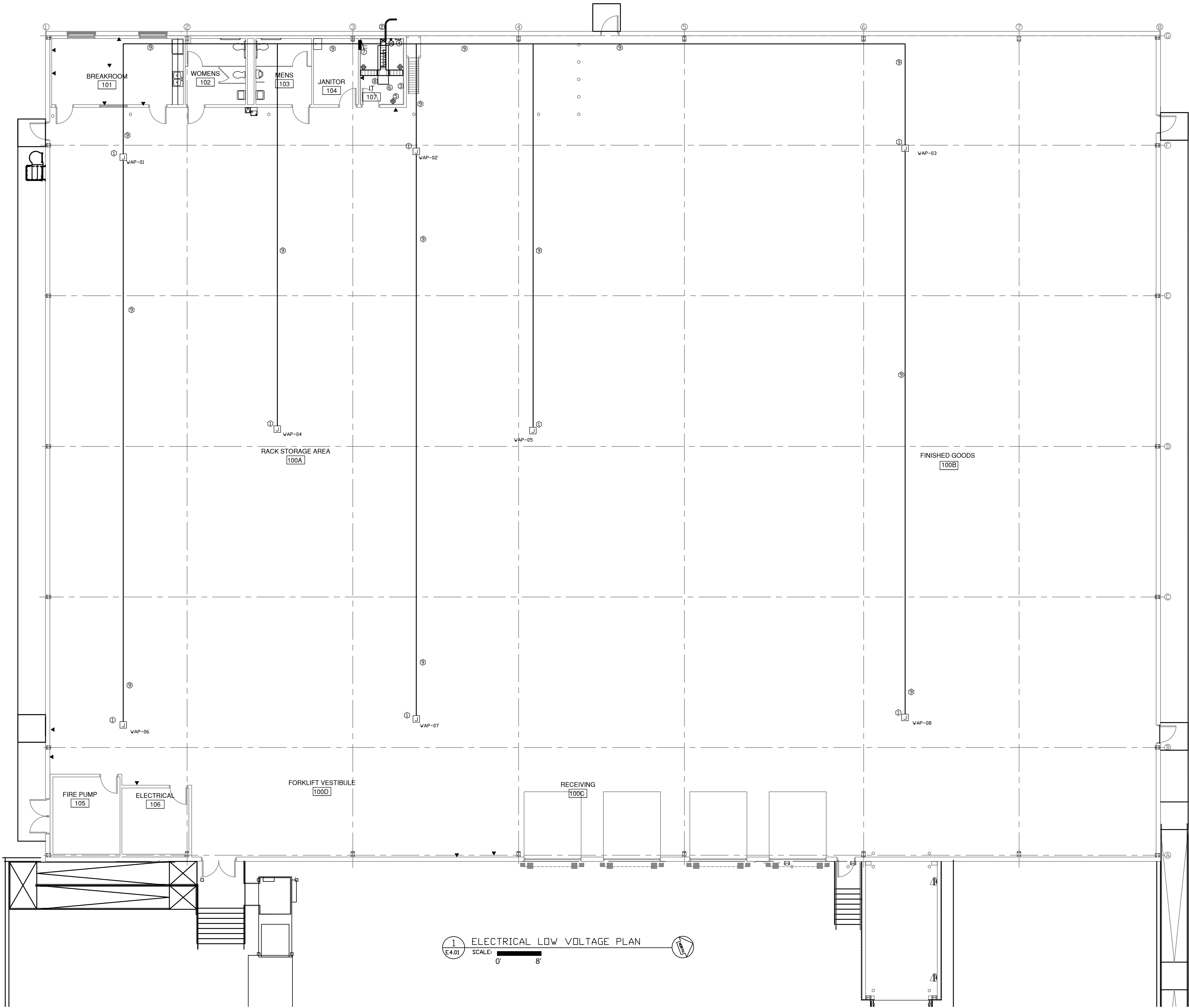
1 of 3 SHEETS
E3.02

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7/16/2015 2:20:04 PM



1 ELECTRICAL LOW VOLTAGE PLAN
E4.01 SCALE: 0' 8'

KEY NOTES

- J-BOX, AT BOTTOM OF STRUCTURE, WITH 3/4" CONDUIT BACK TO COMM ROOM FOR ACCESS. POINTS (AP'S) COORDINATE MOUNTING REQUIREMENTS WITH LOW VOLTAGE CONTRACTOR PRIOR TO ROUGH-IN.
- INTER-BUILDING FIBER/COPPER CABLES. 36 STRANDS SINGLE MODE FIBER, 24 STRANDS MULTI MODE FIBER & 100 PAIR COPPER IN INTERDUCT AND CONDUIT FROM IT ROOM TO IT ROOM IN OTHER BUILDING. 4" CONDUIT WITH (3) 1 1/4" INTERDUCT. FIBER TO BE RUN IN 1 INTERDUCT WITH 2 FOR SPARE. 100 PAIR COPPER TO BE RUN IN SEPARATE 2" CONDUIT. SEE SITE PLAN FOR FURTHER DIRECTION.
- 3/4"X96"H C/D PLYWOOD AROUND ENTIRE PERIMETER OF ROOM.
- STORM COPPER SCGBS (4"X12") GROUND BAR, OR EQUIVALENT AT 36" AFF. TIE TO BUILDING GROUND WITH #2/0 CU CONDUCTOR.
- 4-PLEX RECEPTACLE (5-20R) AT 24" AFF ON DEDICATED CIRCUIT. (TYPICAL OF 4).
- CONDUIT PATH TO MAIN BUILDING. SEE SITE PLAN FOR CONTINUATION.
- IT ROOM ELECTRICAL PANEL FED FROM TRANSFORMER ON MEZZANINE ABOVE. PROVIDE TRANSIENT VOLTAGE SUPPRESSION (TVS) IN PANEL.
- CHATS WORTH 19"X77" RACK. VERIFY ORIENTATION AND LOCATION WITH OWNER'S REPRESENTATIVE. PROVIDE CHATS WORTH 6"X7" CABLE MANAGEMENT. 3/4" C BACK TO IT ROOM. DROP DOWN AT EXTERIOR WALL TO END OVER CABLE TRAY. 100 PAIR COPPER 110 TERMINATION BLOCK. 100 PAIR COPPER FROM MAIN BUILDING TO WAREHOUSE TO BE LAID DOWN IN 110 BLOCK. LABEL BOTH ENDS. 100 PAIR CABLE TO BE TRANSITIONED SPLICED AT BOTH ENDS TO LIGHTNING PROTECTORS AND GROUNDED, THEN TERMINATED TO 10 BLOCKS ON THE WALL.

GENERAL NOTES

- FIBER OPTIC TERMINATION: CABLE WILL BE INDOOR/OUTDOOR RATED CABLE TERMINATED IN THE RACK SYSTEM ON BOTH ENDS IN AN LRU FIBER PANEL. THE CONNECTORS TO BE LC CONNECTORS FOR SINGLE MODE FIBER AND ST CONNECTORS FOR MULTI MODE FIBER ON BOTH ENDS. FIBER CABLES TO HAVE A 50' SERVICE LOOP ON BOTH ENDS MOUNTED IN THE TR/BET ON THE WALLS.
- ALL CAT WIRING IN BUILDING TO BE CAT6. ANY REFERENCES TO CAT5 OR CAT5E SHALL BE IGNORED.
- THE BUILDING CABLING IN THE WAREHOUSE SHALL BE PLENUM CAT6 CABLING. ALL INTERIOR CABLING WILL BE TESTED WITH A TESTER CAPABLE OF PRODUCING CAT6 TEST RESULTS. CERTIFICATION. THESE CABLES WILL BE TERMINATED AT A STATION LOCATION TO THE TR IN A RACK TO A PATCH PANEL. LABELING WILL BE AS FOLLOWS AT THE STATION LOCATION ON A BRADY STYLE LABEL IT SHOULD LOOK AS FOLLOWS: TR LOCATION COLUMN LOCATION B3/1 ONE BEING THE STATION NUMBER. IN THE CLOSET THE PATCH PANEL WILL BE LABELED WITH THE STATION NUMBER ONLY AS FOLLOWS: 1-3 NEXT 1-4, IF TWO CABLES ARE PULLED TO EACH STATION LOCATION.
- IN THE NEW IT ROOM THE RACK AND THE LADDER RACK SYSTEM SHALL BE GROUNDED TO THE BUILDING GROUND LOCATED ON THE WEST ALL INSIDE THE IT ROOM. ALL CABLING WILL MEET BICSI STANDARDS FOR CAT6 CABLING.
- CABLE COLORING TO BE ORANGE FOR WAP UNITS AND PURPLE FOR WALL OUTLETS. ALL PATCHCORDS TO MATCH COLOR OF USAGE.
- CONTRACTOR TO PROVIDE (1) 7" PATCH CORD FOR EACH TERMINATION IN PATCH PANEL MATCH TO USAGE OF THAT TERMINATION POINT.

DAVID A. EYE
NEW MEXICO
17593
REGISTERED ELECTRICAL ENGINEER

JULY 16, 2015

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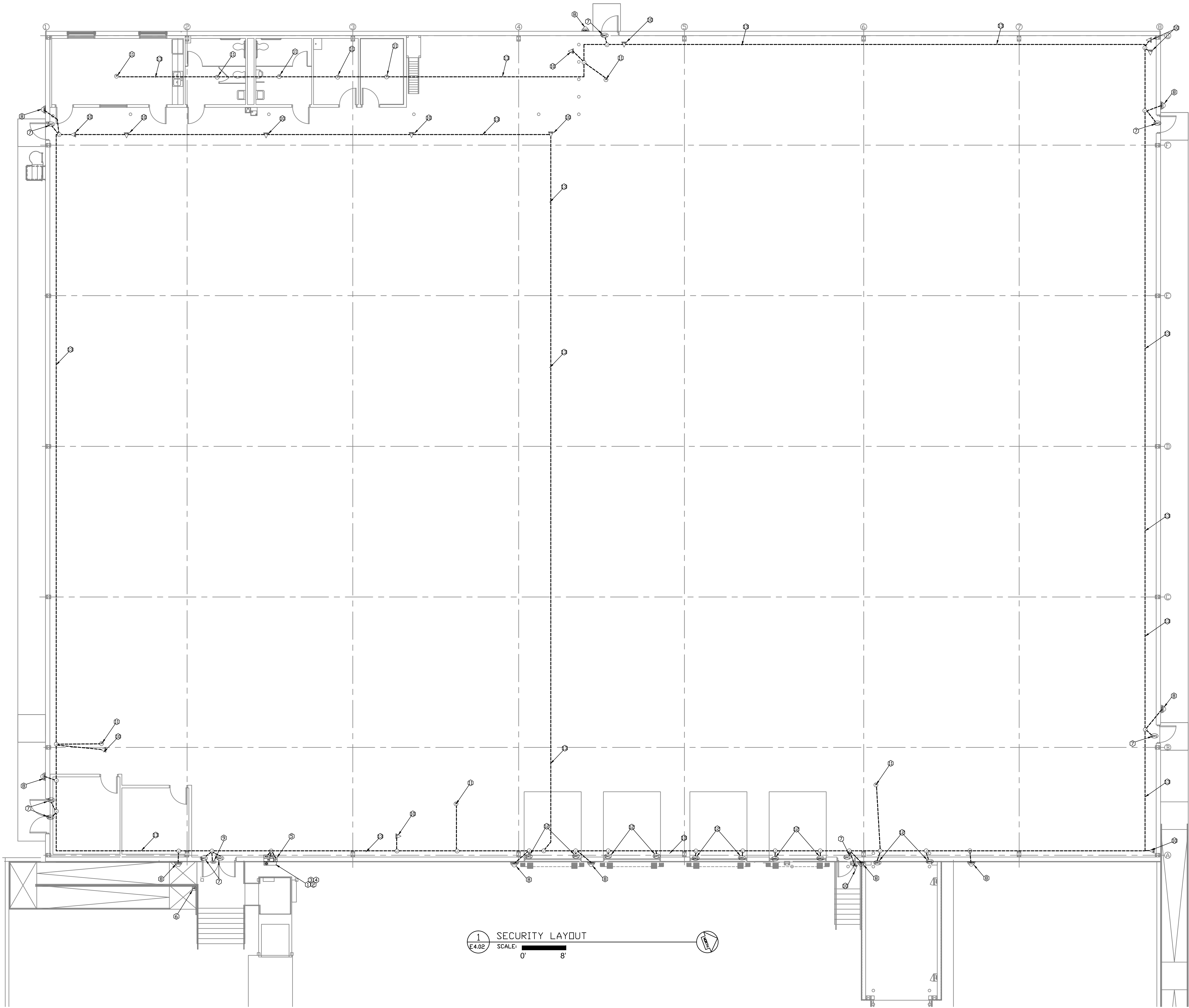
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		07/16/15	AS SHOWN

RAYTHEON WAREHOUSE
10059 HWY 371 SOUTH
FARMINGTON, NM 87401

ELECTRICAL LOW VOLTAGE PLAN


SHEET-
E4.01

7/16/2015 2:20:09 PM



1 SECURITY LAYOUT
E4.02 SCALE: 0' 8'

- KEY NOTES
- PROVIDE & INSTALL 3'X8'X8" GUTTER WITH RECEPTACLE.
 - PROVIDE & INSTALL HIRSCH M8 PANEL.
 - PROVIDE & INSTALL HIRSCH M16 PANEL.
 - PROVIDE & INSTALL 12VDC POWER SUPPLY FOR MOTIONS.
 - PROVIDE & INSTALL HIRSCH DS47 KEYPAD.
 - PROVIDE & INSTALL HIRSCH PROX READER.
 - PROVIDE & INSTALL DOOR CONTACT.
 - PROVIDE & INSTALL DOME TYPE IP CAMERA.
 - PROVIDE & INSTALL ELECTRIC DOOR STRIKE. FIELD VERIFY MODEL.
 - PROVIDE & INSTALL DIRECTIONAL LONG RANGE MOTION.
 - PROVIDE & INSTALL 360° MOTION.
 - PROVIDE & INSTALL ROLL UP DOOR CONTACT.
 - PROVIDE & INSTALL 1 1/2" CONDUIT FOR SECURITY.



JULY 16, 2015

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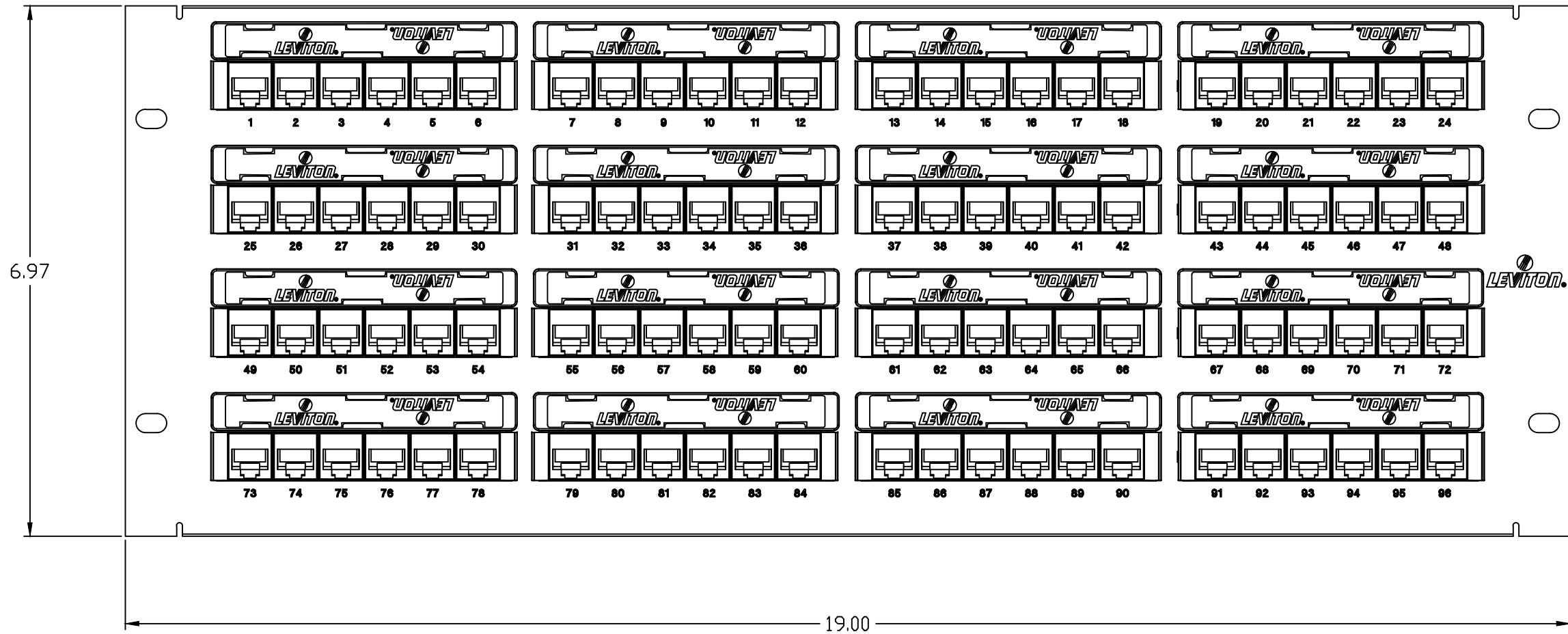
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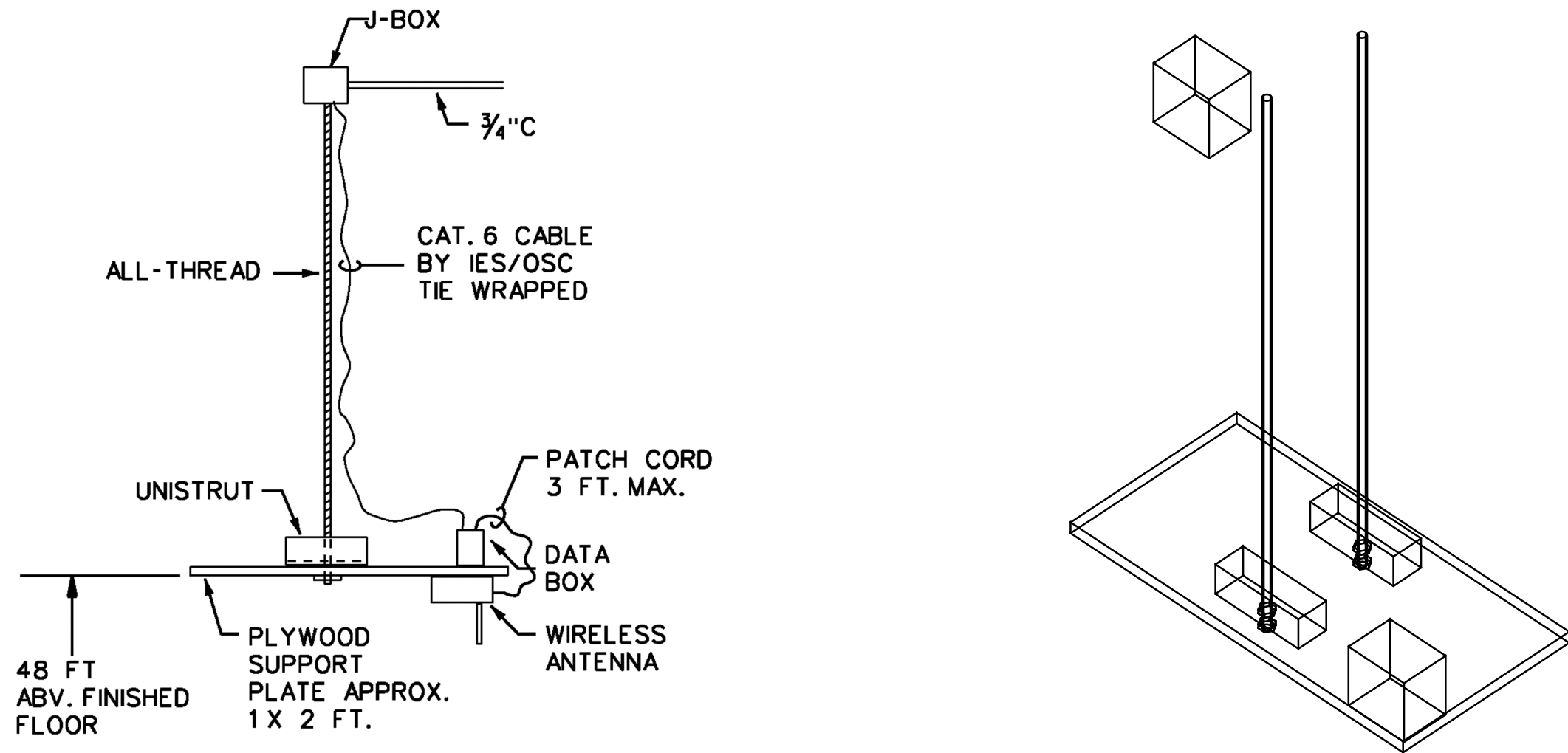
RAYTHEON WAREHOUSE
10059 HWY 371 SOUTH
FARMINGTON, NM 87401
ELECTRICAL SECURITY PLAN

4th SHEET
E4.02



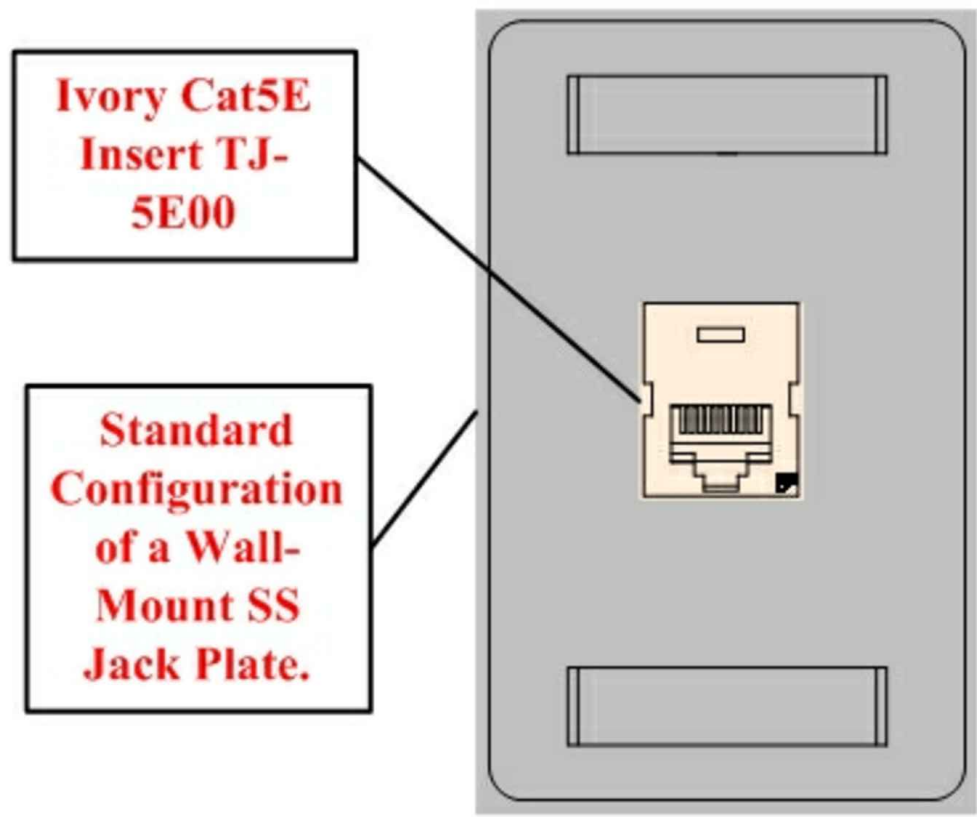
3 WIRELESS ACCESS POINT MOUNT ISOMETRIC
E4.03 SCALE: NTS

- ACCESS POINT GENERAL NOTES
1. ACCESS POINT: 1'X2'X.75" PLAYWOOD PLATFORM WITH SANDED EDGES AND PAINTED BEIGE COLOR. MOUNT ON TWO 1/2" X36" ALL-THREAD RODS WITH NUT AND WASHER TOP AND BOTTOM. MOUNT TO CEILING STRUCTURE. MOUNT TO PLYWOOD WITH 6"X2" C-CHANNEL UNISTRUT. MAINTAIN MINIMUM PROTRUSION FROM BOTTOM OF PLYWOOD.
 2. PROVIDE 4"X4"X3" J-BOX MOUNTED (WITH SIDE OPENING) TO TOP AT CORNER WITH 3/4" CONDUIT TO J-BOX MOUNTED AT CEILING.
 3. CAT6 CABLE FROM WAP TO IT RACK SHALL RUN THROUGH J-BOX AT CEILING AND NOT BE TERMINATED IN THAT J-BOX. CAT6 AT J-BOX ON PLYWOOD TO BE TERMINATED AS A TYPICAL WALL OUTLET WITH SINGLE RJ-45 RECEPTACLE. CAT6 CABLE AND PATCH CORD TO BE ORANGE. PATCH CORD TO BE 1' LENGTH OR AS REQUIRED. CONTRACTOR TO MOUNT WAP UNIT AND ATTACH ALL CABLES.
 4. CAT6 FROM MOUNTING PLATE TO CEILING J-BOX SHALL BE IN FLEXIBLE CONDUIT.

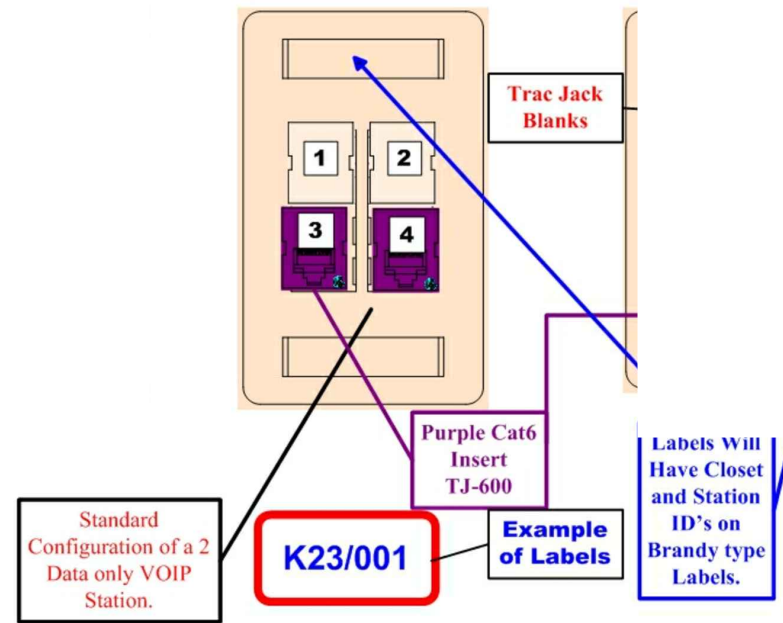


5 WIRELESS ACCESS POINT MOUNT ELEVATION
E4.03 SCALE: NTS

4 WIRELESS ACCESS POINT MOUNT ISOMETRIC
E4.03 SCALE: NTS



2 TELEPHONE WALL PLATE LAYOUT
E4.03 SCALE: NTS



1 CAT6 WALL PLATE LAYOUT
E4.03 SCALE: NTS

KEY NOTES

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12. CONDUIT PATH TO MAIN BUILDING. SEE SITE PLAN FOR CONTINUATION.
13. IT ROOM ELECTRICAL PANEL FED FROM TRANSFORMER ON MEZZANINE ABOVE. PROVIDE TRANSIENT VOLTAGE SUPPRESSION (TVS) IN PANEL.
14. CHATSWORTH 19"X7T RACK. VERIFY ORIENTATION AND LOCATION WITH OWNER'S REPRESENTATIVE. PROVIDE CHATSWORTH 6"X7' CABLE MANAGEMENT. 3/4"C BACK TO IT ROOM. DROP DOWN AT EXTERIOR WALL TO END OVER CABLE TRAY.
15. 100 PAIR COPPER 110 TERMINATION BLOCK. 100 PAIR COPPER FROM MAIN BUILDING TO WAREHOUSE TO BE LAID DOWN ON 110 BLOCK. LABEL BOTH ENDS. 100 PAIR CABLE TO BE TRANSITIONED SPLICED AT BOTH ENDS TO LIGHTNING PROTECTORS AND GROUNDED, THEN TERMINATED TO 10 BLOCKS ON THE WALL.,

GENERAL NOTES

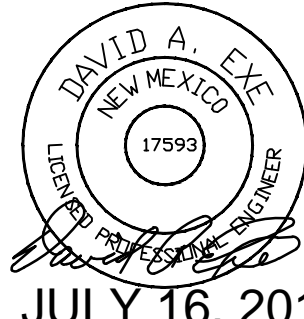
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6. CONTRACTOR TO PROVIDE (1) 7' PATCH CORD FOR EACH TERMINATION IN PATCH PANEL MATCH TO USAGE OF THAT TERMINATION POINT.

	Berk-Tek	10047419		WHITE CAT5E SHIELDED 24 AWG UTP CMP 4 PAIR CABLE
	ORTRONICS	OR-615SMFC-12P		WALL-MOUNTABLE DISTRIBUTION CENTER, holds 2 panels
	ORTRONICS	OFF-ST506NB		CONNECTOR PANEL W/6 ST MULTIMODE ADAPTERS
	ORTRONICS	OFF-SCD06AC		CONNECTOR PANEL W/3 SC DUPLEX SINGLEMODE ADAPTERS
	PANDUIT	C2OR6		FIBER-DUCT - COVER - ORANGE
	PANDUIT	S2X2OR6NM		FIBER-DUCT - BACK - ORANGE
	PANDUIT	FRA2X2OR		FIBER-DUCT 90 DEG - ORANGE
	PANDUIT	FT2X2OR		FIBER-DUCT "T" - ORANGE
	PANDUIT	HLS-15RO		HOOK AND LOOP TIES - 15' ROLL, BLACK
	PANDUIT	FITF2X2		INNERDUCT TRANSITION FITTING
	PANDUIT	T50F-C		1/2" SPIRAL WRAP - CLEAR
	TRIPPLITE	IBAR12/20ULTRA		20A SURGE SUPPRESSOR
			n/a	#6 AWG STRANDED GROUNDING WIRE - GREEN
@				TBD by Contractor
***	***	***		MAXIMUM ESTIMATED CABLE PULLS IS XXX DOUBLES/ SINGLES

	****	****		CAT5 E Horizontal cables may be used from the following manufacturers:
****				(in alphabetical order) BELDEN, HITACHI, OR MOHAWK/CDT
				STATE THE MANUFACTURER AND MODEL OF CABLE IN YOUR BID.
*	**	**		Provide these materials to the NES engineer.
				WDC will be supplied by CSC.
****	****	****		Miscellaneous parts, labels and consumables necessary to complete the work in
				a professional manner shall be provided by the bidder.

Qty.	MFG.	PART #		DESCRIPTIONS/MATERIALS
50ft	N/A	N/A		25 PAIR CATEGORY 5 CABLE M-F PVC - CAT 3, 20 FT LENGTH
	ORTRONICS	OR-PCU575		.5 TO .75 CLAMP
@	ORTRONICS	OR-OFF-SCS06AC		SC COUPLING PANEL - 1000SC
@	ORTRONICS	OR-205KAN9FA-SM		SM FIBER CONNECTORS - SC
@	ORTRONICS	OR-OFF-SCS06MB		SC SIMPLEX ADAPTER - C6000A-4
	N/A	N/A		1000C ADAPTER PLATE
	N/A	N/A		ST COUPLING PANEL - 1000ST
	N/A	N/A		N/A
	ORTRONICS	OR-205KAN9EA-MM		MM FIBER CONNECTORS - ST
	ORTRONICS	OR-FC02U-C		OPTIMO FC SERIES Fiber Patch and Splice
	ORTRONICS	OR-70700107-00		HORIZONTAL WIRE MANAGEMENT Cable management Straps
	N/A	N/A		MULTIMAX PATCH PANEL
	Circa	1880ENA1/NSC-25G		BUILDING ENTRANCE TERMINAL 25-PAIR - 110 TO 110 CONNECTORS (PROTECTOR)
2	Circa	416016C25A25		BUILDING ENTRANCE TERMINAL 1900A1-100 100-pair Stub in - Stub out
	ORTRONICS	OR-60400010		ONE MOUNTING HOLE GROUND TERMINAL BLOCK
@	ORTRONICS	OR-TRT10-12B		UNIVERSAL CABLE RUNWAY - 12"
@	ORTRONICS	OR-TRT10-18B		UNIVERSAL CABLE RUNWAY - 18"
@	ORTRONICS	OR-TRT10-24B		UNIVERSAL CABLE RUNWAY - 24"
@	CPI	10487-001		BUTT SWIVEL SPLICE KIT
@	CPI	10488-001		JUNCTION SWIVEL SPLICE KIT
@	CPI	10489-001		VERTICAL SWIVEL SPLICE KIT
@	ORTRONICS	OR-JP0612B		3 "RACK TO RUNWAY MOUNTING PLATE - 12"
@	ORTRONICS	OR-JP1218B		3" RACK TO RUNWAY MOUNTING PLATE - 18"
@	ORTRONICS	OR-GBH19KIT		RACK-MOUNT GROUND BAR
@	ORTRONICS	OR-GBX4X12TMGB		WALL MOUNT BUS BAR KIT - 20"x4"
	ORTRONICS	OR-2-E1-25C-A		CABLE RUNWAY PROTECTIVE END CAP
	ORTRONICS	OR-60400405		SMALL PERIPHERAL SHELF
	ORTRONICS	OR-P820127H		BUTT-SPLICE KIT
	ORTRONICS	OR-P820147H		JUNCTION-SPLICE KIT
	ORTRONICS	OR-604044938		SLIDING EQUIPMENT SHELF
@	ORTRONICS	OR-P128240HB		WALL ANGLE SUPPORT KIT, CABLE RUNWAY - 12"
	ORTRONICS	OR-P128440HB		WALL ANGLE SUPPORT KIT, CABLE RUNWAY - 18"
	ORTRONICS	OR-P128640HB		WALL ANGLE SUPPORT KIT, CABLE RUNWAY - 24"
2	ORTRONICS	OR-808004818		LARGE HORIZONTAL RING PANEL
	ORTRONICS	OR-604004396		FLUSH MOUNTED WALL BRACKET - 19"
	ORTRONICS	OR-DVMS706		DOUBLE-SIDED WIDE VERTICAL RACK CABLE SECTION
1	CPI	12061-001		GROUNDING KIT CABLE RUNWAY
1	ORTRONICS	OR-TRP17-CM		CABLE RUNWAY RADIUS DROP - GRAY, 11"
	ORTRONICS	The DVNS706	COMES W. A COVER	CABLING SECTION COVER - 6" WIDE X 7" HIGH - BLACK PLEX
1	ORTRONICS	OR-JP1824B		3" RACK TO RUNWAY MOUNTING PLATE - 24"
	CPI	12460-107		MEGAFRAME VERTICAL MOUNTING RAILS
	CPI	12465-507		MEGAFRAME VERTICAL CABLING RING SECTION
	CPI	12480-701		MEGAFRAME FAN KIT
	CPI	13761-107		MEGAFRAME CABINET 19"X30"X7" - GRAY
	CPI	13771-107		MEGAFRAME CABINET 19"X30"X7" - GRAY - WITHOUT SIDE PANELS
	CPI	QDRA-RK7X19X29 STD BLK		QDRA-RK7X19X29 STD BLK
	ORTRONICS	OR-DVMS704		3.65" WIDE DOUBLE-SIDED MASTER CABLING SECTION
2	ORTRONICS	OR-DVMS706		6" WIDE DOUBLE-SIDED MASTER CABLING SECTION
	ORTRONICS	OR-DVMS806 (8FT)		10" WIDE DOUBLE-SIDED MASTER CABLING SECTION

	ORTRONICS	OR-60400131		SINGLE SIDED UNIVERSIAL HORIZONTAL CABLE MANAGER
	ORTRONICS	OR-TRT10-18B		ALTERNATE SPACE CABLE RUNWAY - 18"
	CPI	40108-519		DOUBLE-SIDED SHELF
	CPI	40158-020		BICSI & ANSI/EIA/TIA GROUNDING BUSBAR 20" TMGB PATTERN WITH LUG NUTS
1	ORTRONICS	OR-60400533		BAG OF 50 #12-24 SCREWS
1	ORTRONICS	OR-19-84-T2SDB		19" X 7" ENHANCED RACK - CLEAR
	ORTRONICS	OR-19-35-T18DB		UNIVERSAL SWING GATE RACK - 18" DEEP
2	LEVITON	48900-OFR		RECLOSEABLE STORAGE RING, OUTSIDE PLANT (24" diameter)
	LEVITON	48900-IFR		RECLOSEABLE STORAGE RING, OUTSIDE PLANT (12" diameter)
2	ORTRONICS	OR-110DBC6300		110AW 1-300 PAIR BLOCK WITH STAND-OFF
2	ORTRONICS	OR-70400271		DESIGNATION STRIPS
1	ORTRONICS	OR-70400680		CLEAR DESIGNATION COVERS
@	ORTRONICS	OR-30200109		110 C-4 CONNECTING BLOCK
@	ORTRONICS	OR-30200110		110 C-5 CONNECTING BLOCK
2	ORTRONICS	OR-60400020		CABLE MANAGEMENT BRACKET WALL MOUNT
	ORTRONICS	OR-40300185-99		SURFACE BOX MOUNTING PLATE
	ORTRONICS	OR-40300185-99		SURFACE MOUNT BOX
	ORTRONICS	OR-TJ5E00-99		CAT5E (IVORY) 568B TRAC JACK
	ORTRONICS	OR-TJ5E00-45		CAT5E (Green) 568B TRAC JACK
@	ORTRONICS	OR-TJ600-27		CAT6 (PURPLE) 568B TRAC JACK
@	ORTRONICS	OR-40300545-99		FOUR PORT FACE PLATE
	ORTRONICS	OR-40300633-00		FOUR PORT FURNITURE FACE PLATE (BLACK)
	ORTRONICS	OR-40300545-99		SIX PORT FACE PLATE
@	ORTRONICS	OR-42100002-99		DUST COVER (IVORY)
	ORTRONICS	OR-403STJ1WP		STAINLESS STEEL WALL PLATE CAT5E
	ORTRONICS	OR-PMP612H		WALL MOUNT 12 PORT PATCH PANEL CAT6
	ORTRONICS	OR-MC803-27		CLARITY CAT 6 MODULAR PATCH CORD 3' PURPLE
	ORTRONICS	OR-MC805-27		CLARITY CAT 6 MODULAR PATCH CORD 5' PURPLE
35	ORTRONICS	OR-MC807-27		CLARITY CAT 6 MODULAR PATCH CORD 7' PURPLE
	ORTRONICS	OR-MC809-27		CLARITY CAT 6 MODULAR PATCH CORD 9' PURPLE
	ORTRONICS	OR-MC815-27		CLARITY CAT 6 MODULAR PATCH CORD 15' PURPLE
	ORTRONICS	OR-MC825-27		CLARITY CAT 6 MODULAR PATCH CORD 25' PURPLE
35	ORTRONICS	OR-MC610-00		CLARITY CAT6 MOD CORD 10' BLACK
	ORTRONICS	OR-836GTP8003DE-05		CAT 5E MOD CORD 3' GREEN
	ORTRONICS	OR-836GTP8005DE-05		CAT 5E MOD CORD 5' GREEN
	ORTRONICS	OR-836GTP8007DE-05		CAT 5E MOD CORD 7' GREEN
	ORTRONICS	OR-836GTP8009DE-05		CAT 5E MOD CORD 9' GREEN
	ORTRONICS	OR-836GTP8009DE-00		CAT 5E MOD CORD 9' BLACK
	ORTRONICS	OR-836GTP80015DE-05		CAT 5E MOD CORD 15' GREEN
	ORTRONICS	OR-836GTP80020DE-05		CAT 5E MOD CORD 20' GREEN
	ORTRONICS	OR-808004410		CABLE MANAGER - 4 HORIZONTAL & 4 VERTICAL RINGS W/ROUTING CLIPS
	ORTRONICS	OR-808004759		CABLE MANAGER - 5 PLASTIC DISTRIBUTION RINGS (1 RU)
	ORTRONICS	OR-PHA66U24		ANGLED CLARITY 6 MODULAR TO 110 PATCH PANEL - 24-PORT
	ORTRONICS	OR-PHA66U48		ANGLED CLARITY 6 MODULAR TO 110 PATCH PANEL - 48-PORT
@	ORTRONICS	OR-PHD66U48		48 PORT HIGH DENSITY T568B CLARITY MODULAR TO 110 PATCH PANEL
	ORTRONICS	OR-PHD66U24		24 PORT HIGH DENSITY T568B CLARITY MODULAR TO 110 PATCH PANEL
	ORTRONICS	OR-808000010		FINGER DUCT CABLE MANAGEMENT PANEL 1.5" H X 1.5" D
	ORTRONICS	OR-808044549		FINGER DUCT CABLE MANAGEMENT PANEL 3" H X 3" D
	ORTRONICS	OR-PMP612H		CLARITY 6 MODULAR TO 110 MINI (66 BLOCK) PATCH PANEL 12-PORT HINGED
	Berk-Tek	10032224		PINK CAT5E (HYPER-PLUS) 24 AWG UTP CMP 4 PAIR CABLE
	Berk-Tek	10032232		GREEN CAT5E (HYPER-PLUS) 24 AWG UTP CMP 4 PAIR CABLE
@	Berk-Tek	10083461		PURPLE CAT6 LANMARK 1000 24 AWG UTP CMP 4 PAIR CABLE



R² ARCHITECTURAL DESIGN
730 SAN MATEO BLVD. SE STE-1
ALBUQUERQUE, NEW MEXICO 87108
TEL: 505.884.9694 FAX: 888.892.5814

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DRAWN BY:	CHECKED BY:	DATE:	SCALE:
		07/16/15	AS SHOWN

RAYTHEON WAREHOUSE
10059 HWY 371 SOUTH
FARMINGTON, NM 87401
BILL OF MATERIAL FOR IT INSTALLATION

MEZZANINE LEVEL ELECTRICAL TRANSFORMER SCHEDULE																	
TAG	PRIMARY							SECONDARY							GND ELECT COND		Notes
	KVA	FLA	PROTECTION	VOLTAGE	WIRE SIZE		CONDUIT SIZE	FLA	PROTECTION	VOLTAGE	WIRE SIZE			CONDUIT SIZE	WIRE SIZE	CONDUIT SIZE	
					PHASE	GROUND					PHASE	NEUTRAL	GROUND		GROUND		
ET-1	45	54.0	60A	480/3/60	#6	#8	1"	125.0	100A	208/3/60	#3	#3	#8	1 1/4"	#8	3/4"	
T-1	75	90.0	100A	480/3/60	#3	#8	1 1/4"	200.0	200A	208/3/60	#3/0	#3/0	#6	2"	#4	3/4"	
T-3	45	54.0	60A	480/3/60	#6	#8	1"	125.0	100A	208/3/60	#3	#3	#8	1 1/4"	#8	3/4"	

MAIN LEVEL ELECTRICAL TRANSFORMER SCHEDULE																	
TAG	PRIMARY								SECONDARY						GND ELECT COND		NOTES
	KVA	CURRENT RATING	PROTECTION	VOLTAGE	WIRE SIZE		CONDUIT SIZE	CURRENT RATING	PROTECTION	VOLTAGE	WIRE SIZE			CONDUIT SIZE	WIRE SIZE	CONDUIT SIZE	
		FLA			PHASE	GROUND		FLA			PHASE	NEUTRAL	GROUND		GROUND		
T-2	45	54.0	60	480/3/60	#6	#8	1"	125.0	100A	208/3/60	#3	#3	#8	1 1/4"	#8	3/4"	

MEZZANINE LEVEL ELECTRICAL MECHANICAL EQUIPMENT SCHEDULE																
ID	KEY	ELECTRICAL DATA		LOCATION	BASIS OF DESIGN				FED FROM	CKT #	LOAD	DISC	CONTROL	REMARKS	NOTES	
		MOCP AMPS	VOLTAGE		MANUFACTURER	MODEL #	DESCRIPTION	CONDUIT & WIRE SIZE								
AHU-1	⌘	20	120/1/60	MEZZANINE	BRYANT	986TA30040F	FURNACE	3/4"C, (2) #12 THHN	L2	1	1500	YES	OTHERS			
CU-2	⌘	0	208/1/60	MEZZANINE	MITSUBISHI	PUY-A12NHA	CONDENSING UNIT	3/4"C,(2) #10 THHN	IT	1,3	2200	YES	OTHERS			
WH-01	⌘	30	208/1/60	MEZZANINE	AO SMITH	PNT-40	WATER HEATER	3/4"C, (2) #10 THHN	L2	11,13	4500	YES	OTHERS			

MAIN LEVEL LIGHT FIXTURE SCHEDULE											
QTY	KEY	ID	DESCRIPTION	ELECTRICAL DATA		LAMP DATA		BASIS OF DESIGN		REMARKS	NOTES
				VOLTAMP	VOLTAGE	QTY	WATT	MANUFACTURER	CATALOG #		
115		A	2X4 6 STRING LED PENDANT	240	277	6	40	COLUMBIA	LLHV-4-40-H-NST-E-U		3
37		A1	2X4 6 STRING LED PENDANT	240	277	6	40	COLUMBIA	LLHV-4-40-H-NST-E-U	NIGHT LIGHT	2,3
6		B	2X4 LAY IN TROFFER	100	277	3	32	COLUMBIA	LJT24-40-HL-G-FS-A12-E-U		
9		C	6X48 PENDANT	65	277	2	32	COLUMBIA	KL4-232-ST-EP-U		
21		D	WALL PACK	80	277	1	80	TRACTLITE	TLED-NFL-79		
6		EM	EMERGENCY LIGHT	10	277	2	5	ASTRALITE	DCA-100-10-W-SD		
11		EM-2	3 HEAD EMERGENCY LIGHT	30	277	3	10	ASTRALITE	EUNY-50-3-12VDC-B-SD		
5		EX	UNIVERSAL EXIT LIGHT	5	277	1	5	ASTRALITE	CA-2C-R-W-W		
2		F	STANCHION MOUNT	14	277	1	14	BARRON LIGHTING GROUP	TLED-NFS-14-VS-5K		
8		G	TRUCK LIGHT	500	120	1	60		HUBBELL	DOK-18-L-U-5K-SP-C6515P-PC-DSDL40	

- NOTES:
- CONTRACTOR TO COORDINATE MOUNTING HEIGHT & LOCATION WITH OWNER'S REPRESENTATIVE PRIOR TO ROUGH-IN.
 - LIGHTS TO BE CIRCUITED SEPARATELY THROUGH CONTROLLER SUCH THAT LIGHTS ARE ON CONTINUOUSLY BUT CAN BE CONTROLLED AS A SEPARATE ZONE. LIMIT 15 FIXTURES PER 20A CIRCUIT.
 - COORDINATE LIGHTS WITH MECHANICAL DUCT WORK AND FIRE SUPPRESSION SPRINKLERS.

MEZZANINE LIGHT FIXTURE SCHEDULE											
QTY	KEY	ID	DESCRIPTION	ELECTRICAL DATA		LAMP DATA		BASIS OF DESIGN		REMARKS	NOTES
				VOLTAMP	VOLTAGE	QTY	WATT	MANUFACTURER	CATALOG #		
3	☐	A	2X4 6 STRING LED PENDANT	240	277	6	40	COLUMBIA	LLHV-4-40-H-NST-E-U		1

- NOTES:
- FIXTURES ARE INSTALLED AT CEILING ALONG WITH MAIN LEVEL LIGHTS. QUANTITY IS ADDITIONAL TO MAIN LEVEL LIGHTS.

R² ARCHITECTURAL DESIGN
730 SAN MATEO BLVD. SE STE-1
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RAYTHEON WAREHOUSE
10059 HWY 371 SOUTH
FARMINGTON, NM 87401
ELECTRICAL SCHEDULES SHEET 1 OF 3

MAIN LEVEL ELECTRICAL MECHANICAL EQUIPMENT SCHEDULE															
ID	KEY	ELECTRICAL DATA		LOCATION	BASIS OF DESIGN				FED FROM	CKT #	LOAD	DISC	CONTROL	REMARKS	NOTES
		MOC P AMPS	VOLTAGE		MANUFACTURER	MODEL #	DESCRIPTION	CONDUIT & WIRE SIZE							
AHU-2	↻	20	120/1/60	IT RM 107	mitsubishi	PKA-A12GAL	COOLING UNIT	3/4"C,(2)#12 THHN	IT	2	900	YES	OTHERS		
BP-01	↻	15	480/3/60	ROOM 104	XYLEM	SSH-1ST1ST	WATER PRESSURE PUMP	3/4"C, (3) #12 THHN	H2	15,17,19	3000	YES	OTHERS		
CU-1	⊗	30	208/1/60	SW CORNER	BRYANT	116BNA024	CONDENSING UNIT	3/4"C,(2)#10 THHN CU	L2	7,9	2200	YES	OTHERS		
EF-01	⊗	15	120/1/60	AT PERIMETER WALL	GREENHECK	CW-065	EXHAUST FAN	3/4"C,(2) #12 THHN CU	H2	2	1100	YES	OTHERS		
EF-02	⊗	15	480/3/60	AT PERIMETER WALL		CWB-300	MOTORIZED DAMPER	3/4"C,(3) #12 THHN CU	H2	14,16,18	3300	YES	OTHERS		
EF-03	⊗	15	480/3/60	AT PERIMETER WALL	GREENHECK	CWB-300	EXHAUST FAN	3/4"C,(3) #12 THHN CU	H1	45,47,49	6600	YES	OTHERS		
EF-04	⊗	15	480/3/60	AT PERIMETER WALL	GREENHECK	CWB-300	EXHAUST FAN	3/4"C,(3) #12 THHN CU	H1	46,48,50	6600	YES	OTHERS		
EF-05	⊗	15	480/3/60	AT PERIMETER WALL	GREENHECK	CWB-300	EXHAUST FAN	3/4"C,(3) #12 THHN CU	H1	51,53,55	6600	YES	OTHERS		
EF-06	↻	20	120/1/60	RM 106	GREENHECK	CUE-060	EXHAUST FAN	3/4"C,(2)#12 THHN	L1	23	200	YES	OTHERS		
F-01	⊗	15	480/3/60	AT PERIMETER WALL	GREENHECK	BFD-200	RECIRCULATING FAN	3/4"C,(3) #10 THHN CU	H1	57,59,61	18000	YES	OTHERS		
F-02	⊗	15	480/3/60	AT PERIMETER WALL	GREENHECK	BFD-200	RECIRCULATING FAN	3/4"C,(3) #10 THHN CU	H1	58,60,62	18000	YES	OTHERS		
F-03	⊗	15	480/3/60	AT PERIMETER WALL	GREENHECK	BFD-200	RECIRCULATING FAN	3/4"C,(3) #10 THHN CU	H1	63,65,67	18000	YES	OTHERS		
FP-01	↻	400	480/3/60	RM 105			FIRE PUMP	3 1/2"C,(3) 500KCMIL CU	H1	16	0	YES	OTHERS		
LS-01	⊗	15	480/3/60	WEST OF BUILDING			SEPTIC LIFT STATION	3/4"C,(3) #10 THHN CU	H2	8,10,12	4500	YES	OTHERS		
MD-01	↻	15	120/1/60	AT PERIMETER WALL			MOTORIZED DAMPER	3/4"C,(2) #12 THHN CU	L2	6	100	YES	OTHERS		
MD-02	↻	15	120/1/60	AT PERIMETER WALL			MOTORIZED DAMPER	3/4"C,(2) #12 THHN CU	L2	6	100	YES	OTHERS		
MD-03	↻	15	120/1/60	AT PERIMETER WALL			MOTORIZED DAMPER	3/4"C,(2) #12 THHN CU	L2	6	100	YES	OTHERS		
OHD-01	↻	0	480/3/60	EAST WALL			OVERHEAD DOOR	3/4"C,(3)#12THHN	H1	28,30,32	3000	YES	OTHERS		
OHD-02	↻	0	480/3/60	EAST WALL			OVERHEAD DOOR	3/4"C,(3)#12THHN	H1	33,35,37	3000	YES	OTHERS		
OHD-03	↻	0	480/3/60	EAST WALL			OVERHEAD DOOR	3/4"C,(3)#12THHN	H1	34,36,38	1500	YES	OTHERS		
OHD-04	↻	0	480/3/60	EAST WALL			OVERHEAD DOOR	3/4"C,(3)#12THHN	H1	34,36,38	1500	YES	OTHERS		
OHD-05	↻	0	480/3/60	EAST WALL			OVERHEAD DOOR	3/4"C,(3)#12THHN	H1	39,41,43	1500	YES	OTHERS		
OHD-06	↻	0	480/3/60	EAST WALL			OVERHEAD DOOR	3/4"C,(3)#12THHN	H1	39,41,43	1500	YES	OTHERS		
UH-01	⊗	15	480/1/60	AT PERIMETER WALL	REZNOR	UDAP-225	UNIT HEATER	3/4"C,(2) #12 THHN CU	H2	11,13	750	YES	OTHERS		1
UH-02	⊗	15	480/1/60	AT PERIMETER WALL	REZNOR	UDAP-225	UNIT HEATER	3/4"C,(2) #12 THHN CU	H2	11,13	750	YES	OTHERS		1
UH-03	⊗	15	480/1/60	AT PERIMETER WALL	REZNOR	UDAP-225	UNIT HEATER	3/4"C,(2) #12 THHN CU	H2	11,13	750	YES	OTHERS		1
UH-04	⊗	15	480/1/60	AT PERIMETER WALL	REZNOR	UDAP-225	UNIT HEATER	3/4"C,(2) #12 THHN CU	H2	11,13	750	YES	OTHERS		1
UH-05	⊗	15	480/1/60	AT PERIMETER WALL	REZNOR	UDAP-225	UNIT HEATER	3/4"C,(2) #12 THHN CU	H2	11,13	750	YES	OTHERS		1
UH-06	⊗	15	480/1/60	AT PERIMETER WALL	REZNOR	UDAP-225	UNIT HEATER	3/4"C,(2) #12 THHN CU	H2	11,13	750	YES	OTHERS		1
UH-07	⊗	15	480/1/60	AT PERIMETER WALL	REZNOR	UDAP-225	UNIT HEATER	3/4"C,(2) #12 THHN CU	H1	11,13	750	YES	OTHERS		1
UH-08	⊗	15	480/1/60	AT PERIMETER WALL	REZNOR	UDAP-225	UNIT HEATER	3/4"C,(2) #12 THHN CU	H1	11,13	750	YES	OTHERS		1
UH-09	⊗	15	480/1/60	AT PERIMETER WALL	REZNOR	UDAP-225	UNIT HEATER	3/4"C,(2) #12 THHN CU	H1	11,13	750	YES	OTHERS		1
UH-10	⊗	15	480/1/60	AT PERIMETER WALL	REZNOR	UDAP-225	UNIT HEATER	3/4"C,(2) #12 THHN CU	H1	11,13	750	YES	OTHERS		1
UH-11	⊗	15	480/1/60	AT PERIMETER WALL	REZNOR	UDAP-225	UNIT HEATER	3/4"C,(2) #12 THHN CU	H1	11,13	750	YES	OTHERS		1

NOTES:
1. STEP DOWN TRANSFORMER (480/120V) PROVIDED BY MECHANICAL, INSTALLED AND WIRED BY ELECTRICAL.

R² ARCHITECTURAL DESIGN
730 SAN MATEO BLVD. SE STE-1
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RAYTHEON WAREHOUSE
10059 HWY 371 SOUTH
FARMINGTON, NM 87401
ELECTRICAL SCHEDULES SHEET 2 OF 3

VOLTAGE (L-N):

120

VOLTAGE (L-L):

208

PHASES, WIRES:

3 ϕ 4 W

MINIMUM BUS CAPACITY (A):

125 A

MAIN O.C. DEVICE (A):

125 A

ENCLOSURE TYPE:

MOUNTING:

SURFACE

AIC RATING (A):

22000

NOTES:

CKT NO	DESCRIPTION	TRIP AMPS	POLE	PHASE LOADS (VA)						POLE	TRIP AMPS	DESCRIPTION	CKT NO
				A		B		C					
1	FURNACE	20	1	1500	360					1	20	RECEPT MEZZANINE W	2
3	SPARE	20	1			0	360					RECEPT MEZZANINE E	4
5	SPARE	20	1					0	300			MOTORIZED EXHAUST DAMPERS	6
7,9	CU-01	25	2	1100	0					2	20	SPARE	8,10
7,9		25	2		1100	0				2	20	SPARE	8,10
11,13	WATER HEATER	30	2					2250	0	2	20	SPARE	12,14
11,13		30	2	2250	0					2	20	SPARE	12,14
15,17	SPARE	30	2			0	0			2	20	SPARE	16,18
15,17	SPARE	30	2					0	0	2	20	SPARE	16,18
19,21,23	SPARE	30	3	0	540					1	20	RECEPT WEST EXT EQUIP	20
19,21,23	SPARE	30	3			0	0			1	20	SPARE	22
19,21,23	SPARE	30	3					0	1080	1	20	RECEPT 101	24
25	REFRIGERATOR 101	20	1	180	540					1	20	RECEPT 102, 103	26
27	RECEPT COUNTER 101	20	1			360	720			1	20	RECEPT 104	28
29	RECEPT COUNTER 101	20	1					360	1440	1	20	RECEPT WEST WALL	30
31	SPARE	20	1	0	1800					1	20	RECEPT NORTH WALL	32
33	SPARE	20	1			0	0			1	20	SPARE	34
35	SPARE	20	1					0	0	1	20	SPARE	36
37	SPARE	20	1	0	0					1	20	SPARE	38
39	SPARE	20	1			0	0			1	20	SPARE	40
41	SPARE	20	1					0	0	1	20	SPARE	42

CONNECTED LOAD PHASE TOTALS (VA)

8270

2540

5430

CONNECTED LOAD (KVA)

0.0

DEMAND FACTOR

1.00

DEMAND LOAD (KVA)

0.0

Motors

4.5

Receptacles (0 - 10 KVA)

7.7

Cooling

2.5

Cooling and Heating

1.5

DEMAND LOAD

17.4 KVA

SPARE CAPACITY

27.7 KVA

SPARE CAPACITY

76.8 AMPS

SPARE CAPACITY

61%

PHASE BALANCE

A TO B

31%

B TO C

47%

C TO A

66%

TOTAL:

16.2

LOAD (AMPS):

45.1

TOTAL:

17.4

LOAD (AMPS):

48.2

PANEL				EL1								
VOLTAGE (L-N): 120				ENCLOSURE TYPE: -----								
VOLTAGE (L-L): 208				MOUNTING: SURFACE								
PHASES, WIRES: 3 ϕ 4 W				AIC RATING (A): 22000								
MINIMUM BUS CAPACITY (A): 100 A				NOTES: -----								
MAIN O.C. DEVICE (A): 100 A												
CKT NO	DESCRIPTION	TRIP AMPS	POLE	PHASE LOADS (VA)			POLE	TRIP AMPS	DESCRIPTION	CKT NO		
				A	B	C						
1	SPARE	20	1	0	0		1	20	SPARE	2		
3	SPARE	20	1			0	0	1	20	SPARE	4	
5	SPARE	20	1				0	0	1	20	SPARE	6
7	SPARE	20	1	0	0			1	20	SPARE	8	
9	SPARE	20	1			0	0	1	20	SPARE	10	
11	SPARE	20	1				0	0	1	20	SPARE	12
13	SPACE	20	1	0	0			1	20	SPACE	14	
15	SPACE	20	1			0	0	1	20	SPACE	16	
17	SPACE	20	1				0	0	1	20	SPACE	18
19	SPACE	20	1	0	0			1	20	SPACE	20	
21	SPACE	20	1			0	0	1	20	SPACE	22	
23	SPACE	20	1				0	0	1	20	SPACE	24
25	SPACE	20	1	0	0			1	20	SPACE	26	
27	SPACE	20	1			0	0	1	20	SPACE	28	
29	SPACE	20	1				0	0	1	20	SPACE	30
				CONNECTED LOAD PHASE TOTALS (VA)								
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				CONNECTED LOAD (KVA)			DEMAND FACTOR					
				0.0			0.0					
				DEMAND FACTOR			DEMAND LOAD (KVA)					
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				DEMAND FACTOR			DEMAND LOAD (KVA)					
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				0.0			0.0					
				DEMAND FACTOR			DEMAND LOAD (KVA					

PANEL IT											
VOLTAGE (L-N): 120				ENCLOSURE TYPE: -----							
VOLTAGE (L-L): 208				MOUNTING: SURFACE							
PHASES, WIRES: 3 ϕ 4 W				AIC RATING (A): 22000							
MINIMUM BUS CAPACITY (A): 100 A				NOTES: -----							
MAIN O.C. DEVICE (A): 100 A											
CKT NO	DESCRIPTION	TRIP AMPS	POLE	PHASE LOADS (VA)			POLE	TRIP AMPS	DESCRIPTION	CKT NO	
				A	B	C					
1,3	CU-02	30	2	1100	900			1	20	CC-01	2
1,3	RECEPT	30	2		1100	360		1	20	RECEPT	4
5	RECEPT	20	1			360	360	1	20	RECEPT	6
7	RECEPT	20	1	360	0			1	20	SPARE	8
9	SPARE	20	1		0	0		1	20	SPARE	10
11	SPARE	20	1			0	0	1	20	SPARE	12
13,15	IT RACK RECEPTACLE	20	2	1200	1200			2	20	IT RACK RECEPTACLE	14,16
13,15	IT RACK RECEPTACLE	20	2		1200	1200		2	20	IT RACK RECEPTACLE	14,16
17,19	IT RACK RECEPTACLE	20	2			1200	180	1	20	IT RACK RECEPTACLE	18
17,19	IT RACK RECEPTACLE	20	2	1200	180			1	20	IT RACK RECEPTACLE	20
21	SPARE	20	1		0	180		1	20	IT RACK RECEPTACLE	22
23	SPARE	20	1			0	0	1	20	SPARE	24
25	SPARE	20	1	0	0			1	20	SPARE	26
27	SPARE	20	1		0	0		1	20	SPARE	28
29	SPARE	20	1			0	0	1	20	SPARE	30
31	SPACE	20	1	0	0			1	20	SPACE	32
33	SPACE	20	1		0	0		1	20	SPACE	34
35	SPACE	20	1			0	0	1	20	SPACE	36
37	SPACE	20	1	0	0			1	20	SPACE	38
39	SPACE	20	1		0	0		1	20	SPACE	40
41	SPACE	20	1			0	0	1	20	SPACE	42
				CONNECTED LOAD PHASE TOTALS (VA)							
				6140 4040 2100							
				CONNECTED LOAD (KVA)			DEMAND FACTOR			DEMAND LOAD (KVA)	
				0.9			1.00			0.9	
Motors				2.2			1.25			2.8	
Motors (Largest)				9.2			1.00			9.2	
Receptacles (0 - 10 KVA)											
				Cooling			Cooling and Heating			Cooling and Heating	
				Cooling			Cooling and Heating			Cooling and Heating	
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PANEL				H2								
VOLTAGE (L-N):		277		ENCLOSURE TYPE:		-----						
VOLTAGE (L-L):		480		MOUNTING:		SURFACE						
PHASES, WIRES:		3 ϕ 4 W		AIC RATING (A):		22000						
MINIMUM BUS CAPACITY (A):		100 A		NOTES:		-----						
MAIN O.C. DEVICE (A):		100 A										
CKT NO	DESCRIPTION	TRIP AMPS	POLE	PHASE LOADS (VA)			POLE	TRIP AMPS	DESCRIPTION	CKT NO		
				A	B	C						
1,3,5		100	3	8270	1100			1	20	EF-01	2	
1,3,5	PANEL L2	100	3		2540	200		1	20	ROOF LADDER LIGHTING	4	
1,3,5		100	3			5430	0	1	20	SPARE	6	
7	SPARE	20	1	0	1100			3	20	EF-02	8,10,12	
9	SPARE	20	1		0	1700		3	20	LIFT STATION	8,10,12	
11,13		15	2				2250	3	20		8,10,12	
11,13	UH-01,02,03,04,05,06	15	2	2250	1100			3	20	EF-02	14,16,18	
15,17,19	BP-01	20	3		1000	1100		3	20	EF-02	14,16,18	
15,17,19	BP-01	20	3			1000	1100	3	20	EF-02	14,16,18	
15,17,19	BP-01	20	3	1000	0			1	20	SPARE	20	
21	SPARE	20	1		0	0		1	20	SPARE	22	
23	SPARE	20	1				0	0	1	20	SPARE	24
25	SPARE	20	1	0	0			1	20	SPARE	26	
27	SPACE	20	1		0	0		1	20	SPACE	28	
29	SPACE	20	1				0	0	1	20	SPACE	30
31	SPACE	20	1	0	0			1	20	SPACE	32	
33	SPACE	20	1		0	0		1	20	SPACE	34	
35	SPACE	20	1				0	0	1	20	SPACE	36
37	SPACE	20	1	0	0			1	20	SPACE	38	
39	SPACE	20	1		0	0		1	20	SPACE	40	
41	SPACE	20	1				0	0	1	20	SPACE	42
				CONNECTED LOAD PHASE TOTALS (VA)								
				14820		6540		11480				
				CONNECTED LOAD (KVA)		DEMAND FACTOR		DEMAND LOAD (KVA)		DEMAND LOAD 34.0 KVA		
				11.9		1.00		11.9		SPARE CAPACITY 49.1KVA		
				4.5		1.25		5.6		SPARE CAPACITY 59.1AMPS		
				7.7		1.00		7.7		PHASE BALANCE		
				7.0		1.00		7.0		A TO B 44 %		
				1.5		1.00		1.5		B TO C 57 %		
				0.2		1.25		0.3		C TO A 77 %		
				TOTAL:		32.8		34.0				
				LOAD (AMPS):		39.5		40.9				

JULY 16, 2015

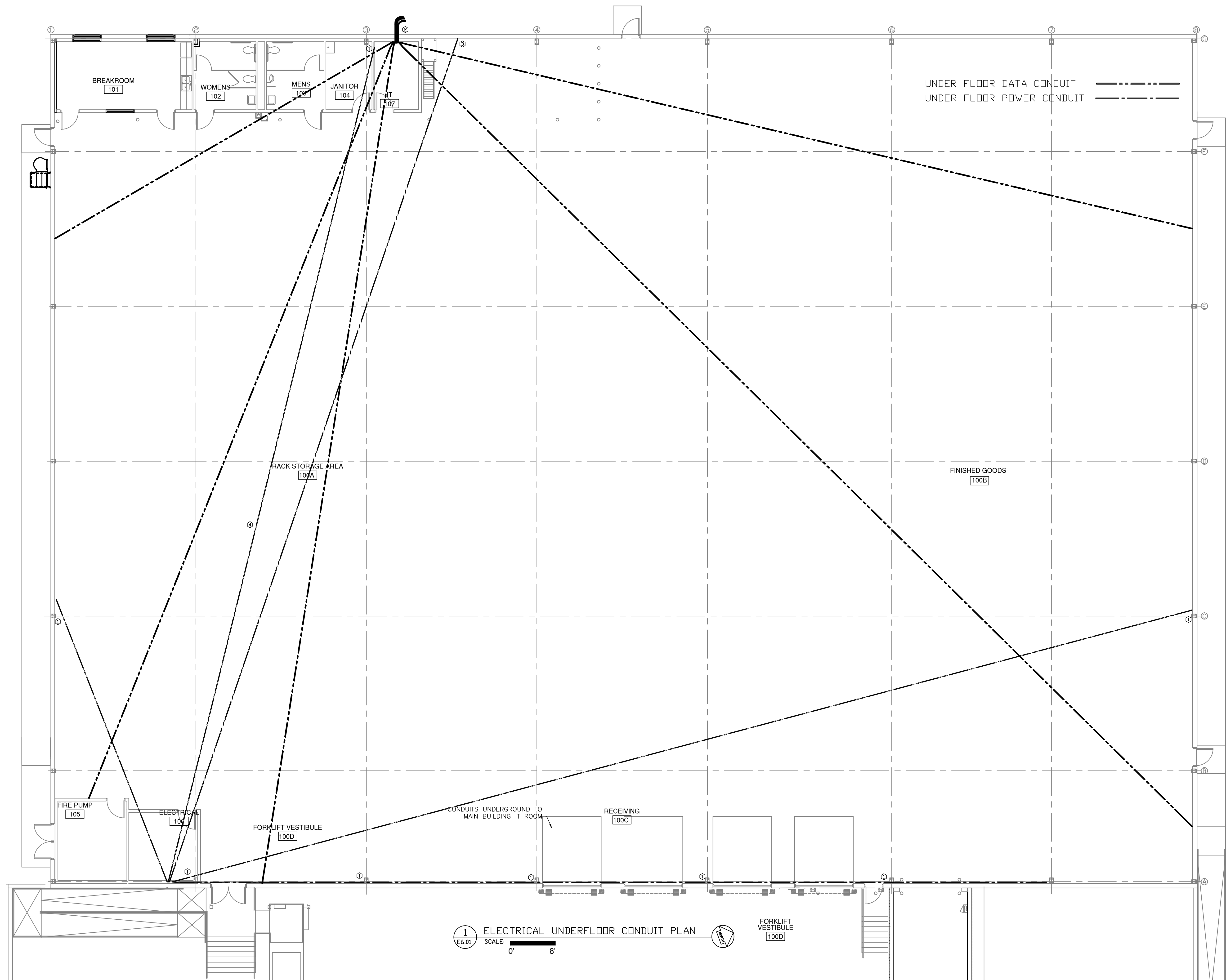
R² ARCHITECTURAL DESIGN
730 SAN MATEO BLVD. SE STE-1
ALBUQUERQUE, NEW MEXICO 87108
TEL: 505.884.9694 FAX: 888.892.5814

NO.	DATE	COMMENTS
1	07/16/15	REVISED FOR RE-BID
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RAYTHEON WAREHOUSE
10059 HWY 371 SOUTH
FARMINGTON, NM 87401

ELECTRICAL UNDERFLOOR CONDUIT PLAN

**-SHEET-
E6.01**



① KEY NOTES

1. AVOID COLUMN FOOTING. COORDINATE WITH STRUCTURAL AND FLOORING CONTRACTOR.
2. INSTALL IN COMMON UTILITY TRENCH. SEE SITE PLAN.
3. TO ELECTRIC PANEL H2.
4. TO IT TRANSFORMER T3.

1 ELECTRICAL UNDERFLOOR CONDUIT PLAN
E6.01 SCALE: 0' 8'

FORKLIFT
VESTIBULE
100D

ELECTRICAL SYMBOLS

	TYPE "A" WALL MOUNTED FIXTURE		DUPLEX RECEPTACLE
	TYPE "A" CEILING MOUNT FIXTURE		GROUND FAULT RECEPTACLE
	TYPE "EX" EXIT SIGN		GROUND FAULT RECEPTACLE
	TYPE "A" FLUORESCENT FIXTURE		SWITCHED RECEPTACLE
	TYPE "A" EMERGENCY LIGHT TO REMAIN ON FOR 2 HRS.		SINGLE RECEPTACLE
	TYPE "EM" EMERGENCY LIGHT		FOUR-PLEX RECEPTACLE
	FAN WITH OR WITHOUT LIGHT		FLOOR RECEPTACLE
	COMPUTER/TELEPHONE OUTLET		SPECIAL RECEPTACLE
	TELEPHONE OUTLET		ELECTRICAL PANEL
	TELEPHONE WALL MTD		ELECTRICAL EQUIP SCHED ITEM
	FLOOR MTD COMPUTER/TELEPHONE OUTLET		MOTOR WITH DISCONNECT
	FLOOR MTD TELEPHONE OUTLET		DISCONNECT SWITCH
	JUNCTION BOX 1		DISCONNECT SWITCH - FUSED
	JUNCTION BOX 2		FIRE ALARM REMOTE PANEL
	DOOR BUZZER		FIRE ALARM ANNUNCIATOR
	BELL		FIRE ALARM CONTROL PANEL
	TV OUTLET		HORN STROBE
	CAMERA		SINGLE POLE SNAP SWITCH
	OCCUPANCY SENSOR		FIRE ALARM STROBE
	SINGLE POLE SNAP SWITCH		HEAT DETECTOR
	2 POLE SNAP SWITCH		SMOKE DETECTOR
	3-WAY SNAP SWITCH		MAGNETIC HOLD OPEN
	4-WAY SNAP SWITCH		MAGNETIC HOLD OPEN - WALL MTD
	DIMMER SWITCH		FIRE ALARM HORN
	KEY OPERATED SNAP SWITCH		MANUAL PULL STATION
	MOTION DETECTOR SWITCH		DUCT SMOKE DETECTOR
	FAN SWITCH		DUCT HEAT DETECTOR
	PILOT SNAP SWITCH		FIXED TEMPERATURE HEAT DETECTOR
	PROJECTION SCREEN SWITCH		TAMPER DETECTOR SWITCH
	DIMMER SWITCH		SMOKE DETECTOR - IONIZATION
			TAMPER DETECTOR SWITCH
			PHOTO CELL
			TIME CLOCK

FAULT CURRENT

- ESTIMATED FAULT CURRENT AT UTILITY TRANSFORMER = 40KIA
- 600A I-LINE PANEL SERIES RATED TO 14KIA MAXIMUM DOWNSTREAM.
- DOWNSTREAM DEVICES = 22KIA RATING.

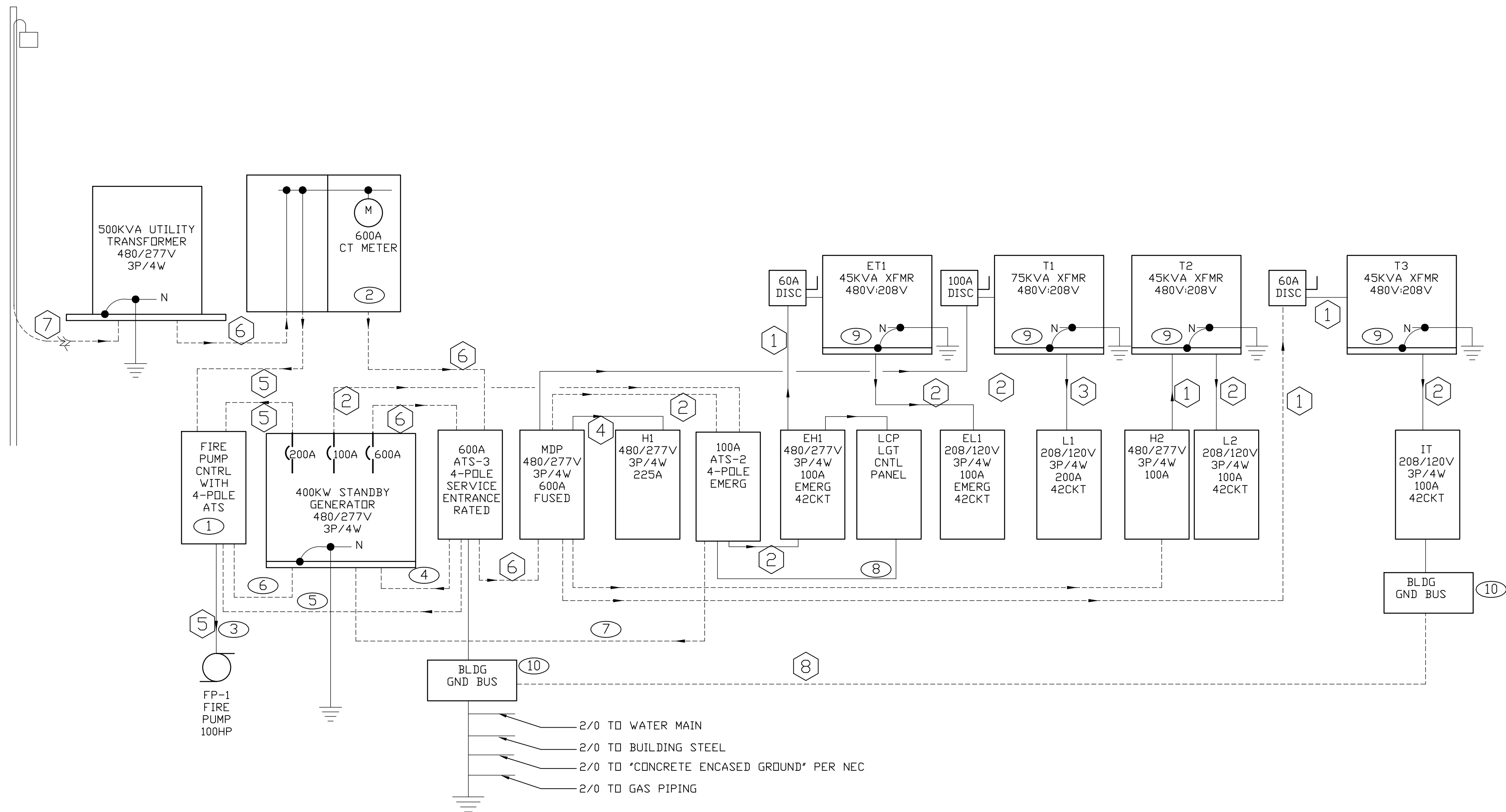
GENERAL NOTES

- DASHED LINES INDICATE UNDERGROUND.
- MAIN FUSES TO BE CLASS 'T' FAST ACTING CURRENT LIMITING FUSES.

- 60A = 3/4"C, (4) #6 CU + #10 GND
- 100A = 1 1/4"C, (4) #3 CU + #8 GND
- 200A = 3"C, (4) #3/0 CU + #6 GND
- 225A = 2 1/2"C, (4) #4/0 CU + #4 GND
- 400A = 3 1/2"C, (4) 500 KCMIL CU + #3 GND
- 600A = (2) 3"C, (4) 350 KCMIL CU + #1 GND
- (2) 5" CONDUITS, FOR PRIMARY PER UTILITY REQ.
- GROUND = 1"C,(1) 2/0 COPPER

KEY NOTES

- FIRE PUMP CONTROLLER TO BE SERVICE ENTRANCE RATED. FIRE PUMP CONTROL CABINET SHALL DISABLE MAIN (600A) FACILITY ATS IN THE NORMAL POSITON TO REMOVED THE LOAD FROM THE GENERATOR. CT & METER CABINET ADJACENT TO TRANSFORMER.
- CONDUIT IN ACCORDANCE WITH NEC 695.6(D)
- START SIGNAL CONDUIT FOR LOSS OF POWER AT ATS-3 (FACILITY POWER) TO GENERATOR. DISABLE SIGNAL TO MAINTAIN ATS-3 (FACILITY POWER) IN NORMAL POSITION WHEN FIRE PUMP IS RUNNING.
- START SIGNAL CONDUIT FROM FIRE PUMP CONTROLLER TO GENERATOR.
- START SIGNAL CONDUIT FROM ATS2 (EMERGENCY) TO GENERATOR.
- CONTROL SIGNAL FROM ATS-2 (EMERGENCY) TO LIGHTING CONTROL PANEL (LCP) TO TURN ON ALL LIGHTS WHEN ATS-2 (EMERGENCY) IS IN EMERGENCY POSITION.
- PROVIDE BONDING JUMPER PER TABLE NEC 250.66. GROUND PER NEC SECTION 250.77. PROVIDE GROUND PER NEC 250.66 & 250.68. SIZE GROUND PER NEC250.6.
- STORM COPPER SCGB5 (4"X12") GROUND BAR, OR EQUIVALENT.



1 ELECTRICAL 1-LINE DIAGRAM
E7.01 SCALE: NTS

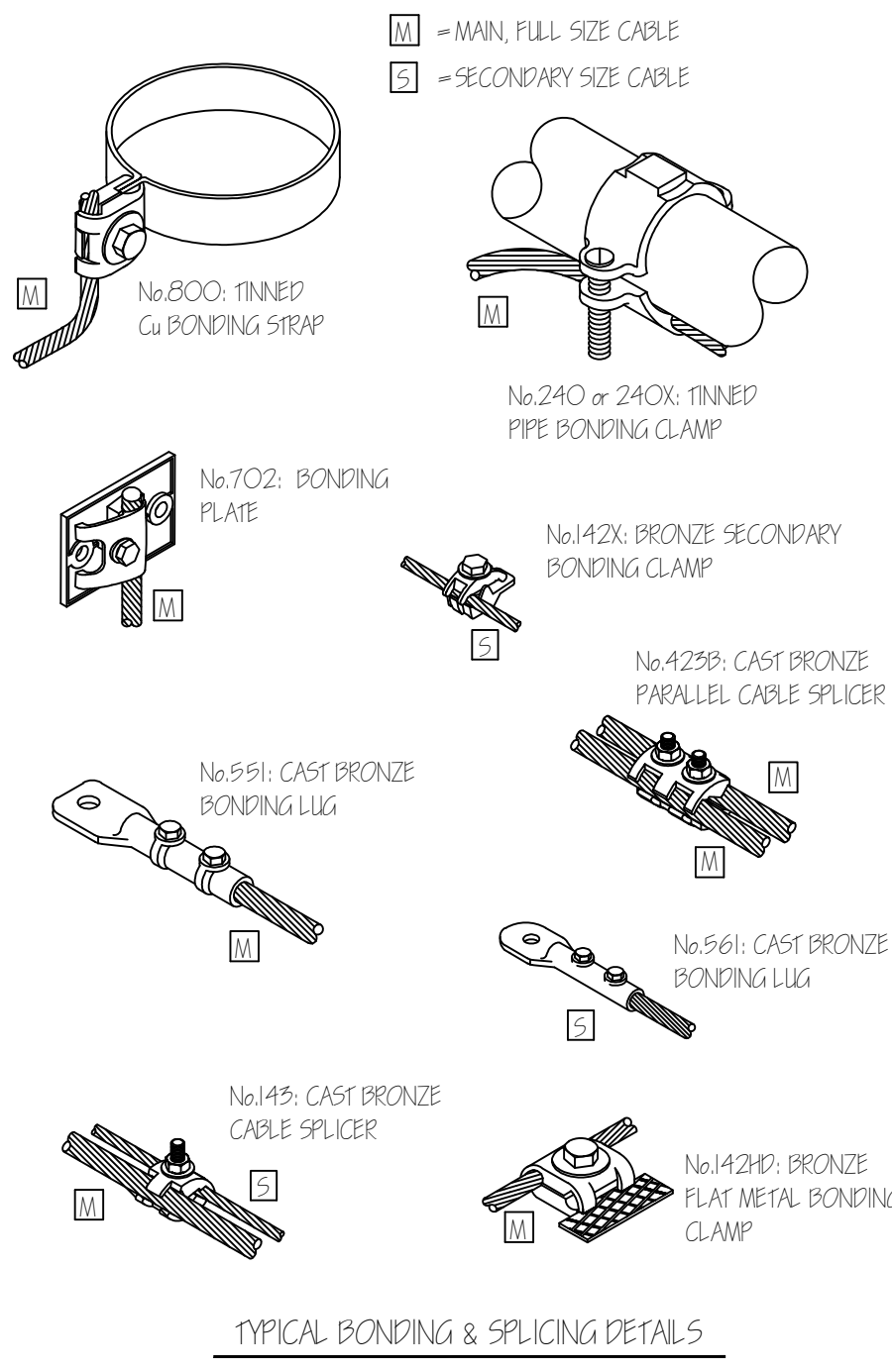
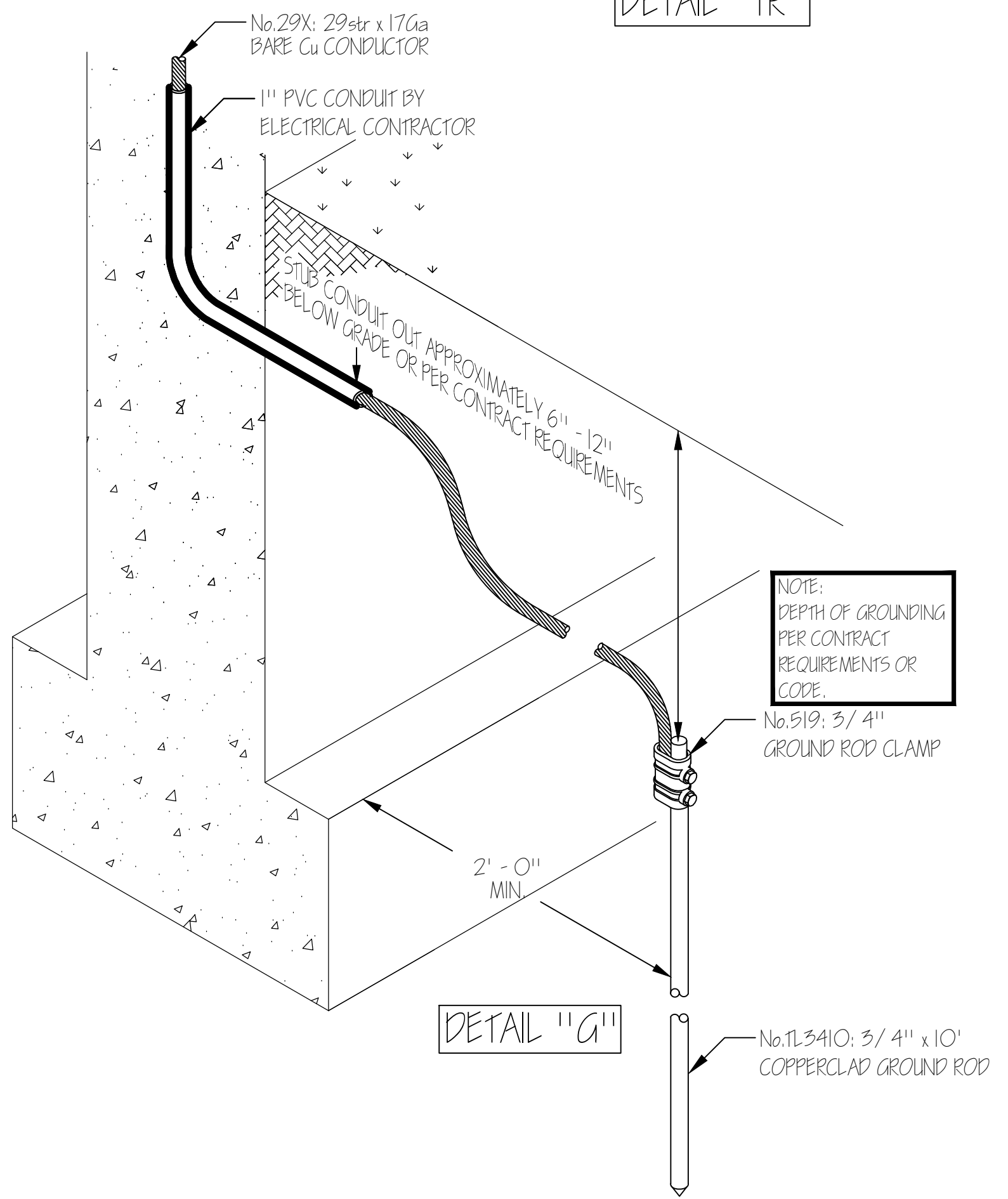
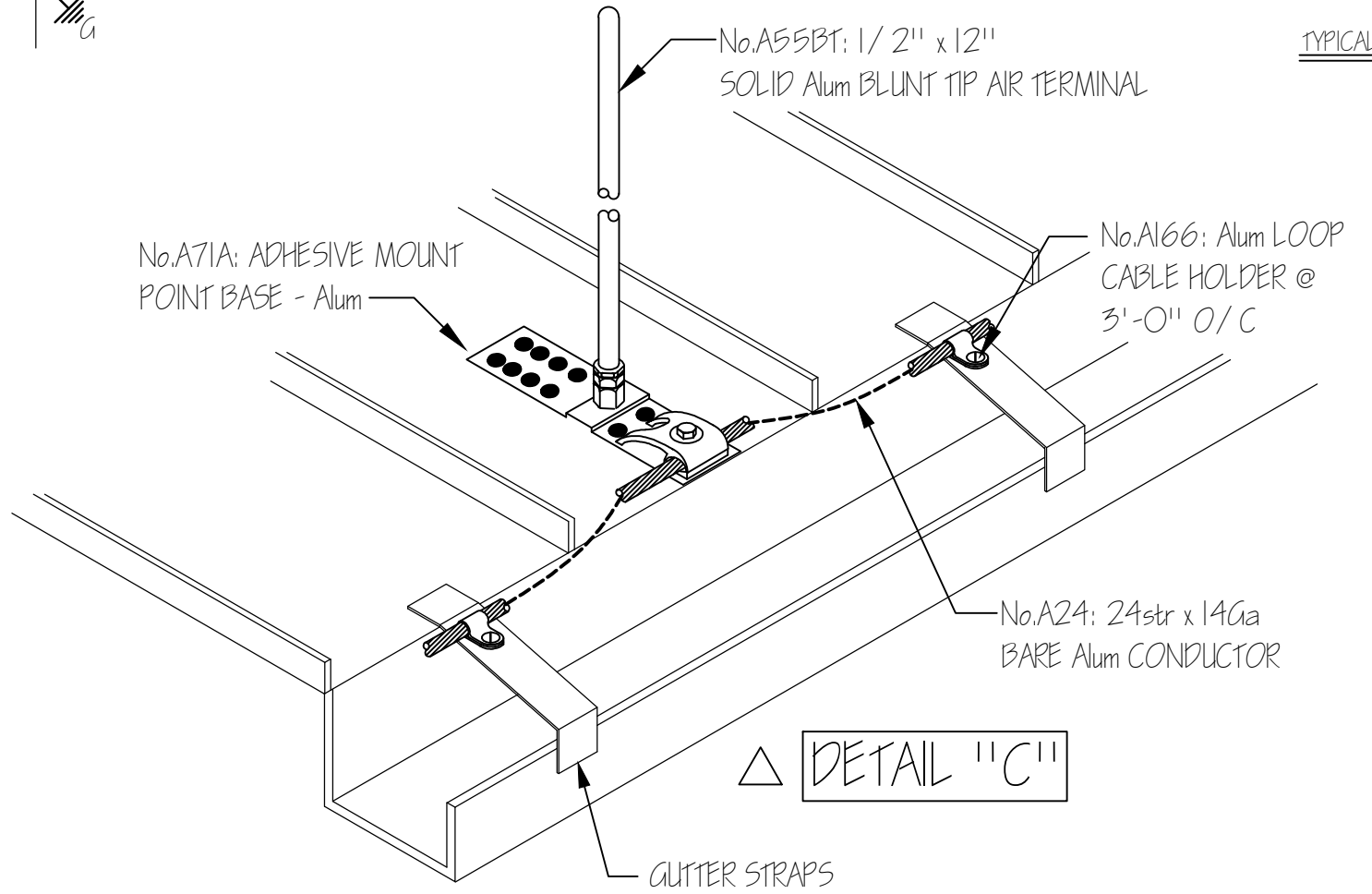
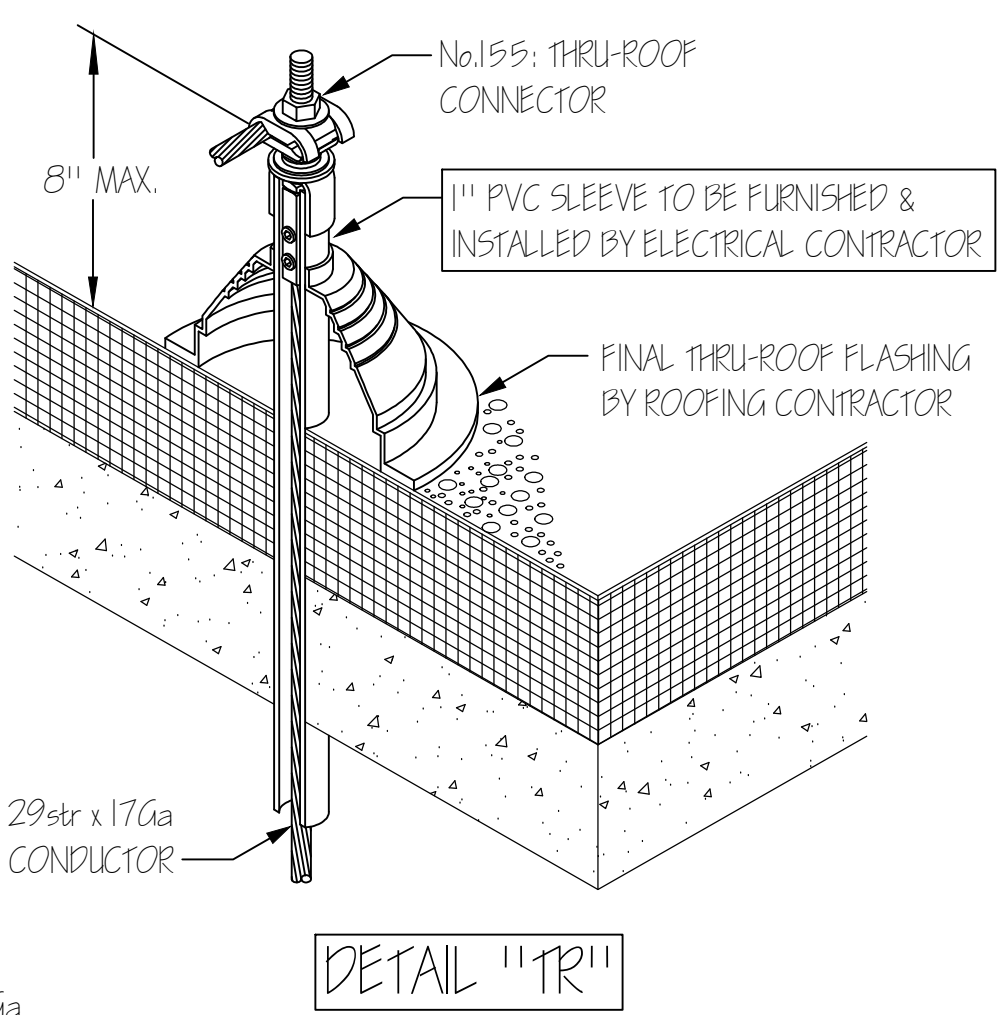
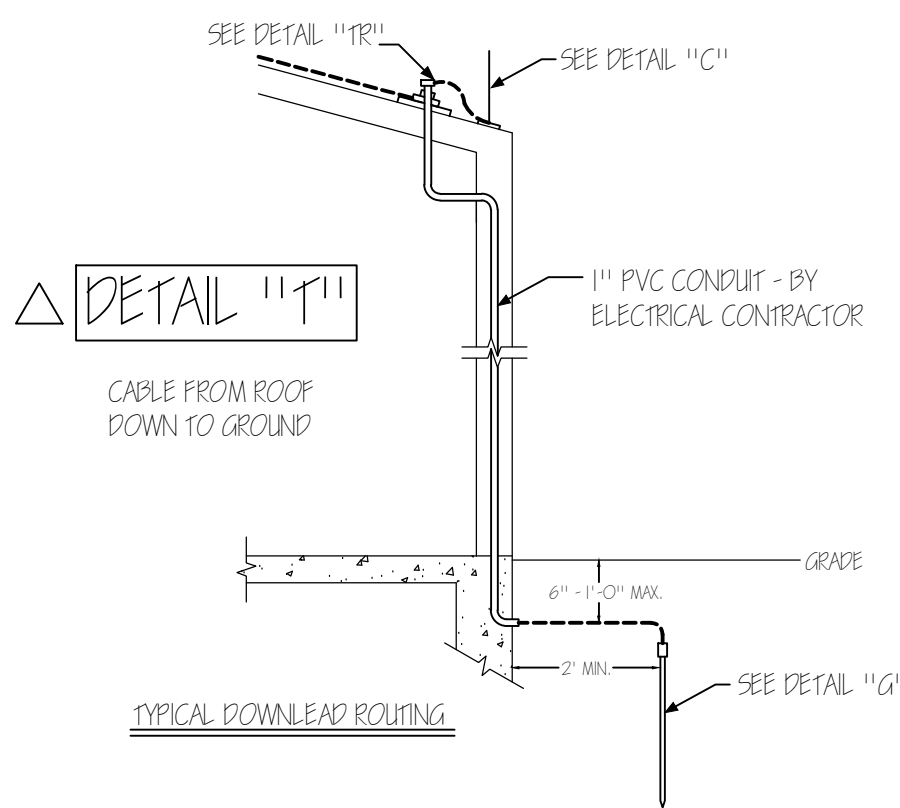
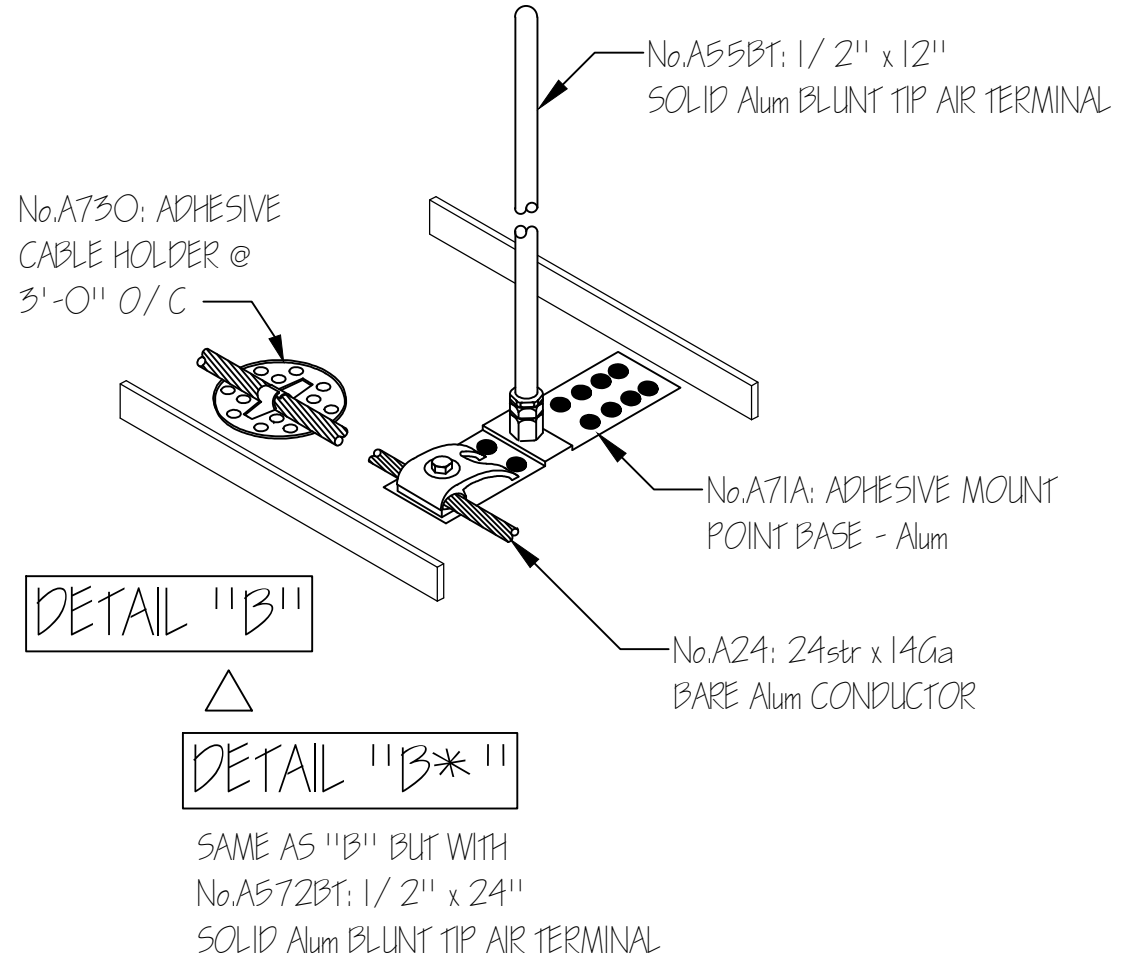
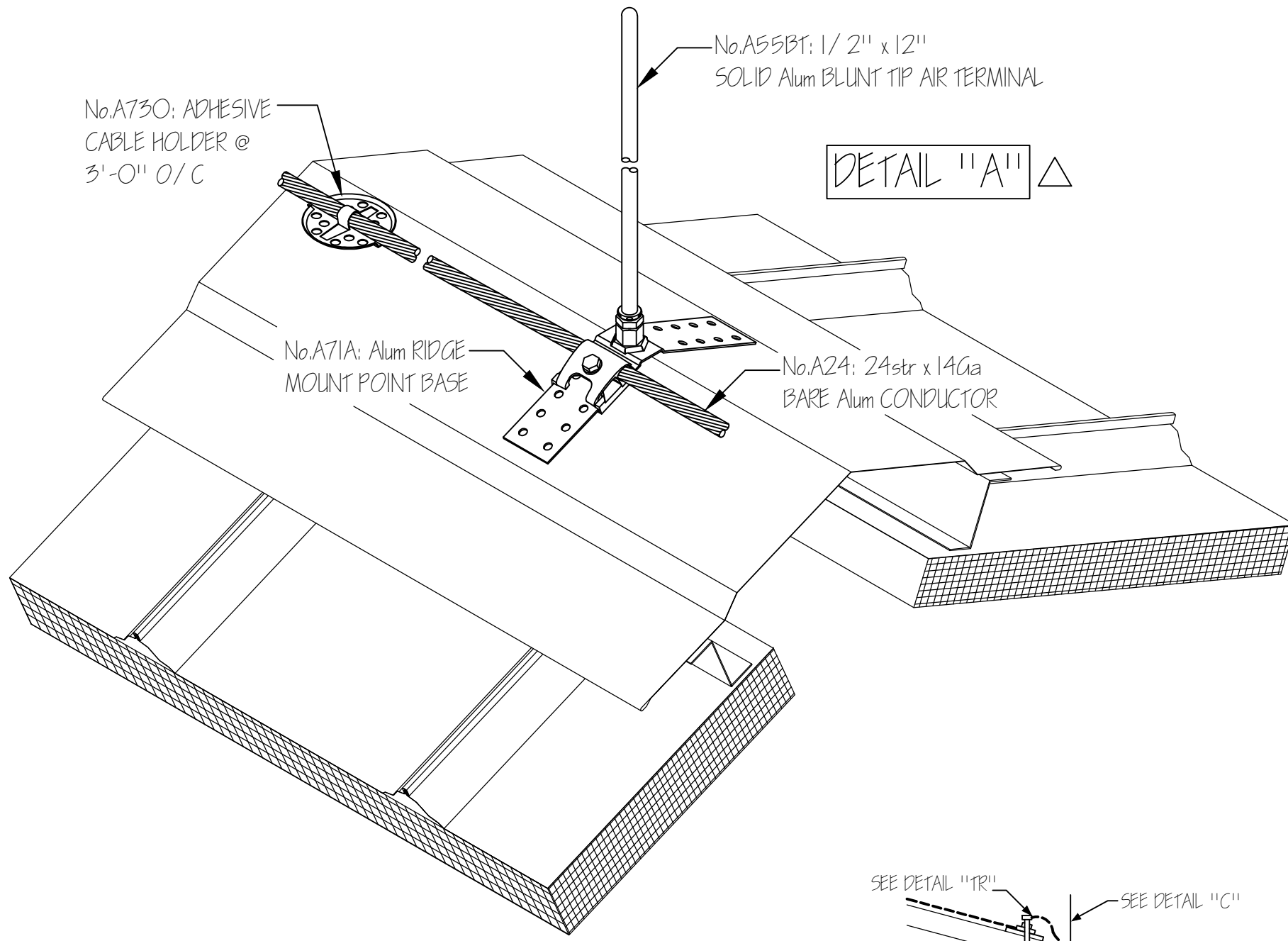
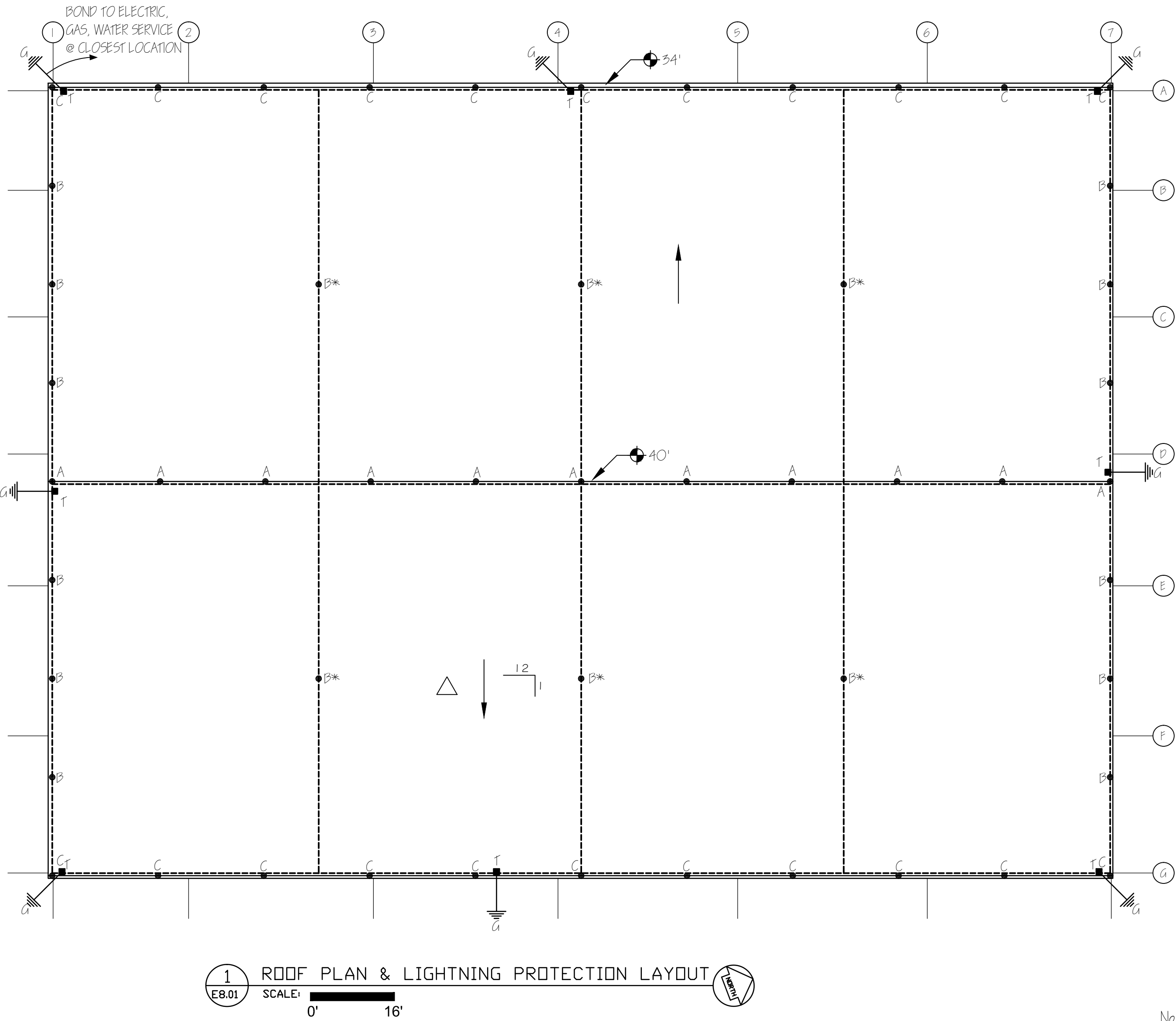
SEQUENCE OF OPERATIONS

- GENERAL UTILITY POWER LOSS - NO FIRE
- ELECTRICAL LOSS IN BUILDING. BATTERY POWERED EMERGENCY LIGHTS OPERATE TO COVER DEAD TIME TILL GENERATOR STARTS.
 - ATS-1 (FIRE PUMP) TRANSFERS TO GENERATOR. FIRE PUMP CONTROLLER INACTIVE AND NO DISABLE OF ATS-3 (FACILITY). SENDS START SIGNAL TO GENERATOR.
 - ATS-2 ACTIVATES AND TRANSFERS EMERGENCY LOAD TO GENERATOR AND SENDS START SIGNAL TO GENERATOR
 - ATS-3 (GENERAL FACILITY ATS) TRANSFERS LOAD FROM UTILITY TO GENERATOR AND SENDS START SIGNAL TO GENERATOR.

- GENERAL UTILITY POWER LOSS - ACTIVE FIRE
- ELECTRICAL LOSS IN BUILDING. BATTERY POWERED EMERGENCY LIGHTS OPERATE TO COVER DEAD TIME TILL GENERATOR STARTS.
 - ATS-1 (FIRE PUMP) TRANSFERS TO GENERATOR. FIRE PUMP CONTROLLER ACTIVE AND DISABLES ATS-3 (FACILITY). SENDS START SIGNAL TO GENERATOR.
 - ATS-2 ACTIVATES AND TRANSFERS EMERGENCY LOAD TO GENERATOR AND SENDS START SIGNAL TO GENERATOR
 - ATS-3 DISABLED IN NORMAL CONDITION.

- NO UTILITY POWER LOSS - ACTIVE FIRE
- FIRE PUMP CONTROLLER OPERATES FIRE PUMP AND DOES NOT ACTIVATE ATS-1. DOES NOT SEND SIGNAL TO ATS-3 TO DISABLE OPERATION. SENDS START SIGNAL TO GENERATOR TO BE RUNNING FOR STANDBY

- GENERAL LIGHTING OVERVIEW.
- ALL LIGHTING, EXCEPT BATTERY OPERATED EMERGENCY LIGHTS ARE CONNECTED AND CIRCUITED FROM LIGHTING CONTROL PANEL, WHICH IS CIRCUITED FROM EMERGENCY PANEL. ADVANTAGE OF GENERATOR SIZING FOR OVERALL FACILITY IS TAKEN INTO CONSIDERATION TO SUPPLY ALL LIGHTING WITH EMERGENCY POWER FOR ADDITIONAL SAFETY.
 - BATTERY POWERED EMERGENCY LIGHTS ARE SUPPLIED TO PROVIDE LIGHTING DURING THE CRITICAL TIME BETWEEN POWER LOSS AND GENERATOR SUPPLY TO PROVIDE FORK LIFT OPERATORS SOME LIGHT TO CONTINUE PROGRESS TO SAFE CONDITION.



- GENERAL AND INSTALLATION NOTES
1. LOCATE AIR TERMINALS AS SHOWN. TAKE CARE TO INSURE THAT ALL POINTS ARE WITHIN 2'-0" OF OUTSIDE BUILDING EDGE, OUTSIDE CORNERS, AND RIDGE ENDS, AND THAT MAXIMUM SPACING DOES NOT EXCEED 20'-0". AND THAT MINIMUM PROJECTION ABOVE OBJECT PROTECTED IS 10". (POINTS PROJECTING 24" MAY BE SPACED @ 25' MAX.
 2. MAINTAIN HORIZONTAL OR DOWNWARD COURSEING OF MAIN CONDUCTOR AND INSURE THAT ALL BENDS HAVE AT LEAST AN 8" RADIUS AND DO NOT EXCEED 90°.
 3. ATTACH ALL EXPOSED ROOF, DOWN LEAD AND BONDING CABLES AT 3'-0" ON CENTER MAXIMUM. VERIFY COMPATIBILITY OF ADHESIVE ON MEMBRANE ROOF APPLICATIONS PRIOR TO INSTALLATION
 4. GROUND ELECTRODES SHALL BE INSTALLED AS SHOWN BUT IN NO INSTANCE SHALL THEY BE LESS THAN 1'-0" BELOW GRADE AND 2'-0" FROM FOUNDATION WALL DRIVEN RODS SHALL PENETRATE EARTH AT LEAST 10'-0".
 5. BOND TO WATER SERVICE AND OTHER PIPING SYSTEMS AS SHOWN AND AS REQUIRED BY CODES.
 6. INTERCONNECT LIGHTNING PROTECTION GROUND TO ELECTRIC, TELEPHONE, AND OTHER BUILDING GROUND SYSTEMS AS SHOWN OR AS REQUIRED BY CODE.
 7. SYSTEM SHALL BE INSTALLED AS SHOWN TO INSURE PROPER CODE COMPLIANCE AND SYSTEM CERTIFICATION. ANY MAJOR VARIANCE SHALL ENTAIL RESUBMITTAL AND NEW APPROVAL
 8. *AS-BUILT* DRAWINGS SHALL BE SUBMITTED IN ACCORDANCE WITH CERTIFICATION PROCEDURES.
 9. ALL MATERIALS ARE UNDERWRITERS LABORATORIES APPROVED WITH LABELS ON CONDUCTORS @ 10'-0" INTERVALS AND LABELS ON ALL AIR TERMINALS.
 10. ALL MATERIALS SHOWN AND INTENDED FOR USE. ARE TO BE AS MANUFACTURED BY THOMPSON LIGHTNING PROTECTION INC. 901 SIBLEY HWY. ST PAUL, MN 55118 PHONE: 1-800-777-1230 FAX: 651-455-2545

- TYPICAL SYMBOL LEGEND
- : AIR TERMINAL: LETTER DENOTES DETAIL TYPE
 - : MAIN CONDUCTOR
 - - - - : COUNTERPOISE / GROUND CABLE AS / IF APPLICABLE
 - : THRU ROOF PENETRATION: LETTER DENOTES DETAIL TYPE
 - ⚡ : THRU ROOF PENETRATION TO STEEL: LETTER DENOTES DETAIL TYPE
 - ⚡ : BONDING CONNECTION: SEE SPECIFIC DETAIL
 - ⚡ : CONNECTION TO EXISTING GROUND GRID BY OTHERS
 - ⚡ : FULL DOWNLEAD TO GROUND
 - ⚡ : STEEL COLUMN BOND TO GROUND
 - ⚡ : EXPOSED / PITCHED DOWNLEAD TO GROUND
 - ▨ : ZONE OF PROTECTION

PRELIMINARY LAYOUT:
LIGHTNING PROTECTION LAYOUT AND DETAILS SHOWN ARE BASED ON LIMITED INFORMATION. IT IS THE RESPONSIBILITY OF THE LIGHTNING PROTECTION SYSTEM INSTALLER TO VERIFY ACTUAL SITE CONDITIONS PRIOR TO STARTING ANY WORK. AND TO ENSURE THAT THE COMPLETED SYSTEM MEETS CODE & CERTIFICATION CRITERIA SPECIFIED.

PHYSICAL ADDRESS
COUNTY COUNTY NEW MEXICO
RESPONDING FIRE COMPANY TBD
LATITUDE
LONGITUDE

FIRE PROTECTION

THESE FIRE PROTECTION PLANS ARE INTENDED FOR THE CONTRACTOR'S INFORMATION ONLY AS A GUIDE FOR PRICING AND REPRESENT SCHEMATIC DESIGN DOCUMENTS. CONSTRUCTION DOCUMENTS ARE TO BE SUBMITTED BY THE FIRE PROTECTION CONTRACTOR FOR REVIEW PRIOR TO ANY WORK.

THE FIRE PROTECTION CONTRACTOR MUST BE COMPLETELY FAMILIAR WITH AND ADHERE TO ALL PROJECT SPECIFICATIONS AND IN PARTICULAR SPECIFICATION SECTIONS 21 10 00 WATER-BASED FIRE SUPPRESSION SYSTEMS AND SECTION 28 31 00 FIRE ALARMS SYSTEMS AS WELL AS EACH REFERENCED SPECIFICATION SECTION.

FM GLOBAL DESIGN GUIDELINES TAKE PRECEDENCE OVER NFPA STANDARDS.

FIRE ALARM AND NOTIFICATION

CONSTRUCTION FABRICATION DRAWINGS WILL BE PREPARED ACCORDING TO PREVAILING STATUTES IN NEW MEXICO BY AN NICET III CERTIFIED EMPLOYEE OF A DULY LICENSED FIRE ALARM CONTRACTOR, AND WILL INCLUDE SYSTEM CALCULATIONS. THE CONSTRUCTION FABRICATION DRAWINGS, SYSTEM CALCULATIONS AND ALL OTHER REQUIRED SUBMITTAL DATA MUST BE SUBMITTED TO THE ARCHITECT / ENGINEER (A/E) AND, ONCE ACCEPTED BY THE A / E, SUBMITTED TO THE AUTHORITY HAVING JURISDICTION FOR PERMIT APPROVAL. THE INSTALLATION OF ANY SYSTEM COMPONENT PRIOR TO APPROVAL OF FINAL PLANS IS NOT ALLOWED. THE COMPLETE WORKING ALARM AND NOTIFICATION SYSTEM MUST BE INSTALLED IN ACCORDANCE WITH CURRENT BUILDING CODES, FM GLOBAL, AND NFPA STANDARDS OF PRACTICE AND BE ACCEPTABLE TO THE IDENTIFIED AUTHORITY HAVING JURISDICTION.

MAIN AND SPRINKLER DESIGN

CONSTRUCTION FABRICATION DRAWINGS WILL BE PREPARED ACCORDING TO PREVAILING STATUTES IN NEW MEXICO BY AN NICET III CERTIFIED EMPLOYEE OF A DULY LICENSED FIRE SPRINKLER CONTRACTOR, AND WILL INCLUDE HYDRAULIC CALCULATIONS. THE CONSTRUCTION FABRICATION DRAWINGS, HYDRAULIC CALCULATIONS AND ALL OTHER REQUIRED SUBMITTAL DATA MUST BE SUBMITTED TO THE ARCHITECT / ENGINEER (A/E) AND, ONCE ACCEPTED BY THE A / E, SUBMITTED TO THE AUTHORITY HAVING JURISDICTION FOR PERMIT APPROVAL. THE COMPLETE WORKING SPRINKLER SYSTEM MUST BE INSTALLED IN ACCORDANCE WITH CURRENT BUILDING CODES AND NFPA STANDARDS OF PRACTICE AND BE ACCEPTABLE TO THE IDENTIFIED AUTHORITY HAVING JURISDICTION.

WET SPRINKLER DESIGN BASIS

NOMINAL	30	FEET TO THE UNDERSIDE OF BEAMS AT THE EAVES
	38	FEET TO THE UNDERSIDE OF BEAMS AT THE RIDGE

HEATED METAL WAREHOUSE CONSTRUCTION NFPA 220 II (111), IBC IIA

COMMODITY CLASS	CLASS I, II, III	WORKING IN PROCESS MATERIALS STORED ON OPEN-FRAME RACKS AND FINISHED ELECTRONICS IN SEALED METAL CONTAINERS ON WOODEN PALLETS TO A MAXIMUM HEIGHT OF 25 FEET IN SOLID PILES, STORAGE OF IDLE WOOD PALLETS EXTERNAL TO THE WAREHOUSE,
		CLASS IV AND PLASTIC CARTONIZED, UNEXPANDED PLASTIC (CUP) CARTONED WIP MATERIALS CONTAINING APPRECIABLE AMOUNTS OF GROUP A PLASTIC (5-15% BY WEIGHT OR 5-25% BY VOLUME)
		UN-CARTONIZED, UNEXPANDED PLASTIC (UUP)

DESIGN BASIS

FM GLOBAL 8-9 2011 TABLE 10 UUP

SPRINKLERS HYDRAULICALLY MOST DEMANDING AREA

0.43 GALLONS / SQUARE FOOT
K = 25.2 (RELIABLE N252 PENDENT), OR EQUIVALENT
100 MAX SQ FT / SPRINKLER HEAD, SPACING 10 FT MAX
64 MIN SQ FT / SPRINKLER HEAD, SPACING 8 FT MIN

12 HEADS AT 60 PSig AS PER FM GLOBAL REFERENCE ABOVE
FLOW PER HEAD = 25.2 x SQ ROOT (60) = 195 GPM
SPRINKLER DEMAND = 12 x 195 GPM = 2342 GPM

HYDRANT DEMAND = 250 GPM FOR 60 MINUTES

FIRE PUMP
2,750 GPM AT 100% RATING

165,000 GALLONS REQUIRED

FIRE ALARM AND NOTIFICATION -- GENERAL NOTES

- A. NATURE AND SCOPE OF WORK**
- PROVIDE A NEW ADDRESSABLE FIRE ALARM AND NOTIFICATION SYSTEM FOR THIS WAREHOUSE. THIS PROJECT INSTALLS AN ALARM AND NOTIFICATION SYSTEM IN BUILDING INFRASTRUCTURE / SUPPORT AREAS, ANY ASSOCIATED PUBLIC SPACES OF EACH BUILDING, AND WITHIN AREAS OF THE BUILDINGS INTENDED FOR COMMON USE.
 - THE ALARM SYSTEM AND ITS DESIGNED INTERFACE TO THE PRIVATE FIRE MAIN AND ITS APPURTENANCES ARE TO BE COORDINATED BETWEEN THE SITE UTILITY CONTRACTOR AND THE SPRINKLER CONTRACTOR.
 - AS PER NFPA 72:23.3.3, THE ENTIRE ALARM SYSTEM WILL PROVIDE, AT MINIMUM;
 - MANUAL FIRE ALARM SIGNAL INITIATION.
 - AUTOMATIC FIRE ALARM AND SUPERVISORY SIGNAL INITIATION.
 - MONITORING OF ABNORMAL CONDITIONS.
 - ACTIVATION OF THE FIRE SUPPRESSION SYSTEM,
 - ACTIVATION OF ANY FIRE SAFETY FUNCTIONS
 - ACTIVATION OF FIRE ALARM NOTIFICATION APPLIANCES
 - IN-BUILDING FIRE EMERGENCY VOICE / ALARM COMMUNICATIONS
 - ACTIVATION OF OFF-PREMISES SIGNALS
 - ALL SYSTEMS TO BE DESIGNED AND INSTALLED BY A DULY LICENSED NEW MEXICO FIRE ALARM CONTRACTOR IN ACCORDANCE WITH ALL CODES AND STANDARDS OF PRACTICE IN EFFECT AT THE TIME OF CONSTRUCTION AND APPROVED FOR USE BY THE ARCHITECT / ENGINEER OF RECORD AND THE LOCAL AUTHORITY HAVING JURISDICTION.
- B. ACCEPTANCE TEST CRITERIA**
- ALL COMPONENTS OF THE FIRE ALARM AND NOTIFICATION SYSTEM WILL BE LISTED BY UL AND OR FM AND ACCEPTABLE TO THE AUTHORITY HAVING JURISDICTION.
 - DESIGN, TESTING, AND CERTIFICATION OF ALL UNDERGROUND AND ABOVE GROUND SYSTEM COMPONENTS AND ANY RELATED COMPONENTS WILL AT MINIMUM CONSIST OF ALL APPLICABLE CODE CRITERIA INCLUDING ANY AND ALL ASSOCIATED TIAS RELATIVE TO THE DESIGN, INSTALLATION, AND ACCEPTANCE TESTING AS REPRESENTED IN:
 - NFPA 72-2013 NATIONAL FIRE ALARM AND SIGNALING CODE
 - CONTRACTOR TO PROVIDE AT COMMISSIONING:
 - NFPA 72-2013 FIGURE 16.1, "CONTRACTOR'S MATERIALS AND TEST CERTIFICATE"
 - NFPA 3-2012 RECOMMENDED PRACTICE ON COMMISSIONING AND INTEGRATED TESTING OF FIRE PROTECTION AND LIFE SAFETY SYSTEMS
 - ALARM AND NOTIFICATION SYSTEMS, BOTH MATERIALS AND METHODS OF INSTALLATION, MUST COMPLY WITH ALL APPLICABLE REQUIREMENTS OF NFPA 72, AND / OR NFPA 70 AND BE ACCEPTED BY THE AUTHORITY HAVING JURISDICTION (AHJ).
- C. APPLICABLE NFPA STANDARDS**
- NFPA 3
 - NFPA 20
 - NFPA 25
 - NFPA 70
 - NFPA 72
 - NFPA 101
- D. CLASSIFICATION OF HAZARD FOR EACH ROOM OR FIRE AREA**
- ALL **BUSINESS AREAS**
 - OCCUPANCY B
 - ORDINARY HAZARD I UNLESS NOTED
 - ALL **UTILITY AREAS**
 - OCCUPANCY U
 - ORDINARY HAZARD II UNLESS NOTED
- E. SEQUENCE OF OPERATION**
- TBD
- F. INITIATING DEVICE CHARACTERISTICS**
- SMOKE AND HEAT DETECTION - TOTAL COVERAGE**
 - AS PER NFPA 72:17.5
 - RECESSED MOUNTING WITH LISTED DEVICES ONLY
 - PARTITION HEIGHT WITHIN 15% OF OVERALL ROOM HEIGHT REQUIRES ADDITIONAL DEVICES ON EITHER SIDE OF THE PARTITION.
 - SEE NFPA 72:17.5.3.1-3 FOR EXCEPTIONS
 - SUPERVISORY SWITCHES**
 - SUPERVISED VALVES TAMPER SWITCHES
 - WATER FLOW SWITCH
 - TROUBLE SWITCH / CIRCUIT NOTIFICATION
- G. NOTIFICATION APPLIANCES**
- HORN STROBES / SPEAKERS**
 - AS REQUIRED BY PLANNED OCCUPANCY

FIRE SUPPRESSION -- GENERAL NOTES

- A. NATURE AND SCOPE OF WORK**
- PROVIDE A NEW FIRE SUPPRESSION SYSTEM FOR THIS WAREHOUSE. THIS PROJECT INSTALLS A WET FIRE SUPPRESSION SYSTEM IN BUILDING INFRASTRUCTURE / SUPPORT AREAS, ANY ASSOCIATED PUBLIC SPACES OF EACH BUILDING, AND WITHIN BUILDINGS INTENDED FOR COMMON USE.
 - THE PRIVATE FIRE MAIN AND ITS APPURTENANCES ARE TO BE COORDINATED BETWEEN THE SITE UTILITY CONTRACTOR AND THE SPRINKLER CONTRACTOR.
 - ALL NEW SPRINKLER SYSTEMS WILL BE AUTOMATIC, WET-PIPE SYSTEMS.
 - ALL SYSTEMS TO BE DESIGNED AND INSTALLED BY A DULY LICENSED NEW MEXICO FIRE UTILITY / SPRINKLER CONTRACTOR IN ACCORDANCE WITH ALL CODES AND STANDARDS OF PRACTICE IN EFFECT AT THE TIME OF CONSTRUCTION AND APPROVED FOR USE BY THE ARCHITECT / ENGINEER OF RECORD AND THE LOCAL AUTHORITY HAVING JURISDICTION.
- B. ACCEPTANCE TEST CRITERIA**
- ALL COMPONENTS OF THE PRIVATE FIRE MAIN, FIRE SUPPRESSION SYSTEMS, AND ALARM CIRCUITS WILL BE LISTED BY UL AND OR FM AND ACCEPTABLE TO THE AUTHORITY HAVING JURISDICTION.
 - DESIGN, TESTING, AND CERTIFICATION OF ALL UNDERGROUND AND ABOVE GROUND WET-PIPE FIRE SPRINKLER SYSTEMS AND ALL RELATED COMPONENTS WILL AT MINIMUM CONSIST OF ALL APPLICABLE CODE CRITERIA INCLUDING ANY AND ALL ASSOCIATED TIAS RELATIVE TO THE DESIGN, INSTALLATION, AND ACCEPTANCE TESTING AS REPRESENTED IN THE FOLLOWING:

FM GLOBAL FORM 82A CONTRACTORS MATERIALS AND TEST CERTIFICATE FOR ABOVEGROUND PIPING
FM GLOBAL FORM 85B CONTRACTORS MATERIALS AND TEST CERTIFICATE FOR BELOWGROUND PIPING,

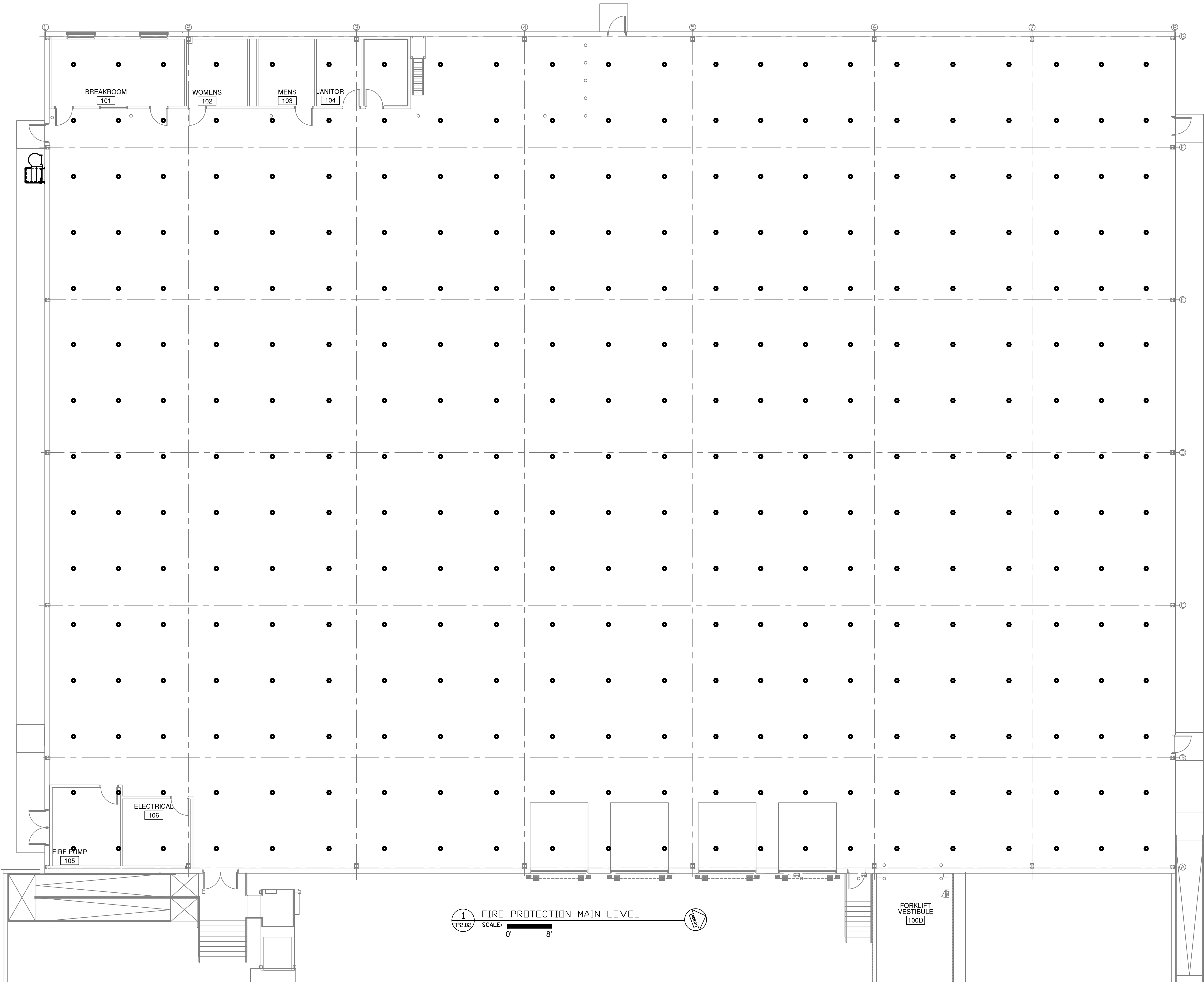
BOTH MATERIALS AND METHODS OF INSTALLATION, MUST COMPLY WITH ALL APPLICABLE REQUIREMENTS OF FM GLOBAL AND NFPA 13, AND BE ACCEPTED BY THE AUTHORITY HAVING JURISDICTION (AHJ).
- C. POINT OF SERVICE**
- THE WATER-BASED SUPPRESSION SYSTEM WILL BE EXTENDED TO PROTECT ANY NEWLY CONSTRUCTED SPACE.
- D. APPLICABLE NFPA STANDARDS**
- NFPA 3
 - NFPA 10
 - NFPA 13
 - NFPA 20
 - NFPA 24
 - NFPA 25
 - NFPA 72
- E. CLASSIFICATION OF HAZARD FOR EACH ROOM OR FIRE AREA**
- ALL **BUSINESS AREAS**
 - OCCUPANCY B
 - ORDINARY HAZARD I UNLESS NOTED
 - 0.15 GALLONS / SQUARE FOOT
 - K = 8.0 (VIKING SPRINKLER 41A PENDENT), OR EQUIVALENT
 - 225 AREA / SPRINKLER HEAD
 - ALL **STORAGE AREAS**
 - OCCUPANCY S-2
 - SEE COMMODITY CLASSIFICATION BELOW
 - ALL **UTILITY AREAS**
 - OCCUPANCY U
 - ORDINARY HAZARD II UNLESS NOTED
 - 0.15 GALLONS / SQUARE FOOT
 - K = 8.0 (VIKING SPRINKLER 41A PENDENT), OR EQUIVALENT
 - 225 AREA / SPRINKLER HEAD
- F. CHARACTERISTICS OF THE WATER SUPPLY**
- THE UNDERGROUND FIRE SPRINKLER MAIN IS CONNECTED TO THE NEW WATER-BASED FIRE RISER. THE SOURCE OF WATER IS THE EXISTING STORAGE TANK LOCATED WITHIN 400 FEET OF THE NEW WAREHOUSE. ACCESSIBLE BY ESTABLISHED TRUCK DRIVEWAYS.
- G. FLOW TEST DATA**
- THE UTILITY CONTRACTOR IS RESPONSIBLE TO PROVIDED MODELED, AND MEASURED FLOWS AND RESIDUAL PRESSURES GIVEN THE NEW PRIVATE DELIVERY NETWORK.
 - FOR CONSTRUCTION TYPE IIA FULLY SPRINKLED, REQUIRED FIRE FLOW IS 2,500 GPM FOR 2 HOURS (IFC 2009 TABLE B105.1), OR OTHERWISE AS DETERMINED BY THE AHJ.
- H. VALVING AND ALARM REQUIREMENTS**
- EACH FIRE SPRINKLER RISER WILL HAVE A FLOW SWITCH, ALL VALVES THAT COULD POTENTIALLY INTERRUPT FLOW TO THE RISERS WILL HAVE A TAMPER SWITCH (INCLUSIVE OF VALVES ASSOCIATED WITH THE PRESSURE REDUCTION BACKFLOW PREVENTER). ALL SWITCHES WILL BE CONNECTED TO A FIRE CONTROL PANEL (FCP) WITH AN AUDIBLE ALARM AND REMOTELY MONITORED.


JULY 16, 2015

R² ARCHITECTURAL DESIGN
730 SAN MATEO BLVD. SE STE-1
ALBUQUERQUE, NEW MEXICO 87108
TEL: 505.884.9694 FAX: 888.892.5814

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- KEY NOTES
1. SWING JOINT BELOW RIDGE BEAM NOT SHOWN
 2. ROTATE CONNECTION TO ALLOW BRANCH LINES TO REMAIN PARALLEL TO THE FINISHED CEILING.
 3. SWIVEL JOINTS AT MID SPAN BELOW RIDGE BEAM FOR EACH BRANCH LINE.
 4. ROTATE VERTICAL SECTION APPROXIMATELY 4" TO MATCH CEILING SLOPE.

- GENERAL NOTES
- A. ALL SPRINKLER HEAD DEFLECTORS SHOWN ARE LOCATED WITHIN 17" OF THE FINISHED CEILING UNLESS OTHERWISE NOTED.
 - B. SEE FP503 FOR CEILING LEVEL SPRINKLER HEAD SPACING.
 - C. SEE FP201 GENERAL NOTES FOR SPRINKLER HEAD DENSITY IN WAREHOUSE SUPPORT AREAS.
 - D. ENTRANCE TO THE FIRE PUMP ROOM IS 12" DIAMETER.
 - E. CONTRACTOR TO INSTALL FIRE PUMP AND SIZE THE SUCTION PIPE SUCH THAT, WITH THE PUMP OPERATING AT 150% OF ITS RATED CAPACITY, THE VELOCITY IN THAT PORTION OF THE SUCTION PIPE LOCATED WITHIN 10 PIPE DIAMETERS UPSTREAM OF THE PUMP SUCTION FLANGE, DOES NOT EXCEED 15 FT / SECOND.
 - F. SEE NFPA 20:4.13.3.3
- SEISMIC BRACING NOT SHOWN. CONTRACTOR TO PROVIDE AND INSTALL SEISMIC BRACING AS PER ZONE

EDWARD J. HENDERSON, JR.
NEW MEXICO
17053
LICENSED PROFESSIONAL ENGINEER

EDWARD J. HENDERSON, JR.
JULY 16, 2015

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RAYTHEON WAREHOUSE

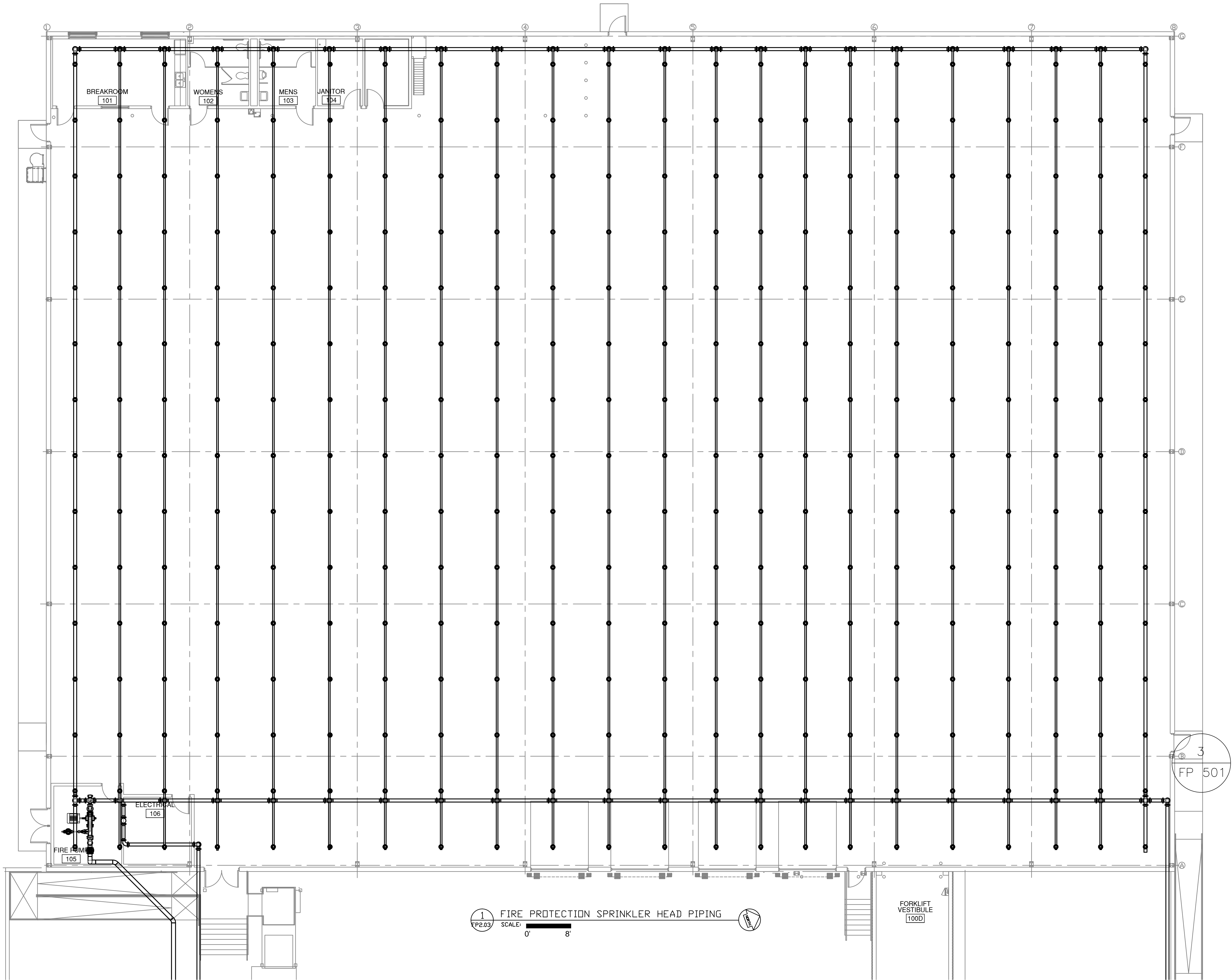
10059 HWY 371 SOUTH
FARMINGTON, NM 87401

FIRE PROTECTION MAIN LEVEL

1

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- KEY NOTES
1. SWING JOINT BELOW RIDGE BEAM NOT SHOWN
 2. ROTATE CONNECTION TO ALLOW BRANCH LINES TO REMAIN PARALLEL TO THE FINISHED CEILING.
 3. SWIVEL JOINTS AT MID SPAN BELOW RIDGE BEAM FOR EACH BRANCH LINE.
 4. ROTATE VERTICAL SECTION APPROXIMATELY 4" TO MATCH CEILING SLOPE.

- GENERAL NOTES
- A. ALL SPRINKLER HEAD DEFLECTORS SHOWN ARE LOCATED WITHIN 17" OF THE FINISHED CEILING UNLESS OTHERWISE NOTED.
 - B. SEE FP503 FOR CEILING LEVEL SPRINKLER HEAD SPACING.
 - C. SEE FP201 GENERAL NOTES FOR SPRINKLER HEAD DENSITY IN WAREHOUSE SUPPORT AREAS.
 - D. ENTRANCE TO THE FIRE PUMP ROOM IS 12" DIAMETER.
 - E. CONTRACTOR TO INSTALL FIRE PUMP AND SIZE THE SUCTION PIPE SUCH THAT, WITH THE PUMP OPERATING AT 150% OF ITS RATED CAPACITY, THE VELOCITY IN THAT PORTION OF THE SUCTION PIPE LOCATED WITHIN 10 PIPE DIAMETERS UPSTREAM OF THE PUMP SUCTION FLANGE, DOES NOT EXCEED 15 FT / SECOND.
 - F. SEE NFPA 20:4.13.3.3 SEISMIC BRACING NOT SHOWN. CONTRACTOR TO PROVIDE AND INSTALL SEISMIC BRACING AS PER ZONE

EDWARD J. HENDERSON, P.E.
NEW MEXICO
17053
PROFESSIONAL ENGINEER
JULY 16, 2015

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RAYTHEON WAREHOUSE
10059 HWY 371 SOUTH
FARMINGTON, NM 87401
FIRE PROTECTION SPRINKLER HEAD PIPING

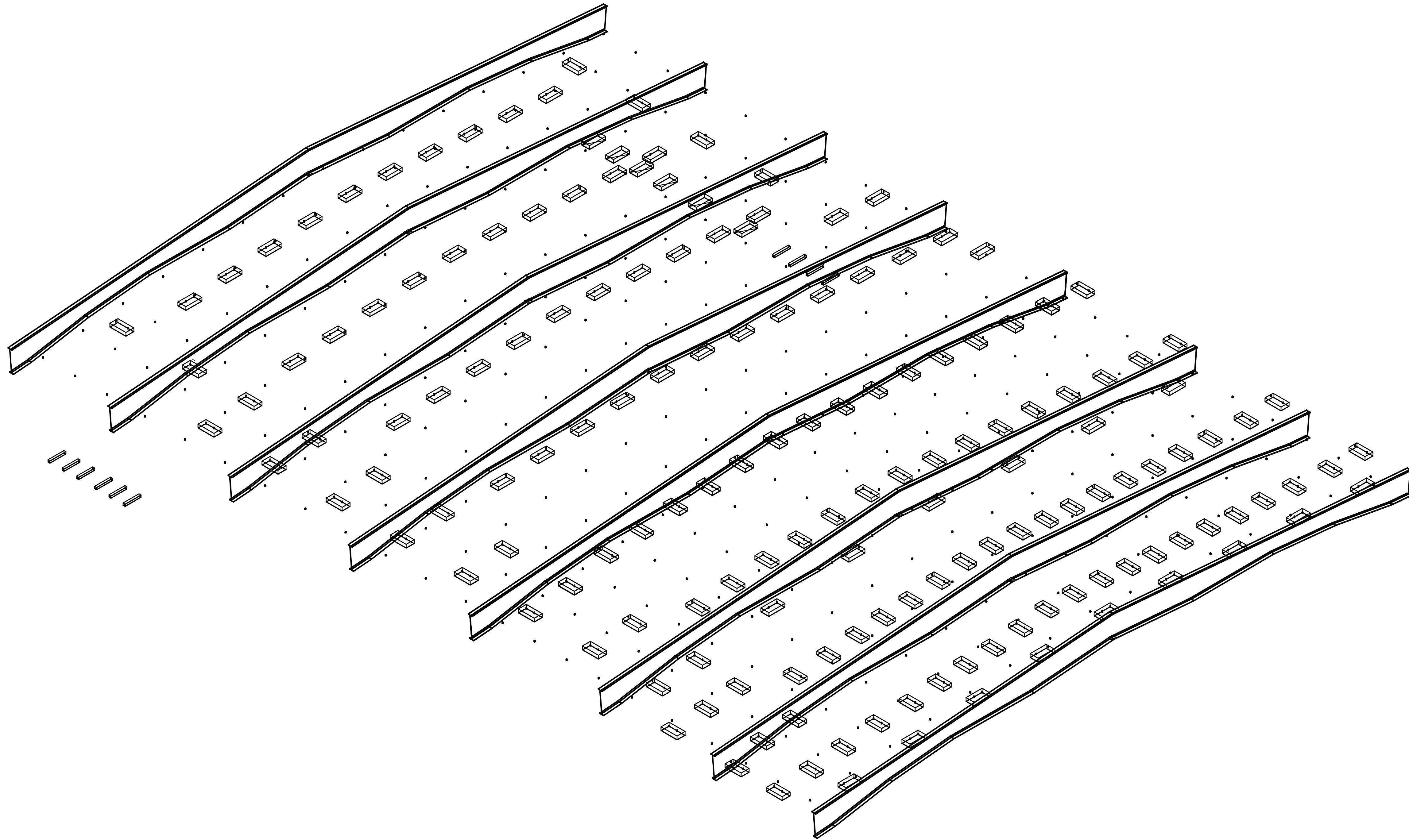
SHEET-
FP2.03



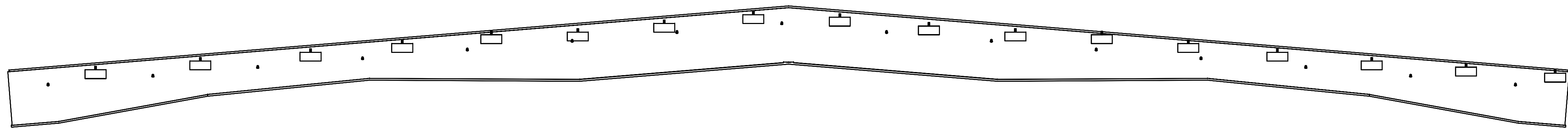
- | GENERAL NOTES | |
|---------------|---|
| A. | ALL SPRINKLER HEAD DEFLECTORS SHOWN ARE LOCATED WITHIN 17" OF THE FINISHED CEILING UNLESS OTHERWISE NOTED. |
| B. | SEE FP003 FOR CEILING LEVEL SPRINKLER HEAD SPACING. |
| C. | SEE FP201 GENERAL NOTES FOR SPRINKLER HEAD DENSITY IN WAREHOUSE SUPPORT AREAS. |
| D. | ENTERANCE TO THE FIRE PUMP ROOM IS 12" DIAMETER |
| E. | CONTRACTOR TO INSTALL FIRE PUMP AND SIZE THE SUCTON PIPE SUCH THAT, WITH THE PUMP OPERATING AT 150% OF ITS RATED CAPACITY, THE VELOCITY IN THAT PORTION OF THE SUCTON PIPE LOCATED WITHIN 10 PIPE DIAMETERS UPSTREAM OF THE PUMP SUCTON FLANGE, DOES NOT EXCEED 15 FT / SECOND. |
| F. | SEE NFPA 20:4.13.3.3.
SEISMIC BRACING NOT SHOWN. CONTRACTOR TO PROVIDE AND INSTALL SEISMIC BRACING AS PER ZONE |

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TEL: 505.884.9694 FAX: 888.892.5814

RAYTHEON WAREHOUSE 10059 HWY 371 SOUTH FARMINGTON, NM 87401 FIRE PROTECTION MAIN LEVEL ISOMETRIC	DRAWN BY:		NO.	DATE	COMMENTS
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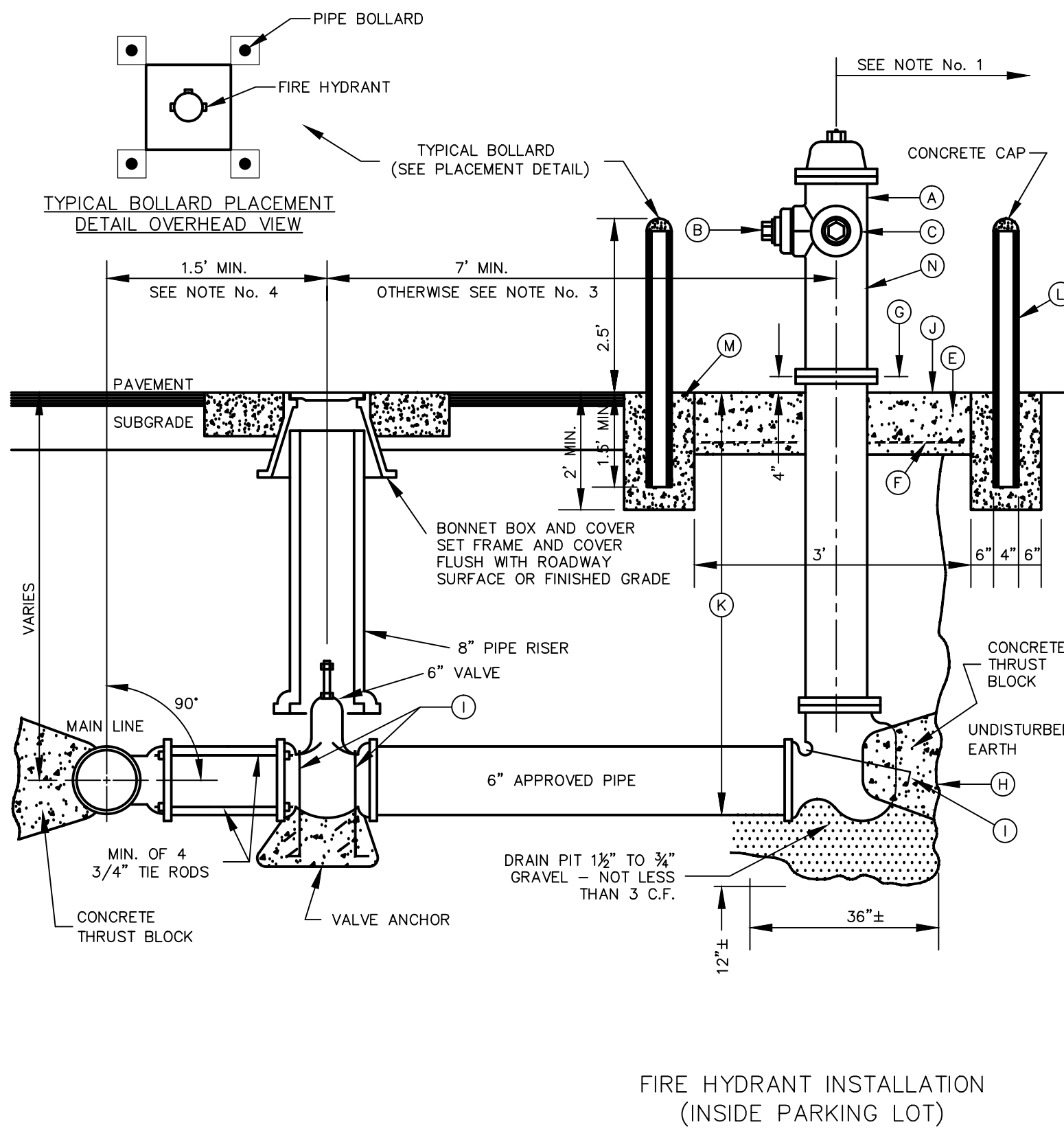
1 FIRE PROTECTION CEILING COORDINATION ISOMETRIC
FP2.05 SCALE: NTS



2 FIRE PROTECTION CEILING COORDINATION SIDE VIEW
FP2.05 SCALE: NTS

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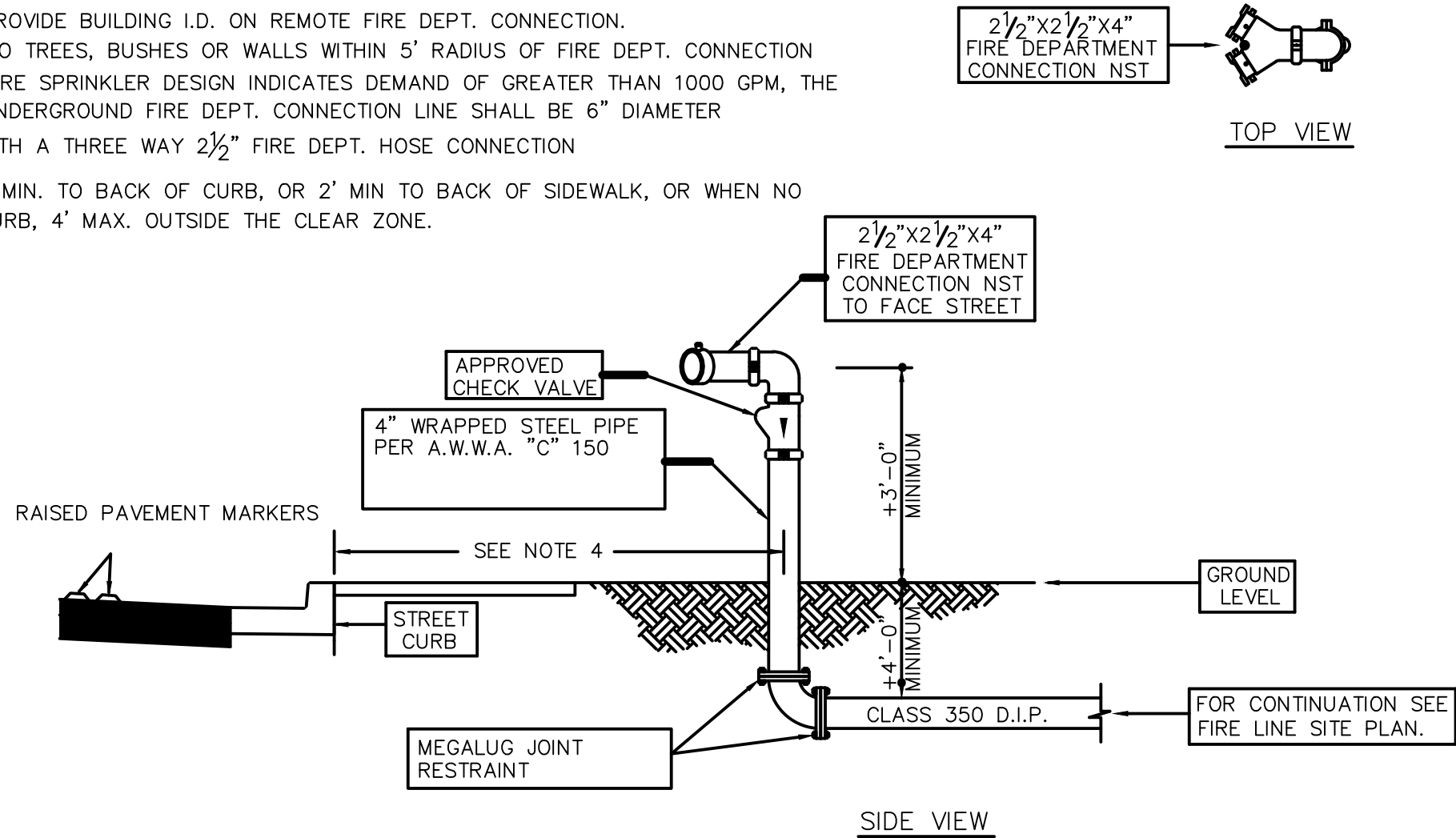
- GENERAL NOTES:**
1. NO OBSTRUCTIONS WILL BE PERMITTED WITHIN 5 FT. IN ALL DIRECTIONS OF FIRE HYDRANT. FIRE HYDRANT SHALL NOT BE PLACED IN WHEEL CHAIR RAMP OR DRIVEWAY.
 2. FIRE HYDRANT SHALL BE LOCATED AT THE BEGINNING OF CURB RETURN OR AT THE PROPERTY LINE COMMON TO ADJOINING LOTS, UNLESS OTHERWISE SHOWN ON PLANS.
 3. INSTALLATION MUST BE > 7'-0".
 4. VALVE MAY BE CONNECTED TO TEE AT MAIN LINE. USE FLANGED MECHANICAL JOINT ENDS, WHERE SPOOL IS REQUIRED BETWEEN TEE AND VALVE, USE FLANGED MECHANICAL ENDS WITH 3/4" DIAMETER TIE RODS.
 5. COMPLY WITH REQUIREMENTS OF AWWA C-502, DRY BARREL FIRE HYDRANTS AND AWWA C-550, PROTECTIVE EPOXY INTERIOR COATINGS FOR VALVES AND HYDRANTS.
- CONSTRUCTION KEY NOTES:**
- A. FIRE HYDRANT PER SPEC'S.
 - B. PUMPER NOZZLE 4" TO BE FACING THE TRAVELED WAY, UNLESS OTHERWISE NOTED IN THE PLANS.
 - C. HOSE NOZZLE 2 1/2".
 - D. 3/4" PREMOLOD EXPANSION JOINT WITH 1" TOP FILLER.
 - E. 3'x3'x6" CONC. SQ. PAD, TO BE CONSTRUCTED AROUND FIRE HYDRANT'S CENTER LINE WHEN NOT LOCATED WITHIN SIDEWALK OR CONC. AREA.
 - F. #10; 6/6 WWF.
 - G. CONTROLLED ELEVATION LINE, LEVEL IN ALL DIRECTIONS. CONTRACTOR SHALL BE RESPONSIBLE FOR SETTING TOP FLANGE OF THE HYDRANT TO CONTROLLED ELEVATION.
 - H. CONC. THRUST BLOCK, APPROX. 2'x2'x3' TO BE POURED AGAINST UNDISTURBED EARTH, F.H. WEEP HOLE MUST BE UNOBSTRUCTED.
 - I. 2"x1/4" STEEL ANCHOR PINS.
 - J. TOP OF SLAB SHALL BE AT FINISHED GRADE 4" BELOW THE BREAK LINE OF THE HYDRANT. UNDER SPECIAL CONDITIONS THE ENGINEER MAY ALLOW VARIATIONS TO THIS CONSTRUCTION.
 - K. MAXIMUM OF ONE (1) SPOOL EXTENSION ALLOWED TO MAINTAIN THE CONTROLLED ELEVATION LINE TO TOP OF SLAB. ADDITIONAL ADJUSTMENT MUST ME MADE WITH OFFSETS & FITTINGS AS NEEDED.
 - L. 4" OUTSIDE DIAMETER STEEL PIPE (PAINTED SAFETY YELLOW) FILLED SOLID WITH CONCRETE.
 - M. 3000 P.S.I. CONCRETE.
 - N. REQUIRED - DAVIDSON ANTI TERRORISM CORROSION RESISTANT VALVE KIT (DATV).
 - O. MEGALUG JOINTS AND TIE RODS ARE REQUIRED AT ALL UNDERGROUND JOINTS.

N.T.S.

2 FIRE HYDRANT
SCALE: N.T.S.

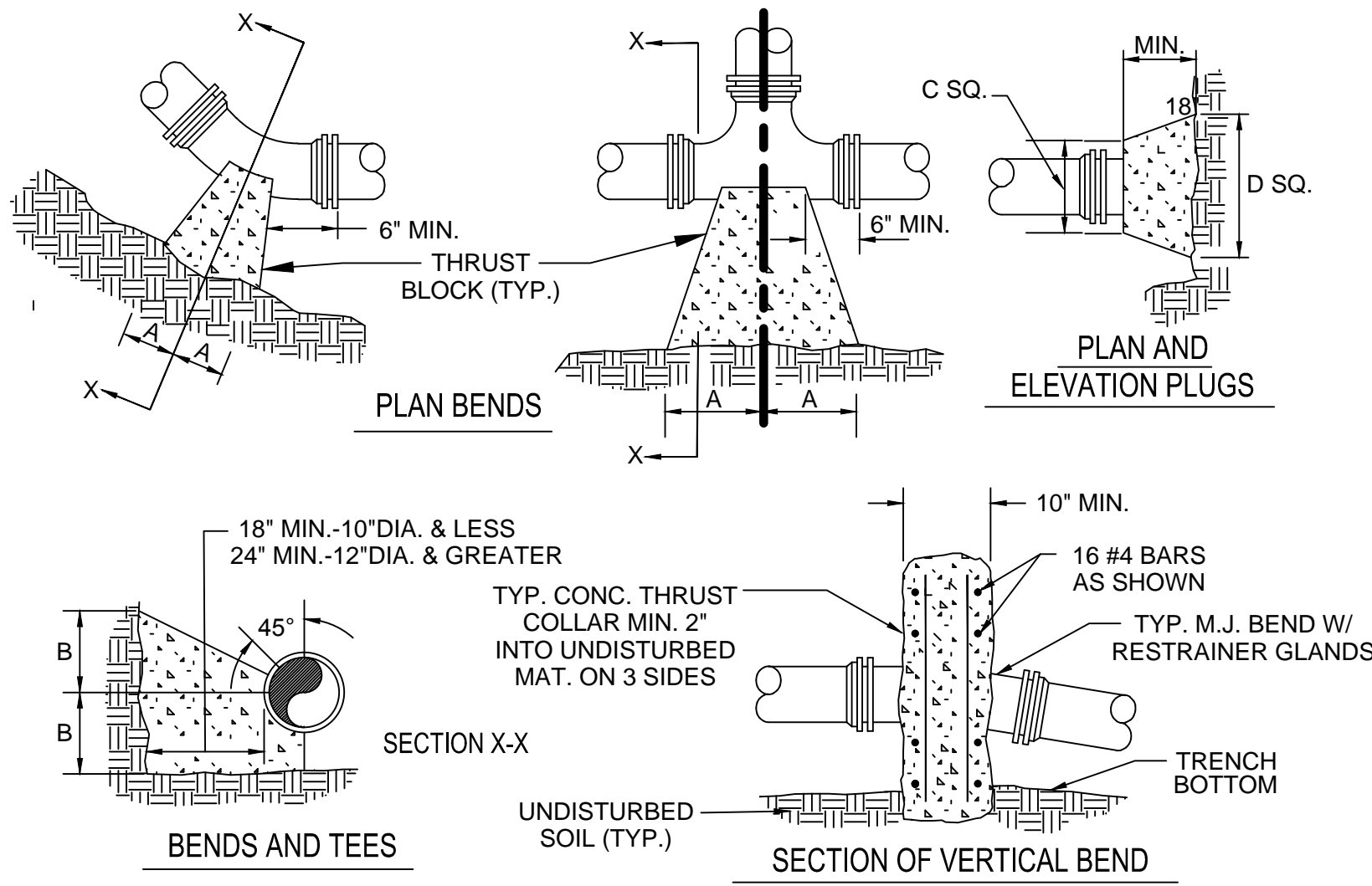
GENERAL NOTES

1. PROVIDE BUILDING I.D. ON REMOTE FIRE DEPT. CONNECTION.
2. NO TREES, BUSHES OR WALLS WITHIN 5' RADIUS OF FIRE DEPT. CONNECTION
3. FIRE SPRINKLER DESIGN INDICATES DEMAND OF GREATER THAN 1000 GPM, THE UNDERGROUND FIRE DEPT. CONNECTION LINE SHALL BE 6" DIAMETER WITH A THREE WAY 2 1/2" FIRE DEPT. HOSE CONNECTION
4. 4' MIN. TO BACK OF CURB, OR 2' MIN TO BACK OF SIDEWALK, OR WHEN NO CURB, 4' MAX. OUTSIDE THE CLEAR ZONE.



FIRE DEPARTMENT
REMOTE SIAMESE CONNECTION

1 REMOTE FDC
SCALE: N.T.S.



NOTES:

1. FOR VERT. BEND DOWN IN EXCESS OF 11 1/4" BEND, ANCHORAGE SHALL BE DESIGNED BY ENGINEER.
2. FOR VERT. BEND UPWARD, BLOCKING TO BE SIMILAR TO THAT FOR HORIZ. BEND.
3. GLANDS & BOLTS SHALL BE PROTECTED FROM CONC. BY PLASTIC SHEETING WHEN POURING THRUST BLOCKS.
4. ALL THRUST BLOCK & SUPPORT CONC. SHALL BE 3000 PSI READY MIX CONC.
5. THRUST BLOCKS WITH 'B' DIMENSION GREATER THAN 30" SHALL HAVE THE RESTRAINED PIPE INSTALLED WITH A MINIMUM OF 4' OF COVER.
6. IF UNDER 100 PSI WORKING PRESSURE, RESTRAINT JOINTS MUST BE USED. IF EQUAL OR GREATER THAN 100 PSI WORKING PRESSURE, BOTH BLOCK AND RESTRAINT JOINTS ARE REQUIRED.
7. ALL PIPE JOINTS REQUIRE MEGALUG JOINT RESTRAINTS. RESTRAINT TO BE APPROVED IN ADVANCE BY ENGINEER.

PRESSURE = 200 psi
BEARING = 2000 psf
FACTOR OF SAFETY = 1.5

PIPE SIZE	90° BEND		45° BEND		22 1/2° BEND		11 1/4° BEND		TEE		PLUG	
	A	B	A	B	A	B	A	B	A	B	C	D
4"	8"	12"	8"	8"	6"	6"	6"	6"	11"	9"	10"	6"
6"	18"	12"	8"	10"	8"	8"	8"	8"	11"	10"	12"	18"
8"	18"	13"	10"	10"	8"	8"	8"	8"	11"	12"	24"	
10"	20"	16"	12"	14"	8"	12"	8"	12"	14"	16"	16"	30"
12"	20"	16"	12"	14"	8"	12"	8"	12"	14"	16"	16"	30"
16"	26"	20"	16"	18"	11"	13"	11"	13"	18"	20"	20"	36"
24"	82"	42"	62"	30"	44"	22"	22"	16"	82"	42"	82"	42"
30"	185"	42"	100"	42"	52"	42"	40"	30"	185"	42"	185"	42"

3 THRUST BLOCK CONSTRUCTION
SCALE: N.T.S.

NO.	DATE	COMMENTS
1	07/16/15	REVISED FOR RE-BID
2	07/16/15	AS SHOWN

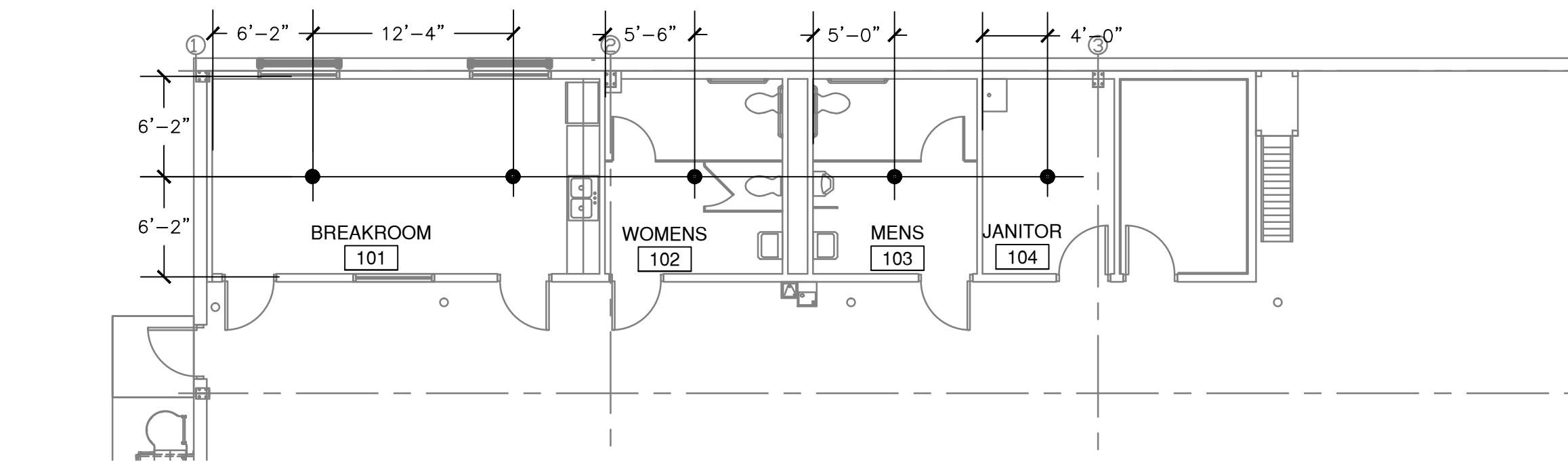
R² ARCHITECTURAL DESIGN
730 SAN MATEO BLVD. SE STE-1
ALBUQUERQUE, NEW MEXICO 87108
TEL: 505.884.9694 FAX: 888.892.5814

DRAWN BY:		R E V S I O N	N O. D A T E	07/16/15	COMMENTS
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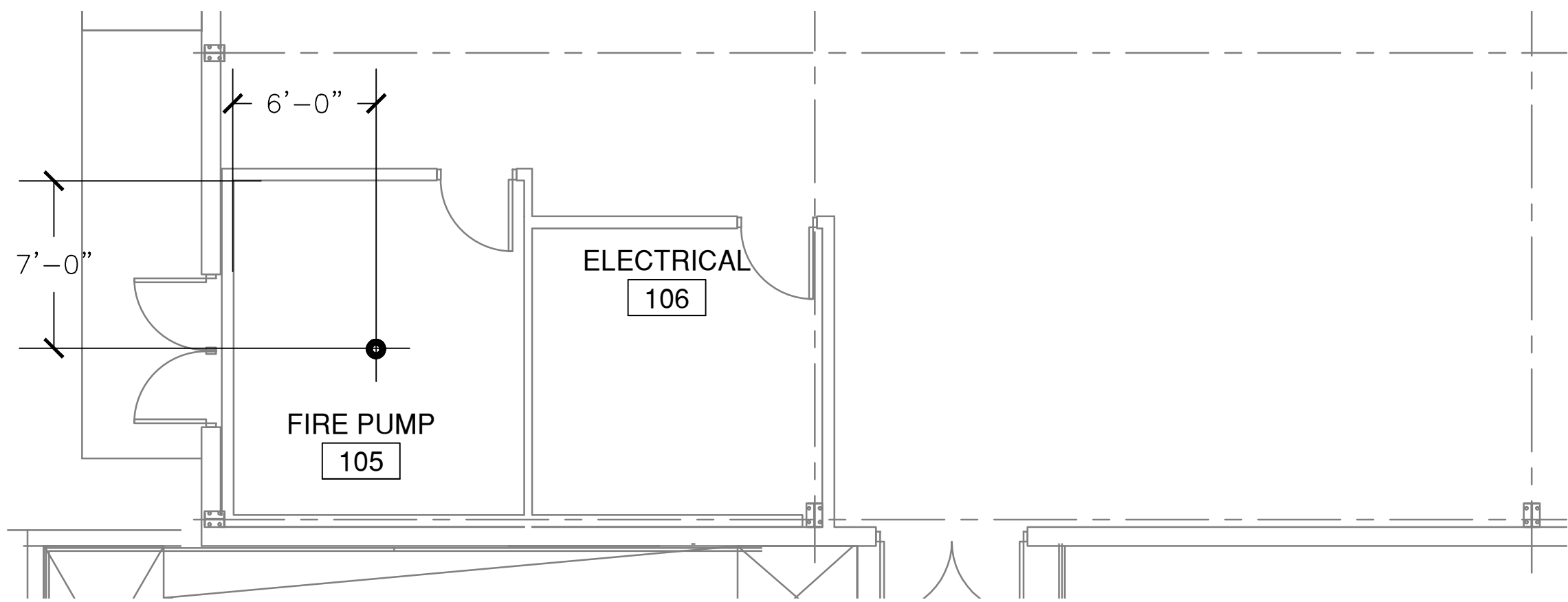
RAY IHEON WAREHOUSE
10059 HWY 371 SOUTH
FARMINGTON, NM 87401

FIRE PROTECTION ROOM DETAILS

**-SHEET-
FP5.02**



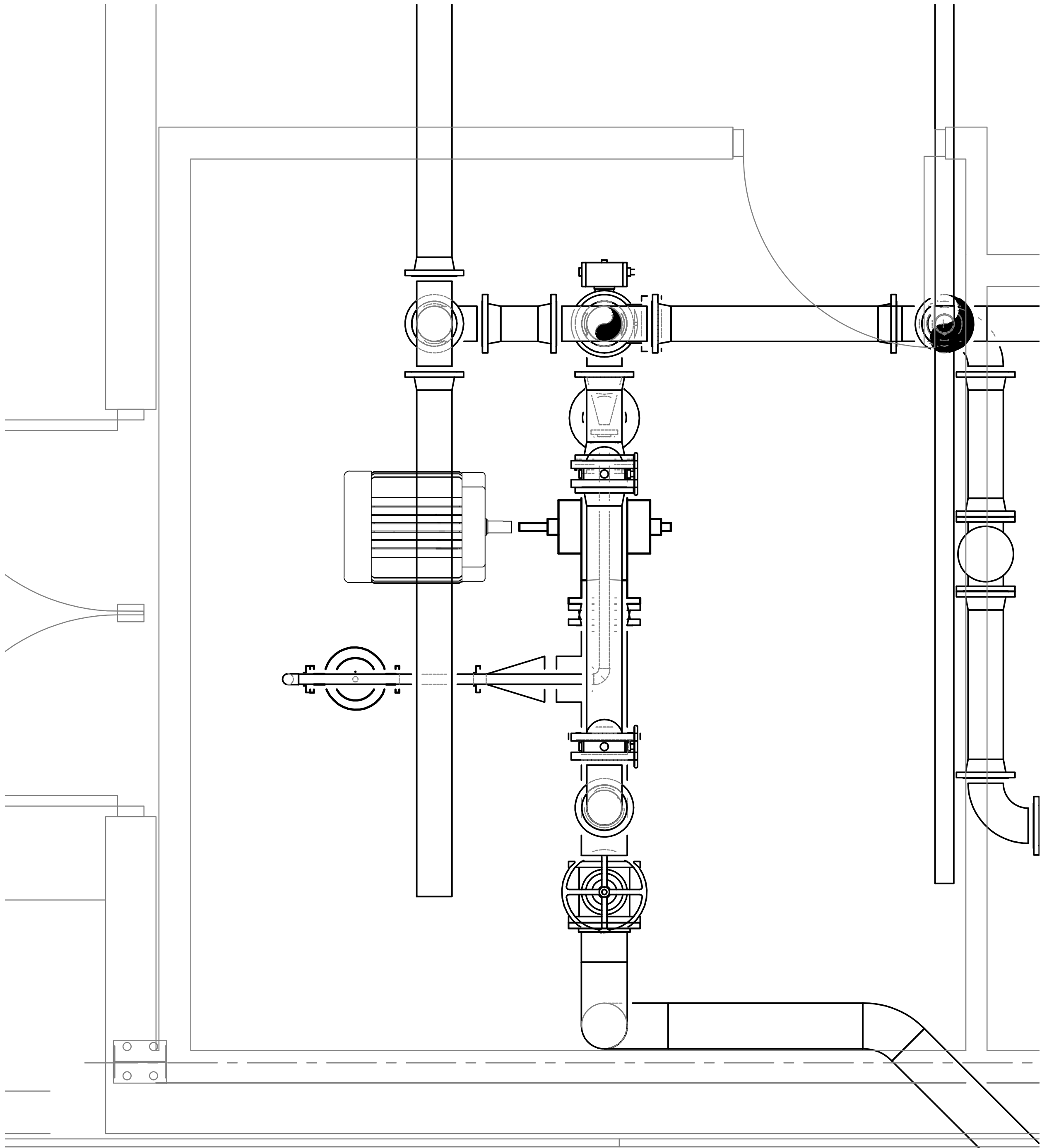
PLAN VIEW OF SPRINKLERS IN THE DRY WALL ROOM



3 PLAN VIEW OF SPRINKLERS IN THE FIRE PUMP ROOM

FP502 SCALE: 0' 6'

1/4" = 1'-0"

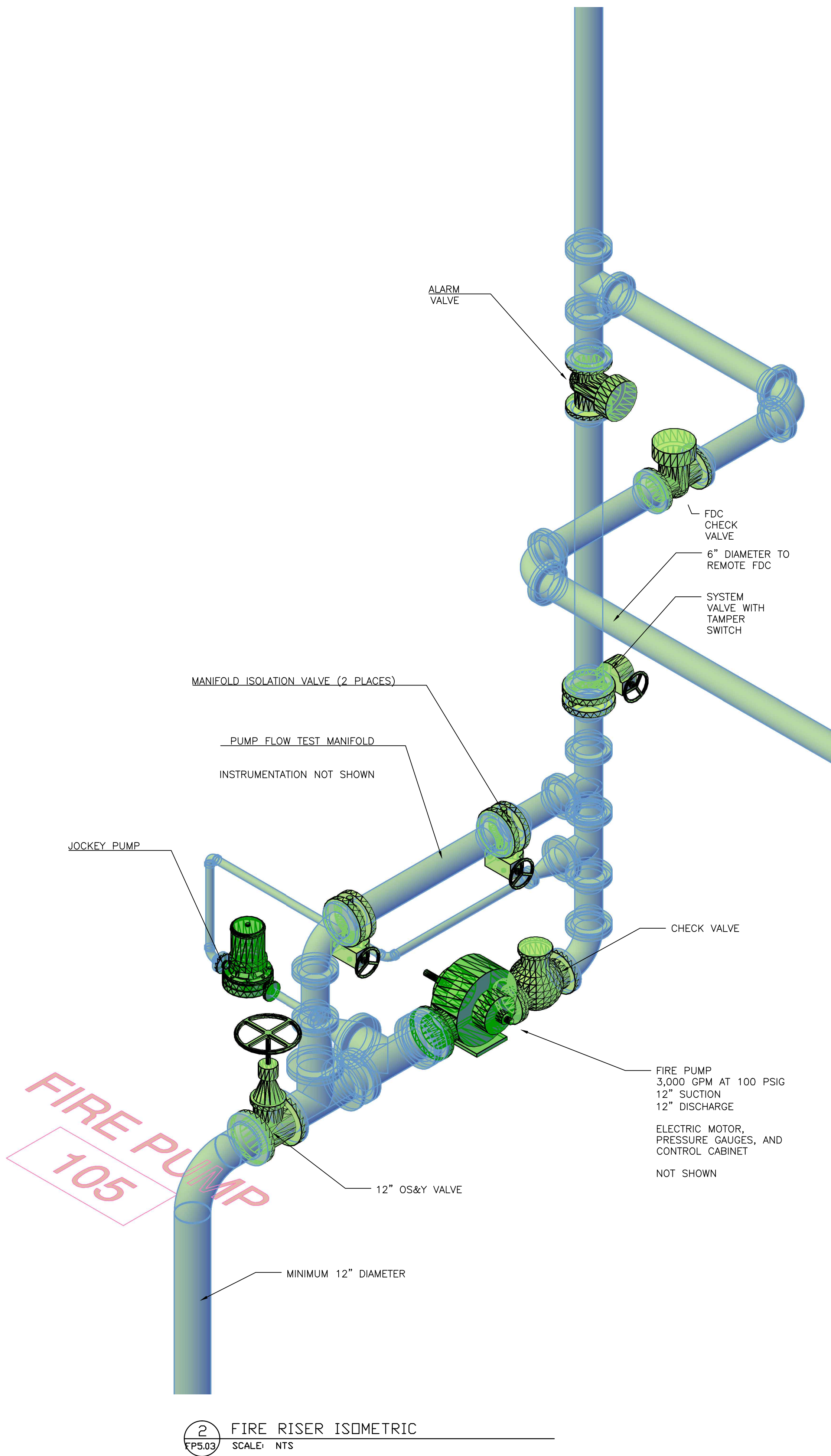


1 PLAN VIEW OF FIRE PUMP ROOM

FP502 SCALE: 0' 6'



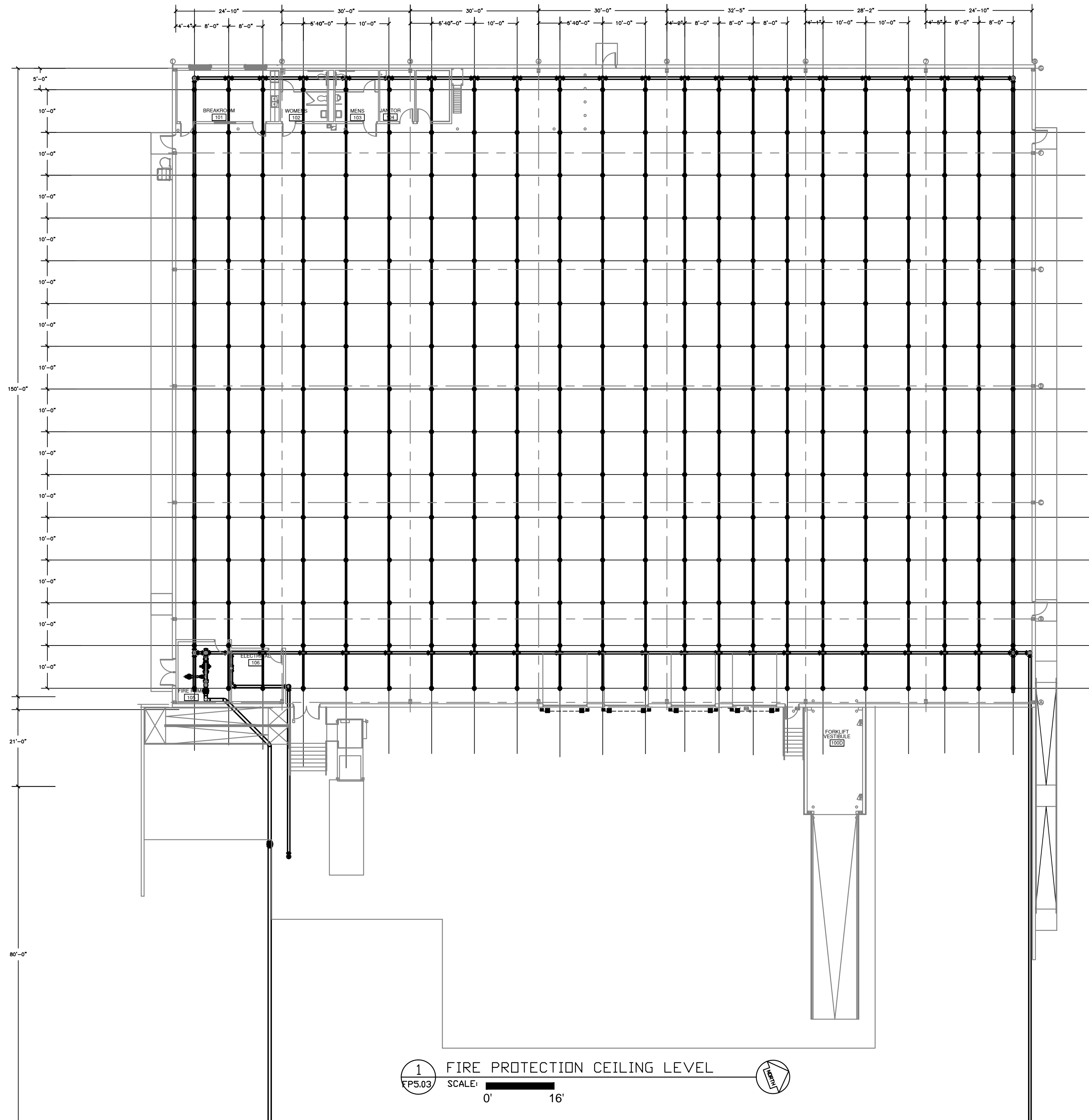
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2 FIRE RISER ISOMETRIC
SCALE: NTS

- GENERAL NOTES
- ALL SPRINKLER HEAD DEFLECTORS SHOWN ARE LOCATED WITHIN 12" OF THE FINISHED CEILING UNLESS OTHERWISE NOTED.
 - SEE FP5.03 FOR CEILING LEVEL SPRINKLER HEAD SPACING.
 - SEE FP201 GENERAL NOTES FOR SPRINKLER HEAD DENSITY IN WAREHOUSE SUPPORT AREAS.
 - ENTRANCE TO THE FIRE PUMP ROOM IS 12" DIAMETER.
 - CONTRACTOR TO INSTALL FIRE PUMP AND SIZE THE SUCTION PIPE SUCH THAT, WITH THE PUMP OPERATING AT 150% OF ITS RATED CAPACITY, THE VELOCITY IN THAT PORTION OF THE SUCTION PIPE LOCATED WITHIN 10 PIPE DIAMETERS UPSTREAM OF THE PUMP SUCTION FLANGE, DOES NOT EXCEED 15 FT / SECOND.
 - SEE NFPA 20-4.13.3.3
 - SEISMIC BRACING NOT SHOWN. CONTRACTOR TO PROVIDE AND INSTALL SEISMIC BRACING AS PER ZONE

- KEY NOTES
- SWING JOINT BELOW RIDGE BEAM NOT SHOWN. ROTATE CONNECTION TO ALLOW BRANCH LINES TO REMAIN PARALLEL TO THE FINISHED CEILING.
 - SWIVEL JOINTS AT MID SPAN BELOW RIDGE BEAM FOR EACH BRANCH LINE.
 - ROTATE VERTICAL SECTION APPROXIMATELY 4" TO MATCH CEILING SLOPE.



1 FIRE PROTECTION CEILING LEVEL
SCALE: 0' 16'

EDWARD J. HENDERSON, JR.
NEW MEXICO
17053
JULY 16, 2015

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RAYTHEON WAREHOUSE
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FARMINGTON, NM 87401
FIRE PROTECTION CEILING LEVEL & RISER ISOMETRIC

SHEET-
FP5.03