



State of Utah

GARY R. HERBERT  
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Lieutenant Governor

Department of Administrative Services

KIMBERLY K. HOOD  
Executive Director

Division of Facilities Construction and Management

DAVID G. BUXTON  
Director

## ADDENDUM #1

Date: June 17, 2010

To: Contractors

From: Lucas Davis, Project Manager, DFCM

Reference: Utah State Mail & Distribution Services Remodel  
DFCM – Salt Lake City, Utah  
Project No.09258310

Subject: **Addendum No. 1**

Pages	Addendum Coversheet	1 page
	<u>Architects Addendum</u>	<u>6 pages</u>
	Total	7 pages

**Note:** *This Addendum shall be included as part of the Contract Documents. Items in this Addendum apply to all drawings and specification sections whether referenced or not involving the portion of the work added, deleted, modified, or otherwise addressed in the Addendum. Acknowledge receipt of this Addendum in the space provided on the Bid Form. Failure to do so may subject the Bidder to Disqualification.*

While we contend that SB220 should only be potentially applicable to a contract issued after the effective date of said bill, this is to clarify that for purposes of this contract, regardless of the execution or effective dates of this contract, the status of Utah Law and remedies available to the State of Utah and DFCM, as it relates to any matter referred to or affected by said SB220, shall be the Utah law in effect at the time of the issuance of this Addendum.

**1.1 SCHEDULE CHANGES** – There are no changes to the project schedule.

**1.2 GENERAL** – NJRA Architects - Please see attached.

**Utah!**  
Where ideas connect



# ADDENDUM

Date: June 17, 2010

Addendum Number: 1

Project Name: **Utah State Mail Addition & Remodel**  
250 North 1950 West  
Salt Lake City, Utah

The Contractors submitting proposals on the above captioned project shall be governed by the following addendum, changes and explanations to the drawings and specifications and shall submit their bids in accordance therewith.

## Description:

### **General Items**

### **Drawings**

#### Sheet A-102

1. Field verify location of existing water sprinkler line buried under existing concrete slab. Centered on the existing water sprinkler cut and remove 1'-0" x continuous concrete slab. See Keynote #37.

#### Sheet A-105

1. New 2-1/2 inch diameter PVC pipe sleeve to be located 6 inch minimum below new concrete. Relocate 3/4 inch water sprinkler pipe to run through the sleeve and reconnect the water sprinkler pipe as to make the system work properly. See Keynote #30.

#### Sheet PE001

Plumbing Specifications 15420 – DRAINAGE AND VENT SYSTEMS.

1. Revise note 4 to read as follows: "4. ABOVE GROUND ROOF DRAIN LINES, EXCEPT IN AIR PLENUMS AND ANYWHERE IN A FIRE RATED BUILDING, SHALL BE FULLY WELDED GALVANIZED SCHEDULE 40 STEEL PIPE."
2. Revise note 5 to read as follows: "5. ALL ROOF DRAIN LINES INSIDE AIR PLENUMS, OR ANYWHERE IN FIRE RATED BUILDING, SHALL BE FULLY WELDED GALVANIZED SCHEDULE 40 STEEL PIPE."

#### Sheet ME002

MECHANICAL SPECIFICATIONS 15420 – DRAINAGE AND VENT SYSTEMS

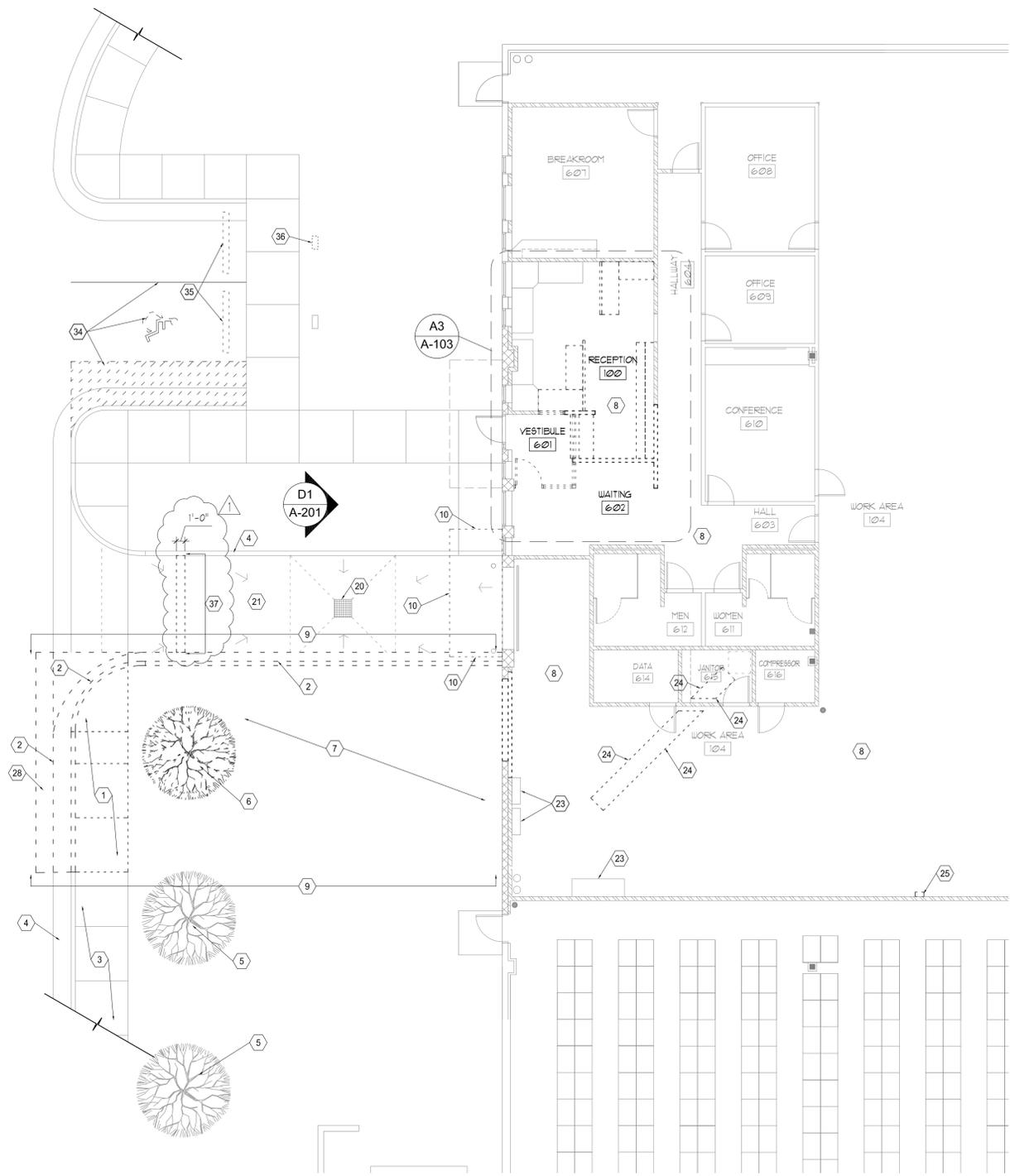
1. Revise note 3 to read as follows: "3. ABOVE GROUND ROOF LINES, EXCEPT IN AIR PLENUMS AND ANYWHERE IN A FIRE RATED BUILDING, SHALL BE FULLY WELDED GALVANIZED SCHEDULE 40 STEEL PIPE."
2. Revise note 4 to read as follows: "4. ALL ROOF DRAIN LINES INSIDE AIR PLENUMS, OR ANYWHERE IN A FIRE RATED BUILDING, SHALL BE FULLY WELDED GALVANIZED SCHEDULE 40 STEEL PIPE."
3. Fire protection Specifications 211313 – WET-PIPE FIRE SPRINKLER SYSTEM has been added.

***Project Manual***

**SECTION 07450 – THERMOPLASTIC MEMBRANE ROOFING**

1. Page 5, PART 2, 2.2 Membrane, add the following:
  3. Johns Manville PVC 60
  4. EverGuard PVC Roofing System Specification P-MA-N-I-60

Attachments: Sheets A-102, A-105, PE001, ME002



**A1** Level 1 Demolition Floor Plan  
1/8" = 1'-0"



- KEYED NOTES** ○ NOTE: KEYED NOTES ARE COMMON FOR SHEETS A-102 - A-103. HENCE SOME KEYED NOTES MAY NOT APPEAR ON DRAWINGS IN THIS SHEET.
- EXISTING CONCRETE SIDEWALK TO BE REMOVED.
  - EXISTING CONCRETE CURB AND GUTTER TO BE REMOVED.
  - EXISTING CONCRETE SIDEWALK TO REMAIN.
  - EXISTING CONCRETE CURB AND GUTTER TO REMAIN.
  - EXISTING TREES, SHRUBS, OR LANDSCAPING TO REMAIN. PROTECT FROM DAMAGE DURING DEMOLITION AND CONSTRUCTION ACTIVITIES.
  - EXISTING TREE TO BE REMOVED.
  - EXISTING GRASS AND ASSOCIATED SPRINKLER SYSTEM TO BE REMOVED IN THIS AREA.
  - EXISTING BUILDING TO REMAIN. BUILDING WILL BE USED DURING CONSTRUCTION. COORDINATE ALL ITEMS AFFECTING THE BUILDING, INCLUDING UTILITY SHUT-DOWNS, LARGE AND NOISY EQUIPMENT OPERATION, ETC., WITH BUILDING USERS.
  - COORDINATE EDGE OF DEMOLITION WITH REQUIRED WORK AND NEW SITE PLAN.
  - EXISTING OVERHEAD CANOPY TO BE REMOVED. PATCH AND REPAIR CMU WALL.
  - EXISTING ALUMINUM WINDOW AND DOOR ASSEMBLY TO BE REMOVED. SAVE AND PROTECT DOOR TO BE REUSED LATER.
  - OVERHEAD CABINETS TO BE REMOVED SAVE AND PROTECT DURING DEMOLITION AND CONSTRUCTION FOR RE-INSTALLATION IN NEW LOCATION.
  - WALLS TO BE REMOVED.
  - WINDOW TO BE REMOVED SAVE AND PROTECT DURING DEMOLITION AND CONSTRUCTION FOR RE-INSTALLATION.
  - COUNTERTOP TO BE REMOVED.
  - EXISTING LIGHTING TO BE REMOVED.
  - CEILING GRID AND TILES TO BE REMOVED. SAVE AND PROTECT DURING DEMOLITION AND CONSTRUCTION FOR RE-INSTALLATION.
  - EXISTING MECHANICAL AIR RETURN AND DIFFUSERS TO BE REMOVED. SEE MECHANICAL DRAWINGS FOR EXTENT OF MECHANICAL DUCT REMOVAL.
  - EXISTING GYPSUM BOARD CEILING TO BE REMOVED.
  - EXISTING CATCH BASIN TO REMAIN.
  - EXISTING CONCRETE PAVING TO REMAIN.
  - WINDOW TO BE REMOVED.
  - EXISTING EQUIPMENT TO REMAIN. PROTECT DURING DEMOLITION AND CONSTRUCTION.
  - EXISTING 6-1/2" CONCRETE FLOOR TO BE SAW CUT AND REMOVED IN THIS AREA FOR NEW SEWER LINE. PATCH CONCRETE PER DETAIL B3/A505. SEE PLUMBING DRAWINGS.
  - EXISTING BTU METER TO BE REMOVED AND REINSTALLED DIRECTLY ABOVE. ACCESSIBLE FROM NEW MEZZANINE LEVEL.
  - EXISTING CARPET TO BE REMOVED AND MODIFIED. PROTECT DURING DEMOLITION AND CONSTRUCTION FOR RE-INSTALLATION.
  - REMOVE EXISTING FLOOR COVERING.
  - REMOVE EXISTING ASPHALT PAVING.
  - REMOVE BASE CABINETS AND COUNTERTOP. SAVE AND PROTECT DURING DEMOLITION AND CONSTRUCTION. RETURN TO UTAH STATE MAIL.
  - CASEWORK PARTITION WALLS TO BE REMOVED.
  - REMOVE CASEWORK. PROTECT DURING DEMOLITION AND CONSTRUCTION FOR RE-INSTALLATION IN SAME LOCATION.
  - REMOVE CASEWORK. PROTECT DURING DEMOLITION AND CONSTRUCTION FOR RE-INSTALLATION IN NEW LOCATION.
  - REMOVE CASEWORK. PROTECT DURING DEMOLITION AND CONSTRUCTION. RETURN TO UTAH STATE MAIL.
  - REMOVE EXISTING PARKING PAINT.
  - REMOVE EXISTING PARKING CURB. SAVE AND PROTECT DURING DEMOLITION AND CONSTRUCTION TO BE REINSTALLED.
  - REMOVE EXISTING PARKING SIGN.
  - FIELD VERIFY LOCATION OF EXISTING BURIED WATER SPRINKLER LINE. CENTERED ON WATER SPRINKLER PIPE, CUT AND REMOVE EXISTING CONCRETE SLAB 1'-0" WIDE X CONTINUOUS.

- GENERAL NOTES**
- A.** NOT ALL TREES AND VEGETATION ARE SHOWN ON THIS PLAN. COORDINATE WITH ARCHITECT IF QUESTIONS ARISE REGARDING DEMOLITION OR PRESERVATION OF EXISTING LANDSCAPING.
- B.** WORK WILL STILL BE CONDUCTED AND WORKERS WILL BE OCCUPYING AREAS OF THE BUILDING DURING DEMOLITION AND CONSTRUCTION. CARE SHOULD BE TAKEN TO ISOLATE CONSTRUCTION ACTIVITIES FROM WORKERS.
- C.** EXISTING CEILING GRID, TILES AND MECHANICAL GRILLES AND DIFFUSERS SHALL BE REMOVED TO ALLOW FOR DEMOLITION AND NEW CONSTRUCTION. CEILING GRID, TILES AND MECHANICAL GRILLES AND DIFFUSERS SHALL BE PROTECTED DURING DEMOLITION AND NEW CONSTRUCTION AND WILL BE CLEANED AND USED FOR RE-INSTALLATION



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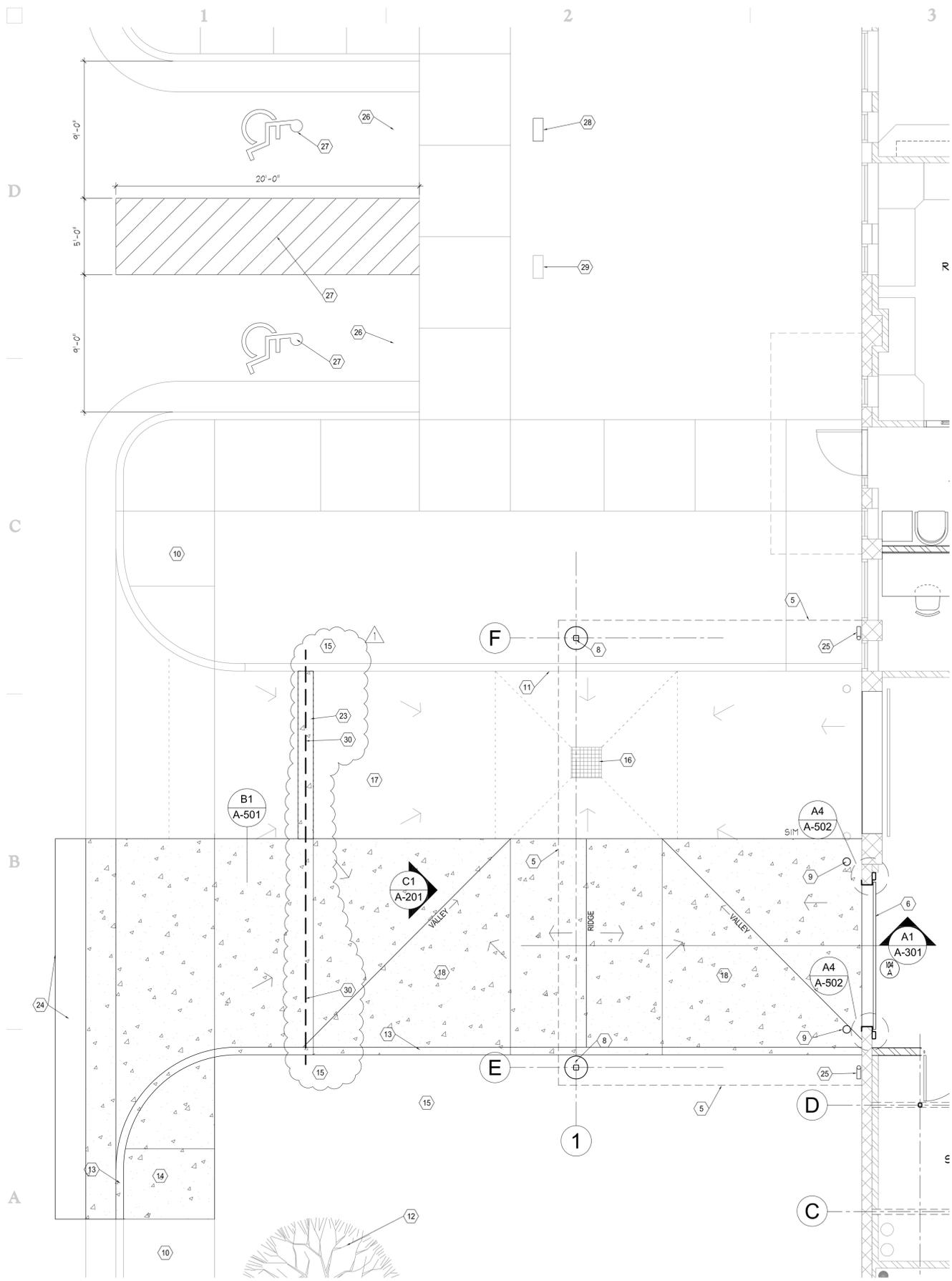
DPCM Project #: 09258310  
250 North 1950 West  
Salt Lake City, Utah

ISSUE  
March 10, 2010 - Const. Documents 100%  
June 17, 2010 - Addendum #1

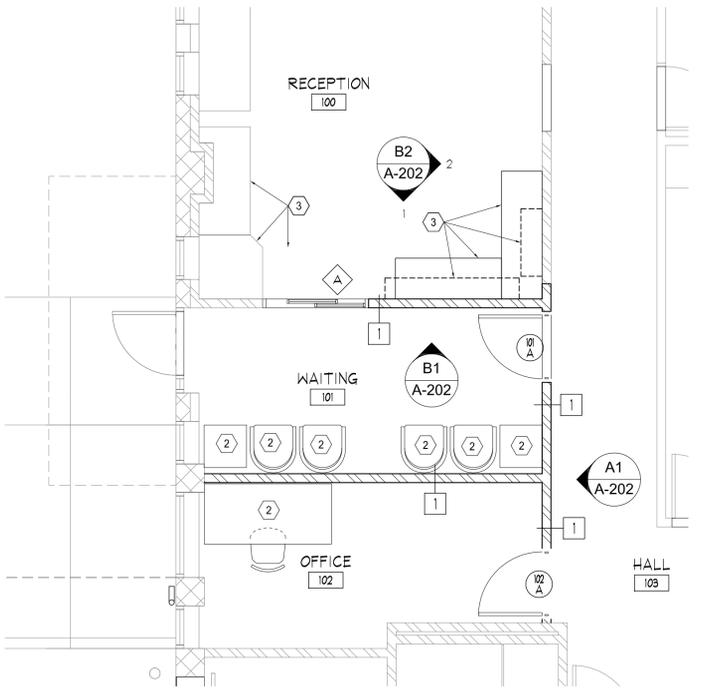
NJRA Project #: 10901.00

Level 1  
Demolition Plan

A-102



**A1** Level 1 Floor Plan  
1/4" = 1'-0"



**A3** Level 1 Floor Plan  
1/4" = 1'-0"

- ### KEYED NOTES
- NOTE: KEYED NOTES ARE COMMON FOR SHEETS A-104 TO A-106. HENCE SOME KEYED NOTES MAY NOT APPEAR ON DRAWINGS IN THIS SHEET.
1. LINE OF TRANSITION BETWEEN FLOOR COVERINGS. SEE FINISH FLOOR PLANS.
  2. EQUIPMENT, FURNITURE, ETC., NOT IN CONTRACT.
  3. EXISTING CABINETS AND CASEWORK RE-INSTALLED. SEE INTERIOR ELEVATIONS.
  4. OPENINGS IN FLOOR FOR EXISTING PIPES AND MECHANICAL DUCT WORK.
  5. CANOPY. SEE ROOF PLAN C1/A109.
  6. OVERHEAD COILING DOOR TRACK ATTACH TO EXISTING MASONRY WALL PER MANUFACTURERS RECOMMENDATIONS. UTILIZING APPROVED ANCHORS LISTED ON SHEET S101.
  7. NOT USED.
  8. CANOPY COLUMNS. SEE DETAIL C4/A501.
  9. BOLLARD. SEE DETAIL D4/A501
  10. EXISTING CONCRETE SIDEWALK.
  11. EXISTING CONCRETE CURB AND GUTTER.
  12. EXISTING TREES, SHRUBS, OR LANDSCAPING.
  13. CURB AND GUTTER. SEE DETAIL A1/A501.
  14. SIDEWALK. SEE DETAIL A1/A501.
  15. LANDSCAPING. REPLACE LAWN AREA AND ASSOCIATED WATER SPRINKLERS AS TO MAKE THE SYSTEM WORK PROPERLY.
  16. EXISTING CATCH BASIN.
  17. EXISTING CONCRETE PAVING.
  18. CONCRETE PAVING. 6" THICK. SEE DETAIL B1/A501.
  19. EXISTING BTU METER RELOCATED.
  20. EXISTING MECHANICAL AND ELECTRICAL EQUIPMENT TO REMAIN. PROTECT DURING DEMOLITION AND CONSTRUCTION.
  21. SHORT WALLS BUILT AROUND EXISTING PIPING AND NEW MECHANICAL DUCTS. SEE WALL TYPES.
  22. FLOOR DRAIN. SEE PLUMBING DRAWINGS.
  23. CONCRETE INFILL. SEE DETAIL B3/A505.
  24. CUT AND REMOVE ASPHALT PAVING FOR NEW GUTTER INSTALLATION. PATCH ASPHALT PAVING WITH THICKNESS MATCHING EXISTING PAVING.
  25. DOWNSPOUT GALVANIZED 3" DIAMETER SCH 40 PIPE. FULLY WELDED. GRIND ALL WELDS SMOOTH. SEE DETAIL A5/A505 FOR ANCHORAGE TO WALL.
  26. REINSTALLED PARKING CURBS.
  27. NEW PARKING PAINT.
  28. NEW ACCESSIBLE PARKING SIGN. SEE DETAIL B5/A505
  29. EXISTING ACCESSIBLE PARKING SIGN.

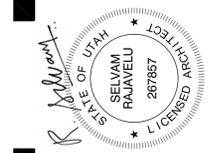
30. NEW 2-1/2" DIAMETER PVC PIPE SLEEVE TO BE LOCATED 6" MIN. UNDER NEW CONCRETE. RELOCATE 3/4" WATER SPRINKLER LINE TO RUN THROUGH NEW PIPE SLEEVE AND RECONNECT WATER SPRINKLERS AS TO MAKE THE SYSTEM WORK PROPERLY.

- ### LEGEND
- OFFICE ROOM NAME
  - 114 ROOM NUMBER
  - 1 DENOTES WALL SECTION. SEE A1/A504
  - W/A DOOR NUMBER. SEE DOOR SCHEDULE, SHEET A801
  - A WINDOW TAG. SEE WINDOW SCHEDULE C1, D1/A801



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NJRA Project #: 10901.00

Enlarged Floor Plans  
**A-105**

## PLUMBING SPECIFICATIONS

### 15055 - BASIC PIPING MATERIALS AND METHODS

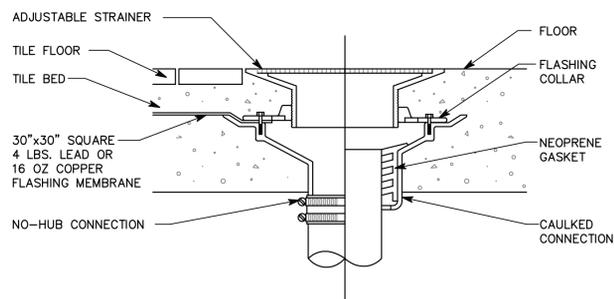
- CORE CUT ALL PIPE PENETRATION OF EXISTING MASONRY OR CONCRETE WALLS AND FLOORS. SLEEVE ALL PENETRATIONS THROUGH NEW WALLS AND FLOORS. SEAL ALL PENETRATIONS WATER TIGHT WITH SILICONE SEALANT. USE FIRE RATED SEALANT (3M "FIRE BARRIER" OR EQUAL ) FOR 1 HOUR OR 2 HOUR PENETRATIONS.
- CAULK AROUND ALL PIPING THAT PASSES THROUGH FIRE-RATED PARTITIONS WITH A NON-HARDENING CAULKING SIMILAR TO 3M "FIRE BARRIER".
- SEAL ALL PIPING THROUGH WALLS AIR TIGHT.

### 15242 - VIBRATION ISOLATION AND SEISMIC BRACING

- ALL MECHANICAL EQUIPMENT, DUCTWORK, AND PIPING MUST BE VIBRATION ISOLATED AND SEISMICALLY BRACED FOR THE SITE SPECIFIC SEISMIC DESIGN CATEGORY AND SEISMIC USE GROUP, IN ACCORDANCE WITH THE LATEST ADOPTED EDITIONS OF THE IBC, UBC, ASHRAE, AND SMACNA. PROVIDE SEISMIC PRODUCTS BY AMBER-BOOTH OR MASON INDUSTRIES.
- IN GENERAL, PROVIDE SPRING MOUNTS TO ATTENUATE LOW FREQUENCY SOUND AND VIBRATION AND NEOPRENE PADS TO ATTENUATE HIGH FREQUENCY SOUND AND VIBRATION. SEISMIC BRACING/MOUNTING CAN BE COMBINED WITH VIBRATION ISOLATION AS APPLICABLE.
- CONTRACTOR MANUFACTURED SEISMIC BRACING/RESTRAINT METHODS ARE NOT ACCEPTABLE. PROVIDE A SIGNED AND STAMPED LETTER FROM A PROFESSIONAL ENGINEER CERTIFYING THAT THE SUPPLIED PRODUCTS ARE CORRECT FOR THE APPLICATION AND THAT THE INSTALLATION IS IN COMPLIANCE WITH ALL APPLICABLE CODES.

### 15420 - DRAINAGE AND VENT SYSTEMS

- UNDERGROUND BUILDING DRAIN PIPE AND FITTINGS:
  - NO HUB ABS OR PVC PLASTIC PIPE AND FITTINGS PER ASTM D2661 WITH ASTM D2235 SOLVENT
  - OR
  - ASTM A74 SERVICE WEIGHT, HUB AND SPIGOT CAST IRON SOIL PIPE, OR ASTM A888 (OR CISPI 301) HUBLESS CAST IRON SOIL PIPE WITH ASTM C564 HEAVY DUTY SHIELDED STAINLESS STEEL COUPLINGS.
  - NO ASTM D2729 PIPE SHALL USED UNDERGROUND.
- ABOVE GROUND SANITARY DRAINAGE AND VENT PIPING, IN ALL AREAS EXCEPT AIR PLENUMS AND EXCEPT IN A FIRE RATED BUILDING, SHALL BE ABS TYPE DWV PLASTIC PIPE AND FITTINGS PER ASTM D2661 WITH ASTM D2255 SOLVENT, OR PVC PLASTIC PIPE AND FITTINGS PER ASTM D2665 WITH ASTM D2564 SOLVENT, OR SERVICE WEIGHT, NO HUB CAST IRON COUPLED PIPE AND FITTINGS WITH COMPRESSION TYPE NEOPRENE GASKETS AND STAINLESS STEEL BANDS.
- ALL SANITARY DRAINAGE AND VENT PIPING INSIDE AIR PLENUMS AND ANYWHERE IN A FIRE RATED BUILDING SHALL BE NO HUB SERVICE WEIGHT CAST IRON COUPLED PIPE AND FITTINGS WITH COMPRESSION TYPE NEOPRENE GASKETS AND STAINLESS STEEL BANDS. ASTM B306 COPPER PIPE MAY BE USED WITH SOLDERED JOINTS FOR PIPE 3" AND SMALLER.
- ABOVE GROUND ROOF DRAIN LINES, EXCEPT IN AIR PLENUMS AND ANYWHERE IN A FIRE RATED BUILDING, SHALL BE FULLY WELDED GALVANIZED SCHEDULE 40 STEEL PIPE.
- ALL ROOF DRAIN LINES INSIDE AIR PLENUMS, OR ANYWHERE IN A FIRE RATED BUILDING, SHALL BE FULLY WELDED GALVANIZED SCHEDULE 40 STEEL PIPE.
- ALL ROOF DRAIN LINES SHALL BE FULLY INSULATED.
- INSTALL SANITARY DRAIN LINES 2-1/2" AND LESS WITH A SLOPE OF 2%. INSTALL SANITARY DRAIN LINES 3"-6" WITH A SLOPE OF NOT LESS THAN 1%.
- SLOPE ROOF DRAIN LINES DOWN IN DIRECTION OF FLOW, 1/8" PER FOOT (1%).



**(A1) FLOOR DRAIN DETAIL**  
SCALE:

## SYMBOL LEGEND

SYMBOL	DESCRIPTION
REFERENCE AND LINE SYMBOLS	
# SHEET	DETAIL INDICATOR: # INDICATES DETAIL NUMBER, SHEET INDICATES DRAWING SHEET WHERE DETAIL IS SHOWN.
# SHEET	ELEVATION OR SECTION INDICATOR, EXTERIOR: # INDICATES ELEVATION OR SECTION NUMBER, SHEET INDICATES DRAWING SHEET WHERE ELEVATION OR SECTION IS SHOWN.
100	ROOM OR SPACE NUMBER.
1	KEYNOTE INDICATOR.
△	REVISION INDICATOR.
CU-1	EQUIPMENT INDICATOR.
TYPE OF SIZE	DIFFUSER/GRILLE INDICATOR.
TYPE OF SIZE	DIFFUSER/GRILLE INDICATOR.
— —	BREAK, STRAIGHT.
— —	BREAK, ROUND.
MATCH LINE SEE XX/X-XXX	MATCH LINE INDICATOR.
----	HIDDEN FEATURES LINE: HIDDEN, THIN LINE.
----	CONTRACT LIMIT LINE: DASHDOT, WIDE LINE.
—●—	NEW CONNECTION POINT TO EXISTING.

## ABBREVIATIONS

NOTE: ALL ABBREVIATIONS MAY NOT BE USED

AD	ACCESS DOOR	MCA	MINIMUM CIRCUIT AMPS
AIR	AIR CONDITION(-ING,-ED)	MFR	MANUFACTURER
COND		MIN	MINIMUM
APD	AIR PRESSURE DROP	N/A	NOT APPLICABLE
BD	BALANCING DAMPER	NC	NORMALLY CLOSED
BHP	BRAKE HORSE POWER	NC	NOISE CRITERIA
BTU	BRITISH THERMAL UNIT	NIC	NOT IN CONTRACT
BTUH	BTU/HOUR	NO	NORMALLY OPEN
CFH	CUBIC FEET PER HOUR	NPSH	NET POSITIVE SUCTION HEAD
CFM	CUBIC FEET PER MINUTE	NTS	NOT TO SCALE
CLG	COOLING	OA	OUTSIDE AIR
COMP	COMPONENT	OD	OUTSIDE DIAMETER
COND	CONDENS(-ER, -ING, -ATION)	OZ	OUNCE
CV	CONTROL VALVE	PD	PRESSURE DROP OR DIFFERENCE
CW	COLD WATER	PG	PROPYLENE GLYCOL
DIA	DIAMETER	PH	PHASE
DISCH	DISCHARGE	PPM	PARTS PER MILLION
DP	DEPTH OR DEEP	PPM	PRESSURE
DB	DRY BULB TEMPERATURE	PSF	POUNDS PER SQUARE FOOT
(E)	EXISTING	PSI	POUNDS PER SQUARE INCH
EER	ENERGY EFFICIENCY RATIO	PSIA	PSI ABSOLUTE
EFF	EFFICIENCY	PSIG	PSI GAUGE
EG	ETHYLENE GLYCOL	R	THERMAL RESISTANCE
ELEC	ELECTRIC	RA	RETURN AIR
ELEV	ELEVATION	RECIRC	RECIRCULATE
ENT	ENTERING	REFR	REFRIGERATION
EVAP	EVAPORAT(-E, -ING, -ED, OR)	REQD	REQUIRED
EWT	ENTERING WATER TEMPERATURE	RLA	RATED --- AMPS
EXT	EXTERNAL	RPM	REVOLUTIONS PER MINUTE
(F)	FUTURE	RW	RAINWATER
F	FAHRENHEIT	SA	SUPPLY AIR
FC	FLEXIBLE CONNECT(-OR, -ION)	SC	SHADING COEFFICIENT
FD	FIRE DAMPER	SCFM	STANDARD CUBIC FEET PER MINUTE
FLA	FULL LOAD AMPS	SCW	SOFT COLD WATER
FPI	FINS PER INCH	SF	SAFETY FACTOR
FPM	FEET PER MINUTE	SH	SENSIBLE HEAT
FPS	FEET PER SECOND	SL	SEA LEVEL
FSD	FIRE SMOKE DAMPER	SP	STATIC PRESSURE
FT	FEET	SPECS(S)	SPECIFICATION(S)
GAL	GALLON(S)	SQ	SQUARE
GPH	GALLONS PER HOUR	STD	STANDARD
GPM	GALLONS PER MINUTE	STM	STEAM
HD	HEAD	TEMP	TEMPERATURE
HG	MERCURY	TD	TEMP. DROP OR DIFF.
HR	HOUR	THERM	THERMAL
HT	HEIGHT	TOT	TOTAL
HTG	HEATING	TSTAT	THERMOSTAT
HP	HORSE POWER	V	VOLT
HW	HOT WATER	VAC	VACUUM
HZ	HERTZ(FREQUENCY)	VAV	VARIABLE AIR VOLUME
ID	INSIDE DIAMETER	VEL	VELOCITY
IN	INCH	VENT	VENT, VENTILATION
KW	KILOWATT	VERT	VERTICAL
LAT	LEAVING AIR TEMPERATURE	VFC/VFD	VARIABLE FREQUENCY MOTOR CONTROLLER
LBS	POUNDS	VOL	VOLUME
LG	LENGTH	WC	WATER COLUMN
LH	LATENT HEAT	WG	WATER GAUGE
LRA	LOCKED ROTOR AMPS	WPD	WATER PRESSURE DROP
LVG	LEAVING	WTR	WATER
LWT	LEAVING WATER TEMPERATURE	WT	WEIGHT
MAX	MAXIMUM	WB	WET BULB TEMP
MBH	THOUSAND BTU PER HOUR	YR	YEAR

## SYMBOL LEGEND

SYMBOL	DESCRIPTION
VALVES, METERS, AND GAUGES	
—○—	90° ELBOW UP
—○—	90° ELBOW DOWN
—○—	90° TEE UP
—○—	90° TEE DOWN
— — —	UNION
— — —	CAPPED PIPE
—X—	ANCHOR
PLUMBING SYMBOLS	
▣ C.B.	CATCH BASIN
○ M.H.	MANHOLE
—+—	WALL HYDRANT
—/—	HOSE BIBB
—□—	CLEANOUT TO GRADE
—○—	FLOOR CLEANOUT
— — —	WALL CLEANOUT
▣	1/2 GRATE
▣	3/4 GRATE
▣	FULL GRATE
PLUMBING PIPING	
—CWV—	COMBINATION WASTE AND VENT
—	SOIL, WASTE - ABOVE GRADE
—	SOIL, WASTE - BELOW GRADE
—GW—	GREASE WASTE - ABOVE GRADE
—GW—	GREASE WASTE - BELOW GRADE
----	VENT
----AV----	ACID VENT
----AW----	ACID WASTE - ABOVE GRADE
----AW----	ACID WASTE - BELOW GRADE
----	COLD WATER
----	HOT WATER
----	HOT WATER CIRCULATE
----180----	180° HOT WATER
----180R----	180° HOT WATER RETURN
----160----	160° HOT WATER
----160R----	160° HOT WATER RETURN
----RW----	RAINWATER - ABOVE GRADE
----RW----	RAINWATER - BELOW GRADE
----ORW----	OVERFLOW RAINWATER ABOVE GRADE
----ORW----	OVERFLOW RAINWATER BELOW GRADE
----SD----	STORM DRAIN
VTR	VENT THRU ROOF
—/—	NON POTABLE WATER
—(E)—	EXISTING PIPE
////(E)////	EXISTING PIPE TO BE REMOVED
—IW—	IRRIGATION WATER
—SS—	SANITARY SEWER

## PLUMBING SHEET INDEX

SHEET NO	SHEET TITLE
PE001	PLUMBING COVER SHEET
PL101	PLUMBING FLOOR PLANS

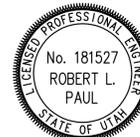
## GENERAL PLUMBING NOTES

- THE PLUMBING DRAWINGS SHOW THE GENERAL DESIGN, ARRANGEMENT AND EXTENT OF THE PLUMBING SYSTEM. BECAUSE OF THE SMALL SCALE OF THE DRAWINGS, THESE DRAWINGS DO NOT SHOW ALL OFFSETS, BENDS OR ELBOWS NECESSARY FOR THE COMPLETE INSTALLATION IN THE SPACE PROVIDED. CONTRACTOR SHALL MAKE SUCH SLIGHT ALTERATIONS AS MAY BE NECESSARY TO MAKE THE SYSTEM COMPLETE AND OPERATIONAL IN ACCORDANCE WITH THE DESIGN INTENT.  
MAJOR DEVIATIONS SUCH AS CHANGES IN COMPONENT SIZES, WEIGHTS, QUANTITIES OR MATERIAL REQUIRE PRIOR APPROVAL BY THE DESIGN ENGINEER.
- THE DRAWINGS AND SPECIFICATIONS HAVE BEEN PREPARED TO SUPPLEMENT EACH OTHER AND SHALL BE INTERPRETED AS AN INTEGRAL UNIT WITH THE ITEMS SHOWN ON ONE AND NOT THE OTHER BEING FURNISHED AND INSTALLED AS THOUGH SHOWN AND CALLED OUT IN BOTH.
- THE ENTIRE PLUMBING INSTALLATION SHALL CONFORM TO THE REQUIREMENTS OF THE MOST RECENTLY ADOPTED BUILDING CODES, MECHANICAL CODE, PLUMBING CODE, ELECTRICAL CODE, AND ALL OTHER APPLICABLE CITY, COUNTY, STATE, AN FEDERAL CODES AN REGULATIONS IN EFFECT.
- THE ENTIRE PLUMBING INSTALLATION SHALL CONFORM TO ANY CODES, RULES, REGULATIONS AND REQUIREMENTS OF THE BUILDING OWNER.
- PRIOR TO FABRICATION AND INSTALLATION OF ANY PLUMBING COMPONENT THE CONTRACTOR SHALL COORDINATE THE INSTALLATION OF ALL PLUMBING WORK WITH ALL OTHER BUILDING TRADES, INCLUDING BUILDING TRADES HIRED DIRECTLY BY THE OWNER. WHERE CONFLICTS MAY OCCUR, THEY SHALL BE RESOLVED PRIOR TO INSTALLATION.
- ALL PLUMBING INFORMATION IS NOT SHOWN ON THE PLUMBING DRAWINGS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL INFORMATION ON ALL OTHER CONSTRUCTION DOCUMENT.
- THE CONTRACTOR SHALL BE RESPONSIBLE TO REVIEW AND USE, WHERE APPROPRIATE, ALL THE PLUMBING DETAILS SHOWN ON THE DRAWINGS. DETAILS MAY OR MAY NOT BE CALLED OUT ON THE DRAWINGS WITH SYMBOLS OR KEYED NOTES. ANY CHANGES RESULTING FROM FAILURE TO INSTALL THE PLUMBING SYSTEM WITHOUT USING THE INCLUDED DETAILS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- ANY PART OF THE PLUMBING INSTALLATION THAT FAILS, IS UNFIT, OR BECOMES DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED OR REPLACES BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
- PROVIDE PROPER PROVISIONS FOR EXPANSION, CONTRACTION, OR MOVEMENT OF ALL PIPING.
- PROVIDE LARGE ENOUGH PIPE SLEEVES THROUGH WALL OR FLOOR TO ALLOW FOR ANTICIPATED DIFFERENTIAL MOVEMENT.
- ALL PIPING SHALL BE SUPPORT WITH CLEVIS HANGERS (MSS TYPE 1). PERFORATED METAL STRAPS OR PLASTIC STRAPPING (PLUMBER TAPE) SHALL NOT BE USED TO SUPPORT OR BRACE ANY PIPE.
- PROVIDE PIPE HANGERS WITHIN 18-INCHES OF ALL CHANGES OF DIRECTION.
- PROVIDE SWAY BRACING FOR ALL PIPING 4" AND LARGER AT ALL CHANGES IN DIRECTION GREATER THAN 45-DEGREES.
- ALL STEEL CLEVIS HANGERS USED TO SUPPORT COPPER PIPING SHALL BE COPPER OR PLASTIC COATED.
- COPPER PIPING SHALL NOT COME IN CONTACT WITH FIRE TREATED LUMBER. PROVIDE 1/2" THICK SHIM ON CLOSED CELL INSULATION WHERE COPPER PIPING IS ADJACENT TO FIRE TREATED LUMBER. CLOSED CELL INSULATION SHALL EXTEND A MINIMUM OF 1-1/2" PAST LUMBER.
- ALL EXPOSED PIPING SHALL BE INSTALLED IN A NEATLY ARRANGED MANNER PARALLEL TO THE BUILDING STRUCTURE.
- ALL EXPOSED DOMESTIC WATER PIPE IN OCCUPIED SPACES SHALL BE POLISHED CHROME PLATED.
- ALL EXPOSED DRAINAGE PIPING IN OCCUPIED SPACES INCLUDING TRAPS UNDER SINKS SHALL BE POLISHED CHROME PLATED.
- DRAWINGS SHOWS GENERAL ARRANGEMENT OF THE DRAIN WASTE AND VENT SYSTEM WITH THE REQUIRED CLEANOUTS. CONTRACTOR SHALL PROVIDE ALL ADDITIONAL CLEANOUTS AS REQUIRED BY THE PLUMBING CODE.
- ALL SANITARY DRAINAGE SYSTEM PIPING 3" AND LARGER SHALL BE SLOPED IN DIRECTION OF FLOW AT A MINIMUM OF 1/8" PER FOOT.
- ALL SANITARY DRAINAGE SYSTEM PIPING SMALLER THAN 3" SHALL BE SLOPED IN DIRECTION OF FLOW AT A MINIMUM OF 1/4" PER FOOT.
- SLOPE VENT SYSTEM TOWARDS DRAINAGE SYSTEM.
- SIMILAR EQUIPMENT SHALL BE OF THE SAME MANUFACTURER.
- ALL EQUIPMENT SHALL PROVIDE THE SCHEDULED PERFORMANCE AT THE JOB SITE ELEVATION.
- FIXTURE AND EQUIPMENT MODEL NUMBERS SHOWN IN PLUMBING FIXTURE SCHEDULE AND PLUMBING EQUIPMENT SCHEDULE ARE SHOWN TO ESTABLISH THE TYPE OF PRODUCT THAT SHALL BE USED. THE SELECTED PRODUCT SHALL MEET THE SCHEDULED PERFORMANCE DATA SHOWN ON THE SCHEDULE EVEN IF A DIFFERENT MODEL IS SUPPLIED THAT IS DIFFERENT THAN THAT SCHEDULED.
- ALL EQUIPMENT SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE EQUIPMENT MANUFACTURER'S INSTALLATION INSTRUCTIONS. PROVIDE ALL NECESSARY FITTINGS, TRANSITIONS, VALVES AND OTHER DEVICES AND ACCESSORIES REQUIRED FOR A COMPLETE, WORKABLE INSTALLATION.
- SEE "PLUMBING FIXTURE SCHEDULE" FOR INDIVIDUAL TRAPS, WASTE, VENT, AND DOMESTIC WATER PIPING FOR INDIVIDUAL FIXTURES.
- ALL PLUMBING EQUIPMENT SHALL BE LISTED AND LABELED BY AN APPROVED TESTING AGENCY.
- FIXTURES, EQUIPMENT AND PIPING INSTALLATION SHALL MEET NSF STANDARDS.



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PLUMBING  
COVER SHEET

PE001

## MECHANICAL SPECIFICATIONS

### 15010 – BASIC MECHANICAL REQUIREMENTS

- COORDINATE THE LOCATION OF ALL NEW ROOF OPENINGS AND THE LOCATION OF ALL NEW AND RELOCATED ROOF MOUNTED EQUIPMENT WITH THE EXISTING STRUCTURE AND ARCHITECTURAL PLANS PRIOR TO ANY INSTALLATION.
- V-BELT DRIVES SHALL BE OF FABRIC AND RUBBER CONSTRUCTION. BELT GUARDS SHALL BE PROVIDED FOR ALL EXPOSED BELTS AND DRIVES.
- PROVIDE 6" CONCRETE HOUSEKEEPING PADS UNDER ALL FLOOR MOUNTED EQUIPMENT.
- PROPERLY LUBRICATE ALL PIECES OF EQUIPMENT BEFORE TURNING THE SYSTEM OVER TO THE OWNER.

### 15190 – MECHANICAL IDENTIFICATION

- PIPE MARKERS:  
PLASTIC TAPE: PROVIDE MANUFACTURER'S STANDARD COLOR-CODED PRESSURE-SENSITIVE (SELF ADHESIVE) VINYL TAPE, NOT LESS THAN 3 MILS THICK. 1-1/2" WIDE TAPE MARKERS ON PIPES WITH OUTSIDE DIAMETERS LESS THAN 6" (INCLUDING INSULATION, IF ANY); 2-1/2" WIDE TAPE FOR LARGER PIPES.
- COLOR:  
COMPLY WITH ANSI A13.1
- LETTERING:  
MANUFACTURER'S STANDARD PRE-PRINTED NOMENCLATURE WHICH BEST DESCRIBES PIPING OR DUCT SYSTEM IN EACH INSTANCE OR AS SELECTED BY ARCHITECT OR ENGINEER IN CASES OF VARIANCE WITH NAMES AS SHOWN.
- ARROWS:  
PRINT EACH MARKER WITH ARROWS INDICATING DIRECTION OF FLOW.

### 15242 – VIBRATION ISOLATION AND SEISMIC BRACING

- ALL MECHANICAL EQUIPMENT, DUCTWORK, AND PIPING MUST BE VIBRATION ISOLATED AND SEISMICALLY BRACED FOR THE SITE SPECIFIC SEISMIC DESIGN CATEGORY AND SEISMIC USE GROUP, IN ACCORDANCE WITH THE LATEST ADOPTED EDITIONS OF THE IBC, UBC, ASHRAE, AND SMACNA. PROVIDE SEISMIC PRODUCTS BY AMBER-BOOTH OR MASON INDUSTRIES.
- IN GENERAL, PROVIDE SPRING MOUNTS TO ATTENUATE LOW FREQUENCY SOUND AND VIBRATION AND NEOPRENE PADS TO ATTENUATE HIGH FREQUENCY SOUND AND VIBRATION. SEISMIC BRACING/MOUNTING CAN BE COMBINED WITH VIBRATION ISOLATION AS APPLICABLE.
- CONTRACTOR MANUFACTURED SEISMIC BRACING/RESTRAINT METHODS ARE NOT ACCEPTABLE. PROVIDE A SIGNED AND STAMPED LETTER FROM A PROFESSIONAL ENGINEER CERTIFYING THAT THE SUPPLIED PRODUCTS ARE CORRECT FOR THE APPLICATION AND THAT THE INSTALLATION IS IN COMPLIANCE WITH ALL APPLICABLE CODES.

### 15250 – MECHANICAL INSULATION

- PIPE INSULATION TO BE SNAP-ON GLASS FIBER TYPE WITH VAPOR JACKET. SEAL ALL ENDS AND JOINTS TO PROVIDE A COMPLETELY SEALED SYSTEM. ALTERNATIVELY, USE FLEXIBLE UNICELLULAR ASTM 534 TYPE 1 INSULATION. USE 1" THICKNESS FOR PIPE UP TO 2", AND 1 1/2" FOR PIPE OVER 2".
- WRAP ALL SUPPLY AND RETURN DUCTWORK WITH 1-1/2" THICK FOIL FACED FIBERGLASS INSULATION. WRAP INSULATION TIGHTLY ON THE DUCT WITH ALL CIRCUMFERENTIAL JOINTS BUTTED AND LONGITUDINAL JOINTS OVERLAPPED A MIN. OF 2". COVER ALL JOINTS WITH FOIL-REINFORCED "KRAFT" TAPE, 3" WIDE.
- SEE 15891 FOR LINED RECTANGULAR DUCTWORK.

### 15420 – DRAINAGE AND VENT SYSTEMS

- UNDERGROUND BUILDING DRAIN PIPE AND FITTINGS:
  - NO HUB ABS OR PVC PLASTIC PIPE AND FITTINGS PER ASTM D2661 WITH ASTM D2235 SOLVENT OR
  - ASTM A74 SERVICE WEIGHT, HUB AND SPIGOT CAST IRON SOIL PIPE, OR ASTM A888 (OR CISPI 301) HUBLESS CAST IRON SOIL PIPE WITH ASTM C564 HEAVY DUTY SHIELDED STAINLESS STEEL COUPLINGS.
  - NO ASTM D2729 PIPE SHALL BE USED UNDERGROUND.
- ALL SANITARY DRAINAGE AND VENT PIPING INSIDE AIR PLENUMS AND ANYWHERE IN A FIRE RATED BUILDING SHALL BE NO HUB SERVICE WEIGHT CAST IRON COUPLED PIPE AND FITTINGS WITH COMPRESSION TYPE NEOPRENE GASKETS AND STAINLESS STEEL BANDS. ASTM B306 COPPER PIPE MAY BE USED WITH SOLDERED JOINTS FOR PIPE 3" AND SMALLER.
- ABOVE GROUND ROOF DRAIN LINES, EXCEPT IN AIR PLENUMS AND ANYWHERE IN A FIRE RATED BUILDING, SHALL BE FULLY WELDED GALVANIZED SCHEDULE 40 STEEL PIPE.
- ALL ROOF DRAIN LINES INSIDE AIR PLENUMS, OR ANYWHERE IN A FIRE RATED BUILDING, SHALL BE FULLY WELDED GALVANIZED SCHEDULE 40 STEEL PIPE.
- ALL ROOF DRAIN LINES SHALL BE FULLY INSULATED.
- INSTALL SANITARY DRAIN LINES 2-1/2" AND LESS WITH A SLOPE OF 2%. INSTALL SANITARY DRAIN LINES 3"-6" WITH A SLOPE OF NOT LESS THAN 1%.
- SLOPE ROOF DRAIN LINES DOWN IN DIRECTION OF FLOW, 1/8" PER FOOT (1%).

## MECHANICAL SPECIFICATIONS

### 15510 – HYDRONIC PIPING

- HVAC PIPING SHALL BE COPPER OR SCHEDULE 40 STEEL, SUITABLE FOR THE FLUID AND PRESSURE USED IN THE SYSTEM. PIPING MAY BE THREADED, WELDED, SOLDERED, OR GROOVED COUPLING TYPE. USE 95-5 TIN-ANTIMONY SOLDER.
- PROVIDE MANUAL AIR VENTS AT ALL PIPING HIGH POINTS IN THE SYSTEM.
- INSTALL PIPE HANGERS WITH THE FOLLOWING MINIMUM ROD SIZES AND MAXIMUM SPACING. UPON COMPLETION OF HANGER INSTALLATION, ALL ADJUSTMENTS HAVING THE POSSIBILITY OF TURNING SHALL BE LOCKED SECURELY IN PLACE BY DOUBLE NUTTING THE HANGER ROD ATTACHMENT TO THE STRUCTURE, AND AT THE PIPE HANGER.

NOM. PIPE SIZE-INCHES	MAX SPAN-FT	MIN ROD SIZE-INCHES
1	7	3/8
1-1/2	9	3/8
2	10	3/8
3	12	1/2
4	14	5/8
6	17	3/4

### 15782 – ROOFTOP HEATING AND COOLING UNITS

- UNITS SHALL BE FACTORY ASSEMBLED AND TESTED, DESIGNED FOR ROOF OR SLAB INSTALLATION, AND CONSISTING OF CHILLED WATER AND HEATING WATER COILS, AND TEMPERATURE CONTROLS, FILTERS AND DAMPERS.
- MANUFACTURERS:
  - CARRIER
  - LENNOX
  - YORK
  - AAON
- PROVIDE UNITS WITH ROOF CURB, ECONOMIZER WITH MINIMUM 100% BAROMETRIC RELIEF, 5 YEAR WARRANTY, AND ONE EXTRA SET OF BELTS AND FILTERS.
- PROVIDE A COPPER P-TRAP ON ALL ROOFTOP CONDENSATE DRAIN PANS, SIZED THE SAME AS THE OUTLET SIZE OF THE MANUFACTURER'S DRAIN PAN. DRAIN CONDENSATE TO ROOF UNLESS NOT ALLOWED BY LOCAL CODES. PROVIDE A 6" SQUARE (MINIMUM) CONCRETE SPLASH BLOCK UNDERNEATH THE DRAIN OUTLET, WITH A MINIMUM 1" AIR GAP.

### 15891 – METAL DUCTWORK

- ALL DUCTWORK SHALL BE CONSTRUCTED, ERECTED, AND TESTED IN ACCORDANCE WITH THE MOST RESTRICTIVE OF LOCAL REGULATIONS AND PROCEDURES DETAILED IN THE ASHRAE HANDBOOK OF FUNDAMENTALS, OR THE APPLICABLE STANDARDS ADOPTED BY THE SHEET METAL AND AIR CONDITIONING CONTRACTOR'S NATIONAL ASSOCIATION, (SMACNA).
- TRANSITION ALL NEW DUCTWORK TO CONNECT TO EXISTING, AS REQUIRED.
- DUCTWORK SHALL BE GALVANIZED STEEL THROUGHOUT, FABRICATED AND INSTALLED SO THAT NO VIBRATION OR NOISE RESULTS. IT SHALL BE MADE FROM THE BEST GRADE OF GALVANIZED MILLED STEEL SHEETS OF U.S. STANDARD GAUGE AND BE FREE FROM BUSTERS, SLIVERS, AND PITS. ALL SEAMS SHALL BE AIRTIGHT; THE CONSTRUCTION OF ALL DUCTWORK, INCLUDING GAUGES OF METAL, BRACING LAYOUT, ETC., SHALL BE IN ACCORDANCE WITH SMACNA. SLEEVES FOR FIRE DAMPERS AND DUCT SECTIONS FORMING AN EXTENSION OF THE FIRE WALL SHALL BE 10 GAUGE STEEL.
- SEAL DUCTWORK ACCORDING TO THE FOLLOWING SMACNA DUCT SEALING CLASS:

DUCT LOCATION	DUCT TYPE			
	SUPPLY <2in. Wg.	>2in. Wg.	EXHAUST	RETURN
OUTDOORS	A	A	A	A
UNCONDITIONED SPACES	B	A	B	B
CONDITIONED SPACES (CONCEALED DUCTWORK)	C	B	B	B
CONDITIONED SPACES (EXPOSED DUCTWORK)	A	A	B	B

- HANGERS FOR DUCTS UP TO 18" IN WIDTH OR DIAMETER SHALL BE PLACED ON NOT MORE THAN 8 FOOT CENTERS. DUCTS 19" AND OVER IN WIDTH OR DIAMETER SHALL BE SUPPORTED ON NOT MORE THAN 4 FOOT CENTERS. DUCT HANGERS SHALL BE CONSTRUCTED OF GALVANIZED BAND IRON 1-1/8" FOR DUCTS UP TO 36" IN WIDTH OR DIAMETER. HANGERS SHALL EXTEND DOWN SIDES AND A MINIMUM OF 1" UNDER RECTANGULAR DUCTS, AND WRAP COMPLETELY AROUND ROUND DUCTS. ALL DUCTS SHALL BE RIGIDLY SUPPORTED.
- ALL DUCTWORK SHALL BE CLEANED PRIOR TO THE INSTALLATION OF CEILING AND DIFFUSERS. OPERATE FANS TO BLOW OUT DUCTWORK.
- RECTANGULAR LOW-PRESSURE SUPPLY AND RETURN AIR DUCTWORK SHALL BE LINED WITH 1" FACED FIBERGLASS INSULATION SECURELY BUTTONED OR LAPPED AND SEALED. INSULATION SHALL BE 1-1/2 POUND DENSITY.
- DUCT DIMENSIONS SHOWN ON DRAWINGS ARE INSIDE CLEAR AREA AND SHALL BE INCREASED TO ACCOMMODATE INSULATION. DUCT LINER TO BE BY KNAUF GmbH, JOHN-MANSVILLE OR SCHULLER INTERNATIONAL.

## MECHANICAL SPECIFICATIONS

### 15910 – DUCTWORK ACCESSORIES

- FLEXIBLE DUCTWORK:  
THE FINAL 5 FOOT CONNECTION TO GRILLES AND DIFFUSERS IN LAY-IN CEILINGS OR TO FLOOR MOUNTED GRILLES, MAY BE MADE WITH FLEXIBLE DUCT, FLEXMASTER TYPE SM ONLY. ENDS SHALL BE SEALED.
- SQUARE/RECTANGULAR ELBOWS SHALL BE PROVIDED WITH TURNING VANES.
- PROVIDE FLEXIBLE CONNECTIONS NOT LESS THAN 4" WIDE CONSTRUCTED OF HEAVY, WATERPROOF, WOVEN PLASTIC COATED GLASS FABRIC AT SUPPLY AND RETURN CONNECTIONS TO FURNACES, AIR HANDLING, ROOFTOP, MAKE-UP AIR OR FAN-COIL UNITS. CORNERS SHALL BE SEWN TIGHT. CONNECTIONS SHALL BE 20 OUNCE VENTFABRICS OR EQUAL.
- COMBINATION FIRE AND SMOKE DAMPERS OR FIRE DAMPERS IN DUCTWORK THROUGH ALL FLOORS AND FIRE WALLS SHALL BE FURNISHED AND INSTALLED AS REQUIRED TO CONFORM TO THE LATEST NFPA BULLETIN CONCERNING THIS TYPE OF BUILDING AND SHALL BEAR THE U.L. LABEL. DAMPERS, COMPLETE WITH MOUNTING ANGLES, SHALL BE MULTI-BLADE, FUSIBLE LINK, SPRING ACTING WITH 11 GAUGE SLEEVE. FUSIBLE LINK SHALL BE RATED AT 165°F.
- DUCT MOUNTED BALANCING DAMPERS SHALL BE USED TO CONTROL SUPPLY AIR TO EACH DIFFUSER AND GRILLE. AN OPERATING HEAD SHALL BE PLACED ON THE SIDE OF THE DUCT WITH A POSITIVE LOCKING QUADRANT. DAMPERS SHALL BE PROVIDED IN RETURN AND EXHAUST AIR DUCTS WHERE SHOWN ON DRAWINGS. COORDINATE THE LOCATION OF CEILING ACCESS PANELS.
- PROVIDE CEILING ACCESS DOORS AT ALL LOCATIONS OF BALANCING DAMPERS, FIRE DAMPERS, FIRE/SMOKE DAMPERS, VALVES, ETC., WHERE THERE IS NOT A LIFT-OUT TYPE CEILING. ACCESS DOORS SHALL BE HINGED OF METAL CONSTRUCTION WITH SCREWDRIVER LATCHES.
- AT FIRE DAMPERS, A DUCT MOUNTED SHEET METAL HINGED DOOR SHALL BE PROVIDED AND INSTALLED WITH POSITIVE LOCKING HANDLE. WHERE DUCTS ARE INSULATED, COVERS SHALL BE INSULATED.
- GRAVITY OR BACKDRAFT DAMPERS SHALL BE ALL ALUMINUM CONSTRUCTION, INTERCONNECTED AND GRADED. PRESSURE DROP THROUGH DAMPERS SHALL NOT EXCEED 0.04 INCH W.G.

### 15932 – GRILLES, DIFFUSER AND LOUVERS

- ALL GRILLES, DIFFUSERS, AND REGISTERS SHALL BE COMPLETE WITH FRAMES AND RUBBER GASKETS. FINISH FOR ALL REGISTERS, DIFFUSERS, AND GRILLES SHALL BE WHITE.
- MANUFACTURERS:
  - KRUEGER
  - TITUS
  - PRICE
- SEE SCHEDULE FOR MORE INFORMATION:
- COORDINATE THE LOCATIONS OF ALL CEILING DIFFUSERS, REGISTERS, AND GRILLES WITH THE ARCHITECTURAL REFLECTED CEILING PLAN, ELECTRICAL LIGHTING LAYOUT, AND ARCHITECTURAL ELEVATIONS.

### 15970 – AUTOMATIC TEMPERATURE CONTROL SYSTEM

- FURNISH AND INSTALL A COMPLETE ELECTRONIC AUTOMATIC TEMPERATURE CONTROL SYSTEM TO MATCH THE EXISTING TSI CONTROLS SYSTEM, TO PROVIDE THE FOLLOWING FUNCTIONS:
- BUILDING HVAC CONTROL SYSTEM:
    - ROOFTOP HEATING AND AIR CONDITIONING UNITS:  
EACH ROOFTOP UNIT SHALL BE PROVIDED WITH A THERMOSTAT, INSTALLED WHERE SHOWN ON PLANS. FULL ECONOMIZER AND MINIMUM OUTDOOR AIR CONTROL SHALL BE PROVIDED BY THE ROOFTOP MANUFACTURER AS A PART OF THE UNIT.
    - THERMOSTATS SHALL BE FROM TSI CONTROLS. ELECTRONIC, PROGRAMMABLE THERMOSTATS WITH COOLING, 1 OR 2 STAGE HEATING, NIGHT SETBACK, A 7-DAY, 24 HOUR CLOCK, L.E.D. INDICATOR, SET POINT ADJUSTMENT AND A FAN ON/AUTO SWITCH.
    - ROOFTOP UNITS SHALL RUN CONTINUOUSLY DURING THE OCCUPIED PERIOD. COOLING SYSTEM SHALL PROVIDE A CONSTANT 55°F SUPPLY AIR TEMPERATURE. THE UNITS' OUTSIDE, RETURN, AND RELIEF DAMPERS SHALL BE SEQUENCED ACCORDINGLY. ECONOMIZER CYCLE SHALL BE ACTIVATED WHENEVER THE OUTSIDE AIR TEMPERATURE IS BELOW THE MIXED AIR TEMPERATURE AND ABOVE SUPPLY AIR TEMPERATURE SETPOINT. CHILLED WATER AND HEATING WATER VALVES SHALL MODULATE TO SATISFY SPACE REQUIREMENTS. SWITCH BETWEEN HEATING MODE AND COOLING MODE BASED ON ROOM THERMOSTAT.
    - THE CONTROL SYSTEM SHALL CONSIST OF ROOM THERMOSTATS, RELAYS, SELECTOR SWITCHES, PANELS, ALL CONTROL WIRING TO UNITS, TIME CLOCK AND ALL ACCESSORY EQUIPMENT FOR A COMPLETELY INSTALLED AND WORKING SYSTEM. THE NEW CONTROLS FOR AIR HANDLING UNIT INTO EXISTING CONTROL SYSTEM.

### 15990 – TESTING, ADJUSTING, AND BALANCING

- OBTAIN THE SERVICES OF AN INDEPENDENT TESTING AND BALANCING AGENCY TO BALANCE AND ADJUST THE SYSTEM. THIS SHALL BE DONE BY PERSONS FULLY FAMILIAR WITH SYSTEMS OF THIS TYPE. BALANCING SHALL BE DONE IN ACCORDANCE TO AACB OR NEBB STANDARDS. ALL DATA SHALL BE RECORDED AND A REPORT SUBMITTED TO THE ENGINEER PRIOR TO JOB CLOSE OUT.

## DEFINITIONS

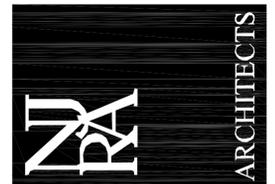
NOTE: ALL DEFINITIONS MAY NOT BE USED.

- INDICATED: THE TERM "INDICATED" REFERS TO GRAPHIC REPRESENTATIONS, NOTES, OR SCHEDULES ON THE DRAWINGS, OTHER PARAGRAPHS OR SCHEDULES IN THE SPECIFICATIONS, AND SIMILAR REQUIREMENTS IN THE CONTRACT DOCUMENTS. WHERE TERMS SUCH AS "SHOWN", "NOTED", "SCHEDULED", AND "SPECIFIED" ARE USED, IT IS TO HELP THE READER LOCATE THE REFERENCE, NO LIMITATION ON LOCATION IS INTENDED.
- DIRECTED: TERMS SUCH AS "DIRECTED", "REQUESTED", "AUTHORIZED", "SELECTED", "APPROVED", "REQUIRED", AND "PERMITTED" MEAN "DIRECTED BY THE ENGINEER", "REQUESTED BY THE ENGINEER", AND SIMILAR PHRASES.
- APPROVE: THE TERM "APPROVED", WHERE USED IN CONJUNCTION WITH THE ENGINEER'S ACTION ON THE CONTRACTOR'S SUBMITTALS, APPLICATIONS, AND REQUESTS, IS LIMITED TO THE ENGINEER'S DUTIES AND RESPONSIBILITIES AS STATED IN GENERAL AND SUPPLEMENTARY CONDITIONS.
- FURNISH: THE TERM "FURNISH" IS USED TO MEAN "SUPPLY AND DELIVER TO THE PROJECT SITE, READY FOR UNLOADING, UNPACKING, ASSEMBLY, INSTALLATION, AND SIMILAR OPERATIONS."
- INSTALL: THE TERM "INSTALL" IS USED TO DESCRIBE OPERATIONS AT PROJECT SITE INCLUDING THE ACTUAL UNLOADING, UNPACKING, ASSEMBLY, ERECTION, PLACING, ANCHORING, APPLYING, WORKING TO DIMENSION, FINISHING, CURING, PROTECTING, CLEANING, AND SIMILAR OPERATIONS TO MAKE THE ITEM FULLY OPERATIONAL.
- PROVIDE: THE TERM "PROVIDE" MEANS "TO FURNISH AND INSTALL, COMPLETE AND READY FOR THE INTENDED USE."
- INSTALLER: AN "INSTALLER" IS THE CONTRACTOR OR AN ENTITY ENGAGED BY THE CONTRACTOR, EITHER AS AN EMPLOYEE, SUBCONTRACTOR, OR SUB-SUBCONTRACTOR, FOR PERFORMANCE OF A PARTICULAR CONSTRUCTION ACTIVITY, INCLUDING INSTALLATION, ERECTION, APPLICATION, AND SIMILAR OPERATIONS. INSTALLERS ARE REQUIRED TO BE EXPERIENCED IN THE OPERATIONS THEY ARE ENGAGED TO PERFORM.

## FIRE PROTECTION SPECIFICATIONS

### 211313 – WET-PIPE FIRE SPRINKLER SYSTEM

- PART 1 – GENERAL
- CONTRACTOR SHALL PROVIDE WET-PIPE FIRE SPRINKLER SYSTEM COVERAGE TO ALL AREAS AFFECTED BY THIS WORK. HYDRAULICALLY CALCULATE SYSTEM IF REQUIRED BY ENGINEER OR AUTHORITY HAVING JURISDICTION. MODIFY EXISTING SYSTEM OR PROVIDE NEW DROPS AND SPRINKLERS FROM SHELL SYSTEM. SUPPLEMENT WET-PIPE FIRE SPRINKLER SYSTEM IN AREAS SUBJECT TO TEMPERATURES LESS THAN 40°F WITH A DRY-PIPE OR ANTI-FREEZE SYSTEM.
  - ALL DESIGN, FABRICATION, INSTALLATION, AND TESTING SHALL BE IN ACCORDANCE WITH 2006 INTERNATIONAL BUILDING CODE, INTERNATIONAL FIRE CODE, NFPA 13, AND ANY OTHER LOCAL ORDINANCES, AS WELL AS INSTRUCTIONS FROM THE AUTHORITY HAVING JURISDICTION.
  - SUBMIT 2 SETS OF FIRE SPRINKLER SHOP DRAWINGS, EQUIPMENT SUBMITTALS, AND HYDRAULIC CALCULATIONS TO THE ARCHITECT/ENGINEER FOR GENERAL APPROVAL OF SYSTEM LAYOUT, LOCATION OF COMPONENTS ETC. THEN SUBMIT TO THE AUTHORITY HAVING JURISDICTION TO OBTAIN FINAL APPROVAL. CONTRACTOR TO PAY ALL PERMIT/APPROVAL/PLANCHECK FEES AND COSTS INVOLVED.
  - RECORD DESIGN DRAWINGS (AS-BUILTS) SHOWING ALL EQUIPMENT, COMPONENTS, PIPING AND CONTROLS SHALL BE PREPARED TO THE SAME SCALE AS SHOP DRAWINGS. HARD COPIES SHALL BE PROVIDED TO THE OWNER AND ARCHITECT/ENGINEER.
  - DESIGNER SHALL BE A REGISTERED PROFESSIONAL ENGINEER SPECIALIZING IN FIRE PROTECTION OR A MINIMUM NICET LEVEL III FIRE SPRINKLER TECHNICIAN. INSTALLER SHALL BE A LICENSED FIRE SPRINKLER SYSTEM CONTRACTOR.
  - THE CONTRACTOR SHALL GUARANTEE THE ENTIRE FIRE PROTECTION SYSTEM FOR A PERIOD OF ONE YEAR FROM THE DATE OF SUBSTANTIAL COMPLETION. SUBMIT WARRANTY TO OWNER UPON COMPLETION OF INSTALLATION.
- PART 2 – PRODUCTS
- ALL NEW EQUIPMENT FOR IN THE WET-PIPE FIRE SPRINKLER SYSTEM SHALL BE UL LISTED OR FM APPROVED FOR USE IN FIRE PROTECTION SYSTEMS UNLESS OTHERWISE APPROVED IN WRITING BY THE ENGINEER OR AHJ.
  - SYSTEM DESIGN SHALL BE BASED ON THE FOLLOWING CRITERIA:
    - OFFICES, HALLWAYS, STAIRS, RESTROOMS, ATTICS, COMBUSTIBLE CONCEALED SPACES NOT USED FOR STORAGE, AREAS ABOVE CEILINGS, LEASABLE SPACES – LIGHT HAZARD OCCUPANCY, 0.10 GPM/SQ.FT. OVER 1,500 SQ.FT. WITH 100 GPM HOSE STREAM. 256 SQ.FT. COVERAGE PER SPRINKLER.
    - MECHANICAL & ELECTRICAL ROOMS, ELEVATOR ROOM, CUSTODIAL ROOMS – ORDINARY HAZARD GROUP 1, 0.15 GPM/SQ.FT. OVER 1,500 SQ.FT. WITH 250 GPM HOSE STREAM. 130 SQ.FT. COVERAGE PER SPRINKLER.
    - STORAGE ROOMS – ORDINARY HAZARD GROUP 2, 0.20 GPM/SQ.FT. OVER 1,500 SQ.FT. WITH 250 GPM HOSE STREAM. 130 SQ.FT. COVERAGE PER SPRINKLER.
    - REDUCE REMOTE AREAS AS ALLOWED BY NFPA 13 FOR QUICK RESPONSE SPRINKLERS.
    - FLOW TEST DATA SHALL BE PROVIDED BY THE ENGINEER. CONTRACTOR AND REPORTED IN WRITING TO THE ENGINEER. DATA SHALL BE NO MORE THAN 6 MONTHS OLD AT TIME OF SUBMITTAL UNLESS OTHERWISE ALLOWED IN WRITING BY AHJ.
  - PIPING – STEEL PIPE CONFORMING TO ANSI/ASTM A53, ASTM A135 OR A795.
    - 2-1/2" OR LARGER – SCH. 10 OR EQUAL.
    - 2" AND SMALLER – DYNA-THREAD OR EQUAL.
    - MINIMUM CRR 1.0.
    - PLAIN-END PIPING NOT ALLOWED.
  - FITTINGS – CAST IRON FOR THREADED PIPE, RUBBER GASKETED FOR ROLL GROVED SCHEDULE 10 MAINS, AND WELDED OUTLETS FOR BRANCHLINE ATTACHMENTS TO MAINS. PLAIN-END FITTINGS NOT ALLOWED.
  - SPRINKLERS – QUICK RESPONSE WITH RECESSED ESCUTCHEONS SHALL BE USED AS APPROPRIATE. CONTRACTOR SHALL SELECT MAKE AND MODEL WHERE NOT SPECIFICALLY DIRECTED. COORDINATE SPRINKLER STYLES, COLORS, FINISHES, ETC. WITH ENGINEER AND ARCHITECT FOR AESTHETIC PURPOSES PRIOR TO INSTALLATION.
  - HANGERS AND SEISMIC BRACING SHALL BE INSTALLED IN ACCORDANCE WITH THEIR LISTING, NFPA 13, AND AHJ REQUIREMENTS. ALL HANGER DETAILS SHALL BE SHOWN ON DRAWINGS WITH LOCATIONS INDICATED. SEISMIC BRACING DETAILS SHALL BE SHOWN ON DRAWINGS WITH LOCATIONS, CALCULATIONS AND "AREA OF INFLUENCE".
- PART 3 – EXECUTION
- INSTALL ALL EQUIPMENT IN CONFORMANCE WITH APPROVED STANDARDS.
  - PROVIDE INSPECTOR'S TEST CONNECTION(S) IN A LOCATION APPROVED BY THE OWNER AND THE FIRE MARSHAL.
  - DUE CONSIDERATION SHALL BE GIVEN TO THE LOCATION OF BUILDING ELEMENTS (I.E. BEAMS, COLUMNS, LIGHT FIXTURES, ETC.) IN DETERMINING SPRINKLER SPACING AND ARRANGEMENT. REFER TO ARCHITECTURAL PLANS (INCLUDING STRUCTURAL, MECHANICAL, ELECTRICAL, & PLUMBING) FOR ADDITIONAL BUILDING INFORMATION SUCH AS ATTIC SPACES, CONSTRUCTION MATERIALS, SPECIAL USE SPACES, BUILDING SECTIONS, ETC.
  - THE FIRE PROTECTION CONTRACTOR DOES NOT HAVE PRIORITY ON PIPE ROUTING. ALL PIPING TO BE FULLY COORDINATED WITH ALL HVAC, PLUMBING, ELECTRICAL AND ARCHITECTURAL REQUIREMENTS AND TRADES. RESOLVE POTENTIAL CONFLICTS BEFORE PROCEEDING WITH INSTALLATION. IN ALL CASES, GRADED PIPE RUNS TAKE FIRST PRIORITY ON ROUTING. GENERALLY, DUCTWORK TAKES SECOND PRIORITY.
  - PROVIDE AUXILIARY DRAINS AS NECESSARY TO DRAIN TRAPPED PIPING.
  - THE CONTRACTOR SHALL THOROUGHLY TEST, DISINFECT, AND FLUSH THE PIPING SYSTEM ACCORDING TO APPLICABLE CODES AND STANDARDS.
  - COORDINATE WITH FIRE ALARM CONTRACTOR TO IDENTIFY ITEMS REQUIRED TO BE MONITORED BY FIRE ALARM SYSTEM PRIOR TO COMMENCEMENT OF INSTALLATION.
  - UPON COMPLETION OF THE WORK, REMOVE ALL SURPLUS MATERIALS AND RUBBISH. MAKE ALL REQUIRED PATCHING AND REPAIRS OF OTHER TRADES' WORK DAMAGED BY THIS CONTRACTOR, AND LEAVE THE PREMISES IN A CLEAN, ORDERLY CONDITION.
  - THE CONTRACTOR SHALL THOROUGHLY TEST, DISINFECT, AND FLUSH THE PIPING SYSTEM ACCORDING TO APPLICABLE CODES AND STANDARDS.
  - PROVIDE LABELED ACCESS PANELS FOR ALL VALVES, DEVICES, ETC. CONCEALED IN WALLS OR CEILINGS.



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