

MECHANICAL ABBREVIATIONS					
A/C or AC	AIR CONDITIONING	IFGC	INTERNATIONAL FUEL GAS CODE		
AFF	ABOVE FINISHED FLOOR	IMC	INTERNATIONAL MECHANICAL CODE		
AHU	AIR HANDLING UNIT	IPC	INTERNATIONAL PLUMBING CODE		
ASHRAE	AMERICAN SOCIETY OF HEATING, REFRIGERATION, AND AIR CONDITIONING ENGINEERS	KW	KILOWATT		
AV	ACID VENT LINE	KWH	KILOWATT HOUR		
AW	ACID WASTE LINE	L	LIQUID REFRIGERANT LINE		
BTU	BRITISH THERMAL UNITS	LAT	LEAVING AIR TEMPERATURE		
BTUH	BTUS PER HOUR	LAV	LAVATORY		
CA	COMBUSTION AIR	LEED	LEADERSHIP IN ENERGY & ENVIRONMENTAL DESIGN		
CC	COOLING COIL	LWT	LEAVING WATER TEMPERATURE		
CD	CONDENSATE DRAIN LINE	M	MOTORIZED DAMPER		
CDR	CONDENSER WATER RETURN	MAX	MAXIMUM		
CDS	CONDENSER WATER SUPPLY	MCA	MINIMUM CIRCUIT AMPS		
CFM	AIR FLOW RATE (CUBIC FEET PER MINUTE)	MIN	MINIMUM		
CLG	CEILING	MOCP	MAXIMUM OVERCURRENT PROTECTION		
CW	DOMESTIC COLD WATER	MPG	MEDIUM PRESSURE NATURAL GAS		
CWR	CHILLED WATER RETURN	NC	NOISE CRITERIA		
CWS	CHILLED WATER SUPPLY	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION		
DEG or °	DEGREE	NTS	NOT TO SCALE		
DIA or Ø	DIAMETER	OD	OVERFLOW DRAIN LINE		
DB	DRY BULB	OSA	OUTSIDE AIR		
DWR	DOMESTIC HOT WATER RETURN	PD	PRESSURE DROP		
EA	EXHAUST AIR	PH or Ø	PHASE		
EAT	ENTERING AIR TEMPERATURE	PRV	PRESSURE REDUCING VALVE		
EER	ENERGY EFFICIENCY RATIO	RA	RETURN AIR		
ESP	EXTERNAL STATIC PRESSURE	RD	ROOF DRAIN LINE		
EWT	ENTERING WATER TEMPERATURE	RPM	REVOLUTIONS PER MINUTE		
F	FIRE SPRINKLER LINE	RTU	ROOFTOP UNIT		
FCO	FLOOR CLEANOUT	S	SUCTION REFRIGERANT LINE		
FD	FIRE DAMPER	SA	SUPPLY AIR		
FLA	FULL LOAD AMPS	SD	STORM DRAIN LINE		
FLR	FLOOR	SEER	SEASONAL ENERGY EFFICIENCY RATIO		
FS	FEET PER MINUTE	SFD	COMBINATION SMOKE/FIRE DAMPER		
FT	FEET	SP	STATIC PRESSURE		
G	LOW PRESSURE NATURAL GAS	SYM	SYMBOL		
GA	GAUGE	T & P	TEMPERATURE AND PRESSURE		
GCO	GRADE CLEANOUT	TEMP	TEMPERATURE		
GPM	WATER FLOW RATE (GALLONS PER MINUTE)	TSP	TEMPERATURE SENSOR (DUCT OR PIPING)		
GWR	GEOTHERMAL WATER RETURN	TYP	TYPICAL		
GWS	GEOTHERMAL WATER SUPPLY	UPC	UNIFORM PLUMBING CODE		
HC	HEATING COIL	U	UNIFORM PLUMBING CODE		
HP	HORSE POWER	VTR	VENT THROUGH ROOF		
HVAC	HEATING, VENTILATING, AIR CONDITIONING	V	VOLTS		
HW	DOMESTIC HOT WATER	WB	WET-BULB		
HWR	HEATING WATER RETURN	WC	WATER CLOSET		
HWS	HEATING WATER SUPPLY	WCO	WALL CLEANOUT		
IBC	INTERNATIONAL BUILDING CODE	WH	WATER HEATER		
IECC	INTERNATIONAL ENERGY CONSERVATION CODE				
IFC	INTERNATIONAL FIRE CODE				
NOTE: THIS IS A STANDARD LIST OF COMMONLY USED MECHANICAL ABBREVIATIONS. SOME OF THE ABBREVIATIONS SHOWN ABOVE MAY NOT BE USED IN THIS DRAWING PACKAGE.					

MECHANICAL GENERAL NOTES	
1.	ALL MECHANICAL EQUIPMENT AND SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH THE INTERNATIONAL MECHANICAL CODE (IMC) LATEST EDITION, AND ALL LOCAL & STATE CODES.
2.	ALL PLUMBING EQUIPMENT AND SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH THE INTERNATIONAL PLUMBING CODE (IPC) LATEST EDITION, AND ALL LOCAL & STATE CODES.
3.	ALL MECHANICAL AND PLUMBING EQUIPMENT SHALL BE INSTALLED PER THE MANUFACTURER'S RECOMMENDATIONS.
4.	MECHANICAL CONTRACTORS SHALL RECEIVE PRIOR APPROVAL FROM THE STRUCTURAL ENGINEER BEFORE MAKING CUTS THROUGH ANY STRUCTURAL MEMBER.
5.	MECHANICAL CONTRACTORS SHALL COORDINATE INSTALLATION WITH CONSTRUCTION SUPERVISOR AND WITH ALL OTHER TRADES TO AVOID CONFLICTS.
6.	THE MECHANICAL CONTRACTORS SHALL VERIFY MOTOR VOLTAGES WITH THE ELECTRICAL DRAWINGS BEFORE ORDERING MOTORIZED EQUIPMENT AND CONTROLS.
7.	SEE SHEET M400, M401, AND M402 FOR SCHEDULED CAPACITIES OF ALL MECHANICAL EQUIPMENT AND MATERIALS SPECIFIED.
8.	DOMESTIC WATER SERVICE IS PROVIDED WITH A DOUBLE CHECK BACKFLOW PREVENTER.
9.	ALL MECHANICAL EQUIPMENT TO BE PROPOSED MUST BE ON THE APPROVED LIST PRIOR TO SUBMITTALS. ALL APPROVED MANUFACTURERS MUST BE CAPABLE OF MEETING THE REQUIREMENTS OF THE SPECIFIED EQUIPMENT.
10.	RUNOUT AND HOOKUP SIZES TO INDIVIDUAL PLUMBING FIXTURE CAN BE FOUND ON THE PLUMBING FIXTURE SCHEDULES, SHEET P400.
11.	PROVIDE REMOTE CEILING ACCESS BALANCE DAMPERS WITH CONCEALED CHROME PLATE COVERS FOR BALANCE DAMPERS LOCATED ABOVE HARD CEILINGS.
12.	PAINT ALL VTRS, FLUES, EXHAUST CAPS, AND OTHER MECHANICAL ITEMS ON THE ROOF TO MATCH THE ROOF COLOR.
13.	INSULATED FLEXIBLE DUCTWORK MAY BE USED FOR RUNOUTS TO GRILLES AND DIFFUSERS, IN LENGTHS OF 6'-0" OR LESS.
14.	MAINTAIN MINIMUM OF 10'-0" DISTANCE BETWEEN ALL FRESH AIR INTAKES AND EXHAUST OR GAS FLUE DISCHARGES.
15.	THE PLUMBING CONTRACTOR IS RESPONSIBLE FOR ALL BACKFLOW DEVICES TO BE INSPECTED BY A CERTIFIED BACKFLOW TECHNICIAN BEFORE THE USE OF THE BUILDING POTABLE WATER SYSTEM.
16.	LOCATE ACCESS HATCHES SO AS TO PROVIDE OPTIMUM SERVICEABILITY TO EQUIPMENT AND/OR VALVING. SEE ARCHITECTURAL SPECIFICATION FOR TYPE AND COLOR. COORDINATE LOCATION WITH STRUCTURAL & LIGHTING.
17.	WHENEVER THERE IS A DISCREPANCY BETWEEN THE RUNOUT DUCT SIZE SHOWN ON THE PLANS AND THAT SHOWN IN THE SCHEDULE, ALWAYS USE THE LARGER OF THE TWO DUCT SIZES.
18.	THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR VERIFICATION OF EXISTING JOB CONDITIONS PRIOR TO BID. NO ADDITIONAL COST SHALL BE AWARDED TO THE SUCCESSFUL CONTRACTOR OR THEIR SUBCONTRACTORS AFTER BIDS HAVE BEEN SUBMITTED AND CONTRACTS AWARDED FOR FAILURE TO VERIFY EXISTING FIELD CONDITIONS. DISCREPANCIES BETWEEN ACTUAL FIELD CONDITIONS AND CONTRACT DOCUMENTS SHALL BE BROUGHT TO THE ENGINEERS ATTENTION FOR ALTERNATIVE METHODS OF INSTALLATION PRIOR TO THE BIDDING OF THIS PROJECT.

MECHANICAL AND PLUMBING DRAWINGS LEGEND	
	FLEXIBLE DUCTWORK
	DUCTWORK BREAK
	DUCTWORK OR PIPING RISE
	CONCENTRIC SQUARE TO ROUND TRANSITION
	MOTORIZED DAMPER
	MANUAL VOLUME DAMPER
	SPIN-IN FITTING W/ AIR EXTRACTOR AND HAND DAMPER
	HIGH EFFICIENCY FITTING W/ HAND DAMPER
	SWITCH
	THERMOSTAT
	HUMIDISTAT
	TEMPERATURE SENSOR
	CARBON DIOXIDE SENSOR
	CARBON MONOXIDE SENSOR
	NITROUS OXIDE SENSOR
	DUCT SMOKE DETECTOR
	COMBINATION SMOKE/FIRE DAMPER
	FIRE DAMPER
	SMOKE DAMPER
	EQUIPMENT CALLOUT
	TURNING VANES
	INTAKE OR EXHAUST
	DIRECTION OF AIRFLOW
	SUPPLY DIFFUSER
	RETURN GRILLE
	EXHAUST GRILLE
	FLOOR GRILLE
	CEILING EXHAUST FAN
	TEMPERATURE GAUGE
	PRESSURE GAUGE (LIQUID FILLED W/ ISOLATION VALVE)
	TEMPERATURE SENSOR (DUCT OR PIPING)
	FLOW SWITCH
	STAINLESS STEEL BRAIDED FLEX CONNECTION
	ELASTOMETRIC FLEX CONNECTOR
	SUCTION DIFFUSER
	Y TYPE STRAINER (1 1/2" OR LARGER PROVIDED W/ BLOW DOWN VALVE)
	FLOW DIRECTION
	DEMOLITION / EQUIPMENT TO BE REMOVED
	NEW TO EXISTING CONNECTION POINT
	EXISTING
	FUTURE
	NEW
	REDUCED PRESSURE BACKFLOW PREVENTER
	DOUBLE CHECK BACKFLOW PREVENTER
	UNION
	AIR VENT
	TRIPLE DUTY VALVE
	THREE WAY CONTROL VALVE
	TWO WAY CONTROL VALVE
	PRESSURE REDUCING VALVE
	GATE VALVE
	REDUCER
	GLOBE VALVE
	BALL VALVE
	BUTTERFLY VALVE
	BALANCE VALVE
	CHECK VALVE
	FLOOR CLEANOUT
	WALL CLEANOUT
	GRADE CLEANOUT
	WATER HAMMER ARRESTOR
	FLOOR DRAIN
	FLOOR SINK
	GAS PRESSURE REGULATOR W/ GAS COCK
	PRESSURE RELIEF VALVE
	VENT-THROUGH-ROOF
	VENT
	SOIL, WASTE, OR SANITARY SEWER
	ACID WASTE LINE
	ACID VENT LINE
	STORM DRAIN
	ROOF DRAIN LINE
	OVERFLOW DRAIN LINE
	CONDENSATE DRAIN LINE
	DOMESTIC COLD WATER (CW)
	DOMESTIC HOT WATER (HW)
	DOMESTIC HOT WATER RETURN (HWR)
	TEMPERED WATER (TW)
	MEDIUM PRESSURE NATURAL GAS
	LOW PRESSURE NATURAL GAS
	FIRE SPRINKLER LINE
	GEOTHERMAL WATER SUPPLY
	GEOTHERMAL WATER RETURN
	CHILLED WATER SUPPLY
	CHILLED WATER RETURN
	CONDENSER WATER SUPPLY
	CONDENSER WATER RETURN
	HEATING WATER SUPPLY
	HEATING WATER RETURN
	LIQUID REFRIGERANT LINE
	SUCTION REFRIGERANT LINE
	SLOPE PIPE IN DIRECTION OF ARROW
	PIPE ANCHOR
	PIPE GUIDE
	CAP
NOTE: THIS IS A LIST OF COMMONLY USED MECHANICAL AND PLUMBING SYMBOLS. SOME OF THE SYMBOLS SHOWN ABOVE MAY NOT BE USED IN THIS DRAWING PACKAGE.	

ENERGY CODE COMPLIANCE

A. COMPLIANCE WITH THE LATEST ADOPTED EDITION OF THE INTERNATIONAL ENERGY CONSERVATION CODE IS REQUIRED FOR THIS PROJECT. THESE NOTES COVER MANDATORY REQUIREMENTS OF THE CODE. ADDITIONAL REQUIREMENTS ARE NOTED ON THE DRAWINGS AND IN THE SPECIFICATIONS.

B. MINIMUM REQUIREMENTS FOR SUPPLY AND RETURN DUCTWORK INSULATION:

1. R-6: DUCTS LOCATED IN UNCONDITIONED SPACES (SPACE NEITHER HEATED NOR COOLED SUCH AS ABOVE CEILING SPACES, WALL SPACES, DUCT CHASES, SOFFITS, ATTICS, CRAWL SPACES, UNHEATED BASEMENTS, AND UNHEATED GARAGES).
2. R-8: DUCTS LOCATED OUTSIDE OF THE BUILDING'S INSULATION ENVELOPE (SUCH AS ABOVE THE ATTIC INSULATION).

TYPICAL INSULATION THICKNESS REQUIRED TO MEET THESE REQUIREMENTS:

1. FIBERGLASS DUCT WRAP: R-6, R-8.
2. FIBERGLASS DUCT LINER: R-6, R-8.

C. CONTRACTOR SHALL VERIFY WITH THE MANUFACTURER, THE R-VALUES OF THE ACTUAL INSULATION USED. R-VALUES SHALL BE INSTALLED VALUES.

D. WHERE DUCTS USED FOR COOLING ARE EXTERNALLY INSULATED, THE INSULATION SHALL BE COVERED WITH A VAPOR RETARDER HAVING A MAXIMUM PERMEANCE OF 0.05 PERM OR ALUMINUM FOIL HAVING A MINIMUM THICKNESS OF 2 MILS. INSULATION HAVING A PERMEANCE OF 0.05 PERMS OR LESS SHALL NOT BE REQUIRED TO BE COVERED. ALL JOINTS AND SEAMS SHALL BE SEALED TO MAINTAIN THE CONTINUITY OF THE VAPOR RETARDER.

E. ALL DUCT JOINTS, SEAMS, AND CONNECTIONS SHALL BE FASTENED AND SEALED WITH WELDS, GASKETS, ADHESIVES, MASTIC-PLUS-EMBEDDED-FABRIC SYSTEMS, OR TAPES. TAPES AND MASTICS SHALL BE LISTED AND LABELED PER UL181A OR UL181B. DUCT TAPE IS NOT PERMITTED AS A SEALANT ON ANY METAL DUCTS. DUCT CONNECTIONS TO FLANGES OR EQUIPMENT SHALL BE SEALED AND MECHANICALLY FASTENED.

F. MINIMUM REQUIREMENTS (THICKNESS) FOR PIPING INSULATION SHALL BE AS FOLLOWS:

FLUID	NOMINAL PIPE DIAMETER	1/2" TO 1 1/2"	2" AND ABOVE
1. STEAM	1/2"	1 1/2"	3"
2. HEATING WATER	1 1/2"	1 1/2"	2"
3. CHILLED WATER	1 1/2"	1 1/2"	1 1/2"
4. REFRIGERANT	1 1/2"	1 1/2"	1 1/2"

THE ABOVE INSULATION IS BASED ON HAVING A CONDUCTIVITY NOT EXCEEDING 0.27 BTU-INCH/HOUR-FT²-F.

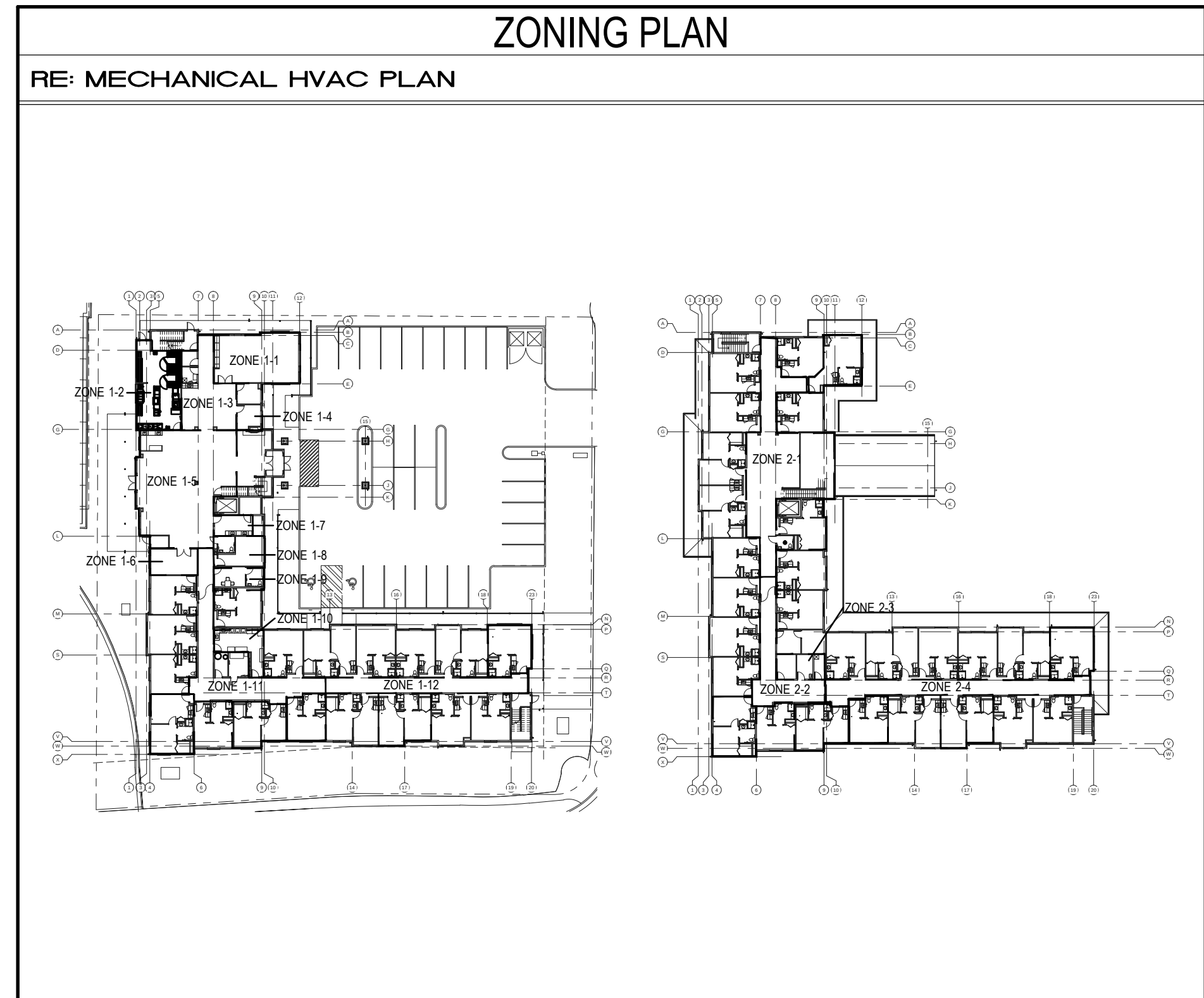
G. DOMESTIC HOT WATER PIPING SYSTEMS SHALL BE INSULATED WITH 1" INSULATION HAVING A CONDUCTIVITY NOT EXCEEDING 0.27 BTU-INCH/HOUR-FT²-F.

H. DOMESTIC WATER HEATERS WHICH ARE NOT PROVIDED WITH INTEGRAL HEAT TRAPS AND SERVE NONCIRCULATING SYSTEMS SHALL BE PROVIDED WITH HEAT TRAPS ON THE SUPPLY AND DISCHARGE PIPING AT THE WATER HEATER.

I. DOMESTIC HOT WATER SYSTEMS WITH RECIRCULATION PUMPS OR ELECTRIC HEAT TRACE SHALL BE CONTROLLED WITH 7-DAY TIME CLOCKS.

J. AN OPERATING AND MAINTENANCE MANUAL SHALL BE PROVIDED PRIOR TO ISSUANCE OF A CERTIFICATE OF OCCUPANCY. THE O&M MANUAL SHALL CONTAIN THE FOLLOWING INFORMATION AS A MINIMUM:

1. EQUIPMENT CAPACITY (INPUT & OUTPUT).
2. EQUIPMENT OPERATING AND MAINTENANCE INSTRUCTIONS.
3. CONTROL SYSTEM MAINTENANCE AND CALIBRATION INFORMATION, INCLUDING WIRING DIAGRAMS, SCHEMATICS, AND CONTROL SEQUENCES.
4. CONTROL SYSTEM SETPOINTS SHALL BE SHOWN ON CONTROL DRAWINGS, AT CONTROL DEVICES, OR IN PROGRAMMING COMMENT ON DDC SYSTEMS.
5. A COMPLETE WRITTEN NARRATIVE ON HOW EACH MECHANICAL SYSTEM IS INTENDED TO OPERATE.

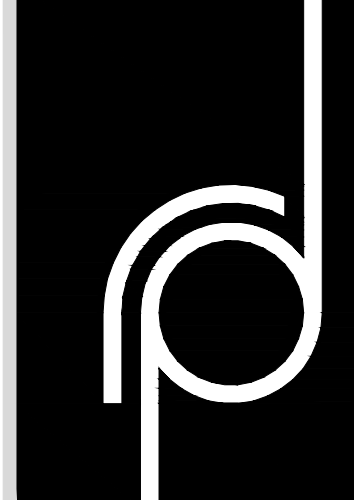


Zone Summary									
PROJECT:	PARDOE ASSISTED LIVING			Design Conditions	Winter	10	Summer	95	
COMPUTED BY:	MS			DATE:	9-Jun-16	CHK BY:	RG		
Zone Reference	FLOOR SQ. FT.	BTUH	kW	Sensible Cooling Load	Total Cooling Load	NOMINAL TON (12000-BTU/TON)	SQ. FT PER NOMINAL TON	NUMBER OF PEOPLE	Unit Selection Size
1 1 BEDROOM C 1ST FLOOR	390	8,043	2	5,187	5,467	0.5	856.0	1	75
2 1 BEDROOM C 2ND FLOOR	390	7,172	2	5,202	5,483	0.5	853.6	1	75
3 1 BEDROOM B 1ST FLOOR	450	10,999	3	8,258	8,538	0.7	632.4	1	75
4 1 BEDROOM B 2ND FLOOR	450	8,933	3	8,030	8,311	0.7	649.8	1	75
5 STUDIO A 1ST FLOOR	315	6,118	2	3,542	3,823	0.3	988.9	1	75
6 STUDIO A 2ND FLOOR	315	5,718	2	3,691	3,971	0.3	951.9	1	75
7 STUDIO B 1ST FLOOR	375	11,189	3	7,317	7,597	0.6	592.3	1	75
8 STUDIO B 2ND FLOOR	375	8,921	3	6,665	6,846	0.6	657.3	1	75
9 1 BEDROOM A 1ST FLOOR	445	8,278	2	5,375	5,655	0.5	944.3	1	75
10 1 BEDROOM A 2ND FLOOR	445	7,752	2	5,608	5,887	0.5	907.1	1	75
11 STUDIO C 2ND FLOOR	385	8,570	3	5,503	5,784	0.5	798.8	1	75
12 STUDIO D 2ND FLOOR	350	6,165	2	4,005	4,286	0.4	980.0	1	75
Total Loads =	4685	97,858	29	68,281	71,847	6.0	785	12	900
Energy Compliance Calculations (Not Equipment Schedule) Equipment is selected based on next available size									

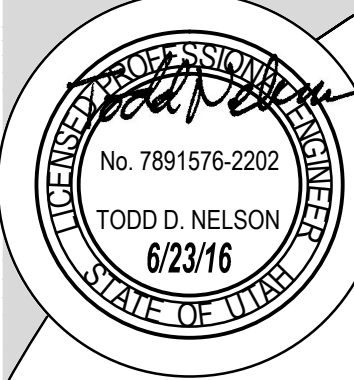
Zone Summary									
PROJECT:	PARDOE ASSISTED LIVING			Design Conditions	Winter	10	Summer	95	
COMPUTED BY:	RG			DATE:	9-Jun-16	CHK BY:	BC		
Zone Reference	FLOOR SQ. FT.	BTUH	kW	Sensible Cooling Load	Total Cooling Load	NOMINAL TON (12000-BTU/TON)	SQ. FT PER NOMINAL TON	NUMBER OF PEOPLE	Unit Selection Size
1 ZONE 1-1 - Activity	745	22,058	6	18,693	25,708	2.1	347.8	25	212
2 ZONE 1-2 - Kitchen	650	16,726	5	23,300	24,422	2.0	319.4	4	220
3 ZONE 1-3 - Bistro	700	10,056	3	10,414	16,024	1.3	524.2	20	255
4 ZONE 1-4 - Office/Nurse	200	4,188	1	6,485	7,046	0.6	340.6	2	28
5 ZONE 1-5 - Dining	1612	40,954	12	33,985	46,085	3.8	471.8	40	700
6 ZONE 1-6 - Private Dining	215	6,024	2	7,975	11,000	0.9	234.5	10	142
7 ZONE 1-7 - Salon	140	2,886	1	1,681	2,242	0.2	749.3	2	71
8 ZONE 1-8 - Therapy	265	4,298	1	5,134	5,739	0.5	554.1	2	38
9 ZONE 1-9 - Break Room	187	2,466	1	2,363	3,505	0.3	640.2	4	39
10 ZONE 1-10 - Laundry/Linen	255	1,851	1	2,635	3,757	0.3	814.5	4	85
11 ZONE 1-11 - Corridor	875	10,381	3	3,715	3,715	0.3	2826.6	0	66
12 ZONE 1-12 - Corridor	585	7,924	2	3,745	3,745	0.3	1874.5	0	44
13 ZONE 2-1 - Corridor/Lobby	1700	28,898	8	20,574	21,696	1.8	940.2	4	165
14 ZONE 2-2	570	6,216	2	3,422	3,422	0.3	1988.6	0	43
15 ZONE 2-3	210	2,426	1	2,333	2,614	0.2	964.1	1	22
16 ZONE 2-4	750	9,027	3	5,130	5,130	0.4	1754.3	0	56
Total Loads =	9659	176,379	52	151,605	185,848	15.5	637	118	2184
Energy Compliance Calculations (Not Equipment Schedule) Equipment is selected based on next available size									



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THE DRAWING, SPECIFICATIONS, AND S

SECTION 15100 - MECHANICAL GENERAL PROVISIONS

PART 1 - GENERAL

1.1 SCOPE

- A. Section Includes:
- The Bidding Requirements, Contract Requirements, and the General Requirements (Division 1) of these specifications shall govern all parts of the work.
 - Work Included:
 - Install work in accordance with these specifications and the accompanying plans. Furnish all labor, material, and equipment together with all incidental items not specifically shown or specified which are required by good practice to provide the complete mechanical systems as described.
 - The HVAC Contractor(s) and all sub-Contractor(s) shall provide installed equipment cut sheets and purchase orders required by utility rates.
 - Coordination and Site Visits:
 - This section of the work requires examination of and reference to all architectural, structural, utility, and electrical drawings for construction conditions that may affect the work. Inspect the building site and existing facilities for verification of existing conditions. Base all measurements from established benchmarks. Any discrepancy between actual measurements and those indicated, providing following good practices or the intent of the drawings and specifications, shall be reported to the Architect/Engineer, and work halted until instructions are received from the Architect/Engineer.

1.2 CODES, PERMITS, FEES:

- A. Install all work in accordance with applicable codes and standards. Obtain all required permits, pay all required fees including utility connectors or extensions, in connection with this portion of the construction. Obtain all required certificates of inspection for the work.

PART 2 - PRODUCTS

2.1 MATERIALS AND WORKMANSHIP:

- A. Materials:
- All materials and equipment shall be of first quality, new, full size and weight, standard in every respect, and suitable for the space required. Use the same manufacturer for products of similar class or service, such as valves, pumps, controls, and air handlers. Protect all materials against theft, or damage before and after installation.
 - Furnish equipment that will operate under all conditions of load without any sound or vibration that is objectionable in the opinion of the Architect/Engineer. Vibration or noise considered objectionable will be corrected by the Subcontractor at its expense.
 - Furnish and install all necessary foundations, supports, pads, bases, and piers required for all materials and equipment furnished under this contract.
 - Provide all required fire stopping at piping and duct penetrations of fire rated walls, floors, ceilings, and doors. Fire stopping shall be **Dow Corning Fire Stop Sealant** or equivalent.
 - All plumbing penetrations of the one hour fire rated roof/ceiling assemblies shall be provided with UL listed and labeled membrane or joint penetration for stop assembly.
- B. Workmanship:
- All materials and equipment shall be installed in a neat and workmanlike manner by competent specialists for each sub trade. Work shall be installed to the satisfaction of the Architect/Engineer with unsatisfactory work removed and reinstalled to his satisfaction at no extra cost to the Owner.
 - Provide all cutting and patching necessary to install the work specified in this section. Patching shall match adjacent surfaces. No structural members shall be cut without the approval of the Architect/Engineer. Provide all sleeves and inserts required below the floors and walls as built.
 - Locate all equipment that must be serviced in fully accessible positions. Provide clearance for removal of replacement parts and components, and with necessary couplings or flanges to remove the component for maintenance.

2.2 SUBMITTALS AND SUBSTITUTIONS:

- A. Product Approval:
- Manufacturer's trade names and catalog numbers stated herein are intended to indicate the quality of equipment or materials desired. All manufacturers not specifically listed herein are acceptable. Submit catalog data, including specifications, of the proposed equipment to the Architect/Engineer for his approval at least 10 calendar days prior to shop note opening. Once all such approvals will be published in an addendum. Approval of listed alternate equipment manufacturers is for bidding only. Final approval is to be based on requirements of the plans and specifications.
 - Submittals:
 - Within thirty days after award of this contract, provide six copies of a complete list of all materials and equipment proposed for this project. List shall contain make, type, manufacturer's name, and trade designation of all materials and equipment.
 - Submit a complete set of manufacturer's complete specifications for each item, including capacities, ratings, etc., and dimensions as required to check space requirements. Provide six copies of each submittal. The alternate manufacturer is the basis of design for quality, weights, physical size, etc. Alternate manufacturers shall not exceed the weight or physical size. Any changes to the Architectural, Structural, Mechanical, Electrical, and Control systems due to alternate manufacturers shall be the responsibility of the Contractor and Supplier.
 - Approval of submittals shall not relieve the contractor from responsibility for deviations from the plans or specifications, unless he has, in writing, called the Architect's attention to deviations at the time of submittal, and obtained the Architect's written approval. Approval of submittals shall not relieve the contractor from responsibility for errors in shop drawings or literature.
- C. Equipment Requiring Submittals:
- Roof-top Make-Up Air Units
 - VRF System
 - Ductless Split System
 - Exhaust Fans
 - Coils, Registers, Diffusers and Louvers
 - Flexible Ductwork
 - Plumbing Fixtures and Trim
 - Cast Iron Soil Piping
 - Drain Pipes
 - Energy Recovery Units
 - Gas Piping
 - Smoke and Fire Damper Installation Details

PART 3 - EXECUTION

3.1 ACCESSIBILITY & SAFETY:

- A. Accessibility:
- All equipment which must be serviced or operated shall be located in fully accessible position. Minor changes from the drawings may be made for better accessibility. All changes shall be approved prior to actual installation.
 - Access panels shall be provided for accessibility. Subcontractor shall furnish the required panels to the General Contractor and the required location for all access panels. Panels shall be installed by the General Contractor.
- B. Safety:
- Subcontractor shall provide guards for all belt drives and rotating machinery. No wire piping shall run immediately over or within a 3-foot plan view clearance of any electrical panel or motor starter. Where piping must be located within these zones, install piping made of material to prevent water access to electrical equipment.

3.2 COORDINATION:

- A. Coordinate all work with the various trades involved to provide a complete and satisfactory installation. The exact details of piping, ductwork, and equipment are not shown. No additional equipment will be made for effects or relocation required in coordination with other trades.
- B. Alterations required due to improper supervision by the subcontractor shall be made at no extra cost, to the satisfaction of the Architect/Engineer.

3.3 ELECTRICAL:

- A. Electric motors required for equipment specified in this section shall be provided and installed by the Subcontractor's electricians, disconnects, relays, pilot lights, etc., are in general, to be furnished and installed by the Electrical Contractor.
- B. Starters, relays, controls, etc., which are factory assembled into packaged equipment shall be furnished by the Electrical Contractor under this section of the specifications.
- C. All motors shall be provided with adequate starting and protective equipment as specified or required. Motor capacity shall be sufficient to operate driven device under all conditions of operation and load without overheat. Minimum horsepower shall be as specified.

3.4 EXCAVATION & BACKFILL:

- A. Excavate trenches required for underground piping to proper elevation and grade. Provide trenches with solid bottoms to allow support of piping along entire length with excavation at bells as required for joining and installation. Provide repairing of finished floors, and all required shoring, bracing, pumping, and protection for safety of persons and property. Observe all Local or State Safety Codes. Verify that elevations of existing utilities will allow for proper grading of piping connecting to existing utilities.
- B. Excavation and Backfill shall be in accordance with the requirements of Division 2 - Sitework, of these specifications.

3.5 IDENTIFICATION AND CODING:

- A. Labeling:
- All piping of mechanical equipment, accessories, ductwork, and piping shall be furnished and applied under the Architectural section of these specifications. All piping shall be completed before any identification markings are applied.
- B. Equipment:
- Identify all equipment with a black Formica label, with white relief when engraved.

Letting to be 3/16 inch high minimum. In general, identify equipment as to area covered in addition to line and code number of the identification as taken from the plans.

C. Piping:

- Identify all piping as to the service of the pipe and the direction of flow. The letters shall be 1/2 inch high on piping 1/4 inch or smaller, 3/4 inch high on piping 1/2 inch to two inches, 1 1/4 inches high on piping up to six inches, and 2 1/2 inches high on 8 inch piping or larger. Flow arrows shall be at least six inches long. The letters and flow arrows shall be made by printed stencils or oil base paint, one inch high and black, or factory fabricated plastic pipe markers. Piping shall be identified at 25 foot maximum intervals, on long continuous lines, adjacent to each end of equipment, on each rise and junction, and on both sides of all wall and floor penetrations. Install directly above all buried pipe, 6 to 8 inches below finished grade. All piping shall be labeled per the Uniform Plumbing Code, latest edition.
- Valves:

 - This section of the work requires examination of and reference to all architectural, structural, utility, and electrical drawings for construction conditions that may affect the work. Inspect the building site and existing facilities for verification of existing conditions. Base all measurements from established benchmarks. Any discrepancy between actual measurements and those indicated, providing following good practices or the intent of the drawings and specifications, shall be reported to the Architect/Engineer, and work halted until instructions are received from the Architect/Engineer.

3.6 TESTING:

- A. Piping:
- All plumbing piping (drainage, water, gas) shall be tested in accordance with the requirements of the Idaho State Plumbing Code, latest edition. Other piping systems shall be tested hydrostatically, to 1.5 times the operating pressure, but not less than 100 psi, for a minimum period of 2 hours. If the test pressure falls more than 5 percent during the test period, the leak shall be located, repaired, and the test repeated.
 - Piping shall be tested before insulation has been installed. Delicate control or chemical or compounds to stop leaks shall not be permitted.
 - A test report shall be submitted for each piping system test. Test report forms are part of Specifications Section 15200, or are available from the Engineer.
 - Smoke Test: A smoke test shall be performed on the waste and vent system before building occupancy. After all fixtures are permanently connected and traps are filled with water, fill entire drainage and vent system with smoke under pressure of 1.3 psia (1 inch of water) with a smoke machine. If leaks are detected, they shall be repaired and the smoke test shall be performed again until no leaks are found.
- B. Systems:
- All systems, including heating, ventilating, air conditioning, and plumbing systems, shall be tested to the completion of the building to establish that the systems operate as specified and required. Testing shall be performed after air and water balancing is required for all materials and equipment furnished under this contract.
 - All controls shall be calibrated accurately and all equipment shall be adjusted for satisfactory operation. Excessive vibration or noise from any system shall be corrected.
 - The air conditioning system shall be tested for satisfactory operation when the outside air temperature reaches 60°F or warmer. All other systems shall be tested at the discretion of the Architect/Engineer. Provide all necessary permits for the testing of the Architect/Engineer's representative.

3.7 BALANCING:

- A. Scope:
- Prior to final acceptance by the Owners, all air systems shall be balanced to deliver the quantities as specified or directed. The air balance shall be performed by an independent agency specializing in testing, adjusting, and balancing, and is certified by the Testing, Adjusting, and Balancing Bureau (TABS) and the National Environmental Balancing Bureau (NEBB). Total system balance shall be in accordance with TABS.
 - All balance contractors must receive prior approval from the Engineer, in writing, before bidding the project.
- B. Balancing:
- Balance of the air system shall consist of:
 - Adjust all air volumes, including outside air, to the quantities shown, with allowable variation of plus 10, minus 10 percent.
 - Reverse all system, outside air, zone, diffuser, grille, and register C.F.M. Use volume control devices to regulate air quantities only to the extent that adjustments do not create objectionable air motion or sound levels. Balancing Contractor shall work with the Contractor to set the CFM quantities for zone dampers or zone dampers.
 - Test and record static pressure, inlet and discharge, air, on packaged equipment, and terminal units. Very low test static quantities by adjustment of fan speeds. Provide drive changes as necessary. Very branch air quantities by damper regulation.
 - Test and record motor full load amps and nameplate amps.
 - Test and record entering and leaving temperatures at all coils.
 - Adjust all automatically operated dampers, in cooperation with the Mechanical Contractor, for the required settings. Adjust outside air automatic dampers, outside air, return air, and exhaust dampers for design conditions within specified tolerances. When modulating dampers or economizers are provided, take measurements at full return air, minimum outside air, and 100 percent outside air mode of operation.
 - Approval of additional test results by the contractor from responsibility for deviations from the plans or specifications, unless he has, in writing, called the Architect's attention to deviations at the time of submittal, and obtained the Architect's written approval. Approval of submittals shall not relieve the contractor from responsibility for errors in shop drawings or literature.

- C. Quality Assurance:
- The Balancing Contractor shall demonstrate to the Engineer of record, flow verification for at least 10% of the balanced devices as selected by the Engineer. If more than 25% of the tested devices do not meet the designed or balance report, then the entire system balance must be re-balanced.
 - Balance Reports:
 - Submit four copies of the air system balance report to the Architect/Engineer for evaluation and approval. Reports shall be on TABS/SMACNA forms that indicate information addressing each of the testing methods, findings, and adjustments.

3.8 CLEANING AND ADJUSTING:

- A. Thoroughly clean all parts of the system at the completion of the work. Flush all water processing systems with fresh water and then clean. Clean all airways by vacuum system. Install new, clean air filters in all systems. Adjust all devices for proper operation and lubricate all equipment as required. Repair any painted surfaces that has been damaged.
- B. All potable water systems shall be flushed and disinfected after tests are completed. Disinfection shall be in accordance with local municipal and State Plumbing Inspector's criteria. In lieu of such criteria, the following procedure shall be followed for disinfection:
- Completely flush system. Add acid or acid (hydrochloric) to bring water pH level to between 7.4 and 7.6.
 - Inject chlorine (liquid, powder, tablet, or gas) through the system to obtain 50 to 80 mg/l. residual.
 - Bleed water from outlets for 48 hours to ensure distribution, and test for residual at a minimum of 15 percent of the outlets.
 - Maintain disinfection system for 24 hours.
 - If final disinfectant residual tests less than 25 mg/l., repeat treatment.
 - Flush disinfectant from system until residual is equal to that of incoming water, or 1.0 mg/l.
 - Take samples no sooner than 24 hours after flushing, from 10 percent of the outlets and the incoming water.

3.9 PROJECT CLOSEOUT:

- A. Operations & Maintenance Manual:
- The Contractor shall prepare an operations and maintenance manual at least thirty days prior to completion of work. The manual shall be of the free ring binder type, entitled "Operations and Maintenance Manual," with the job name and year of completion also included. The manual shall include, as a minimum:
- Maintenance instructions, diagrams, relays, pilot lights, etc., are in general, to be furnished and installed by the Electrical Contractor.
 - Equipment supplier names, addresses, and telephone numbers.
 - Equipment catalog cuts, ratings, tables, model numbers, serial numbers, and accessories.
 - Parts and materials list of all replaceable parts.
 - Any systems balance report as hereinbefore specified.
 - Control diagram or drawing or operation sequence.
 - Value tagging chart as hereinbefore specified.
 - Flow chart listing unit callout, size of filters, and quantity of filters.
- B. Guarantee letter as specified below.
- 12" pipe and fittings shall be installed to enable the Owner to properly maintain the building mechanical system.
 - After approval of the Operations and Maintenance Manual at least thirty days prior to completion of work, the Contractor shall furnish two copies of the manual to the Owner.
 - Mechanical System Training Period:
 - After the mechanical system is completely installed and operational, the mechanical contractor shall provide a minimum of 8 hours training and instruction time for the building Owner or his representative. During this period, the contractor shall instruct the Owner in the operation and maintenance of all parts of the mechanical system, using the O & M Manual when applicable.

C. As-Built Drawings:

- Provide two sets of blue-line mechanical drawings showing the work as it was actually installed. The manual shall be of the free ring binder type, entitled "Operations and Maintenance Manual," with the job name and year of completion also included. The manual shall include, as a minimum:

 - Maintenance instructions, diagrams, relays, pilot lights, etc., are in general, to be furnished and installed by the Electrical Contractor.
 - Equipment supplier names, addresses, and telephone numbers.
 - Equipment catalog cuts, ratings, tables, model numbers, serial numbers, and accessories.
 - Parts and materials list of all replaceable parts.
 - Any systems balance report as hereinbefore specified.
 - Control diagram or drawing or operation sequence.
 - Value tagging chart as hereinbefore specified.
 - Flow chart listing unit callout, size of filters, and quantity of filters.

period. At the completion of the work, these as-built drawings shall be signed and sealed in addition to line and code number of the identification as taken from the plans.

D. Guarantee:

- All work furnished under this section shall be guaranteed in writing to be free from defective work or materials for a period of one year after acceptance of the contract. All repairs or replacements because of defective materials or workmanship or noncompliance with code shall be provided without additional cost to the Owner. Contractor shall furnish a letter indicating above guarantee with space for date of acceptance and expiration of guarantee. Letter shall be included in O & M Manual.

END OF SECTION 15100

SECTION 15200 - PLUMBING

PART 1 - GENERAL

1.1 SCOPE

- A. This section covers the work necessary for the plumbing system, complete. The Mechanical General Provisions, Section 15100, are to be included as a part of this section of the specifications.

1.2 CODES:

- A. The plumbing system shall be installed in accordance with the Idaho State Plumbing Code, latest edition, International Fuel Gas Code, latest edition, and all Local and State Codes.

1.3 FIXTURES & EQUIPMENT:

- A. General:
- Plumbing fixtures and equipment shall be as listed on the drawings. In addition to those specifically listed, the following manufacturers are approved for bidding only. All other manufacturers require prior approval. Final approval for installation is based on submittal data furnished.
 1. Tank Type Water Cisterns: American Standard, Kohler, Eljer, Mansfield, Toto, Zurn, Geber, and Sloan.
 2. Flush Valve Water Cisterns: American Standard, Kohler, Eljer, Mansfield, Toto, Zurn, Geber, and Sloan.
 3. Urinals: American Standard, Kohler, Eljer, Mansfield, Toto, Zurn, Briggs, Sloan, and Geber.
 4. Various China Sinks: American Standard, Kohler, Eljer, Zurn, Mansfield, Crane, Geber, and Sloan.
 5. Stainless Steel Sinks: Elkay, Just.
 6. Faucets: American Standard, Kohler, Chicago Faucets, Delta, Moen, Corbin, Geber, OHS Chrome Sanitaryware, Zurn Aquatone, Symmonds, Sloan, & AMTC.
 7. Valves and Trim: T&B Brass, Dornbracht Brass, Brasscraft, Profo.
 8. Flush Valves: Sloan, Delany, Delta and Zurn. Moen (sensor-operated only), & J.
 9. Churns and Drains: Jack R. Smith, Jason (Blucher-Josam), Zurn, Wade, Watts, MB&B, Sioux Chief, Neenah Foundry.
 10. Toilet Seats: Belfair, Comfort Seats, Berkshire, Zurn, American Standard, Kohler.
 11. Mixing Valves: Symmonds, Leonard, Watts, Wilkins, Lunar, Singring.
 12. Various China Sinks: American Standard, Kohler, Eljer, Zurn, Mansfield, Crane, Geber, and Sloan.
 13. Fixtures: American Standard, Kohler, Eljer, Mansfield, Toto, Zurn, Briggs, Sloan, and Geber.
 14. Urinals: American Standard, Kohler, Eljer, Mansfield, Toto, Zurn, Briggs, Sloan, and Geber.
 15. Stainless Steel Sinks: Elkay, Just.
 16. Faucets: American Standard, Kohler, Chicago Faucets, Delta, Moen, Corbin, Geber, OHS Chrome Sanitaryware, Zurn Aquatone, Symmonds, Sloan, & AMTC.
 17. Valves and Trim: T&B Brass, Dornbracht Brass, Brasscraft, Profo.
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 158. Flush Valves: Sloan, Delany, Delta and Zurn. Moen (sensor-operated only), & J.
 159. Churns and Drains: Jack R. Smith, Jason (Blucher-Josam), Zurn, Wade, Watts, MB&B, Sioux Chief, Neenah Foundry.
 160. Toilet Seats: Belfair, Comfort Seats, Berkshire, Zurn, American Standard, Kohler.
 161. Mixing Valves: Symmonds, Leonard, Watts, Wilkins, Lunar, Singring.
 162. Various China Sinks: American Standard, Kohler, Eljer, Zurn, Mansfield, Crane, Geber, and Sloan.
 163. Fixtures: American Standard, Kohler, Eljer, Mansfield, Toto, Zurn, Briggs, Sloan, and Geber.
 164. Urinals: American Standard, Kohler, Eljer, Mansfield, Toto, Zurn, Briggs, Sloan, and Geber.
 165. Stainless Steel Sinks: Elkay, Just.
 166. Faucets: American Standard, Kohler, Chicago Faucets, Delta, Moen, Corbin, Geber, OHS Chrome Sanitaryware, Zurn Aquatone, Symmonds, Sloan, & AMTC.
 167. Valves and Trim: T&B Brass, Dornbracht Brass, Brasscraft, Profo.
 168. Flush Valves: Sloan, Delany, Delta and Zurn. Moen (sensor-operated only), & J.
 169. Churns and Drains: Jack R. Smith, Jason (Blucher-Josam), Zurn, Wade, Watts, MB&B, Sioux Chief, Neenah Foundry.
 170. Toilet Seats: Belfair, Comfort Seats, Berkshire, Zurn, American Standard, Kohler.
 171. Mixing Valves: Symmonds, Leonard, Watts, Wilkins, Lunar, Singring.
 172. Various China Sinks: American Standard, Kohler, Eljer, Zurn, Mansfield, Crane, Geber, and Sloan.
 173. Fixtures: American Standard, Kohler, Eljer, Mansfield, Toto, Zurn, Briggs, Sloan, and Geber.
 174. Urinals: American Standard, Kohler, Eljer, Mansfield, Toto, Zurn, Briggs, Sloan, and Geber.
 175. Stainless Steel Sinks: Elkay, Just.
 176. Faucets: American Standard, Kohler, Chicago Faucets, Delta, Moen, Corbin, Geber, OHS Chrome Sanitaryware, Zurn Aquatone, Symmonds, Sloan, & AMTC.
 177. Valves and Trim: T&B Brass, Dornbracht Brass, Brasscraft, Profo.
 178. Flush Valves: Sloan, Delany, Delta and Zurn. Moen (sensor-operated only), & J.
 179. Churns and Drains: Jack R. Smith, Jason (Blucher-Josam), Zurn, Wade, Watts, MB&B, Sioux Chief, Neenah Foundry.
 180. Toilet Seats: Belfair, Comfort Seats, Berkshire, Zurn, American Standard



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CONSULTANT

T.C. ENTERPRISE

OWNER

PARDOE ASSISTED LIVING -

6968 SOUTH 700 WEST
MIDVALE, UTAH 84095

PROJECT

[illegible]

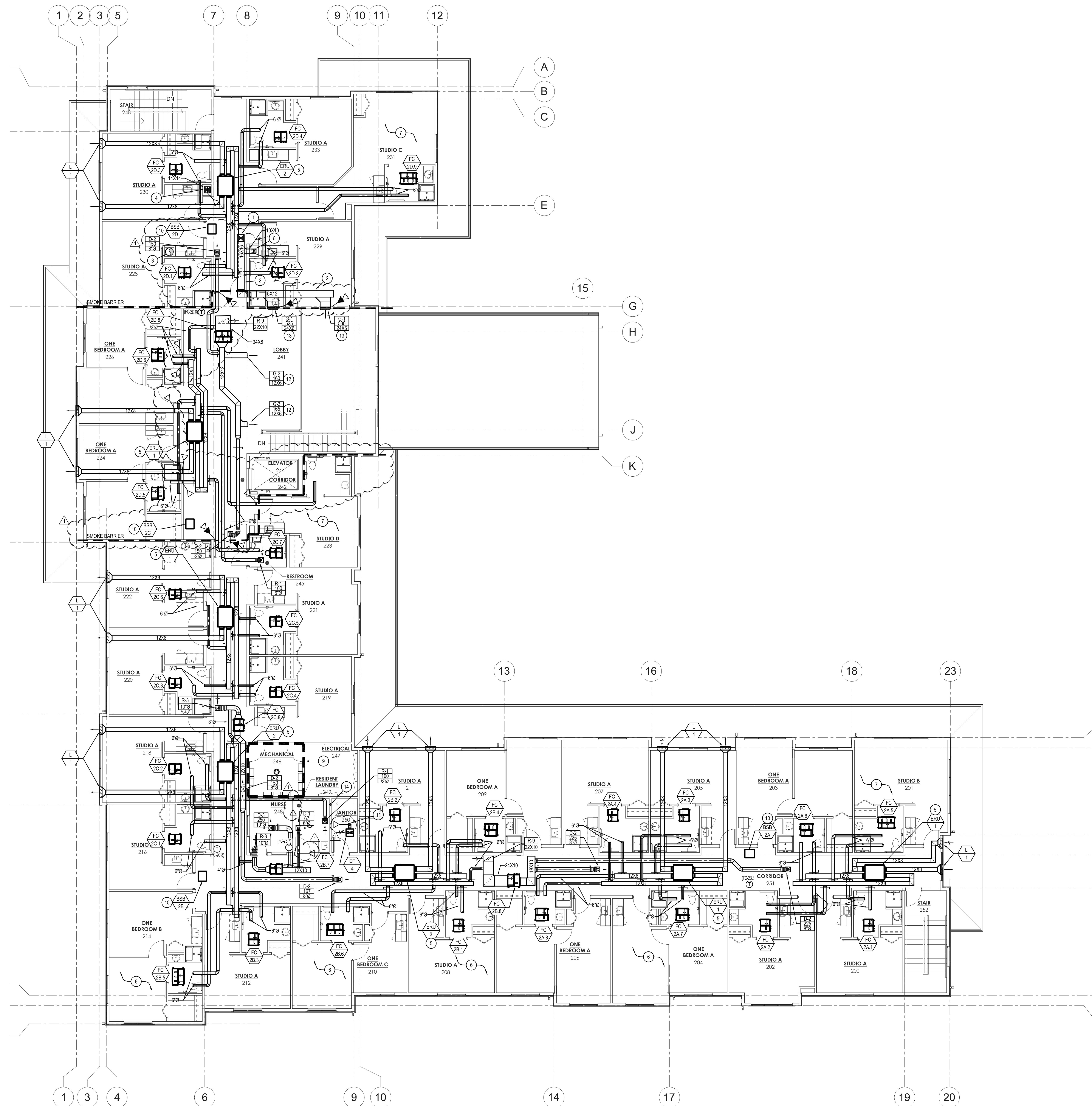
PROJECT #: 14-288.01
DRAWN BY: RG
CHECKED BY: DA

M102

6.27.2016 - PERMIT SET

UPPER LEVEL
HVAC PLAN

M102

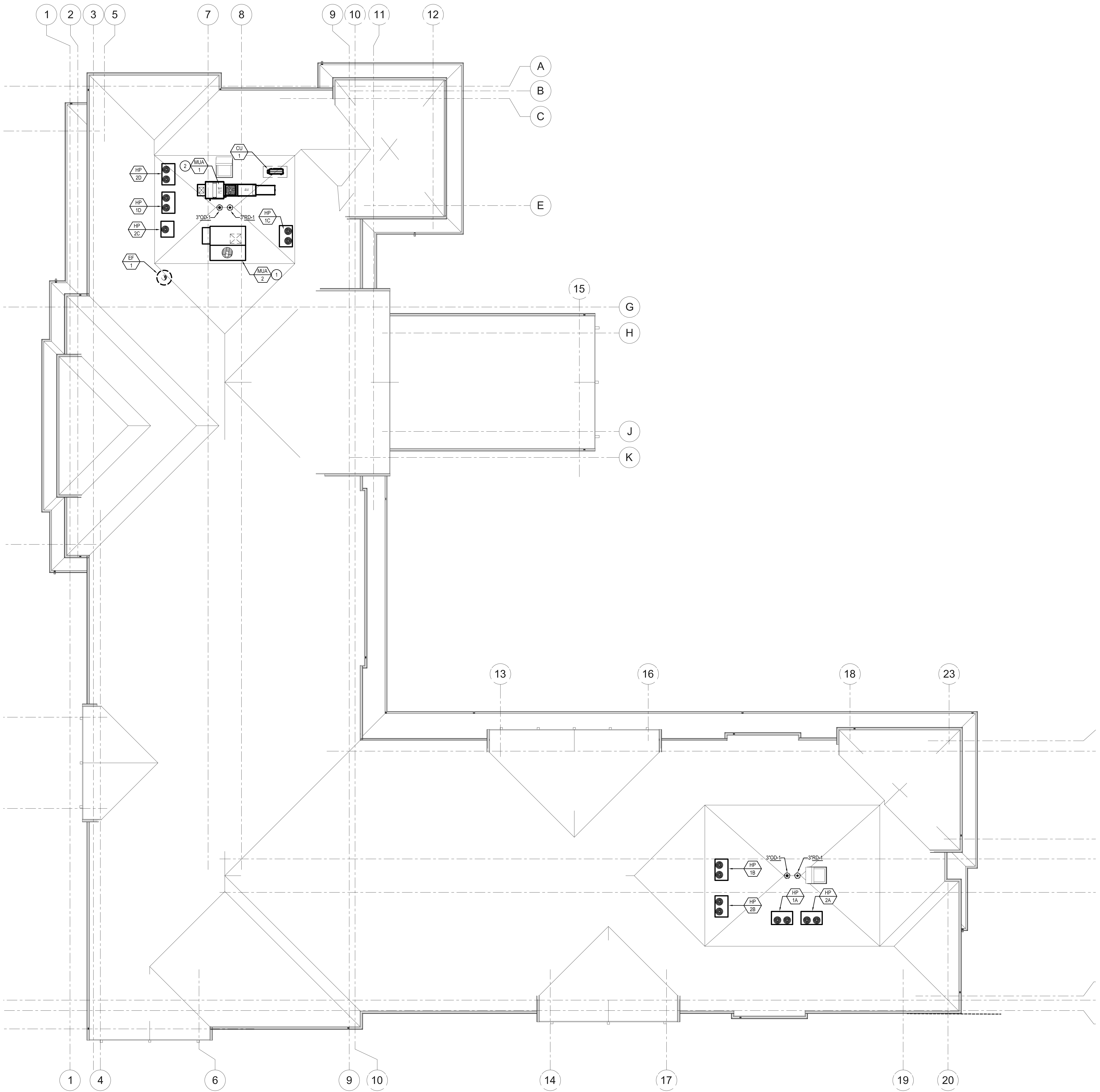


1 UPPER LEVEL HVAC PLAN

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

KEYED NOTES:

- 8 SYMBOL USED FOR NOTE CALLOUT.
1. 16"x16" DUCT DOWN FROM MAIL-2 ON ROOF. SEE SHEET M103 FOR CONTINUATION.
 2. ROUTE MAIL-2 DUCTWORK IN ROOF STRUCTURE.
 3. 12"O GREASE-HOOD DUCT UP/FROM BELOW. ROUTE UP TO FF-1 ON ROOF. *SEE SHEET M104 FOR CONTINUATION. GREASE HOOD SHALL HAVE CAPTURE MEANS. MIN-3/8" (1" MINIMUM DIAMETER) CLEARANCE TO COMBUSTIBLES DUCT (OR EQUIV.).*
 4. 14"x14" DUCT DOWN FROM MAIL-1 ON ROOF. ROUTE DOWN TO 1ST FLOOR. SEE SHEET M101 FOR CONTINUATION. PROVIDE FIRE DAMPER AT 1-HOUR RATING PENETRATION AT BOTTOM OF ROOF JOISTS.
 5. LOCATE ERU AND ALL ASSOCIATED DUCTWORK IN CEILING SPACE. (TYPICAL)
 6. SEE ENLARGED HVAC PLAN, SHEET M200. (TYPICAL OF ALL IDENTICAL UNIT TYPES)
 7. SEE ENLARGED HVAC PLAN, SHEET M201. (TYPICAL OF ALL IDENTICAL UNIT TYPES)
 8. DROP 10X10 DUCT DOWN IN CHASE TO 1ST FLOOR LEVEL. SEE SHEET M101 FOR CONTINUATION. PROVIDE FIRE DAMPER AT 1-HOUR RATING PENETRATION AT BOTTOM OF ROOF JOISTS.
 9. SEE ENLARGED MECHANICAL ROOM HVAC PLAN, SHEET M202.
 10. MAINTAIN REQUIRED CLEARANCES AROUND BRANCH SELECTOR BOX.
 11. ROUTE "E" EXHAUST DUCT UP TO ROOF AND TERMINATE WITH ROOF JACK.
 12. LOCATE SUPPLY GRILLE IN LOBBY CLOTHED SIDEWALL.
 13. LOCATE GRILLE UP HIGH ON DROPPED WALL. BOTTOM OF GRILLE SHALL BE AT 24" ABOVE 1ST FLOOR LOBBY FINISHED FLOOR.
 14. PROVIDE INNOVATE TECHNOLOGIES DYERBOX AND DYER-EE180 RADIOUS ELEV IN WALL. ROUTE 4" DYER DUCT UP TO ROOF AND TERMINATE WITH DYER-JACK MODEL 430. 430 DYER RATED VENT.



KEYED NOTES:

1. SEE SPRING ISOLATION CURB DETAIL, SHEET M300.
2. SEE CURB DETAIL, SHEET M301.

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Professional Engineer
No. 7891576-2202
TODD D. NELSON
6/24/16
STATE OF UTAH

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OWNER:

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6968 SOUTH 700 WEST
MIDVALE, UTAH 84095

PROJECT:

DATE	DESCRIPTION
6/27/16	PERMIT SET

PROJECT # 16-058(1)
DESIGNED BY: DA
CHECKED BY: DA
SHEET #

ROOF
HVAC PLAN
M103

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



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CONSULTANT

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OWNER

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6968 SOUTH 700 WEST
MIDVALE, UTAH 84095

PROJECT

[illegible]

PROJECT #: 14-288.D1
DRAWN BY: RG
CHECKED BY: DA

M200



KEYED NOTES:

② SYMBOL USED FOR NOTE CALLOUT

1. HATCHED AREA REPRESENTS FURRED DOWN AREA
2. SEE FLOOR PLANS FOR CONTINUATION.

6.27.2016 - PERMIT SET

ENLARGED HVAC
UNIT PLANS



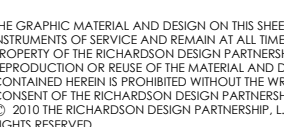
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① SYMBOL USED FOR NOTE CALLOUT

1. HATCHED AREA REPRESENTS FURRED DOWN AREA
2. SEE FLOOR PLANS FOR CONTINUATION.

CONSULTANT

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OWNER

PARDOE ASSISTED LIVING -

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6968 SOUTH 700 WEST
MIDVALE, UTAH 84095

PROJECT

[illegible]

PROJECT #: 14-288.D1
DRAWN BY: RG
CHECKED BY: DA

M201

6.27.2016 - PERMIT SET

ENLARGED HVAC
UNIT PLANS

SCALE: 1/2" = 1'-0"



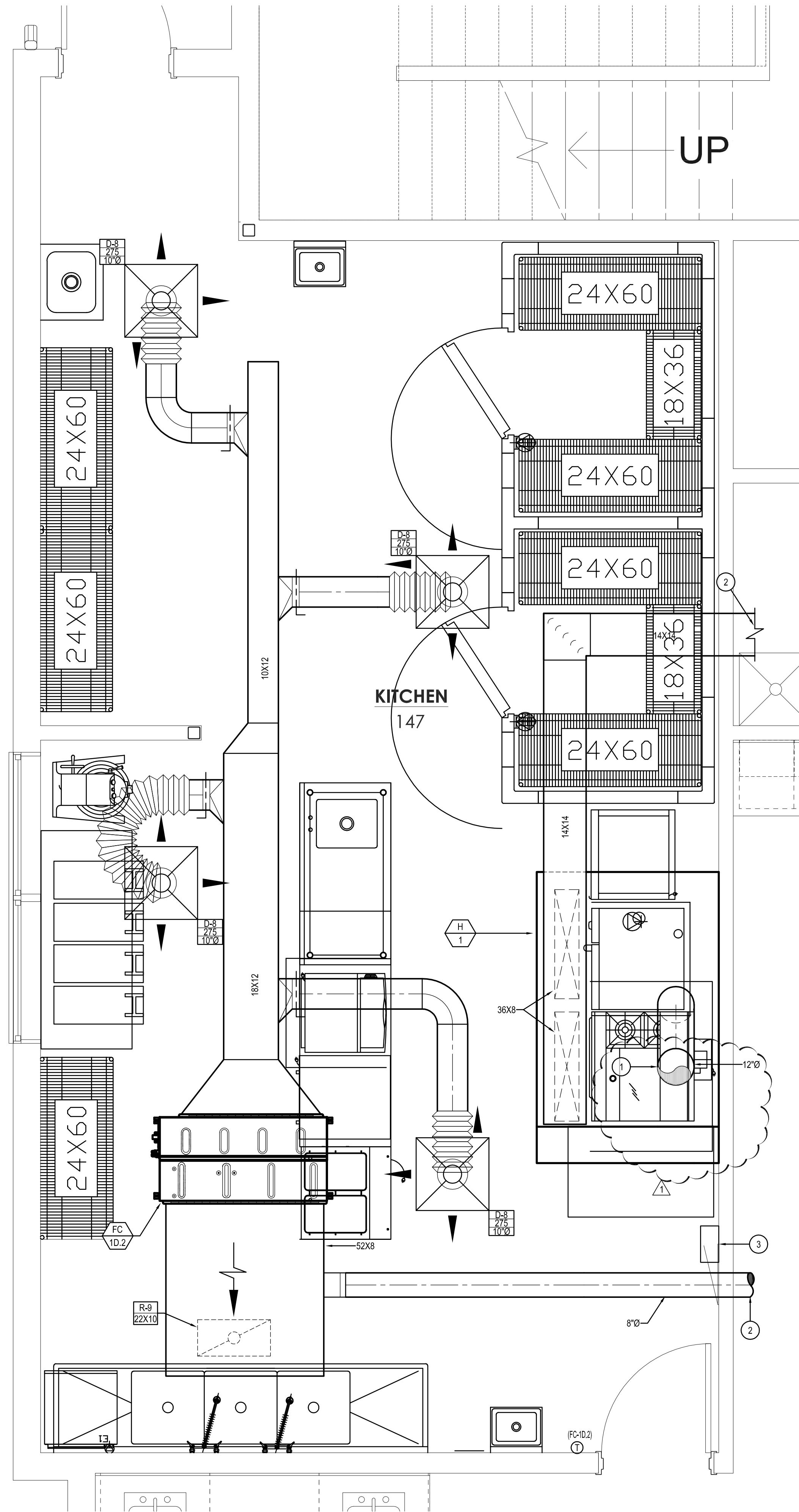
SCALE: 1/2" = 1'-0"



SCALE: 1/2" = 1'-0'

KEYED NOTES:

- ④ SYMBOL USED FOR NOTE CALLOUT.
- ROUTE 12" GREASE DUCT UP TO ROOF, SEE SHEET M202 FOR CONTINUATION. GREASE DUCT SHALL BE CAPTIVE/RE MODEL DW-32 (18" TOTAL DIAMETER) ZERO CLEARANCE TO COMBUSTIBLES DUCT (OR EQUAL).
 - SEE SHEET M101 FOR CONTINUATION.
 - REMOTE LOCATE EXHAUST HOOD (H-1) CONTROL PANEL ON WALL.
 - ROUTE 4" FLUE AND COMBUSTION AIR INTAKE UP TO ROOF AND TERMINATE PER MANUFACTURER'S INSTRUCTIONS. SEE WATER HEATER PIPING DETAILS, SHEET P301, (TYPICAL OF ALL WATER HEATERS)



14 ENLARGED KITCHEN - HVAC PLAN
SCALE: 1/2" = 1'-0"



2 ENLARGED MECHANICAL ROOM - HVAC PLAN
SCALE: 1/2" = 1'-0"

6.27.2016 - PERMIT SET

ENLARGED HVAC
UNIT PLANS

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MIDVALE, UTAH 84095

T.C. ENTERPRISE

CONSULTANT:

OWNER:

PROJECT:

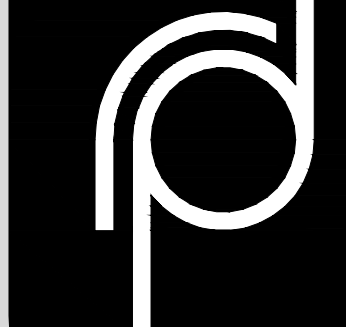
DATE	DESCRIPTION
9/27/16	PERMIT SET
9/16/16	CITY COMMENTS

PROJECT # 16-058
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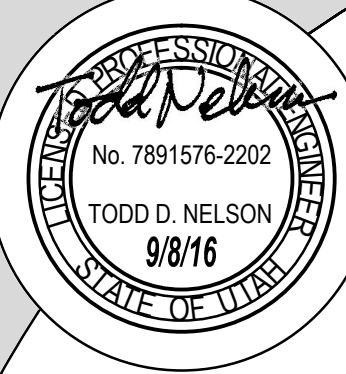
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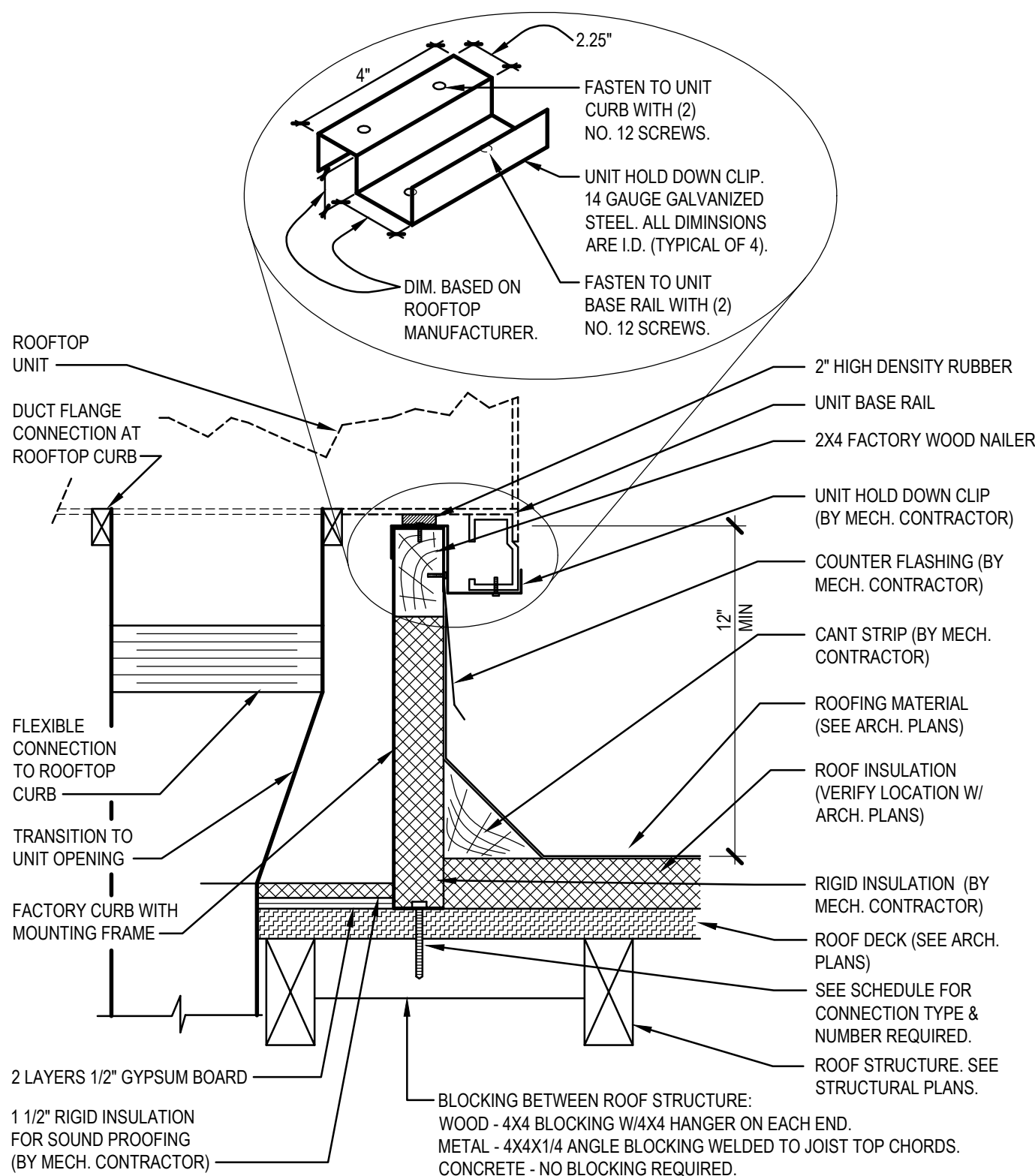
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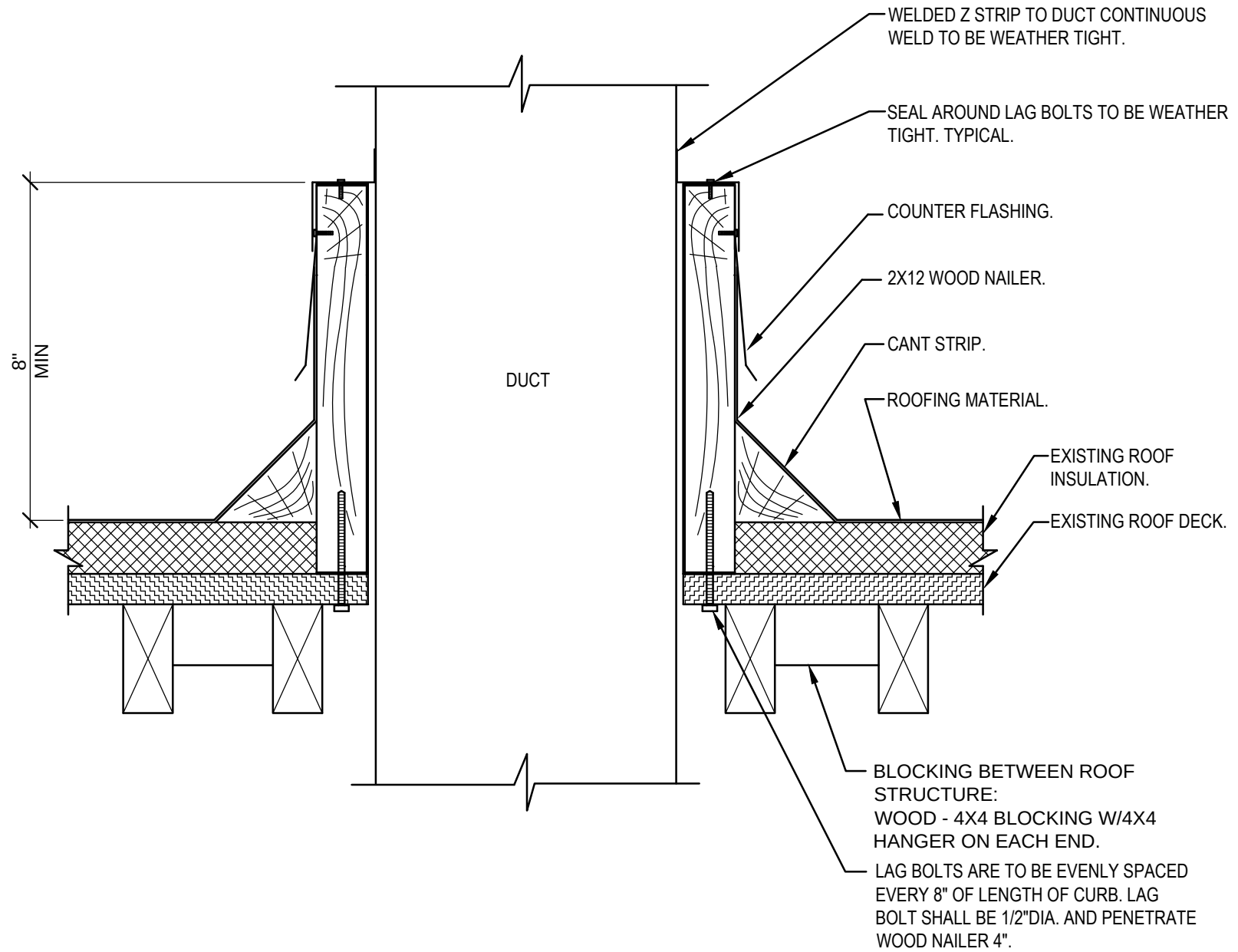


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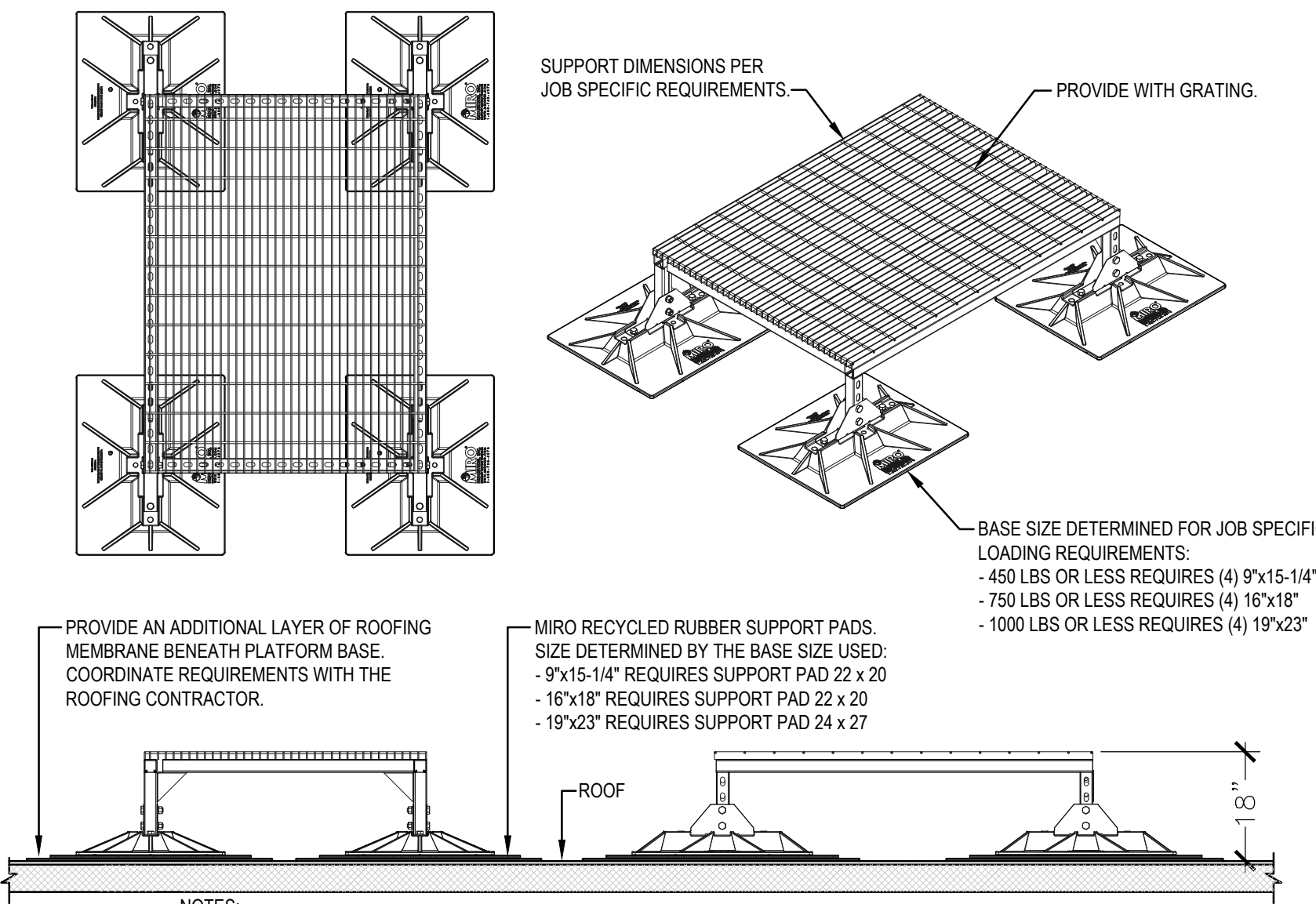


CURB TO ROOF CONNECTION SCHEDULE					
NOMINAL ROOFTOP UNIT CAPACITY	MAX. WEIGHTS	TOTAL LATERAL FORCE (Fp)	NO. & TYPE OF CONNECTION (EQUALLY SPACED)		
			ROOF STRUCTURE TYPE		
			METAL	WOOD	CONCRETE
3-6 TONS	750 LBS	810 LBS	(4) 1/2" LAG BOLT	(4) 1/2" LAG BOLT	(4) 3/8" EXPANSION BOLT
COMBIES WITH THE INTERNATIONAL BUILDING CODE					

9 ROOFTOP UNIT - MOUNTING DETAIL
SCALE: NOT TO SCALE



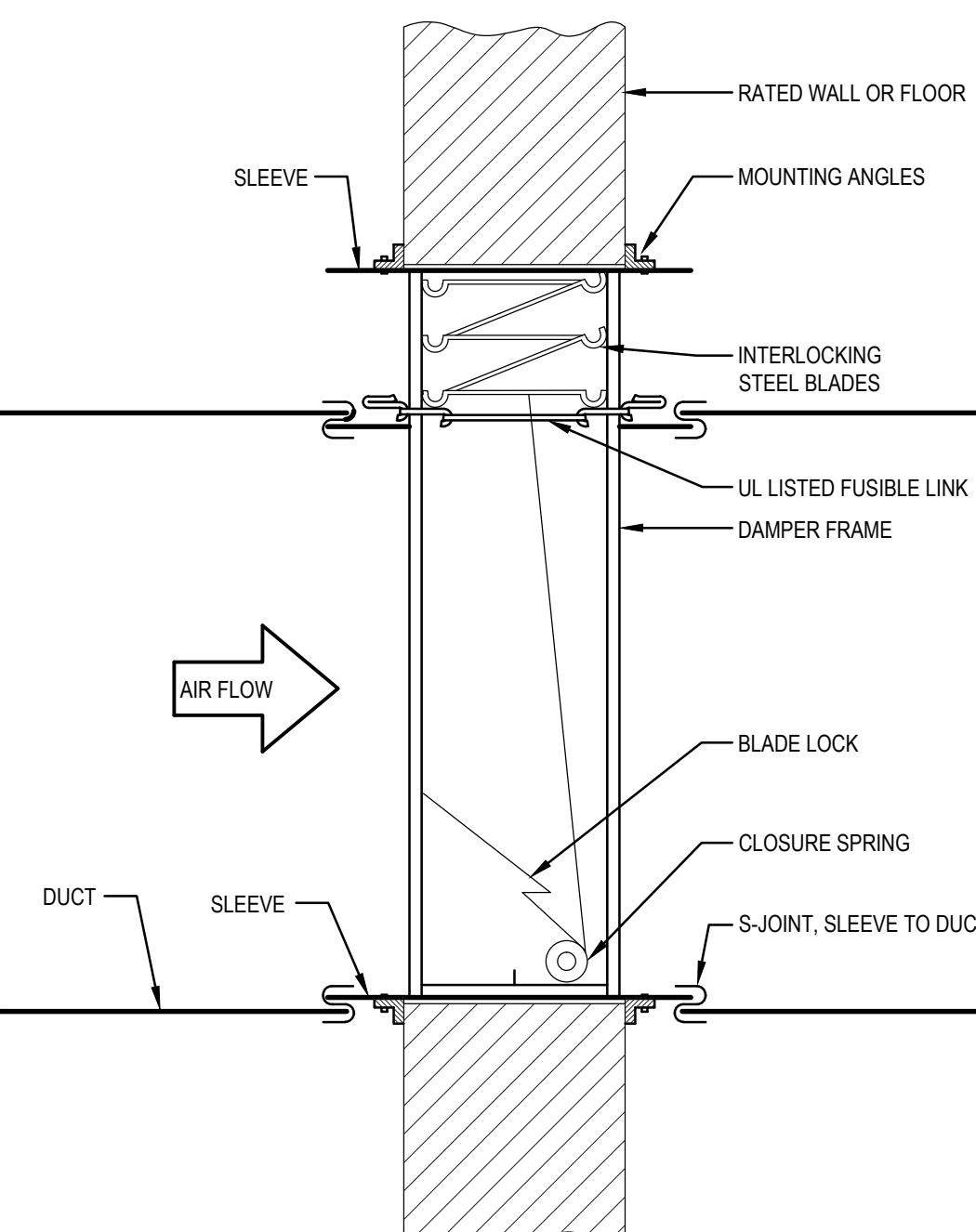
10 DUCT THROUGH ROOF CURB DETAIL
SCALE: NOT TO SCALE



- NOTES:**
1. PROVIDE WITH MIRO INDUSTRIES MODEL HD, HEAVY DUTY MECHANICAL GALVANIZED ROOF SUPPORT WITH ADJUSTABLE SUPPORT LEGS.
 2. SUPPORT SHALL EXTEND A MINIMUM OF 6\"/>

12 ROOFTOP CONDENSING UNIT PLATFORM DETAIL
SCALE: NOT TO SCALE (EQUIPMENT WEIGHTS UP TO 1000 LBS)

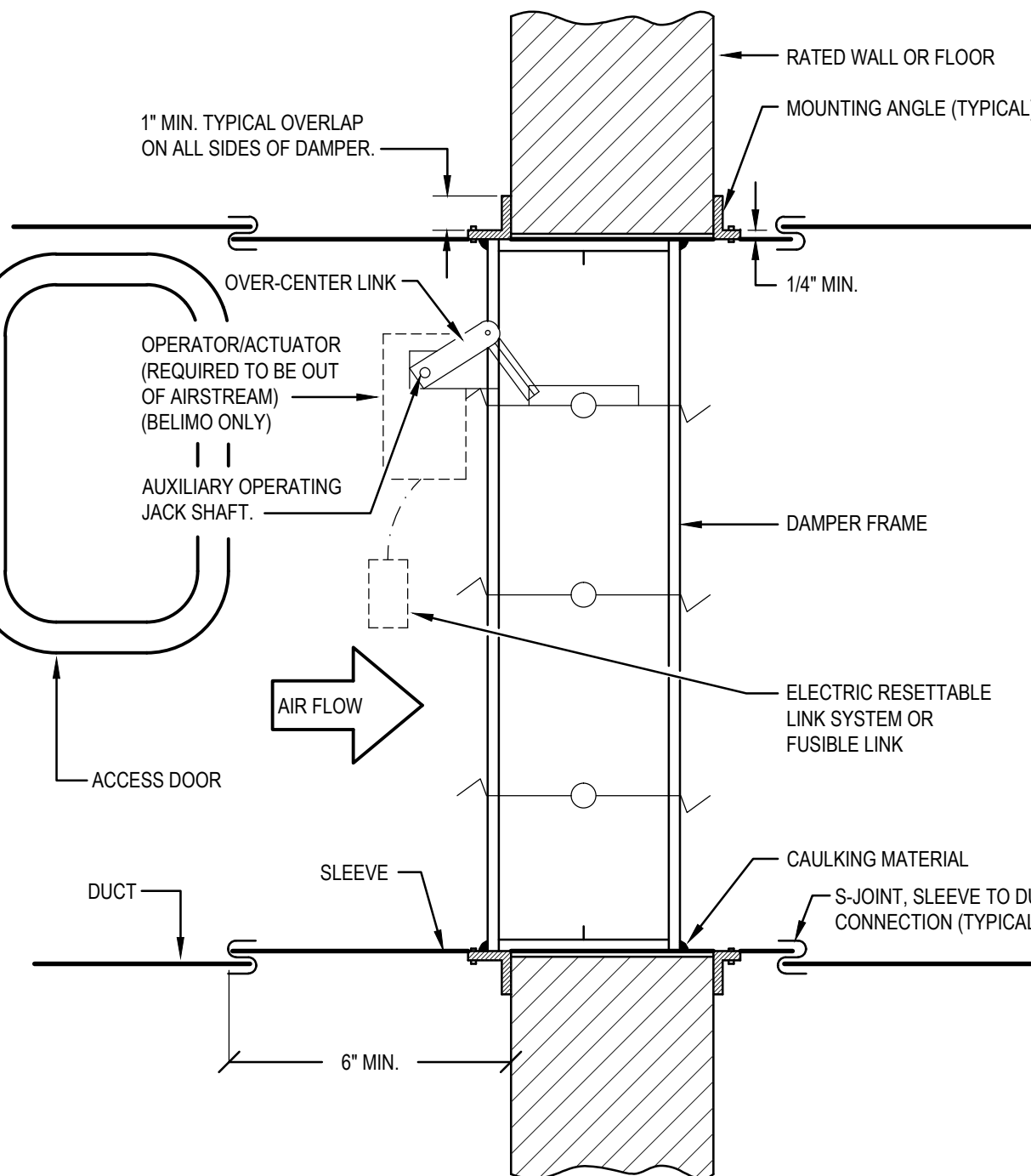
- NOTES:**
1. FIRE DAMPER SHALL BE MINIMUM UL CLASSIFIED (UL555).
 2. THE OPERATING TEMPERATURE OF THE FIRE DAMPER ACTUATING DEVICE SHALL BE RATED AT 180\"/>



13 FIRE DAMPER
SCALE: NOT TO SCALE (VERTICAL OR HORIZONTAL INSTALLATION)

- NOTES:**
1. COMBINATION FIRE AND SMOKE DAMPER SHALL BE MINIMUM UL CLASSIFIED (UL555/UL555S) CLASS II, 250\"/>
 2. SMOKE DETECTORS SHALL BE SPECIFIED FOR PROPER LISTING AND PROVIDED BY ELECTRICAL DIVISION. WIRING AND FINAL CONNECTION TO COMBINATION FIRE AND SMOKE DAMPER SHALL BE BY ELECTRICAL CONTRACTOR.
 3. EACH COMBINATION FIRE AND SMOKE DAMPER SHALL CLOSE BY ACTUATION OF A SMOKE DETECTOR. THE SMOKE DETECTOR LOCATION HAS BEEN SHOWN ON THE MECHANICAL OR ELECTRICAL DRAWINGS IN ACCORDANCE WITH THE FIRE CODE AND ONE OF THE FOLLOWING APPLICABLE METHODS AS PRESCRIBED BY THE INTERNATIONAL MECHANICAL CODE (IMC):

A) IF THE COMBINATION FIRE AND SMOKE DAMPER IS INSTALLED WITHIN A DUCT, SMOKE DETECTOR SHALL BE INSTALLED IN THE DUCT WITHIN 5 FEET OF THE DAMPER WITH NO AIR OUTLETS OR INLETS BETWEEN THE DETECTOR AND THE DAMPER. THE DETECTOR SHALL BE LISTED FOR THE AIR VELOCITY, TEMPERATURE, AND HUMIDITY ANTICIPATED AT THE POINT WHERE IT IS INSTALLED. DUCT SMOKE DETECTORS SHALL BE INSTALLED BY MECHANICAL CONTRACTOR. FOR DUCTWORK SMALLER THAN 12\"/>



11 COMBINATION FIRE AND SMOKE DAMPER
SCALE: NOT TO SCALE (VERTICAL OR HORIZONTAL INSTALLATION)

6.27.2016 - PERMIT SET

MECHANICAL
DETAILS

M301

PARDOE ASSISTED LIVING -
MIDVALE
6948 SOUTH 700 WEST
MIDVALE, UTAH 84095

T.C. ENTERPRISE

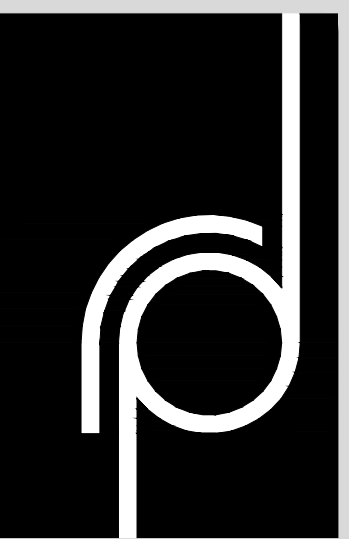
CONSULTANT:

OWNER:

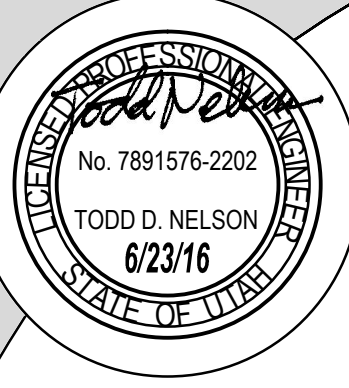
PROJECT:

DATE	DESCRIPTION
6/27/16	PERMIT SET
9/16/16	CITY COMMENTS

PROJECT # 1428611
CHECKED BY: DA
SHEET #



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MIDVALE, UTAH 84095

PROJECT:

DATE	DESCRIPTION
6/27/16	PERMIT SET

MECHANICAL
DETAILS

PROJECT # 1608011
PREPARED BY: JCN
CHECKED BY: DA
SHEET #

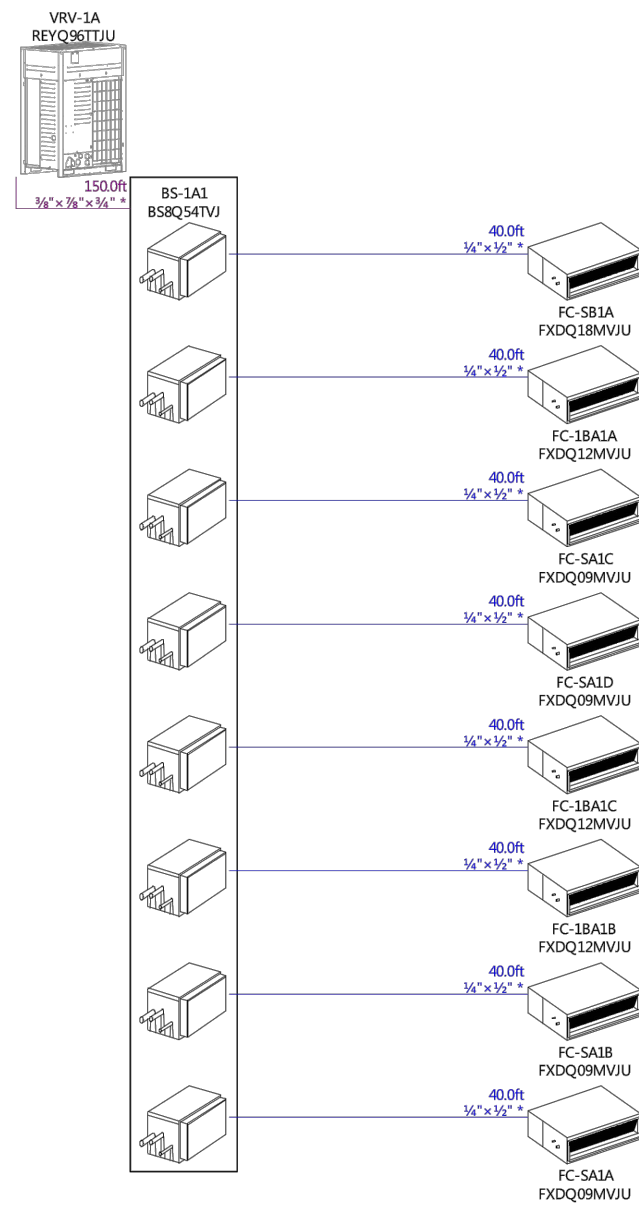
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6.27.2016 - PERMIT SET

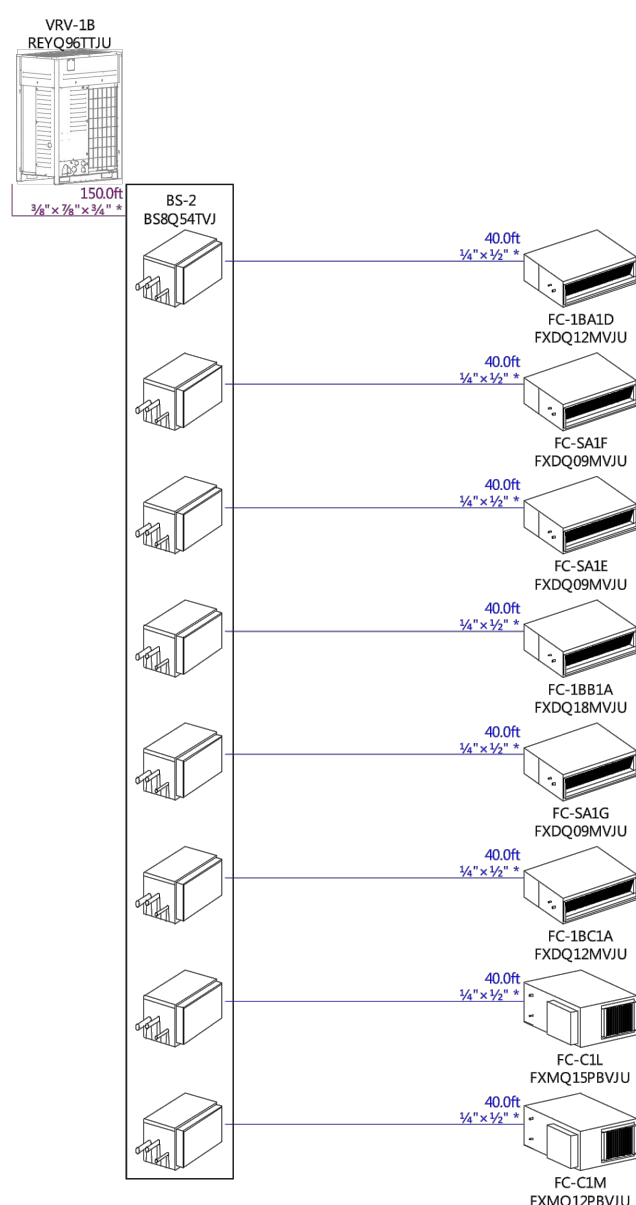
4. Piping Diagrams

Pipes marked with * in the diagrams must be connected to the device with a reducing joint.

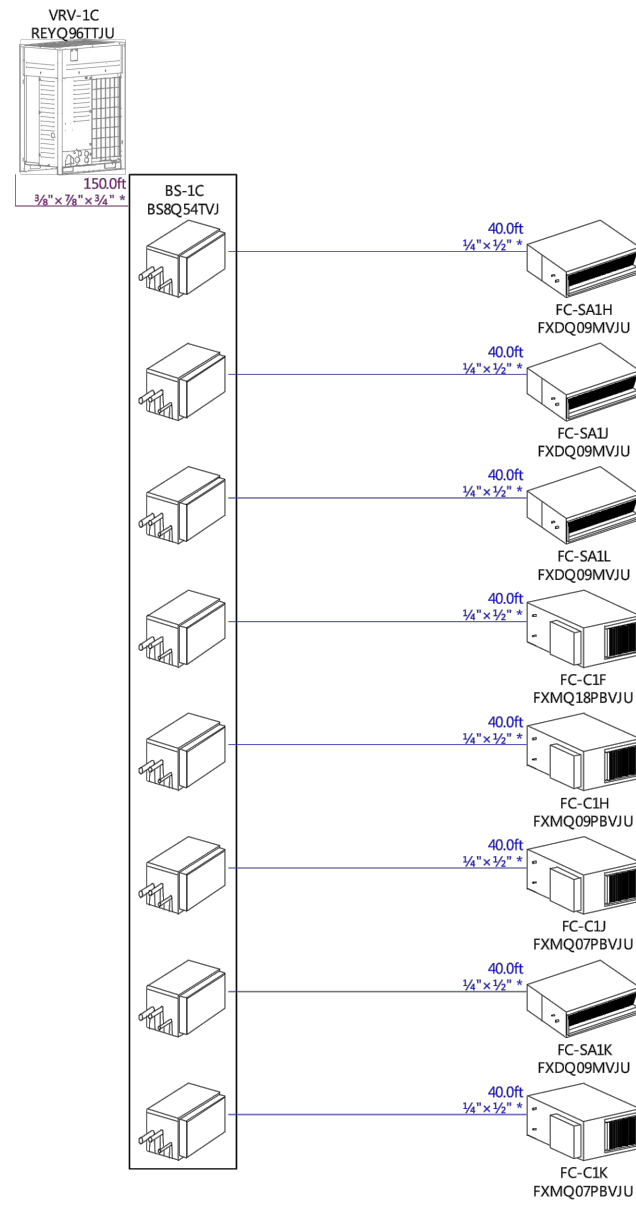
4.1.Piping VRV-1A



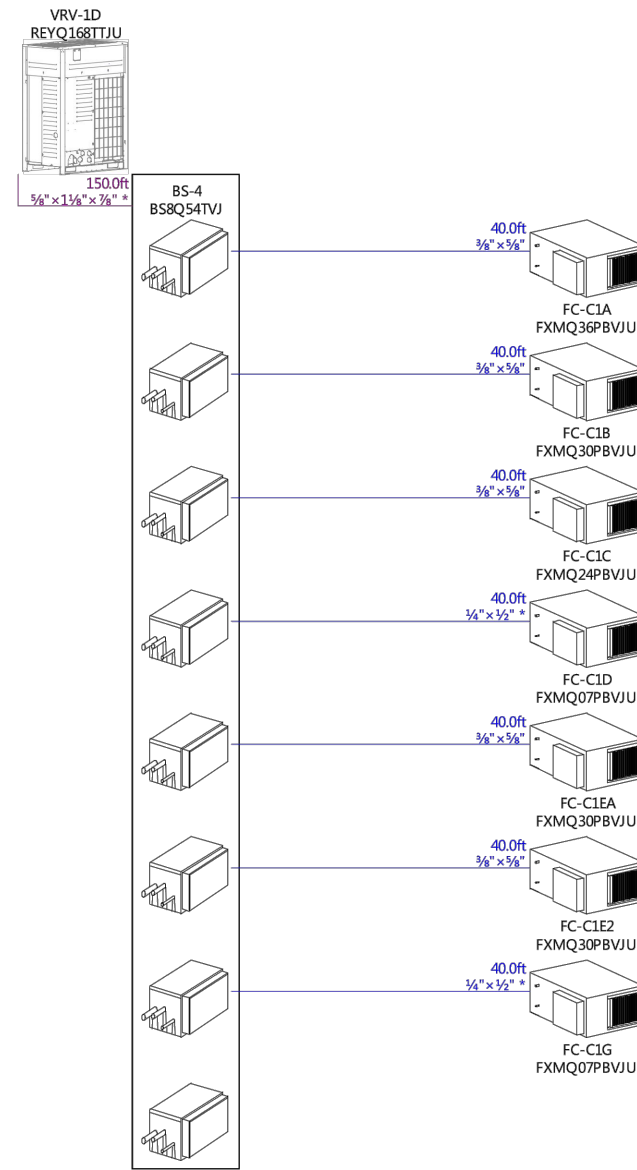
4.2.Piping VRV-1B



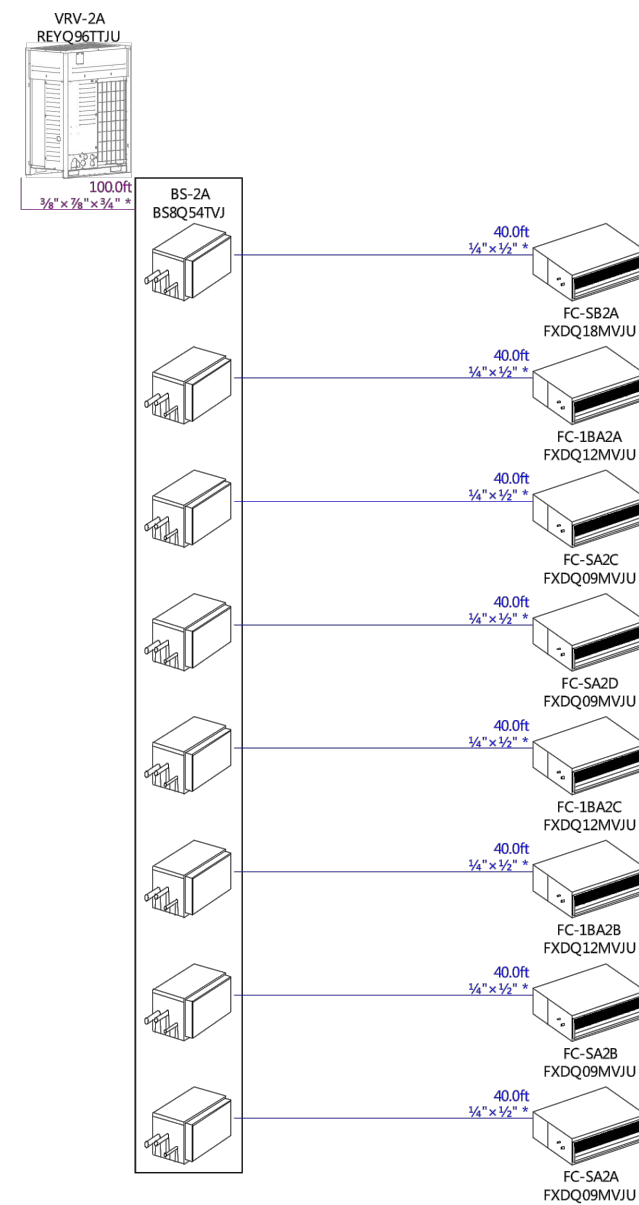
4.3.Piping VRV-1C



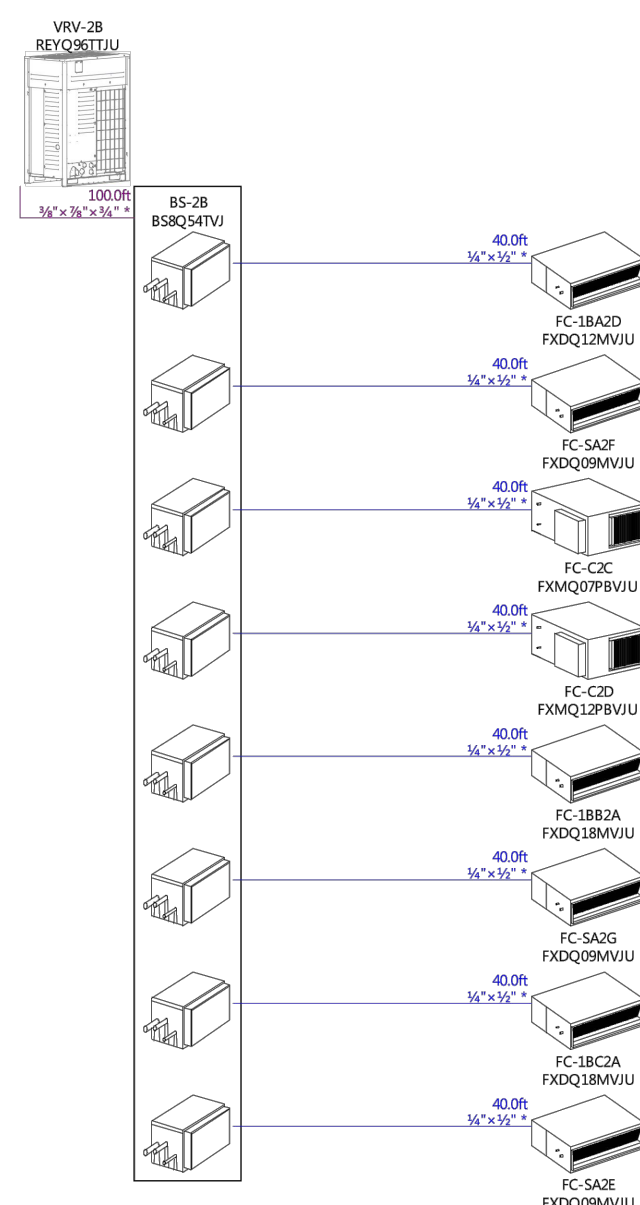
4.4.Piping VRV-1D



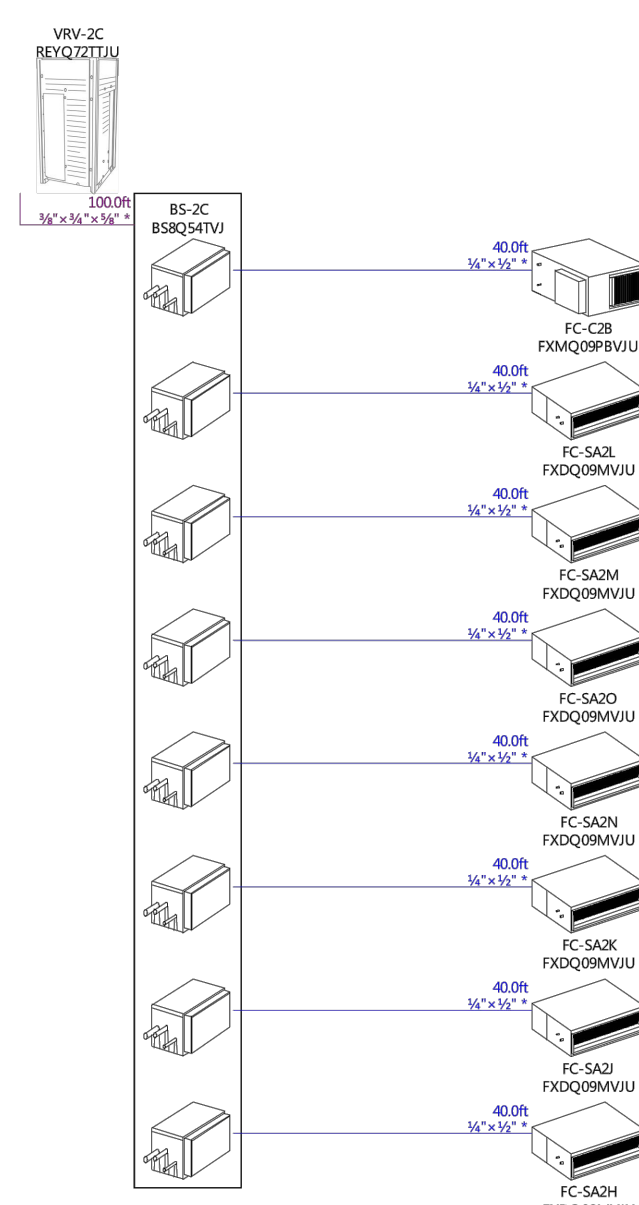
4.5.Piping VRV-2A



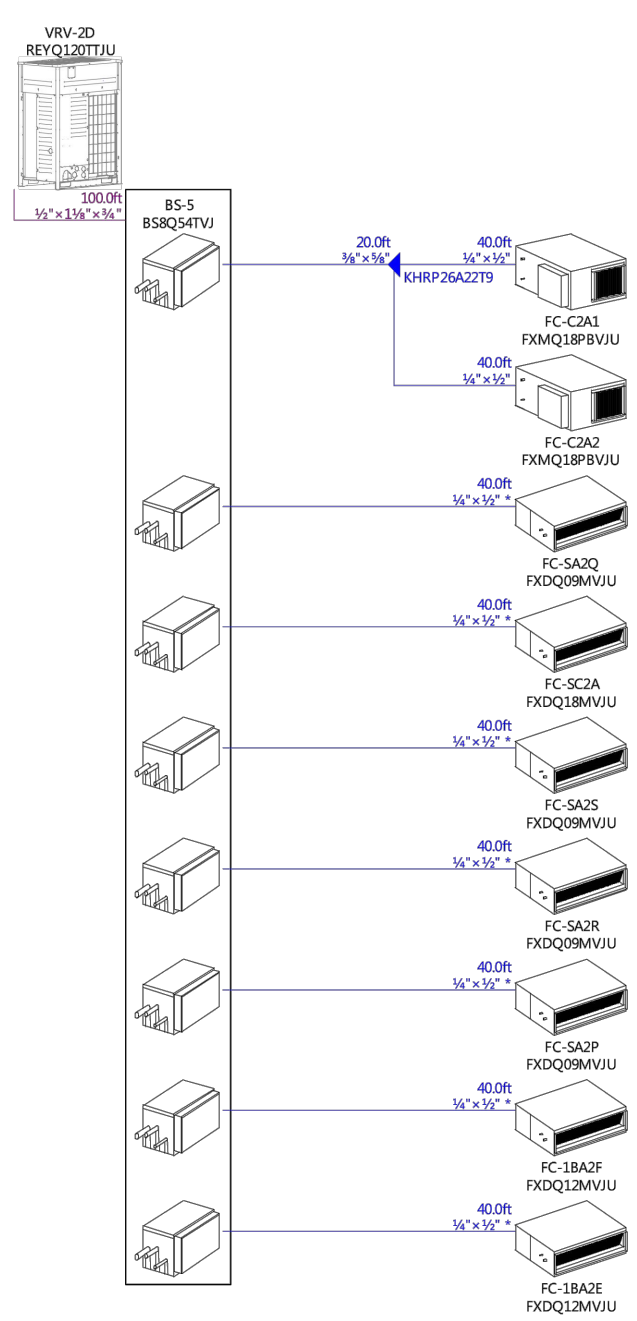
4.6.Piping VRV-2B



4.7.Piping VRV-2C



4.8.Piping VRV-2D



CONSULTANT:

T.C. ENTERPRISE

OWNER:

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PROJECT:

DATE	DESCRIPTION
6/27/16	PERMIT SET

PROJECT # 14268201
CHECKED BY: DA
SHEET #

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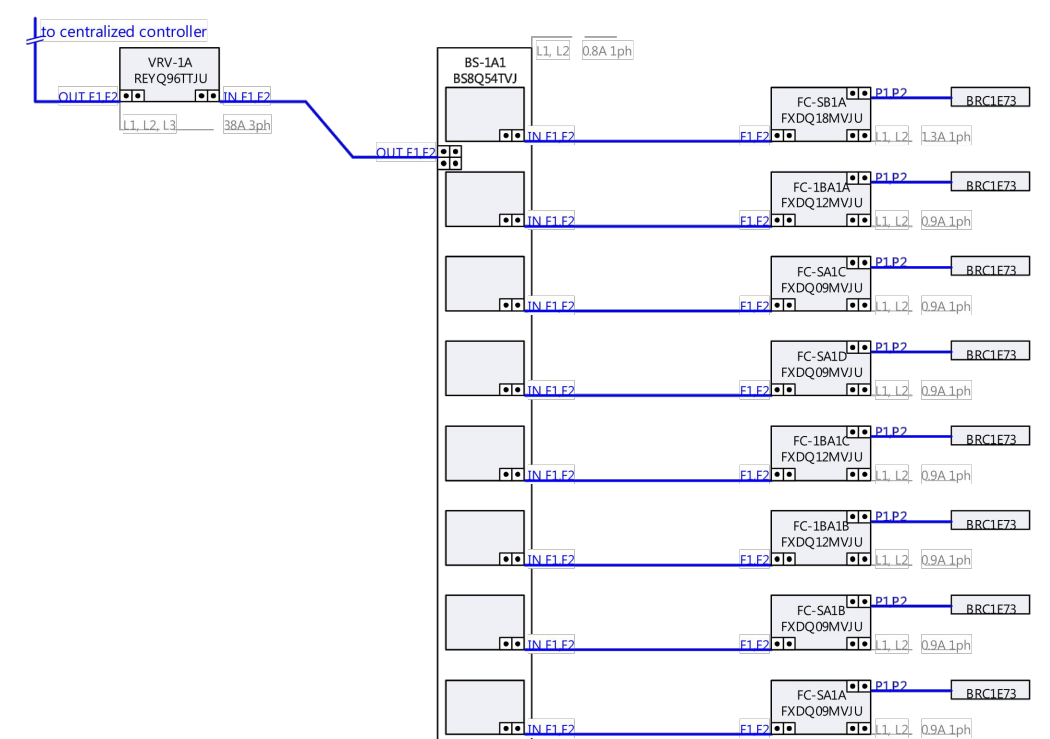
MECHANICAL
DETAILS

M303

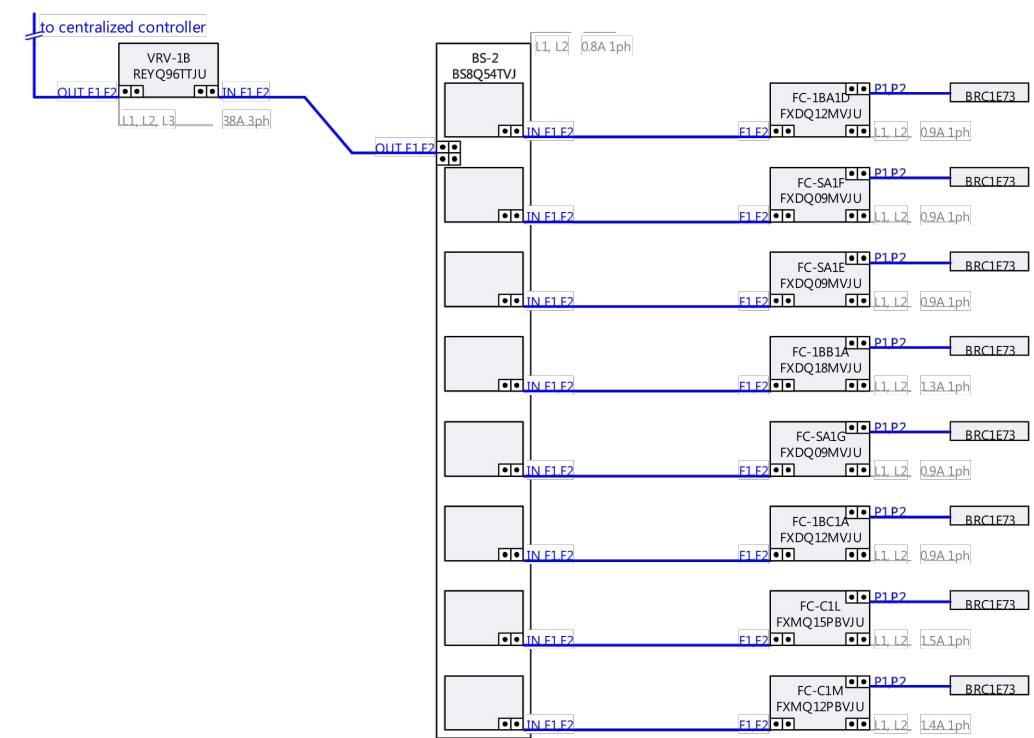
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P1P2 = Please select the cable type and size in accordance with the databook.
F1F2 = Please select the cable type and size in accordance with the databook.

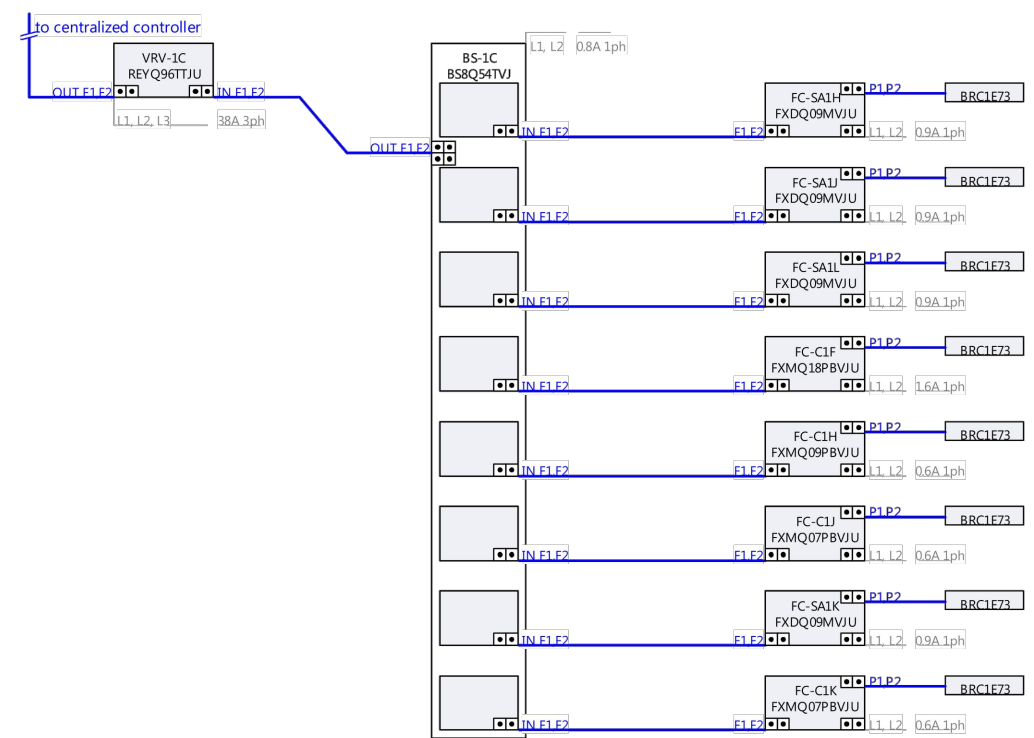
5.1. Wiring VRV-1A



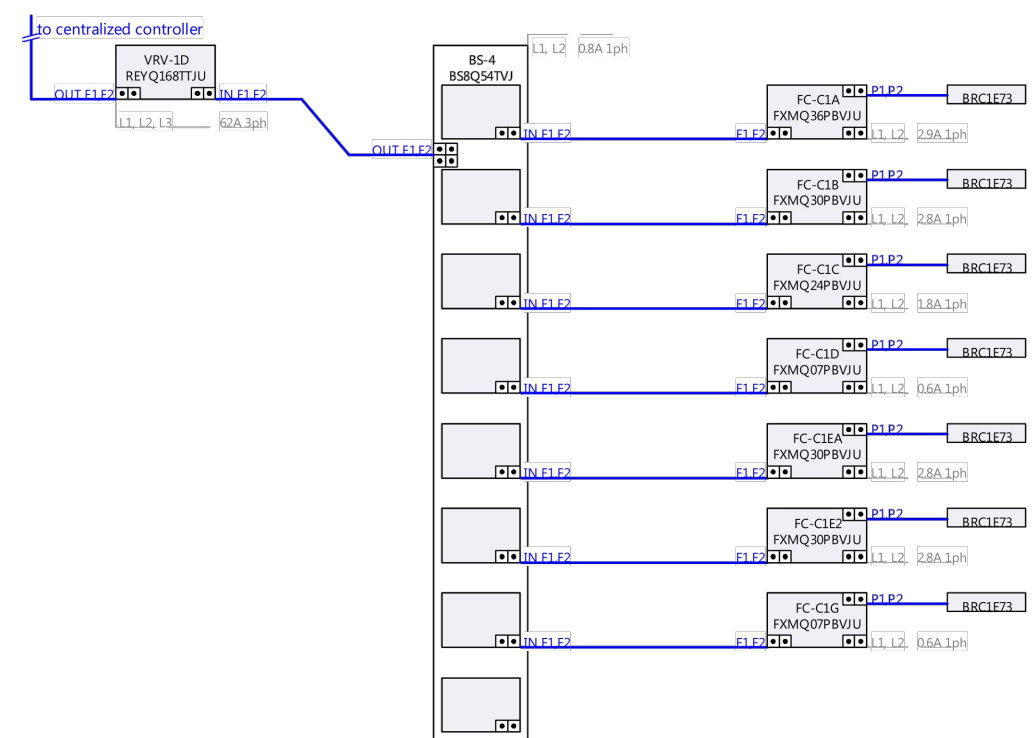
5.2. Wiring VRV-1B



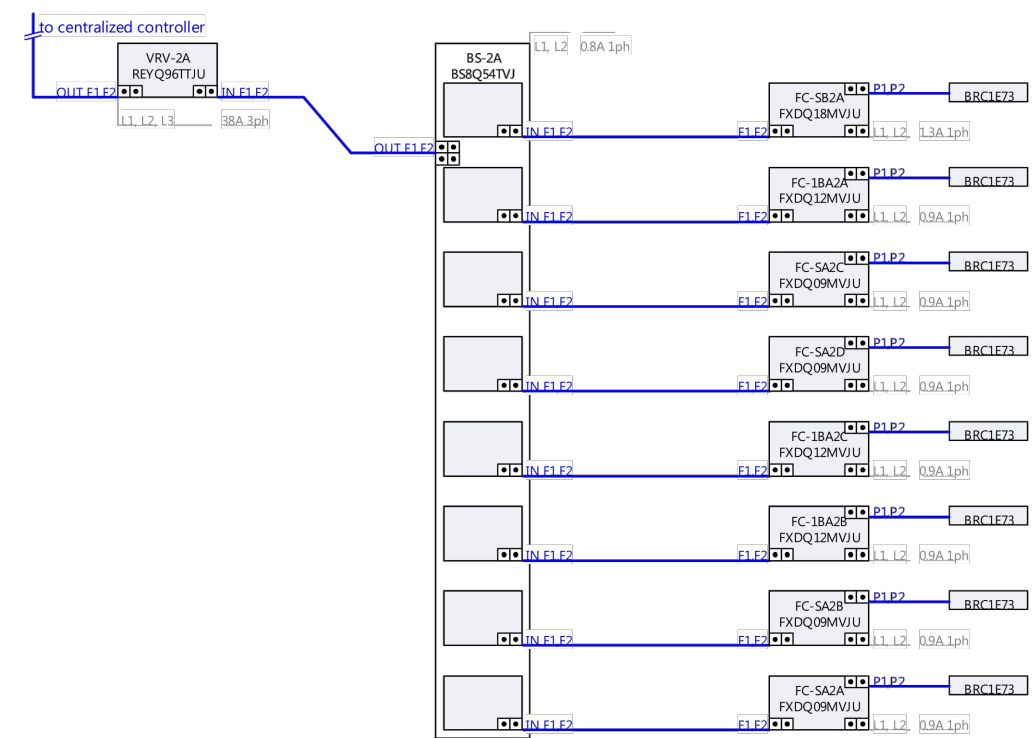
5.3. Wiring VRV-1C



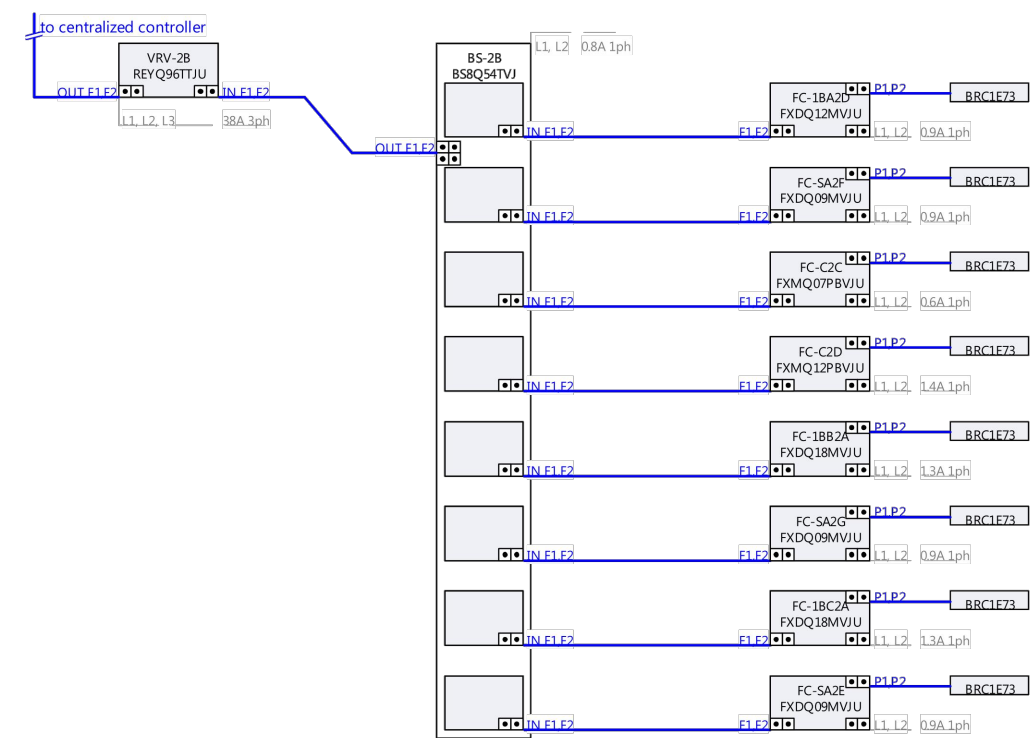
5.4. Wiring VRV-1D



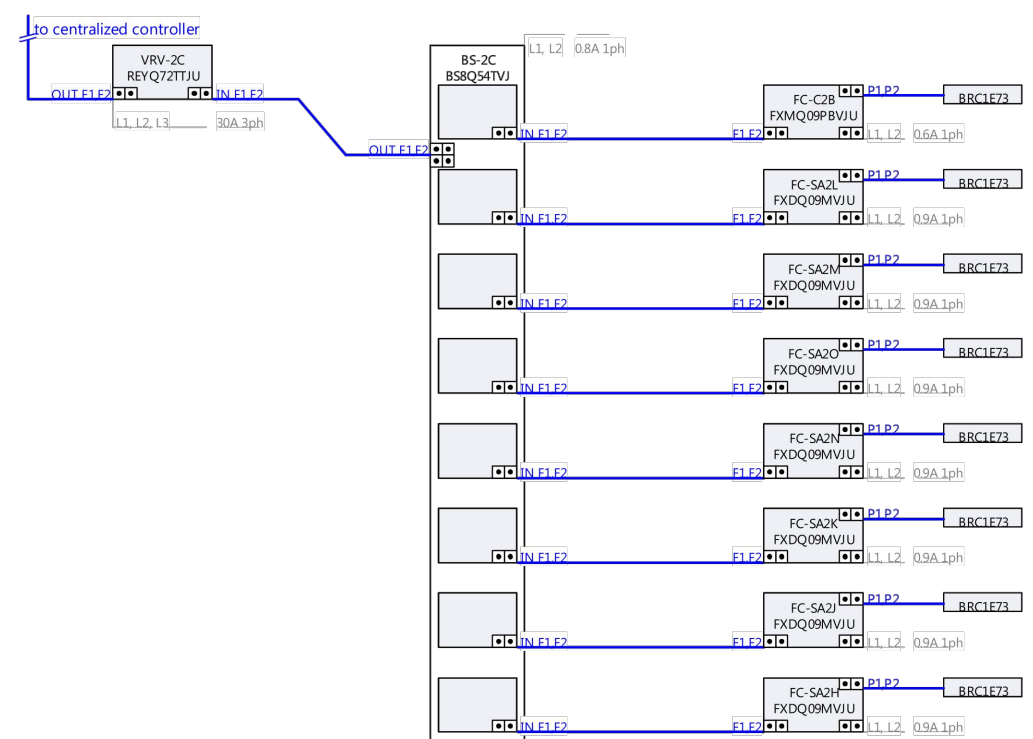
5.5. Wiring VRV-2A



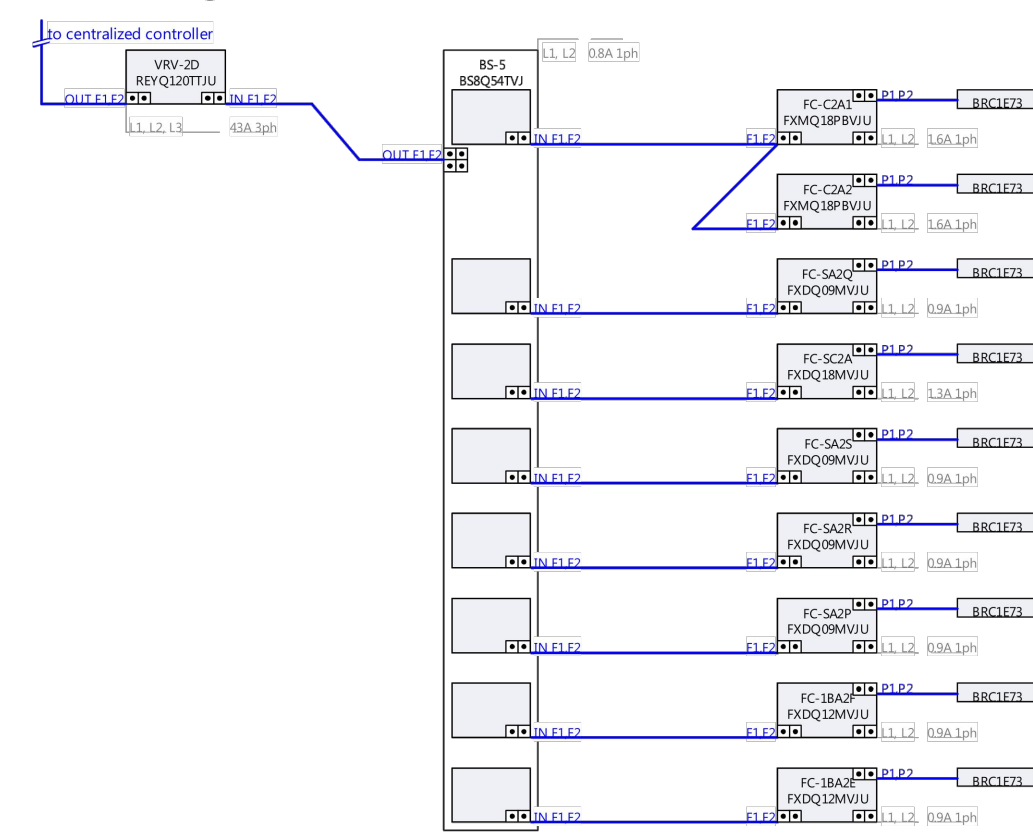
5.6. Wiring VRV-2B

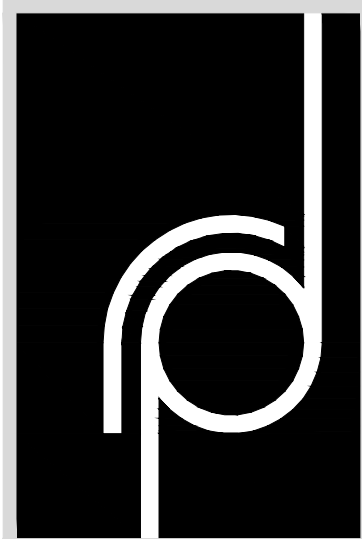


5.7. Wiring VRV-2C



5.8. Wiring VRV-2D





CONSULTANT:

T.C. ENTERPRISE

OWNER=

PARDOE ASSISTED LIVING -

MIDVALE

6968 SOUTH 700 WEST
MIDVALE, UTAH 84095

PROJECT:	
DATE	DESCRIPTION

6/27/16	PERMIT SET
1 9/16/16	CITY COMMENTS

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TG
: DA

ECT #: _____
OWN BY: _____
CHECKED BY: _____

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13

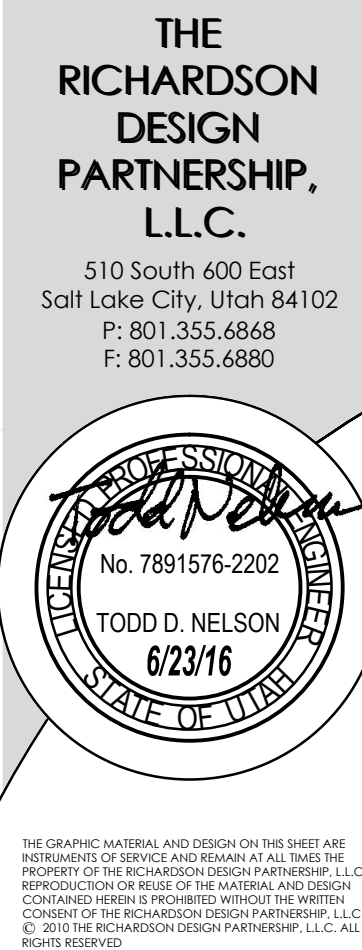
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[illegible][illegible]

6.27.2016 - PERMIT SET

MECHANICAL DETAILS

M304



T.C. ENTERPRISE

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[illegible]

MECHANICAL SCHEDULES

M400

PROJECT #: 14288.01

DRAWN BY: KG

CHECKED BY: DA

SHEET #

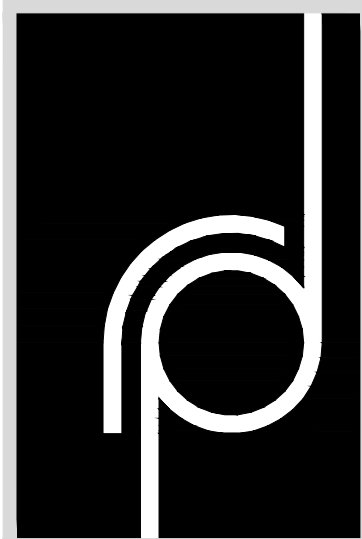
VRF HVAC SYSTEM SCHEDULE																
2ND FLOOR INDOOR FAN COIL UNITS																
HEAT PUMP SYMBOL	BRANCH SELECT SYMBOL	FAN COIL SYMBOL	AREA SERVED	NOMINAL TONS	UNIT TYPE	SUPPLY FAN	COOLING	HEATING	ELECTRICAL			OSA	SOUND (dB)	OPERATING WEIGHT (LBS)	MANUFACTURER AND MODEL	REMARKS
						CFM HL	MBH	MBH	MCA	MCCP	VIB					
HP-2A	BSB-2A	FC-2A.1	STUDIO 200	.75	DUCTED	280	8.2	10.5	9	15	208/1	75	33	50	DAIKIN MODEL FXDQ09MVJU	1, 3, 5, 6
		FC-2A.2	STUDIO 202	.75	DUCTED	280	8.2	10.5	9	15	208/1	75	33	50	DAIKIN MODEL FXDQ09MVJU	1, 3, 5, 6
		FC-2A.3	STUDIO 205	.75	DUCTED	280	8.2	10.5	9	15	208/1	75	33	50	DAIKIN MODEL FXDQ09MVJU	1, 3, 5, 6
		FC-2A.4	STUDIO 207	.75	DUCTED	280	8.2	10.5	9	15	208/1	75	33	50	DAIKIN MODEL FXDQ09MVJU	1, 3, 5, 6
		FC-2A.5	STUDIO 201	1.5	DUCTED	440	15.5	20.0	1.3	15	208/1	75	35	70	DAIKIN MODEL FXDQ18PBVJU	1, 3, 5, 6
		FC-2A.6	1 BEDROOM 203	1	DUCTED	280	10.3	13.5	9	15	208/1	75	33	50	DAIKIN MODEL FXDQ12MVJU	1, 3, 5, 6
		FC-2A.7	1 BEDROOM 204	1	DUCTED	280	10.3	13.5	9	15	208/1	75	33	50	DAIKIN MODEL FXDQ12MVJU	1, 3, 5, 6
		FC-2A.8	1 BEDROOM 206	1	DUCTED	280	10.3	13.5	9	15	208/1	75	33	50	DAIKIN MODEL FXDQ12MVJU	1, 3, 5, 6
HP-2B	BSB-2B	FC-2B.1	STUDIO 208	.75	DUCTED	280	8.2	10.5	9	15	208/1	75	33	50	DAIKIN MODEL FXDQ09MVJU	1, 3, 5, 6
		FC-2B.2	STUDIO 211	.75	DUCTED	280	8.2	10.5	9	15	208/1	75	33	50	DAIKIN MODEL FXDQ09MVJU	1, 3, 5, 6
		FC-2B.3	STUDIO 212	.75	DUCTED	280	8.2	10.5	9	15	208/1	75	33	50	DAIKIN MODEL FXDQ09MVJU	1, 3, 5, 6
		FC-2B.4	1 BEDROOM 209	1	DUCTED	280	10.3	13.5	9	15	208/1	75	33	50	DAIKIN MODEL FXDQ12MVJU	1, 3, 5, 6
		FC-2B.5	1 BEDROOM 214	1.5	DUCTED	440	15.5	20.0	1.3	15	208/1	75	35	70	DAIKIN MODEL FXDQ18MVJU	1, 3, 5, 6
		FC-2B.6	1 BEDROOM 210	1.5	DUCTED	440	15.5	20.0	1.3	15	208/1	75	35	70	DAIKIN MODEL FXDQ18MVJU	1, 3, 5, 6
		FC-2B.7	NURSE 24BLAUNDRY 249	.5	DUCTED	317	6.4	8.5	6	15	208/1	25	33	55	DAIKIN MODEL FXMQ27PBVJU	1, 3, 6, 7
		FC-2B.8	CORRIDOR 251	1	DUCTED	450	10.3	13.5	9	15	208/1	60	39	65	DAIKIN MODEL FXMQ12PBVJU	1, 3, 6, 7
HP-2C	BSB-2C	FC-2C.1	STUDIO 216	.75	DUCTED	280	8.2	10.5	9	15	208/1	75	33	50	DAIKIN MODEL FXDQ09MVJU	1, 3, 5, 6
		FC-2C.2	STUDIO 218	.75	DUCTED	280	8.2	10.5	9	15	208/1	75	33	50	DAIKIN MODEL FXDQ09MVJU	1, 3, 5, 6
		FC-2C.3	STUDIO 220	.75	DUCTED	280	8.2	10.5	9	15	208/1	75	33	50	DAIKIN MODEL FXDQ09MVJU	1, 3, 5, 6
		FC-2C.4	STUDIO 219	.75	DUCTED	280	8.2	10.5	9	15	208/1	75	33	50	DAIKIN MODEL FXDQ09MVJU	1, 3, 5, 6
		FC-2C.5	STUDIO 221	.75	DUCTED	280	8.2	10.5	9	15	208/1	75	33	50	DAIKIN MODEL FXDQ09MVJU	1, 3, 5, 6
		FC-2C.6	STUDIO 222	.75	DUCTED	280	8.2	10.5	9	15	208/1	75	33	50	DAIKIN MODEL FXDQ09MVJU	1, 3, 5, 6
		FC-2C.7	STUDIO 223	.75	DUCTED	280	8.2	10.5	9	15	208/1	75	33	50	DAIKIN MODEL FXDQ09MVJU	1, 3, 5, 6
		FC-2C.8	CORRIDOR	.75	DUCTED	317	8.2	10.5	6	15	208/1	50	33	55	DAIKIN MODEL FXMQ29PBVJU	1, 3, 5, 6
HP-2D	BSB-2D	FC-2D.1	STUDIO 228	.75	DUCTED	280	8.2	10.5	9	15	208/1	75	33	50	DAIKIN MODEL FXDQ09MVJU	1, 3, 5, 6
		FC-2D.2	STUDIO 229	.75	DUCTED	280	8.2	10.5	9	15	208/1	75	33	50	DAIKIN MODEL FXDQ09MVJU	1, 3, 5, 6
		FC-2D.3	STUDIO 230	.75	DUCTED	280	8.2	10.5	9	15	208/1	75	33	50	DAIKIN MODEL FXDQ09MVJU	1, 3, 5, 6
		FC-2D.4	STUDIO 233	.75	DUCTED	280	8.2	10.5	9	15	208/1	75	33	50	DAIKIN MODEL FXDQ09MVJU	1, 3, 5, 6
		FC-2D.5	1 BEDROOM 224	1	DUCTED	280	10.3	13.5	9	15	208/1	75	33	50	DAIKIN MODEL FXDQ12MVJU	1, 3, 5, 6
		FC-2D.6	1 BEDROOM 226	1	DUCTED	280	10.3	13.5	9	15	208/1	75	33	50	DAIKIN MODEL FXDQ12MVJU	1, 3, 5, 6
		FC-2D.7	LOBBY 141/241	1.5	DUCTED	635	15.5	20.0	1.6	15	208/1	100	42	80	DAIKIN MODEL FXMQ18PBVJU	1, 3, 6, 7
		FC-2D.8	CORRIDOR 242	1.5	DUCTED	635	15.5	20.0	1.6	15	208/1	75	42	80	DAIKIN MODEL FXMQ18PBVJU	1, 3, 6, 7
		FC-2D.9	STUDIO 231	1.5	DUCTED	440	15.5	20.0	1.3	15	208/1	75	35	70	DAIKIN MODEL FXDQ18MVJU	1, 3, 5, 6

1. APPROVED ALTERNATE MANUFACTURERS: I.G. CARRIER, OR APPROVED EQUAL.
2. PROVIDE MANUFACTURER'S CRAWKCASE HEATER, LOW AMBIENT CONTROLS (TO 0°F), WIND BAFFLES, REFRIGERATION LINE SET AND TEES.
3. CONTROL UNIT WITH HARD WIRED T-STAT. MODEL BRC1E73. SEE PLANS FOR LOCATION OF CENTRAL CONTROLLER, MODEL DCM61A71.
4. PROVIDE WITH MIRO INDUSTRIES HEAVY DUTY MECHANICAL GALVANIZED ROOF SUPPORT WITH ADJUSTABLE SUPPORT LEGS. SUPPORT SHALL EXTEND A MINIMUM OF 2" BEYOND EQUIPMENT IN EACH DIRECTION. BOLT EQUIPMENT TO MECHANICAL SUPPORT. PROVIDE HEAT TAPE ON PLATFORM TO NEAREST DRAIN.
5. PROVIDE WITH CONTRACTOR FURNISHED CONDENSATE PUMP.
6. ELECTRICAL TO PROVIDE DISCONNECT.
7. PROVIDE MANUFACTURER'S FILTER BOX, FILTER, AND INTEGRAL CONDENSATE PUMP.

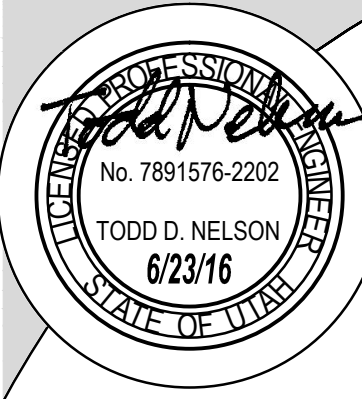
VRF HVAC SYSTEM SCHEDULE																
1ST FLOOR INDOOR FAN COIL UNITS																
HEAT PUMP SYMBOL	BRANCH SELECT SYMBOL	FAN COIL SYMBOL	AREA SERVED	NOMINAL TONS	UNIT TYPE	SUPPLY FAN	COOLING	HEATING	ELECTRICAL			OSA	SOUND (dB)	OPERATING WEIGHT (LBS)	MANUFACTURER AND MODEL	REMARKS
						CFM/H/L	MBH	MBH	MCA	MOC/P	V/Ø					
HP-1A	BSB-1A	FC-1A.1	STUDIO 100	.75	DUCTED	280	8.2	10.5	9	15	208/1	75	33	50	DAIKIN MODEL FXDQ09MVJU	1, 3, 5, 6
		FC-1A.2	STUDIO 102	.75	DUCTED	280	8.2	10.5	9	15	208/1	75	33	50	DAIKIN MODEL FXDQ09MVJU	1, 3, 5, 6
		FC-1A.3	STUDIO 105	.75	DUCTED	280	8.2	10.5	9	15	208/1	75	33	50	DAIKIN MODEL FXDQ09MVJU	1, 3, 5, 6
		FC-1A.4	STUDIO 107	.75	DUCTED	280	8.2	10.5	9	15	208/1	75	33	50	DAIKIN MODEL FXDQ09MVJU	1, 3, 5, 6
		FC-1A.5	STUDIO 101	1.5	DUCTED	440	15.5	20.0	1.3	15	208/1	75	35	70	DAIKIN MODEL FXDQ18MVJU	1, 3, 5, 6
		FC-1A.6	1 BEDROOM 103	1	DUCTED	280	10.3	13.5	9	15	208/1	75	33	50	DAIKIN MODEL FXDQ12MVJU	1, 3, 5, 6
		FC-1A.7	1 BEDROOM 104	1	DUCTED	280	10.3	13.5	9	15	208/1	75	33	50	DAIKIN MODEL FXDQ12MVJU	1, 3, 5, 6
		FC-1A.8	1 BEDROOM 106	1	DUCTED	280	10.3	13.5	9	15	208/1	75	33	50	DAIKIN MODEL FXDQ12MVJU	1, 3, 5, 6
HP-1B	BSB-1B	FC-1B.1	STUDIO 108	.75	DUCTED	280	8.2	10.5	9	15	208/1	75	33	50	DAIKIN MODEL FXDQ09MVJU	1, 3, 5, 6
		FC-1B.2	STUDIO 111	.75	DUCTED	280	8.2	10.5	9	15	208/1	75	33	50	DAIKIN MODEL FXDQ09MVJU	1, 3, 5, 6
		FC-1B.3	STUDIO 112	.75	DUCTED	280	8.2	10.5	9	15	208/1	75	33	50	DAIKIN MODEL FXDQ09MVJU	1, 3, 5, 6
		FC-1B.4	1 BEDROOM 109	1	DUCTED	280	10.3	13.5	9	15	208/1	75	33	50	DAIKIN MODEL FXDQ12MVJU	1, 3, 5, 6
		FC-1B.5	1 BEDROOM 114	1.5	DUCTED	440	15.5	20.0	1.3	15	208/1	75	35	70	DAIKIN MODEL FXDQ18MVJU	1, 3, 5, 6
		FC-1B.6	1 BEDROOM 110	1	DUCTED	280	10.3	13.5	9	15	208/1	75	33	50	DAIKIN MODEL FXDQ12MVJU	1, 3, 5, 6
		FC-1B.7	COORDROR 196 WEST	1.25	DUCTED	560	12.9	16.5	1.5	15	208/1	75	40	80	DAIKIN MODEL FXMQ15PBVJU	1, 3, 6, 7
		FC-1B.8	CORRIDOR 196 EAST	1	DUCTED	450	10.3	13.5	1.4	15	208/1	60	39	62	DAIKIN MODEL FXMQ12PBVJU	1, 3, 6, 7
HP-1C	BSB-1C	FC-1C.1	STUDIO 116	.75	DUCTED	280	8.2	10.5	9	15	208/1	75	33	50	DAIKIN MODEL FXDQ09MVJU	1, 3, 5, 6
		FC-1C.2	STUDIO 118	.75	DUCTED	280	8.2	10.5	9	15	208/1	75	33	50	DAIKIN MODEL FXDQ09MVJU	1, 3, 5, 6
		FC-1C.3	STUDIO 119	.75	DUCTED	280	8.2	10.5	9	15	208/1	75	33	50	DAIKIN MODEL FXDQ09MVJU	1, 3, 5, 6
		FC-1C.4	STUDIO 120	.75	DUCTED	280	8.2	10.5	9	15	208/1	75	33	50	DAIKIN MODEL FXDQ09MVJU	1, 3, 5, 6
		FC-1C.5	PRIVATE DINING 161	1.5	DUCTED	635	15.5	20.0	1.6	15	208/1	150	42	80	DAIKIN MODEL FXMQ18PBVJU	1, 3, 6, 7
		FC-1C.6	THERAPY 162	.75	DUCTED	317	8.2	10.5	6	15	208/1	50	33	50	DAIKIN MODEL FXMQ09PBVJU	1, 3, 6, 7
		FC-1C.7	BREAK ROOM 163	.5	DUCTED	317	6.4	8.5	6	15	208/1	75	33	55	DAIKIN MODEL FXMQ07PBVJU	1, 3, 6, 7
		FC-1C.8	LAUNDRY 165	.5	DUCTED	317	6.4	8.5	6	15	208/1	---	33	55	DAIKIN MODEL FXMQ07PBVJU	1, 3, 6, 7
HP-1D	BSB-1D	FC-1D.1	ACTIVITY 150	3	DUCTED	1130	30.9	40.0	2.9	15	208/1	215	43	105	DAIKIN MODEL FXMQ36PBVJU	1, 3, 6, 7
		FC-1D.2	KITCHEN 147	2.5	DUCTED	1095	25.8	34.0	2.8	15	208/1	220	43	105	DAIKIN MODEL FXMQ30PBVJU	1, 3, 6, 7
		FC-1D.3	NOURISHMENT CENTER 146	2	DUCTED	690	20.6	27.0	1.8	15	208/1	255	42	80	DAIKIN MODEL FXMQ24PBVJU	1, 3, 6, 7
		FC-1D.4	NURSE 148/OFFICE 149	.5	DUCTED	317	6.4	8.5	6	15	208/1	30	33	55	DAIKIN MODEL FXMQ07PBVJU	1, 3, 6, 7
		FC-1D.5	DINING 144	2.5	DUCTED	1095	25.8	34.0	2.8	15	208/1	350	43	105	DAIKIN MODEL FXMQ30PBVJU	1, 3, 6, 7
		FC-1D.6	DINING 144	2.5	DUCTED	1095	25.8	34.0	2.8	15	208/1	350	43	105	DAIKIN MODEL FXMQ30PBVJU	1, 3, 6, 7
		FC-1D.7	SALON 158	.5	DUCTED	317	6.4	8.5	6	15	208/1	75	33	55	DAIKIN MODEL FXMQ07PBVJU	1, 3, 6, 7



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DIFFUSER SCHEDULE				
SYMBOL	NOMINAL SIZE	NECK / RUNOUT SIZE	CFM RANGE	REMARKS
	6X6	6"Ø	0 - 90	1, 2, 3, 4, 5, 6, 7
	9X9	8"Ø	90 - 200	1, 2, 3, 4, 5, 6, 7
	12X12	10"Ø	200 - 350	1, 2, 3, 4, 5, 6, 7
	15X15	12"Ø	300 - 500	1, 2, 3, 4, 5, 6, 7
	15X15	14"Ø	400 - 650	1, 2, 3, 4, 5, 6, 7
	18X18	16"Ø	600 - 900	1, 2, 3, 4, 5, 6, 7
	21X21	21X21	900 - 1400	1, 2, 3, 4, 5, 6, 7
	24X24	10"Ø	165-350	2, 3, 4, 5, 6, 7, 8

REMARKS

1. SIZES BASED ON TITUS MODEL TDC SERIES. APPROVED ALTERNATE MANUFACTURERS INCLUDE ANEMOSTAT J&J REGISTER, NAILOR, METAL-AIRE, TUTTLE & BAILEY, KRUEGER, PRICE, AND UNITED ENERSHTECH.
2. SIZES BASED ON A MAXIMUM NC LEVEL OF 25.
3. ALL DIFFUSERS LOCATED IN LAY-IN CEILING AREALS SHALL BE BORDER TYPE 3 AND BE MOUNTED IN MANUFACTURER PROVIDED 24"x24" PANELS. ALL DIFFUSERS LOCATED IN HARD CEILING AREAS SHALL BE BORDER TYPE 6 (BEVELED) SURFACE MOUNTED. SEE ARCHITECTURAL PLANS FOR LOCATIONS OF VARIOUS CEILING TYPES.
4. SEE HVAC FLOOR PLANS FOR DIRECTIONAL THROW REQUIREMENTS FOR EACH DIFFUSER.
5. ALL OF THE DIFFUSERS SHOWN IN THIS SCHEDULE MAY NOT BE USED. REFERENCE THE HVAC PLAN FOR DIFFUSER CALL-OUTS AND THE QUANTITY OF EACH SIZE REQUIRED.
6. WHENEVER THERE IS A DISCREPANCY BETWEEN THE RUNOUT DUCT SIZE SHOWN ON THE PLANS AND THAT SHOWN IN THE SCHEDULE, ALWAYS USE THE LARGER OF THE TWO DUCT SIZES.
7. WHITE FINISH.
8. SIZES BASED ON TITUS MODEL PCS SERIES, CURVED BLADE ADJUSTABLE WITH HINGED PERFORATED FACE PANELS.

RETURN & EXHAUST GRILLE SCHEDULE				
SYMBOL	NOMINAL SIZE	NECK / RUNOUT SIZE	CFM RANGE	REMARKS
R-1 6"Ø	8x8	6"Ø	0-100	1, 2, 3, 4, 5, 6
R-2 6"Ø	10x10	8"Ø	80-180	1, 2, 3, 4, 5, 6
R-3 10"Ø	12x12	10"Ø	180-300	1, 2, 3, 4, 5, 6
R-4 6"Ø	22x10	6"Ø	0-80	1, 2, 3, 4, 5, 6
R-5 8"Ø	22x10	8"Ø	80-180	1, 2, 3, 4, 5, 6
R-6 10"Ø	22x10	10"Ø	180-300	1, 2, 3, 4, 5, 6
R-7 12"Ø	22x22	12"Ø	300-500	1, 2, 3, 4, 5, 6
R-8 14"Ø	22x22	14"Ø	500-750	1, 2, 3, 4, 5, 6
R-9 22x10	22x10	22x10	500-1100	1, 2, 3, 4, 5, 6
R-10 22x22	22x22	22x22	1100-2000	1, 2, 3, 4, 5, 6
R-11 10x6	18x10	18x10	100-600	2, 6, 7

REMARKS

1. SIZES BASED ON TITUS MODEL 50F. ALUMINUM EGGRATE RETURN GRILLE, 1/2" x 1/2" x 1" SPACING (SINGLE CORE). PROVIDE SQUARE TO ROUND TRANSITION (WHERE ROUND RUN-OUT INDICATED). APPROVED ALTERNATE MANUFACTURERS INCLUDE: ANEMOSTAT, CARNES, PRICE, NALOR, METAL-AIRE, TUTTLE & BAILEY, KRUGER, JAU REGISTER, AND UNITED ENERTCH.
2. SIZES BASED ON A MAXIMUM IN-CEILING AREA OF 25.
3. ALL GRILLES LOCATED IN LAY-IN CEILING AREAS SHALL HAVE BORDER #3, UNLESS OTHERWISE INDICATED. ALL GRILLES LOCATED IN HARD CEILING AREAS SHALL HAVE BORDER #1, UNLESS OTHERWISE INDICATED. REFER TO ARCHITECTURAL PLANS FOR LOCATIONS OF VARIOUS CEILING TYPES. SHEET METAL DUCTWORK VISIBLE BEHIND GRILLE SHALL BE PAINTED FLAT BLACK.
4. ALL OF THE GRILLES SHOWN IN THIS SCHEDULE MAY NOT BE USED. REFERENCE THE HVAC PLAN FOR GRILLE CALL-OUTS AND THE QUANTITY OF EACH SIZE REQUIRED.
5. WHENEVER THERE IS A DISCREPANCY BETWEEN THE RUNOUT DUCT SIZE SHOWN ON THE PLANS AND THAT SHOWN IN THIS SCHEDULE, ALWAYS USE THE LARGER OF THE TWO DUCT SIZES.
6. WHITE FINISH.
7. HIGH WALL GRILLE SIZES BASED ON TITUS MODEL 355 FLR. STEEL BAR FILTER GRILLE, FIXED BLADES, 1/2" SPACING, 3% DEFLECTION, 1" FILTER, ADJUSTABLE OPPOSED BLADE DAMPER, APPROVED ALTERNATE MANUFACTURERS INCLUDE: ANEMOSTAT, CARNES, JAU REGISTER, NALOR, TUTTLE & BAILEY, KRUGER, PRICE AND UNITED ENERTCH.

LOUVER SCHEDULE							
SYMBOL	SERVICE	TYPE	NOMINAL SIZE	MINIMUM FREE AREA (SQ.FT.)	FINISH	MANUFACTURER AND MODEL	REMARKS
<u>L-1</u>	VENTILATION AIR INTAKE/EXHAUST	FIXED DRAINABLE	24X12	.86	BAKED ENAMEL	RUSKIN ELF6300MP	1, 2, 3

REMARKS

1. APPROVED ALTERNATE MANUFACTURERS: GREENHECK, AMERICAN WARMING, AIROUTE, SAFE-AIR/DOWCO, LOUVERS & DAMPERS, ARROW UNITED, CESCO, NCA MANUFACTURING, NAILOR, POTTORFF, AND UNITED ENERTECH.
2. COLOR TO BE SELECTED BY ARCHITECT.
3. EXHAUST AND O.S.A. PROVIDE WITH FLANGED FRAME AND BIRD SCREEN.

SUPPLY GRILLE SCHEDULE				
SYMBOL	NOMINAL SIZE	NECK / RUNOUT SIZE	CFM RANGE	REMARKS
	24X6	24X6	250-675	1, 2, 3, 4
	6X6	4"Ø	25-60	1, 2, 3, 4
	12X6	12X6	125-300	1, 2, 3, 4
	18X6	18X6	190-500	1, 2, 3, 4

REMARKS:

1. WALL GRILLE SIZES BASED ON TITUS MODEL 272F, DOUBLE DEFLECTION ADJUSTABLE BLADES, 3/4" SPACING WHITE FINISH. APPROVED ALTERNATE MANUFACTURERS INCLUDE ANEMOSTAT, CARNES, J&J REGISTER, TITZ & BAILEY, NAILOL, METAL-AIR, KRUEGER, PRICE, AND UNITED ENERTCH.
2. SIZES BASED ON A MAXIMUM NC LEVEL OF 25.
3. WHENEVER THERE IS A DISCREPANCY BETWEEN THE RUNOUT DUCT SIZE SHOWN ON THE PLANS AND THAT SHOWN IN THE SCHEDULE, ALWAYS USE THE LARGER OF THE TWO DUCT SIZES.
4. PROVIDE WITH OPPOSED BLADE DAMPER.

BUILDING VENTILATION			
REQUIRED OSA			
1ST FLOOR			
RESIDENT ROOMS (75 CFM EACH)	1275		CFM
PRIVATE DINING	150		CFM
SALON	75		CFM
THERAPY	50		CFM
CORRIDORS	135		CFM
BREAK ROOM	50		CFM
ACTIVITY	215		CFM
KITCHEN	220		CFM
NOURISHMENT CENTER	255		CFM
NURSE/OFFICE	30		CFM
DINING	700		CFM
LOBBY	100		CFM
2ND FLOOR			
RESIDENT ROOMS (75 CFM EACH)	2100		CFM
CORRIDORS	185		CFM
NURSE	25		CFM
TOTAL	5565		CFM
BUILDING EXHAUST			
1ST FLOOR			
RESIDENT ROOMS (100 CFM EACH)	1800		CFM
PUBLIC RESTROOM	100		CFM
THERAPY	100		CFM
LAUNDRY	100		CFM
BREAK ROOM RESTROOM	100		CFM
2ND FLOOR			
RESIDENT ROOMS (100 CFM EACH)	2800		CFM
LAUNDRY	100		CFM
TOTAL	5100		CFM
TOTAL BUILDING PRESSURIZATION	465		CFM

CONSULTANT:

T.C. ENTERPRISE

OWNER:

PARDOE ASSISTED LIVING - MIDVALE

6968 SOUTH 700 WEST
MIDVALE, UTAH 84095

PROJECT:

[illegible]

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DRAWN BY: RG
CHECKED BY: DA

W402

6.27.2016 - PERMIT SET