

ABBREVIATIONS

ACCU	AIR CONDITIONING CONDENSING UNIT	F	FAHRENHEIT	P	PUMP
AD	ACCESS DOOR	FD	FLOOR DRAIN	PD	PRESSURE DROP (FEET OF WATER)
AFT	ABOVE FINISHED FLOOR	FLR	FLOOR	PSI	POUNDS PER SQUARE INCH
AHU	AIR HANDLING UNIT	FSW	FEET PER MINUTE	PRV	PRESSURE REDUCING VALVE
AP	ACCESS PANEL	HP	HORSEPOWER	RA	RETURN AIR
ASR	AUTOMATIC SPRINKLER RISER	FS	FLOOR SINK	RD/SP	ROOF DRAIN/STAND PIPE
		FT.	FEET	BAL.	BALANCE
BTU	BRITISH THERMAL UNIT	GPW	GALLONS PER MINUTE	RET	RETURN
				RF	RETURN FAN
CC	COOLING COIL	HB	HOSE BIBB	RH	REHEAT COIL
CF	CENTRIFUGAL FAN	HO	HUB OUTLET	Rh	RELATIVE HUMIDITY
CFM	CUBIC FEET PER MINUTE	HP	HORSEPOWER	RPM	REVOLUTIONS PER MINUTE
CI	CAST IRON	HW	HOT WATER (POTABLE)	RS	ROOF SUMP
CO	CLEAN OUT	HWR	HOT WATER RETURN (POTABLE)	RC	RAIN CONDUCTOR
COND	CONDENSATE			REL	RELOCATED
CONT	CONTINUATION	IN	INCHES	REB	REBALANCE
CUH	CABINET UNIT HEATER	INL	INLET	SA	SUPPLY AIR
CW	COLD WATER	INV	INVERT	SAN	SANITARY WASTE
CWS	CHILLED WATER SUPPLY	LAT	LEAVING AIR TEMPERATURE	SD	SMOKE DETECTOR
CWR	CHILLED WATER RETURN	LAV	LAVATORY	SF	SUPPLY FAN
		LBS/HR	POUNDS PER HOUR	SG	SPECIFIC GRAVITY
DB	DEGREES	LWF	LEAVING WATER TEMPERATURE	SP	STATIC PRESSURE (INCHES OF WATER)
DD	DRY BULB TEMPERATURE, °F	MAX.	MAXIMUM	SPR	SPRINKLER
DB	DEGREES	MBH	1000 BTU/HR	SPR/STP	SPRINKLER STANDPIPE
DDC	DIRECT DIGITAL CONTROL	MECH	MECHANICAL	SPS	STATIC PRESSURE SENSOR
DET	DETAIL	MIN.	MINIMUM	STK	STACK
DA	DIAMETER	MISC	MISCELLANEOUS	TP	TOTAL PRESSURE
DN	DOWN	NC	NORMALLY CLOSED	TYP	TYPICAL
DS	DOWNSPOUT	NIC	NOT IN CONTRACT	UH	UNIT HEATER
DWG.	DRAWING	NO	NORMALLY OPEN	UON	UNLESS OTHERWISE NOTED
		NOM.	NOMINAL	V	VALVE
EA	EXHAUST AIR	NFWH	NON FREEZE WALL HYDRANT	VTR	VENT THRU ROOF
EAUH	ELECTRIC CABINET UNIT HEATER	OA	OUTSIDE AIR	W	WASTE
EF	EXHAUST FAN	OF	OVERFLOW	WG	WATER GAUGE
ELEV.	ELEVATION	OFD	OVERFLOW DRAIN	WH	WALL HYDRANT
ESP	EXTERNAL STATIC PRESSURE				
EUH	ELECTRIC UNIT HEATER				
EX	EXISTING				
EXH	EXHAUST				
EXIST	EXISTING				

HVAC GENERAL NOTES:

THE FOLLOWING NOTES APPLY TO ALL HVAC DRAWINGS, EXCEPT WHERE OTHERWISE INDICATED.

- WHEREVER VOLUME DAMPERS OCCUR ABOVE CEILINGS WITHOUT REMOVABLE TILE AND AN ACCESS PANEL IS NOT FURNISHED, PROVIDE AN EXPOSED DAMPER REGULATOR TO ALLOW DAMPER ADJUSTMENT FROM BELOW CEILING. UNIT TO BE EQUAL TO VENTILOCK No. 666 IN 1/2"x3/8" SIZE.
- ALL DIMENSION SHOWN FOR DUCTWORK ARE NET INSIDE DIMENSIONS.
- DIFFUSER AND REGISTER LOCATIONS SHALL BE COORDINATED WITH ARCHITECTURAL REFLECTED CEILING PLAN.
- THOUGH SOME OFFSETS & TRANSITIONS ARE SHOWN IN PIPING AND SHEET METAL TO HELP INDICATE THE PHYSICAL RELATIONSHIP BETWEEN THEM, IT IS NOT THE INTENT OF THE DRAWINGS TO SHOW ALL PIPING AND SHEET METAL OFFSET & TRANSITIONS REQUIRED. THE CONTRACTOR SHALL FULLY COORDINATE THE MECHANICAL WORK WITHIN ITSELF AND WITH THE WORK OF ALL TRADES TO PROVIDE COMPLETE AND OPERABLE SYSTEMS WITHOUT INTERFERENCES.
- DUCT PRESSURE CONSTRUCTION CLASSIFICATION SHALL BE AS SPECIFIED.
- ALL ROUND RUNOUTS AND DROPS TO DIFFUSERS SHALL BE SAME NOMINAL SIZE AS INDICATED ON THE DRAWINGS.
- ALL PIPING AND DUCTS IN FINISHED ROOMS OR SPACES SHALL BE CONCEALED IN FURRED CHASE OR SUSPENDED CEILING.
- ACCESS PANELS AND DOORS ARE REQUIRED THROUGH BUILDING CONSTRUCTION ASSEMBLIES SUCH AS WALLS, CEILING, PARTITIONS AND FLOORS TO SERVICE AND MAINTAIN DAMPERS, CONTROL MOTORS, REGULATORS, VALVES, FLEXIBLE DUCT CONNECTIONS AND OTHER ITEMS OR DEVICES INCORPORATED IN MECHANICAL WORK. SUCH PANELS AND DOORS SHALL BE PROVIDED AND INSTALLED UNDER THE ARCHITECTURAL SPECIFICATIONS. MECHANICAL CONTRACTOR SHALL COORDINATE LOCATION OF ACCESS DOORS AND PANELS AND VERIFY THE EXACT QUANTITY, SIZE, FIRE-RATING AND LOCATION AFTER THE SYSTEMS AND EQUIPMENT REQUIRING ACCESS HAVE BEEN INSTALLED AND PRIOR TO THE CLOSURE OF THE AFFECTED CEILING AND BUILDING ASSEMBLIES. MINIMUM ACCESS PANEL AND DOOR SIZE SHALL BE 24 INCHES BY 18 INCHES UNLESS OTHERWISE NOTED.
- ALL DUCTWORK PENETRATIONS THROUGH FIRE-RATED WALLS AND FLOORS SHALL BE PROVIDED WITH FIRE DAMPERS AND ACCESS DOOR.

PLUMBING GENERAL NOTES:

- FOR PIPE SIZES TO INDIVIDUAL PLUMBING FIXTURES AND VARIOUS PIECES OF EQUIPMENT REFER TO SPECIFICATIONS.
- IN ALL WASTE DRAINAGE PIPING THE CONTRACTOR SHALL FURNISH AND INSTALL CLEANOUTS (IN ADDITION TO THE CLEANOUTS INDICATED ON DRAWINGS AS REQUIRED BY THE GOVERNING PLUMBING CODE).
- REFER TO HVAC GENERAL NOTE-4.
- FOR ADDITION NOTES COMMON TO PLUMBING REFER TO HVAC NOTES.

PLUMBING, PIPING, FIRE PROTECTION LEGEND & SYMBOLS

	ITEM TO BE REMOVED		MANUAL AIR VENT
	EXISTING WORK		TEST PLUG (PRESSURE/TEMPERATURE)
	NEW WORK		NEW CONNECTION
	ISOLATION VALVE		COLD WATER PIPING
	CHECK VALVE		HOT WATER PIPING
	WATER FLOW SWITCH		HOT WATER RETURN PIPING
	VALVE IN RISER		VENT PIPING
	STRAINER		SANITARY LINE (UNDERGROUND)
	PIPE ANCHOR		SANITARY LINE (ABOVE GROUND)
	EXPANSION JOINT - SLIDING		STORM LINE
	ALIGNMENT GUIDE		STEAM
	UNION		CONDENSATE RETURN
	SPRINKLER HEAD (PENDANT)		OXYGEN
	SPRINKLER HEAD (UPRIGHT)		VACUUM
	CLEANOUT		MEDICAL AIR
	CLEANOUT FLOOR		NITROGEN
	CLEANOUT WALL		NITROUS OXIDE
	CLEANOUT GRADE		NATURAL GAS
	FLOOR DRAIN (FD)		FIRE SPRINKLER PIPE (FS)
	REDUCER - CONCENTRIC		HEATING HOT WATER SUPPLY
	PRESSURE GAUGE WITH COCK		HEATING HOT WATER RETURN
	THERMOMETER		CHILLED WATER SUPPLY
	CAP OR PLUG		CHILLED HOT WATER RETURN
	ELBOW - TURNED DOWN		
	ELBOW - TURNED UP		
	TEE OUTLET - DOWN		
	TEE OUTLET - UP		
	DIRECTION OF FLOW		
	BALANCING VALVE		
	TWO-WAY MODULATING CONTROL VALVE		
	THREE-WAY MODULATING CONTROL VALVE		

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M-301	MECHANICAL SCHEDULES AND DETAILS

TOTAL BUILDING NATURAL GAS LOAD SCHEDULE

EQUIPMENT	TOTAL INPUT CFH
EX.RTU	140
EX.GWH	160
EX.GWH	150
EX.GWH	150
EX.KITCHEN GAS RANGE	340
EX.CHARBROILER	160
RTU-1	140
RTU-2	140
RTU-3	180
RTU-4	140
RTU-5	140
TOTAL	2,540 CFH

PIPE DESIGN BASED ON 7"W.C. Ø 500 LINEAR FT. AND 0.3"W.C. ALLOWABLE PRESSURE DROP.

CONTRACTOR TO FIELD VERIFY TOTAL EXISTING BUILDING GAS LOAD PRIOR TO CONSTRUCTION.

HVAC LEGEND & SYMBOLS

	INDICATES RECTANGULAR DUCT WITH DUCT SIZE 18 INCHES WIDE (IN PLANE OF DRAWING) AND 6 INCHES DEEP. SIZE PERTAINS TO THE ENTIRE RUN OF DUCT UNLESS OTHERWISE NOTED.		VOLUME CONTROL DAMPER (MANUAL)
	INDICATES FLAT OVAL DUCT WITH DUCT SIZE 22 INCHES WIDE (IN PLANE OF DRAWING) AND 14 INCHES DEEP. SIZE PERTAINS TO THE ENTIRE RUN OF DUCT UNLESS OTHERWISE NOTED.		FLEXIBLE CONNECTION OR FLEXIBLE DUCT CONNECTOR
	INDICATES ROUND DUCT WITH DUCT SIZE OF 6 INCHES IN DIAMETER. SIZE PERTAINS TO THE ENTIRE RUN OF DUCT (FROM DUCT ORIGIN AT TAP TO END OF DUCT) UNLESS OTHERWISE NOTED.		MOTORIZED DAMPER
	VANE TURN ELBOW & AIR SPLIT TYPE DUCT TAKE-OFF		COMBINATION FIRE AND SMOKE DAMPER
	INCLINED RISE IN RESPECT TO AIR FLOW		RF SHIELDING DAMPER
	INCLINED DROP IN RESPECT TO AIR FLOW		THERMOSTAT
	VANED ELBOW (PROVIDE ALL SQUARE OR RECTANGULAR ELBOWS WITH VANES)		TEMPERATURE SENSOR
	VANED ELBOW (SHORT RADIUS)		
	DUCT TURNING UP		
	DUCT TURNING DOWN		
	VERTICAL FIRE DAMPER		
	HORIZONTAL FIRE DAMPER		
	POINT OF NEW CONNECTION		
	DUCT SMOKE DETECTOR		
	ITEM TO BE REMOVED		
	SUPPLY AIR DIFFUSER		
	RETURN AIR GRILLE		
	LINEAR SUPPLY AIR DIFFUSER		
	SUPPLY AIR GRILLE		

Client

LABC - Leaders Advancing and Helping Communities



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Seal



TAG	ISSUED	DATE
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	50% CD	04-10-25
	85% CD	05-08-25
	90% Construction Documents	05-29-25
	Permit Review	06-13-25
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MECHANICAL SYMBOLS, ABBREVIATIONS, INDEX AND NOTES

DRAWING NO

M-001

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MECHANICAL SPECIFICATION

MECHANICAL MATERIALS, METHODS AND EXECUTION WORK INCLUDED:

WORK INCLUDED:

- A. FURNISH ALL LABOR AND MATERIAL, APPLIANCES, EQUIPMENT AND SUPERVISION TO PUT IN PLACE A COMPLETE AND FUNCTIONING MECHANICAL INSTALLATION READY FOR OPERATION, AS SPECIFIED HEREIN AND AS INDICATED ON THE DRAWINGS. SYSTEMS SHALL INCLUDE BUT NOT NECESSARILY LIMITED TO THE FOLLOWING MAJOR EQUIPMENT OR OPERATIONS:
1. PLUMBING.
2. HEATING, VENTILATING AND AIR CONDITIONING.
3. INSULATION.
4. TEMPERATURE CONTROLS.

DEFINITIONS:

- A. "PROVIDE": TO FURNISH AND COMPLETELY INSTALL SPECIFIED PRODUCTS AND INCIDENTALS, WHETHER SPECIFICALLY INDICATED OR NOT, NECESSARY FOR A COMPLETE, FUNCTIONAL INSTALLATION. INCLUDES ALL GENERAL AND SPECIALIZED LABOR, EQUIPMENT AND TOOLS NECESSARY TO COMPLETE THE INSTALLATION.
B. "FITTINGS": A COMPLETE SYSTEM INCLUDING PIPE, TUBING, FITTINGS, HANGERS, SUPPORTS, VALVES, AND ALL SPECIALTIES THAT COMPRISE A FULLY FUNCTIONAL PIPING SYSTEM, WHETHER SPECIFICALLY INDICATED OR NOT.

CODES, ORDINANCES, AND STANDARDS:

- A. ALL WORK SHALL CONFORM IN ALL RESPECTS TO THE REQUIREMENTS OF THE LATEST ADOPTED FEDERAL, STATE AND LOCAL CODES, ORDINANCES, AND STANDARDS HAVING JURISDICTION OVER THE WORK.
B. WHERE CONTRACT DOCUMENT REQUIREMENTS EXCEED THE REQUIREMENTS OF THE REFERENCED CODES, ORDINANCES, AND STANDARDS, THE CONTRACT DOCUMENT REQUIREMENTS SHALL BE TAKEN AS MINIMUM.
C. ALL EQUIPMENT CONTAINING ELECTRICAL WIRING AND/OR ELECTRICAL COMPONENTS SHALL HAVE A UNDERWRITERS LABORATORIES (UL) "PACKAGE" LABEL.
D. ALL GAS FIRED EQUIPMENT SHALL HAVE THE AMERICAN GAS ASSOCIATION (AGA) LABEL.

PERMITS AND INSPECTIONS:

- A. SECURE ALL NECESSARY PERMITS, CONNECTION FEES, TAD FEES, LICENSES AND APPROVALS AND ARRANGE FOR ALL INSPECTIONS, INCLUDE ALL RELATED COSTS.
B. FURNISH CERTIFICATES OF FINAL INSPECTION AND APPROVAL UPON COMPLETION OF PROJECT.

EXAMINATION OF SITE:

- A. VISIT PROJECT SITE AND BECOME FULLY COGNIZANT OF ALL EXISTING ARCHITECTURAL, MECHANICAL, ELECTRICAL, STRUCTURAL AND SITE CONDITIONS, OR EXISTING CODE VIOLATIONS WHICH MAY AFFECT THE WORK.
B. NOTIFY ARCHITECT PRIOR TO SUBMITTING BID IF REVISIONS TO CONTRACT DOCUMENTS ARE NECESSARY TO RECTIFY ANY OF THE AFOREMENTIONED EXISTING CONDITIONS.
C. NO "EXTRAS" TO CONTRACT PRICE WILL BE ALLOWED AFTER RECEIVING BID IN ORDER TO RECTIFY EXISTING CONDITIONS IN ORDER TO MEET THE DESIGN INTENT OF THE CONTRACT DOCUMENTS OR SATISFY CODE REQUIREMENTS.

COORDINATION WITH OTHER TRADES:

- A. COORDINATE ALL WORK BEFORE AND DURING CONSTRUCTION WITH ALL OTHER AFFECTED TRADES.
B. WHERE INTERFERENCES DEVELOP, NOTIFY ARCHITECT FOR RESOLUTION OF CONFLICT.
C. RELOCATION OF CONFLICTING INSTALLED WORK, DUE TO LACK OF COORDINATION, OR POOR COORDINATION WILL NOT BE CONSIDERED EXTRA WORK.

APPROVED MANUFACTURERS:

- A. USE ONLY MATERIALS SPECIFICALLY INDICATED IN CONTRACT DOCUMENTS, OR COMPARABLE MATERIALS BY OTHER LISTED ACCEPTABLE MANUFACTURERS. NOTE THAT "ACCEPTABLE MANUFACTURERS" DOES NOT CONSTITUTE AUTOMATIC APPROVAL OF SPECIFIC MATERIALS BY ONE OR ALL OF THE LISTED ACCEPTABLE MANUFACTURERS. ARCHITECT AND/OR ENGINEER OF RECORD RESERVES THE RIGHT OF FINAL DETERMINATION OF ACCEPTABILITY OF EACH ITEM.

SHOP DRAWINGS:

- A. SUBMIT COMPLETE SHOP DRAWINGS FOR ALL MATERIALS AND EQUIPMENT INTENDED FOR USE ON THIS PROJECT.
B. SHOP DRAWINGS SHALL CLEARLY INDICATE ALL PHYSICAL, PERFORMANCE AND ELECTRICAL CHARACTERISTICS FOR ALL MATERIALS AND EQUIPMENT.
C. SUBMIT ELECTRONIC COPY OF ALL SHOP DRAWINGS FOR REVIEW.
D. NO WORK IS TO BE INSTALLED PRIOR TO RETURN OF ARCHITECT REVIEWED SHOP DRAWINGS.

OPERATION AND MAINTENANCE MANUALS:

- A. UPON COMPLETION OF PROJECT, SUBMIT TWO (2) COMPLETE BOUND SETS OF OPERATING AND MAINTENANCE MANUALS FOR ALL EQUIPMENT AND SYSTEMS INSTALLED IN THIS PROJECT.
B. MANUALS SHALL INCLUDE GUARANTEES, COMPLETE OPERATING INSTRUCTIONS, REPAIR PARTS LIST, PREVENTATIVE MAINTENANCE SCHEDULE, BELT AND FILTER SCHEDULE, AND LIST OF ALL SUBCONTRACTORS ASSOCIATED WITH THE WORK, INCLUDING TELEPHONE NUMBER AND CONTACT PERSON.

OPERATING AND MAINTENANCE INSTRUCTIONS:

- A. PRIOR TO FINAL ACCEPTANCE BY OWNER, PROVIDE ALL PERSONNEL, EQUIPMENT, AND LABOR AS NECESSARY TO INSTRUCT OWNER'S PERSONNEL IN PROPER OPERATION AND MAINTENANCE OF THE SYSTEMS AND EQUIPMENT INSTALLED IN THIS PROJECT. PROVIDE INSTRUCTIONAL SESSION DURING TIME PERIOD AGREED TO WITH OWNER.

CUTTING AND PATCHING:

- A. ALL CUTTING AND PATCHING SHALL BE PROVIDED BY THE GENERAL TRADES UNDER THE DIRECTION OF THE MECHANICAL TRADES. COST WILL BE PAID BY THE MECHANICAL TRADES REQUESTING THE WORK.
B. RESTORED SURFACES SHALL BE OF SAME MATERIALS AND QUALITY AS ADJACENT SURFACES, AND SHALL MATCH SURROUNDING SURFACES, AND/OR BE RESTORED TO PRE-CONSTRUCTION CONDITION.

PROTECTION OF EXISTING SERVICES:

- A. PROTECT FROM ALL DAMAGE EXISTING SERVICES (I.E., GAS, WATER, ELECTRICAL, ETC.), ENCOUNTERED IN THE WORK, NOT SPECIFICALLY INDICATED TO BE DEMOLISHED. INCLUDE ALL RELATED COSTS.
B. REPAIR AND/OR REPLACE EXISTING ACTIVE SERVICES INTENDED TO REMAIN IN SERVICE, BUT DAMAGED DURING THE COURSE OF CONSTRUCTION. AVOID ALL RELATED COSTS. NO "EXTRAS" WILL BE PAID TO RESTORE EXISTING ACTIVE SERVICES DAMAGED DURING CONSTRUCTION.
C. ARCHITECT WILL DETERMINE COURSE OF ACTION WHEN EXISTING INACTIVE SERVICES ARE DAMAGED DURING COURSE OF CONSTRUCTION. AVOID ALL COSTS RELATIVE TO ADDITIONAL DEMOLITION, TERMINATION, RELOCATION AND/OR RESTORATION OF EXISTING, DAMAGED INACTIVE SERVICES AS DIRECTED BY ARCHITECT.

ELECTRICAL WORK:

- A. PROVIDE ALL ELECTRICAL WORK ASSOCIATED WITH, AND NECESSARY TO COMPLETE THIS PROJECT, WHICH IS NOT INCLUDED AS ELECTRICAL TRADES WORK.
B. PROVIDE ALL ELECTRICAL WORK, AS APPLICABLE, IN ACCORDANCE WITH DIVISION 16 REQUIREMENTS.
C. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION (WITH ELECTRICAL TRADES) OF CORRECT VOLTAGES FOR ALL MECHANICAL EQUIPMENT. IN CASE OF DISCREPANCY, NOTIFY ENGINEER IMMEDIATELY AND PRIOR TO SHOP DRAWING SUBMITTALS. FAILURE TO COMPLY WITH THIS REQUIREMENT HOLDS THE CONTRACTOR FULLY RESPONSIBLE FOR ANY SUBSEQUENT PROBLEMS.

CLEANING AND FINISHING:

- A. PRIOR TO FINAL ACCEPTANCE BY OWNER, THOROUGHLY CLEAN ALL WORK INSIDE AND OUT AS APPLICABLE, AND LEAVE ALL SYSTEMS AND EQUIPMENT IN PERFECT WORKING ORDER. THOROUGHLY CLEAN ALL PLUMBING FIXTURES, EXPOSED PIPING, FLOOR DRAIN GRATES, AND CLEANOUT COVERS AS APPLICABLE.

GUARANTEE:

- A. REFER TO ARCHITECTURAL SPECIFICATIONS FOR GUARANTEES, IF NONE EXIST THE FOLLOWING MINIMUM GUARANTEES SHALL BE PROVIDED.
1. PROVIDE A ONE (1) YEAR GUARANTEE COVERING ALL LABOR AND MATERIAL PROVIDED IN THIS PROJECT. GUARANTEE SHALL INCLUDE ALL SHIPPING AND TRANSPORTATION CHARGES NECESSARY TO RETURN DEFECTIVE MATERIALS TO MANUFACTURER, AS WELL AS LABOR CHARGES NECESSARY TO REMOVE AND REPLACE DEFECTIVE MATERIALS.
2. PROVIDE 5 YEAR GUARANTEE FOR ALL COMPRESSORS.
3. DEFECTIVE MATERIALS AND/OR EQUIPMENT MAY BE REPAIRED IN LIEU OF REPLACED WITH PRIOR APPROVAL OF ARCHITECT AND/OR OWNER.

PIPING:

SANITARY WASTE AND VENT PIPE AND FITTINGS:

BELOW GRADE AND/OR BELOW FLOOR SLABS WITHIN BUILDING WALLS AND EXTENDING 5'-0" OUTSIDE:
UP TO 6" DIAMETER:
PIPE: ASTM D2565 SCHEDULE 40 PVC-DWV INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.
FITTINGS: ASTM D1554 SOLVENT CEMENTED.
SOLVENT CEMENT: ASTM D2564.
INSTALLATION: IN ACCORDANCE WITH ASTM D2321.

ABOVEGROUND SANITARY WASTE AND VENT PIPING AND FITTINGS:
PIPE 4" AND UNDER: ASTM A-53, SCHEDULE 40, GALVANIZED STEEL.
PIPE OVER 4": ASTM A-53, SCHEDULE 40, GRADE A AND GRADE B, SEAMLESS OR ERW GALVANIZED STEEL.
FITTINGS: ANSI B2.1 THREADS.

PIPE AND FITTINGS: CAST IRON HUBLESS SOIL PIPE AND FITTINGS CONFORMING TO THE REQUIREMENTS OF CSPI STANDARD 310 AND LOCAL CODE REQUIREMENTS. HUBLESS COUPLING GASKETS SHALL CONFORM TO ASTM STANDARD C-564.

STORM WATER PIPE AND FITTINGS:

BELOW GRADE AND/OR BELOW FLOOR SLABS WITHIN BUILDING WALLS AND EXTENDING 5'-0" OUTSIDE:
UP TO 6" DIAMETER:
PIPE: ASTM D2565 SCHEDULE 40 PVC-DWV INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.
FITTINGS: ASTM D1554 SOLVENT CEMENTED.
SOLVENT CEMENT: ASTM D2564.
INSTALLATION: IN ACCORDANCE WITH ASTM D2321.

ABOVEGROUND STORM PIPE AND FITTINGS:

PIPE 4" AND UNDER: ASTM A-53, SCHEDULE 40, GALVANIZED STEEL.
PIPE OVER 4": ASTM A-53, SCHEDULE 40, GRADE A OR GRADE B, SEAMLESS OR ERW, GALVANIZED STEEL.
FITTINGS: ANSI B16.2 CAST IRON THREADED DRAINAGE FITTINGS.
JOINTS: ANSI B2.1 THREADS.

PIPE AND FITTINGS: CAST IRON HUBLESS SOIL PIPE AND FITTINGS CONFORMING TO THE REQUIREMENTS OF CSPI STANDARD 310 AND LOCAL CODE REQUIREMENTS. HUBLESS COUPLING GASKETS SHALL CONFORM TO ASTM STANDARD C-564.

UNDERGROUND SEWERS (SANITARY AND STORM) ON SITE EXTENDING BEYOND 5 FEET OUTSIDE OF BUILDING SHALL BE PROVIDED BY SITE UTILITIES CONTRACTOR.

DOMESTIC WATER PIPING:

ABOVEGROUND DOMESTIC HOT AND COLD WATER 2" AND SMALLER:
ASTM 888, TYPE L, SEAMLESS HARD DRAWN RIGID COPPER WATER TUBE. FITTINGS: ANSI B16.22, WROUGHT COPPER, ASTM B32-95TA SOLDER JOINT.

DOMESTIC HOT AND COLD WATER VALVES:

BALL VALVES:
PIPE 1/4" TO 1" PIPE SIZE: APOLLO 770-140-01 FULL PORT, TWO PIECE WITH SCREWED ENDS, BRONZE BODY AND END PIECE, STAINLESS STEEL BALL, TEFLON SEAT RINGS, STAINLESS STEEL STEM, REINFORCED TEFLON PACKING WITH BRASS PACKING GLAND, ZINC PLATED STEEL HANDLE WITH PLASTIC GRIP SECURED BY ZINC PLATED STEEL HANDLE NUT, 150 PSI STEM, 600 PSI WOG WORKING PRESSURE.
BALL VALVES: 1-1/4" TO 2" PIPE SIZE: PLASTIC FULL PORT WITH SCREWED ENDS, BRONZE BODY, STAINLESS STEEL BALL, TEFLON DOUBLE SEAL SEATS AND THRUST WASHER, BRASS PACKING GLAND, REINFORCED TAYLON PACKING, STAINLESS STEEL STEM, PLASTIC COATED ZINC PLATED STEEL HANDLE AND ZINC PLATED STEEL HANDLE NUT, 150 PSI SATURATES STEAM, 800 PSI WOG.

CHECK VALVES:

INDUSTRIAL SERVICE, 150 LB., SWP 300 LB., WOG COMPOSITION DISC, THREADED ENDS. MILWAUKEE NO. 510.

NATURAL GAS PIPING:

ABOVE GRADE:
PIPE 4" AND UNDER: ASTM A-120, SCHEDULE 40, BLACK STEEL.
PIPE OVER 4": ASTM A-53, GRADE A OR GRADE B, SEAMLESS OR ERW, SCHEDULE 40, BLACK STEEL.
FITTINGS: ANSI B16.3, 150 POUND, MALLEABLE IRON, SCREWED; ANSI B16.8 STEEL BUTTWELD.
JOINTS: 2" AND SMALLER, ANSI B2.1 THREADS; 2-1/2" AND LARGER, ANSI B16.25 BUTTWELD.

BELOW GRADE:

STANDARD WEIGHT SEAMLESS STEEL PIPING ASTM A53 GRADE B WITH WELDED FITTINGS ALL COATED AND WRAPPED IN ACCORDANCE WITH LOCAL UTILITY COMPANY AND AGA REQUIREMENTS.

NATURAL GAS SYSTEM VALVES:

PIPELINE AND SERVICE VALVES SHALL BE RESIN, MANUFACTURED BY J.M. HUBER CORPORATION. EACH VALVE SHALL BE U.L. APPROVED AND BEAR THE PROPER U.L. STAMP.

FOR PIPING 2" AND SMALLER MILWAUKEE VALVE CO., INC., MODEL #BB-1-100 "BUTTERBALL" OR APPROVED EQUAL AGA CERTIFIED AND U.L. LISTED QUARTER-TURN BUTTERFLY VALVE, BRONZE BODY, THREADED ENDS, STAINLESS STEEL STEM AND DISC, VITON SEAL WITH POSITIVE SHUT-OFF AND RATED FOR 175 LB. WORKING.

EACH VALVE SHALL BE PROVIDED WITH A WRENCH OPERATOR.

COMPRESSED AIR SYSTEM:

COMPRESSED AIR PIPING SHALL BE TESTED AT 200 PSIG AIR PRESSURE FOR SYSTEMS UP TO 125 PSIG OPERATING PRESSURE AND 300 PSIG FOR SYSTEMS UP TO 175 PSIG OPERATING PRESSURE. THE TEST PRESSURE SHALL BE HELD FOR A MINIMUM OF ONE (1) HOUR. THE PIPING SYSTEM SHALL BE CONSIDERED TIGHT IF THE DROP IN PRESSURE DOES NOT EXCEED 1% OF THE TEST PRESSURE DURING THE TEST PERIOD. IF THE TEST PRESSURE DROP IS EXCEEDED, THIS CONTRACTOR SHALL MAKE ALL REPAIRS AND ALTERATIONS IN THE PIPING SYSTEM NECESSARY TO MEET THE TEST.
BLACK STEEL: SIZES: 2" AND SMALLER. UNION: 250 POUND SCREWED BLACK MALLEABLE IRON, GROUND JOINT, BRASS TO IRON SEAL.

CLEANOUT:

PROVIDE CLEANOUTS AS REQUIRED BY LOCAL CODES. THE FINISH OF COVER PLATES, TOP AND TOP FRAME ACCESS COVERS SHALL BE NICKEL BRONZE, UNLESS OTHERWISE SPECIFIED.

PIPING INSTALLATION:

INSTALL ALL PIPING PARALLEL OR PERPENDICULAR TO BUILDING WALL AND COLUMNS IN LOCATIONS TO AVOID INTERFERENCE WITH DUCTWORK, STRUCTURE, OTHER PIPING, LIGHTING AND ELECTRICAL EQUIPMENT OR OTHER EQUIPMENT.

DO NOT LOCATE PIPING ABOVE OR WITHIN 3 FEET HORIZONTALLY OF ELECTRICAL PANELS OR EQUIPMENT.

FOR PIPING PASSING THROUGH WALLS, PACK VOID BETWEEN PIPE AND STRUCTURE WITH APPROVED, NON-COMBUSTIBLE MATERIAL.

DO NOT ALLOW CONTACT BETWEEN PIPING AND MASONRY OF CONCRETE SURFACES.

PROVIDE ALL THE NECESSARY HANGERS, RODS, SUPPORTS, CHANNELS, ANGLES, STRUCTURAL MEMBERS AND CONCRETE INSERTS TO PROPERLY SECURE PIPING AND RELATED EQUIPMENT. ALL SUPPORTS AND PARTS SHALL CONFORM TO THE LATEST REQUIREMENTS OF ANSI CODE FOR PRESSURE PIPING B31.1, AND MSS STANDARD PRACTICE SP-58.

PROTECT ALL INSULATED PIPE LINES AGAINST INSULATION DAMAGE AT ALL HANGERS BY THE USE OF 1 FOOT LONG, 12 GAUGE STEEL SEMI-CIRCULAR SHIELDS FOR PIPE SIZES WITH 12" OD AND LESS (INCLUDING INSULATION) AND 2 FOOT LONG, 1/2" STEEL SEMI-CIRCULAR SHIELDS FOR PIPE SIZES OVER 12" OD (INCLUDING INSULATION). SECURELY CEMENT ALL SHIELDS TO THE INSULATION. PROVIDE RIGID PIPE INSULATION AT EACH HANGER.

PIPING INSULATION:

ALL ADHESIVES, SEALERS AND COATINGS SHALL BE INCOMBUSTIBLE. INSULATION SHALL BE APPLIED BY EXPERIENCED PIPE COVERERS AS PER BEST TRADE PRACTICE. WHERE EXISTING INSULATED PIPING AND SURFACES ARE EXPOSED DUE TO RENOVATIONS, RE-INSULATE EXPOSED SURFACES TO MATCH THE EXISTING INSULATION. APPLY INSULATION TO PIPE LINES AND EQUIPMENT UPON AFTER TESTING AND INSPECTION, AND ALL SURFACES HAVE BEEN THOROUGHLY CLEANED.

DOMESTIC HOT AND COLD WATER PIPING SHALL BE INSULATED WITH 1" THICK FIBERGLASS INSULATION. PIPING INSULATION AND COVERING SHALL HAVE FLAME SPREAD RATING OF 25 AND SMOKE DEVELOPED RATING OF 50 AND SHALL BE SIMILAR TO OWENS-CORNING NO. 25ASJ/SSL-11.

INDOOR REFRIGERANT PIPING SHALL BE INSULATED WITH 1" THICK FIBERGLASS INSULATION. PIPING INSULATION AND COVERING SHALL HAVE FLAME SPREAD RATING OF 25 AND SMOKE DEVELOPED RATING OF 50 AND SHALL BE SIMILAR TO OWENS-CORNING NO. 25ASJ/SSL-11.

OUTDOOR REFRIGERANT PIPING:

1/2" ABOVE/BE 1/2" FOR OUTDOOR TEMPERATURE -20 DEGREES TO 120 DEGREES F, WITH RESISTANT AEROTURBINE FINISH. SEAL WITH J-41 57 ADHESIVE. PROVIDE TRAPS AT CONNECTIONS TO COOLING COIL DRIP PANS HAVING A SEAL EQUAL TO OR GREATER THAN THE OPERATING STATIC PRESSURE OF THE EQUIPMENT SERVED AT THE POINT OF CONNECTION.

ALL HORIZONTAL RAIN CONDUCTORS AND STORM DRAINAGE PIPING UP TO VERTICAL STACKS SHALL BE INSULATED. INSULATION SHALL BE OWENS-CORNING FIBERGLAS ASJ-SSL-11 "ONE PIECE" PIPE INSULATION WITH FACTORY APPLIED JACKET WITH SELF-SEALING LAP. INSULATION THICKNESS SHALL BE 1".

PIPE IDENTIFICATION:

IDENTIFY ALL NEW PIPING INSTALLED IN THIS PROJECT IN ACCORDANCE WITH ANSI A13.1 1981, OSHA, AND OWNER'S STANDARDS.

REFRIGERATION SYSTEMS:

THE REFRIGERATION SYSTEMS SHALL BE INSTALLED AND TESTED IN ACCORDANCE WITH ALL REQUIREMENTS OF ANSI B31.5 "REFRIGERATION PIPING", ANSI B9.1 "SAFETY CODE FOR MECHANICAL REFRIGERATION" AND ALL APPLICABLE LOCAL CODES. THE INSTALLED SHALL BE A PIPE WITH AT LEAST FIVE (5) YEARS OF SUCCESSFUL INSTALLATION EXPERIENCE. OF PRODUCTS WITH REFRIGERANT PIPING SIMILAR TO THAT REQUIRED FOR THIS PROJECT. ALL MATERIALS USED IN THE CONSTRUCTION OF THE REFRIGERATION SYSTEM SHALL BE SUITABLE FOR THE TYPE OF REFRIGERANT USED AND BE ABSOLUTELY CLEAN AND DRY PRIOR TO USE. THE REFRIGERATION SYSTEMS SHALL BE COMPLETELY TESTED, DEHYDRATED AND CHARGED; DURING FABRICATION, PIPE AND FITTINGS SHALL BE KEPT FULL OF AN INERT GAS SUCH AS NITROGEN OR CARBON DIOXIDE TO PREVENT SCALE FORMATION. PIPE ALL DISCHARGE FROM REFRIGERANT RELIEF DEVICES TO ATMOSPHERE.

PIPING AND FITTINGS:

REFRIGERANT PIPING SHALL BE ASTM 888 TYPE L, HARD TEMPER COPPER TUBE WITH ANSI B16.22 WROUGHT COPPER FITTINGS AND HIGH TEMPERATURE "SILFOSS" SOLDERED JOINTS.

FLEXIBLE PIPE CONNECTIONS:

VALVES:
STOP VALVES SHALL BE MUELLER BRASS CO., "GLOBEMASTER" PACKED TYPE BACKS EATING GLOBE VALVES WITH WINGED TYPE SEALED CAP, BRONZE BODY AND SOLDERED ENDS. STEM PACKING SHALL BE CAPABLE OF REPLACEMENT UNDER PRESSURE. PROVIDE HEAT STABILIZED NYLON SEAT DISCS FOR LIQUID LINES AND LEAD ALLOY SEAT DISCS FOR HOT GAS LINES. ALL VALVES SHALL BE LINE SIZE. TESTING:
PRIOR TO INITIAL OPERATION, CLEAN AND TEST REFRIGERANT PIPING IN ACCORDANCE WITH ANSI B31.5. "REFRIGERATION PIPING"- TESTS SHALL BE REPEATED AFTER ANY DEFECTS HAVE BEEN MADE GOOD OR THE WORK REPLACED. IF, IN THE JUDGMENT OF THE ARCHITECT, IT IS DEEMED NECESSARY, ALL REPAIRS TO PIPING SYSTEMS SHALL BE MADE WITH NEW MATERIAL, NO CALLING ON SCREWED JOINTS. CRACKS OR HOLES WILL BE ACCEPTABLE. ARRANGE AND PAY FOR THE COST OF REFRIGERANT, HANGERS AND UTILITIES USED ON ANY TEST, AFTER SUCCESSFULLY COMPLETING TESTS EXHAUST, DEHYDRATE AND CHARGE THE SYSTEMS WITH REFRIGERANT. ALL REFRIGERANT PIPING SHALL BE SUPPORTED ON UNSTRUCTURED CHANNEL SUPPORTS WITH PIPE CLAMPS AND UNSTRUCTURED 25600 UN-CURVED FLEXIBLE ELASTOMER OR OTHER APPROVED RESILIENT BUSHING TO ISOLATE THE PIPE FROM THE PIPE CLAMPS. UNDER NO CIRCUMSTANCES SHALL ANY REFRIGERANT PIPING TOUCH CEILINGS, WALLS, ETC., WITHOUT A RESILIENT ISOLATOR.

PIPING INSTALLATION:

PROVIDE ALL THE NECESSARY HANGERS, RODS, SUPPORTS, CHANNELS, ANGLES, STRUCTURAL MEMBERS AND CONCRETE INSERTS TO PROPERLY SECURE PIPING AND RELATED EQUIPMENT. ALL SUPPORTS AND PARTS SHALL CONFORM TO THE LATEST REQUIREMENTS OF ANSI CODE FOR PRESSURE PIPING B31.1, AND MSS STANDARD PRACTICE SP-58.

DUCT SMOKE DETECTORS:

SMOKE DETECTORS SHALL BE PROVIDED BY CONTROL TRADES. IF THERE IS NO CONTROL TRADES, THIS CONTRACTOR SHALL PROVIDE DETECTORS. FOR AIR HANDLING UNITS SUPPLYING MORE THAN 2000 CFM, DUCT SMOKE DETECTORS SHALL BE PROVIDED IN RETURN AIR STREAM. FOR AIR HANDLING UNITS SUPPLYING MORE THAN 15,000 CFM, DUCT SMOKE DETECTORS SHALL BE PROVIDED IN RETURN AIR AND SUPPLY AIR STREAM. DUCT SMOKE DETECTORS FOR AIR HANDLING UNITS SHALL BE 24VDC PHOTOELECTRIC TYPE WITH 2 AUXILIARY CONTACTS, ONE FOR FAN SHUTDOWN AND ONE FOR ANNUNCIATION. DETECTORS SHALL BE COMPLETE WITH SAMPLING TUBES, IN OCCUPANCIES NOT REQUIRED TO BE EQUIPPED WITH A FIRE ALARM SYSTEM, ACTUATION OF A SMOKE DETECTOR SHALL ACTIVATE A VISIBLE AND AN AUDIBLE SIGNAL IN AN APPROVED LOCATION. SMOKE DETECTOR TROUBLE CONDITIONS SHALL ACTIVATE A VISIBLE OR AUDIBLE SIGNAL IN AN APPROVED LOCATION AND SHALL BE IDENTIFIED AS AIR DUCT DETECTOR TROUBLE.

FIRE DAMPERS:

ALL DUCTS, EXCEPT COMBUSTION AIR DUCTS, PASSING THROUGH A REQUIRED FIRE RATED AREA SEPARATION SHALL BE EQUIPPED WITH AN APPROVED MULTI-BLADE OR CURTAIN TYPE FIRE DAMPER COMPLYING WITH THE REQUIREMENTS OF THE LOCAL APPLICABLE BUILDING CODE, FIRE MARSHAL AND ANY OTHER LOCAL AUTHORITY HAVING JURISDICTION. CURTAIN TYPE FIRE DAMPERS SHALL BE AIR BALANCE, INC., NO. 119 UL LISTED WITH TYPE "B" FRAMES.

SHEET METAL NOTES:

INSTALL TRANSFER GRILLES IN ALL FULL HEIGHT PARTITIONS TO ALLOW RETURN AIR FLOW. SIZE PER MECHANICAL ENGINEER REQUIREMENTS. THESE SHALL BE FIRE DAMPERS IN RATED WALLS.

BLANK-OFF RETURN DUCTWORK IN AREAS OF WORK THAT CREATES DUST TO PREVENT DEBRIS FROM ENTERING MECHANICAL SYSTEM.

MEDIUM PRESSURE DUCTWORK:
DUCTWORK ON INLET OF V.A.V. BOXES SHALL BE CONSTRUCTED AND SEALED IN ACCORDANCE WITH THE REQUIREMENTS OF THE LATEST SMACNA'S ISSUE OF "HIGH PRESSURE DUCT CONSTRUCTION STANDARDS".

LOW PRESSURE DUCTWORK:
ALL DUCTWORK ON DISCHARGE OF V.A.V. BOXES, ALL RETURN AIR DUCTWORK AND EXHAUST AIR DUCTWORK SHALL BE CONSTRUCTED AND SUPPORTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE LATEST SMACNA'S ISSUE OF "LOW PRESSURE DUCT CONSTRUCTION STANDARDS".

IN ADDITION, ALL JOINTS AND SEAMS SHALL BE SEALED WITH DUCT SEALANT EQUAL TO FOSTER B32-14. APPROVED SEALANT MANUFACTURERS: 3M COMPANY, BENJAMIN FOSTER COMPANY, UNITED SHEET METAL, FLINTKOTE.

ALL ROUND TAKE-OFFS DOWNSTREAM OF TERMINAL UNITS SHALL BE MADE WITH CONICAL TAKE-OFF SPRING IN FITTINGS TYPE SM-20G, WITH FACTORY INSTALLED ADJUSTABLE DAMPER AS MANUFACTURED BY GENERAL ENVIRONMENT CORPORATION, GLENDALE, CALIFORNIA OR EQUAL.

FLEXIBLE CONNECTIONS:
AT EACH POINT OF CONNECTION OF DUCTWORK TO FANS, PROVIDE A FLEXIBLE CONNECTION, VENTFABRICS, INC., "VENTGLAS L.A." NOT LESS THAN 12" IN LENGTH AND MADE OF HEAVY GRADE FIBRE FABRIC DOUBLE COATED WITH NEOPRENE AND PROVIDED WITH A SUITABLE FRAME AT EACH END ARRANGED FOR BOLTING TO INLET AND OUTLET OF FAN AND DUCTWORK, RESPECTIVELY.

FOR RANGE HOOD EXHAUST FANS, WHERE INDICATED, PROVIDE VENTFABRICS, INC., "VENTBESTOS" FLEXIBLE CONNECTIONS. ALL AS APPROVED BY THE FIRE MARSHAL, AND ANY OTHER LOCAL AUTHORITY HAVING JURISDICTION.

VANES AND DEFLECTORS:

ALL ELBOWS AND TURNS SHALL BE MADE WITH A RADIUS NOT LESS THAN 1-1/2" TIMES THE DUCT DIAMETER OR WIDTH. WHERE BUILDING CONSTRUCTION DOES NOT PERMIT A LONG RADIUS, ELBOW OR TURN OR IF SHOWN ON THE CONTRACT DOCUMENTS, ACoustICAL TURNING VANES AND DEFLECTORS SHALL BE

FLEXIBLE DUCTWORK:

ALL LOW PRESSURE AND HIGH PRESSURE FLEXIBLE DUCT SHALL BE FLEXMASTER USA, INC., TYPE #BM INSULATED FLEXIBLE DUCT CONSISTING OF A FACTORY FABRICATED ASSEMBLY OF A TRIANGULATE ALUMINUM FOL, FIBERGLASS AND POLYESTER. THE FLEXIBLE DUCT SHALL BE UL LISTED 181 CLASS 1 AIR DUCT AND COMPLY WITH NFPA 90A AND 90B AND HAVE A FLAME SPREAD OF NOT OVER 25 AND A SMOKE DEVELOPED OF NOT OVER 50. THE FLEXIBLE DUCT SHALL HAVE A MINIMUM PRESSURE RATING OF 12" WC THROUGH TEMPERATURE RANGE OF -20 DEGREES F. TO + 250 DEGREES F.

DUCT INSULATION:

DUCTWORK SHALL BE THERMALLY INSULATED:
MAIN SUPPLY (MEDIUM PRESSURE) SHALL BE INSULATED.
RETURN AIR DUCT UP TO 15' FROM THE UNIT SHALL BE ACoustICAL LINING.
OUTSIDE AIR INTAKE DUCTS SHALL BE WRAP.
ALL DUCT INSULATION SHALL HAVE A FLAME SPREAD CLASSIFICATION OF 25 OR LESS, A FUEL CONTRIBUTED RATING OF 35 OR LESS AND SMOKE DEVELOPED RATING OF 50 OR LESS, AS RATED BY UNDERWRITERS' LABORATORIES.

BLANKET TYPE (UP TO 1-1/2 LB./CU. FT. INSULATION):
INSULATION WITH ATTACHED FACING SHALL BE SECURED TO THE DUCTS WITH ADHESIVE APPLIED IN 4" BRUSH WIDTHS EVERY 12". THE ADHESIVE SHALL BE RIDGED SLIGHTLY BY USING A SERRATED TROWEL. INSULATION WITHOUT ATTACHED FACING (PLAIN) SHALL BE SECURED TO THE DUCTS THE SAME AS ABOVE THEN BIND WITH TYING CORE, SPIRAL WRAPPED OR HALF HITCHED.

DUCT FITTINGS SHALL BE INSULATED BY WRAPPING WITH A GLASS FIBER BLANKET. BLANKETS SHALL BE SECURED TO THE DUCT FITTINGS BY INSULATION STAPLES OR JUTE TWINE. THE BLANKET SHALL BE COVERED WITH AN OPEN MESH CLOTH OR GLASS FIBER HEAVILY COATED WITH VAPOR BARRIER ADHESIVE. THE INSULATION THICKNESS SHALL BE EQUAL TO THE THICKNESS OF THE INSULATION ON THE ADJOINING DUCTWORK.

ACoustICAL LINING:
ACoustICAL INSULATION SHALL BE JOHNS-MANVILLE OR EQUAL "INACoustIC" WITH A 70 NRC, 1-1/2"/CU.FT., MINIMUM DENSITY, 1" THICK UNLESS OTHERWISE NOTED. INSULATION SHALL BE SUITABLE FOR VELOCITIES OF 5,000 FPM, ABSOLUTE ROUGHNESS FACTOR SHALL NOT EXCEED .0008 FEET. SCOPE: DUCTWORK AND EQUIPMENT LISTED BELOW AND/OR NOTED ON THE CONTRACT DOCUMENTS SHALL BE ACoustICALLY LINED.

RECTANGULAR SUPPLY DUCTWORK FROM ALL TERMINAL BOXES TO GRILLES, REGISTERS AND DIFFUSERS. ROUND DUCTWORK ON DISCHARGE ON TERMINAL BOXES SHALL BE INSULATED EXTERNALLY UNLESS OTHERWISE NOTED.

TESTING AND BALANCING:

TEST AND ADJUST ALL NEW PIPING SYSTEMS INSTALLED IN THIS PROJECT. PROVIDE ALL TESTING INSTRUMENTS, GAUGES, PUMPS AND OTHER EQUIPMENT REQUIRED OR NECESSARY FOR TEST. REPAIR ALL DEFECTS DISCLOSED BY TESTS WITHOUT ADDITIONAL COST TO THE OWNER. REPEAT TESTS AFTER ANY DEFECTS DISCLOSED ARE REPAIRED OR REPLACED, UNLESS WAIVED BY ARCHITECT. ARRANGE AND PAY THE COST OF ALL UTILITIES USED ON TESTS. COMPLETE ALL TESTS BEFORE COVERING IS APPLIED. ISOLATE ALL PIPING SYSTEM COMPONENTS NOT CONSTRUCTED TO WITHSTAND TEST PRESSURES.

WATER SYSTEMS TEST:

TEST AT 150 PSIG FOR EIGHT (8) HOURS WITH ZERO LOSS IN PRESSURE. CHECK JOINTS AND FITTINGS FOR LEAKS WITH LIQUID SOAP SOLUTION.

DRAINAGE SYSTEM:

THE DRAINAGE SYSTEM SHALL BE TESTED IN ACCORDANCE WITH ALL LOCAL CODES AND REGULATIONS AND IN THE PRESENCE OF THE PROPER INSPECTOR. AIR TEST SHALL BE 5 PSIG AND SHALL REMAIN IN OPERATION FOR A PERIOD OF 15 MINUTES.

NATURAL GAS SYSTEM:

ALL GAS PIPING SHALL BE TESTED IN ACCORDANCE WITH RULES AND REGULATIONS OF THE COMPANY OR UTILITY SERVING THE PROJECT, AND IN ANY CASE SHALL NOT BE LESS THAN THE FOLLOWING:
THE PIPING SYSTEM OR PORTIONS OF THE PIPING SYSTEM TO BE TESTED SHALL BE SUBJECTED TO AN AIR PRESSURE, USING OIL-FREE COMPRESSOR AIR, OF NOT LESS THAN 100 POUNDS PER SQUARE INCH, EQUAL 2 1/4" OF MERCURY. THE PRESSURE SHALL BE APPLIED WITH A FORCE PUMP AND SHALL BE MAINTAINED FOR NOT LESS THAN 30 MINUTES WITHOUT LEAKAGE. A MERCURY COLUMN GAUGE SHALL BE USED IN MAKING THE TESTS. TESTS SHALL BE SCHEDULED WITH LOCAL AUTHORITY FOR PRESENCE OF PROPER INSPECTOR. THE CONTRACTOR INSTALLING THESE PIPING SYSTEMS SHALL BE HELD RESPONSIBLE FOR THE TEST AND SHALL CERTIFY THE APPLICATION AND SHALL CERTIFY THE APPLICATION AND SUCCESS OF THE TEST.
NATURAL GAS LINES SHALL BE BLOWN OUT WITH DRY, OIL-FREE COMPRESSED

AIR BALANCING:

BALANCE ALL OUTLETS AND TERMINAL BOXES TO WITHIN 10% OF RATED C.F.M. IN ACCORDANCE WITH AABC AND NEBB, SUBMIT BALANCING REPORT.

TEMPERATURE CONTROLS:

ROOFTOP AIR CONDITIONING UNITS:

WIRE PROGRAMMABLE THERMOSTAT FURNISHED BY UNIT MANUFACTURER. ADDITIONALLY, THE UNITS WILL BE SCHEDULED FOR OCCUPIED/UNOCCUPIED CYCLE.
DURING OCCUPIED CYCLE, SUPPLY FAN SHALL RUN CONTINUOUSLY, OUTSIDE AIR DAMPER OPEN TO MINIMUM POSITION AND RETURN AIR DAMPER SHALL BE FULLY OPENED.
UNOCCUPIED CYCLE (WINTER) SPACE STAT SHALL CYCLE SUPPLY FAN, AND GAS FIRED HEATING SECTION TO MAINTAIN HEATING SETBACK TEMPERATURES. THE OUTSIDE AIR DAMPER AND RELIEF AIR DAMPER AND RELIEF AIR DAMPER SHALL BE FULLY CLOSED, THE RETURN AIR DAMPER SHALL BE FULLY OPEN.
UNOCCUPIED CYCLE (SUMMER), UNIT SHALL BE DEACTIVATED, OUTSIDE AIR DAMPER AND RELIEF AIR DAMPER FULLY CLOSED. SMOKE DETECTOR DEACTIVATES FAN WHENEVER PRODUCTS OF COMBUSTION ARE SENSED.
UNITS ARE PROVIDED WITH FACTOR PACKAGED ECONOMIZER CYCLE.

Client

LAHC - Leaders Advancing and Helping Communities



Architect

Framework E Architects Leaders Community Builders



Framework E, LLC 155 W Congress Street, Suite 602, Detroit, MI 48226 info@framework-e.com (313) 494-1914

Consultant



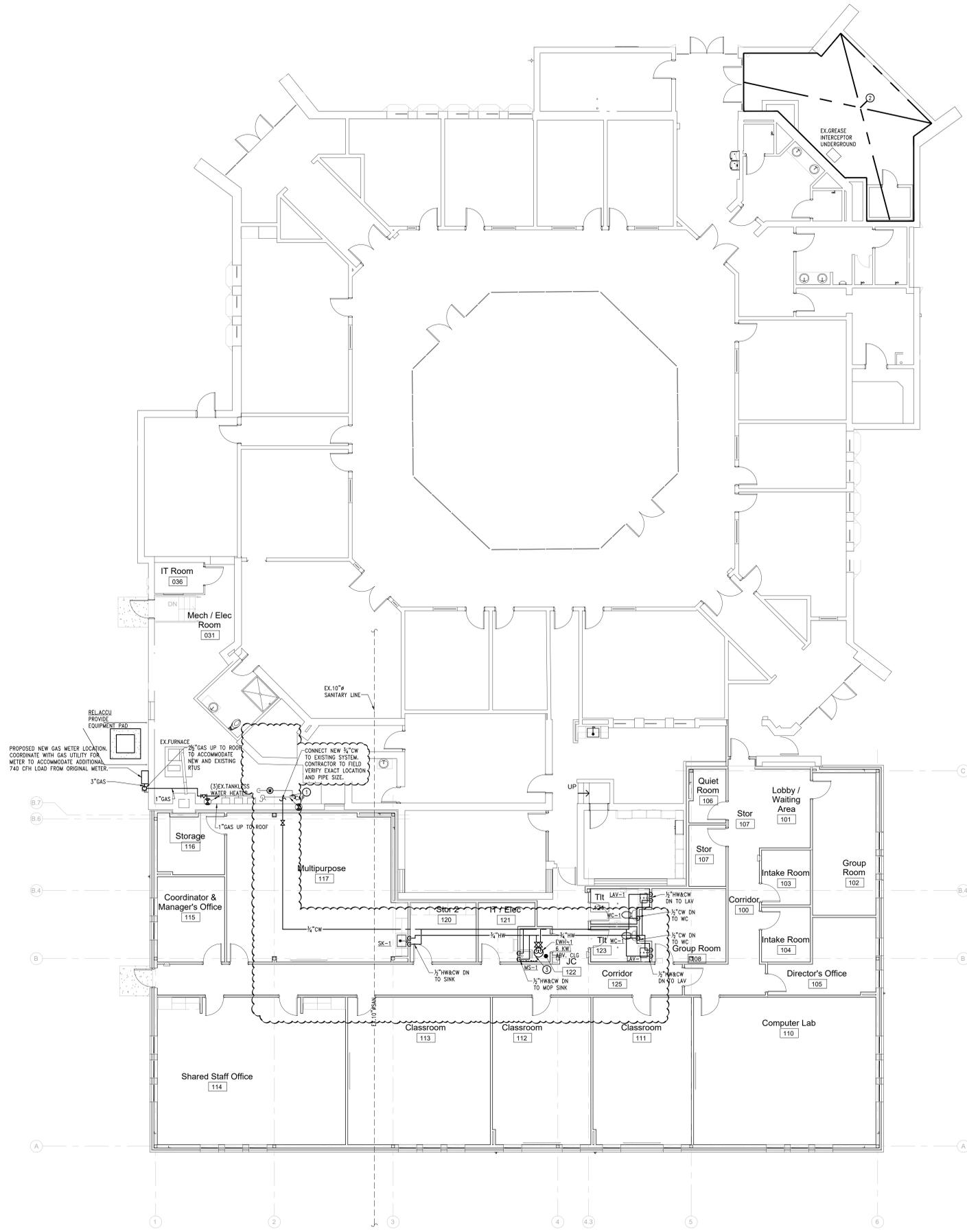
LAHC Workforce Education Resource and Development Center

5275 Kenilworth St Dearborn, MI 48126

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NEW WORK KEY NOTES:

- PROVIDE ONE BACKFLOW PREVENTER AT LOCATION INDICATED ON PLAN. DOWNSTREAM OF THE EXISTING WATER METER. WATER LINES ARE SHOWN OFFSET FOR CLARITY.
- AREA IS OUT OF PROJECT WORK SCOPE. ROUTE WATER HEATER CONDENSATE DRAIN TO WOP SINK BELOW. PROVIDE ACCESS PANEL FOR WATER HEATER.

GENERAL NOTES:

A. COORDINATE ALL WORK WITH OTHER TRADES.

1 DOMESTIC PLUMBING NEW WORK FIRST FLOOR PLAN
SCALE: 1/8" = 1'-0"

Client

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Architect

Framework E
Architects Leaders Community Builders™



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MAENGINEERING
MECHANICAL ELECTRICAL
140 High Oak Road 111248 | 248 | 1
Bloomfield Hills, Michigan 48304
48304
Project Title 111248 | 248 | 1

LAHC Workforce Education Resource and Development Center

5275 Kenilworth St
Dearborn, MI 48126

Seal



TAG	ISSUED	DATE
	Schematic Design Development	02-28-25
	50% CD	04-10-25
	85% CD	05-08-25
	90% Construction Documents	05-29-25
	Permit Review	06-13-25
	Addendum #1	06-27-25
	Issued For Construction	08-01-25

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Framework E PROJ NO: 2024007

DOMESTIC PLUMBING NEW WORK FIRST FLOOR PLAN

DRAWING NO: **P-111**

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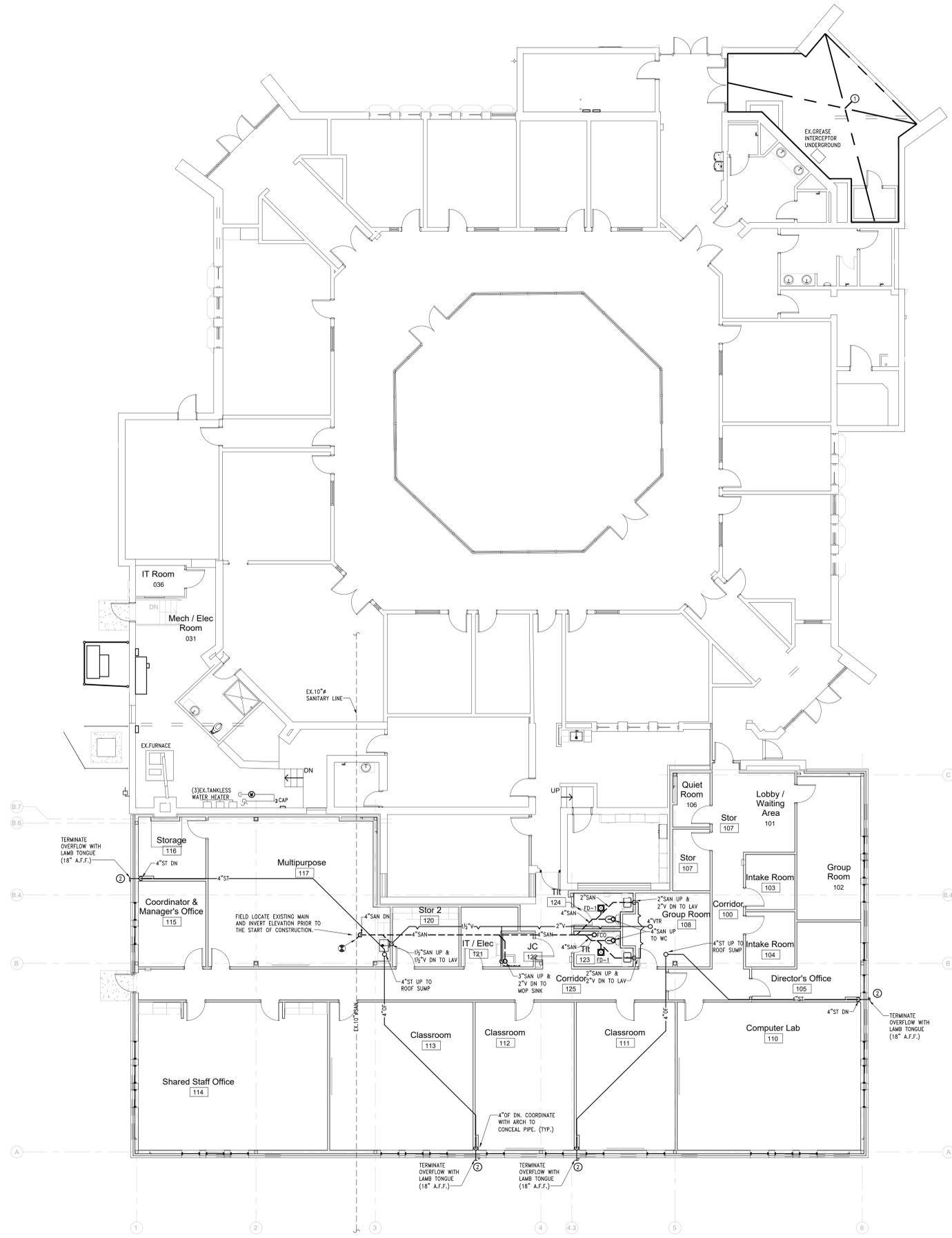
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NORTH
 1
 SANITARY AND VENT NEW WORK FIRST FLOOR PLAN
 SCALE: 1/8" = 1'-0"

- NEW WORK KEY NOTES:**
- ① AREA IS OUT OF PROJECT WORK SCOPE.
 - ② PROVIDE CONCRETE SPLASH BLOCK BELOW LAMB TONGUE TERMINATION FOR STORM SPILLING ON GRADE. COORDINATE WITH ARCHITECT.
- GENERAL NOTES:**
- A. COORDINATE ALL WORK WITH OTHER TRADES.
 - B. CONTRACTOR TO FIELD VERIFY EXISTING SANITARY LOCATION, SIZE, AND INVERT ELEVATION PRIOR TO THE START OF ANY CONSTRUCTION.

Client

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Architect

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 Architects Leaders Community Builders™



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TAG	ISSUED	DATE
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 CLIENT PROJ NO:

Framework E PROJ NO: 2024007

SANITARY AND VENT NEW WORK FIRST FLOOR PLAN

DRAWING NO:
P-211
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Location: _____

MIFAB R1200-SO LARGE SUMP DUAL OUTLET ROOF DRAIN

Specification: MIFAB Series R1200-SO Incoated fabricated deep sump roof drain with No Hub side and bottom outlet, 1 1/2" diameter anchor flange, large cast iron waterproofing membrane clamp ring with integral gravel stop, and standard selflocking low profile aluminum dome strainer.

Function: Used in any type of flat roofs. Large free area dome provides for efficient drainage of rainwater and prevents debris from entering the drain line. Extra wide anchor flange and membrane clamp with tongue in groove design provides for secure grip of membrane and roof flashing materials.

MODEL NO.	WT. (LBS.)	"A" PIPE SIZE (NO. FLGS)	"B" PIPE SIZE
R1200-SO-45	60.00	2"	5 9/16"
R1204-SO-45	60.00	4"	5 9/16"
R1208-SO-45	60.00	6"	5"
R1208-SO-45	75.00	8"	5"

SUFFIX OPTIONAL VARIATIONS

- 6 Vandal proof dome
- 11 Acid resistant epoxy coating
- 12 Galvanized metal dome
- 12A Galvanized body and membrane clamp
- 12B Galvanized metal dome and membrane clamp
- 13 Galvanized body, membrane clamp and dome
- 45 45 Degree sewer line connection outlet
- 81 Rough bronze dome
- 83 Stainless steel mesh screen over metal dome
- 8 Sump receiver
- 8A Minimum 51% material cost made in the USA
- DU Fabricated, powder epoxy coated steel dome on overflow pipe 3", 4"

SUFFIX OPTIONAL VARIATIONS

- DU6 Fabricated, powder epoxy coated steel dome on overflow pipe 6"
- G Stainless steel ballast guard
- M Metal dome
- MS Stainless steel mesh screen on overflow pipe
- OP 2" High overflow pipe
- SS Secondary Strainer (Overflow)
- J Underdeck clamp
- JV Fixed Static Extension 2", 3", 4"
- VG Galvanized fixed extension (2", 3", 4")
- W-1 Water proofing flange

CALIFORNIA PROPOSITION 65 WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

Job Name: _____ Page No: _____
 Section No: _____ Contractor: _____
 Schedule No: _____ Purchase Order No: _____

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PLUMBING CONNECTION SCHEDULE											
ITEM #	DESCRIPTION	MANUFACTURER & MODEL NO.	WASTE	TRAP	VENT	COLD WATER	HOT WATER	FURNISHED BY	INSTALLED BY	FINAL CONNECTION	NOTES/ACCESSORIES
WC-1	WATER CLOSET, FLOOR MOUNT, ELONGATED, WHITE, COLOR, TANK TYPE, BARRIER FREE	AMERICAN STANDARD "CHAMPION" 7314A0015	3"	INTEGRAL	2"	1/2"	--	PLUMBING CONTRACTOR	PLUMBING CONTRACTOR	PLUMBING CONTRACTOR	SEAT: BEMIS 1655 SSCOT WITH STATITE COMMERCIAL FASTENING SYSTEM, WHITE MOLDED OPEN FRONT.
LAV-1	UNDERMOUNT LAVATORY (PHYSICALLY HANDICAPPED, FRONT OVERFLOW, WHITE, VITREOUS, BACK SPLASH, RECTANGULAR BASIN)	KOHLER "CAXTON" RECTANGLE K-20000	1-1/2"	1-1/2"	1-1/2"	1/2"	1/2"	PLUMBING CONTRACTOR	PLUMBING CONTRACTOR	PLUMBING CONTRACTOR	SUPPLIES: 1/2" x 3/8", ANGLE SUPPLIES WITH WHEEL STOPS, FLEXIBLE RISERS AND CP ESCUTCHEON PLATES. TRAP: CP 1-1/2" BENT TUBE, ADJUSTABLE "P" TRAP WITH CLEANOUT, CP TUBING TO WALL AND CP ESCUTCHEON PLATE. FAUCET: COUNTER MOUNT, VANDAL RESISTANT, DELTA MODEL 15847L-SP-R "ELDREN" SINGLE HANDLE, BRASS CONSTRUCTION, CERAMIC CARTRIDGE, 4" CENTERSET - GRID DRAIN, (ERATOR .05 GPM AND 1-1/4" CP TAILPIECE. ALL EXPOSED SURFACES HEAVILY CHROME PLATED. PROVIDE MIXING VALVE SPEARMAN TMV. SEE DETAIL ON DRAWINGS. ALSO, INSULATE EXPOSED DRAIN LINES AND HOT AND COLD WATER SUPPLY LINES BELOW PHYSICALLY HANDICAPPED LAVATORIES PER PHYSICALLY HANDICAPPED CODE REQUIREMENTS. VERIFY LOCATION OF PHYSICALLY HANDICAPPED LAVATORIES WITH ARCHITECTURAL TRADES.
MS-1	FLOOR MOUNTED SERVICE SINK ONE-PIECE MOLDED STONE UNIT HAVING 10" HIGH WALLS WITH NOT LESS THAN 1" WIDE SHOULDERS. COLOR SHALL BE #231 WHITE DRIFT. DRAIN BODY SHALL BE FACTORY INSTALLED STAINLESS STEEL #302 WITH COMBINATION DOME STRAINER AND UNIT BASKET. THE DRAIN BODY SHALL PROVIDE FOR A LEAD CALKED JOINT TO A 3" IPS SILICONE SEALANT SHALL BE PLATE #833-AA.	POWERS-FAT MSB-2424	3"	2"	2"	3/4"	3/4"	PLUMBING CONTRACTOR	PLUMBING CONTRACTOR	PLUMBING CONTRACTOR	SUPPLY FITTING: VANDAL-RESISTANT CHROME FAUCET NO. 897, COMBINATION SERVICE SINK FITTING WITH VACUUM BREAKER, 3/4" HOSE THREAD RIGID SPOUT, NO. 369 LEVER HANDLES, WALL BRACE PAL HOOK AND NO. "M" 1/2" FLANGED FEMALE ADJUSTABLE ARMS WITH INTEGRAL STOPS. ALL EXPOSED SURFACES SHALL BE HEAVILY CHROME PLATED. RM GUARD: VINYL BUMPER GUARDS EQUAL TO PLATE #E-77-AA, SHALL BE PROVIDED ON ALL SIDES NOT ADJACENT TO WALL. WALL GUARD: STAINLESS STEEL MODEL NO. MS02424. HOSE BRACKET: PLATE #832-AA, 18 GAUGE, NO. 302 STAINLESS STEEL HOSE BRACKET WITH RUBBER GRIP. COMPLETE WITH 30" LONG FLEXIBLE, CLOTH REINFORCED, 3/8" HEAVY DUTY RUBBER HOSE WITH 3/4" CHROME COUPLING AT HOSE END. WSP HANGER: #889-CC, 24" LONG x 3" WIDE, STAINLESS STEEL ATTACHED WITH THREE (3) RUBBER TOOL GRIPS.
SK-1	SINGLE BOWL DROP-IN, 17" X 21.25" OVERALL, 14" X 15.75" X 6.75" DEEP SINK COMPARTMENT, SOUND DENSIFYING BOTTOM PAD, TYPE 304 30 GAUGE STAINLESS STEEL, LEDGE BACK, GRIP-RIM SELF-RIMMING FEATURE, UNIT PUNCHED TO RECEIVE SPECIFIED TRIM	ELKAY "CELEBRITY" CR1721	1-1/2"	1-1/2"	1-1/2"	1/2"	1/2"	PLUMBING CONTRACTOR	PLUMBING CONTRACTOR	PLUMBING CONTRACTOR	SUPPLIES: 1/2" x 3/8", ANGLE SUPPLIES WITH WHEEL STOPS, FLEXIBLE RISERS AND CP ESCUTCHEON PLATES. FAUCET: DECK MOUNT KOHLER MODEL K-30469-CP WITH SINGLE LEVER HANDLE MIXING FAUCET WITH 6" SWING SPOUT AND PULL-DOWN, CHROME PLATED EXPOSED SURFACES. DRAIN: JUST MODEL JB-99 HEAVY GAUGE TYPE 304 STAINLESS STEEL DRAIN. PROVIDE MIXING VALVE. SEE DETAIL ON DRAWINGS. ALSO, INSULATE EXPOSED DRAIN LINES AND HOT AND COLD WATER SUPPLY LINES BELOW PHYSICALLY HANDICAPPED LAVATORIES PER PHYSICALLY HANDICAPPED CODE REQUIREMENTS. VERIFY LOCATION OF PHYSICALLY HANDICAPPED LAVATORIES WITH ARCHITECTURAL TRADES.

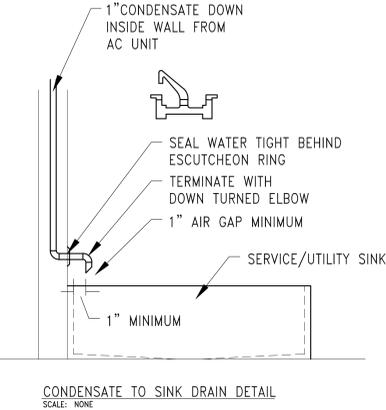
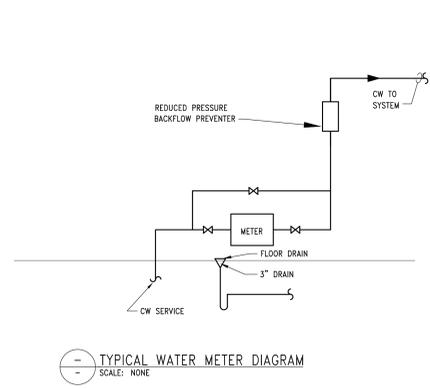
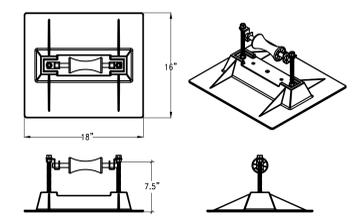
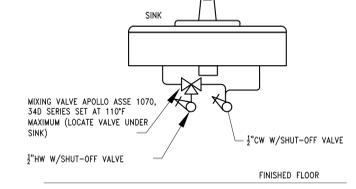
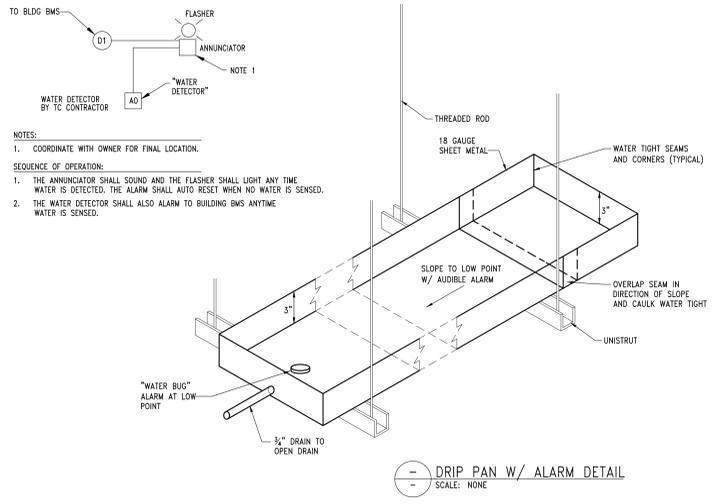
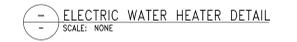
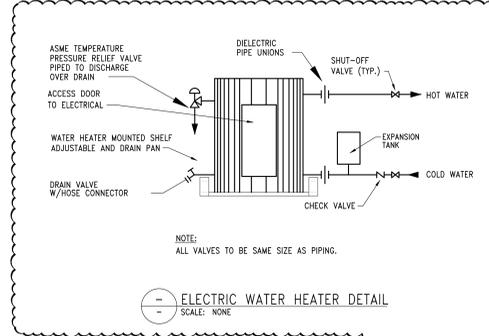
REDUCED PRESSURE BACKFLOW PREVENTERS:

PROVIDE "REDUCED PRESSURE" BACKFLOW PREVENTERS WHERE INDICATED AND AS REQUIRED BY LOCAL CODES COMPLETE WITH TWO SPRING LOADED CHECK VALVES, SPRING LOADED DIAPHRAGM ACTUATED DIFFERENTIAL PRESSURE RELIEF VALVES, TWO GATE VALVES, FOUR TEST COCKS, TWO UNIONS AND INTERCONNECTING PIPING AT 175 PSI MAXIMUM WORKING PRESSURE. RELIEFS SHALL BE UNIT SIZED PIPED TO SAFE WASTE.

SMALL DEVICES SUCH AS COFFEE MAKERS AND ICE MACHINES SERVED BY DOMESTIC WATER MAKE-UP TUBING SHALL BE FITTED WITH APOLLO MODEL 4C-100 SERIES BACKFLOW PREVENTER W/ATMOSPHERIC VENT SUITABLE FOR 150 PSI WORKING PRESSURE. DESIGN SHALL CONFORM TO ASSE 1022. INSTALL PER MANUFACTURER RECOMMENDATION.

UNITS SHALL BE APPROVED BY STATE AND LOCAL CODES.

APPROVED MANUFACTURERS: ZURN, WATTS.



ELECTRIC WATER HEATER SCHEDULE							
TAG	MANUFACTURER & MODEL NO.	AREA SERVED	CAPACITIES		ELECTRICAL		NOTES/ACCESSORIES
			STORAGE GALLON	RECOVERY GPH	TO "F"	VOLTS/PHASE KW	
EWH-1	A.O. SMITH DEL-10	JC 122	10	24.0	100	208/3	6.0 A B C D E

NOTES AND ACCESSORIES DESIGNATION

A	P & T RELIEF VALVE DRAIN TO FLOOR DRAIN	D	SIMULTANEOUS OPERATION (3 W x 2)
B	EXPANSION TANK	E	PROVIDE DRAIN PAN AND WATER SENSOR WITH AN AUDIBLE ALARM
C	DISCONNECT SWITCH		

Client

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LEADERS ADVANCING AND HELPING COMMUNITIES

Architect

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MAENGINEERING
MECHANICAL ELECTRICAL
140 High Oak Road 111 248 1 208 1
Bloomfield Hills, Michigan 48304
48304
117 248 1 208 1
Project Title

LAHC Workforce Education Resource and Development Center

5275 Kenilworth St
Dearborn, MI 48126



TAG	ISSUED	DATE
	Schematic Design	02-28-25
	Development	
	50% CD	04-10-25
	85% CD	05-08-25
	90% Construction Documents	05-29-25
	Permit Review	06-13-25
	Addendum #1	06-27-25
	Issued For Construction	08-01-25

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CHECKED BY: MS
CLIENT PROJ NO: _____

Framework E PROJ NO: 2024007

PLUMBING SCHEDULES AND DETAILS

DRAWING NO: P-301
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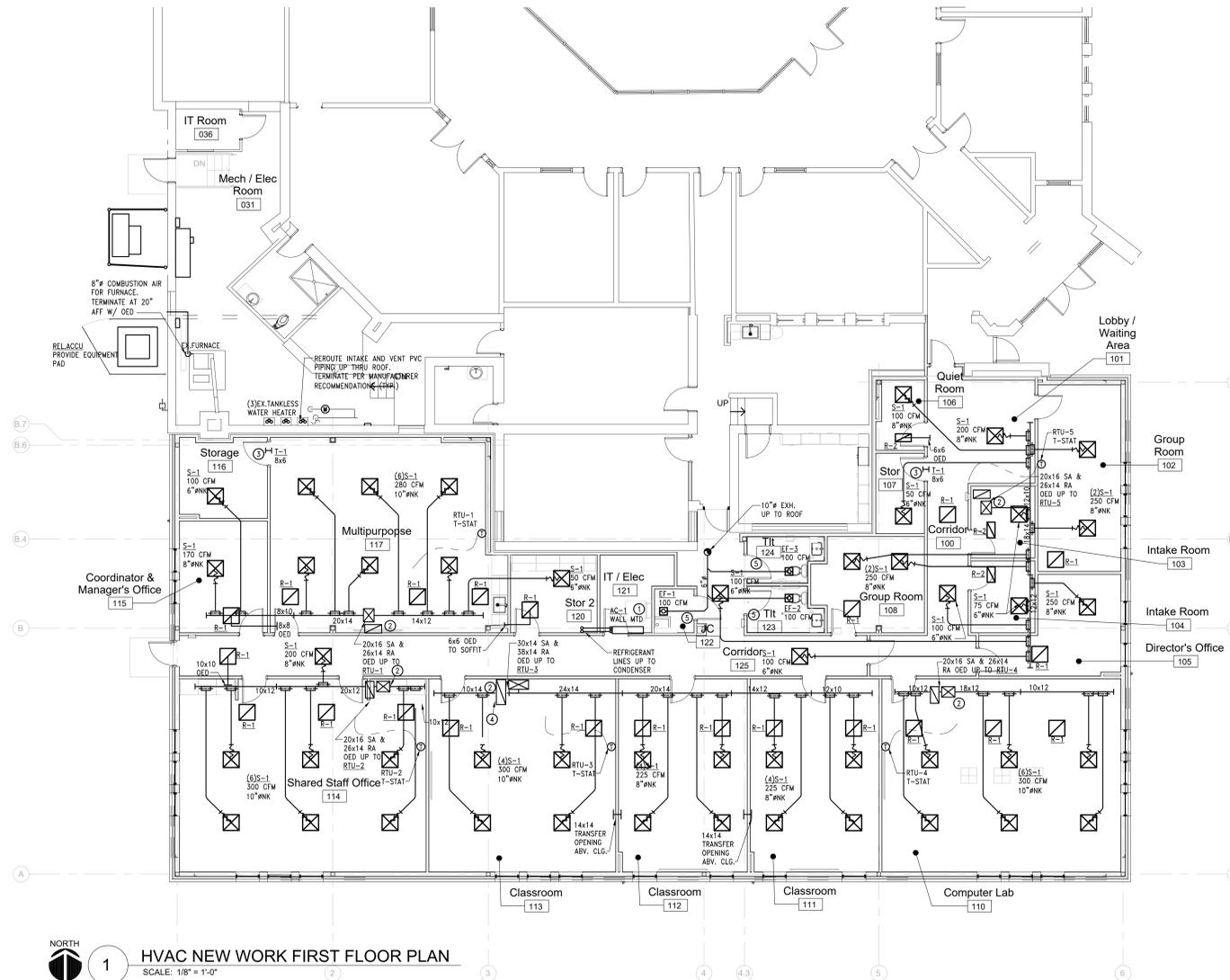
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1 HVAC NEW WORK FIRST FLOOR PLAN
SCALE: 1/8" = 1'-0"

NEW WORK KEY NOTES:

- ① RUN AIR CONDITIONER CONDENSATE PIPING TO JANITOR CLOSET MOP SINK.
- ② OPEN ENDED DUCT RETURN. SOFFIT A RETURN AIR FLENUM SYSTEM.
- ③ MOUNT TRANSFER GRILLE HIGH ABOVE DOOR BELOW CEILING.
- ④ ROUTE SUPPLY DUCTWORK BELOW RETURN AIR OPENING IN SOFFIT SPACE.
- ⑤ UNDERCUT THE DOOR OF THIS ROOM 1/2" TO ALLOW AIRFLOW.
- ⑥ AREA IS OUT OF PROJECT WORK SCOPE.

GENERAL NOTES:

- A. COORDINATE ALL WORK WITH OTHER TRADES.
- B. TAP DUCT BRANCHES OFF OF THE TOP OF MAIN DUCTWORK. RUN BRANCHES UP THROUGH JOISTS TO DIFFUSER.

Client

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48209
Project Title 11248 | 248 | 1105

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Education
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Development
Center**

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Dearborn, MI 48126

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TAG	ISSUED	DATE
	Schematic Design Development	02-28-25
	50% CD	04-10-25
	85% CD	05-08-25
	90% Construction Documents	05-29-25
	Permit Review	06-13-25
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Framework E PROJ NO
2024007

**HVAC NEW
WORK FIRST
FLOOR PLAN**

DRAWING NO
M-111

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1

2

3

4

5

6

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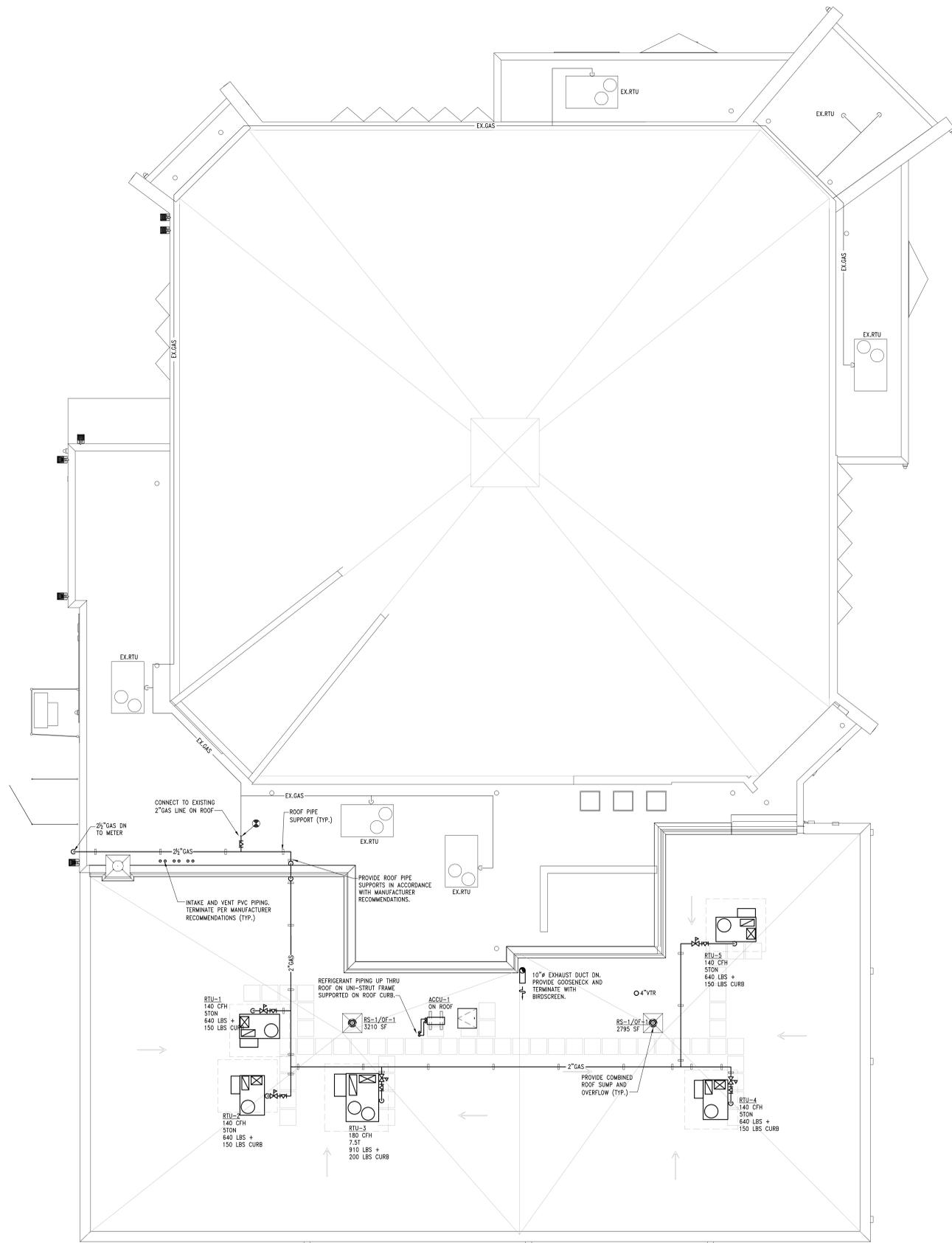
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NORTH
 1 MECHANICAL NEW WORK ROOF PLAN
 SCALE: 1/8" = 1'-0"

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TAG	ISSUED	DATE
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MECHANICAL
 NEW WORK
 ROOF PLAN

DRAWING NO
 M-121

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GRILLE, REGISTER AND DIFFUSER SCHEDULE							
TAG	MANUFACTURER & MODEL NO.	SERVICE	MOUNTING	OVERALL SIZE	NECK SIZE	CONSTRUCTION	NOTES/ACCESSORIES
S-1	TITUS OWN	SAD	LAY-IN	24x24	SEE PLAN	--	A
R-1	TITUS 50F	BAR	LAY-IN	24x24	SEE PLAN	--	A
T-1	TITUS 355RL	TAG	SURFACE	8x6	SEE PLAN	--	A

KEY:
 SAD - CEILING OR WALL SUPPLY DIFFUSER
 SAG - CEILING OR WALL SUPPLY GRILLE
 TAG - WALL TRANSFER GRILLE
 RAR - CEILING OR WALL RETURN REGISTER
 RAG - CEILING OR WALL RETURN GRILLE
 EAG - CEILING OR WALL EXHAUST GRILLE

NOTES AND ACCESSORIES DESIGNATION

A	COLOR BY ARCHITECT
B	BLADE PARALLEL TO SHORT DIMENSION

HVAC UNIT SCHEDULE																				
TAG	MANUFACTURER & MODEL NO.	ELECTRICAL DATA			HEATING		COOLING DATA @ 80°F DAT				SUPPLY FAN DATA				WEIGHT LBS	EFFICIENCY		REFRIGERANT	NOTES/ACCESSORIES	
		VOLTS	UNIT MCA	MOCPP	INPUT CFH	OUTPUT MBH	TOTAL MBH	SENSIBLE MBH	MIN. O.A. CFM	EAT db/wb	CFM	ESP "WC	TSP "WC	BHP		RPM	SEER			AFUE %
RTU-1	CARRIER 48FEFA-06	208/3/60	31	45	150	120	62.0	46.2	400	80/67	2,000	1.0	--	1.39	2363	815	13.4/11.4	81	R454B	A B C D E F G H J K
RTU-2	CARRIER 48FEFA-06	208/3/60	31	45	150	120	62.0	46.2	400	80/67	2,000	1.0	--	1.39	2363	815	13.4/11.4	81	R454B	A B C D E F G H J K
RTU-3	CARRIER 48FETM-08	208/3/60	41	50	224	181	93.4	71.1	600	80/67	3,000	1.0	--	1.71	1672	1125	15/11.2	81	R454B	A B C D E F G H J K
RTU-4	CARRIER 48FEFA-06	208/3/60	31	45	150	120	62.0	46.2	400	80/67	2,000	1.0	--	1.39	2363	815	13.4/11.4	81	R454B	A B C D E F G H J K
RTU-5	CARRIER 48FEFA-06	208/3/60	31	45	150	120	62.0	46.2	400	80/67	2,000	1.0	--	1.39	2363	815	13.4/11.4	81	R454B	A B C D E F G H J K

NOTES AND ACCESSORIES DESIGNATION

A	14" HIGH ROOF CURB	G	SMOKE DETECTOR AT RETURN
B	ECONOMIZER	H	BOTTOM DISCHARGE AND RETURN
C	ECONOMIZER GRAVITY RELIEF	I	2 STAGE HEATING
D	DISCONNECT SWITCH	J	2 STAGE COOLING
E	GFI RECEPTACLE (UNPOWERED)	K	REMOTE 7-DAYS PROGRAMMABLE THERMOSTAT
F	2" FILTERS		

PACKAGED AIR CONDITIONER UNIT SCHEDULE															
INDOOR TAG	INDOOR MODEL NO.	WEIGHT (LBS)	OUTDOOR TAG	OUTDOOR MODEL NO.	WEIGHT (LBS)	SUPPLY FAN (CFM)	REFRIGERANT	COOLING TOTAL (MBH)	HEATING @ 80°F (MBH)	INDOOR ELECTRICAL VOLTS/PHASE	MCA	OUTDOOR ELECTRICAL VOLTS/PHASE	MCA	MOCPP	NOTES/ACCESSORIES
AC-1	MITSUBISHI TPXAD0214K40A	28	ACCU-1	MITSUBISHI TRUYAD214K41NA	92	385	R-410A	12.0	NC	208/1	1.0	208/1	11	28	A B C D E G

NOTES AND ACCESSORIES DESIGNATION

A	ACR REFRIGERANT LINE SET.	E	PROVIDE CONDENSATE PUMP AND DRAIN TO OPEN SITE DRAIN/FLOOR DRAIN.
B	PROVIDE ELECTRICAL DISCONNECT FOR INDOOR AND OUTDOOR	F	INDOOR IS INDEPENDENT FROM THE OUTDOOR.
C	INSULATE ALL PIPING.	G	LOW AMBIENT CONTROL, WIND BAFFLES, OPERATION TO -40°F
D	PROVIDE ALL NECESSARY CONTROLS AND ACCESSORIES FOR PROPER OPERATION.	H	LOW AMBIENT CONTROL, WIND BAFFLES

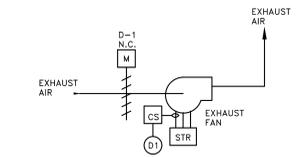
EXHAUST FAN SCHEDULE									
TAG	MANUFACTURER & MODEL NO.	SERVING	CFM	ESP "WC	WHEEL TYPE	TYPE	ELECTRICAL		NOTES/ACCESSORIES
							VOLTS	WATTS	
EF-1	GREENHECK SP-A390-VG	SEE PLAN	100	.3	BI	CLG	120/1	15	A B C D
EF-2	GREENHECK SP-A390-VG	SEE PLAN	100	.3	BI	CLG	120/1	15	A B C D
EF-3	GREENHECK SP-A390-VG	SEE PLAN	100	.3	BI	CLG	120/1	15	A B C D

FAN KEY:
 WMP - WALL MOUNTED PROPELLER
 RMC - ROOF MOUNTED CENTRIFUGAL
 ILC - IN-LINE CENTRIFUGAL
 CLG - CEILING MOUNT

WHEEL KEY:
 FC - FORWARD CURVED
 BI - BACKWARD INCLINED

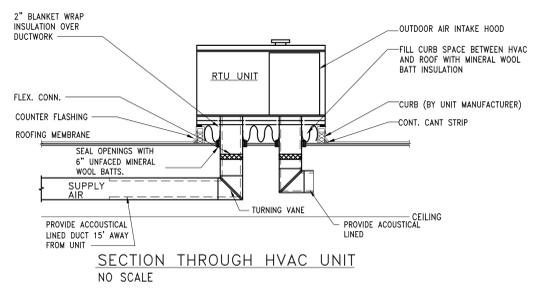
NOTES AND ACCESSORIES DESIGNATION

A	GRAVITY BACKDRAFT DAMPER	D	INTERLOCK WITH LIGHT SWITCH
B	FACTORY MOUNTED & WIRED DISCONNECT SWITCH		
C	VIBRATION ISOLATION		

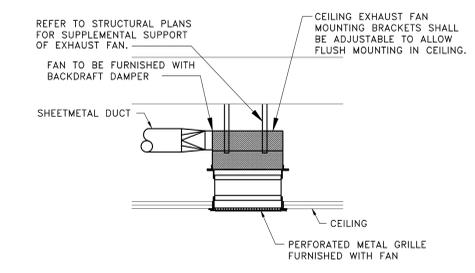


TYPICAL EXHAUST FAN DETAIL - MANUAL START/STOP

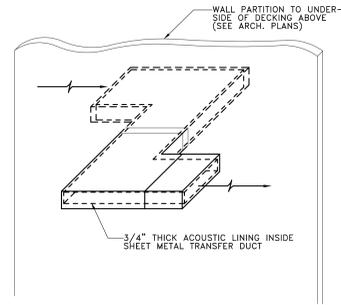
- SEQUENCE OF OPERATION
- EXHAUST FAN SHALL BE STARTED AND STOPPED MANUALLY BY LOCAL WALL SWITCH.
 - DDC SHALL MONITOR EXHAUST FAN STATUS THRU THE SWITCH. ABNORMAL STATUS CONDITION SHALL ACTIVATE AN ALARM IN THE DDC SYSTEM.



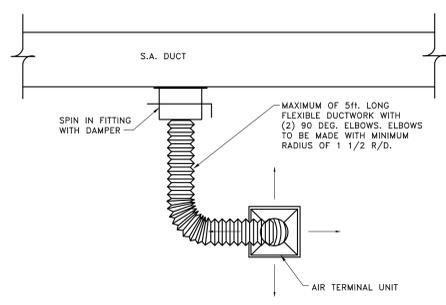
SECTION THROUGH HVAC UNIT
NO SCALE



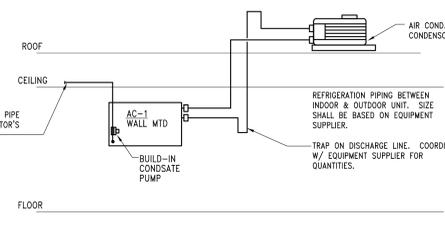
CEILING EXHAUST FAN DETAIL
NO SCALE



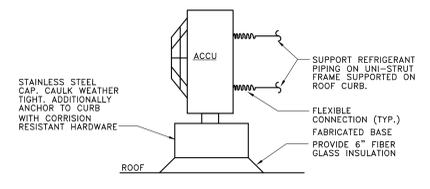
TRANSFER DUCT DETAIL
NO SCALE



FLEXIBLE DUCT CONNECTION DETAIL
NO SCALE



TYPICAL INDOOR FAN COIL (A/C) SCHEMATIC
SCALE: NONE



ACCU MOUNTING DETAIL
NO SCALE

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Architects Leaders Community Builders



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Dearborn, MI 48126

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