

MECHANICAL SYMBOLS				ABBREVIATIONS				MECHANICAL GENERAL NOTES			
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	ABBREVIATION	DESCRIPTION	ABBREVIATION	DESCRIPTION				
	EXISTING DUCTWORK SHOWN WITH LIGHT LINES INCHES WIDTH / INCHES HEIGHT		AIR DEVICE TAG (S' = SUPPLY, R' = RETURN, 'E' = EXHAUST, 'T' = TRANSFER)	A	AMPS	JS	JANITOR SINK	<p>A. REFER TO MECHANICAL PLANS FOR DEMOLITION, NEW WORK, AND ADDITIONAL INFORMATION FOR RELOCATED ITEMS.</p> <p>B. REFER TO MECHANICAL SPECIFICATIONS, SCHEDULES, AND DETAIL DRAWINGS FOR ADDITIONAL INFORMATION.</p> <p>D. CONTRACTOR SHALL FIELD VERIFY ACTUAL LOCATIONS OF ALL EQUIPMENT, DUCTWORK, & PIPING PRIOR TO SUBMITTING A BID. COORDINATE COMPLETELY WITH ALL OTHER TRADES. RELOCATE TERMINAL UNITS AND PROVIDE ADDITIONAL DUCTWORK, OFFSETS, FITTINGS, ETC. AS REQUIRED.</p> <p>E. THE CONTRACTOR SHALL VERIFY THAT ALL EXISTING AND NEW MECHANICAL EQUIPMENT ARE MOUNTED SO THAT ALL REQUIRED CODE AND MANUFACTURER'S SERVICE CLEARANCES ARE MAINTAINED AT THE BOTTOM AND SIDES OF EACH UNIT FOR PROPER SERVICING AND MAINTENANCE. COORDINATE COMPLETELY WITH ALL NEW WALLS TO STRUCTURE, AND RELOCATE AS REQUIRED TO MAINTAIN PROPER CLEARANCES.</p> <p>F. DUE TO DRAWING SCALE, IT IS NOT POSSIBLE TO INDICATE ALL OFFSETS, FITTINGS AND ACCESSORIES WHICH MAY BE REQUIRED. THE CONTRACTOR SHALL EXAMINE FIELD CONDITIONS AND FURNISH THE NECESSARY FITTINGS WHICH MAY BE REQUIRED TO COMPLETE THE INSTALLATION. CONTRACTOR SHALL FURNISH AND INSTALL BALANCING DAMPERS IN HVAC SYSTEMS THAT HAVE MORE THAN ONE INLET/OUTLET UNLESS NOTED OTHERWISE. BALANCING DAMPERS SHALL APPLY TO NEW AND EXISTING DUCTWORK.</p> <p>G. IT SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO BRING TO THE ATTENTION OF THE MECHANICAL ENGINEER ANY SLAB-TO-SLAB PARTITIONS THAT DO NOT HAVE PROPER RETURN AIR PATHWAYS. ALL PENETRATIONS OF SLAB-TO-SLAB PARTITIONS SHALL BE SEALED AIR-TIGHT.</p> <p>H. MECHANICAL CONTRACTOR SHALL VERIFY THAT LOCATION OF CEILING AND WALL MOUNTED AIR CONDITIONING SLOTS, DIFFUSERS, GRILLES, AND REGISTERS SHOWN ON THE DRAWINGS ARE ACCEPTABLE TO THE ARCHITECT PRIOR TO INSTALLATION.</p> <p>I. VERIFY EXACT REQUIREMENTS AND OPERATION OF EXISTING BUILDING CONTROL SYSTEM WITH BUILDING OWNER PRIOR TO SUBMITTING A BID.</p> <p>J. THE CONTRACTOR SHALL REPLACE ANY DAMAGED OR NON-FUNCTIONING THERMOSTATS. NEW THERMOSTATS SHALL MATCH BUILDING STANDARD.</p> <p>K. ALL REFRIGERANT CIRCUITS WITH SERVICE PORTS LOCATED ON THE EXTERIOR OF THE BUILDING SHALL BE PROVIDED WITH LOCKING ACCESS PORT CAPS. THIS REQUIREMENT APPLIES TO ALL NEW REFRIGERANT CIRCUITS AND EXISTING REFRIGERANT CIRCUITS WHEN EQUIPMENT IS RE-USED ON CHANGE OF USAGE PROJECTS.</p> <p>L. FOR ANY NEW OR RELOCATED FAN-POWERED BOXES PROVIDE EACH FAN-POWERED BOX WITH A HARDWIRED SHUTDOWN WITH THE RTU OR AIR-HANDLING UNIT SMOKE DETECTOR.</p> <p>M. ANY INDIVIDUAL FAN-POWERED BOX THAT SUPPLIES MORE THAN 2000 CFM SHALL HAVE ITS OWN AREA SMOKE DETECTOR HARDWIRED TO SHUT DOWN THE UNIT UPON DETECTION OF PRODUCTS OF COMBUSTION.</p> <p>N. MECHANICAL CONTRACTOR SHALL VERIFY THAT LOCATION OF CEILING AND WALL MOUNTED AIR CONDITIONING SLOTS, DIFFUSERS, GRILLES, AND REGISTERS SHOWN ON THE DRAWINGS ARE ACCEPTABLE TO THE ARCHITECT PRIOR TO INSTALLATION.</p> <p>O. NEW EXPOSED TO VIEW EXHAUST DUCTWORK SHALL BE SINGLE WALL UNINSULATED, AND HAVE A "PAINT GRIP" FINISH. REFER TO THE ARCHITECT FOR FINISH OF DUCTWORK.</p> <p>P. NEW EXPOSED TO VIEW SUPPLY DUCTWORK THAT IS INDICATED WITH A LIGHT HATCH SHALL BE AS SPECIFIED WITHIN THE MECHANICAL SYMBOLS ON THIS DRAWING AND ON DRAWING M0.2.</p>			
	DEMO DUCTWORK SHOWN WITH LIGHT & DASHED LINES INCHES WIDTH / INCHES HEIGHT		SUPPLY AIR DEVICE	ABS	ABSOLUTE	KEC	KITCHEN EQUIPMENT CONTRACTOR				
	NEW DUCTWORK SHOWN WITH BOLD LINES INCHES WIDTH / INCHES HEIGHT		RETURN OR EXHAUST AIR DEVICE	ACC	ACCESS DOOR OR AREA DRAIN	KW	KILOWATT				
	NEW EXPOSED TO VIEW DOUBLE WALL (DW) INSULATED DUCTWORK SHOWN WITH BOLD LINES WITH LIGHT HATCH PATTERN. CLEAR INSIDE DIMENSIONS) INCHES WIDTH / INCHES HEIGHT OR Ø FOR ROUND		SLOT DIFFUSER	AC	AIR CONDITIONING	KWH	KILOWATT HOUR				
	CONCENTRIC TRANSITION 15° ANGLE MAXIMUM UNLESS NOTED OTHERWISE		SUPPLY AIRFLOW DIRECTION	ADA	AMERICAN DISABILITIES ACT	LAT	LEAVING AIR TEMPERATURE				
	ECCENTRIC TRANSITION 15° ANGLE MAXIMUM UNLESS NOTED OTHERWISE		RETURN OR EXHAUST AIRFLOW DIRECTION	ADJ	ADJUSTABLE	LAV	LAVATORY				
	ROUND TO SQUARE TRANSITION 15° ANGLE MAXIMUM UNLESS NOTED OTHERWISE		EXISTING THERMOSTAT OR SENSOR TO REMAIN	AFF	ABOVE FINISHED FLOOR	LB	POUND				
	RECTANGULAR ELBOW WITH TURNING VANES		THERMOSTAT OR SENSOR TO BE DEMOLISHED	AHU	AIR HANDLING UNIT	LDB	LEAVING DRY BULB LENGTH				
	RECTANGULAR ELBOW WITHOUT TURNING VANES		EXISTING THERMOSTAT OR SENSOR TO BE RELOCATED	AMB	AMBIENT	L	LINEAR FEET				
	STANDARD BRANCH FOR SUPPLY (WITH MANUAL VOLUME DAMPER)		NEW LOCATION FOR RELOCATED THERMOSTAT OR SENSOR	ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE	LOC	LIMITS OF CONSTRUCTION				
	STANDARD BRANCH FOR SUPPLY OR RETURN (WITHOUT MANUAL VOLUME DAMPER)		NEW THERMOSTAT OR SENSOR	AP	AIR PRESSURE DROP	LP	LOW PRESSURE				
	ROUND SPIN-IN TAP (WITH DAMPER)		NEW HUMIDISTAT (SUBSCRIPTS, LINE WEIGHTS, & LINE TYPES SIMILAR TO THERMOSTATS)	APD	APPROXIMATELY	LWT	LEAVING WATER TEMPERATURE				
	ROUND SPIN-IN TAP (WITHOUT DAMPER)		NEW CARBON DIOXIDE MONITOR (SUBSCRIPTS, LINE WEIGHTS, & LINE TYPES SIMILAR TO THERMOSTATS)	ARCH	ARCHITECT	MAT	MIXED AIR TEMPERATURE				
	ROUND SPIN-IN TAP (WITH DAMPER) AND FLEX DUCT RUN-OUT		NEW CARBON MONOXIDE MONITOR (SUBSCRIPTS, LINE WEIGHTS, & LINE TYPES SIMILAR TO THERMOSTATS)	AS	AIR SEPARATOR	MAU	MAKE UP AIR UNIT				
	MOTORIZED DAMPER		CONTROL WIRE	AVG	AVERAGE	MAX	MAXIMUM				
	FIRE DAMPER (VERTICAL POSITION)		NEW STATIC PRESSURE SENSOR (SUBSCRIPTS, LINE WEIGHTS, & LINE TYPES SIMILAR TO THERMOSTATS)	BDD	BACKDRAFT DAMPER	MBH	BTUHR X 1,000				
	COMBINATION SMOKE/FIRE DAMPER (VERTICAL POSITION)		SMOKE DETECTOR (SHOWN FOR REFERENCE ONLY) PROVIDED & INSTALLED BY THE ELECTRICAL CONTRACTOR	BHP	BRAKE HORSEPOWER	MC	MECHANICAL CONTRACTOR				
	FIRE DAMPER (HORIZONTAL POSITION)		EQUIPMENT TAG LABEL	BPF	BACKFLOW PREVENTOR	MD	MOTORIZED DAMPER				
	COMBINATION SMOKE/FIRE DAMPER (HORIZONTAL POSITION)		EXISTING PIPING (3" AND SMALLER PIPES SHOWN AS SINGLE LINE)	CA	COMPRESSED AIR	MECH	MECHANICAL				
	FLEXIBLE CONNECTION		DEMO PIPING	CAV	COUNTER CLOCKWISE	MISC	MISCELLANEOUS				
	POSITIVE PRESSURE RECTANGULAR DUCT DOWN		PIPE DOWN	CCW	CLOCKWISE	MPT	MALE PIPE THREAD				
	NEGATIVE PRESSURE RECTANGULAR DUCT DOWN		PIPE UP	CFM	CUBIC FEET PER MINUTE	MVD	MANUAL VOLUME DAMPER				
	POSITIVE PRESSURE RECTANGULAR DUCT UP		KEYED DRAWING NOTE	CFM	CONTRACTOR FURNISHED / OWNER INSTALLED	MULTI	MULTIZONE				
	NEGATIVE PRESSURE RECTANGULAR DUCT UP		ALTERNATE KEYED DRAWING NOTE	CH	CHILLED WATER	NA	NOT APPLICABLE				
	ROUND DUCT DOWN		DRAWING REVISION TRIANGLE	CHM	CHILLED WATER MAKE-UP	NC	NOISE CRITERIA				
	ROUND DUCT UP		DRAWING REVISION CLOUD	CHWP	CHILLED WATER PUMP	N.C.	NORMALLY CLOSED				
	RADIUS ELBOW (R = 1.5 X DIAMETER)		DRAWING REVISION CLOUD	CHWPP	CHILLED WATER PRIMARY PUMP	NIC	NOT IN CONTRACT				
				CHWR	CHILLED WATER RETURN	N.O.	NORMALLY OPEN				
				CHWS	CHILLED WATER SUPPLY	NTS	NOT TO SCALE				
				CHWSP	CHILLED WATER SECONDARY PUMP	OA	OUTSIDE AIR				
				C	CAST IRON	OAD	OUTSIDE AIR DAMPER				
				CLG	CEILING	OAT	OUTSIDE AIR TEMPERATURE				
				CLG HT	CEILING HEIGHT	OBD	OPPOSED BLADE DAMPER				
				CW	CLOCKWISE	OD	OUTSIDE DAMPER				
				CO	CLEAN-OUT, CARBON MONOXIDE	OCFI	OWNER FURNISHED / CONTRACTOR INSTALLED				
				CO2	CARBON DIOXIDE	OFD	OVERFLOW DRAIN				
				COL	COLUMN	OFI	OWNER FURNISHED / OWNER INSTALLED				
				CONC	CONCRETE	OZ	OUNCE				
				COP	COEFFICIENT OF PERFORMANCE (HEATING)	P	PUMP				
				CP	CONDENSATE PUMP	PCT	PERCENT				
				CT	COOLING TOWER	PD	PRESSURE DROP/DIFFERENCE				
				CJ	CONDENSING UNIT	PF	PRE-FILTER				
				CV	CONSTANT VOLUME	PH	PHASE				
				CW	COLD WATER	PLB	PLUMBING				
				CWP	CONDENSER WATER PUMP	POC	POINT OF CONNECTION				
				CWR	CONDENSER WATER RETURN	PRM	PARTS PER MILLION				
				CWS	CONDENSER WATER SUPPLY	PRV	PRESSURE REDUCING VALVE				
						PS	POUNDS PER SQUARE FOOT				
				DB	DECEMBER(S)	PSI	POUNDS PER SQUARE INCH				
				DB	DRY BULB TEMPERATURE	PSIA	POUNDS PER SQUARE INCH, ABSOLUTE				
				DDC	DIRECT DIGITAL CONTROL	PSIG	POUNDS PER SQUARE INCH, GAGE				
				DEG	DEGREE(S)	PTAC	PACKAGED TERMINAL AIR CONDITIONER				
				DF	DRINKING FOUNTAIN	PVC	POLYVINYL CHLORIDE				
				DH	DIAPHRAGM	QT	QUART				
				DIA	DIAMETER	QTY	QUANTITY				
				DP	DEW POINT	RA	RETURN AIR				
				DPT	DEW POINT TEMPERATURE	RAF	RETURN AIR FAN				
				D	DRAIN	RAT	RETURN AIR TEMPERATURE				
				DYCO	DOUBLE YARD CLEAN-OUT	RCP	REINFORCE CONCRETE PIPE				
				EAT	ENTERING AIR TEMPERATURE	RD	ROOF DRAIN				
				ECON	ECONOMIZER	REF	REFRIGERATOR				
				EDB	ENTERING DRY BULB	RFH	RELATIVE HUMIDITY				
				EHD	ELECTRIC DUCT HEATER	RHC	REHEAT COIL				
				EER	ENERGY EFFICIENCY RATIO	RM	ROOM				
				EEF	EXHAUST FAN	RPM	REVOLUTIONS PER MINUTE				
				ELEC	ELECTRIC	RPS	REVOLUTIONS PER SECOND				
				ENT	ENTERING	RTU	ROOF TOP UNIT				
				EQV FT	EQUIVALENT FEET	RV	RELIEF VALVE				
				EOP	EQUIPMENT	SA	SUPPLY AIR				
				ET	EXTERNAL STATIC PRESSURE	SAF	SUPPLY AIR FAN				
				ET	EXPANSION TANK	SAN	SANITARY				
				EUH, EH	ELECTRIC (UNIT) HEATER	SAT	SATURATED				
				EW	EVAPORATE (LIVE)	SCFM	STANDARD CUBIC FEET PER MINUTE				
				EWB	ENTERING WET BULB	SCFD	STANDARD CUBIC FEET PER SECOND				
				EW	ELECTRIC WATER HEATER	SD	SMOKE DAMPER, STORM DRAIN				
				EWT	ENTERING WATER TEMPERATURE	SEC	SECOND(S)				
				EXH	EXHAUST	SFD	SMOKE/FIRE DAMPER				
				EXT	EXTERIOR	SH	SHOWER				
				F	FAHRENHEIT	SHT	SHEET				
				FA	FREE AREA	SK	SINK				
				FC	FLEXIBLE CONNECTION	SP	SUMP PUMP				
				FCO	FLOOR CLEAN-OUT	SPEC	SPECIFICATIONS				
				FCU	FAN COIL UNIT	SS	SERVICE SINK, SANITARY SEWER, STORM				
				FD	FLOOR DRAIN, FIRE DAMPER	STC	SOUND TRANSMISSION CLASS				
				FDD	FIRE DEPARTMENT CONNECTION	STD	STANDARD				
				FHC	FIRE HOSE CABINET	T	TEMPERATURE				
				FLR	FLOOR	TAP	TEMPERATURE AND PRESSURE VALVE				
				FLR	FIRE PROTECTION CONTRACTOR	T/S	TUBSHOWER COMBINATION				
				FLOOR SINK	FLOOR SINK	TAB	TEST ADJUST & BALANCE				
				FPTU	FAN POWERED TERMINAL UNIT	TD	TEMPERATURE DIFFERENCE				
				FTLB	FOOT POUND	TDH	TOTAL DYNAMIC HEAD				
				FPM	FEET PER MINUTE	TDV	TRIPLE DUTY VALVE				
				FPS	FEET PER SECOND	TEMP	TEMPERATURE				
				FRP	FIBERGLASS REINFORCED PLASTIC	TONS	TONS OF REFRIGERATION				
				FV	FACE VELOCITY	TSTAT	THERMOSTAT				
				G	NATURAL GAS	TYP	TYPICAL				
				GA	GAGE	U	HEAT TRANSFER COEFFICIENT				
				GAL	GALLON	UC	UNDERCUT, UNDER COUNTER				
				GC	GENERAL CONTRACTOR	UH	UNIT HEATER				
				GPH	GALLONS PER HOUR	UNO	UNLESS NOTED OTHERWISE				
				GRM	GALLONS PER MINUTE	UR	UNIT VENTILATOR				
				GPS	GALLONS PER SECOND	UV	UNIT VENTILATOR				
				GT	GREASE TRAP	V	VENT, VOLTS				
				H	HEIGHT	VA	VOLT AMPERE				
				HB	HOSE BIB	VAC	VACUUM				
				HD	HEAD	VAV	VARIABLE AIR VOLUME				
				HEPA	HIGH EFFICIENCY PARTICULATE AIR (FILTER)	VFD	VARIABLE FREQUENCY DRIVE				
				HOK	HAND, OFF, AUTO STATION	VRF	VARIABLE REFRIGERANT FLOW				
				HP	HORSEPOWER	VV	VARIABLE REFRIGERANT VOLUME				
				HR	HOUR	VEL	VELOCITY				
				HS	HAND SINK	VERT	VERTICAL				
				HSTAT	HUMIDISTAT	VOL	VOLUME				
				HT	HEIGHT	VTR	VENT THROUGH THE ROOF				
				HTR	HEATER	VVT	VARIABLE VOLUME TERMINAL				
				HVAC	HEATING, VENTILATION, AND AIR CONDITIONING	W	WASTE, WIDTH				
				HW	HOT WATER	WI	WITH				
				HWC	HOT WATER COIL	W/O	WITHOUT				
				HWCIP	HOT WATER CIRCULATING PUMP	WB	WET BULB				
				HWP	HOT WATER PUMP	WC	WATER CLOSET				
				HWR	HOT WATER RETURN	WCO	WALL CLEAN-OUT				
				HWS	HOT WATER SUPPLY	WHD	WALL HORIZONTAL				
				HWT	HOT WATER TANK	WHA	WATER HAMMER ARRESTOR				
				HZ	FREQUENCY	WM	WATER METER				
				IAQ	INDOOR AIR QUALITY	WT	WEIGHT				
				ID	INSIDE DIAMETER	WTR	WATER				
				IN WC	INCHES, WATER COLUMN	YCO	YARD CLEAN-OUT				
				INCL	INCLUDE	YD	YARD				
				INSUL	INSULATED, (ED), (ON)	YR	YEAR				
				INT	INTERIOR	ZN	ZONE				
				INVERT	INVERT						
				IO	INPUT/OUTPUT						
				IPS	INTERNATIONAL PIPE STANDARD						
				IPT	IRON PIPE THREADED						
				IWH	INSTANTANEOUS WATER HEATER						

OUTSIDE AIR CALCULATIONS					
OUTSIDE AIR SHALL BE PROVIDED IN ACCORDANCE WITH THE 2021 UNIFORM MECHANICAL CODE. THE REQUIRED OUTSIDE AIR VENTILATION WAS CALCULATED AS FOLLOWS:					
VBZ	=	(RP*PZ) + (RA*AZ)			
EZ	=	0.8			
VOZ	=	VBZ / EZ			
		RP	RA	AZ	VOZ
SPACE	CFM OA / P	P	CFM OA/SF	SF	CFM OA
CORRIDOR	5.0	0.0	0.06	890	66.8
ELECTRICAL	5.0	0.0	0.06	55	4.1
MN & WM TLT	5.0	0.0	0.06	120	9.0
UTILITY	5.0	0.0	0.06	55	4.1
			REQUIRED	TOTAL VOZ	84.0
			PROVIDED	TOTAL OA	160

MECHANICAL DRAWING LIST					
DRAWING #	DESCRIPTION				
M0.000	MECHANICAL COVER SHEET				
M0.001	MECHANICAL SPECIFICATIONS				
M0.002	MECHANICAL SPECIFICATIONS				
M2.001	MECHANICAL PLAN - LEVEL 1				
M2.002	MECHANICAL PLAN - LEVEL 2				
M2.003	MECHANICAL PLAN - ROOF				
M5.000	MECHANICAL DETAILS				
M5.001	MECHANICAL DETAILS				
M6.000	MECHANICAL SCHEDULES				

REVISIONS

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. MECHANICAL EQUIPMENT, CONTROLS, DUCTWORK, PIPING, ACCESSORIES, INSULATION, HANGERS, AND SUPPORTS.

1.2 RELATED SECTIONS

A. SCOPE OF WORK

- 1. THE CONTRACTOR SHALL PROVIDE ALL EQUIPMENT, SUPPLIES, MATERIALS, TOOLS, LABOR, ETC., FOR A COMPLETE INSTALLATION.
2. THE CONTRACTOR SHALL BE TO COORDINATE ALL OF THE CONSTRUCTION WORK WITH ALL OTHER TRADES ON THIS PROJECT.
3. THE CONTRACTOR SHALL PROVIDE A COMPLETE MECHANICAL SYSTEM AS SHOWN ON THE DRAWINGS AND SPECIFIED BY NOTES OR THE SPECIFICATIONS.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REVIEWING ALL DRAWINGS AND SPECIFICATIONS FOR SCOPE OF WORK THAT SHALL BE COMPLETED FOR THIS PROJECT.
5. THE CONTRACTOR SHALL REVIEW SITE CONDITIONS ALONG WITH THE CONTRACT DOCUMENTS TO ASCERTAIN THE COMPLETE SCOPE OF WORK FOR THE PROJECT.
6. THE CONTRACTOR SHALL FIELD VERIFY ALL SITE MEASUREMENTS WITH REGARDS TO THE SCOPE OF WORK TO ACCOUNT FOR ALL REQUIRED DIMENSIONAL ADJUSTMENTS. NO ADDITIONAL COMPENSATION SHALL BE ALLOWED FOR ANY DISCREPANCIES BETWEEN DIMENSIONS INDICATED ON THE CONTRACT DOCUMENTS AND ACTUAL FIELD MEASUREMENTS.

1.3 REFERENCES

- A. AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR-CONDITIONING ENGINEERS
1. ASHRAE 62.1 - VENTILATION FOR ACCEPTABLE INDOOR AIR QUALITY
2. ASHRAE 90.1 - ENERGY STANDARD FOR BUILDINGS EXCEPT LOW-RISE RESIDENTIAL BUILDINGS
B. UNDERWRITERS LABORATORY (UL)
1. LISTED PRODUCTS

1.4 SUBMITTALS

A. THE CONTRACTOR SHALL SUBMIT AN ELECTRONIC COPY OF THE SHOP DRAWINGS, EQUIPMENT PERFORMANCE SUBMITTALS, AND PRODUCT DATA FOR THE FOLLOWING ITEMS:

- 1. EQUIPMENT
2. DUCTWORK
3. PIPING
4. INSULATION
5. AIR DEVICES (GRILLES, REGISTERS, AND DIFFUSERS)
6. CONTROLS
7. ALL OTHER INSTALLED MECHANICAL ITEMS

B. SHOP DRAWINGS

- 1. INCLUDE SYSTEM COMPONENTS
2. APPLICABLE DIMENSIONAL DATA
3. DIMENSIONS TO ADJACENT CONSTRUCTION AND/OR OBSTRUCTIONS
4. ALL REQUIRED CLEARANCES AND ACCESS DIMENSIONS FOR SERVICING

C. EQUIPMENT WEIGHTS

- 1. THE CONTRACTOR SHALL INCLUDE EQUIPMENT WEIGHTS ON ALL SUBMITTALS TO VERIFY WHICH PIECES OF EQUIPMENT WEIGH 300 POUNDS OR MORE.

D. HAZARDOUS MATERIALS, PRODUCTS, PROCESSES, AND VOCS

- 1. IN THE EVENT THAT MATERIALS, PRODUCTS, AND/OR PROCESSES BEING PROPOSED FOR THIS PROJECT CONTAIN, OR MAY EMIT, ANY VOLATILE ORGANIC COMPOUNDS (VOC), FORMALDEHYDE FORMULATIONS, OR HAZARDOUS OUT-GASSING, AS DETERMINED BY THE MANUFACTURER, A MATERIALS SAFETY DATA SHEET SHALL BE SUBMITTED AS PART OF THE SHOP DRAWING PROCESS FOR REVIEW BY THE ARCHITECT, ENGINEER, AND OWNER.

E. SUBSTITUTIONS OF EQUIPMENT OR MATERIALS

- 1. THE CONTRACTOR SHALL NOT SUBSTITUTE EQUIPMENT OR MATERIAL WITHOUT PRIOR WRITTEN AUTHORIZATION FROM THE ENGINEER OF RECORD AND OWNER.
2. THE DETERMINATION OF WHAT SHALL BE CONSIDERED EQUAL IS AT THE SOLE DISCRETION OF THE ENGINEER OF RECORD AND OWNER.
3. THE CONTRACTOR SHALL INCLUDE SUFFICIENT DESCRIPTIVE INFORMATION, INCLUDING BUT NOT LIMITED TO THE MANUFACTURER'S PUBLISHED DATA TO ESTABLISH CONTRACT COMPLIANCE.
4. THE CONTRACTOR SHALL SUBMIT SAMPLES IF REQUESTED BY THE ARCHITECT OR ENGINEER OF RECORD.
5. ALL SUBSTITUTIONS SHALL BE SUBMITTED AT LEAST SEVEN (7) DAYS PRIOR TO BID SUBMISSION FOR REVIEW.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION AND ALL ASSOCIATED COSTS FOR ALL DIMENSIONAL DIFFERENCES, WEIGHTS, CLEARANCES, MATERIAL & LABOR FOR ALL SUBSTITUTIONS.

1.5 DEFINITIONS

- A. HVAC - HEATING, VENTILATION, AND AIR CONDITIONING. ALL EQUIPMENT INCLUDED TO PERFORM HVAC, BUT NOT LIMITED TO THE FOLLOWING: AIR-HANDLING UNITS, ROOFTOP UNITS, SPLIT SYSTEMS, VRF SYSTEMS, VAV UNITS, TERMINAL UNITS, FAN POWERED UNITS, FANS, PUMPS, ETC...
B. DUCTWORK - MATERIAL USED FOR THE DISTRIBUTION OF HOT/COLD, EXHAUST, VENTILATION, AND/OR TRANSFER AIRFLOW.
C. PIPING - MATERIAL USED FOR THE DISTRIBUTION OF HOT/CILLED WATER, AND/OR CONDENSATE DRAINAGE.
D. CONTROLS - THERMOSTATS (T-STATS), BUILDING AUTOMATION SYSTEM (BAS), BUILDING MANAGEMENT SYSTEM (BMS), ENERGY MANAGEMENT SYSTEM (EMS), AND FIRE ALARM CONTROL PANEL (FACP).
E. ABBREVIATIONS
1. REFER TO THE CONTRACT DRAWINGS FOR DEFINITIONS OF ALL ABBREVIATIONS.

1.6 QUALITY ASSURANCE

A. REGULATORY REQUIREMENTS

- 1. THE CONTRACTOR SHALL COMPLY WITH THE REQUIREMENTS OF THE AUTHORITIES HAVING JURISDICTION AND APPLICABLE CODES AT THE LOCATION OF THE PROJECT.

AMERICANS WITH DISABILITIES ACT (ADA)
CITY AND/OR COUNTY BUILDING CODES AND/OR ORDINANCES
CITY, COUNTY, STATE DEPARTMENT OF HEALTH
INTERNATIONAL BUILDING CODE (IBC) - 2021 W/ LOCAL AMENDMENTS
INTERNATIONAL MECHANICAL CODE (IMC) - 2021 W/ LOCAL AMENDMENTS
INTERNATIONAL PLUMBING CODE (IPC) - 2021 W/ LOCAL AMENDMENTS
INTERNATIONAL ENERGY CONSERVATION CODE (IECC) - 2021 W/ LOCAL AMENDMENTS
OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA)
TEXAS ACCESSIBILITY STANDARDS (TAS)
NATIONAL ELECTRIC CODE (NEC) - 2020 W/ LOCAL AMENDMENTS
UNIFORM MECHANICAL CODE (UMC) - 2021 W/ LOCAL AMENDMENTS
UNIFORM PLUMBING CODE (UPC) - 2021 W/ LOCAL AMENDMENTS

- 2. WHEN DIFFERENT SECTIONS OF ANY APPLICABLE CODES SPECIFY DIFFERENT MATERIALS, METHODS OF CONSTRUCTION, OR OTHER REQUIREMENTS, THEN THE MOST RESTRICTIVE SHALL GOVERN.

B. MANUFACTURER QUALIFICATIONS

- 1. MINIMUM OF 5 YEARS EXPERIENCE MANUFACTURING SIMILAR PRODUCTS.
C. INSTALLER QUALIFICATIONS
1. MINIMUM OF 2 YEARS EXPERIENCE INSTALLING SIMILAR PRODUCTS.

D. STANDARDS FOR MATERIAL AND INSTALLATION WORKMANSHIP

- 1. THE CONTRACTOR SHALL USE MATERIALS THAT ARE NEW, LISTED, AND LABELED BY THE UNDERWRITERS LABORATORIES (UL) AS CONFORMING TO ITS STANDARDS. WHERE SUCH STANDARDS HAVE BEEN ESTABLISHED FOR THE PARTICULAR TYPE OF MATERIAL IN QUESTION THE CONTRACTOR SHALL EXECUTE ALL WORK IN A WORKMAN LIKE MANNER TO PRESENT A CLEAN, NEAT, AND PROFESSIONAL WORKMAN LIKE APPEARANCE WHEN COMPLETED.
2. THE CONTRACTOR, UNLESS NOTED OTHERWISE, SHALL PROVIDE AND INSTALL MATERIALS AND EQUIPMENT THAT CONFORMS THE LATEST STANDARDS LISTED BELOW.

Table with 2 columns: Standard Abbreviation, Full Name of Association/Code. Includes AMCA, ANSI, ARI, ASHRAE, ASME, ASTM, JAPMO, NEC, NEMA, NFPA, SMACNA, etc.

E. PERMITS, FEES, AND INSPECTIONS

- 1. THE CONTRACTOR SHALL PROVIDE AND COORDINATE ALL REQUIRED PERMITS, INTERIM INSPECTIONS, AND APPROVALS FROM THE INSPECTION DEPARTMENT HAVING JURISDICTION.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PAYMENT FOR ALL PERMITS, FEES, TESTS, CERTIFICATIONS, AND INSPECTIONS.
3. THE CONTRACTOR SHALL NOTIFY THE OWNER TWENTY FOUR (24) HOURS IN ADVANCE WHEN EQUIPMENT IS TO BE TESTED OR UTILITIES ARE TO BE SHUT-OFF, BEFORE BEING CONCEALED AND BEFORE TRENCHES ARE COVERED UP.

F. SCHEDULING, COORDINATION, & COOPERATION

- 1. THE CONTRACTOR SHALL SCHEDULE THEIR WORK AND COOPERATE WITH ALL OTHER TRADES ON THE PROJECT SITE TO AVOID DELAYS, INTERFERENCES, AND UNNECESSARY WORK.
2. THE CONTRACTOR SHALL COOPERATE WITH OTHERS TO PROVIDE FOR THE INSTALLATION OF THEIR WORK AND COORDINATE WITH WORK OF ALL OTHER TRADES TO PROVIDE REQUIRED CLEARANCE OF PIPING, DUCTWORK, CONDUIT, ETC. WHEN SUCH IS REQUIRED.
3. SHOULD ANY CHANGES OCCUR DUE TO THE COORDINATION WITH OTHER TRADES AND/OR CONFLICTS WITH THE CONTRACT DOCUMENTS, THEN THE CONTRACTOR SHALL SUBMIT PROPOSED CHANGES TO THE ENGINEER OF RECORD FOR REVIEW OF AN ALTERNATE METHOD OF COMPLETING THEIR WORK ACCORDING TO THE INTENT OF THE CONTRACT DOCUMENTS.
4. NOTIFY THE OWNER TWENTY FOUR (24) HOURS IN ADVANCE WHEN EQUIPMENT IS TO BE TESTED OR UTILITIES ARE TO BE SHUT-OFF, BEFORE BEING CONCEALED AND BEFORE TRENCHES ARE COVERED UP.
5. IF THE CONTRACTOR FAILS TO COMPLY WITH THE ABOVE REQUIREMENTS, THEN THE CONTRACTOR SHALL UNCOVER AND RETEST DUCTWORK, PIPING, OR EQUIPMENT, REPAIRING DAMAGE TO OTHER CONTRACTORS' WORK AS WELL AS THEIR OWN WITHOUT ADDITIONAL COST.
6. PORTIONS OF THE BUILDING MIGHT BE IN USE AND OCCUPIED DURING THE CONSTRUCTION PERIOD OF THIS PROJECT. ALL BUILDING SERVICES, UTILITIES, POWER, CHILLED WATER, HEATING HOT WATER, FIRE PROTECTION, AND DOMESTIC COLD & HOT WATER WHICH WILL BE REQUIRED FOR THIS PROJECT SHALL NOT BE DISRUPTED FOR ANY REASON WITHOUT PRIOR COORDINATION WITH A REPRESENTATIVE OF THE BUILDING MANAGEMENT OR BUILDING OWNER. A WRITTEN AUTHORIZATION FROM THE BUILDING MANAGEMENT TEAM OR BUILDING OWNER SHALL BE REQUIRED TO DOCUMENT THE DATE, START TIME, AND DURATION THAT WERE APPROVED BY THE BUILDING MANAGEMENT TEAM OR BUILDING OWNER FOR SUCH DISRUPTION. AN ADDITIONAL ADVANCE NOTIFICATION OF SEVEN (7) DAYS MINIMUM SHALL BE GIVEN TOT HE BUILDING MANAGEMENT TEAM OR OWNER PRIOR TO EACH DISRUPTION.
7. AREAS OF THE BUILDING MIGHT BE OCCUPIED DURING CONSTRUCTION OF THIS PROJECT. NOISY, DUSTY, AND/OR OTHER CONSTRUCTION OPERATIONS REQUIRED FOR WORK WHICH MAY DISTURB OR CAUSE COMPLAINTS BY THE BUILDING OCCUPANTS SHALL NOT BE ACCEPTABLE. THE CONTRACTOR SHALL USE CONSTRUCTION METHODS AND MATERIALS WHICH SHALL NOT ADVERSELY AFFECT THE INDOOR AIR QUALITY OF THE OCCUPIED AREAS.
8. ALL AFTER-HOUR OR OVERTIME WORK REQUIRED BY THE CONTRACTOR TO AVOID DISRUPTION OF OCCUPANTS SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.
9. AFTER COMPLETION OF INSTALLATION, BUT PRIOR TO SUBSTANTIAL COMPLETION, THE CONTRACTOR SHALL CERTIFY IN WRITING THAT PRODUCTS AND MATERIALS INSTALLED AND PROCESSES USED TO NOT CONTAIN ASBESTOS OR POLYCHLORINATED BIPHENYL (PCB).

G. COMPLETED WORK

- 1. THE CONTRACTOR SHALL INSPECT THE INSTALLATION TO ASSURE THAT WORK IS COMPLETE AND THE REQUIREMENTS OF THE CONTRACT HAVE BEEN COMPLETED BEFORE REQUESTING FINAL PAYMENT.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. THE CONTRACTOR SHALL ORDER ALL MATERIALS AND EQUIPMENT ON SCHEDULE TO BE ABLE TO COMPLETE ALL CONSTRUCTION BY THE SCHEDULED COMPLETION DATE.
B. THE CONTRACTOR SHALL DELIVER AND STORE PRODUCTS IN THE MANUFACTURER'S UNOPENED PACKAGING BEARING THE BRAND NAME AND THE MANUFACTURER'S IDENTIFICATION UNTIL READY FOR INSTALLATION.
C. THE CONTRACTOR SHALL KEEP THE BUILDING AND CONSTRUCTION AREAS CLEAN AND CLEAR OF ALL SCRAP MATERIALS AT ALL TIMES. THE CONTRACTOR SHALL STORE MATERIALS AND EQUIPMENT IN DESIGNATED STORAGE AREAS.
D. THE CONTRACTOR SHALL COMPLY WITH THE MANUFACTURER'S RECOMMENDATIONS TO HANDLE AND STORE ALL MATERIALS TO AVOID DAMAGE.

1.8 PROJECT CONDITIONS

- A. THE CONTRACTOR SHALL MAINTAIN ENVIRONMENTAL CONDITIONS (TEMPERATURE, HUMIDITY, AND VENTILATION) WITHIN THE LIMITS RECOMMENDED BY THE MANUFACTURER FOR OPTIMUM RESULTS. THE CONTRACTOR SHALL NOT INSTALL PRODUCTS UNDER ENVIRONMENTAL CONDITIONS OUTSIDE THE MANUFACTURER'S RECOMMENDED LIMITS AND INSTALLATION INSTRUCTIONS.
B. PROTECTION
1. THE CONTRACTOR SHALL PROTECT THE WORK, EQUIPMENT, AND MATERIALS FROM DAMAGE BY THEIR WORK OR HIS PERSONNEL.
2. THE CONTRACTOR SHALL CORRECT ALL DAMAGE THUS CAUSED WITHOUT ADDITIONAL COST TO THE OWNER.
3. THE CONTRACTOR SHALL PROTECT ALL WORK, MATERIALS, AND EQUIPMENT FROM THEFT, INJURY, OR DAMAGE.
4. THE CONTRACTOR SHALL CAREFULLY STORE ALL MATERIALS AND EQUIPMENT RECEIVED ON SITE WHICH IS NOT IMMEDIATELY INSTALLED.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WORK, MATERIALS, AND EQUIPMENT UNTIL FINAL ACCEPTANCE BY THE OWNER.
6. THE CONTRACTOR SHALL SEAL ALL OPEN ENDS OF DUCTWORK, PIPING, AND EQUIPMENT DURING CONSTRUCTION WITH TEMPORARY COVERS OR PLUGS TO PREVENT THE ENTRY OF DIRT, DUST, AND CONSTRUCTION DEBRIS.
7. THE CONTRACTOR SHALL PROTECT ALL EQUIPMENT AND MATERIALS FROM DAMAGE DUE TO WATER, SPRAY, OR FRESH CONSTRUCTION DEBRIS PER THE REQUIREMENTS OF THE ENGINEER OF RECORD AND/OR THE OWNER.
8. THE CONTRACTOR SHALL CLEAN ALL INTERIOR SURFACES (EQUIPMENT & DUCTWORK) PRIOR TO INSTALLATION.
9. THE CONTRACTOR SHALL MAINTAIN ALL EQUIPMENT FILTERS DURING CONSTRUCTION. REPLACE FILTER MEDIA AT THE AHU AND RETURNS A MINIMUM OF TWO TIMES DURING CONSTRUCTION.
10. THE CONTRACTOR SHALL PROVIDE CONSTRUCTION FILTERS OVER ALL AIR-HANDLING UNIT INTAKES AND MAINTAIN FILTER MEDIA DURING CONSTRUCTION.
11. THE CONTRACTOR SHALL PROVIDE FILTER MEDIA FOR ALL RETURN AIR INTAKES TO MECHANICAL ROOMS.
12. THE CONTRACTOR SHALL REMOVE ALL CONSTRUCTION FILTERS AT THE END OF CONSTRUCTION.
13. THE CONTRACTOR SHALL REPLACE ALL FILTERS (EXCEPT CONSTRUCTION FILTERS) WITH NEW FILTERS AT THE END OF CONSTRUCTION.

1.9 WARRANTY

- A. THE CONTRACTOR SHALL PROVIDE A MINIMUM OF ONE (1) YEAR WARRANTY FROM THE SUBSTANTIAL COMPLETION DATE FOR ALL WORK PERFORMED UNDER THIS CONTRACT. THE DATE OF SUBSTANTIAL COMPLETION SHALL BE DETERMINED BY THE OWNER OR THE OWNER'S REPRESENTATIVE. THE WARRANTY SHALL INCLUDE WORKMANSHIP, LABOR, EQUIPMENT, AND MATERIALS. THE CONTRACTOR SHALL REFER TO THE CONTRACT DOCUMENTS FOR ALL OTHER REQUIRED WARRANTY PERIODS.

1.10 DRAWINGS AND SPECIFICATIONS

- A. ALL DRAWINGS SHALL BE CONSIDERED SCHEMATIC AND MAY NOT INDICATE THE EXACT LOCATIONS OF EQUIPMENT, DUCTWORK, PIPING, ETC. THE CONTRACTOR SHALL REFER TO THE ARCHITECTURAL DRAWINGS FOR THE ACTUAL DIMENSIONS. THE CONTRACTOR SHALL FIT THEIR WORK TO CONFORM TO THE DETAILS OF THE BUILDING CONSTRUCTION. THE CONTRACTOR SHALL COORDINATE ALL WORK TO PROVIDE ALL OF THE REQUIRED CODE AND MANUFACTURER'S CLEARANCES.
B. ALL DRAWINGS ARE DIAGRAMMATIC ONLY AND SHALL NOT BE SCALED.
C. DUE TO DRAWING SCALE, IT IS NOT POSSIBLE TO INDICATE ALL OFFSETS, FITTINGS AND ACCESSORIES WHICH MAY BE REQUIRED. THE CONTRACTOR SHALL EXAMINE FIELD CONDITIONS AND FURNISH THE NECESSARY FITTINGS WHICH MAY BE REQUIRED TO COMPLETE THE INSTALLATION. CONTRACTOR SHALL FURNISH AND INSTALL BALANCING DAMPERS IN HVAC SYSTEMS THAT HAVE MORE THAN ONE INLET/OUTLET UNLESS NOTED OTHERWISE. BALANCING DAMPERS SHALL APPLY TO NEW AND EXISTING DUCTWORK.
D. THE SYMBOLS SHOWN ON THE DRAWINGS ARE ILLUSTRATIVE IN NATURE AND ARE PROVIDED FOR REFERENCE ONLY.
E. THE DRAWINGS ARE BASED UPON THE EXISTING DOCUMENTS PROVIDED BY THE OWNER. THE CONTRACTOR SHALL REPORT ANY UNCOVERED UTILITIES, SERVICES, DUCTWORK, PIPING, ETC. TO THE ARCHITECT BEFORE DISTURBING THE EXISTING INSTALLATION. THE CONTRACTOR SHALL VERIFY THAT ANY ABANDONED DUCTWORK AND PIPING SERVE ONLY ABANDONED FACILITIES.

1.11 AS-BUILT DRAWINGS

- A. DURING CONSTRUCTION THE CONTRACTOR SHALL RECORD ON ONE (1) SET OF MECHANICAL DRAWINGS ALL CHANGES AND DEVIATIONS FROM THE CONTRACT DOCUMENTS IN SIZE, LOCATIONS, AND TYPES OF ALL MATERIALS AND EQUIPMENT. THE CONTRACTOR SHALL RECORD THE FINAL LOCATION OF EQUIPMENT, DUCTWORK, PIPING, ETC., TO INDICATE THE FINAL INSTALLATION. THE CONTRACTOR SHALL MAKE SUFFICIENT MEASUREMENTS TO LOCATE ALL EQUIPMENT AND ACCESSORIES.
B. THE CONTRACTOR SHALL PROVIDE A COMPLETE RED-LINED ELECTRONIC AS-BUILT SET OF DRAWINGS TO THE ENGINEER OF RECORD.

1.12 OPERATION AND MAINTENANCE DATA / CLOSE-OUT DOCUMENTS

- A. THE CONTRACTOR SHALL PROVIDE AND DELIVER TO THE ARCHITECT AND ENGINEER OF RECORD A COMPLETE ELECTRONIC COPY OF ALL DATA PREPARED BY THE MANUFACTURERS THAT DETAIL THE OPERATION AND THE MAINTENANCE INSTRUCTIONS FOR ALL MATERIALS AND EQUIPMENT. THE CONTRACTOR SHALL INSTRUCT THE OWNER OR OWNER'S REPRESENTATIVE IN THE OPERATION OF ALL EQUIPMENT.
B. THE CONTRACTOR SHALL SUBMIT AN ELECTRONIC COPY OF THE OWNER'S OPERATION AND MAINTENANCE MANUALS, AS-BUILT DRAWINGS, AND A COMPLETE PARTS LIST FOR ALL INSTALLED EQUIPMENT. ALL DOCUMENTS SHALL BE SUBMITTED THE THE OWNER AND ENGINEER OF RECORD FOR REVIEW.
C. THE CONTRACTOR SHALL PROVIDE THE OWNER A TYPED ELECTRONIC LIST OF ALL NEW AND EXISTING EQUIPMENT, INDICATED THE MANUFACTURER, MODEL NUMBER, SERIAL NUMBER, VOLTAGE, PHASE, HP, KW, CFM, ETC.

1.13 PENETRATIONS, CUTTING, AND PATCHING

- A. THE CONTRACTOR SHALL PERFORM CUTTING AND PATCHING IN ACCORDANCE WITH THE GENERAL AND SUPPLEMENTARY CONDITIONS OF THE CONTRACT.
B. THE CONTRACTOR SHALL PROVIDE ALL SLEEVES REQUIRED FOR THE PROPER INSTALLATION OF THE WORK INCLUDED IN THIS SECTION.
C. THE CONTRACTOR SHALL MAKE ALL PENETRATIONS THROUGH WALLS AT 90 DEGREE ANGLES. THE CONTRACTOR SHALL SEAL ALL PENETRATIONS AT FIRE, SMOKE, AND FIRE/SMOKE PARTITIONS WITH FIRE SAFING MATERIAL. THE CONTRACTOR SHALL SEAL ALL PENETRATIONS AT SOUND WALLS WITH SOUNDPROOFING MATERIAL.
D. UNLESS NOTED OTHERWISE, THE CONTRACTOR SHALL NOT DO MORE CUTTING AND PATCHING THAN WHAT IS REQUIRED FOR THE INSTALLATION OF THEIR WORK.
E. THE CONTRACTOR SHALL NOT CUT STRUCTURAL MEMBERS OR EXPOSED SURFACE OF CONCRETE BLOCK.
F. THE BUILDING MAY HAVE A STRUCTURAL SYSTEM UTILIZING POST-TENSIONED CABLES. THE CONTRACTOR SHALL DETERMINE THE EXISTING STRUCTURAL SYSTEM PRIOR TO CUTTING, DRILLING, OR CORING. IF POST-TENSIONED CABLES ARE EXISTING, THE CONTRACTOR SHALL X-RAY ALL PENETRATIONS PRIOR TO CUTTING THE FLOOR SLAB.

1.14 PRE-CONSTRUCTION SERVICE CHECK-OUT

- A. AFTER AWARD OF THE CONTRACT AND PRIOR TO CONSTRUCTION THE MECHANICAL CONTRACTOR THAT IS AWARDED THE PROJECT SHALL PERFORM THE FOLLOWING PRE-CONSTRUCTION SERVICE CHECK-OUT FOR ALL EXISTING EQUIPMENT TO BE RE-USED.
B. TEST THE HEATING AND COOLING CYCLE OF EACH EXISTING PIECE OF HVAC EQUIPMENT THAT SERVES THIS LEASE SPACE. VERIFY THAT ALL CONTROLLERS, ACTUATORS, THERMOSTATS, AND OTHER CONTROLS ARE FULLY OPERATIONAL. VERIFY THAT THE COILS ARE CLEAN AND THAT ALL BELTS AND SHEAVES ARE IN GOOD WORKING ORDER.
C. VERIFY THAT THE EXISTING HVAC EQUIPMENT IS OPERATION AND ACHIEVING PROPER LEAVING AIR TEMPERATURES AND THAT THE FILTERS ARE IN PLACE.
D. ALL RE-USED CONDENSATE PIPING SHALL BE BLOWN CLEAN WITH COMPRESSED AIR.
E. REPLACE DAMAGED OR MISSING INSULATION ON DUCTWORK AND PIPING. EXTERIOR INSULATION SHALL BE PROVIDED WITH NEW JACKETING AS SPECIFIED.
F. REPLACE ALL AIR FILTERS ON THE HVAC EQUIPMENT THAT SERVES THIS LEASE SPACE. REPLACE WITH RIGID FRAME FILTERS AND NOT TEMPORARY HAND CUT FILTER MEDIA.
G. THE CONTRACTOR SHALL NOTIFY THE BUILDING OWNER IN WRITING OF ANY DEFICIENCIES FOUND AND SHALL OBTAIN WRITTEN INSTRUCTIONS FROM THE BUILDING OWNER PRIOR TO BEGINNING CONSTRUCTION REGARDING ANY ACTION TO BE TAKEN TO CORRECT FOUND DEFICIENCIES. ITEMS THAT ARE NOT ADDRESSED IN THE PRE-CONSTRUCTION SERVICE CHECK-OUT SHALL BE CORRECTED BY THE CONTRACTOR PRIOR TO THE COMPLETION OF CONSTRUCTION AT NO ADDITIONAL COST TO THE OWNER.

1.15 TEMPERATURE CONTROLS

- A. THE TEMPERATURE CONTROLS CONTRACTOR SHALL PROVIDE COMPONENTS NECESSARY FOR A COMPLETE AND FULLY FUNCTIONAL SYSTEM.
B. THE CONTROLS CONTRACTOR SHALL EXPAND THE EXISTING BASE BUILDING DDC SYSTEM AND PROGRAMMING AND SHALL PROVIDE NEW COMPONENTS, CONTROLLERS, ACTUATORS, ACCESSORIES, AND PROGRAMMING MODES OF OPERATION AND SET POINTS WITH BUILDING ENGINEER PRIOR TO BID.
C. CONTROLS SHALL BE INSTALLED TO MATCH EXISTING BUILDING STANDARD CONTROLS, INCLUDING SUPPORTING FUNCTIONS OF THE EXISTING EMCS. LOW VOLTAGE WIRING SHALL BE PROVIDED AND INSTALLED BY THE CONTROLS CONTRACTOR. LINE VOLTAGE WIRING SHALL BE PROVIDED AND INSTALLED BY THE ELECTRICAL CONTRACTOR. THE MECHANICAL CONTRACTOR SHALL COORDINATE EXACT REQUIREMENTS WITH THE ELECTRICAL CONTRACTOR PRIOR TO BID.
D. REFER TO BASE BUILDING TEMPERATURE CONTROLS SEQUENCE OF OPERATION FOR ADDITIONAL TEMPERATURE CONTROLS REQUIREMENTS.
E. COORDINATE WITH THE BUILDING OWNER'S OPERATION ENGINEER FOR ALL COOLING AND HEATING THERMOSTAT SET POINTS. PROVIDE OPERATOR TRAINING FOR ALL NEW CONTROLS AND SYSTEMS PROVIDED. PROVIDE CONTROLS O&M MANUALS TO THE OPERATIONS ENGINEER UPON COMPLETION OF THE CONTROLS SYSTEM.
F. UPDATE PROGRAMMING OF AFTER-HOURS-AIR-CONDITIONING FOR NEW TENANT. COORDINATE ALL REQUIREMENTS (INCLUDING DIAL UP CODES, SCHEDULES, ETC.) COMPLETELY WITH BUILDING OWNER.
G. LOW VOLTAGE WIRING SHALL BE PROVIDED AND INSTALLED BY THE CONTROLS CONTRACTOR. LINE VOLTAGE WIRING SHALL BE PROVIDED AND INSTALLED BY THE ELECTRICAL CONTRACTOR. THE MECHANICAL CONTRACTOR AND CONTROLS CONTRACTOR SHALL COORDINATE EXACT REQUIREMENTS WITH THE ELECTRICAL CONTRACTOR PRIOR TO SUBMITTING A BID.
H. ALL REQUIRED PNEUMATIC TUBING SHALL BE PROVIDED AND INSTALLED BY THE CONTROLS CONTRACTOR.
I. THE CONTROLS CONTRACTOR SHALL CALIBRATE ALL NEW AND EXISTING PNEUMATIC CONTROLS AND THERMOSTATS UPON COMPLETION.
J. THE GENERAL CONTRACTOR SHALL INCLUDE CONTROLS AND GRAPHICS AS PART OF THE PROJECT CLOSEOUT.

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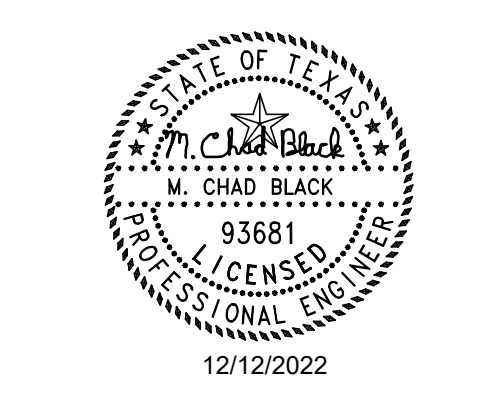
ISSUE FOR CONSTRUCTION

REVISIONS

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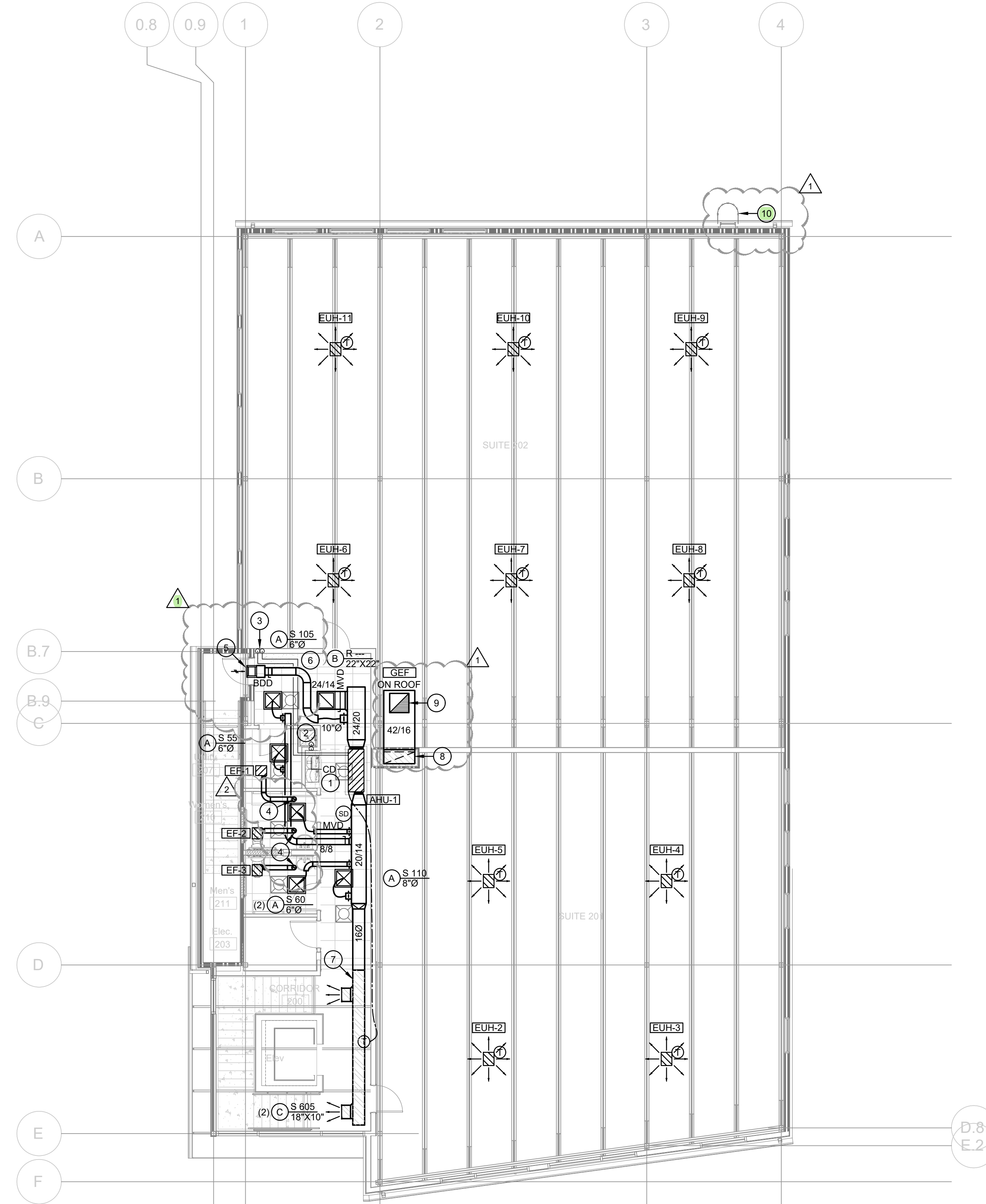
PROJ. NO. 21066 ORIG. ISSUE 2022.09.27

CURRENT: 2022-09-27



SHEET NAME: MECHANICAL SPECIFICATIONS

SHEET NO: M0.001



MECHANICAL PLAN - LEVEL 2
 SCALE: 1/8" = 1'-0"

GENERAL NOTES

- A. REFER TO MECHANICAL COVER SHEET FOR SYMBOLS, ABBREVIATIONS, AND ADDITIONAL INFORMATION.
- B. REFER TO SPECIFICATIONS, DETAILS, AND SCHEDULES FOR ADDITIONAL INFORMATION.
- C. REFER TO DRAWING M2.001 FOR CONTINUATION OF MECHANICAL WORK ABOVE.
- D. CONTRACTOR SHALL PROVIDE CHROME PLATED PIPE ESCUTCHEONS AT ALL WALL AND CEILING PENETRATIONS.
- E. CONTRACTOR SHALL COORDINATE ROUTING REFRIGERANT PIPING AND CONDENSATE PIPING WITH ALL OTHER TRADES. CONTRACTOR SHALL COORDINATE ROUTING PIPING TO ACCOMMODATE EQUIPMENT SERVICE CLEARANCES AND MINIMUM SLOPE REQUIREMENTS FOR CONDENSATE PIPING.
- F. ALL DUCTWORK ON THE POSITIVE PRESSURE SIDE OF THE FAN SHALL BE 26 GA. MIN. GALVANIZED RIGID ROUND DUCT WITH SPIRAL SEAM DUCT CONSTRUCTION, DOUBLE WALL, AND SEALED. PROVIDE "HARDCAST" SEALANT AT ALL JOINTS.

KEYED DRAWING NOTES

- 1. LIGHT DASHED LINES INDICATE REQUIRED SERVICE CLEARANCE.
- 2. ROUTE THE 3/4" CONDENSATE PIPING AS INDICATED FROM THE AHU TO THE INDICATED MOP SINK. REFER TO PLUMBING DRAWINGS FOR EXACT LOCATION OF THE MOP SINK. SLOPE THE CONDENSATE PIPING DOWN A MINIMUM OF 1/8" PER FOOT TO THE DISCHARGE LOCATION. ROUTE CD PIPING DOWN IN THE WALL AND PROVIDE A MINIMUM 1" AIR GAP ABOVE THE FLOOD RIM OF THE INDIRECT WASTE RECEPTOR. FIELD VERIFY AND COORDINATE THE EXACT ROUTING OF THE CONDENSATE PIPING WITH ALL TRADES.
- 3. ROUTE THE REFRIGERANT PIPING DOWN TO LEVEL 1.
- 4. 6" EXHAUST DUCTWORK UP TO EXHAUST ROOF CAP ON ROOF.
- 5. REFER TO THE ARCHITECT FOR INTAKE LOUVER SPECIFICATIONS, FINISH, OVERALL SIZE, AND EXACT LOCATION. THE BOTTOM OF THE OUTSIDE AIR INTAKE LOUVER SHALL BE MOUNTED A MINIMUM OF 10'-0" ABOVE GRADE AND A MINIMUM OF 10'-0" AWAY FROM EXHAUST OUTLETS AND PLUMBING VENTS. THE LOUVER SHALL HAVE DRAINABLE GUTTERS TO THE BUILDING EXTERIOR. LOUVER SHALL BE PROVIDED WITH 0.75" X 0.75" FLAT EXPANDED ALUMINUM INTERNAL BIRDSCREEN. THE LOUVER SHALL HAVE A MINIMUM 0.5 SF OF FREE AREA AND THE MAXIMUM VELOCITY SHALL BE LESS THAN 500 FPM. PROVIDE A FULL SIZE EXTERNALLY INSULATED SHEET METAL PLENUM WITH A BACKDRAFT DAMPER ON THE BACK SIDE OF THE INTAKE LOUVER. THE BACKDRAFT DAMPER SHALL BE NORMALLY CLOSED AND COUNTER WEIGHT BALANCED TO OPEN AT 0.05" W.G. CONTRACTOR SHALL PITCH THE BOTTOM OF THE FULL SIZE SHEET METAL DUCT SO THAT WATER WILL DRAIN BACK THROUGH THE LOUVER TO THE EXTERIOR. THE CONTRACTOR SHALL BALANCE THE OUTSIDE AIR TO EACH OF THE AHU PER THE SCHEDULED AMOUNTS INDICATED ON THE SPLIT SYSTEM SCHEDULE.
- 6. OUTSIDE AIR DUCTWORK BETWEEN THE INTAKE LOUVER AND CONNECTION TO THE RETURN DUCTWORK SHALL BE EXTERNALLY INSULATED WITH A MINIMUM R-8 INSULATION.
- 7. DOUBLE WALL INSULATED SUPPLY DUCT.
- 8. EXHAUST DUCT DOWN THROUGH LEVEL 2 SLAB. REFER TO DRAWING M2.001 FOR CONTINUATION.
- 9. CONNECT A 26/26 EXHAUST DUCT ON TOP OF THE 42/16 EXHAUST DUCT AND TRANSITION AS REQUIRED UP TO 24/24 BACKDRAFT DAMPER IN THE ROOF CURB FOR GEF LOCATED ON THE ROOF.
- 10. REFER TO ARCHITECT FOR PERMANENT ROOF ACCESS LADDER.

ROOF WARRANTY

THE ROOF SYSTEM INSTALLED IN THIS BUILDING HAS A WARRANTY. THE CONTRACTOR SHALL COMPLY WITH ALL WARRANTY GUIDELINES WHILE INSTALLING EQUIPMENT ON THE ROOF. THIS INCLUDES THE INSTALLATION OF ROOF PENETRATIONS, EQUIPMENT CURBS, VTR'S AND PIPE SUPPORTS.

CONTACT BUILDING MANAGER FOR ROOF WARRANTY INFORMATION AND FOR EXACT SPECIFICATIONS FOR ANY WORK TO BE PERFORMED ON THE ROOF OF THIS BUILDING.

UNDER NO CIRCUMSTANCES SHALL THE GENERAL CONTRACTOR OR ANY SUB CONTRACTORS BE ALLOWED TO MAKE ROOF PENETRATIONS. TO DO SO WOULD VOID THE EXISTING ROOF WARRANTY. ALL PENETRATIONS SHALL BE COORDINATED THROUGH THE BUILDING OWNER'S PREFERRED ROOFING CONTRACTOR.

THE CONTRACTOR SHALL TAKE FULL RESPONSIBILITY TO ENSURE THAT THE ROOF WARRANTY IS NOT VOIDED DUE TO CONSTRUCTION ASSOCIATED WITH THIS PROJECT.

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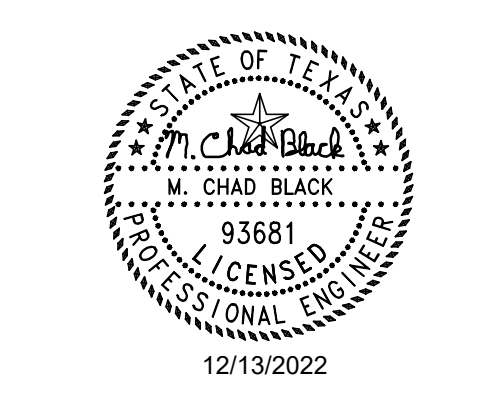
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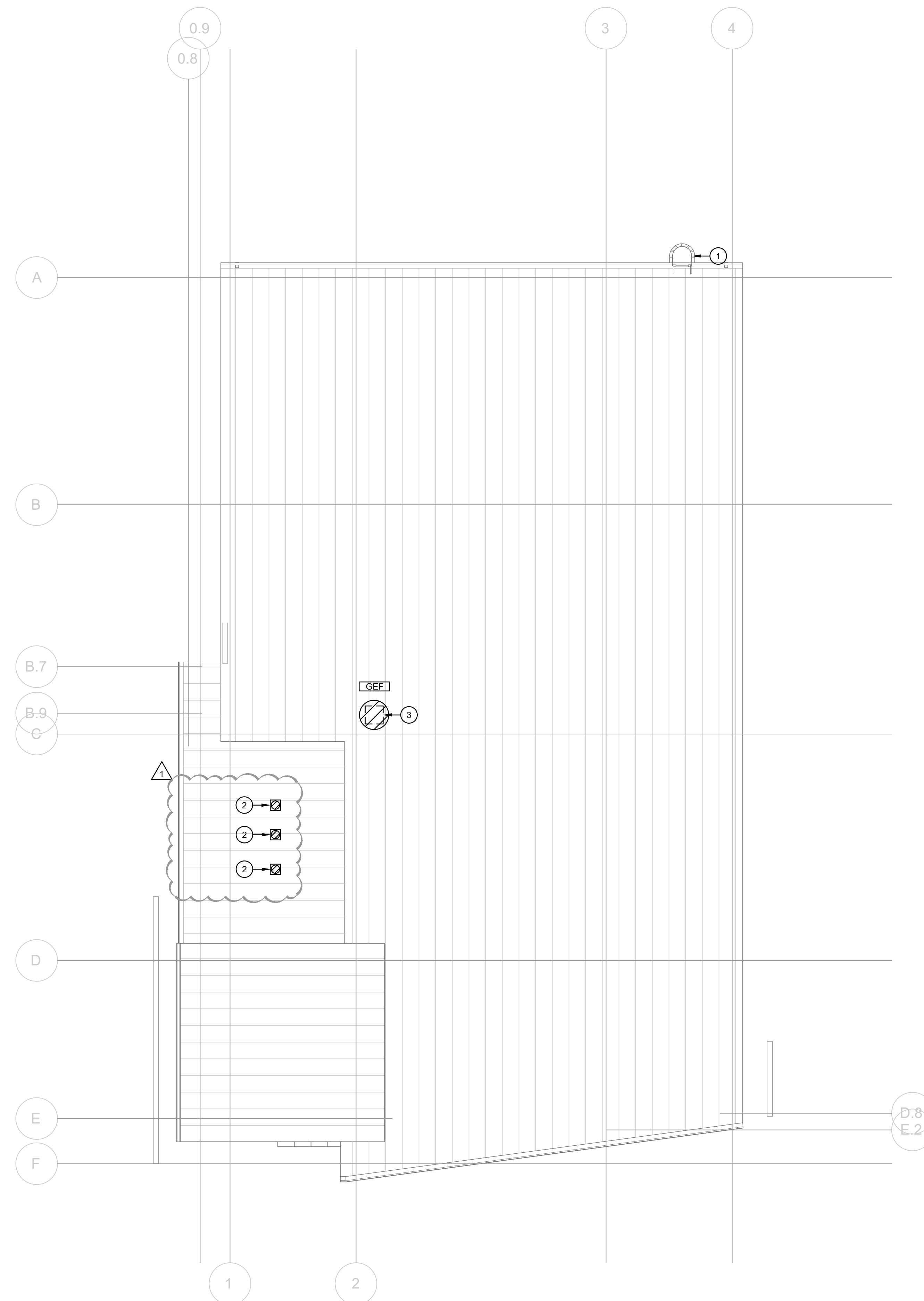
Δ	DATE	DESCRIPTION
1	2022-12-9	Revision 1
2	2022-12-13	COA Expedited Review

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SHEET NAME:
 MECHANICAL
 PLAN - LEVEL 2

SHEET NO:
M2.002



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

GENERAL NOTES

- A. REFER TO MECHANICAL COVER SHEET FOR SYMBOLS, ABBREVIATIONS, AND ADDITIONAL INFORMATION.
- B. REFER TO SPECIFICATIONS, DETAILS, AND SCHEDULES FOR ADDITIONAL INFORMATION.

KEYED DRAWING NOTES

- 1. REFER TO ARCHITECT FOR PERMANENT ROOF ACCESS LADDER.
- 2. EXHAUST ROOF CAP WITH ROOF CURB.
- 3. EXHAUST FAN LOCATED ON ROOF WITH SCHEDULED ROOF CURB.

ROOF WARRANTY

THE ROOF SYSTEM INSTALLED IN THIS BUILDING HAS A WARRANTY. THE CONTRACTOR SHALL COMPLY WITH ALL WARRANTY GUIDELINES WHILE INSTALLING EQUIPMENT ON THE ROOF. THIS INCLUDES THE INSTALLATION OF ROOF PENETRATIONS, EQUIPMENT CURBS, VTR'S AND PIPE SUPPORTS.

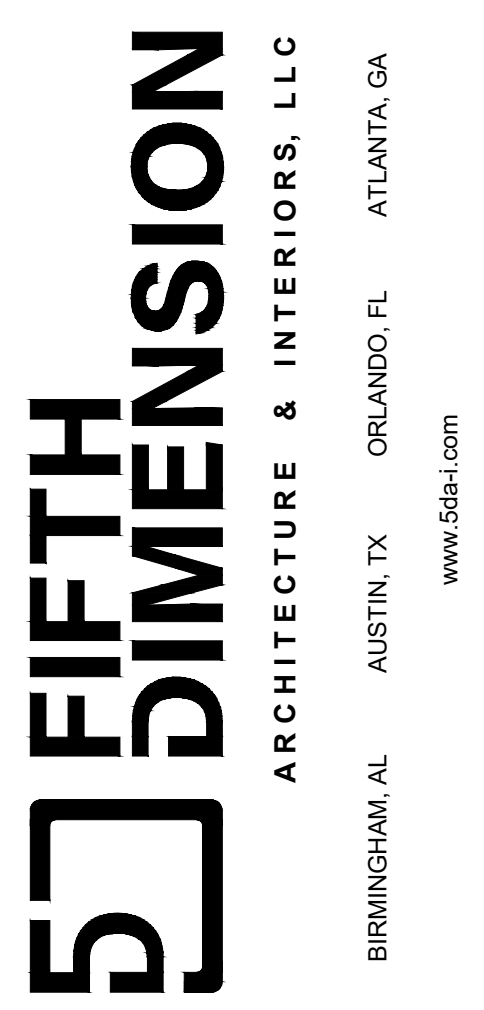
CONTACT BUILDING MANAGER FOR ROOF WARRANTY INFORMATION AND FOR EXACT SPECIFICATIONS FOR ANY WORK TO BE PERFORMED ON THE ROOF OF THIS BUILDING.

UNDER NO CIRCUMSTANCES SHALL THE GENERAL CONTRACTOR OR ANY SUB CONTRACTORS BE ALLOWED TO MAKE ROOF PENETRATIONS. TO DO SO WOULD VOID THE EXISTING ROOF WARRANTY. ALL PENETRATIONS SHALL BE COORDINATED THROUGH THE BUILDING OWNER'S PREFERRED ROOFING CONTRACTOR.

THE CONTRACTOR SHALL TAKE FULL RESPONSIBILITY TO ENSURE THAT THE ROOF WARRANTY IS NOT VOIDED DUE TO CONSTRUCTION ASSOCIATED WITH THIS PROJECT.



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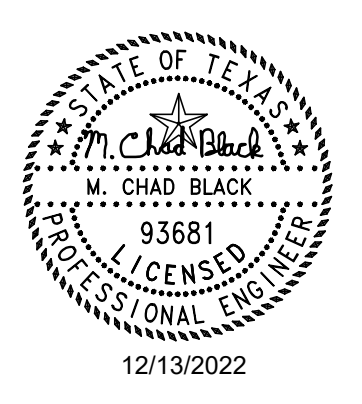


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1	2022-12-13	COA Expedited Review

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SHEET NAME:
 MECHANICAL
 PLAN - LEVEL 2

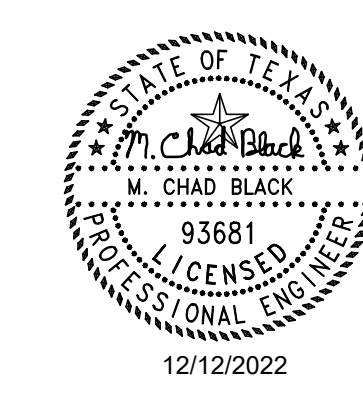
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SHEET NAME:
MECHANICAL SCHEDULES

SHEET NO:
M6.000

MARK	SERVES	OUTDOOR AMBIENT TEMP °F	ELECTRICAL DATA			MINIMUM (SJEER)	BASIS OF DESIGN MANUFACTURER & MODEL	WEIGHT LBS.
			V/PH	MCA	MOP			
CU-1	AHU-1	105	208/3	18	30	(14.0)	TRANE 4TTA4048	189

- NOTES:**
- THE CONDENSING UNITS SHALL BE PROVIDED WITH THE FOLLOWING:
 - ANTI-SHORT CYCLE RELAY
 - HIGH PRESSURE AND LOW PRESSURE PROTECTION
 - FILTER DRYER
 - LOW-AMBIENT CONTROLS
 - EVAPORATOR DEFROST CONTROL AS REQUIRED TO ALLOW OPERATION DOWN TO 0°F AMBIENT
 - HARD START KIT
 - TIMED-OFF CONTROL
 - HAIL GUARDS
 - VIBRATION ISOLATION
 - 5-YR COMPRESSOR WARRANTY
 - THE CONTRACTOR SHALL DETERMINE THE EXACT LENGTHS OF REFRIGERANT LINES REQUIRED AND SUBMIT TO THE MANUFACTURER FOR SIZING OF THE REFRIGERANT PIPING. THE CONTRACTOR SHALL PROVIDE ADDITIONAL COMPONENTS AS RECOMMENDED BY THE MANUFACTURER FOR PROPER OPERATION OF THE UNITS. THE CONTRACTOR SHALL INSTALL THE REFRIGERANT PIPING PER THE MANUFACTURER'S RECOMMENDED INSTALLATION INSTRUCTIONS.
 - THE DISCONNECT SWITCH SHALL NOT BE UNIT MOUNTED AND SHALL BE PROVIDED AND INSTALLED BY THE ELECTRICAL CONTRACTOR.

MARK	SERVES	SUPPLY CFM	OUTSIDE AIRFLOW CFM	EXT. SP. DROP IN.	COOLING CAPACITY DATA				ELECTRIC HEAT DATA		EVAPORATOR ELECTRICAL DATA				BASIS OF DESIGN MANUFACTURER & MODEL	WEIGHT LBS.	
					EDB °F	EWB °F	NET SENSIBLE MBH	NET TOTAL MBH	HEATING CAPACITY KW	STAGES	V/PH	HP	V/PH	MCA			MOP
AHU-1	SEE PLANS	1600	210	0.5	77.1	63.9	34.5	38.1	(39.0 MBH)	1	208/3	3/4	208/3	-	-	TRANE TEMA60C48	174

- NOTES:**
- THE AIR-HANDLING UNITS SHALL BE PROVIDED WITH THE FOLLOWING:
 - VERTICAL CONFIGURATION
 - FLEXIBLE INLET & OUTLET CONNECTIONS
 - VIBRATION ISOLATION KIT
 - SINGLE POINT ELECTRICAL CONNECTION AIR-HANDLING UNIT
 - ECM FAN MOTOR
 - FOIL FACE INSULATION
 - 1/4" SLOPING DRAIN PAN
 - FREEZE STAT
 - 2" THICK PLEATED MEDIA (MERV 8) FILTERS IN A FILTER BOX BASE WITH HINGED DOOR
 - AUXILIARY DRAIN PAN WITH FLOAT SWITCH WIRED TO DE-ENERGIZE UNIT UPON RISE OF WATER IN PAN
 - 7-DAY PROGRAMMABLE THERMOSTAT WITH AUTOMATIC CHANGE-OVER, HONEYWELL VISION PRO-8000 ELECTRONIC PROGRAMMABLE THERMOSTAT OR EQUAL, THERMOSTAT SHALL HAVE A LARGE BACKLIT TOUCH SCREEN, BATTERY BACKUP TO RETAIN PROGRAMMING DURING POWER OUTAGE. THERMOSTAT SHALL AUTOMATICALLY RESET TIME SCHEDULES FOR DAYLIGHT SAVINGS TIME. SUPPORT FOR MULTIPLE STAGE HEATING/COOLING (AS REQUIRED), ADJUSTABLE PARTIAL OR FULL KEYPAD LOCKOUT, 5-YEAR WARRANTY.
 - THE DISCONNECT SWITCH SHALL NOT BE UNIT MOUNTED AND SHALL BE PROVIDED AND INSTALLED BY THE ELECTRICAL CONTRACTOR.
 - SEQUENCE OF OPERATION:

OCCUPIED MODE
EACH T-STAT SHALL CONTROL THE RESPECTIVE UNIT TO MAINTAIN THE HEATING/COOLING SET POINTS (INITIALLY 72°F HEATING / 75°F COOLING). THE MOTORIZED OUTSIDE AIR DAMPER SHALL BE POWERED OPEN.

UN-OCCUPIED MODE
EACH T-STAT SHALL CONTROL THE RESPECTIVE UNIT TO MAINTAIN THE HEATING/COOLING SET BACK POINTS (65°F HEATING / 85°F COOLING). THE MOTORIZED OUTSIDE AIR DAMPER SHALL BE CLOSED.

MARK	LOCATION	SERVICE	TOTAL CFM	TOTAL S.P. IN. WG.	FRPM	FAN TYPE	ELECTRICAL DATA				BASIS OF DESIGN MANUFACTURER & MODEL
							FLA	HP (W)	VOLT S	PH	
EF-1	SEE PLANS	JANITOR	70	0.33	718	CENTRIFUGAL	1.15	(80)	120	1	GREENHECK SP-B110
EF-2	SEE PLANS	TOILET	70	0.33	718	CENTRIFUGAL	1.15	(80)	120	1	GREENHECK SP-B110
EF-3	SEE PLANS	TOILET	70	0.33	718	CENTRIFUGAL	1.15	(368)	120	1	GREENHECK SP-B110

- NOTES:**
- EXHAUST FANS, SHALL BE PROVIDED WITH THE FOLLOWING (UNLESS NOTED OTHERWISE):
 - INTEGRAL BACKDRAFT DAMPER
 - MOTOR RATED FOR CONTINUOUS USE
 - MOTOR WITH THERMAL OVERLOAD
 - UL 507 LISTED
 - SPEED CONTROLLER
 - ALUMINUM ROOF CAP, CURB MOUNTED, PN: RCC-7, INTEGRAL ALUMINUM BIRDSCREEN, BUILT-IN CURB CAP
 - TIME DELAY SWITCH (EF-2 AND EF-3 ONLY)
 - VIBRATION ISOLATION KIT
 - STANDARD GRILLE
 - FLEXIBLE OUTLET CONNECTION
 - ALUMINUM ROOF CURB - GPIP-15-A12, CONTRACTOR SHALL CONFIRM ROOF PITCH WITH ARCHITECT PRIOR TO ORDERING
 - ROOF CURB INSULATION 1.5"
 - EXHAUST FAN, EF-1 SHALL OPERATE CONTINUOUSLY DURING THE OCCUPIED MODE.
 - EXHAUST FANS, EF-2 AND EF-3 SHALL OPERATE BY WALL TIME DELAY SWITCH.
 - THE DISCONNECT SWITCH SHALL NOT BE UNIT MOUNTED AND SHALL BE PROVIDED AND INSTALLED BY THE ELECTRICAL CONTRACTOR.

MARK	SERVICE	TYPE	FINISH	NECK SIZE	MODULE SIZE	FACE SIZE	BASIS OF DESIGN
A	SUPPLY	SQUARE PLAQUE	OFF-WHITE	SEE PLANS	-	24"x24"	TITUS, OMNI-AA, LAY-IN
B	RTN/TRANSFER	EGGGRATE	OFF-WHITE	SEE PLANS	-	NECK +2"	TITUS, 50F, LAY-IN
C	SUPPLY	SIDEWALL	OFF-WHITE	SEE PLANS	-	NECK +2"	TITUS, 272FS, SURFACE MOUNT
D	EXHAUST	EGGGRATE	OFF-WHITE	SEE PLANS	9	NECK +2"	TITUS, 50F, LAY-IN

- NOTES:**
- DUCT RUN-OUTS TO AIR DEVICES SHALL BE EQUAL TO THE SIZE INDICATED IN THE SCHEDULE ABOVE, UNLESS NOTED OTHERWISE ON THE PLANS. PROVIDE A TRANSITION TO THE NECK SIZE DOWNSTREAM OF TAP AND BRANCH DUCTWORK.
 - FLEXIBLE DUCTWORK SHALL BE LIMITED TO 5 FEET MAXIMUM PER DUCT RUN-OUT. PROVIDE RIGID ROUND EXTERNALLY INSULATED DUCTWORK FOR RUN-OUTS THAT EXCEED 5 FEET OF TOTAL LENGTH. SUPPORT FLEXIBLE DUCTWORK WITH GALVANIZED STRAP HANGERS SPACED A MAXIMUM OF 3 FEET ON CENTER.
 - CONTRACTOR SHALL COORDINATE FINISH COLOR WITH THE ARCHITECT PRIOR TO ORDERING. SUBMIT COLOR CHART TO ARCHITECT.
 - CONTRACTOR SHALL PROVIDE INSULATED BACKPAN ON ALL SUPPLY AIR DEVICES. INSULATION SHALL MATCH THE DUCT SERVICE TYPE. REFER TO THE MECHANICAL SPECIFICATIONS FOR MINIMUM R-VALUE.
 - CONTRACTOR SHALL VERIFY CEILING TYPE CONSTRUCTION WITH THE ARCHITECT AND PROVIDE FRAMING AS REQUIRED FOR ALL AIR DEVICES.
 - CONTRACTOR SHALL PROVIDE AUXILIARY TRIM FRAME FOR ALL AIR DEVICES INSTALLED IN NON-LAY-IN CEILINGS.
 - REFER TO DETAIL FOR AIR DEVICES THAT REQUIRE A FULL SIZE SHEET METAL PLENUM.
 - CONTRACTOR SHALL COORDINATE EXACT MOUNTING HEIGHT AND LOCATION OF SIDEWALL GRILLES AND DOOR GRILLES WITH THE ARCHITECT.

MARK	LOCATION	AIRFLOW DISCHARGE DIRECTION	TOTAL CFM	DRIVE TYPE	ELECTRICAL DATA				BASIS OF DESIGN MANUFACTURER & MODEL
					KW	HP	V	PH	
EUH-1	FIRE RISER	HORIZONTAL	400	DIRECT	3.3	1/125	208	1	MARKEL TASKMASTER F1F5103N
EUH-2	SUITE 201	VERTICAL	400	DIRECT	3.3	1/125	208	1	MARKEL TASKMASTER F1F5103N
EUH-3	SUITE 201	VERTICAL	400	DIRECT	3.3	1/125	208	1	MARKEL TASKMASTER F1F5103N
EUH-4	SUITE 201	VERTICAL	400	DIRECT	3.3	1/125	208	1	MARKEL TASKMASTER F1F5103N
EUH-5	SUITE 201	VERTICAL	400	DIRECT	3.3	1/125	208	1	MARKEL TASKMASTER F1F5103N
EUH-6	SUITE 202	VERTICAL	400	DIRECT	3.3	1/125	208	1	MARKEL TASKMASTER F1F5103N
EUH-7	SUITE 202	VERTICAL	400	DIRECT	3.3	1/125	208	1	MARKEL TASKMASTER F1F5103N
EUH-8	SUITE 202	VERTICAL	400	DIRECT	3.3	1/125	208	1	MARKEL TASKMASTER F1F5103N
EUH-9	SUITE 202	VERTICAL	400	DIRECT	3.3	1/125	208	1	MARKEL TASKMASTER F1F5103N
EUH-10	SUITE 202	VERTICAL	400	DIRECT	3.3	1/125	208	1	MARKEL TASKMASTER F1F5103N
EUH-11	SUITE 202	VERTICAL	400	DIRECT	3.3	1/125	208	1	MARKEL TASKMASTER F1F5103N

- NOTES:**
- ELECTRIC UNIT HEATERS SHALL BE PROVIDED WITH THE FOLLOWING (UNLESS NOTED OTHERWISE):
 - UL LISTED
 - HEAVY DUTY
 - SUSPENDED
 - FACTORY MOUNTING BRACKET - REFER TO HORIZONTAL/VERTICAL DISCHARGE AND PROVIDE APPROPRIATE BRACKET
 - DUST SHIELD
 - OSHA FAN GUARD
 - RADIAL DIFFUSER FOR VERTICAL DOWNWARD DISCHARGE
 - DIRECT DRIVE FAN MOTOR
 - MARKEL MODEL T5100 BUILT-IN T-STAT (SET TO MAINTAIN A MINIMUM TEMPERATURE OF 50°F)
 - CONTROL VOLTAGE 24V
 - 24V TRANSFORMER
 - THE DISCONNECT SWITCH SHALL NOT BE UNIT MOUNTED AND SHALL BE PROVIDED AND INSTALLED BY THE ELECTRICAL CONTRACTOR.
 - INSTALL PER THE EQUIPMENT MANUFACTURER'S RECOMMENDED INSTALLATION INSTRUCTIONS.

MARK	LOCATION	DISCHARGE	TOTAL CFM	DRIVE TYPE	ELECTRICAL DATA				BASIS OF DESIGN MANUFACTURER & MODEL
					KW	HP	V	PH	
ECUH-1	ENTRY 101	VERTICAL	175	DIRECT	3.0	-	208	1	MARKEL 3380 SERIES, HF3386D-RP

- NOTES:**
- ELECTRIC CEILING UNIT HEATERS SHALL BE PROVIDED WITH THE FOLLOWING (UNLESS NOTED OTHERWISE):
 - UL LISTED
 - HEAVY GAUGE STEEL HOUSING
 - CEILING SUSPENDED
 - BAKED-ON POWDER COAT IN CEILING WHITE COLOR
 - WHITE POWDER COATED 18 GAUGE STEEL GRILL
 - HEATER SHALL HAVE A LOW SPEED MOTOR TO DRIVE A VANE AXIAL BLOWER FOR DOWNFLOW AIR
 - HEATING ELEMENT SHALL BE OF THE BLOCK FINNED TYPE WITH LARGE, PARALLEL STEEL FINS FOR QUICK HEAT TRANSFER
 - UNIT SHALL BE RECESS MOUNTED
 - UNIT SHALL BE PROVIDED STANDARD WITH A MANUAL RESET CAPILLARY TYPE LIMIT CONTROL
 - FACTORY INSTALLED TAMPER RESISTANT THERMOSTAT (HEATING SETPOINT SHALL BE 70°F)
 - THE DISCONNECT SWITCH SHALL NOT BE UNIT MOUNTED AND SHALL BE PROVIDED AND INSTALLED BY THE ELECTRICAL CONTRACTOR.
 - INSTALL PER THE EQUIPMENT MANUFACTURER'S RECOMMENDED INSTALLATION INSTRUCTIONS.

MARK	LOCATION	SERVICE	TOTAL CFM	TOTAL S.P. IN. WG.	FRPM	FAN TYPE	ELECTRICAL DATA				BASIS OF DESIGN MANUFACTURER & MODEL
ARRANGEMENT	FLA	HP (W)	VOLT S	PH							
GEF	SEE PLANS	GARAGE	4500	0.33	1096	CENTRIFUGAL	-	1	120	1	GREENHECK AE-24-431-B10

- NOTES:**
- PROPELLER HOODED EXHAUST FAN SHALL BE PROVIDED WITH THE FOLLOWING:
 - ALUMINUM HOUSING
 - ALUMINUM BLADES
 - ALUMINUM CURB CAP
 - MOTOR ISOLATED ON SHOCK MOUNTS
 - MOTOR WITH THERMAL OVERLOAD
 - PSC MOTOR
 - UL 705 LISTED
 - ALUMINUM BIRDSCREEN
 - SPEED CONTROLLER
 - GRAVITY BACKDRAFT DAMPER - 24"x24"
 - ALUMINUM ROOF CURB - GPIP-34-A12, CONTRACTOR SHALL CONFIRM ROOF PITCH WITH ARCHITECT PRIOR TO ORDERING
 - ROOF CURB INSULATION 1.5"
 - GARAGE EXHAUST FAN, GEF SHALL OPERATE WHEN THE CARBON MONOXIDE MONITOR SENDS A SIGNAL TO OPERATE THE EXHAUST FAN BECAUSE THE CARBON MONOXIDE LEVEL IS GREATER THAN 35 PPM.
 - THE DISCONNECT SWITCH SHALL NOT BE UNIT MOUNTED AND SHALL BE PROVIDED AND INSTALLED BY THE ELECTRICAL CONTRACTOR.

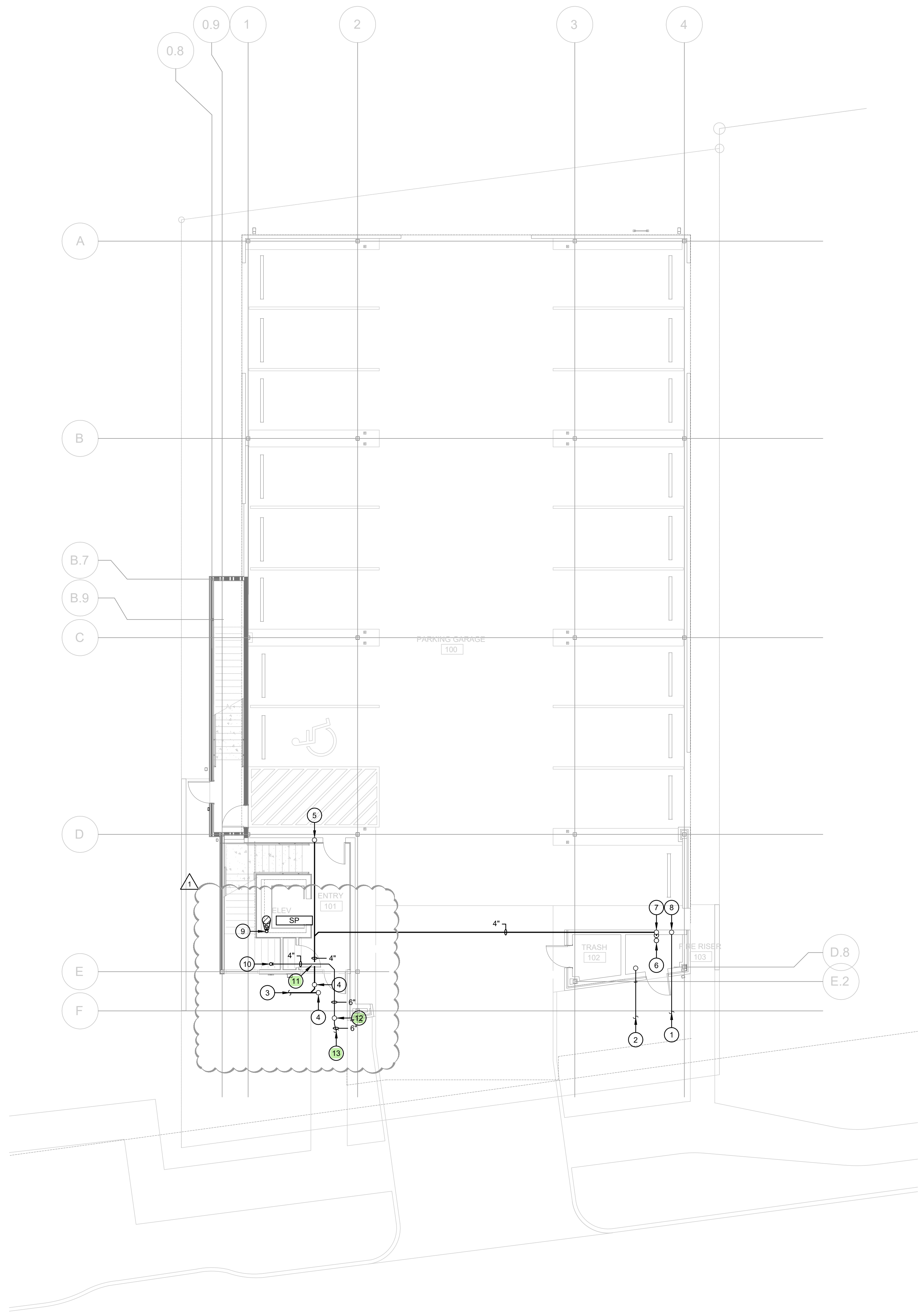
GARAGE EXHAUST AIR CALCULATIONS

OUTSIDE AIR SHALL BE PROVIDED IN ACCORDANCE WITH THE 2021 UNIFORM MECHANICAL CODE. THE REQUIRED EXHAUST AIR VALUE WAS CALCULATED AS FOLLOWS:

SPACE	AREA SF	EXHAUST CFM/SF	REQUIRED EXHAUST	
			CFM	CFM
GARAGE	5902	0.75	4426.50	4500

THE GARAGE IS EXHAUSTED BY GEF. THE PROVIDED EXHAUST EXCEEDS THE REQUIRED EXHAUST. THEREFORE, THE GARAGE AIR EXHAUST AIR REQUIREMENT IS SATISFIED.





1 PLUMBING PLAN - UNDERSLAB
SCALE: 1/8" = 1'-0"

GENERAL NOTES

- A. REFER TO PLUMBING COVER SHEET FOR SYMBOLS, ABBREVIATIONS, AND ADDITIONAL INFORMATION.
- B. REFER TO RISER AND EQUIPMENT CONNECTION SCHEDULE FOR ADDITIONAL SIZES AND ROUTING NOT INDICATED ON PLANS.
- C. REFER TO PLUMBING SPECIFICATIONS AND DETAILS FOR ADDITIONAL INFORMATION.
- D. CONTRACTOR SHALL DETERMINE INVERT AND VERIFY THAT THEY ARE COORDINATED WITH OTHER TRADES.
- E. JOB CONDITIONS RESULT IN UNUSUALLY LIMITED SPACE FOR SYSTEM INSTALLATION THAT PERMITS SERVICE, AND MAINTENANCE. UTMOST ATTENTION SHALL BE REQUIRED FOR ALL ELEMENTS OF CONSTRUCTION, BUT ESPECIALLY PLANNING, COORDINATION AND TRADES WORKMANSHIP.
- F. PROVIDE STEEL NAIL PLATES NOT LESS THAN 18 GAUGE IN THICKNESS TO ALL PLASTIC AND COPPER PIPING PENETRATING FRAMING MEMBERS WITHIN 1-INCH OF THE EXPOSED FRAMING PER CODE.
- G. REFER TO THE ARCHITECT'S DRAWING NOTES AND REQUIREMENTS. IN CASE OF ANY DISCREPANCIES THE CONTRACTOR SHALL REFER TO THE ARCHITECTURAL DRAWINGS FOR SPECIFICATIONS.
- H. COORDINATE ALL WORK WITH ALL OTHER TRADES.
- I. FIELD VERIFY ALL CONDITIONS AND SCOPE OF WORK PRIOR TO STARTING WORK. COORDINATE SEQUENCING OF WORK WITH OWNER'S REPRESENTATIVE.
- J. CONNECTIONS OF NEW PIPING TO EXISTING PIPING SHALL BE DONE IN SUCH A MANNER AS TO NOT DAMAGE EXISTING SYSTEMS. REPORT ALL SUCH OCCURRENCES IMMEDIATELY TO THE ARCHITECT/OWNER'S REPRESENTATIVE.
- K. COORDINATE SHUTDOWN OF SYSTEMS DURING CONSTRUCTION WITH OTHER TRADES, THE TENANT, OTHER TENANTS, AND THE BUILDING MANAGEMENT TEAM.
- L. RE-ROUTING OF EXISTING PIPING SHALL BE DONE IN SUCH A MANNER AS TO NOT DAMAGE OTHER SYSTEMS THAT ARE TO REMAIN. COORDINATE WITH ARCHITECT/OWNER'S REPRESENTATIVE FOR LOCATIONS.
- M. REPORT ALL SYSTEMS OR COMPONENTS APPEARING TO BE DEFECTIVE, NON-OPERATIONAL OR "SUSPECT" TO OWNER'S REPRESENTATIVE/ARCHITECT IMMEDIATELY TO DETERMINE FURTHER ACTION.
- N. REFER TO DRAWING P2.001 FOR CONTINUATION OF PLUMBING WORK ABOVE.

KEYED DRAWING NOTES ← 1"

- 1. REFER TO CIVIL FOR CONTINUATION OF BELOW GRADE DOMESTIC WATER PIPING.
- 2. REFER TO CIVIL FOR CONTINUATION OF BELOW GRADE FIRE PIPING.
- 3. REFER TO CIVIL FOR CONTINUATION OF BELOW GRADE SANITARY PIPING.
- 4. 4" PIPING UP TO YCO. REFER TO DRAWING P2.001 FOR CONTINUATION.
- 5. 4" SANITARY PIPING UP. REFER TO DRAWING P2.001 FOR CONTINUATION.
- 6. 4" SANITARY WASTE PIPING FROM FIXTURE ABOVE. REFER TO DRAWING P2.001 FOR CONTINUATION.
- 7. 2" VENT PIPING UP. REFER TO DRAWING P2.001 FOR CONTINUATION.
- 8. DCW PIPING UP. REFER TO DRAWING P2.001 FOR CONTINUATION.
- 9. **ELEVATOR SUMP PUMP DISCHARGE UP. REFER TO DRAWING P2.001 FOR CONTINUATION.**
- 10. **ELEVATOR SUMP PUMP DISCHARGE DOWN FROM ABOVE. REFER TO DRAWING P2.001 FOR CONTINUATION.**
- 11. **COORDINATE ROUTING THE ELEVATOR SUMP PUMP DISCHARGE ABOVE THE SANITARY PIPING AT THIS LOCATION. CONTINUE EXITING OUT FROM THE BUILDING AS INDICATED.**
- 12. **PROVIDE 6" SAMPLE PORT. SAMPLE PORT SHALL BE A SINGLE RISER TWO-WAY CLEAN-OUT WITH THE ABILITY TO VISUALLY SEE THE FLOW LINE AND RETRIEVE SAMPLES.**
- 13. **REFER TO CIVIL FOR CONTINUATION OF BELOW GRADE SUMP PUMP DISCHARGE PIPING. SUMP PUMP DISCHARGE PIPING SHALL BE CONNECTED TO THE STORM SEWER SYSTEM.**

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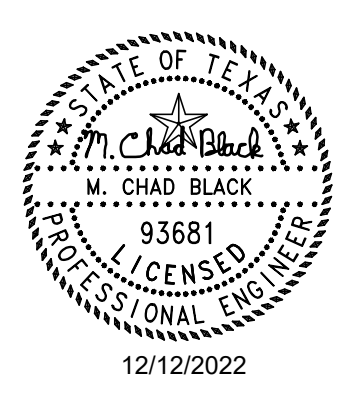
ISSUE FOR CONSTRUCTION

REVISIONS

Δ	DATE	DESCRIPTION
1	2022-12-9	Revision 1

PROJ. NO. | ORIG. ISSUE
21066 | 2022.09.27

CURRENT:
2022-09-27



SHEET NAME:
PLUMBING
PLAN -
UNDERSLAB

SHEET NO:
P2.000

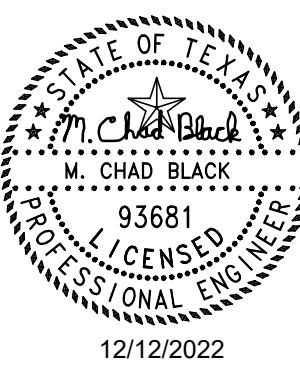
	<p>9 WALL CLEANOUT SCALE: NONE</p>		<p>6 TYPICAL TWO-WAY CLEAN-OUT SCALE: NONE</p>		<p>3 TRAP PRIMER INSTALLATION SCALE: NONE</p>
<p>NOTES: 1. THE EXISTING ROOF SYSTEM INSTALLED IN THIS BUILDING HAS A WARRANTY. THE CONTRACTOR SHALL REFER TO THE PLUMBING ROOF PLAN FOR ROOF WARRANTY REQUIREMENTS. 2. MAINTAIN A MINIMUM OF 15'-0" FROM FRESH AIR INTAKES AND OPENINGS INTO BUILDINGS.</p>	<p>8 VENT THROUGH ROOF SCALE: NONE</p>		<p>5 TYPICAL FLOOR CLEAN-OUT SCALE: NONE</p>		<p>2 DIFFERENTIAL PRESSURE TYPE TRAP PRIMER SCALE: NONE</p>
<p>NOTE: SUMP PUMP SHALL BE PROVIDED WITH A COMPLETE LIQUID LEVEL ALARM PANEL SYSTEM. PROVIDE FLOAT SWITCH IN SUMP BASIN TO DETECT HIGH WATER LEVEL. ALARM PANEL TO BE INSTALLED IN AN ACCESSIBLE LOCATION. POWER FOR THE ALARM PANEL SHALL BE PROVIDED BY THE CONVENIENCE RECEPTACLE LOCATED ADJACENT TO PANEL. A DEDICATED SWITCHED RECEPTACLE LOCATED WITHIN THE ELEVATOR SHAFT WILL POWER THE SUMP PUMP. COORDINATE ALL REQUIREMENTS WITH ELECTRICAL.</p>	<p>7 ELEVATOR SUMP DISCHARGE SCALE: NONE</p>		<p>4 FIRE-RATED PIPE PENETRATION SCALE: NONE</p>	<p>NOTES: 1. TYPICAL FOR NON-INSULATED PIPE AND CONDUIT. 2. TYPICAL FOR MASONRY OR CONCRETE WALLS.</p>	<p>1 NON-FIRE-RATED PIPE PENETRATION SCALE: NONE</p>

REVISIONS

Δ	DATE	DESCRIPTION
1	2022-12-9	Revision 1

PROJ. NO. 21066 | ORIG. ISSUE 2022-09-27

CURRENT: 2022-09-27



SHEET NAME:
**PLUMBING
DETAILS**

SHEET NO:
P5.001

WATER HAMMER ARRESTER SCHEDULE							
FIXTURE	TYPE OF SUPPLY CONTROL	WEIGHT IN FIXTURE - UNITS					
		PUBLIC			PRIVATE		
		TOTAL	CW	HW	TOTAL	CW	HW
WATER CLOSET	FLUSH VALVE	-	8	-	5	5	-
WATER CLOSET	FLUSH TANK	15	5	-	2.5	2.5	-
PEDESTAL URINAL	FLUSH VALVE	-	4	-	-	-	-
WALL URINAL	FLUSH VALVE	3	4	-	-	-	-
LAVATORY	FAUCET	11	1.5	1.5	1	1	1
BATHTUB	FAUCET	-	2	3	2	1.5	1.5
SHOWER HEAD	MIXING VALVE	-	2	3	2	1	2
BATHROOM GROUP	FLUSH VALVE CLOSET	-	-	-	8	8	3
BATHROOM GROUP	FLUSH TANK CLOSET	-	-	-	6	6	3
SEPARATE SHOWER	MIXING VALVE	-	-	-	2	1	2
SERVICE SINK	FAUCET	2	3	3	-	-	-
LAUNDRY TUBS (1-3)	FAUCET	-	-	-	3	3	3
COMBINATION FIXTURE	FAUCET	-	-	-	3	3	3
PDI UNITS		A	B	C	D	E	F
FIXTURE UNITS		1 - 11	12 - 32	33 - 60	61 - 113	114 - 154	155 - 330

NOTES:
 1. SIZING PER THE PLUMBING AND DRAINAGE INSTITUTE (PDI) STANDARD PDI-HW 201.
 2. ALL SIZING DATA BASED ON THE FLOW VELOCITIES OF 10 FPS OR LESS.
 3. ROUND UP THE FIXTURE-UNIT TOTAL TO THE NEXT LARGER WHOLE NUMBER.

DOMESTIC WATER AND WASTE WATER CALCULATIONS									
ROOM / AREA	TAG	FIXTURE TYPE	QTY	WATER FIXTURE UNITS	BRANCH FIXTURE UNITS		TOTAL DCW FIXTURE UNITS	SANITARY WASTE	
					HW	CW		DRAINAGE DFU	TOTAL DFU
SEE PLANS	MS	MOP SINK	1	1.50	1.13	1.13	1.50	3.00	3.00
RESTROOM	EWC	WATERCOOLER (DBL BOWL TAS)	2	0.50	-	1.00	1.00	0.50	1.00
RESTROOM	LV	LAVATORY	2	1.00	1.50	1.50	2.00	1.00	2.00
RESTROOM	WC	WATER CLOSET - FT	2	2.50	-	5.00	5.00	4.00	8.00
RISER	FS	FLOOR SINK - 4"	1	-	-	-	-	8.00	8.00
EXTERIOR	WH	WALL HYDRANT	1	2.50	-	2.50	2.50	-	-
EXTERIOR	WH	WALL HYDRANT	1	1.00	-	1.00	1.00	-	-
TOTAL WSFU =				2.63	12.13	13.00	TOTAL DFU =	22.00	
RECOMMENDED MINIMUM BUILDING WATER SUPPLY PIPE SIZE (INCHES) [NOTE 2]									1-1/2"
RECOMMENDED MINIMUM BUILDING WATER SERVICE METER SIZE (INCHES)									2"
RECOMMENDED MINIMUM BUILDING SANITARY SEWER PIPE SIZE (INCHES)									4.00

- NOTES:
 1. CALCULATIONS PER THE 2021 UPC.
 2. BASED ON A SUPPLY PRESSURE RANGE OF 60 TO 80 PSI.
 3. THE ESTIMATED TOTAL BUILDING DOMESTIC WSFU = 45 WSFUS.
 4. THE ESTIMATED TOTAL BUILDING SANITARY WASTE = 62 DFUS.

DOMESTIC WATER HEATER (ELECTRIC) SCHEDULE										
MARK	SERVES	LOCATION	STORAGE		CAPACITY			ELECTRICAL DATA		BASIS OF DESIGN MANUFACTURER & MODEL
			GALLONS	GPH	TEMP RISE °F	KW	VOLTS	PH		
EWH	POTABLE	SEE PLANS	6	8	80	1.5	120	1	AO SMITH DEL-6S-1.5	

- NOTES:
 1. PROVIDE AMTRON EXTROL ST-5-C SERIES PRE-CHARGED THERMAL EXPANSION ABSORBER (ET) FOR WATER HEATER.
 2. WATER HEATER SET POINT SHALL BE AT 140°F.
 3. WATER HEATER INSTALLATIONS SHALL MEET OR EXCEED ALL CODE REQUIREMENTS, LOCAL AMENDMENTS, AND MANUFACTURER'S RECOMMENDED INSTALLATION REQUIREMENTS.
 4. ALL PLUMBING SUPPLIES, VALVES, AND ASSOCIATED APPURTENANCES SHALL BE INSTALLED.
 5. COORDINATE EXACT MOUNTING LOCATION WITH ARCHITECTURAL.
 6. COORDINATE DISCONNECT SWITCH LOCATION AND REQUIREMENTS WITH THE ELECTRICAL CONTRACTOR.
 7. THE DISCONNECT SWITCH SHALL NOT BE UNIT MOUNTED AND SHALL BE PROVIDED AND INSTALLED BY THE ELECTRICAL CONTRACTOR.

PUMP SCHEDULE										
MARK	SERVICE	TYPE	FLOW		DESIGN HEAD			ELECTRICAL DATA		BASIS OF DESIGN MANUFACTURER & MODEL
			GPM	FT. W.G.	HP	RPM	V / PH			
HWRP	HW CIRC.	CENTRIFUGAL	1.0	25	1/4	3300	120 / 1	ITT NBF-36 (SPEED 1)		

- NOTES:
 1. PROVIDE HWRP WITH 24-HR, 7-DAY TIMER CONTROLLER. INSTALL AQUASTAT ON THE RETURN ADJACENT TO LAST FIXTURE TAP.
 2. THE DISCONNECT SWITCH SHALL NOT BE UNIT MOUNTED AND SHALL BE PROVIDED AND INSTALLED BY THE ELECTRICAL CONTRACTOR.

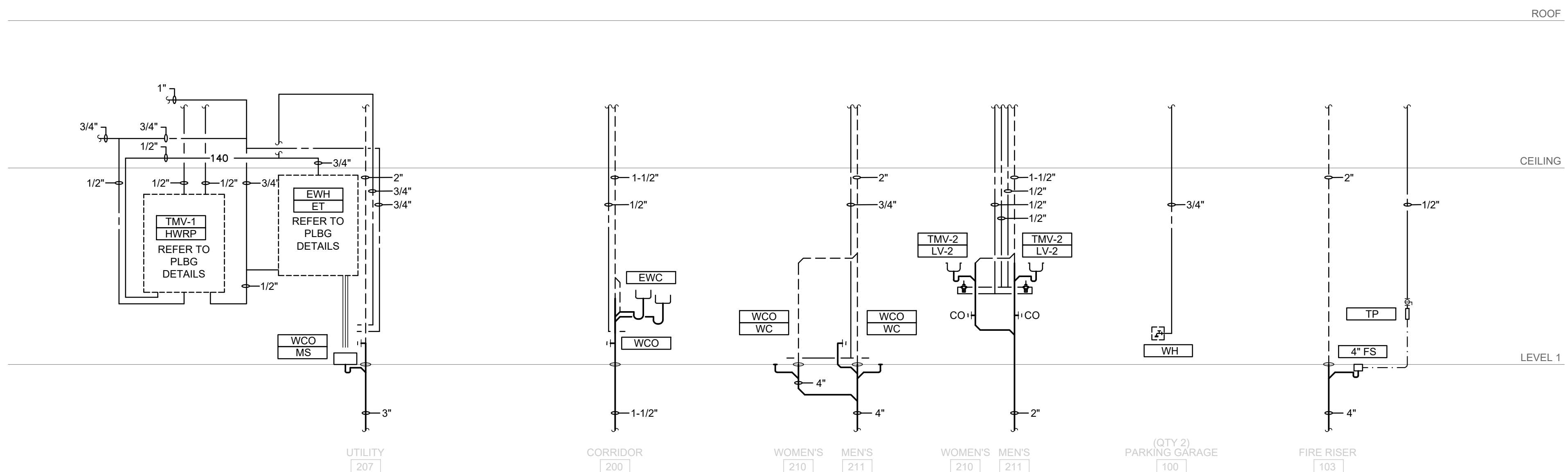
THERMOSTATIC MIXING VALVE SCHEDULE									
MARK	DESIGN FLOW RATE [GPM]	PRESSURE DROP @ DESIGN FLOW RATE [PSI]	MINIMUM FLOW RATE [GPM]	MAXIMUM FLOW RATE [GPM]	BASIS OF DESIGN		NOTES		
					MANUFACTURER	MODEL NUMBER			
TMV-1	2.63	0.55	0.5	19	POWERS	LFSH1432	1, 2, 3		
TMV-2	0.5	2	0.35	2	POWERS	LFE480	4		

- NOTES:
 1. MINIMUM FLOW RATE REQUIRED TO MAINTAIN TEMPERATURE CONTROL.
 2. PRESSURE DROP OF 5 PSI ACROSS VALVE.
 3. VALVE FINISH IS TO BE POLISHED CHROME.
 4. VALVE FINISH IS TO BE POLISHED CHROME. MIXING VALVE SHALL FAIL CLOSED UPON OUTLET TEMPERATURES EXCEEDING 110°F. SET OUTLET TEMPERATURE TO 105°F.

ELEVATOR SUMP PUMP SCHEDULE										
MARK	SERVICE	TYPE	FLOW		DESIGN HEAD			ELECTRICAL DATA		BASIS OF DESIGN MANUFACTURER & MODEL
			GPM	FT. W.G.	HP	RPM	V / PH			
SP	ELEV. SUMP	SUBMERSIBLE	50	19	1/2	3600	120 / 1	STANCOR SE-50		

- NOTES:
 1. SUMP PUMP SHALL OPERATE AUTOMATICALLY WITHOUT ANY HUMAN INTERVENTION.
 2. PROVIDE SUMP PUMP WITH 6' POWER CORD.
 3. PROVIDE SUMP PUMP WITH ELEVATOR PUMP CONTROL SYSTEM, REMOTE ALARM, HIGH OIL INDICATOR, AND SINGLE FLOAT WITH MULTIPLE ALARM POINTS. FLOAT SHALL ACTIVATE LOCAL AUDIOVISUAL ALARM AT 2" ABOVE PUMP OFF LEVEL.
 4. CONTRACTOR SHALL COORDINATE LOCATION OF ALARM A/V DEVICE WITH THE AUTHORITY HAVING JURISDICTION.
 5. NON-HYDRAULIC ELEVATOR IN SCOPE. NO EQUIPMENT FOR OIL / WATER SEPARATION REQUIRED.
 6. INSTALL ELEVATOR SUMP PUMP PER MANUFACTURER'S INSTALLATION INSTRUCTIONS AND IN COMPLIANCE WITH ASME A17.1-2007/CSA B44.07.

PLUMBING FIXTURE SCHEDULE										
MARK	DESCRIPTION	MOUNTING TYPE	MANUFACTURER MODEL NUMBER	SPECIFICATIONS	ADA (Y/N)	BRANCH CONNECTION SIZE UNLESS NOTED OTHERWISE				P-TRAP SIZE
						CW	HW	SAN	VENT	
EWC	ELECTRIC WATER COOLER	WALL	ELKAY LZSTL8WSLK	SELF CONTAINED, BARRIER FREE, DUAL LEVEL, SELF CLOSING PUSH BARS ON FRONT AND SIDES, SAFETY BUBBLER, 8.0 GPM CAPACITY WATER COOLER (LZSTL8WSLK), BOTTLE FILLER (LZWSR), AND FILTER. FILTER SHALL BE CERTIFIED TO NSF 42 AND 53 FOR LEAD, PARTICULATE, CHLORINE, TASTE, AND ODOR REDUCTION. 3000 GALLON CAPACITY. GALVANIZED FRAME WITH STAINLESS STEEL BASIN. REFER TO ARCHITECTS DRAWINGS FOR EXACT LOCATION AND MOUNTING HEIGHT. PROVIDE APRONS IF REQUIRED BY TAS. CONTRACTOR SHALL SUPPLY THE SCHEDULED P-TRAP FOR EWC. 115V/60HZ, 6A, 370W.	Y	1/2"	-	1-1/2"	1-1/2"	1-1/2"
FCO	FLOOR CLEAN-OUT	FLOOR	JR SMITH 4020 SERIES	CAST-IRON BODY, ABS GASKETED CLEANOUT PLUG, SATIN NICKEL BRONZE FLANGE AND COVER. TWO-PIECE, THREADED, ADJUSTABLE HOUSING FOR FLUSH INSTALLATION. PROVIDE WITH FLANGE WITH FLASHING CLAMPS (F-C).	-	-	-	SEE PLANS	-	-
FS	FLOOR SINK	FLOOR	JR SMITH 3140 SERIES	12" X 12" 8" RECEPTOR. ACID-RESISTANT ENAMELED CAST IRON. ALUMINUM DOME STRAINER, RIM WITH 1/2 GRATE.	-	-	-	4"	2"	4"
LV	LAVATORY	WALL	KOHLER KINGSTON K-2005 SERIES	BOWL: RECTANGULAR 21 X 18 IN. INGLE FAUCET HOLE, CONCEALED ARM CARRIER SYSTEMS, FRONT OVERFLOW, WHITE. FAUCET: KOHLER K-13460, 0.50 GPM WITH TIME-OUT SETTING AT 30-SECONDS, ADA COMPLIANT, SENSOR ACTIVATED, AERATED SPRAY HEAD, CHROME PLATED BRASS, DC BATTERY POWERED. SUPPLY: MCGUIRE 2107 SERIES. LOOSE KEY WITH RISER. TRAP: MCGUIRE 8902 SERIES. CAST BODY WITH CLEAN-OUT. CARRIER: SMITH 0700 SERIES. STRAINER, AND TAILPIECE. MCGUIRE 159WC OFFSET TAILPIECE, OPEN GRID STRAINER. PROTECTIVE PIPE COVERS: TRUEBRO OR EQUAL.	Y	1/2"	1/2"	2"	1-1/2"	1-1/4"
MS	MOP SINK	FLOOR	FIAT MSB-24X24	24 X 24 IN. 10-IN HIGH WALLS WITH 1-IN WIDE SHOULDERS. STAINLESS STEEL DRAIN BODY (3-IN DRAIN PIPE CONNECTION), COMBINATION DOME STRAINER AND STAINLESS STEEL LINT BASKET.	-	3/4"	3/4"	3"	2"	3"
TP	TRAP PRIMER	WALL	PPP DUAL-FLOW	BRASS BODY, 1/2" MALE NPT INLET, 1/2" FEMALE NPT OUTLET. PROVIDE DISTRIBUTION UNITS AS REQUIRED.	-	1/2"	-	-	-	-
WC	WATER CLOSET	FLOOR	KOHLER "HIGHLINE" K-3519-TR	WITREOUS CHINA, ELONGATED RIM, EQUIPPED WITH SLOAN "FLUSHMATE" SYSTEM. CLOSE-COUPLED TANK, 2" OUTLET, 1.0 GALLONS PER FLUSH, WITH BOLT CAPS, INTEGRAL TRAP, AND LOCKING TANK LID.	Y	1/2"	-	4"	2"	-
WCO	WALL CLEAN-OUT	WALL	-	TAPPED CLEANOUT TEE. EXTRA-HEAVY, THREADED, SOLID HEXAGONAL NUT CLEANOUTS IN HUBS OF COMBINATION WYE AND 1/8-BENDS OR WYES. TAPPED SPIGOT CLEANOUTS AT ENDS OF HUBLESS COMBINATION WYE AND 1/8-BENDS OR WYES. BLIND PLUG. COVERS OVER CLEANOUTS IN CONCEALED VERTICAL PIPING (ALL AREAS, FINISHED AND UNFINISHED); SQUARE FRAME WITH SECURED, SMOOTH, SATIN NICKEL BRONZE ACCESS COVER. OPENING SIZES: 4-IN AND SMALLER PIPING: 6 X 6-IN. LARGER THAN 4-IN PIPING: 8 X 8-IN. CERAMIC TILE, QUARRY TILE, STONE, RESILIENT TILE, AND SHEET FACE FLANGE TO HIDE ROUGH WALL OPENING. SMITH 4430 SERIES. TERRAZZO AND CONCRETE (FINISHED AREAS); PLASTER GROUND FLANGE AND FLUSH-WITH-WALL FRAME. SMITH 4431 SERIES.	-	-	-	-	-	-
WH	WALL HYDRANT	WALL	WOODFORD MODEL B65	ANTI-SIPHON FREEZELESS WALL HYDRANT. CHROME FINISH WITH ANTI-SIPHON VACUUM BREAKER WITH 3/4" MALE HOSE THREAD, HARDENED STAINLESS STEEL STEM WITH LOOSE TEE KEY OPERATOR, CONCEALED BOX TYPE.	-	3/4"	-	-	-	-
YCO	YARD CLEAN-OUT	GRADE	JR SMITH 4237	EXTRA-HEAVY, DOUBLE-FLANGED, CAST-IRON FERRULE, COMPLETELY FREE OF PIPING SO THAT NO LOAD IS TRANSMITTED TO PIPE. CONCRETE HEAVY-DUTY ROUND TOP WITH SCORIATED COVER AND LIFTING DEVICE. SET IN FINISHED CONCRETE. POURED AT SURFACE USING HIGH FLANGE. NON-SURFACED AND ASPHALT; HEAVY-DUTY ROUND TOP WITH SCORIATED COVER AND LIFTING DEVICE. SET IN 6-IN THICK CONCRETE PAD, 24 X 24-IN SQUARE. POURED OVER SURFACE USING LOW FLANGE. NICKEL BRONZE FINISH.	-	-	-	4"	-	-

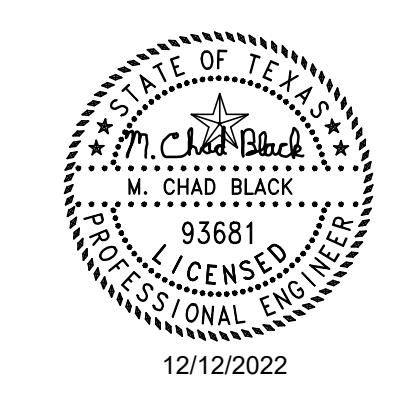


1 PLUMBING RISERS
SCALE: NONE

REVISIONS

DATE	DESCRIPTION
1 2022-12-9	Revision 1

PROJ. NO. | ORIG. ISSUE
 21066 | 2022.09.27
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SHEET NAME:
 PLUMBING SCHEDULES & RISERS

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