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PLUMBING GENERAL NOTES

- ALL PLUMBING SYSTEMS SHALL BE INSTALLED AS PER SPECIFICATIONS AND GOVERNING CODES.
- ALL DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL ARRANGEMENTS OR GEOMETRIC RELATIONSHIPS OF EQUIPMENT AND SERVICES. THEY ARE NOT INTENDED TO SPECIFY OR SHOW EVERY OFFSET, FITTING OR COMPONENT. CONTRACTOR SHALL NOT SCALE DRAWINGS. INFORMATION AND COMPONENTS SHOWN ON RISER DIAGRAMS OR DETAILS, BUT NOT SHOWN ON PLANS, AND VICE-VERSA, SHALL BE PROVIDED AS IF EXPRESSLY REQUIRED BY BOTH. THE CONTRACTOR SHALL SUBMIT A REQUEST FOR INFORMATION (RFI) IF INFORMATION CONFLICTS. DRAWINGS SPECIFIC TO THIS DISCIPLINE DO NOT LIMIT THE RESPONSIBILITY OF WORK REQUIRED BY CONTRACT DOCUMENTS. REFER TO ARCHITECTURAL, ELECTRICAL AND OTHER DRAWINGS FOR COMPLETE INFORMATION.
- BY NECESSITY, THESE DRAWINGS REFLECT A SYSTEM DESIGNED AROUND SPECIFIC REFERENCE PRODUCTS. THE SELECTION OF WHICH HAS IMPACTED THE DESIGNS OF OTHER TRADES (HVAC, ELECTRICAL, ETC.). IF ALTERNATE MANUFACTURERS, FUEL SOURCES, SIZES, OR MODEL NUMBERS ARE SUBMITTED OR BID, IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR AND ALL SUBCONTRACTORS TO COORDINATE ALL DIFFERENCES PRIOR TO BID. NO EXTRAS WILL BE ALLOWED FOR CHANGES REQUIRED TO OTHER TRADES IF ALTERNATE EQUIPMENT IS BID OR INSTALLED AT THE CONTRACTORS OPTION.
- EXCEPT WHERE MODIFIED BY SPECIFIC NOTATION TO THE CONTRARY, IT SHALL BE UNDERSTOOD THAT THE INDICATION AND/OR DESCRIPTION OF ANY ITEM, IN THE DRAWINGS OR SPECIFICATIONS OR BOTH, CARRIES WITH IT THE INSTRUCTION TO FURNISH AND INSTALL THE ITEM, REGARDLESS OF WHETHER OR NOT THIS INSTRUCTION IS EXPLICITLY STATED AS PART OF THE INDICATION OR DESCRIPTION.
- CONTRACTOR SHALL PAY ALL UTILITY FEES & CHARGES AS PART OF BASE BID IN THE CONTRACT.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL WORK WITH THAT OF OTHER TRADES; i.e., ARCHITECTURAL, HVAC, ELECTRICAL, AND FIRE PROTECTION PRIOR TO CONSTRUCTION.
- THE CONTRACTOR SHALL COORDINATE UTILITY LOCATIONS, SIZES AND INVERT ELEVATIONS PRIOR TO CONSTRUCTION; i.e., SANITARY SEWER, FIRE PROTECTION, DOMESTIC WATER. ALL SERVICES SHALL TERMINATE 5 FEET OUTSIDE THE BUILDING, EXCEPT WHERE SHOWN OTHERWISE. SEE SITE UTILITY DRAWINGS FOR CONTINUATION OF ALL SERVICE LINES.
- PROVIDE ISOLATION VALVES AT EACH FIXTURE GROUP OR BATTERY OF FIXTURES IN THE DOMESTIC CW & HW. VALVES SHALL BE EASILY ACCESSIBLE. WHERE HARD CEILINGS ARE LOCATED, VALVES SHALL BE ACCESSED THROUGH ACCESS PANELS. ACCESS PANELS SHALL BE COORDINATED WITH ARCHITECT PRIOR TO CONSTRUCTION.
- PROVIDE STOP VALVES AT ALL PLUMBING FIXTURES ON BOTH HOT AND COLD WATER SUPPLY LINES. VALVES, ESCUTCHEONS, FITTINGS, ETC., SHALL BE CHROME PLATED AND INSTALLED TIGHT TO WALL. WHERE PIPING IS EXPOSED, CHROME PLATED PIPE SHALL BE USED.
- ALL EXPOSED OR ACCESSIBLE P-TRAPS SHALL BE CHROME PLATED AND PROVIDED WITH BOTTOM CLEANOUT PLUGS.
- SLOPE 2-1/2" AND SMALLER DRAIN WASTE AND VENT (DWV) LINES AT MIN. (2%) 1/4" FALL PER FT., 3" TO 6" DWV LINES AT MIN. (1%) 1/8" FALL PER FT.
- PROVIDE ALL FITTINGS, TRANSITIONS, COUPLINGS, ADAPTERS, UNIONS, AND OTHER ACCESSORIES NEEDED TO COMPLETE CONNECTIONS AND PROPER OPERATIONS OF PLUMBING FIXTURES AND PLUMBING EQUIPMENT.
- REFER TO SPECIFICATIONS FOR ACCEPTABLE MANUFACTURERS OF PLUMBING FIXTURES AND EQUIPMENT, AND PROPER APPLICATIONS OF SAME.
- PROVIDE CLEANOUTS IN ALL SEWERS, WHETHER SHOWN OR NOT, AT INTERVALS NOT TO EXCEED 50 FEET, AT EACH CHANGE OF DIRECTION GREATER THAN 45°, AND ALL VERTICAL STACKS AT A HEIGHT OF 30' ABOVE FINISH FLOOR AT THE BASE OF EACH STACK.
- ALL PIPING PENETRATIONS OF THE RATED CEILING AND WALL MUST BE MADE WITH METAL PIPE OR UL LISTED APPROVED DEVICES. FIRE STOP ALL PIPE PENETRATIONS THRU RATED WALLS. SEE ARCHITECTURAL DRAWINGS FOR LOCATIONS, RATINGS AND FIRE STOPPING DETAILS.
- DO NOT ROUTE ANY PIPING OVER ELEC. ROOMS OR ELEC. PANELS.
- UNLESS OTHERWISE INDICATED, DO NOT ROUTE WATER PIPING IN EXTERIOR WALLS. WHEN ROUTED IN EXTERIOR WALLS, CAREFULLY POSITION WATER PIPING ON THE HEATED SIDE (INTERIOR SIDE) OF THE WALL INSULATION.
- ALL SEWER & VENT PIPING SHALL BE RODDED AND CLEANED AT END OF CONSTRUCTION. ALL TRAPS SHALL BE CLEANED AND PRIMED AT END OF CONSTRUCTION.
- ALL PIPE DROPS FROM CEILING PLENUM TO FLOOR SHALL BE MADE IN FURROUTS AT COLUMNS, IN WEB OF BEAMS AT COLUMNS OR IN WALLS. PIPING SHALL BE CONCEALED UNLESS APPROVED BY ARCHITECT.
- PROVIDE WATER HAMMER ARRESTORS IN FIXTURE BRANCHES WHERE QUICK CLOSING VALVES ARE INSTALLED; i.e., FLUSH VALVES
- INSULATE ALL WATER PIPING ABOVE FINISH FLOOR. SEE SPECIFICATIONS FOR THICKNESS SCHEDULE.
- INSULATE ALL EXPOSED HOT WATER & DRAIN PIPING FOR ACCESSIBLE FIXTURES PER ANSI A117.1 AND ADA REQUIREMENTS.
- AN APPROVED TRAP SEAL DEVICE CONFORMING TO ASSE 1072 SHALL BE INSTALLED AT ALL FLOOR AND HUB DRAINS. ALL DRAINS SHALL HAVE DEEP SEAL TRAPS, 4" DEEP SEAL MINIMUM. INSTALL TRAP GUARD DEVICES PER MANUFACTURER'S INSTRUCTIONS.
- DOMESTIC WATER SERVICE PIPING AND FITTINGS; E.G., CHECK VALVES, SHUT-OFF VALVES, STRAINERS, ETC. SHALL COMPLY WITH NSF 61 CRITERIA. ALL CAST IRON EQUIPMENT IS TO BE INTERNALLY EPOXY COATED.

DEMOLITON / RENOVATION NOTES

- IN THESE GENERAL NOTES, "PLUMBING" SHALL REFER TO, BUT NOT BE LIMITED TO SYSTEMS, COMPONENTS AND EQUIPMENT FOR HOT WATER, COLD WATER, SEWER, SEWER VENTS, ISOLATION VALVES, BALANCING VALVE, REGULATORS, EQUIPMENT AND PIPING, ETC.
- CONTRACTOR SHALL VERIFY EXISTING SITE CONDITIONS INCLUDING, BUT NOT LIMITED TO: PIPE SYSTEMS, SIZES AND LOCATIONS; VALVE LOCATIONS; EQUIPMENT CONDITIONS, CONNECTIONS AND LOCATIONS; BALANCING VALVES; HAMMER ARRESTORS.
- ALL EXISTING PLUMBING EQUIPMENT AND PIPING ADJACENT TO AND/OR IN AREAS OF DEMOLITION SHALL BE PROPERLY IDENTIFIED FOR LOCATION, SIZE, CONDITION AND SYSTEM(S) OPERATION. ALL SYSTEMS SHALL BE COMPARED TO THE PLUMBING DRAWINGS AND EXISTING RECORD DRAWINGS (EXISTING RECORD DRAWINGS SHALL BE REQUESTED FROM OWNER) AND DOCUMENT ALL VARIATIONS. AFTER THE EXISTING SYSTEMS ARE INVESTIGATED AND DOCUMENTED, THE CONTRACTOR SHALL CAP AND/OR REMOVE ALL PLUMBING EQUIPMENT AND PIPING BACK TO POINT OF DEMOLITION BOUNDARY AS NOTED ON PLANS. DEMOLITION BOUNDARY AND PHASING SHALL BE COORDINATED WITH ARCHITECT AND OWNER PRIOR TO CONSTRUCTION. ALL BRANCHES AND DROPS NOT REMOVED SHALL BE CAPPED AND PREPARED FOR FUTURE RECONNECTION WHEN NEW EQUIPMENT AND/OR FIXTURES ARE INSTALLED, AS REQUIRED.
- COORDINATE AND SCHEDULE THE REMOVAL OF EXISTING PLUMBING AND SYSTEM SHUT-DOWNS WITH OWNER, ARCHITECT AND MAINTENANCE PERSONNEL PRIOR TO CONSTRUCTION.
- MAINTAIN EXISTING PLUMBING WITH PHASED DEMOLITION AND INSTALLATION OF NEW WORK, PROVIDING TEMPORARY SERVICES AS REQUIRED.
- EXISTING PLUMBING EQUIPMENT BEING REMOVED AND NOT RE-USED, SHALL REMAIN THE PROPERTY OF THE OWNER (AS APPROVED BY THE OWNER) AND SHALL BE DELIVERED UPON REMOVAL TO LOCATION DESIGNATED BY THE GOVERNMENT. ALL OTHER SYSTEM COMPONENTS REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR.
- UPON COMPLETION OF NEW ADDITION, NEW PLUMBING EQUIPMENT AND PIPING WILL BE INSTALLED AS SHOWN ON RENOVATED PLUMBING PLANS. RECONNECT ALL EXISTING BRANCHES AND EQUIPMENT TO NEW SYSTEM PIPING AS REQUIRED FOR OPERATION.
- REPLACE AND/OR PATCH TO MATCH EXISTING, ANY COMPONENTS OF THE EXISTING PLUMBING SYSTEMS TO FACILITATE ITS INSTALLATION WITHIN THE NEW RENOVATED AREAS. SUCH ITEMS MAY INCLUDE, BUT NOT BE LIMITED TO, FITTINGS, SUPPORTS, NEW MOUNTING SYSTEMS, NEW ACCESS DOORS, ETC.
- DAMAGED, OR INOPERABLE PLUMBING COMPONENTS INSPECTED PRIOR TO DEMOLITION AND DETERMINED NOT SUITABLE FOR REUSE, THAT WILL EFFECT THE INTEGRITY OF THE OPERATION OF THE PLUMBING SYSTEM, SHALL BE REPLACED WITH NEW OF LIKE, OR EQUAL QUALITY.
- PATCH ALL WALLS, FLOORS, ROOFS AND CEILINGS TO MATCH EXISTING OR NEW (IF APPLIED) FOR ALL OPENINGS CREATED BY DEMOLITION WORK OF EQUIPMENT AND PLUMBING SYSTEM PENETRATIONS.
- REFER TO HVAC PLANS FOR EXTENT OF WORK RELATING TO PLUMBING PIPING CONNECTING TO HVAC EQUIPMENT TO BE REMOVED OR RELOCATED.
- THE ADJACENT SPACES WILL CONTINUE TO OPERATE DURING CONSTRUCTION. THE CONTRACTOR SHALL COORDINATE WITH OWNER TO INSURE THAT PLUMBING CONSTRUCTION DOES NOT IMPACT HOURS OF OPERATION. SEE ARCHITECTURAL SHEET FOR ADDITIONAL NOTES AND INSTRUCTIONS.

ADA REQUIREMENTS

WATER CLOSETS: THE HEIGHT OF WATER CLOSETS SHALL BE 17"-19" MEASURED FROM THE TOP OF THE TOILET SEAT. SEATS SHALL NOT BE SPRUNG OR RETURN TO A LIFTED POSITION. THE WATER CLOSET SHALL BE LOCATED 18" FROM THE SIDE WALL TO THE CENTER OF THE BOWL. HAND OPERATED FLUSH CONTROLS SHALL BE MOUNTED ON THE WIDE SIDE OF THE TOILET AREAS NO MORE THAN 29" ABOVE FINISHED FLOOR. SEE ARCHITECTURAL SHEETS FOR GRAB BAR LOCATIONS.

URINALS: THE URINALS SHALL BE WALL HUNG WITH AN ELONGATED RIM AT A MAXIMUM OF 17" ABOVE FINISHED FLOOR. HAND OPERATED FLUSH CONTROLS SHALL BE MOUNTED NO MORE THAN 44" ABOVE FINISHED FLOOR.

LAVATORIES: LAVATORIES SHALL BE MOUNTED WITH THE RIM OR COUNTER SURFACE NO MORE THAN 34" ABOVE FINISHED FLOOR. PROVIDE A CLEARANCE OF AT LEAST 29" ABOVE FINISHED FLOOR TO THE BOTTOM OF THE APRON. KNEE SPACE SHALL BE 8" FROM THE BOTTOM EDGE OF APRON TO THE LEADING EDGE OF THE BOTTOM OF BOWL. THE BOTTOM OF THE BOWL SHALL BE A MINIMUM OF 27" ABOVE FINISHED FLOOR. ALL WATER AND DRAIN PIPING UNDER LAVATORIES SHALL BE INSULATED WITH FOAM INSERT, COVERED WITH A 1/8" VINYL OUTER SHELL. ANGLE STOPS SHALL HAVE A FLIP TOP ACCESS.

FAUCETS: CONTROLS SHALL BE LEVER HANDLES OPERABLE WITH ONE HAND AND SHALL NOT REQUIRE TIGHT GRASPING, PINCHING, OR TWISTING OF WRIST. THE FORCE REQUIRED TO ACTIVATE CONTROLS SHALL BE NO GREATER THAN 5 lbf.

SINKS: SINKS SHALL BE MOUNTED WITH THE RIM OR COUNTER SURFACE NO MORE THAN 34" ABOVE FINISHED FLOOR. PROVIDE A CLEARANCE OF AT LEAST 27" HIGH, 30" WIDE, AND 19" DEEP. SINKS SHALL BE A MAXIMUM OF 6-1/2" DEEP. ALL WATER AND DRAIN PIPING UNDER SINKS SHALL BE PROVIDED WITH INSULATING FOAM INSERT, COVERED WITH A 1/8" VINYL OUTER SHELL. ANGLE STOPS SHALL HAVE A FLIP TOP ACCESS.

DRINKING FOUNTAINS-WATER COOLERS: WHEN INSTALLING A HI-LO ACCESSIBLE FOUNTAIN MOUNT THE LOWEST SPOUT AT NO MORE THAN 36" ABOVE FINISHED FLOOR AND THE HIGH SPOUT AT 40" ABOVE FINISHED FLOOR. SPOUT SHALL BE AT THE FRONT OF THE UNIT AND SHALL DIRECT THE WATER FLOW IN A TRAJECTORY THAT IS PARALLEL OR NEARLY PARALLEL TO THE FRONT OF THE UNIT. THE SPOUT SHALL PROVIDE A WATER FLOW OF AT LEAST 4" HIGH. THE CONTROLS SHALL BE FRONT MOUNTED OR SIDE MOUNTED NEAR THE FRONT EDGE. CONTROLS SHALL BE OPERABLE WITH ONE HAND AND SHALL NOT REQUIRE TIGHT GRASPING, PINCHING, OR TWISTING OF THE WRIST. THE FORCE REQUIRED TO ACTIVATE THE CONTROLS SHALL BE NO GREATER THAN 5 lbf. WALL MOUNTED UNITS SHALL HAVE A CLEAR KNEE SPACE BETWEEN THE BOTTOM OF THE APRON AND THE FINISHED FLOOR OF 27" HIGH, 30" WIDE, AND 17"-19" DEEP. FOUNTAINS SHALL NOT PROTRUDE MORE THAN 4" INTO WALKWAYS.

SEISMIC DESIGN CATEGORY D

- GENERAL NOTES
- PER THE 2018 INTERNATIONAL BUILDING CODE, MECHANICAL, PLUMBING AND ELECTRICAL EQUIPMENT AND COMPONENTS, INCLUDING THEIR SUPPORTS AND ATTACHMENTS, SHALL BE DESIGNED FOR SEISMIC FORCES IN ACCORDANCE WITH CHAPTER 13 OF ASCE 7-16.
 - EXTERIOR EQUIPMENT (INCLUDING ROOF CURBS, RAILS, SUPPORTS) EXPOSED TO WIND SHALL BE DESIGNED AND INSTALLED TO RESIST THE WIND PRESSURES DETERMINED IN ACCORDANCE WITH CHAPTERS 26 TO 29 OF ASCE 7-16.
 - WHERE DESIGN FOR SEISMIC IN ADDITION TO WIND LOADS IS REQUIRED, THE MORE DEMANDING FORCE MUST BE USED.
 - REFERENCE THE STRUCTURAL DRAWINGS FOR SITE SPECIFIC INFORMATION ON SEISMIC DESIGN CATEGORY, WIND SPEEDS, ETC.
 - SEE EQUIPMENT SCHEDULES AND DETAILS FOR SPECIFIC COMPONENT IMPORTANCE FACTOR DESIGNATIONS.
 - USE TABLE BELOW TO DETERMINE SEISMIC RESTRAINT REQUIREMENTS FOR EACH COMPONENT.
 - FOR ALL COMPONENTS REQUIRING SEISMIC RESTRAINT, THE COMPONENT SUPPORTS AND ATTACHMENTS SHALL BE DESIGNED BY A REGISTERED DESIGN PROFESSIONAL.
 - WHERE SEISMIC RESTRAINT IS REQUIRED, HOUSEKEEPING PADS NEEDED FOR THE INSTALLATION OF EQUIPMENT UNDER THIS CONTRACT MUST BE DESIGNED BY THE SEISMIC ENGINEER. DO NOT POUR ANY HOUSEKEEPING PADS PRIOR TO THE RECEIPT OF THE APPROVED SEISMIC SUBMITTAL.
 - SEISMIC RESTRAINTS FOR DUCTWORK, PIPING, CONDUIT, CABLE TRAY AND BUS DUCT MUST BE SHOWN ON LAYOUT DRAWINGS SHOWING SPECIFIC RESTRAINT LOCATIONS ALONG WITH ACCOMPANYING DETAILS AND CALCULATIONS.

COMPONENT IDENTIFICATION		COMPONENT IMPORTANCE FACTOR (Ip)	
		1.0	1.5
SEISMIC RESTRAINT REQUIREMENT		ASCE 7 REFERENCE	ASCE 7 REFERENCE
ROOF MOUNTED	RESTRAIN ALL (SEE NOTE 1,2)	13.1.4.6	13.1.4.6
FLOOR MOUNTED	RESTRAIN ALL (SEE NOTES 1,2)	13.1.4.6	13.1.4.6
WALL MOUNTED	RESTRAIN ALL (SEE NOTE 1,2)	13.1.4.6	13.1.4.6
COMPONENT SUPPORTS		13.6.4	13.6.4
SUSPENDED EQUIPMENT	IN LINE W/ DUCT	RESTRAIN IF >75 LBS PROVIDE FLEX. CONN. (SEE NOTE 3)	RESTRAIN IF >75 LBS PROVIDE FLEX. CONN. (SEE NOTE 3)
	NOT IN LINE W/ DUCT	RESTRAIN ALL (SEE NOTE 1)	RESTRAIN ALL (SEE NOTE 1)
SUSPENDED DUCTILE PIPING (STEEL, ALUMINUM, COPPER, ETC.)	RESTRAIN IF > 3" (SEE NOTE 4)	13.6.7.3	13.6.7.3
SUSPENDED NON DUCTILE PIPING (CAST IRON, PLASTIC, CERAMIC)	RESTRAIN ALL (SEE NOTE 4)	13.6.7.3	13.6.7.3
SUSPENDED PIPE ON TRAPEZE	RESTRAIN IF ANY PIPE ON TRAPEZE > 5" RESTRAIN IF TOTAL WEIGHT OF PIPES ON TRAPEZE ≥ 10 LBS/FT (SEE NOTE 4)	13.6.7.3	RESTRAIN IF ANY PIPE ON TRAPEZE > 1" RESTRAIN IF TOTAL WEIGHT OF PIPES ON TRAPEZE ≥ 10 LBS/FT
DUCTWORK	RESTRAIN IF ≥ 6 SQ.FT. OR > 20 LBS/FT (SEE NOTE 4,5)	13.6.6	RESTRAIN IF ≥ 6 SQ.FT. OR > 20 LBS/FT (SEE NOTE 5)
SINGLE CONDUIT	RESTRAIN IF ≥ 2.5"	13.6.5	RESTRAIN IF ≥ 2.5"
CABLE TRAY/BUS DUCT/ TRAPEZED CONDUIT	RESTRAIN IF TOTAL WEIGHT OF RACEWAY ≥ 10 LBS/FT (SEE NOTE 4)	13.6.5	RESTRAIN IF TOTAL WEIGHT OF RACEWAY ≥ 10 LBS/FT
PENDANT, LAY-IN, & CAN LIGHTS	REQUIRED (SEE NOTE 6)	13.5.6.2	REQUIRED (SEE NOTE 6)
COMPONENT CERTIFICATION	NOT REQUIRED	13.2.2	REQUIRED (SEE NOTE 7)

- NOTES:
- EQUIPMENT 20 LBS. OR LESS IS EXEMPT IF THE COMPONENT IS POSITIVELY ATTACHED TO THE STRUCTURE.
 - RESTRAINTS ARE NOT REQUIRED IF THE COMPONENT WEIGHTS 400 LBS. OR LESS, IS MOUNTED WITH THE CENTER OF MASS AT 4 FT. OR LESS ABOVE A FLOOR, IS POSITIVELY ATTACHED TO THE STRUCTURE, AND HAS FLEXIBLE CONNECTIONS BETWEEN THE COMPONENT AND ASSOCIATED DUCTWORK, PIPING, AND CONDUIT.
 - FLEXIBLE CONNECTIONS REQUIRED FOR PIPE AND CONDUIT CONNECTIONS ONLY.
 - SEE TABLE 1 FOR ROD HANGER LENGTH EXEMPTION RULES.
 - ALL DUCTWORK, REGARDLESS OF SIZE, DESIGNED TO CARRY TOXIC, HIGHLY TOXIC, OR EXPLOSIVE GASES OR USED FOR SMOKE CONTROL MUST BE RESTRAINED.
 - THE RESTRAINT OF PENDANT, LAY-IN, & CAN LIGHTS IS ADDRESSED IN ASTM C636 & E580.
 - COMPONENT CERTIFICATION MUST BE SUPPLIED BY THE EQUIPMENT MANUFACTURER AT TIME OF SUBMITTAL FOR REVIEW BY ENGINEER OF RECORD AND BUILDING OFFICIAL.

TABLE 1 - ROD HANGER LENGTH EXEMPTION SCENARIOS			
SYSTEM	EXEMPTION SCENARIO 1	EXEMPTION SCENARIO 2	EXEMPTION SCENARIO 3
PIPING ^(1,2) I _p = 1.0	TRAPEZE ⁽⁴⁾ WITH 3/8" RODS ≤ 12 IN. FROM STRUCTURE ≤ 100 LBS. TOTAL SUPPORTED WEIGHT	TRAPEZE ⁽⁴⁾ WITH 1/2" RODS ≤ 12 IN. FROM STRUCTURE ≤ 200 LBS. TOTAL SUPPORTED WEIGHT OR ≤ 24 IN. FROM STRUCTURE ≤ 100 LBS. TOTAL SUPPORTED WEIGHT	INDIVIDUALLY ⁽⁵⁾ SUPPORTED WITH 3/8" OR 1/2" RODS ≤ 12 IN. FROM STRUCTURE TOTAL WEIGHT SUPPORTED BY ANY SINGLE ROD ≤ 50 LBS.
PIPING I _p = 1.5	NO EXEMPTION ALLOWED		
EQUIPMENT I _p = 1.0 OR 1.5	NO EXEMPTION ALLOWED		
CONDUIT, CABLE TRAY, RACEWAYS ^(2,3) I _p = 1.0	TRAPEZE ⁽⁴⁾ WITH 3/8" RODS ≤ 12 IN. FROM STRUCTURE ≤ 100 LBS. TOTAL SUPPORTED WEIGHT OR ≤ 24 IN. FROM STRUCTURE ≤ 100 LBS. TOTAL SUPPORTED WEIGHT	TRAPEZE ⁽⁴⁾ WITH 1/2" RODS ≤ 12 IN. FROM STRUCTURE ≤ 200 LBS. TOTAL SUPPORTED WEIGHT OR ≤ 24 IN. FROM STRUCTURE ≤ 100 LBS. TOTAL SUPPORTED WEIGHT	INDIVIDUALLY SUPPORTED WITH 3/8" OR 1/2" RODS ≤ 12 IN. FROM STRUCTURE TOTAL WEIGHT SUPPORTED BY ANY SINGLE ROD ≤ 50 LBS.
CONDUIT, ETC. I _p = 1.5	NO EXEMPTION ALLOWED		
DUCT ^(1,2,3) I _p = 1.0	TRAPEZE ⁽⁴⁾ WITH 3/8" RODS ≤ 12 IN. FROM STRUCTURE ≤ 100 LBS. TOTAL SUPPORTED WEIGHT	TRAPEZE ⁽⁴⁾ WITH 1/2" RODS ≤ 12 IN. FROM STRUCTURE ≤ 200 LBS. TOTAL SUPPORTED WEIGHT OR ≤ 24 IN. FROM STRUCTURE ≤ 100 LBS. TOTAL SUPPORTED WEIGHT	INDIVIDUALLY SUPPORTED WITH 3/8" OR 1/2" RODS ≤ 12 IN. FROM STRUCTURE TOTAL WEIGHT SUPPORTED BY ANY SINGLE ROD ≤ 50 LBS.
DUCT I _p = 1.5	NO EXEMPTION ALLOWED		

- NOTES:
- FLEXIBLE CONNECTIONS, EXPANSION LOOPS, OR OTHER ASSEMBLIES MUST BE PROVIDED TO ACCOMMODATE THE RELATIVE DISPLACEMENT BETWEEN COMPONENT AND PIPING.
 - FLEXIBLE CONNECTIONS OR OTHER ASSEMBLIES MUST BE PROVIDED BETWEEN THE CABLE TRAY OR RACEWAY OR DUCT SYSTEM AND ASSOCIATED COMPONENTS TO ACCOMMODATE THE RELATIVE DISPLACEMENT.
 - NO EXEMPTION ALLOWED WHEN INSTALLATION REQUIRES 5/8" ROD OR LARGER.
 - NO EXEMPTION ALLOWED WHEN TRAPEZE ASSEMBLY INCLUDES ANY SINGLE PIPE/CONDUIT/DUCT REQUIRING SEISMIC RESTRAINT BASED ON SIZE/WEIGHT.
 - NO EXEMPTION ALLOWED FOR NON DUCTILE PIPING.

ABBREVIATIONS			PIPING LEGEND		
AC	AIR COMPRESSOR	HS	HOSE STATION	(E)	EXISTING PIPE TAG
ACU	AIR CONDITIONING UNIT	HT	HEIGHT	(D)	DEMOLISHED PIPE TAG
AD	AREA DRAIN	HTG	HEATING	CW	DOMESTIC COLD WATER
AFC	ABOVE FINISH CEILING	HVAC	HEATING, VENTILATION, AIR COND.	DI	DEIONIZED WATER
AFF	ABOVE FINISH FLOOR	HW	HOT WATER	FW	FILTERED COLD WATER
AFG	ABOVE FINISHED GRADE	HWG	HOT WATER GENERATOR	HW	HOT WATER 120°F
AHU	AUTHORITY HAVING JURISDICTION	HWR	HOT WATER RETURN	140HWR	HOT WATER 140°F RECIRCULATION
APPROX	APPROXIMATE	HWST	HOT WATER STORAGE TANK	140HW	HOT WATER 140°F
ARCH	ARCHITECT/ARCHITECTURAL	ID	INSIDE DIAMETER/DIMENSION	140HWR	HOT WATER 140°F RECIRCULATION
ARD	AUXILIARY ROOF DRAIN	KW	KILOWATTS	160HW	HOT WATER 160°F
BFF	BELOW FINISH FLOOR	LAV	LAVATORY	160HWR	HOT WATER 160°F RECIRCULATION
BLDG	BUILDING	LF	LINEAR FEET	RO	REVERSE OSMOSIS COLD WATER
BTU	BRITISH THERMAL UNITS	LPG	LIQUID PETROLEUM GAS	NG2	NATURAL GAS-2 PSI
BTUH	BRITISH THERMAL UNITS/HOUR	LWT	LEAVING WATER TEMPERATURE	NG5	NATURAL GAS-5PSI
CAP	CAPACITY	MAX	MAXIMUM	CA	COMPRESSED AIR
CB	CATCH BASIN	MBH	THOUSAND BTU/PER HOUR	AV	ACID VENT
CD	CONDENSATE DRAIN	MDL	MODEL	AW	ACID WASTE
CFH	CUBIC FEET/HOUR	MECH	MECHANICAL	CD	CONDENSATE DRAIN
CFM	CUBIC FEET/MINUTE	MFR	MANUFACTURER	GW	GREASE WASTE
CI	CAST IRON	MH	MANHOLE	OW	OIL WASTE
CLG	CEILING	MIN	MINIMUM	SPD	PUMP DISCHARGE
CO	CLEAN OUT	MISC	MISCELLANEOUS	CWV	COMBINATION SANITARY & VENT
COL	COLUMN	MTD	MOUNTED	SS	SANITARY SEWER
CONC	CONCRETE	NA	NOT APPLICABLE	V	SANITARY VENT
CONN	CONNECT	NFPA	NATIONAL FIRE PROTECTION ASSO.	SD	STORM DRAIN
CONST	CONSTRUCTION	NTS	NOT TO SCALE	ASD	AUXILIARY STORM DRAIN/OVERFLOW
CONT	CONTINUE	OA	OUTSIDE AIR		
COTG	CLEAN OUT TO GRADE	OD	OUTSIDE DIAMETER/DIMENSION		
CP	CIRCULATING PUMP	PD	PRESSURE DROP		
CR	CONDENSATE RETURN	PLBG	PLUMBING		
CW	COLD WATER	PRESS	PRESSURE		
DCOTG	DOUBLE CLEANOUT TO GRADE	PRV	PRESSURE REDUCING VALVE		
DD	DESICCANT DEHUMIDIFIER	PSI	POUNDS PER SQUARE INCH		
DEG(*)	DEGREE	RA	RETURN AIR		
DEMO	DEMOLITION	RD	ROOF DRAIN		
DF	DRINKING FOUNTAIN	REF	REFERENCE		
DIA	DIAMETER	REQD	REQUIRED		
DS	DOWN SPOUT	REV	REVISION, REVISED		
DTL	DETAIL	RM	ROOM		
EFF	EFFICIENT	RPM	REVOLUTIONS PER MINUTE		
ELEC	ELECTRICAL	SC	STEAM CONDENSATE		
ELEV	ELEVATION	SCH	SCHEDULE		
EQ	EQUAL	SECT	SECTION		
EQUIP	EQUIPMENT	SK	SINK		
EWI	ELECTRIC WATER HEATER	SP	STATIC PRESSURE		
EWT	ENTERING WATER TEMPERATURE	SPEC	SPECIFICATIONS		
EX, EXT	EXISTING	SS	SANITARY SEWER		
EXP	EXPANSION	ST	STEAM		
FCO	FLOOR CLEANOUT	STL	STEEL		
FD	FLOOR DRAIN	SUCT	SUCTION		
FL	FLOW LINE	TDH	TOTAL DYNAMIC HEAD		
FLEX	FLEXIBLE CONNECTION	TEMP	TEMPERATURE		
FLR	FLOOR	TH	TOTAL HEAD		
FPM	FEET PER MINUTE	TMV	THERMOSTATIC MIXING VALVE		
FPRH	FREEZE PROOF ROOF HYDRANT	TMV/	THREE WAY MODULATING VALVE		
FPWH	FREEZE PROOF WALL HYDRANT	TYP	TYPICAL		
FS	FLOOR SINK	UL	UNDERWRITERS LABORATORY		
G	GAS	UR	URINAL		
GA	GAUGE	V	VENT		
GAL	GALLON	VEL	VELOCITY		
GALV	GALVANIZED	VERT	VERTICAL		
GI	GREASE INTERCEPTOR	VLV	VALVE		
GPH	GALLONS PER HOUR	VOL	VOLUME		
GPM	GALLONS PER MINUTE	VTR	VENT THROUGH ROOF		
GT	GREASE TRAP	WC	WATER CLOSET		
GWH	GAS WATER HEATER	WCO	WALL CLEANOUT		
HB	HOSE BIBB	WP	WORKING PRESSURE		
HP	HORSE POWER	WT	WEIGHT		
HRWH	HEAT RECLAIM WATER HEATER	WTR	WATER		
GENERAL PLUMBING SYMBOLS			PRESSURE PIPE SYMBOLS		
	REVISION NUMBER SHOWN ON PLANS			PIPE TEE	
	POINT WHERE NEW CONNECTS TO EXISTING			PIPE DROP	
	DEMOLISH TO POINT INDICATED			PIPE ELBOW	
	KEYNOTE			PIPE CAP	
	PIPE CONTINUATION			PIPE RISE	
	NUMBER OF DETAIL ON SHEET		GRAVITY PIPE SYMBOLS		
	NUMBER OF SHEET WHERE DETAIL APPEARS			PIPE RISE	
	SPACE NAME			PIPE CAP	
	SPACE NUMBER			PIPE WYE 8TH TEE	
	ITEM TO BE DEMOLISHED			PIPE TEE	
	AREA NOT IN CONTRACT			PIPE DROP	
PLUMBING PHASING				PIPE CROSS	
	NEW CONSTRUCTION PLUMBING EQUIPMENT/ FIXTURES (TYPICAL TAG FOR ALL NEW CONSTRUCTION)			PIPE PLUG	
	EXISTING PLUMBING EQUIPMENT/ FIXTURES (TYPICAL TAG FOR ALL EXISTING)		PLUMBING TAGS		
	ABANDONED PLUMBING EQUIPMENT/ FIXTURES (TYPICAL TAG FOR ALL EXISTING)			APPROX. INVERT ELEVATION	
	PLUMBING EQUIPMENT/ FIXTURES FOR DEMOLITION (TYPICAL TAG FOR ALL DEMOLITION)			SIZE, SYSTEM IDENTIFICATION	
SEISMIC DESIGN CRITERIA			FIXTURE TAG		
1. SEISMIC DESIGN DATA: A. SEISMIC DESIGN CATEGORY: D				OUTLET SIZE AND FIXTURE IDENTITY	
2. THE FOLLOWING COMPONENT IMPORTANCE FACTORS ARE USED: A. WATER HEATERS (STORAGE WATER 140°F): 1.0 B. WATER PIPING (GREATER THAN 120°F): 1.0 C. SEWER PIPING: 1.0 D. NATURAL GAS: 1.5				FIXTURE IDENTITY	
1. SEISMIC BRACING IS REQUIRED FOR THE PLUMBING COMPONENTS.				FIXTURE IDENTITY AND COMMENT	
2. REFER TO THE SPECIFICATIONS.				FIXTURE IDENTITY AND COMMENT	
				FIXTURE IDENTITY	
			PIPE ACCESSORIES		
				3-WAY MOTORIZED CONTROL VALVE	
				3-WAY MIXING VALVE	
				BALANCING VALVE	
				BALL VALVE	
				BUTTERFLY VALVE	
				CHECK VALVE	
				ELBOW VALVE	
				GATE VALVE	
				GLOBE VALVE	
				MOTOR CONTROL VALVE	
				PRESSURE REDUCING VALVE	
				PLUG VALVE	
				SOLENOID VALVE	
				THREE-WAY VALVE	
				STRAINER-WYE	
				STRAINER-WYE WITH BLOWOFF VALVE	
PLUMBING PHASING			DUCTWORK LEGEND		
	NEW CONSTRUCTION PLUMBING EQUIPMENT/ FIXTURES (TYPICAL TAG FOR ALL NEW CONSTRUCTION)			C/F CONCENTRIC FLUE	
	EXISTING PLUMBING EQUIPMENT/ FIXTURES (TYPICAL TAG FOR ALL EXISTING)			C/A COMBUSTION AIR	
	ABANDONED PLUMBING EQUIPMENT/ FIXTURES (TYPICAL TAG FOR ALL EXISTING)			E/A EXHAUST AIR	
	PLUMBING EQUIPMENT/ FIXTURES FOR DEMOLITION (TYPICAL TAG FOR ALL DEMOLITION)			ROUND CONCENTRIC FLUE AIR DUCT RISE	
SEISMIC DESIGN CRITERIA				ROUND COMBUSTION AIR DUCT RISE	
1. SEISMIC DESIGN DATA: A. SEISMIC DESIGN CATEGORY: D				ROUND EXHAUST AIR DUCT RISE	
2. THE FOLLOWING COMPONENT IMPORTANCE FACTORS ARE USED: A. WATER HEATERS (STORAGE WATER 140°F): 1.0 B. WATER PIPING (GREATER THAN 120°F): 1.0 C. SEWER PIPING: 1.0 D. NATURAL GAS: 1.5				90° BEND, ROUND DUCT	
1. SEISMIC BRACING IS REQUIRED FOR THE PLUMBING COMPONENTS.				45° BEND, ROUND DUCT	
2. REFER TO THE SPECIFICATIONS.			PLUMBING SHEET SET NOTE		
			* NOTE *		
			ALL OF GENERAL NOTES ON THIS SHEET ARE TO BE APPLIED TO ALL OTHER DRAWINGS IN THIS SET. SYMBOLS AND ABBREVIATIONS SHOWN ON THIS SHEET MAY OR MAY NOT BE USED IN THE CONTAINED REFERENCE DRAWINGS.		