

PLUMBING RENOVATION NOTES	GENERAL PLUMBING NOTES
WHERE EXISTING PIPING IS DESIGNATED TO BE REMOVED AND CAPPED, ALL PIPING SERVING THE DESIGNATED FIXTURE SHALL BE REMOVED FROM WITHIN WALLS TO THE POINT DESIGNATED ON THE DRAWINGS OR TO A CLEARLY	1. THESE DRAWINGS SHALL NOT BE SCALED. SEE ARCHITECTURAL/CIVIL DRAWINGS FOR DIMENSIONAL INFORMATION. THIS ENGINEER WILL NOT BE LIABLE FOR MISCALCULATED PRODUCT TAKE-OFFS DUE TO SCALING OF DRAWINGS.
VISIBLE POINT BELOW THE FLOOR IN THE CRAWL SPACE OR ABOVE THE CEILING. PIPING SHALL BE CAPPED BY APPROVED CAPPING METHODS UTILIZING PIPE CAPS INTENDED FOR SUCH USE. ALL CAPS SHALL BE AIRTIGHT AND	 ALL SANITARY PIPING SHALL HAVE A 1/8" PER FOOT SLOPE UNLESS OTHERWISE NOTED. 2" SANITARY OR SMALLER SHALL HAVE A 1/4" PER FOOT SLOPE.
WATERTIGHT. WHERE EXISTING SURFACES ARE DISRUPTED DUE TO THE REMOVAL OF	3. VENT PIPING SHOWN ON FLOOR PLANS IS DIAGRAMMATIC EXCEPT FOR VENT THRU ROOF (VTR) LOCATIONS.
EXISTING EQUIPMENT OR PIPING, THIS CONTRACTOR SHALL BE RESPONSIBLE OF THE REPAIR OF DISRUPTED SURFACES TO MATCH EXISTING ADJACENT SURFACES.	4. VALVES AND FITTINGS SHALL BE OF SAME SIZE AS THE LINE ON WHICH THEY ARE LOCATED, UNLESS OTHERWISE INDICATED ON DRAWINGS.
SANITARY VENT THROUGH ROOF PENETRATIONS SHALL BE CAPPED BOTH BELOW AND ABOVE THE ROOF SURFACE AND LEFT IN PLACE FOR POSSIBLE	5. CONTRACTOR SHALL COORDINATE ALL WORK WITH OTHER TRADES.
FUTURE USE. PLUMBING FIXTURES DESIGNATED TO BE REUSED SHALL BE CLEANED AND	 CONTRACTOR SHALL FIELD VERIFY ALL GIVEN MEASUREMENTS PRIOR TO LAYING AND CONNECTING ALL SANITARY AND WASTE PIPING AND NOTIFY ENGINEER OF ANY DISCREPANCIES.
MAINTENANCE SERVICED TO OPERATE AS INTENDED.	7. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING FIRE RATING AND WEATHERPROOFING INTEGRITY OF ALL PIPING AND PENETRATIONS.
ORIGINAL AND AS-BUILT DRAWINGS OF THE BUILDING AND IN PART ARE UNVERIFIED. FIELD CONDITIONS SHALL GOVERN. ALL EXISTING CONDITIONS MUST BE VERIFIED PRIOR TO INITIATION OF WORK. ALL DEVIATIONS FROM PLANS	8. ALL WATER SUPPLY AND SANITARY LINES SHALL BE RUN AS CLOSE TO PLANS AS POSSIBLE WITH NO CHANGES IN SIZING.
SHALL BE APPROVED BY ENGINEER OF RECORD PRIOR TO BEGINNING WORK. ALL EXISTING SANITARY, DOMESTIC WATER, RAINWATER, AND FIRE PROTECTION PIPING SHALL BE RELOCATED TO CREATE REQUIRED SPACE FOR INSTALLATION OF ALL NEW SERVICES FOR NEW CONSTRUCTION, INCLUDING BUT NOT LIMITED TO H.V.A.C., ELECTRICAL, PLUMBING, AND FIRE PROTECTION TRADES. CONTRACTOR SHALL INCLUDE ALL NEW PIPING AND FITTINGS REQUIRED AND RELOCATE ANY AND ALL EXISTING SERVICES.	9. CHANGES IN THE DIRECTION OF SANITARY DRAIN PIPING SHALL NOT BE MADE WITH FITTINGS WHICH WILL CAUSE EXCESSIVE REDUCTION IN THE VELOCITY OF FLOW OR CREATE ANY OTHER ADVERSE EFFECT UNLESS PHYSICALLY IMPOSSIBLE (I.E.: USE OF SANITARY TEE IN A HORIZONTAL CONNECTION, USE OF A DOUBLE SANITARY TEE IN A VERTICAL STACK, IN GENERAL, USE OF SHORT-RADIUS FITTINGS FOR BRANCH TO HOUSE DRAIN OR STACK CONNECTION).
ALL EXISTING PIPING, NOT REMAINING IN SERVICE AFTER NEW CONSTRUCTION, SHALL BE REMOVED.	10. CONTRACTOR SHALL GIVE 48 HOURS HOUR EMERGENCY LOCATE NOTICE TO APPLICABLE UTILITY COMPANY PRIOR TO PERFORMING WORK INVOLVING UTILITIES.
PLUMBING CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ALL EXISTING PLUMBING FIXTURES AND TRIM, PIPING, VALVES, ETC. IN AREAS TO BE	11. ALL DRAINAGE PIPING SHALL BE MARKED WITH THE SEAL OF APPROVAL OF THE NATIONAL SANITATION FOUNDATION.
DEMOLISHED.	12. ROUTE ALL PIPING CONCEALED ABOVE CEILINGS, WITHIN WALLS, OR IN CHASES. PIPING EXPOSED SHALL BE SLOPED AND PAINTED TO MATCH ARCHITECTURAL FINISHES. PIPING
ALL EXISTING PLUMBING FIXTURES TO BE REMOVED AND ARE NOT TO BE REUSED SHALL REMAIN THE PROPERTY OF THE OWNER. DISCARD UNWANTED FIXTURES AT AT THE DISCRETION OF THE OWNER.	IN MECHANICAL ROOMS MAY BE EXPOSED. 13. SITE UTILITY CONNECTIONS SHALL BE PROVIDED ON CIVIL DRAWINGS. ALL SERVICES SHOWN ON THIS SET OF PLANS TERMINATE 5'-0" FROM BUILDING, UNLESS SHOWN
D. PIPING WHICH IS TO REMAIN IN SERVICE SHALL NOT BE DISTURBED. EXISTING PIPING BROKEN DURING CONSTRUCTION SHALL BE REPLACED WITH NEW PIPING OF THE SAME SIZE AND MATERIAL AT NO ADDITIONAL COST.	OTHERWISE ON DRAWINGS. PLUMBING CONTRACTOR SHALL MAKE FINAL CONNECTIONS TO SITE UTILITIES. (INC. CLEAN OUTS, INCREASES, BACKWATER VALVES, ETC.)
I. PLUMBING CONTRACTOR SHALL SUBMIT SHOP DRAWINGS APPROVED BY THE AUTHORITIES HAVING JURISDICTION TO THE ARCHITECT/ENGINEER FOR ANY	14. COORDINATE WITH ARCHITECT/GENERAL CONTRACTOR FOR INSTALLATION OF HOSE BIBS. HEIGHT OF INSTALLATION SHALL BE DETERMINED IN FIELD.
PIPING CONFIGURATIONS AND SIZES THAT DIFFER FROM THOSE SHOWN ON PLUMBING DRAWINGS AS A RESULT OF EXISTING SITE CONDITIONS AND/OR	15. CONTRACTOR SHALL VERIFY INVERT ELEVATIONS OF SEWERS TO WHICH NEW SEWER LINES ARE TO BE CONNECTED BEFORE INSTALLATION OF NEW SEWER LINE.
EXISTING PIPING LOCATIONS. 2. EXISTING BUILDING SEWERS THAT ARE USED WITH NEW BUILDING SANITARY	16. ALL VENTS THROUGH ROOF SHALL BE MIN. 10'-0" FROM ANY AIR INTAKES.
SEWERS SHALL BE EXAMINED AND TESTED TO CONFORM IN ALL RESPECTS TO ALL REQUIREMENTS OF PLUMBING AUTHORITY HAVING JURISDICTION AND APPLICABLE PLUMBING CODES.	17. CONTRACTOR SHALL INSTALL DIELECTRIC UNIONS AT CONNECTIONS OF DISSIMILAR METALS.
3. ALL EXISTING SANITARY, DOMESTIC WATER, AND RAINWATER PIPING THAT ARE LOCATED IN EXISTING WALLS TO BE DEMOLISHED AND REMAINING IN SERVICE AFTER CONSTRUCTION SHALL BE RELOCATED TO NEW WALLS, CHASES, ETC.	18. CONTRACTOR SHALL ROUGH-IN ALL WASTES AND SUPPLIES TO SPECIAL EQUIPMENT ACCORDING TO MANUFACTURER'S SHOP DRAWINGS AND MAKE FINAL CONNECTIONS. ALL SUPPLIES SHALL BE VALVED. INSTALL VACUUM BREAKERS WHERE REQUIRED BY CODE.
4. COORDINATE WITH GENERAL CONTRACTOR TO PATCH ALL EXISTING WALLS, FLOORS, CEILINGS, ETC., AS REQUIRED BY NEW WORK. SEE SPECIFICATIONS.	19. DO NOT PENETRATE WALL FOOTINGS WITH PIPING, COORDINATE WITH GENERAL CONTRACTOR TO DROP FOOTINGS AS REQUIRED TO CLEAR PLUMBING SERVICES WHERE ABSOLUTELY NECESSARY. ALL PIPING PENETRATING A BEARING WALL OR FOOTING MUST BE SLEEVED AND LOCATION APPROVED BY STRUCTURAL ENGINEER. PROVIDE LINK-SEALS IN ALL PENETRATIONS OF EXTERIOR WALLS.
	20. ALL PIPING SHALL BE INSTALLED AS HIGH AS POSSIBLE IN PROVIDED CEILING SPACE.
	21. COORDINATE PIPING INSTALLATION AS TO NOT INTERFERE WITH HVAC EQUIPMENT ACCESS.
	22. ANY ERRORS OR AMBIGUITIES IN THE PLANS AND/OR SPECIFICATIONS THAT ARE DISCOVERED BY THE CONTRACTOR SHALL BE REPORTED TO THE ARCHITECT/ENGINEER BEFORE WORK IS STARTED. OMISSION OF PARTICULAR REFERENCE TO ANY ITEM NECESSARY FOR COMPLETE INSTALLATION AND PROPER OPERATION THEREOF SHALL NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF FURNISHING THE SAME AT NO EXTRA COST. THE CONTRACTOR IS RESPONSIBLE FOR REVIEWING ALL CONSTRUCTION DOCUMENTS FOR INFORMATION PRIOR TO BID.

- 23. VERIFY WITH ARCHITECT ON ALL EQUIPMENT AND FIXTURES REQUIRING PLUMBING PRIOR TO BID. COORDINATE EXACT LOCATIONS AND CONNECTIONS.
- 24. ALL WORK SHALL BE IN COMPLIANCE WITH STATE AND LOCAL CODES.
- 25. CONTRACTOR SHALL PAY ALL FEES, PERMITS, LICENSES, ETC. NECESSARY FOR PROPER COMPLETION OF WORK.
- 26. INSTALL ALL EQUIPMENT IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

PLUMBING PIPING LINETYPES

LINETYPE	DESCRIPTION
	DEMOLITION
G	GAS
	SANITARY ABOVE GRADE
	SANITARY BELOW GRADE
	STORM ABOVE GRADE
	STORM BELOW GRADE
	VENT ABOVE GRADE
	VENT BELOW GRADE
	COLD WATER
	COLD WATER BELOW GRADE
	HOT WATER
	HOT WATER BELOW GRADE
	RECIRC WATER
	RECIRC WATER BELOW GRADE

	PLUMBING PIPING LEGEND
₽ °	CIRCUIT SETTER
$\overline{\mathbf{A}}$	BALL VALVE OR SHUT-OFF VALVE
	SPRING CHECK VALVE
	END CAP
 -	NEW TO EXISTING PIPE CONNECTION
-	FLOW DIRECTION ARROW
Θ	NEW TO EXISTING POINT OF CONNECTION SYMBOL
•	PIPE CONNECTION
Ø	HAMMER ARRESTOR (PISTON TYPE)
\Diamond	HAMMER ARRESTOR (BELLOWS TYPE)
	PIPING LINEWEIGHT: NEW/DEMOLITION
	PIPING LINEWEIGHT: EXISTING

PLUMBING ABBREVIATIONS

F	PLU	MBIN	IG S	SHE	ET	INC	DEX	
	CULLET							

00	PLUMBING TITLE SHEET
01	PLUMBING SPECIFICATIONS
101	PLUMBING DEMOLITION PLAN
10	PLUMBING PLAN
01	PLUMBING DETAILS & SCHEDULES



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KFC ENGINEERING

SALAS O'BRIEN
PLUMBING / MECHANICAL / ELECTRICAL



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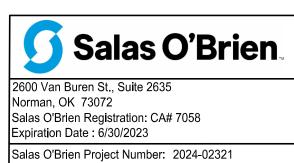


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OWNERSHIP USE OF DOCUMENTS:



PART 1: GENERAL:

- A. THE CONTRACTOR SHALL FURNISH, INSTALL, PROVIDE AND MAKE OPERATIVE ALL EQUIPMENT, MATERIALS, SUPERVISION LABOR AND ANY AND ALL ITEMS NECESSARY FOR THE PROPER INSTALLATION OF A CORRECTLY FUNCTIONING PLUMBING SYSTEM AS SHOWN ON THE DRAWINGS AND SPECIFIED HEREIN.
- B. SMALL DETAILS NOT USUALLY INDICATED ON THE DRAWINGS OR SPECIFIED. BUT WHICH ARE NECESSARY FOR THE PROPER INSTALLATION AND OPERATION OF THE PLUMBING SYSTEM, SHALL BE INCLUDED IN THE WORK AND IN THE CONTRACTOR'S ESTIMATE THE SAME AS IF SPECIFIED OR SHOWN ON THE DRAWINGS. THE CONTRACTOR SHALL INSTALL THE EQUIPMENT IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. WHERE THE DRAWINGS AND SPECIFICATIONS CONFLICT WITH THE MANUFACTURER'S RECOMMENDATIONS, IT WILL BE THE CONTRACTOR'S' DUTY TO BRING THIS TO THE ATTENTION OF THE ARCHITECT.

PART 2: CODE REQUIREMENTS:

A. ORDINANCES, PERMITS AND CODES: THE WORKMANSHIP AND MATERIALS COVERED BY THESE SPECIFICATIONS SHALL CONFORM TO ALL REGULATIONS OF ALL THE AUTHORITIES HAVING JURISDICTION WHETHER SHOWN ON THE DRAWINGS OR NOT.

PART 3: PERMITS:

A. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS, CONNECTION AND INSPECTION FEES AS REQUIRED FOR THE COMPLETE INSTALLATION OF THE PLUMBING SYSTEMS.

PART 4: SPECIFICATIONS AND DRAWINGS:

- A. THE PLANS DEPICT THE LOCATION OF ALL FIXTURES AND EQUIPMENT AND ARE INTENDED TO INDICATE THE GENERAL INTENT OF THE WORK IN SCOPE, LAYOUT AND QUALITY OF WORKMANSHIP. THEY ARE NOT INTENDED TO SHOW IN MINUTE DETAIL EVERY AND ALL ACCESSORIES INTENDED FOR THE PURPOSE OF EXECUTION OF THE WORK, BUT THE CONTRACTOR SHALL UNDERSTAND THAT SUCH DETAILS ARE PART OF THIS WORK.
- B. THE LOCATION OF PIPES AND EQUIPMENT AS SHOWN ON THE DRAWINGS, IS DIAGRAMMATIC AND SCHEMATIC AND IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO MAKE HIS OWN WORKING LAYOUT TO ELIMINATE ALL STRUCTURAL INTERFERENCES WITHOUT DETRIMENT TO THE STRUCTURAL AND ARCHITECTURAL COMPONENTS OF THE BUILDING.
- C. THE CONTRACTOR SHALL CAREFULLY VERIFY ALL MEASUREMENTS OF THE SITE, DETERMINE THE EXACT LOCATION OF ALL CHASES AND OPENINGS REQUIRED BY HIS WORK AND SHALL FURNISH AND SET ALL SLEEVES, INSERTS AND HANGERS AS REQUIRED FOR THE WORK HEREIN.
- D. ALL CONTRACTORS SUBMITTING PROPOSALS FOR THIS WORK SHALL FIRST EXAMINE THE SITE AND ALL CONDITIONS. ALL PROPOSALS SHALL TAKE INTO CONSIDERATION ALL SUCH CONDITIONS AS MAY THE WORK UNDER THIS CONTRACT.
- E. SUBMITTALS: PROVIDE PRODUCT DATA AND SIZES, ROUGH-IN DIMENSIONS TO ENGINEER FOR APPROVAL.

PART 5: COORDINATION AND CONFLICTS:

- A. THE CONTRACTOR SHALL COORDINATE HIS WORK SO THAT IT DOES NOT INTERFERE WITH THE WORK OF THE OTHER TRADES. IT SHALL BE THE CONTRACTOR'S DUTY TO SEE THAT THE WORK IS PERFORMED IN A TIMELY MANNER.
- B. IN THE EVENT THAT THERE IS A DISCREPANCY OR CONFLICT IN THE PLANS OR SPECIFICATIONS IT SHALL BE THE CONTRACTOR'S DUTY TO NOTIFY THE ARCHITECT OF THIS CONFLICT OR DISCREPANCY PRIOR TO HIS ACCEPTANCE OF THE PROJECT. UNLESS EXPRESSLY STIPULATED, NO ADDITIONAL ALLOWANCES WILL BE MADE IN THE CONTRACTOR'S AND/OR MANUFACTURER'S FAVOR BY VIRTUE OF ERRORS, AMBIGUITIES AND/OR OMISSIONS WHICH WERE KNOWN TO OR WHICH SHOULD HAVE BEEN KNOWN OR DISCOVERED DURING THE PREPARATION OF THE BID ESTIMATE AND DIRECTED TO THE ARCHITECT'S ATTENTION IN A TIMELY MANNER.

PART 6: EXPERIENCE:

A. THE CONTRACTOR SHALL BE A REPUTABLE FIRM REGULARLY DOING THIS TYPE OF WORK, WITH SKILLED MECHANICS AND EQUIPMENT CAPABLE OF PROVIDING A FIRST CLASS INSTALLATION IN ACCORDANCE WITH ACCEPTABLE MODERN PRACTICES.

PART 7: PLUMBING THERMOMETERS:

A. STEM TYPE THERMOMETERS: ADJUSTABLE ANGLE, RED OR BLUE APPEARING NON-TOXIC LIQUID IN GLASS, CAST ALUMINUM CASE WITH ENAMEL FINISH, CAST ALUMINUM ADJUSTABLE JOINT WITH POSITIVE LOCKING DEVICE; ADJUSTABLE 360 DEGREES IN HORIZONTAL PLANE, 180 DEGREES IN VERTICAL PLANE. SIZE 9 INCH, SCALE 30 TO 240 DEG. F.

ACCEPTABLE MANUFACTURERS ARE WEKSLER GLASS, H.O. TRERICE OR APPROVED EQUAL.

PART 8: PLUMBING IDENTIFICATION:

- A. NAMEPLATES FOR EQUIPMENT: LAMINATED THREE LAYER PLASTIC WITH ENGRAVED LETTERS, 1/4" HEIGH, COLOR WHITE, BACKGROUND COLOR BLACK.
- B. TAGS: PLASTIC OR BRASS, 1 1/2 INCH DIAMETER, WITH ENGRAVED OR STAMPED BLACK LETTERS WITH LIGHT CONTRASTING BACKGROUND COLOR. USE TAGS FOR VALVES AND PIPING SMALLER THAN 3/4 INCH. INSTALL TAGS WITH CORROSION RESISTANT CHAIN. PROVIDE TYPEWRITTEN LIST OF TAGS INCLUDING LOCATION AND SERVICE.
- C. PLASTIC PIPE MARKERS: FACTORY FABRICATED, FLEXIBLE, PREFORMED TO PIPE SIZE OR VINYL FILM TAPE, INDICATING FLOW DIRECTION ARROW AND IDENTIFICATION OF FLUID BEING CONVEYED.
- D. ACCEPTABLE MANUFACTURERS ARE BRADY, KOLBI, SETON OR APPROVED EQUAL.

PART 9: PLUMBING INSULATION:

- A. ALL INSULATION, INCLUDING JACKET, OR FACING AND ADHESIVE USED TO ADHERE FACING OR JACKET TO THE INSULATION SHALL HAVE A COMPOSITE FIRE AND SMOKE HAZARD RATING TESTED BY THE PROCEDURE RECOMMENDED BY ASTM E84, NFPA 255 OR U.L. 723, NOT EXCEEDING FLAME SPREAD 25, SMOKE DEVELOPED 50. ALL INSULATION ACCESSORIES SHALL ALSO HAVE THE RATINGS LISTED ABOVE.
- ABOVE GRADE HOT AND COLD WATER LINES WILL BE INSULATED WITH RIGID, MOLDED FIBERGLASS WITH VAPOR BARRIER. MAINS 1 INCH THICK AND BRANCH LINES SERVING INDIVIDUAL FIXTURES. 1/2 INCH. PROVIDE PVC JACKETS FOR FITTINGS, JOINTS AND VALVES. MITERED AND MASTIC FIBERGLASS NOT ACCEPTABLE. 1. ACCEPTABLE MANUFACTURERS ARE OWENS CORNING, JOHNS MANVILLE, KNAUF, CERTAINTEED OR APPROVED EQUAL.
- C. INSULATION INSERTS AND SHIELDS: PROVIDE GALVANIZED STEEL SHIELD AND INSERT ON ALL PIPING TO PROVIDE 180 DEGREE COVERAGE ON BOTTOM OF SUPPORTED PIPING AND FULL 360 DEGREE COVERAGE ON CLAMPED PIPING. 1 INCH THICK. 1. ACCEPTABLE MANUFACTURERS ARE B-LINE, ANVIL OR APPROVED EQUAL.

PLUMBING SPECIFICATIONS

PART 10: - PLUMBING PIPING:

- A. SANITARY WASTE LINES AND VENTS BELOW AND ABOVE GRADE SHALL BE PVC PIPE: ASTM D 2665 SCHEDULE 40 WITH SOLVENT WELDED PVC FITTINGS. USE SERVICE WEIGHT CAST IRON PIPE IN ONE HOUR OR GREATER FIRE RATED WALLS. PROVIDE CAST IRON PIPE SLEEVE AT FOUNDATION WALL PENETRATIONS.
- B. ABOVE GRADE DOMESTIC COLD AND HOT WATER LINES SHALL BE COPPER TUBE WITH SOLDERED COPPER FITTINGS OR MECHANICAL PRESS FITTINGS: 1. ASTM B 88, TYPE "L", H (DRAWN) TEMPER.
 - 2. FITTINGS: ASME B16.18, CAST COPPER ALLOY OR ASME B16.22, WROUGHT COPPER AND BRON7F.
- 3. JOINTS: ASTM B 32, ALLOY SN95 SOLDER. 4. COPPER PRESS FIT JOINTS SHALL BE DOUBLE PRESSED TYPE AND UTILIZE EPDM SEALING ELEMENTS. JOINTS SHALL BE MADE IN ACCORDANCE WITH MANUFACTURERS INSTALLATION INSTRUCTIONS.
- C. CONCEALED BRANCH LINES FOR ABOVE GRADE DOMESTIC COLD AND HOT WATER LINES: COPPER OR PEX-a TUBING.
- COPPER ASTM B 88, TYPE "L", H (DRAWN) TEMPER. 2. CROSS-LINKED POLYETHYLENE TUBING (PEX-a) ASTM F876, ASTM F877, NFS 61. FITTINGS ASTM F 1960.
- E. ALL WATER PIPING SHALL BE APPROVED FOR CONTACT WITH POTABLE WATER IN ACCORDANCE WITH NSF 61 AND NSF 14.
- F. DISINFECTION OF DOMESTIC WATER SYSTEM: WATER DISTRIBUTION SYSTEM SHALL BE DISINFECTED PER STATE AND LOCAL CODES.

PART 11: - PLUMBING SPECIALTIES:

- A. DRAINS AND CLEANOUTS: ZURN, WADE, JR SMITH, OR APPROVED EQUAL.
- B. TRAP GUARDS: RECTORSEAL, OATEY, ZURN, OR APPROVED EQUAL.
- C. WATER HAMMER ARRESTORS: WATTS, SIOUX CHIEF OR ZURN OR APPROVED EQUAL.
- D. THERMOSTATIC MIXING VALVE: WATTS, LAWLER OR APPROVED EQUAL.
- E. VALVES: WATTS, CONBRACO INDUSTRIES, WEBSTONE OR APPROVED EQUAL.

PART 12: - PLUMBING EQUIPMENT:

- A. WATER HEATERS: AO SMITH, BRADFORD WHITE, OR APPROVED EQUAL.
- B. THERMAL EXPANSION TANKS: AMTROL, WESSEL OR APPROVED EQUAL.
- C. CIRCULATION PUMPS: GRUNDFOS, ARMSTRONG, BELL & GOSSETT OR APPROVED EQUAL
- D. WATER HEATER STANDS: HOLDRITE OR APPROVED EQUAL.
- E. REFER TO PLUMBING SCHEDULES ON PLANS.

PART 13: - PLUMBING FIXTURES:

- A. LAVATORIES: AMERICAN STANDARD, KOHLER OR APPROVED EQUAL. 1. FAUCET: MOEN, CHICAGO FAUCET, T&S BRASS OR APPROVED EQUAL. 2. ACCESSORIES: MCGUIRE, DEARBORN BRASS OR APPROVED EQUAL.
- B. WATER CLOSETS: AMERICAN STANDARD, KOHLER OR APPROVED EQUAL. 1. SEATS: BEMIS, KOHLER OR APPROVED EQUAL.
- C. STAINLESS STEEL SINKS: ELKAY, JUST OR APPROVED EQUAL. 1. FAUCET: MOEN, ELKAY, CHICAGO FAUCET, T&S BRASS OR APPROVED EQUAL 2. ACCESSORIES: ELKAY, MCGUIRE, DEARBORN BRASS OR APPROVED EQUAL.
- D. ACCESS PANELS: ACUDOR, ELMDOR OR APPROVED EQUAL.
- E. SUPPLY STOP VALVES: COMMERCIAL GRADE, QUARTER-TURN STYLE: MCGUIRE, BRASSCRAFT OR APPROVED EQUAL.
- F. REFER TO PLUMBING SCHEDULES ON PLANS.

PART 14: - INSTALLATION:

- A. FURNISH AND INSTALL A COMPLETE PLUMBING SYSTEM AS INDICATED ON THE PLUMBING PLANS. TEST AND ADJUST EQUIPMENT AND FIXTURES FOR PROPER OPERATION.
- B. INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
- C. PROVIDE TRACER WIRE FOR BELOW GRADE NON-METALLIC PIPING.
- D. PIPE HANGERS AND SUPPORTS INSTALLED IN ACCORDANCE WITH ASME B31.9, MSS SP-58, MSS SP-69, MMS SP-89 AND SPACING PER CODE.
- E. ROUTE PIPING IN ORDERLY MANNER, MAINTAIN GRADIENT AND ALLOW FOR EXPANSION AND CONTRACTION.
- F. INSTALL VENT PIPING PENETRATING SIDEWALLS TO MAINTAIN INTEGRITY OF WALL ASSEMBLY.
- G. IDENTIFY VALVES WITH TAGS AND PIPING WITH PIPE MARKERS OR TAGS.
- H. PIPE INSULATION: INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND NAIMA NATIONAL INSULATION STANDARDS.
- I. INSULATED PIPES CONVEYING FLUIDS BELOW AMBIENT TEMPERATURE INCLUDING FITTINGS, VALVES, UNIONS, FLANGES, AND STRAINERS.
- J. FOR HOT PIPING CONVEYING FLUIDS 140 DEGREES F OR LESS, DO NOT INSULATE FLANGES AND UNIONS AT EQUIPMENT, BUT BEVEL AND SEAL ENDS OF INSULATION.
- K. INSULATE FITTINGS, JOINTS, AND VALVES WITH INSULATED PVC FITTING COVERS.
- L. INSULATION INSERTS AND SHIELDS: GALVANIZED STEEL BETWEEN PIPE HANGERS OR PIPE HANGER ROLLS AND INSERTS WITH 180 DEGREE COVERAGE ON BOTTOM OF SUPPORTED PIPING AND 360 DEGREE COVERAGE ON CLAMPED PIPING. LOCATE INSERT BETWEEN SUPPORT SHIELD AND PIPING AND UNDER THE FINISH JACKET. INSERT MINIMUM 6 INCHES LONG. INSERT MATERIAL OF HYDROUS CALCIUM SILICATE INSULATION OR OTHER HEAVY DENSITY INSULATING MATERIAL SUITABLE FOR THE PLANNED TEMPERATURE RANGE. INSERTS AND SHIELD ASSEMBLIES MAY BE FACTORY FABRICATED.
- M. EXPOSED PIPING: LOCATE INSULATION AND COVER SEAMS IN LEAST VISIBLE LOCATIONS
- N. SLEEVE PIPES PASSING THROUGH NON-RATED PARTITIONS, WALLS AND FLOORS. USE URETHANE CAULK IN ANNULAR SPACE BETWEEN PIPE INSULATION AND SLEEVE. CONTINUE INSULATION THROUGH WALLS, SLEEVES, PIPE HANGERS, AND OTHER PIPE PENETRATIONS. FINISH AT SUPPORTS, PROTRUSIONS, AND INTERRUPTIONS. AT FIRE SEPARATIONS, FIRE CAULK AS REQUIRED.

- O. FIRE AND/OR SMOKE RATED PENETRATIONS: ALL FIRESTOPPING SYSTEMS SHALL BE PROVIDED BY FOR IDENTIFICATION OF FIRE AND/OR SMOKE RATED WALLS AND FLOORS.
- PARTS OF SYSTEMS. PROVIDE BALL VALVE AT WATER SERVICE ENTRANCE.
- R. INSTALL DIELECTRIC UNIONS AT DISSIMILAR PIPE MATERIAL CONNECTION POINTS.
- S. INSTALL COMPONENTS LEVEL AND PLUMB. SEAL FIXTURES TO WALL AND FLOOR SURFACES WITH SEALANT COLOR TO MATCH FIXTURE.
- T. PLUMBING FIXTURE MOUNTING HEIGHT SHALL BE PER ARCHITECTURAL DRAWINGS.
- U. INSTALL FLOOR DRAINS AND CLEANOUTS FLUSH WITH FINISHED FLOOR.
- VERTICAL RISERS.
- COMPONENTS.
- Z. CLEAN PLUMBING FIXTURES AND EQUIPMENT.
- AA. PROTECT INSTALLED PRODUCTS FROM DAMAGE DUE TO SUBSEQUENT CONSTRUCTION OPERATIONS.
- AB. DO NOT PERMIT USE OF FIXTURES BY CONSTRUCTION PERSONNEL.
- AC. REPAIR OR REPLACE DAMAGED PRODUCTS BEFORE DATE OF SUBSTANTIAL COMPLETION.
- AD. DISINFECT WATER PIPING SYSTEM PER STATE AND LOCAL CODES.
- AF. SERVICE CONNECTIONS: 2. PROVIDE CONNECTION TO EXISTING SANITARY LINE BELOW FLOOR.
- PART 15: WALK THRU:

ENCLOSED.

THE OPERATION AND MAINTENANCE OF THE PLUMBING SYSTEM.

THE SAME MANUFACTURER AND UL LISTED. USE A PRODUCT THAT HAS A RATING NOT LESS THAN THE RATING OF THE WALL OR FLOOR BEING PENETRATED. REFERENCE ARCHITECTURAL DRAWINGS

P. PIPING INSULATION SHALL BE CONTINUOUS THROUGH WALL PENETRATIONS.

Q. INSTALL UNIONS AT EQUIPMENT CONNECTIONS. PROVIDE BALL VALVES TO ISOLATE EQUIPMENT AND

V. INSTALL BALL VALVES FOR SHUT-OFF AND TO ISOLATE EQUIPMENT, PARTS OF SYSTEMS OR

W. INSTALL UNIONS DOWNSTREAM OF VALVES AND AT EQUIPMENT OR APPARATUS CONNECTIONS. X. PIPE WORK MUST BE PROPERLY TESTED AND APPROVED BEFORE BEING COVERED UP OR

Y. TEST FIXTURES TO DEMONSTRATE PROPER OPERATION. REPLACE MALFUNCTIONING UNITS OR

AE. PIPING LEAK TESTS: PERFORM LEAK TESTS ON DOMESTIC WATER SYSTEMS, WASTE & VENT SYSTEMS AND NATURAL GAS SYSTEMS PER STATE AND LOCAL CODES.

1. PROVIDE CONNECTION TO EXISTING COLD WATER MAIN NEAR AREA OF CONSTRUCTION.

A. THE CONTRACTOR SHALL PERFORM AN INSTRUCTIONAL WALK THRU WITH THE OWNER TO EXPLAIN



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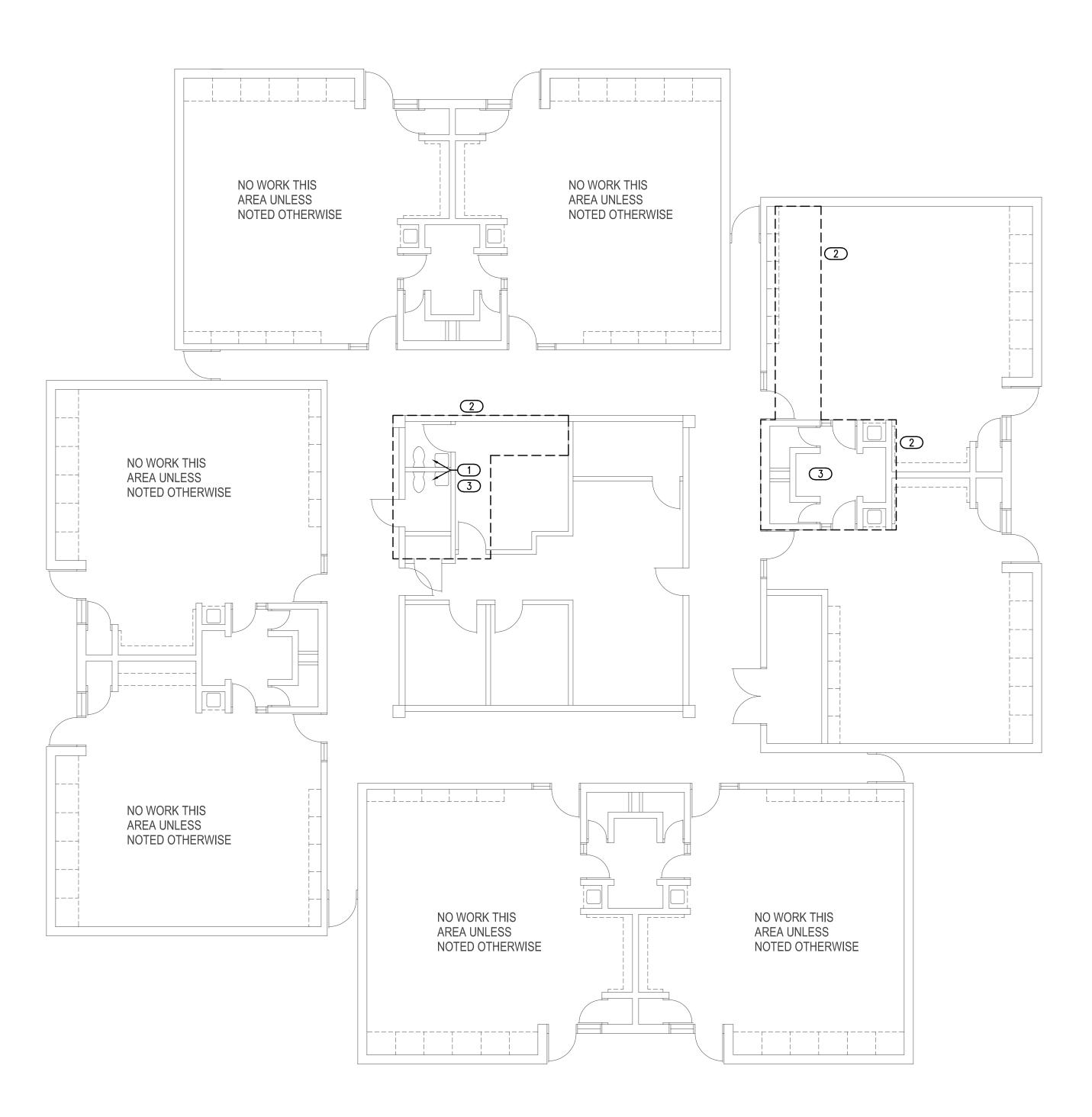


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1 PLUMBING DEMOLITION PLAN SCALE: 1/8" = 1'-0"



GENERAL NOTES

- FIELD VERIFY EXISTING CONDITIONS PRIOR TO COMMENCING WORK.
- 2. COORDINATE WORK WITH ALL TRADES ON SITE.
- 3. REFER TO RENOVATION NOTES ON SHEET POOD.
- 4. COORDINATE WITH GENERAL CONTRACTOR FOR ALL REQUIRED FLOOR, WALL AND CEILING CUTTING FOR DEMOLITION AND NEW WORK.
- 5. REMOVE UNUSED PLUMBING VENTS THRU ROOF. COORDINATE WITH ROOFING CONTRACTOR FOR LOCATIONS TO BE SEALED WEATHERPROOF.

KEYED NOTES

- 1 REMOVE PLUMBING FIXTURES IN THIS AREA AND ALL ABOVE FLOOR ASSOCIATED BRANCH PIPING BACK TO MAINS. REMOVE BELOW FLOOR SANITARY PIPING AS REQUIRED FOR INSTALLING NEW FIXTURES.
- 2 SAWCUT EXISTING FLOOR FOR INSTALLING NEW SANITARY PIPING.
- 3 COORDINATE WITH GC FOR MODIFICATION OF WALLS FOR NEW SANITARY PIPING AND FIXTURES.



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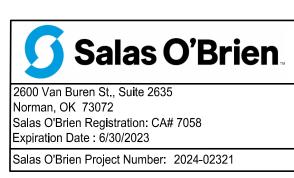


RED OAK ELEMENTARY SCHOOL SECURITY UPGRADES

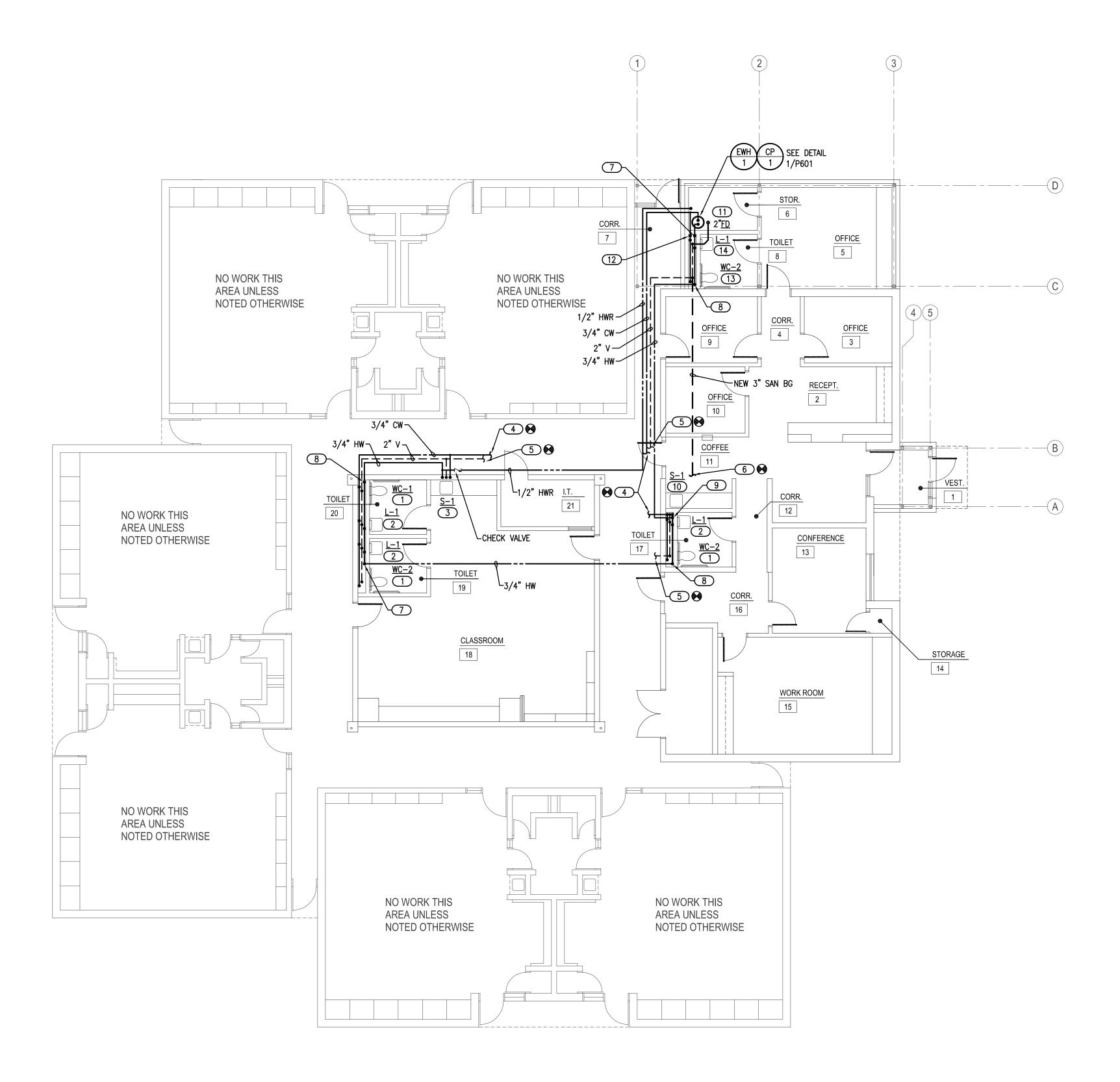
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PLUMBING PLAN SCALE: 1/8" = 1'-0"



NORTH

GENERAL NOTES

- 1. COORDINATE WORK WITH ALL OTHER TRADES ON SITE.
- 2. FIELD VERIFY EXISTING CONDITIONS PRIOR TO COMMENCING WORK.
- 3. SINK AND LAVATORY WATER SUPPLY STUB OUTS SHALL BE COPPER PIPE WITH SUPPORT BRACKET FASTENED IN WALL CAVITY.
- 4. REFER TO PLUMBING FIXTURE SCHEDULE ON SHEET P601 FOR FIXTURE ROUGH-IN PIPE SIZES.
- 5. PROVIDE ACCESS PANELS FOR ALL VALVES/DEVICES ABOVE HARD CEILINGS AND BEHIND WALLS.

KEYED NOTES

1 INSTALL NEW WATER CLOSET AND CONNECT NEW 1/2" CW, 2" VENT AND 3" SANITARY PIPING TO NEAREST EXISTING MAINS. FIELD VERIFY EXISTING PIPE SIZE AND LOCATIONS.

- 2 INSTALL NEW LAVATORY AND CONNECT NEW 1/2" CW, 1/2" HW, 1 1/2" VENT AND 2" SANITARY PIPING TO NEAREST EXISTING MAINS. INSTALL TMV-1 BELOW FIXTURE. FIELD VERIFY EXISTING PIPE SIZE AND LOCATIONS.
- 3 INSTALL NEW SINK AND CONNECT NEW 1/2" CW, 1/2" HW, 1 1/2" VENT AND 2" SANITARY PIPING TO NEAREST EXISTING MAINS. INSTALL TMV-1 BELOW FIXTURE. FIELD VERIFY EXISTING PIPE SIZE AND LOCATIONS.
- 4 CONNECT NEW 3/4" CW TO NEAREST EXISTING CW MAIN. FIELD VERIFY EXISTING SIZE AND LOCATION.
- 5 CONNECT NEW 2" VENT TO NEAREST EXISTING VENT MAIN. FIELD VERIFY EXISTING SIZE AND LOCATION.
- 6 CONNECT NEW 3" SANITARY BELOW FLOOR TO NEAREST EXISTING SANITARY MAIN 3" OR LARGER FIELD VERIFY EXISTING SIZE AND LOCATION.
- 7 ROUTE 3/4" HW LINE DOWN INTO CHASE TO 2'-6" AFF AND EXTEND THRU CHASE WITH 1/2" HW BRANCH TO LAVATORY.
- 8 ROUTE 3/4" HW LINE FROM CHASE UP TO ABOVE CEILING.
- 9 ROUTE 3/4" HW LINE DOWN INTO CHASE TO 2'-6" AFF AND EXTEND THRU CHASE WITH 1/2" HW BRANCH TO LAVATORY. PROVIDE 1/2" HW BRANCH LINE TO SINK S-1.
- 10 INSTALL NEW SINK AND ROUTE NEW 1/2" CW, 1/2" HW, 1 1/2" VENT AND 2" SANITARY PIPING INTO CHASE AND CONNECT TO NEW MAINS. INSTALL TMV-1 BELOW FIXTURE. FIELD VERIFY EXISTING PIPE SIZE AND LOCATIONS.
- 11 INSTALL NEW FLOOR DRAIN AND CONNECT 2" SANITARY TO SANITARY RISER AT ADJACENT LAVATORY. INSTALL TRAP GUARD IN FLOOR DRAIN.
- 12 ROUTE 3/4" CW LINE DOWN INTO CHASE AND EXTEND THRU CHASE FOR LAVATORY AND WATER CLOSET.
- (13) INSTALL NEW WATER CLOSET AND CONNECT NEW 1/2" CW, 2" VENT AND 3" SANITARY PIPING TO NEW MAINS. FIELD VERIFY PIPE ROUTING.
- (14) INSTALL NEW LAVATORY AND CONNECT NEW 1/2" CW, 1/2" HW, 1 1/2" VENT AND 2" SANITARY PIPING TO NEW MAINS. INSTALL TMV-1 BELOW FIXTURE. FIELD VERIFY PIPE ROUTING.



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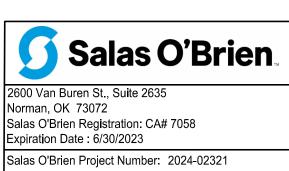


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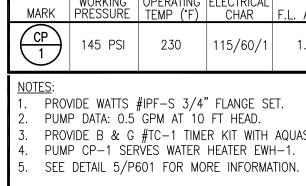
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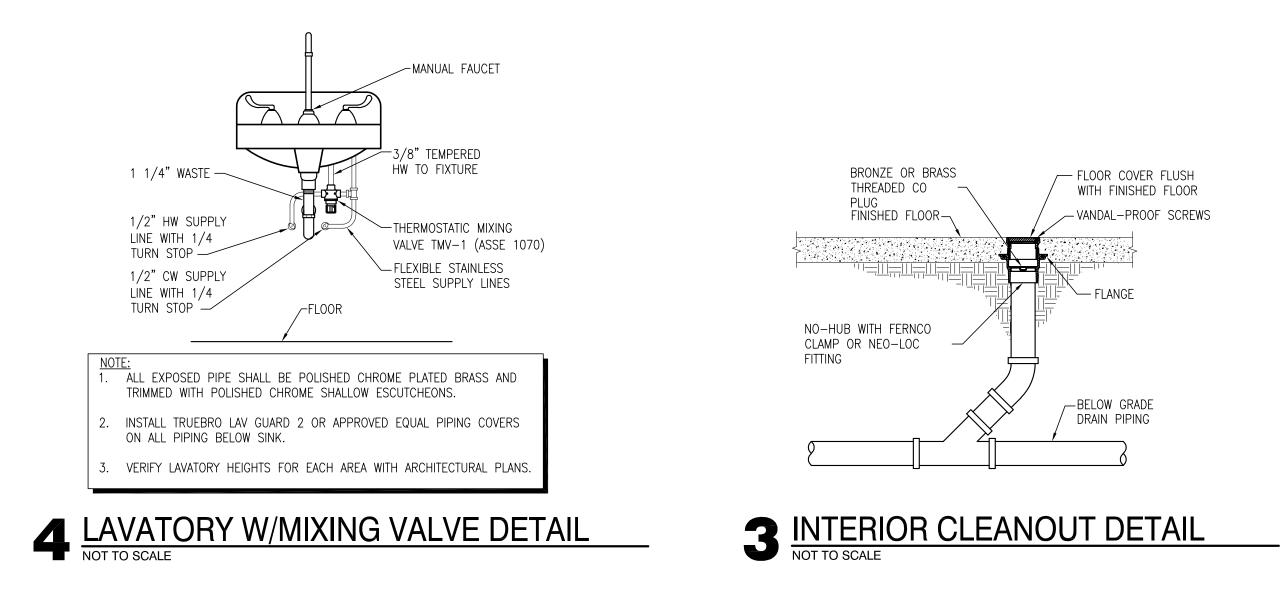
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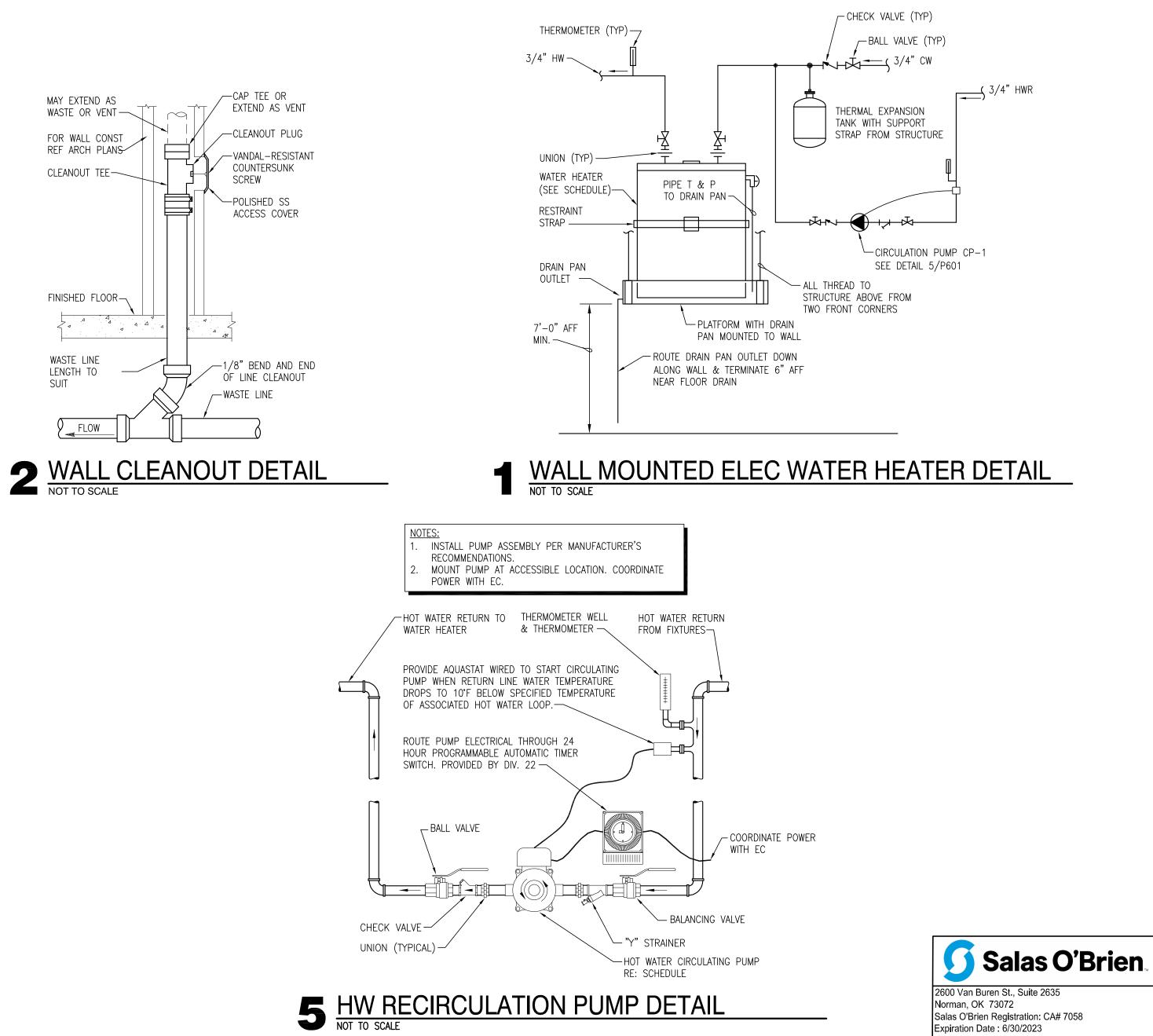


ELECTRIC WATER HEATER SCHEDULE										
MARK	LOCATI		MPERATURE RISE	CAPACITY GALLONS	AMPS	ELEMENT KW	VOLTAGE	PHASE	MANUFACTURER & MODEL NO.	NOTES
EWH 1	STORA(ROOM		72 DEG 11 GPH	10	22	2.0	208	1	AO SMITH DEL-10	1-6
 INSTALL PER MANUFACTURER'S RECOMMENDATIONS. SET OUTLET TEMPERATURE TO 120'F. VERIFY TEMPERATURE WITH OWNER. PROVIDE AMTROL ST-5 THERMAL EXPANSION TANK ON COLD WATER LINE TO WATER HEATER. PROVIDE HOLD RITE SUPPORT PLATFORM MODEL 50-SWHP-C. COORDINATE WIRING WITH E.C. SEE DETAIL 1/P601 FOR MORE INFORMATION. 										
MAXIMUM MAXIMUM MAXIMUM MOTOR MARK MAXIMUM OPERATING PLECTRICAL CHAR MOTOR FLANGE SIZE MANUFACTURER MARK PRESSURE TEMP (*F) CHAR F.L. AMPS HP RPM (INCHES) MATERIAL MANUFACTURER										
CP 145 PSI 230 115/60/1 1.0 70 WATTS VARIABLE 3/4" S. STEEL BELL & GOSSETT ECOCIRC 20-18										
NOTES: 1. PROVIDE WATTS #IPF-S 3/4" FLANGE SET. 2. PUMP DATA: 0.5 GPM AT 10 FT HEAD. 3. PROVIDE B & G #TC-1 TIMER KIT WITH AQUASTAT - SET TIMER PER OWNER'S REQUIREMENTS. 4. PUMP CP-1 SERVES WATER HEATER EWH-1. 5. SEE DETAIL 5 (DE01 FOR MORE INFORMATION)										





	PLUMBING FIXTURE SCHEDULE								
					R	ROUGH-IN SCHEDULE		.E	
MARK	FIXTURE	MANUFACTURER	MODEL	MOUNT	COLD	HOT	WASTE	VENT	FITTINGS AND REMARKS
L-1	LAVATORY ADA	KOHLER	K-2005-0	WALL	1/2"	1/2"	1 1/2"	1 1/2"	COLOR WHITE. PROVIDE CHICAGO FAUCET 420-CP FAUCET. PROVIDE MCGUIRE HD155A STRAINER, 8902C P-TRAP, & LFBV2165CC SUPPLY STOPS. TRUEBRO LAV GUARD 2 PIPE COVERS. REFER TO ARCHITECT'S PLANS FOR MOUNTING HEIGHT AND WALL TYPE. ADA INSTALLATION.
WC-1	WATER CLOSET LEFT TRIP LEVER ADA	KOHLER	K-25077-0	FLOOR	1/2"	_	4"	2"	COLOR WHITE, 1.28 GPF. PROVIDE BEMIS 1655SSCT OPEN FRONT ELONGATED SEAT, EXTERNAL CHECK HINGE, COLOR WHITE. PROVIDE WAX RING KIT. PROVIDE MCGUIRE 1/4 TURN SUPPLY STOP LFBV2166SS. RIM HEIGHT 16.5". ADA INSTALLATION.
WC-2	WATER CLOSET RIGHT TRIP LEVER ADA	KOHLER	K-25077-RA- 0	FLOOR	1/2"	_	4"	2"	COLOR WHITE, 1.28 GPF. PROVIDE BEMIS 1655SSCT OPEN FRONT ELONGATED SEAT, EXTERNAL CHECK HINGE, COLOR WHITE. PROVIDE WAX RING KIT. MCGUIRE 1/4 TURN SUPPLY STOP LFBV2166SS. RIM HEIGHT 16.5". ADA INSTALLATION.
S-1	SINK	ELKAY	LRAD1919603	COUNTERTOP	1/2"	1/2"	1 1/2"	1 1/2"	SINGLE BOWL, S.S. 6" DEEP, 3 FAUCET HOLES. PROVIDE ELKAY LKA1041CR FAUCET, ELKAY DRAIN LK35. PROVIDE MCGUIRE 8912 P-TRAP & LFBV2165 SUPPLY STOPS. INSTALL MIXING VALVE TMV-1 UNDER UNIT.
FD	FLOOR DRAIN	WADE	1100-DA6-1	FLOOR	_	-	SEE PLANS	_	6" ROUND NICKEL BRONZE STRAINER, CAST IRON BODY ANCHOR FLANGE, CLAMP COLLAR, ADJUSTABLE COLLAR, ADJUSTABLE STRAINER HEIGHT, VANDAL-PROOF SECURED TOP. INSTALL TRAP GUARD.
FCO	FLOOR CLEANOUT	WADE	6000-1-VP	FLOOR	-	_	SEE PLANS	_	6" ROUND NICKEL BRONZE TOP, CAST IRON BODY, ADJUSTABLE COLLAR, ANCHOR FLANGE, COVER HEIGHT ADJUSTMENT AFTER FLOOR IS POURED, COVER WITH VANDAL RESISTANT SCREWS.
WCO	WALL CLEANOUT	WADE	8560-75	WALL	_	Ι	SEE PLANS	_	CAST IRON CLEANOUT TEE, THREADED BRASS PLUG, STAINLESS STEEL ROUND ACCESS COVER WITH VANDAL RESISTANT SECURING SCREW 8304-6-VP.
HA-1	HAMMER ARRESTOR	WATTS	LF15M2	PIPE	VARIES	-	-	-	LEAD-FREE CONSTRUCTION, PDI WH201 LISTED, PRE-CHARGED, PERMANENT SEALED AIR CHAMBER. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
AP-1	ACCESS PANEL	ACUDOR	UF-5000 14x14 CLSS	WALL	-	-	_	_	16"x16" STEEL 16 GAGE DOOR, 18 GAGE MOUNTING FRAME. CONCEALED HINGE, CYLINDER LOCK & KEY, STAINLESS STEEL FINISH. CONCEALED FASTENING POINTS.
TMV-1	THEROMSTATIC MIXING VALVE	WATTS	LFMMV-M1	UNDER FIXTURE	1/2"	1/2'	_	_	MIXING VALVE WITH LEAD FREE DESIGN, ADJUSTABLE TEMPERATURE SET-POINT & LOCKABLE, INTEGRAL CHECK STOPS & STRAINERS, 3/8" INLETS & OUTLET. SET OUTLET TEMP AT 105 DEGREES F. ASSE 1070 LISTED.
TG-1	TRAP GUARD	RECTORSEAL	SURESEAL	PIPE	-	_	SEE PLANS	_	ASSE 1072 LISTED, HDPE OR ABS PLASTIC HOUSING WITH HEAVY DUTY SILICONE DIAPHRAGM & RUBBER SEALING GASKET TO PREVENT EVAPORATION OF TRAP SEAL. INSTALL UNIT IN FLOOR DRAIN.



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