

University of South Carolina
Project Name: SOM Building No. 3 Construct Restrooms, 3rd Floor
GMK Project Number: 18064.01
State Project Number: FP00000171
Project Manager: Jerry Knox

Addendum Number 2

Date: September 12, 2019

From: GMK Associates

To All Bidders:

The following items add to, modify, clarify or otherwise alter the Drawings and/ or specifications and will be a part of the Contract Documents. Where a portion of the Drawings and/or specification is added to, modified or otherwise altered, the portion not so affected shall remain. Bidder shall include all effects that these items may have on this proposal. Acknowledge receipt of this Addendum in the space provided in the Bid Form. Failure to do so may subject Bidder to disqualification.

CHANGES TO THE DRAWINGS:

DRAWING A2.3 – PARTIAL THIRD FLOOR DEMOLITION PLAN & RENOVATION PLANS – ANNOTATION & DIMENSION

1. Replace PARTIAL THIRD FLOOR RENOVATION PLAN – ANNOTATION note to read:
 - a. New gyp board **& R-13 faced fiberglass insulation** to be applied to interior face existing studwork. See revised drawing attached.
 - b. New gyp board **& sound batt** to be applied to interior face of existing stud work. **Convert wall to be partition type B3.**

DRAWING P0.1 – PLUMBING SPECIFICATIONS

1. Clarify that water closets are to be floor mounted as indicated on Fixture schedule.
2. Clarify that sensor faucets and flush valves are to be Alternate as indicated on plans and fixture schedule.

CLARIFICATIONS:

1. After hours work can be arranged for slab coring and other noise disturbing tasks. Coordinate with owner.
2. Disregard air handler AHU-07/mechanical room shown during Pre-Bid. All Mechanical tie-ins and work to be executed off of AHU-06 as drawn on construction documents.

PRE-APPROVALS:

Electrical

1. Columbia Lighting is a preapproved lighting manufacturer.
2. Sensorworx is a preapproved lighting controls manufacturer.

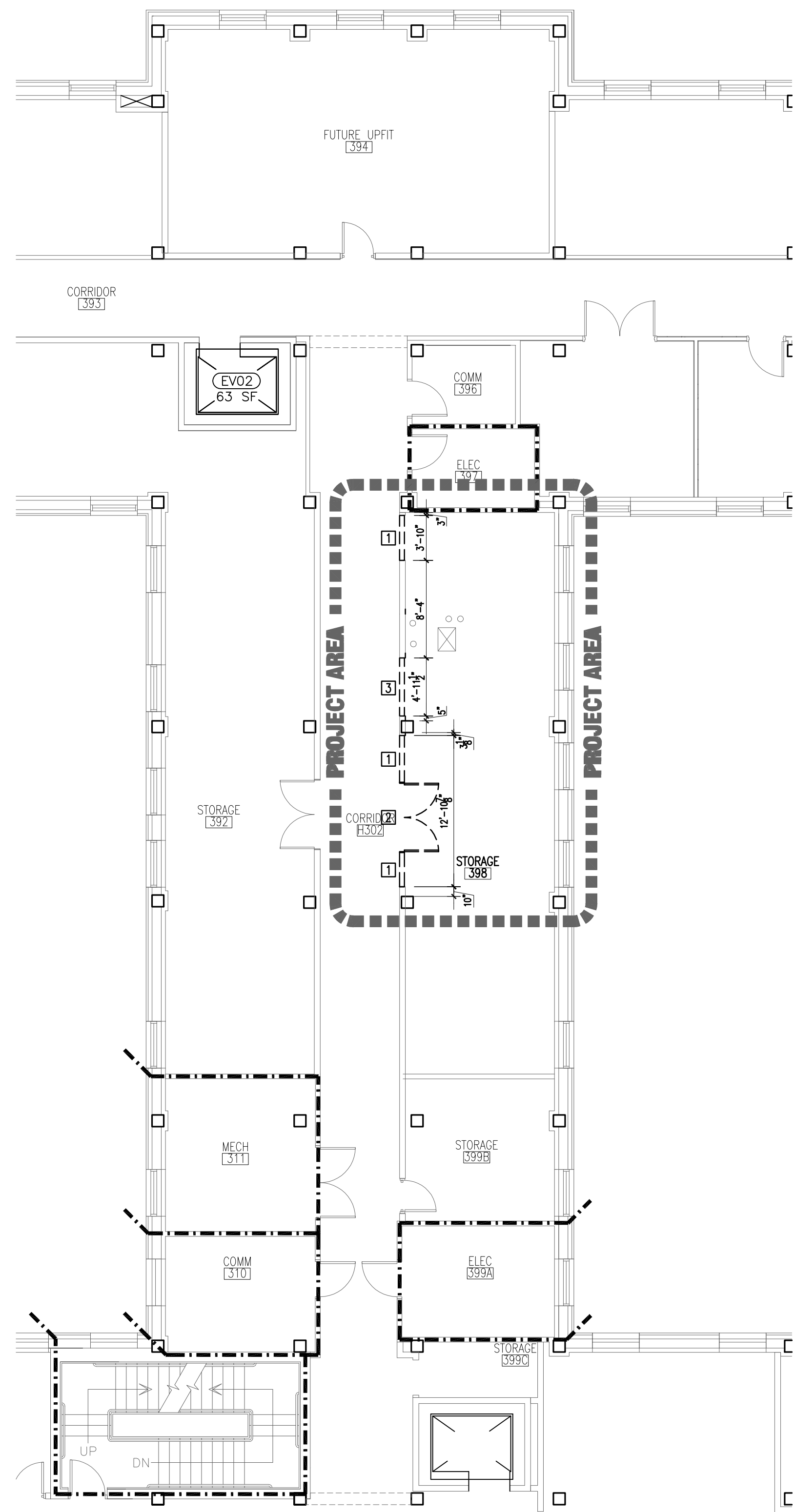
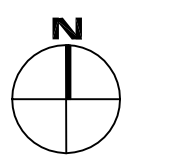
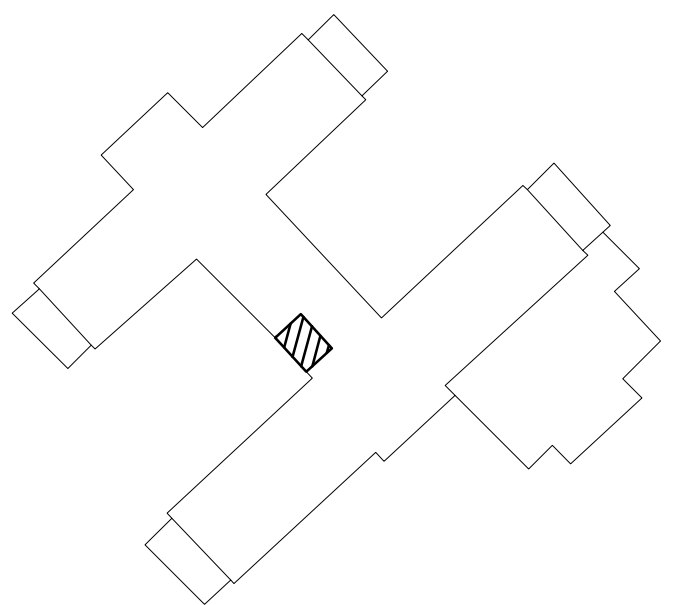
Attachments:

Sheet A2.3

Sheet P0.1

End of Addendum Number 2

number	item	date
1	ADDENDUM #2	09/12/19



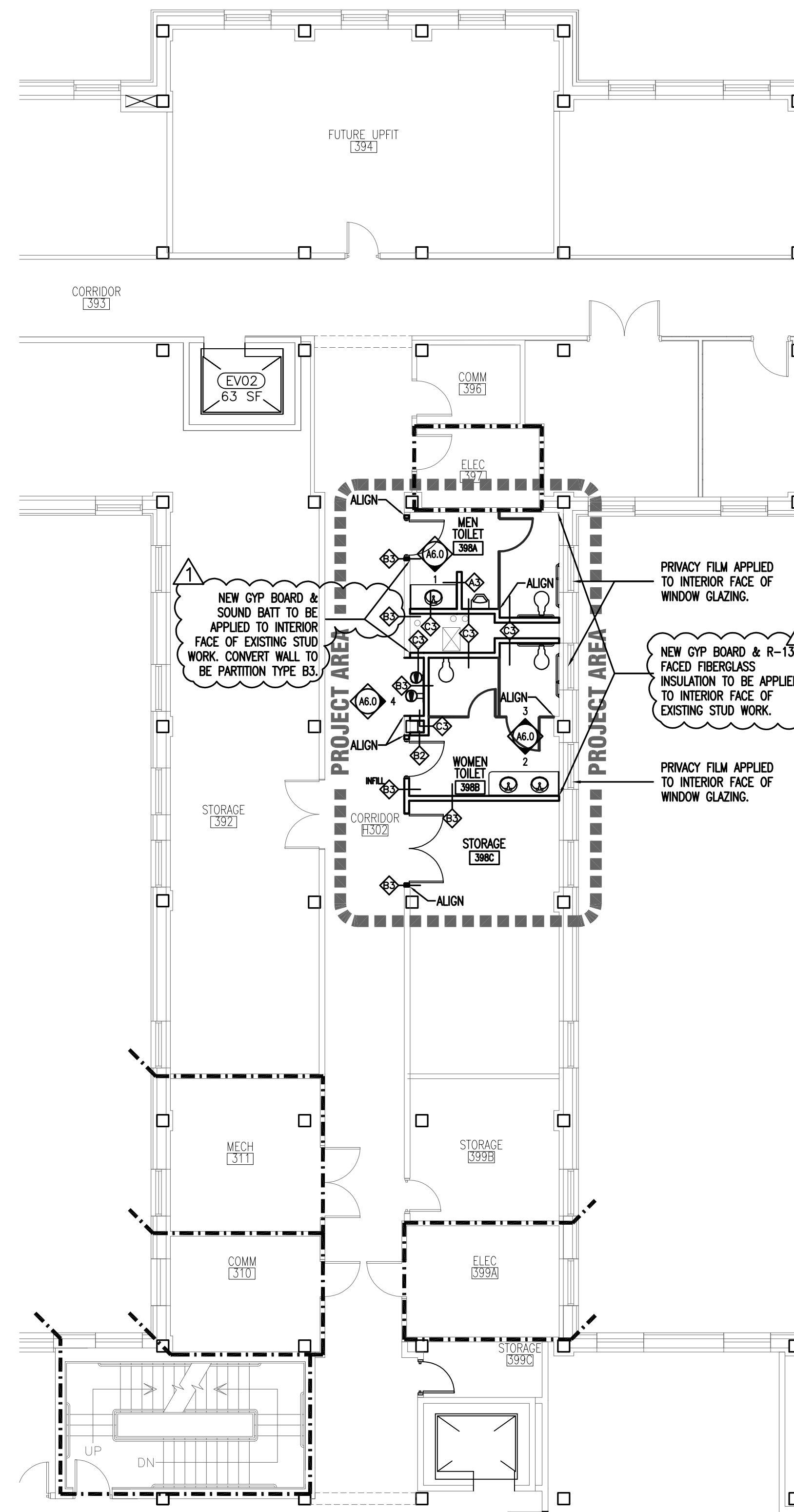
**1 PARTIAL THIRD FLOOR
DEMOLITION PLAN**
1/8" = 1'-0"

GENERAL DEMOLITION NOTES:

- LIFE-SAFETY EGRESS FROM EXISTING AREAS EITHER RENOVATED OR HAVING THE EGRESS AFFECTED BY THE RENOVATION SHALL BE MAINTAINED CLEAR OF OBSTRUCTION AND IMPROVED TO EXISTING AND SHALL BE SUPPLEMENTED TO PROVIDE REQUIRED LIFE-SAFETY COVERAGE AT ALL TIMES DURING DEMOLITION AND CONSTRUCTION.
- CEILING BELOW PROJECT AREA IS LAY-IN. ANY REMOVAL OF CEILING GRID OR TILE DUE TO MEP PROJECT SCOPE SHALL BE RETURNED TO ITS ORIGINAL CONDITION. CONTRACTOR SHALL COORDINATE TIMING OF WORK IN OCCUPIED SPACE BELOW PROJECT AREA TO MINIMIZE IMPACT TO OCCUPANTS AND SHALL COMPLETE WORK AND RETURN THE SPACE TO OWNER/OCCUPANTS IN A TIMELY MANNER.
- INTERIOR FINISHES, MATERIALS, FURNITURE, EQUIPMENT, ETC IN BUILDINGS TO REMAIN SHALL BE PROTECTED AS NECESSARY TO ELIMINATE POSSIBILITY OF MOISTURE, DUST, DEBRIS DAMAGE COVER AND PROTECT AS NECESSARY.
- ALL DEMOLITION SHALL BE PERFORMED WITH THE "DUE CARE AND DILIGENCE". ALL SUCH DISCOVERIES OF UTILITIES DURING THE DEMOLITION PROCESS WHICH ARE IN A DIFFERENT LOCATION FROM THAT INDICATED, CHANGE DIRECTION FROM FLOOR-TO-FLOOR, ETC., OR ARE UNIDENTIFIED, SHALL BE REPORTED TO THE ARCHITECT BEFORE REMOVAL OR DISTURBANCE.
- ANY DAMAGE TO EXISTING CONDITIONS CAUSED BY DEMOLITION AND/OR NEW WORK SHALL BE REPAIRED AS DETAILED, OR WHERE NO DETAIL IS SHOWN, RESTORED BACK TO ITS ORIGINAL FINISHED CONDITION BY THE CONTRACTOR RESPONSIBLE FOR THE DAMAGE.
- DIMENSIONS SHOWN ON THE RENOVATION PLANS ARE SHOWN AS A REFERENCE FOR THE CONTRACTORS AND SHALL BE CONSIDERED +/-, IF EXACT DIMENSIONS ARE REQUIRED, FIELD MEASUREMENTS SHALL BE TAKEN BY EACH CONTRACTOR.
- ALL HOLES MADE IN EXISTING WALLS OR FLOORS OR MADE BY THE REMOVAL OF ANY EQUIPMENT OR FITTINGS, SHALL BE PATCHED TO MATCH EXISTING, INSTALL NEW MATERIAL FLUSH WITH EXISTING ON BOTH SIDES.
- EXISTING WALLS, FLOORS, CEILING, ETC. SHALL REMAIN UNDISTURBED UNLESS OTHERWISE NOTED.
- NOTIFY THE ARCHITECT IMMEDIATELY UPON DISCOVERY OF EXISTING CONDITIONS THAT ARE DIFFERENT THAN THOSE REPRESENTED BY THESE DOCUMENTS.
- REFER TO PLUMBING, MECHANICAL, AND ELECTRICAL DRAWINGS FOR DEMOLITION OF SPECIFIC ITEMS AND EQUIPMENT RELATED TO RESPECTIVE TRADES AS NECESSARY.
- ALL WORK SHALL CONFORM WITH ALL LOCAL AND FEDERAL (INCLUDING ADA) AGENCIES HAVING JURISDICTION.

KEYED DEMOLITION NOTES:

- DEMOLISH WALL ASSEMBLY COMPLETE IN PREPARATION FOR INSTALLATION OF NEW DOOR.
- DEMOLISH DOOR & FRAME COMPLETE. PROTECT AND SALVAGE FOR RELOCATION IN PROJECT.
- DEMOLISH WALL ASSEMBLY COMPLETE UP TO HEIGHT REQUIRED FOR NEW ALLOWE.



**2 PARTIAL THIRD FLOOR
RENOVATION PLAN - ANNOTATION**
1/8" = 1'-0"

GENERAL RENOVATION NOTES:

- DIMENSIONS ARE FROM FACE OF GYP BOARD TO FACE OF GYP BOARD.
- SEE INTERIOR ELEVATIONS/A6.0 FOR TOILET PARTITION HEIGHTS & LOCATIONS.
- ANY NEW OR REPLACEMENT CEILING WORK TO FLOOR BELOW PROJECT AREA SHALL BE COMPLETED WITHIN THE TIME FRAME OF THIS PROJECT. CEILING SHALL BE RETURNED TO ITS ORIGINAL CONDITION INCLUDING FINISHES AND ALL MEP ELEMENTS.
- NOTIFY THE ARCHITECT IMMEDIATELY UPON DISCOVERY OF EXISTING CONDITIONS THAT ARE CONTRARY TO THOSE REPRESENTED WITHIN THE DRAWINGS.
- NEW WORK SHALL ALIGN WITH AND MATCH EXISTING WORK EXCEPT WHERE OTHERWISE DIMENSIONED AND DETAILED.
- ALL NEW VERTICAL AND HORIZONTAL DUCTS, PIPES, CONDUITS, ETC. (WHETHER SHOWN OR NOT) IN FINISHED ROOMS OR AREAS THROUGH OUT BUILDING, NOT CONCEALED, SHALL BE FURRED IN, AND FINISHED TO MATCH ROOM FINISH.
- ALL NEW PARTITIONS, UNLESS OTHERWISE SHOWN OR DETAILED, SHALL BE METAL STUDS OF THICKNESS TO ADEQUATELY COVER PIPING, CONDUITS, ETC.
- PROVIDE AN EDGE STRIP, AS DETAILED, UNDER ALL DOORS WHERE NEW OR EXISTING FINISHES AND ADJACENT FLOOR ARE AT DIFFERENT LEVELS AND WHERE ADJACENT FLOOR FINISHES ARE OF DIFFERENT MATERIALS. SEE DETAIL 6/A0.0.
- EXISTING DOORS, WHICH SWING INTO ROOMS WHERE NEW FLOOR FINISH IS ABOVE ADJACENT FLOORS, SHALL BE CUT OFF AT BOTTOM TO CLEAR NEW FINISHED FLOOR. DOOR BOTTOM SHALL BE SEALED AND FINISHED TO MATCH EXISTING FINISH.
- OFFSET ALL DOORS 6" FROM ADJACENT WALLS UNLESS OTHERWISE NOTED.
- NEW TILE FINISHES APPLIED TO EXISTING WALLS AND PARTITIONS SHALL BE APPLIED DIRECTLY TO PLASTER OR GYP. BD. WALLS BY THE THIN SET METHOD. NEW PARTITIONS AND CLOSURES OF OPENINGS IN ROOMS HAVING TILE BASE AND/OR TILE WINGS/SCOT SHALL BE FINISHED WITH TILE TO MATCH EXISTING. WHEN TILE CANNOT BE MATCHED, FURNISH ARCHITECT WITH SAMPLES OF EXISTING TILE TO PERMIT SELECTION OF SUBSTITUTE TILE.
- PROVIDE ACCESS PANELS, 24" X 24", OR OF SIZES REQUIRED, WHERE PLUMBING AND HEATING VALVES, WATER SWITCHES, OXYGEN PRESSURE SWITCHES, VENTILATION SPLITTER DAMPERS, ETC. ARE SHOWN ON PLUMBING, HEATING, AND VENTILATION DRAWINGS, SUCH ACCESS PANELS TO BE INSTALLED IN THE FOLLOWING:
(A) SUSPENDED PLASTER OR GYPSUM WALLBOARD CEILING
(B) METAL STUD OR MASONRY PARTITIONS
- WHEREVER EXISTING EQUIPMENT, PIPING, DUCTS, ETC. ARE REQUIRED TO BE REMOVED, SUCH REMOVAL SHALL INCLUDE ALL ANCHORS, HANGERS, FOUNDATIONS, ETC. AFTER REMOVAL, FLOORS, WALLS AND CEILING SHALL BE FINISHED TO MATCH ADJOINING SURFACES OR AS INDICATED ON ROOM FINISH SCHEDULE.
- WALL ASSEMBLIES SHALL BE MAINTAINED AT ALL RECESSED FIRE EXTINGUISHER CABINETS AND ALL RECESSED EQUIPMENT.
- WHERE PAINT IS CALLED FOR ON WALLS IN RENOVATED ROOMS IN THE EXISTING BUILDING, ALL WALLS ARE TO BE PAINTED.
- WHERE NO PAINT IS INDICATED IN AREAS WHERE PATCHING IS REQUIRED, NEW WORK IS TO BE PAINTED TO MATCH EXISTING ADJOINING SURFACES.
- WHERE THE ROOM FINISH SCHEDULE CALLS FOR A NEW CEILING, THE EXISTING CEILING AND SUSPENSION SYSTEM IS TO BE COMPLETELY REMOVED.
- PROVIDE FIRE EXTINGUISHER CABINETS OF THE TYPE SPECIFIED. REFER TO FLOOR PLANS (A2.0) FOR LOCATIONS.
- WHERE THE ROOM FINISH SCHEDULE FOR EXISTING CONSTRUCTION CALLS FOR A NEW MATERIAL, THE ENTIRE ROOM IS TO RECEIVE THE NEW MATERIAL, WHERE THE ROOM FINISH SCHEDULE CALLS FOR BOTH PATCHING AND A NEW MATERIAL, THE NEW MATERIAL IS LIMITED TO AREAS OF NEW CONSTRUCTION WITHIN THAT ROOM ONLY.
- SUPPLY BLOCKING AT ALL WALL HUNG EQUIPMENT (I.E., GRAB BARS, CASWORK, MEDICAL EQUIPMENT, ETC.)
- WHERE A NEW DOOR, NEW WINDOW OR OPENING IS CUT THROUGH AN EXISTING MASONRY WALL, PROVIDE A LOOSE LINTEL AS REQUIRED ON THE LOOSE LINTEL SCHEDULE INDICATED ON THE STRUCTURAL DRAWINGS.
- ALL DIMENSIONS SHOWN IN RENOVATED AREAS ARE TO BE VERIFIED IN THE FIELD BEFORE PROCEEDING WITH WORK.
- IN ALL ROOMS BELOW AREAS WHICH RECEIVE UNDER FLOOR SERVICES, REMOVE A PORTION OF EXISTING CEILING AS REQUIRED. PATCH FINISHES TO MATCH EXISTING OR AS INDICATED ON ROOM FINISH SCHEDULE.
- WHERE THE ROOM FINISH SCHEDULE CALLS FOR A ROOM TO BE PAINTED AND THAT ROOM CONTAINS WALL PAPER AND/OR VINYL, CHAIR RAILS, THESE SHALL BE COMPLETELY REMOVED FROM WALLS AND ANY HOLES OR BUMPS SHALL BE FILLED OR SANDED SMOOTH BEFORE APPLYING NEW COAT OF PAINT.
- ALL SHAFT PARTITIONS EXTEND FROM FLOOR SLAB TO UNDERSIDE OF SLAB ABOVE. EXPOSED BEAMS WITHIN SHAFTS ARE TO BE FIREPROOFED WITH 2-HOUR GYP. BD. ENCLOSURE.
- THE FIRE RATINGS OF ALL FIRE RATED WALLS SHALL BE STENOLED ABOVE CEILING, EACH SIDE OF WALL, BOTH SIDES OF CORRIDORS AND AS REQ'D BY IBC.

**3 PARTIAL THIRD FLOOR
RENOVATION PLAN - DIMENSION**
1/8" = 1'-0"

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consultants

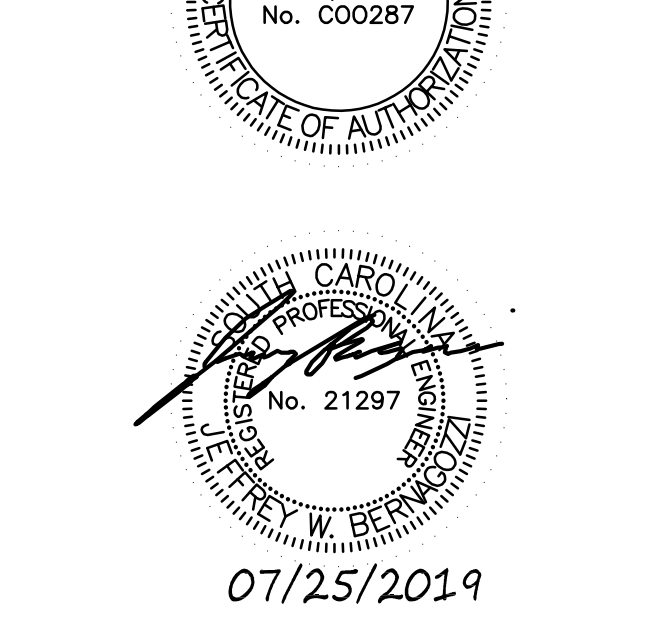
- wall hung urinals
1. WALL HUNG URINAL MANUFACTURERS, INC. WWW.AMERICANSTANDARD-US.COM/ISLE.
2. KOHLER COMPANY: WWW.KOHLER.COM.
3. SLOAN
B. URINALS: VITREOUS CHINA, ASME A112.19.2, WALL HUNG WITH SIDE SHIELDS AND CONCEALED CARRIER.
1. FLUSH VOLUME: 0.5 GALLONS (1.9 LITERS), MAXIMUM.
2. FLUSH STYLE: WASHOUT.
3. FLUSH VALVE: EXPOSED (TOP SPUD).
4. FLUSH OPERATION: SENSOR OPERATED (ALTERNATE).
5. TRAP: INTEGRAL.
6. REMOVABLE STAINLESS STEEL STRAINER.
7. SUPPLY SIZE: 3/4 INCH (19 MM).
8. OUTLET SIZE: 2 INCHES (50 MM).

- water hammer arrestors
A. MANUFACTURERS:
1. JAY R. SMITH MANUFACTURING COMPANY: WWW.JAYRSMITH.COM.
2. WATTS
B. CLEANOUTS
A. MANUFACTURERS:
1. JAY R. SMITH MANUFACTURING COMPANY: WWW.JAYRSMITH.COM.
2. JESAM COMPANY: WWW.JESAM.COM.
3. WATTS
C. CLEANOUTS AT INTERIOR UNFINISHED ACCESSIBLE AREAS: CALKED OR THEREAD TYPE. PROVIDE BOLTED STACK CLEANOUTS ON VERTICAL RANWATER LEADERS.
2.04 HOSE BIBBS
A. MANUFACTURERS:
1. JAY R. SMITH MANUFACTURING COMPANY: WWW.JAYRSMITH.COM.
2. WATTS REGULATOR COMPANY: WWW.WATTSREGULATOR.COM.
3. PRIER
B. INTERIOR HOSE BIBBS:
1. BRONZE OR BRASS WITH INTEGRAL MOUNTING FLANGE, REPLACEABLE HEXAGONAL DISC, HOSE THREAD SPOUT, WITH HANDWHEEL, INTEGRAL VACUUM BREAKER IN CONFORMANCE WITH ASSE 1011.
E. GROUP PIPING WHENEVER PRACTICAL AT COMMON ELEVATIONS.
F. INSTALL PIPING TO ALLOW FOR EXPANSION AND CONTRACTION WITHOUT STRESSING PIPE JOINTS, OR CONNECTED EQUIPMENT. REFER TO SECTION 220516.
G. PROVIDE CLEARANCE IN HANGERS AND FROM STRUCTURE AND OTHER EQUIPMENT FOR INSTALLATION OF INSULATION AND ACCESS TO VALVES AND FITTINGS.
1. REFER TO SECTION 220719.
H. PROVIDE ACCESS WHERE VALVES AND FITTINGS ARE NOT EXPOSED.
I. INSTALL VALVES WITH STEMS UPRIGHT OR HORIZONTAL, NOT INVERTED. REFER TO SECTION 220523.
J. INSTALL WATER PIPING TO ASSE 831.9.
K. COPPER PIPE AND TUBE: WELD SOLDED JOINTS IN ACCORDANCE WITH ASTM B828, USING SPECIFIED SOLDER, AND FLUX MEETING ASTM B813; IN POTABLE WATER SYSTEMS USE FLUX ALSO COMPLYING WITH NSF 61 AND NSF 372.
L. SLEEVE PIPES PASSING THROUGH PARTITIONS, WALLS AND FLOORS.
M. INSERTS:
1. PROVIDE INSERTS FOR PLACEMENT IN CONCRETE FORMWORK.
2. PROVIDE INSERTS FOR SUSPENDING HANGERS FROM REINFORCED CONCRETE SLABS AND SIDES OF REINFORCED CONCRETE BEAMS.
N. PIPE HANGERS AND SUPPORTS:
1. INSTALL IN ACCORDANCE WITH ASME 831.9.
2. SUPPORT HORIZONTAL PIPING AS INDICATED.
3. INSTALL HANGERS TO PROVIDE MINIMUM 1/2 INCH (15 MM) SPACE BETWEEN FINISHED COVERING AND ADJACENT WORK.
4. PLACE HANGERS WITHIN 12 INCHES (300 MM) OF EACH HORIZONTAL ELBOW.
5. USE HANGERS WITH 1-1/2 INCH (40 MM) MINIMUM VERTICAL ADJUSTMENT. DESIGN HANGERS FOR PIPE MOVEMENT WITHOUT DISENGAGEMENT OF SUPPORTED PIPE.
6. WHERE SEVERAL PIPES CAN BE INSTALLED IN PARALLEL AND AT SAME ELEVATION, PROVIDE MULTIPLE OR TRAPEZE HANGERS.
7. PROVIDE COPPER PLATED HANGERS AND SUPPORTS FOR COPPER PIPING.

project name
BUILDING #3, ADD
3RD FLOOR RESTROOMS
PROJECT #FP0000171

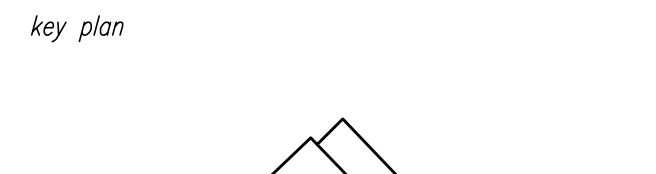
owner
UNIVERSITY OF SOUTH CAROLINA
USC SCHOOL OF MEDICINE

design/signature
7/25/2019



issued for
CONSTRUCTION DOCUMENTS (FIELD CONSTRUCTION ISSUE)
date
JULY 25, 2019

Table with columns: number, item, date. Includes rows for section 220529, 220600, 220601, 220602, 220603, 220604, 220605, 220606, 220607, 220608, 220609, 220610, 220611, 220612, 220613, 220614, 220615, 220616, 220617, 220618, 220619, 220620, 220621, 220622, 220623, 220624, 220625, 220626, 220627, 220628, 220629, 220630, 220631, 220632, 220633, 220634, 220635, 220636, 220637, 220638, 220639, 220640, 220641, 220642, 220643, 220644, 220645, 220646, 220647, 220648, 220649, 220650, 220651, 220652, 220653, 220654, 220655, 220656, 220657, 220658, 220659, 220660, 220661, 220662, 220663, 220664, 220665, 220666, 220667, 220668, 220669, 220670, 220671, 220672, 220673, 220674, 220675, 220676, 220677, 220678, 220679, 220680, 220681, 220682, 220683, 220684, 220685, 220686, 220687, 220688, 220689, 220690, 220691, 220692, 220693, 220694, 220695, 220696, 220697, 220698, 220699, 220700.



key plan

- 2.05 UNDER-LAVATORY PIPE SUPPLY COVERS
A. MANUFACTURERS:
1. PLUMBEREX SPECIALTY PRODUCTS, INC.: WWW.PLUMBEREX.COM/ISLE.
2. DEARBORN.
C. LAVATORIES.
1. ELKAY MANUFACTURING COMPANY: WWW.ELKAY.COM.
2. HAWS CORPORATION: WWW.HAWS.CO.COM.
3. OASIS, A LYNN TILTON COMPANY: WWW.OASISCOOLERS.COM.
PART 3 EXECUTION
3.01 EXAMINATION
A. VERIFY THAT WALLS AND FLOOR FINISHES ARE PREPARED AND READY FOR INSTALLATION OF FIXTURES.
B. VERIFY THAT ELECTRIC POWER IS AVAILABLE AND OF THE CORRECT CHARACTERISTICS.
C. CONFIRM THAT MILLWORK IS CONSTRUCTED WITH ADEQUATE PROVISION FOR THE INSTALLATION OF COUNTER TOP LAVATORIES AND SINKS.
3.02 PREPARATION
A. ROUGH-IN FIXTURE PIPING CONNECTIONS IN ACCORDANCE WITH MINIMUM SIZES INDICATED IN FIXTURE ROUGH-IN SCHEDULE FOR PARTICULAR FIXTURES.
3.03 INSTALLATION
A. INSTALL EACH FIXTURE WITH TRAP, EASILY REMOVABLE FOR SERVICING AND CLEANING.
B. PROVIDE CHROME PLATED RIGID OR FLEXIBLE SUPPLIES TO FIXTURES WITH LOOSE KEY STOPS, REDUCERS, AND ESCUTCHEONS.
C. INSTALL COMPONENTS LEVEL AND PLUMB.
D. INSTALL AND SEAL FIXTURES IN PLACE WITH WALL SUPPORTS AND BOLTS.
E. SEAL WALL MOUNTED FIXTURES WITH SILICONE BETWEEN FIXTURE AND WALL.
F. SOLIDLY ATTACH WATER CLOSETS TO FLOOR WITH LAG SCREWS. LEAD FLASHING IS NOT INTENDED HOLD FIXTURE IN PLACE.
3.04 INTERFACE WITH WORK OF OTHER SECTIONS
A. REVIEW MILLWORK SHOP DRAWINGS. CONFIRM LOCATION AND SIZE OF FIXTURES AND OPENINGS BEFORE ROUGH-IN AND INSTALLATION.
3.05 ADJUSTING
A. ADJUST STOPS OR VALVES FOR INTENDED WATER FLOW RATE TO FIXTURES WITHOUT SPLASHING, NOISE, OR OVERFLOW.
3.06 CLEANING
A. CLEAN PLUMBING FIXTURES AND EQUIPMENT.
3.07 PROTECTION
A. PROTECT INSTALLED PRODUCTS FROM DAMAGE DUE TO SUBSEQUENT CONSTRUCTION OPERATIONS.
B. REPAIR OR REPLACE DAMAGED PRODUCTS BEFORE DATE OF SUBSTANTIAL COMPLETION.

END OF SECTION 224000

PLUMBING SPECIFICATIONS

sheet number
P0.1

drawn by: JR
checked by: JWB

- 1.03 REFERENCE STANDARDS
A. ADA STANDARDS - AMERICANS WITH DISABILITIES ACT (ADA) STANDARDS FOR ACCESSIBLE DESIGN: 2010.
B. ASME A112.6.3 - FLOOR AND TRENCH DRAINS; 2016.
C. ASSE 1011 - HOSE CONNECTION VACUUM BREAKERS; 2004.
D. NSF 61 - DRINKING WATER SYSTEM COMPONENTS - HEALTH EFFECTS; 2016.
E. NSF 372 - DRINKING WATER SYSTEM COMPONENTS - LEAD CONTENT; 2016.
F. PDI-WH 201 - WATER HAMMER ARRESTERS; 2010.
1.04 SUBMITTALS
A. PRODUCT DATA: PROVIDE COMPONENT SIZES, ROUGH-IN REQUIREMENTS, SERVICE SIZES, AND FINISHES.
B. SHOP DRAWINGS: INDICATE DIMENSIONS, WEIGHTS, AND PLACEMENT OF OPENINGS AND HOLES.
C. MANUFACTURER'S INSTRUCTIONS: INDICATE MANUFACTURER'S INSTALLATION INSTRUCTIONS: INDICATE ASSEMBLY AND SUPPORT REQUIREMENTS.
D. MAINTENANCE DATA: INCLUDE INSTALLATION INSTRUCTIONS, SPARE PARTS LISTS, EXPLODED ASSEMBLY VIEWS.
E. PROJECT RECORD DOCUMENTS: RECORD ACTUAL LOCATIONS OF EQUIPMENT, CLEANOUTS, BACKFLOW PREVENTERS, WATER HAMMER ARRESTERS.
1.05 QUALITY ASSURANCE
A. MANUFACTURER QUALIFICATIONS: COMPANY SPECIALIZING IN MANUFACTURING THE PRODUCTS SPECIFIED IN THIS SECTION WITH NOT LESS THAN THREE YEARS DOCUMENTED EXPERIENCE.
1.06 DELIVERY, STORAGE, AND HANDLING
A. ACCEPT SPECIALTIES ON SITE IN ORIGINAL FACTORY PACKAGING. INSPECT FOR DAMAGE.

- PART 2 PRODUCTS
2.01 GENERAL REQUIREMENTS
A. SPECIALTIES IN POTABLE WATER SUPPLY SYSTEMS: PROVIDE PRODUCTS THAT COMPLY WITH NSF 61 AND NSF 372 FOR MAXIMUM LEAD CONTENT.
2.02 DRAINS
A. MANUFACTURERS:
1. JAY R. SMITH MANUFACTURING COMPANY: WWW.JAYRSMITH.COM.
2. WATTS
B. CLEANOUTS AT INTERIOR UNFINISHED ACCESSIBLE AREAS: CALKED OR THEREAD TYPE. PROVIDE BOLTED STACK CLEANOUTS ON VERTICAL RANWATER LEADERS.
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4. PLACE HANGERS WITHIN 12 INCHES (300 MM) OF EACH HORIZONTAL ELBOW.
5. USE HANGERS WITH 1-1/2 INCH (40 MM) MINIMUM VERTICAL ADJUSTMENT. DESIGN HANGERS FOR PIPE MOVEMENT WITHOUT DISENGAGEMENT OF SUPPORTED PIPE.
6. WHERE SEVERAL PIPES CAN BE INSTALLED IN PARALLEL AND AT SAME ELEVATION, PROVIDE MULTIPLE OR TRAPEZE HANGERS.
7. PROVIDE COPPER PLATED HANGERS AND SUPPORTS FOR COPPER PIPING.

- PART 3 EXECUTION
3.01 INSTALLATION
A. INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
B. INTERIOR APPROVED POTABLE WATER PROTECTION DEVICES ON PLUMBING LINES WHERE CONTAMINATION OF DOMESTIC WATER MAY OCCUR, ON BOILER FEED WATER LINES, JANIOR ROOMS, FIRE SPRINKLER SYSTEMS, PREMISE ISOLATION, IRRIGATION SYSTEMS, FRESH VALVES, INTERIOR AND EXTERIOR HOSE BIBBS.
SECTION 221006 - PLUMBING PIPING
PART 1 GENERAL
1.01 SECTION INCLUDES
A. WATER CLOSETS.
B. URINALS.
C. LAVATORIES.
D. UNDER-LAVATORY PIPE SUPPLY COVERS.
E. ELECTRIC WATER COOLERS.
1.02 RELATED REQUIREMENTS
A. SECTION 221005 - PLUMBING PIPING.
B. SECTION 221006 - PLUMBING PIPING SPECIALTIES.
1.03 REFERENCE STANDARDS
A. ADA STANDARDS - AMERICANS WITH DISABILITIES ACT (ADA) STANDARDS FOR ACCESSIBLE DESIGN: 2010.
B. ASME A112.18.9 - PROTECTORS/INSULATORS FOR EXPOSED WASTE AND SUPPLIES ON ACCESSIBLE FIXTURES; 2011.
C. ASTM C1822 - STANDARD SPECIFICATION FOR INSULATING COVERS ON ACCESSIBLE LAVATORY PIPING; 2015.
D. ASME A112.6.1M - SUPPORTS FOR OFF-THE-FLOOR PLUMBING FIXTURES FOR PUBLIC USE; 1997 (REAFFIRMED 2017).
E. ASME A112.18.1 - PLUMBING SUPPLY FITTINGS; 2012.
F. ASME A112.19.5 - FLUSH VALVES AND SPUDS FOR WATER CLOSETS, URINALS, AND TANKS; 2015.
G. ASSE 1070 - PERFORMANCE REQUIREMENTS FOR WATER TEMPERATURE LIMITING DEVICES; 2017.
H. ASTM E84 - STANDARD TEST METHOD FOR SURFACE BURNING CHARACTERISTICS OF BUILDING MATERIALS; 2017.
I. NSF 61 - DRINKING WATER SYSTEM COMPONENTS - HEALTH EFFECTS; 2016.
J. NSF 372 - DRINKING WATER SYSTEM COMPONENTS - LEAD CONTENT; 2016.
1.04 SUBMITTALS
A. PRODUCT DATA: PROVIDE CATALOG ILLUSTRATIONS OF FIXTURES, SIZES, ROUGH-IN DIMENSIONS, UTILITY SIZES, TRIM, AND FINISHES.
B. MANUFACTURER'S INSTRUCTIONS: INDICATE INSTALLATION METHODS AND PROCEDURES.
C. MAINTENANCE DATA: INCLUDE FIXTURE TRIM EXPLODED VIEW AND REPLACEMENT PARTS LISTS.
D. WARRANTY: SUBMIT MANUFACTURER'S WARRANTY AND ENSURE FORMS HAVE BEEN COMPLETED IN OWNER'S NAME AND REGISTERED WITH MANUFACTURER.
1.05 QUALITY ASSURANCE
A. MANUFACTURER QUALIFICATIONS: COMPANY SPECIALIZING IN MANUFACTURING THE TYPE OF PRODUCTS SPECIFIED IN THIS SECTION, WITH MINIMUM THREE YEARS OF DOCUMENTED EXPERIENCE.
1.06 DELIVERY, STORAGE, AND HANDLING
A. ACCEPT FIXTURES ON SITE IN FACTORY PACKAGING. INSPECT FOR DAMAGE.
B. PROTECT INSTALLED FIXTURES FROM DAMAGE BY SECURING AREAS AND BY LEAVING FACTORY PACKAGING IN PLACE TO PROTECT FIXTURES AND PREVENT USE.

- PART 2 PRODUCTS
2.01 GENERAL
A. POTABLE WATER SYSTEMS: PROVIDE PLUMBING FITTINGS AND FAUCETS THAT COMPLY WITH NSF 61 AND NSF 372 FOR MAXIMUM LEAD CONTENT; LABEL PIPE AND FITTINGS.
B. WATER EFFICIENCY: EPA WATERSENSE LABEL IS REQUIRED FOR ALL WATER CLOSETS, URINALS, LAVATORY FAUCETS, AND SHOWERHEADS.
2.02 FLUSH VALVE WATER CLOSETS
A. WATER CLOSETS: VITREOUS CHINA, ASME A112.19.2, FLOOR MOUNTED, BIFORN JET FLUSH ACTION, CHINA BOLT CAPS.
1. BOWL: ASME A112.19.2; 17 INCHES HIGH WITH ELONGATED RIM.
2. FLUSH VALVE: EXPOSED (TOP SPUD).
3. FLUSH OPERATION: SENSOR OPERATED (ALTERNATE).
4. HANDLE HEIGHT: 44 INCHES (1117 MM) OR LESS.
5. SUPPLY SIZE: 1-1/2 INCHES (38 MM).
6. OUTLET SIZE: 2 INCHES (50 MM).
7. COLOR: WHITE.
8. MANUFACTURERS:

- PART 3 EXECUTION
3.01 GENERAL
A. PRODUCT DATA: PROVIDE CATALOG ILLUSTRATIONS OF FIXTURES, SIZES, ROUGH-IN DIMENSIONS, UTILITY SIZES, TRIM, AND FINISHES.
B. MANUFACTURER'S INSTRUCTIONS: INDICATE INSTALLATION METHODS AND PROCEDURES.
C. MAINTENANCE DATA: INCLUDE FIXTURE TRIM EXPLODED VIEW AND REPLACEMENT PARTS LISTS.
D. WARRANTY: SUBMIT MANUFACTURER'S WARRANTY AND ENSURE FORMS HAVE BEEN COMPLETED IN OWNER'S NAME AND REGISTERED WITH MANUFACTURER.
1.05 QUALITY ASSURANCE
A. MANUFACTURER QUALIFICATIONS: COMPANY SPECIALIZING IN MANUFACTURING THE TYPE OF PRODUCTS SPECIFIED IN THIS SECTION, WITH MINIMUM THREE YEARS OF DOCUMENTED EXPERIENCE.
1.06 DELIVERY, STORAGE, AND HANDLING
A. ACCEPT FIXTURES ON SITE IN FACTORY PACKAGING. INSPECT FOR DAMAGE.
B. PROTECT INSTALLED FIXTURES FROM DAMAGE BY SECURING AREAS AND BY LEAVING FACTORY PACKAGING IN PLACE TO PROTECT FIXTURES AND PREVENT USE.
PART 2 PRODUCTS
2.01 GENERAL
A. POTABLE WATER SYSTEMS: PROVIDE PLUMBING FITTINGS AND FAUCETS THAT COMPLY WITH NSF 61 AND NSF 372 FOR MAXIMUM LEAD CONTENT; LABEL PIPE AND FITTINGS.
B. WATER EFFICIENCY: EPA WATERSENSE LABEL IS REQUIRED FOR ALL WATER CLOSETS, URINALS, LAVATORY FAUCETS, AND SHOWERHEADS.
2.02 FLUSH VALVE WATER CLOSETS
A. WATER CLOSETS: VITREOUS CHINA, ASME A112.19.2, FLOOR MOUNTED, BIFORN JET FLUSH ACTION, CHINA BOLT CAPS.
1. BOWL: ASME A112.19.2; 17 INCHES HIGH WITH ELONGATED RIM.
2. FLUSH VALVE: EXPOSED (TOP SPUD).
3. FLUSH OPERATION: SENSOR OPERATED (ALTERNATE).
4. HANDLE HEIGHT: 44 INCHES (1117 MM) OR LESS.
5. SUPPLY SIZE: 1-1/2 INCHES (38 MM).
6. OUTLET SIZE: 2 INCHES (50 MM).
7. COLOR: WHITE.
8. MANUFACTURERS:

- 2. COPPER TUBE AND PIPE: CLASS 150 BRONZE UNIONS WITH SOLDERED JOINTS.
2.05 PIPE HANGERS AND SUPPORTS
A. PROVIDE HANGERS AND SUPPORTS THAT COMPLY WITH MSS SP-58.
1. IF TYPE OF HANGER OR SUPPORT FOR A PARTICULAR SITUATION IS NOT INDICATED, SELECT APPROPRIATE TYPE USING MSS SP-58 RECOMMENDATIONS.
2. OVERHEAD SUPPORTS: INDIVIDUAL STEEL ROD HANGERS ATTACHED TO STRUCTURE OR TO TRAPEZE HANGERS.
3. TRAPEZE HANGERS: WELDED STEEL CHANNEL FRAMES ATTACHED TO STRUCTURE.
4. VERTICAL PIPE SUPPORT: STEEL RISER CLAMP.
5. FLOOR SUPPORTS: CONCRETE PIER OR STEEL PEDESTAL WITH FLOOR FLANGE, FIXTURE ATTACHMENT.
B. PLUMBING PIPING - DRAIN, WASTE, AND VENT:
1. HANGERS FOR PIPE SIZES 2 INCHES (50 MM) AND OVER: CARBON STEEL, ADJUSTABLE, CLEVIS.
2. WALL SUPPORT FOR PIPE SIZES 3 INCHES (80 MM): CAST IRON HOOK.
3. WALL SUPPORT FOR PIPE SIZES 4 INCHES (100 MM) AND OVER: WELDED STEEL BRACKET AND WROUGHT STEEL CLAMP.
4. FLOOR SUPPORT: CAST IRON ADJUSTABLE PIPE SADDLE, LOCK NUT, NIPPLE, FLOOR FLANGE, AND CONCRETE PIER OR STEEL SUPPORT.
C. PLUMBING PIPING - WATER:
1. HANGERS FOR PIPE SIZES 1/2 INCH (15 MM) TO 1-1/2 INCHES (40 MM): MALLEABLE IRON, ADJUSTABLE SWIREL, SPURT RING.
2. HANGERS FOR COLD PIPE SIZES 2 INCHES (50 MM) AND OVER: CARBON STEEL, ADJUSTABLE, CLEVIS.
3. HANGERS FOR HOT PIPE SIZES 2 INCHES (50 MM) TO 4 INCHES (100 MM): CARBON STEEL, ADJUSTABLE, CLEVIS.
4. WALL SUPPORT FOR PIPE SIZES TO 3 INCHES (80 MM): CAST IRON HOOK.
5. FLOOR SUPPORT FOR COLD PIPE: CAST IRON ADJUSTABLE PIPE SADDLE, LOCK NUT, NIPPLE, FLOOR FLANGE, AND CONCRETE PIER OR STEEL SUPPORT.
6. FLOOR SUPPORT FOR HOT PIPE SIZES TO 4 INCHES (100 MM): CAST IRON ADJUSTABLE PIPE SADDLE, LOCKNUT, NIPPLE, FLOOR FLANGE, AND CONCRETE PIER OR STEEL SUPPORT.
7. COPPER PIPE SUPPORT: CARBON STEEL RING, ADJUSTABLE, COPPER PLATED.
D. HANGER FASTENERS: ATTACH HANGERS TO STRUCTURE USING APPROPRIATE FASTENERS, AS FOLLOWS:
1. CONCRETE WEDGE ANCHORS: COMPLYING WITH ICC-ES AC108.
2. CONCRETE SCREW TYPE ANCHORS: COMPLYING WITH ICC-ES AC108.3.

- 2.06 BALL VALVES
A. MANUFACTURERS:
1. GRNELL PRODUCTS, A TYCO BUSINESS: WWW.GRNELL.COM.
2. NIBCO, INC.: WWW.NIBCO.COM.
3. APOLLO VALVES
PART 3 EXECUTION
3.01 EXAMINATION
A. VERIFY THAT PIPING HAS BEEN TESTED BEFORE APPLYING INSULATION MATERIALS.
B. VERIFY THAT SURFACES ARE CLEAN AND DRY, WITH FOREIGN MATERIAL REMOVED.
3.02 INSTALLATION
A. INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
B. INSTALL IN ACCORDANCE WITH NORTH AMERICAN INSULATION MANUFACTURERS ASSOCIATION (NAIMA) NATIONAL INSULATION STANDARDS.
3.03 SCHEDULES
A. PLUMBING SYSTEMS:
1. DOMESTIC HOT WATER SUPPLY:
a. GLASS FIBER INSULATION:
(1) THICKNESS: 1 INCH (25.4 MM).
2. DOMESTIC COLD WATER SUPPLY:
a. GLASS FIBER INSULATION:
(1) THICKNESS 1 INCH ALL SIZES
END OF SECTION 220719

- SECTION 221005 - PLUMBING PIPING
PART 1 GENERAL
1.01 SECTION INCLUDES
A. TAGS.
B. PIPE MARKERS.
C. CEILING TACKS.
1.02 REFERENCE STANDARDS
A. ASME A13.1 - SCHEME FOR THE IDENTIFICATION OF PIPING SYSTEMS; 2015.
B. ASTM D709 - STANDARD SPECIFICATION FOR LAMINATED THERMOSETTING MATERIALS; 2017.
1.03 SUBMITTALS
A. LIST: SUBMIT LIST OF WORDING, SYMBOLS, LETTER SIZE, AND COLOR CODING FOR MECHANICAL IDENTIFICATION.
B. CHART AND SCHEDULE: SUBMIT VALVE CHART AND SCHEDULE, INCLUDING VALVE TAG NUMBER, LOCATION, FUNCTION, AND VALVE MANUFACTURER'S NAME AND MODEL NUMBER.
C. PRODUCT DATA: PROVIDE MANUFACTURERS CATALOG LITERATURE FOR EACH PRODUCT REQUIRED.
D. MANUFACTURER'S INSTALLATION INSTRUCTIONS: INDICATE SPECIAL PROCEDURES, AND INSTALLATION.
E. PROJECT RECORD DOCUMENTS: RECORD ACTUAL LOCATIONS OF TAGGED VALVES.
PART 2 PRODUCTS
2.01 IDENTIFICATION APPLICATIONS
A. PIPING: PIPE MARKERS.
B. VALVES: TAGS AND CEILING TACKS WHERE LOCATED ABOVE LAY-IN CEILING.
2.02 TAGS
A. MANUFACTURERS:
1. BRADY CORPORATION: WWW.BRADYCORP.COM.
2. KOLBI PIPE MARKER CO.: WWW.KOLBIPPEMARKERS.COM/ISLE.
3. WIRA, INC.: WWW.WIRA.COM.
B. COMPLY WITH ASME A13.1.
C. PLASTIC PIPE MARKERS: FACTORY FABRICATED, FLEXIBLE, SEMI-RIGID PLASTIC, PREFORMED TO FIT AROUND PIPE OR PIPE COVERING; MINIMUM INFORMATION INDICATING FLOW DIRECTION ARROW AND IDENTIFICATION OF FLUID BEING CONVEYED.
2.03 PIPE MARKERS
A. MANUFACTURERS:
1. BRADY CORPORATION: WWW.BRADYCORP.COM.
2. KOLBI PIPE MARKER CO.: WWW.KOLBIPPEMARKERS.COM.
3. WIRA, INC.: WWW.WIRA.COM.
B. COMPLY WITH ASME A13.1.
C. PLASTIC PIPE MARKERS: FACTORY FABRICATED, FLEXIBLE, SEMI-RIGID PLASTIC, PREFORMED TO FIT AROUND PIPE OR PIPE COVERING; MINIMUM INFORMATION INDICATING FLOW DIRECTION ARROW AND IDENTIFICATION OF FLUID BEING CONVEYED.
2.04 CEILING TACKS
A. MANUFACTURERS:
1. CRAFTMARK: WWW.CRAFTMARK.CO.
B. DESCRIPTION: STEEL WITH 3/4 INCH (20 MM) DIAMETER COLOR CODED HEAD.
PART 3 EXECUTION
3.01 PREPARATION
A. DEGREASE AND CLEAN SURFACES TO RECEIVE ADHESIVE FOR IDENTIFICATION MATERIALS.
3.02 INSTALLATION
A. INSTALL PLASTIC PIPE MARKERS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
END OF SECTION 220553

- SECTION 221006 - PLUMBING PIPING INSULATION
PART 1 GENERAL
1.01 SECTION INCLUDES
A. PIPING INSULATION.
B. JACKETS AND ACCESSORIES.
1.02 RELATED REQUIREMENTS
A. SECTION 221005 - PLUMBING PIPING: PLACEMENT OF HANGERS AND HANGER INSERTS.
1.03 REFERENCE STANDARDS
A. ASTM C177 - STANDARD TEST METHOD FOR STEADY-STATE HEAT FLUX MEASUREMENTS AND THERMAL TRANSMISSION PROPERTIES BY MEANS OF THE GUARD-HOT-PLATE APPARATUS; 2013.
B. ASTM C534/CS34M - STANDARD SPECIFICATION FOR PREFORMED FLEXIBLE ELASTOMERIC CELLULAR THERMAL INSULATION IN SHEET AND TUBULAR FORM; 2016.
C. ASTM C552 - STANDARD SPECIFICATION FOR CELLULAR GLASS THERMAL INSULATION; 2016A.
D. ASTM C578 - STANDARD SPECIFICATION FOR RIGID, CELLULAR POLYSTYRENE THERMAL INSULATION; 2017A.
E. ASTM E84 - STANDARD TEST METHOD FOR SURFACE BURNING CHARACTERISTICS OF BUILDING MATERIALS; 2017.
F. ASTM E96/E96M - STANDARD TEST METHODS FOR WATER VAPOR TRANSMISSION OF MATERIALS; 2016.
G. UL 723 - STANDARD FOR TEST FOR SURFACE BURNING CHARACTERISTICS OF BUILDING MATERIALS. CURRENT EDITION, INCLUDING ALL REVISIONS.
1.04 SUBMITTALS
A. PRODUCT DATA: PROVIDE PRODUCT DESCRIPTION, THERMAL CHARACTERISTICS, LIST OF MATERIALS AND THICKNESS FOR EACH SERVICE, AND LOCATIONS.
1.05 QUALITY ASSURANCE
A. MANUFACTURER QUALIFICATIONS: COMPANY SPECIALIZING IN MANUFACTURING THE PRODUCTS SPECIFIED IN THIS SECTION WITH NOT LESS THAN THREE YEARS OF DOCUMENTED EXPERIENCE.
1.06 DELIVERY, STORAGE, AND HANDLING
A. ACCEPT MATERIALS ON SITE, LABELED WITH MANUFACTURER'S IDENTIFICATION, PRODUCT DENSITY, AND THICKNESS.
1.07 FIELD CONDITIONS
A. MAINTAIN AMBIENT CONDITIONS REQUIRED BY MANUFACTURERS OF EACH PRODUCT.
B. MAINTAIN TEMPERATURE BEFORE, DURING, AND AFTER INSTALLATION FOR MINIMUM OF 24 HOURS.

- PART 2 PRODUCTS
2.01 GENERAL REQUIREMENTS
A. POTABLE WATER SUPPLY SYSTEMS: PROVIDE PIPING, PIPE FITTINGS, AND SOLDER AND FLUX (IF USED), THAT COMPLY WITH NSF 61 AND NSF 372 FOR MAXIMUM LEAD CONTENT; LABEL PIPE AND FITTINGS.
2.02 SANITARY SOWER PIPING, ABOVE GRADE
A. CAST IRON PIPE: CSDP 301, HUBLESS, SERVICE WEIGHT.
1. FITTINGS: CAST IRON.
2. JOINTS: CSDP 310, NEOPRENE GASKETS AND STAINLESS STEEL CLAMP-AND-SHIELD ASSEMBLIES.
2.03 DOMESTIC WATER PIPING, ABOVE GRADE
A. COPPER TUBE: ASTM B88 (ASTM B88M), TYPE L (B), DRAWN (H).
1. FITTINGS: ASME B16.18, CAST COPPER ALLOY OR ASME B16.22, WROUGHT COPPER AND BRONZE.
2. JOINTS: ASTM B32, ALLOY SWEED SOLDER.
2.04 FLANGES, UNIONS, AND COUPLINGS
A. UNIONS FOR PIPE SIZES 3 INCHES (80 MM) AND UNDER:
1. FERROUS PIPE: CLASS 150 MALLEABLE IRON THREADED UNIONS.

- SECTION 221008 - PLUMBING PIPING SPECIALTIES
PART 1 GENERAL
1.01 SECTION INCLUDES
A. DRAINS.
B. CLEANOUTS.
C. HOSE BIBBS.
D. WATER HAMMER ARRESTORS.
1.02 RELATED REQUIREMENTS
A. SECTION 221005 - PLUMBING PIPING.
B. SECTION 224000 - PLUMBING FIXTURES.

- PART 2 PRODUCTS
2.01 REGULATORY REQUIREMENTS
A. SURFACE BURNING CHARACTERISTICS: FLAME SPREAD INDEX/DENKE DEVELOPED INDEX OF 25/50, MAXIMUM, WHEN TESTED IN ACCORDANCE WITH ASTM E84 OR UL 723.
2.02 GLASS FIBER
A. MANUFACTURERS:
1. CERTAINTECD CORPORATION: WWW.CERTAINTECD.COM.
2. JOHNS MANVILLE CORPORATION: WWW.JM.COM.
3. KNAUF INSULATION: WWW.KNAUFUSA.COM.
B. INSULATION: ASTM C547 AND ASTM C795; RIGID MOLDED, NONCOMBUSTIBLE.
1. "K" (KSI) VALUE: ASTM C177, 0.24 AT 75 DEGREES F (0.035 AT 24 DEGREES C).
2. MAXIMUM SERVICE TEMPERATURE: 850 DEGREES F (454 DEGREES C).
3. MAXIMUM MOISTURE ABSORPTION: 0.2 PERCENT BY VOLUME.
C. VAPOR BARRIER JACKET: WHITE KRAFT PAPER WITH GLASS FIBER YARN, BONDED TO ALUMINIZED FILM; MOISTURE VAPOR TRANSMISSION WHEN TESTED IN ACCORDANCE WITH ASTM E96/F96M OF 0.02 PERM-INCHES (0.029 NQ/PA 5 M).
PART 3 EXECUTION
3.01 EXAMINATION
A. VERIFY THAT PIPING HAS BEEN TESTED BEFORE APPLYING INSULATION MATERIALS.
B. VERIFY THAT SURFACES ARE CLEAN AND DRY, WITH FOREIGN MATERIAL REMOVED.
3.02 INSTALLATION
A. INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
B. INSTALL IN ACCORDANCE WITH NORTH AMERICAN INSULATION MANUFACTURERS ASSOCIATION (NAIMA) NATIONAL INSULATION STANDARDS.
3.03 SCHEDULES
A. PLUMBING SYSTEMS:
1. DOMESTIC HOT WATER SUPPLY:
a. GLASS FIBER INSULATION:
(1) THICKNESS: 1 INCH (25.4 MM).
2. DOMESTIC COLD WATER SUPPLY:
a. GLASS FIBER INSULATION:
(1) THICKNESS 1 INCH ALL SIZES
END OF SECTION 220719

- SECTION 221005 - IDENTIFICATION FOR PLUMBING PIPING AND EQUIPMENT
PART 1 GENERAL
1.01 SECTION INCLUDES
A. TAGS.
B. PIPE MARKERS.
C. CEILING TACKS.
1.02 REFERENCE STANDARDS
A. ASME A13.1 - SCHEME FOR THE IDENTIFICATION OF PIPING SYSTEMS; 2015.
B. ASTM D709 - STANDARD SPECIFICATION FOR LAMINATED THERMOSETTING MATERIALS; 2017.
1.03 SUBMITTALS
A. LIST: SUBMIT LIST OF WORDING, SYMBOLS, LETTER SIZE, AND COLOR CODING FOR MECHANICAL IDENTIFICATION.
B. CHART AND SCHEDULE: SUBMIT VALVE CHART AND SCHEDULE, INCLUDING VALVE TAG NUMBER, LOCATION, FUNCTION, AND VALVE MANUFACTURER'S NAME AND MODEL NUMBER.
C. PRODUCT DATA: PROVIDE MANUFACTURERS CATALOG LITERATURE FOR EACH PRODUCT REQUIRED.
D. MANUFACTURER'S INSTALLATION INSTRUCTIONS: INDICATE SPECIAL PROCEDURES, AND INSTALLATION.
E. PROJECT RECORD DOCUMENTS: RECORD ACTUAL LOCATIONS OF TAGGED VALVES.
PART 2 PRODUCTS
2.01 IDENTIFICATION APPLICATIONS
A. PIPING: PIPE MARKERS.
B. VALVES: TAGS AND CEILING TACKS WHERE LOCATED ABOVE LAY-IN CEILING.
2.02 TAGS
A. MANUFACTURERS:
1. BRADY CORPORATION: WWW.BRADYCORP.COM.
2. KOLBI PIPE MARKER CO.: WWW.KOLBIPPEMARKERS.COM/ISLE.
3. WIRA, INC.: WWW.WIRA.COM.
B. COMPLY WITH ASME A13.1.
C. PLASTIC PIPE MARKERS: FACTORY FABRICATED, FLEXIBLE, SEMI-RIGID PLASTIC, PREFORMED TO FIT AROUND PIPE OR PIPE COVERING; MINIMUM INFORMATION INDICATING FLOW DIRECTION ARROW AND IDENTIFICATION OF FLUID BEING CONVEYED.
2.03 PIPE MARKERS
A. MANUFACTURERS:
1. BRADY CORPORATION: WWW.BRADYCORP.COM.
2. KOLBI PIPE MARKER CO.: WWW.KOLBIPPEMARKERS.COM.
3. WIRA, INC.: WWW.WIRA.COM.
B. COMPLY WITH ASME A13.1.
C. PLASTIC PIPE MARKERS: FACTORY FABRICATED, FLEXIBLE, SEMI-RIGID PLASTIC, PREFORMED TO FIT AROUND PIPE OR PIPE COVERING; MINIMUM INFORMATION INDICATING FLOW DIRECTION ARROW AND IDENTIFICATION OF FLUID BEING CONVEYED.
2.04 CEILING TACKS
A. MANUFACTURERS:
1. CRAFTMARK: WWW.CRAFTMARK.CO.
B. DESCRIPTION: STEEL WITH 3/4 INCH (20 MM) DIAMETER COLOR CODED HEAD.
PART 3 EXECUTION
3.01 PREPARATION
A. DEGREASE AND CLEAN SURFACES TO RECEIVE ADHESIVE FOR IDENTIFICATION MATERIALS.
3.02 INSTALLATION
A. INSTALL PLASTIC PIPE MARKERS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
END OF SECTION 220553

- SECTION 221006 - PLUMBING PIPING INSULATION
PART 1 GENERAL
1.01 SECTION INCLUDES
A. PIPING INSULATION.
B. JACKETS AND ACCESSORIES.
1.02 RELATED REQUIREMENTS
A. SECTION 221005 - PLUMBING PIPING: PLACEMENT OF HANGERS AND HANGER INSERTS.
1.03 REFERENCE STANDARDS
A. ASTM C177 - STANDARD TEST METHOD FOR STEADY-STATE HEAT FLUX MEASUREMENTS AND THERMAL TRANSMISSION PROPERTIES BY MEANS OF THE GUARD-HOT-PLATE APPARATUS; 2013.
B. ASTM C534/CS34M - STANDARD SPECIFICATION FOR PREFORMED FLEXIBLE ELASTOMERIC CELLULAR THERMAL INSULATION IN SHEET AND TUBULAR FORM; 2016.
C. ASTM C552 - STANDARD SPECIFICATION FOR CELLULAR GLASS THERMAL INSULATION; 2016A.
D. ASTM C578 - STANDARD SPECIFICATION FOR RIGID, CELLULAR POLYSTYRENE THERMAL INSULATION; 2017A.
E. ASTM E84 - STANDARD TEST METHOD FOR SURFACE BURNING CHARACTERISTICS OF BUILDING MATERIALS; 2017.
F. ASTM E96/E96M - STANDARD TEST METHODS FOR WATER VAPOR TRANSMISSION OF MATERIALS; 2016.
G. UL 723 - STANDARD FOR TEST FOR SURFACE BURNING CHARACTERISTICS OF BUILDING MATERIALS. CURRENT EDITION, INCLUDING ALL REVISIONS.
1.04 SUBMITTALS
A. PRODUCT DATA: PROVIDE PRODUCT DESCRIPTION, THERMAL CHARACTERISTICS, LIST OF MATERIALS AND THICKNESS FOR EACH SERVICE, AND LOCATIONS.
1.05 QUALITY ASSURANCE
A. MANUFACTURER QUALIFICATIONS: COMPANY SPECIALIZING IN MANUFACTURING THE PRODUCTS SPECIFIED IN THIS SECTION WITH NOT LESS THAN THREE YEARS OF DOCUMENTED EXPERIENCE.
1.06 DELIVERY, STORAGE, AND HANDLING
A. ACCEPT MATERIALS ON SITE, LABELED WITH MANUFACTURER'S IDENTIFICATION, PRODUCT DENSITY, AND THICKNESS.
1.07 FIELD CONDITIONS
A. MAINTAIN AMBIENT CONDITIONS REQUIRED BY MANUFACTURERS OF EACH PRODUCT.
B. MAINTAIN TEMPERATURE BEFORE, DURING, AND AFTER INSTALLATION FOR MINIMUM OF 24 HOURS.

- PART 2 PRODUCTS
2.01 GENERAL REQUIREMENTS
A. POTABLE WATER SUPPLY SYSTEMS: PROVIDE PIPING, PIPE FITTINGS, AND SOLDER AND FLUX (IF USED), THAT COMPLY WITH NSF 61 AND NSF 372 FOR MAXIMUM LEAD CONTENT; LABEL PIPE AND FITTINGS.
2.02 SANITARY SOWER PIPING, ABOVE GRADE
A. CAST IRON PIPE: CSDP 301, HUBLESS, SERVICE WEIGHT.
1. FITTINGS: CAST IRON.
2. JOINTS: CSDP 310, NEOPRENE GASKETS AND STAINLESS STEEL CLAMP-AND-SHIELD ASSEMBLIES.
2.03 DOMESTIC WATER PIPING, ABOVE GRADE
A. COPPER TUBE: ASTM B88 (ASTM B88M), TYPE L (B), DRAWN (H).
1. FITTINGS: ASME B16.18, CAST COPPER ALLOY OR ASME B16.22, WROUGHT COPPER AND BRONZE.
2. JOINTS: ASTM B32, ALLOY SWEED SOLDER.
2.04 FLANGES, UNIONS, AND COUPLINGS
A. UNIONS FOR PIPE SIZES 3 INCHES (80 MM) AND UNDER:
1. FERROUS PIPE: CLASS 150 MALLEABLE IRON THREADED UNIONS.

- SECTION 221008 - PLUMBING PIPING SPECIALTIES
PART 1 GENERAL
1.01 SECTION INCLUDES
A. DRAINS.
B. CLEANOUTS.
C. HOSE BIBBS.
D. WATER HAMMER ARRESTORS.
1.02 RELATED REQUIREMENTS
A. SECTION 221005 - PLUMBING PIPING.
B. SECTION 224000 - PLUMBING FIXTURES.

- D. ANCHORS AND FASTENERS:
1. MANUFACTURERS - MECHANICAL ANCHORS:
a. HELIX, INC.: WWW.HELIX.COM/ISLE.
b. POWERS FASTENERS, INC.: WWW.POWERS.COM/ISLE.
PART 3 EXECUTION
3.01 EXAMINATION
A. VERIFY THAT FIELD MEASUREMENTS ARE AS INDICATED.
B. VERIFY THAT MOUNTING SURFACES ARE READY TO RECEIVE SUPPORT AND ATTACHMENT COMPONENTS.
C. VERIFY THAT CONDITIONS ARE SATISFACTORY FOR INSTALLATION PRIOR TO STARTING WORK.
3.02 INSTALLATION
A. INSTALL PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
B. PROVIDE INDEPENDENT SUPPORT FROM BUILDING STRUCTURE. DO NOT PROVIDE SUPPORT FROM PIPING, DUCTWORK, CONDUIT, OR OTHER SYSTEMS.
C. UNLESS SPECIFICALLY INDICATED OR APPROVED BY ARCHITECT, DO NOT PROVIDE SUPPORT FROM SUSPENDED CEILING SUPPORT SYSTEM OR CEILING GRID.
D. UNLESS SPECIFICALLY INDICATED OR APPROVED BY ARCHITECT, DO NOT PROVIDE SUPPORT FROM ROOF DECK.
E. DO NOT PENETRATE OR NOTICED NOTCH OR CUT STRUCT