





















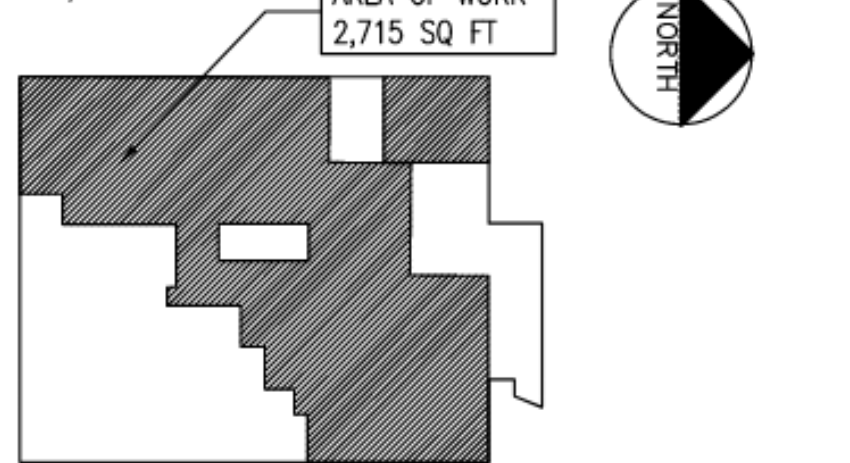


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Consultants



Key Plan



Notes

Revision	By	Appd.	YY.MM.DD

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Client/Project

RICHTMOND UNIVERSITY MEDICAL CENTER  
TRANSFORMATIONAL GRANT

669 CASTLETON AVENUE, STATEN ISLAND, NY  
SECOND FLOOR PROPOSED RENOVATION

Title

PLUMBING  
SPECIFICATIONS

Project No.	Scale	
7024.02	AS NOTED	
Drawing No.	Sheet	Revision

P-501.00 7 of 7

**PLUMBING SPECIFICATIONS:**

**A. WORK INCLUDED**

A.1. WORK UNDER THIS CONTRACT SHALL INCLUDE ALL LABOR, MATERIAL, EQUIPMENT, PLANT SERVICES AND ADMINISTRATIVE TASKS REQUIRED TO COMPLETE AND MAKE OPERABLE THE PLUMBING WORK SHOWN ON THE DRAWINGS AND SPECIFIED HEREIN, INCLUDING:

A.1.1. ALTERATIONS AND ADDITION TO THE EXISTING SANITARY DRAINAGE AND VENT SYSTEM, HOT AND COLD WATER SUPPLY SYSTEM.

A.1.2. PIPING, VALVES AND ACCESSORIES.

A.1.3. PLUMBING FIXTURES.

A.1.4. HANGERS AND SUPPORTS.

A.1.5. REMOVALS AS NOTED.

**B. GENERAL REQUIREMENTS**

**B.1. GENERAL**

B.1.1. AFTER CAREFULLY STUDYING THE DRAWINGS AND SPECIFICATIONS, AND BEFORE SUBMITTING THEIR PROPOSAL, EACH BIDDER SHALL VISIT THE SITE TO ASCERTAIN CONDITIONS OF THE SITE, AND THE NATURE AND EXACT QUANTITY OF WORK TO BE PERFORMED. NO EXTRA WILL BE ALLOWED IF THE CONTRACTOR FAILS TO EXAMINE THE SITE, OR HAVING EXAMINED THE SITE, THE CONTRACTOR FAILS TO NOTIFY THE OWNER IN WRITING OF ANY DISCREPANCIES THAT HE MAY HAVE NOTED BETWEEN THE EXISTING CONDITIONS, AND DRAWINGS AND SPECIFICATIONS.

B.1.2. THE CONTRACTOR SHALL VERIFY ALL MEASUREMENTS OF HIS OWN OR OTHERS AT THE SITE, AND SHALL BE RESPONSIBLE FOR CORRECTNESS OF SAME AS RELATED TO HIS WORK.

B.1.3. CONTRACTOR SHALL COOPERATE WITH ALL OTHER CONTRACTORS WHO FURNISH AND INSTALL WORK IN CONNECTION WITH THE WORK OF THIS PROJECT. GIVE THEM COMPLETE DATA AS TO HIS REQUIREMENTS, AND NOTIFY OWNER OF ANY CONDITION THAT WILL INTERFERE WITH PROPER COMPLETION OF THIS WORK. COOPERATE IN THE SCHEDULING OF THIS WORK WITH THE WORK OF OTHER CONTRACTS SO AS NOT TO DELAY JOB PROGRESS.

B.1.4. THE WORK SHALL BE CAREFULLY LAID OUT IN ADVANCE TO AVOID UNNECESSARY CUTTING, CHANNELING, CHASING OR DRILLING OF FLOORS, WALLS, PARTITIONS, CEILINGS OR OTHER SURFACES. WHERE SUCH WORK IS NECESSARY, HOWEVER, THE WORK SHALL BE CAREFULLY DONE. ANY DAMAGE TO THE BUILDING OR EQUIPMENT SHALL BE PATCHED AND/OR REPAIRED IN AN APPROVED MANNER BY SKILLED MECHANICS AT NO ADDITIONAL COST TO THE OWNER.

**B.2. CODES, REGULATIONS AND STANDARDS**

B.2.1. ALL WORK SHALL COMPLY WITH THE REQUIREMENTS OF THE NEW YORK CITY BUILDING CODE NFPA, ALL APPLICABLE FEDERAL, AND LOCAL CODES AND ANY OTHER AGENCIES HAVING JURISDICTION.

B.2.2. THE CONTRACTOR SHALL INCLUDE IN HIS BID THE COST OF ALL REQUIRED PERMITS, FEES, INSPECTIONS, TESTS AND CERTIFICATES OF APPROVAL.

**B.3. SECURITY**

B.3.1. OBEY ALL SECURITY REGULATIONS ESTABLISHED BY THE OWNER, AND ABIDE BY ALL BUILDING RULES AND REGULATIONS. OWNER'S APPROVAL SHALL BE OBTAINED BEFORE ENTERING SECURED AREAS OF THE BUILDINGS OF THE BUILDING.

**B.4. CLEANING**

B.4.1. MAINTAIN ALL AREAS, UNDER CONTRACTOR'S CONTROL, FREE OF EXTRANEOUS DEBRIS.

B.4.2. SCHEDULE REGULAR COLLECTION AND DISPOSAL OF DEBRIS DAILY AND MORE FREQUENTLY IF NECESSARY.

**B.5. SPECIAL REQUIREMENTS**

**B.5.1. CUTTING AND PATCHING**

B.5.1.1. ALL CUTTING, DRILLING, AND ROUGH PATCHING REQUIRED FOR THE WORK SHALL BE PROVIDED BY THE CONTRACTOR.

B.5.1.2. ALL CUTTING, DRILLING OR OTHER CONSTRUCTION OPERATIONS WHICH CREATE EXCESSIVE NOISE OR VIBRATION SHALL BE SCHEDULED WITH THE OWNER. CONTRACTOR SHALL PAY FOR ANY OVERTIME WORK REQUIRED.

B.5.1.3. CUTTING OF WALLS SHALL BE DONE AS APPROVED BY THE OWNER IN A CAREFUL MANNER SO AS NOT TO SERIOUSLY IMPAIR THE APPEARANCE OR STRENGTH OF THE STRUCTURE.

B.5.1.4. PROVIDE ALL DRILLING AND PATCHING FOR EXPANSION BOLTS, HANGERS AND OTHER SUPPORTS FOR PROPER AND SAFE INSTALLATION OF THE WORK.

**B.5.2. TESTING**

B.5.2.1. TEST PIPING AND SYSTEMS FOLLOWING THE PROCEDURES SPECIFIED HEREIN, REQUIRED BY CODE OR AS DIRECTED BY THE OWNER.

**B.6. MAINTENANCE OF EXISTING FACILITIES AND CONDUCT OF THE WORK**

B.6.1. THE BUILDING WILL BE OCCUPIED AND IN OPERATION DURING THE PROGRESS OF THE WORK. WHEN NECESSARY TO TEMPORARILY HALT BUILDING EGRESS OR FLOW OF PERSONNEL TRAFFIC, CONFER WITH THE OWNER'S REPRESENTATIVE AND ARRANGE THE PERIOD OF INTERRUPTION FOR A TIME MUTUALLY AGREED UPON. IT IS REQUIRED THAT THE WORK INDICATED AND/OR SPECIFIED SHALL ESTABLISHED ROUTINE OF THE BUILDING.

B.6.2. AT NO TIME SHALL EXISTING SERVICES BE CUT OFF OR STOPPED WITHOUT THE OWNER'S WRITTEN PERMISSION. PRIOR TO STOPPING SERVICES CONTRACTOR SHALL INVESTIGATE AREAS TO BE AFFECTED AND NOTIFY THE OWNER AS TO THE TIME REQUIRED TO PERFORM HIS WORK AND ACTIVATE SERVICES. CONTRACTOR SHALL PERFORM ALL PREPARATORY WORK PRIOR TO SHUT DOWN IN ORDER TO MINIMIZE INCONVENIENCES. IF THE OWNER REQUIRES, SHUT DOWNS SHALL BE PERFORMED ON AN OVERTIME BASIS AT NO ADDITIONAL COST TO THE OWNER.

B.6.3. NO WORK SHALL BE LEFT INCOMPLETE NOR ANY HAZARDOUS SITUATIONS CREATED WHICH WILL AFFECT THE LIFE OR SAFETY OF THE PUBLIC AND/OR BUILDING OCCUPANTS. AT NO TIME SHALL THE WORK INTERFERE WITH OR CUT OFF ANY OF THE EXISTING SERVICES WITHOUT THE OWNER'S WRITTEN PERMISSION.

B.6.4. NO WORK SHALL BE LEFT IN SUCH A MANNER AS TO CREATE LEAKAGE, WATER DAMAGE OR OTHER DETRIMENTAL SITUATIONS.

**B.7. SCAFFOLDING, RIGGING AND HOISTING**

B.7.1. PROVIDE, ERECT, MAINTAIN AND BE RESPONSIBLE FOR THE SAFE AND LEGAL USE OF ALL SCAFFOLDING, HOISTING AND RIGGING. ALSO, PROVIDE ADDITIONAL BRACING AND SERVICES REQUIRED FOR THE DELIVERY OR ERECTION OF THE EQUIPMENT AND CONSTRUCTION MATERIALS PROVIDED OR INSTALLED UNDER THIS CONTRACT.

**C. SUBMITTALS**

**C.1. SHOP DRAWINGS**

C.1.1. SUBMIT ONE SEPIA AND THREE PRINTS OF SYSTEM FABRICATION DRAWINGS.

C.1.2. SUBMIT SIX COPIES OF MANUFACTURER'S SUBMITTAL SHEETS OR CATALOG CUTS FOR FIXTURES AND VALVING.

**C.2. AS-BUILT DRAWINGS**

C.2.1. PROVIDE OWNER WITH A COMPLETE SET OF AS-BUILT DRAWINGS COVERING EVERY ASPECT OF THE WORK. THE COMPLETE SET SHALL INCLUDE A SET OF MYLARS OR QUALITY SEPIAS CAPABLE OF PRODUCING QUALITY PRINTS AND TWO FULL SETS OF ALL AS-BUILT DRAWINGS.

**D. PIPING SYSTEMS, ACCESSORIES, SUPPORTS, SLEEVES, TESTING**

D.1. INSTALL ALL EQUIPMENT AND PIPING SYSTEMS USING THE BEST STANDARD PRACTICES OF THE TRADE AND LEAVE SYSTEM COMPONENTS COMPLETE AND READY FOR OPERATION. UNLESS OTHERWISE NOTED, SPECIFIED OR INDICATED, ALL PIPING AND EQUIPMENT SHALL BE CONNECTED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDED DETAILS AND AS APPROVED BY THE OWNER.

D.2. PROMPTLY INSTALL PIPING REQUIRED TO BE CONCEALED IN FLOOR, WALL OR CEILING CONSTRUCTION TO NOT CAUSE DELAY TO OTHER WORK, AND TO ALLOW AMPLE TIME FOR NECESSARY TASKS AND APPROVALS.

D.3. MODIFY PIPING ARRANGEMENTS AS NECESSARY TO SUIT CONDITIONS IN THE BUILDING, AND TO PERMIT ACCESS TO EQUIPMENT AND ACCESSORIES.

D.4. UPON COMPLETION OF ALL PIPING SYSTEMS, NOTIFY THE OWNER, IN WRITING, FIVE DAYS IN ADVANCE OF THE TIME LEAK TESTS ARE TO BE MADE.

D.4.1. CONDUCT TESTS IN ACCORDANCE WITH THE SPECIFICATIONS OR AS DIRECTED BY OWNER.

D.4.2. PIPING TESTS ARE TO BE CONDUCTED PRIOR TO PAINTING, INSULATING, OR CONCEALING WITHIN THE BUILDING.

D.4.3. ALL MATERIALS, EQUIPMENT AND COSTS INVOLVED IN TESTING THE PIPING SYSTEMS SHALL BE INCLUDED IN THE WORK.

D.4.4. SANITARY PIPING SHALL BE TESTED WITH WATER FOR TWO HOURS AT A PRESSURE OF FIVE PSIG OR TEN FOOT WATER COLUMN, UNLESS OTHERWISE DIRECTED.

D.4.5. TEST WATER PIPING AT 1-1/2 TIMES THE STATIC WATER PRESSURE FOR 2 HOURS.

D.4.6. TESTING OF MEDICAL GAS SYSTEMS SHALL COMPLY WITH NFPA 99.

**E. MATERIALS**

E.1. CAST IRON SOIL PIPE AND FITTINGS SHALL BE MARKED WITH THE COLLECTIVE TRADEMARK OF THE CAST IRON PIPE INSTITUTE (CISPI) AND BE LISTED BY NSF INTERNATIONAL.

E.1.1. ABOVE GROUND SANITARY AND VENT PIPING AND FITTINGS SHALL BE TYLER PIPE CO. NO-HUB SERVICE WEIGHT CAST IRON PIPING CONFORMING TO CISPI 301 WITH NEOPRENE GASKETS CONFORMING TO ASTM C664 AND STAINLESS STEEL MID RANGE (4 BAND) CLAMPS CONFORMING TO ASTM C 1540 AS MANUFACTURED BY HUSKY NO. 2000, MISSION TYPE "HW". (2) BAND CLAMPS ARE NOT PERMITTED. PROVIDE SWAY BRACING ON CAST IRON DRAINAGE PIPING 4" AND LARGER AT EVERY FOURTH HANGER, WHERE HANGERS ARE MORE THAN 18" IN LENGTH FROM UNDERSIDE OF THE SLAB AS PER SECTION 308.6 OF BOTH THE NEW YORK STATE AND NEW YORK CITY PLUMBING CODE. PROVIDE ANCHORAGE TO RESTRAIN DRAINAGE PIPING FROM AXIAL MOVEMENT ON PIPING 5" OR GREATER. THIS SHALL BE COMPRISED OF BRACES, RODDING AND/OR OTHER SUITABLE METHODS BY THE COUPLING MANUFACTURE AND C.I.S.P.I AND DIRECTED BY SECTION 308.7 OF BOTH THE NEW YORK STATE AND NEW YORK CITY PLUMBING CODE.

E.2. HOT, AND COLD WATER PIPING TO BE TYPE L COPPER WITH BRAZED FITTINGS. PROVIDE TYPE K COPPER FOR PIPING IN THE GROUND.

E.3. INSULATION ON HOT AND COLD WATER PIPING 1" INCH FIBERGLASS INSULATION WITH KRAFT PAPER BACKING, VAPOR BARRIER ON COLD WATER, FIRE AND SMOKE RESISTANT. PROVIDE 1" INSULATION ON HORIZONTAL STORM LINES WITHIN THE BUILDING HUNG CEILING. PROVIDE 2" OF INSULATION ON COLD WATER, SANITARY AND STORM PIPING WITHIN THE CRAWL SPACE.

E.4. VALVES SHALL BE CAST BRONZE BALL TYPE, APOLLO OR EQUAL.

E.5. PRESSURE REDUCING VALVE CONSTRUCTION RENEWABLE STAINLESS STEEL SEAT. HIGH TEMPERATURE RESISTING DIAPHRAGM. SPRING CAGE CONSTRUCTION AND STRAINER. WATTS NO. 2235 OR APPROVED EQUAL. SET AT 30 PSI OUTLET.

E.6. SHOCK ARRESTORS SHALL BE JONESPEC MODEL #55000 SERIES.

E.7. DRAINS

E.7.1. FUNNEL DRAINS SHALL BE JAY R. SMITH FIG. NO. 3811C SHALL BE JAY R. SMITH FIG.3811C DUOCO CAST IRON WITH ACID RESISTANT COATED INTERIOR AND EXTERIOR WITH OPTIONAL DOME BOTTOM STRAINER OF THE SAME FINISH. THIS DRAIN SHALL BE INSTALLED TO THE TAILPIECE OF THE SINK PRIOR TO THE SINK TRAP.

E.7.2. FLOOR DRAINS SHALL BE JAY R. SMITH.

**F. DISINFECTING AND BACTERIOLOGICAL TESTING**

**F.1. FLUSHING**

F.1.1. FLUSH ALL NEW AND/OR REPAIRED POTABLE WATER PIPING SYSTEMS WITH CLEAN, POTABLE WATER UNTIL NO DIRTY WATER FLOWS FROM THE OUTLETS.

**F.2. DISINFECTING**

F.2.0.1. DISINFECT THE WATER PIPING SYSTEMS WITH A SOLUTION CONTAINING NOT LESS THAN 50 PARTS PER MILLION OF AVAILABLE CHLORINE.

F.2.0.1.1. THE CHLORINATING MATERIAL SHALL BE LIQUID CHLORINE GAS-WATER MIXTURE, CALCIUM HYPOCHLORITE, SODIUM HYPO CHLORITE, OR CHLORINATED LIME AND WATER MIXTURE CONFORMING TO THE STANDARDS OF THE AWWA AND SHALL BE INTRODUCED INTO THE SYSTEM IN AN APPROVED MANNER.

F.2.0.2. ALLOW THE DISINFECTING SOLUTION TO REMAIN IN THE SYSTEM FOR A MINIMUM PERIOD OF 24 HOURS. FOLLOWING THE DISINFECTING PERIOD, FLUSH ALL PIPING, VALVES AND OUTLETS WITH CLEAN WATER UNTIL RESIDUAL CHLORINE CONTENT IS NOT GREATER THAN 0.2 PARTS PER MILLION, UNLESS OTHERWISE DIRECTED.

**F.3. TESTING**

F.3.1. TAKE SAMPLES OF WATER FOR BACTERIOLOGICAL TESTING AS PRESCRIBED BY THE DEPARTMENT OF HEALTH.

F.3.2. SHOULD THE SAMPLES FAIL TO MEET THE MINIMUM STANDARDS AS SET FORTH BY THE DEPARTMENT OF HEALTH, REPEAT THE DISINFECTING PROCEDURE AND SUBMIT NEW SAMPLES FOR TESTING.

**G. PIPE HANGERS AND SUPPORTS**

G.1. FABRICATE AND INSTALL HANGERS AND SUPPORTS IN COMPLIANCE WITH THE LATEST EDITION OF THE FOLLOWING:

G.1.1. MSS MANUAL SP-89 PIPE HANGERS AND SUPPORTS, FABRICATION AND INSTALLATION PRACTICES.

G.1.2. HANGING MATERIALS SHALL HAVE A SAFETY FACTOR OF 5 BUILT-IN AND BE DESIGNED AND ARRANGED TO MINIMIZE VIBRATION.

G.1.3. SUPPORT PIPING TO MAINTAIN REQUIRED GRADING AND PITCHING OF LINES. USE HANGERS WHICH ARE VERTICALLY ADJUSTABLE 1/2 INCHES MINIMUM AFTER PIPING IS ERECTED. AFTER ADJUSTING HANGERS IN PLACE, TRIM, CUT OR FILE HANGER RODS SO THAT THE ENDS DO NOT EXTEND MORE THAN 1/2 INCH BELOW THE HANGER BOLTS.

G.1.4. DESIGN AND INSTALL PIPE SUPPORTS TO AVOID INTERFERENCE WITH OTHER PIPING, DUCTS, CONDUIT AND SUPPORTS.

G.1.5. PROVIDE SEPARATE SUPPORTS FOR ALL BRANCHES. NO BRANCH TWO FEET IN LENGTH OR OVER SHALL BE INSTALLED WITHOUT AN APPROVED HANGER. PROVIDE HANGERS AT ALL JOINT CONNECTIONS.

G.1.6. PROVIDE SWAY BRACING AT EVERY FOURTH HANGER.

G.1.7. PROVIDE ALL AUXILIARY STRUCTURAL STEEL MEMBERS NECESSARY TO SUPPORT ALL PIPING AND EQUIPMENT.

G.1.8. HANGERS FOR BARE COPPER PIPE SHALL BE COPPER PLATED.

**H. GUARANTEES**

H.1. ALL INSTALLATIONS, MATERIAL, EQUIPMENT AND WORK FURNISHED AND PERFORMED UNDER THESE SPECIFICATIONS SHALL BE GUARANTEED FOR ONE YEAR FROM THE DATE OF THE FINAL ACCEPTANCE.

H.2. ALL SYSTEMS FOUND DEFECTIVE AT SUCH TESTING OR DURING THE GUARANTEE PERIOD SHALL BE REPLACED OR REPAIRED BY THIS CONTRACTOR WITHOUT ANY ADDITIONAL CHARGE. ANY LABOR, MATERIAL, EQUIPMENT OR INSTRUMENT NECESSARY FOR SUCH REPAIR OR REPLACEMENT SHALL BE INCLUDED AND FREE OF CHARGE.