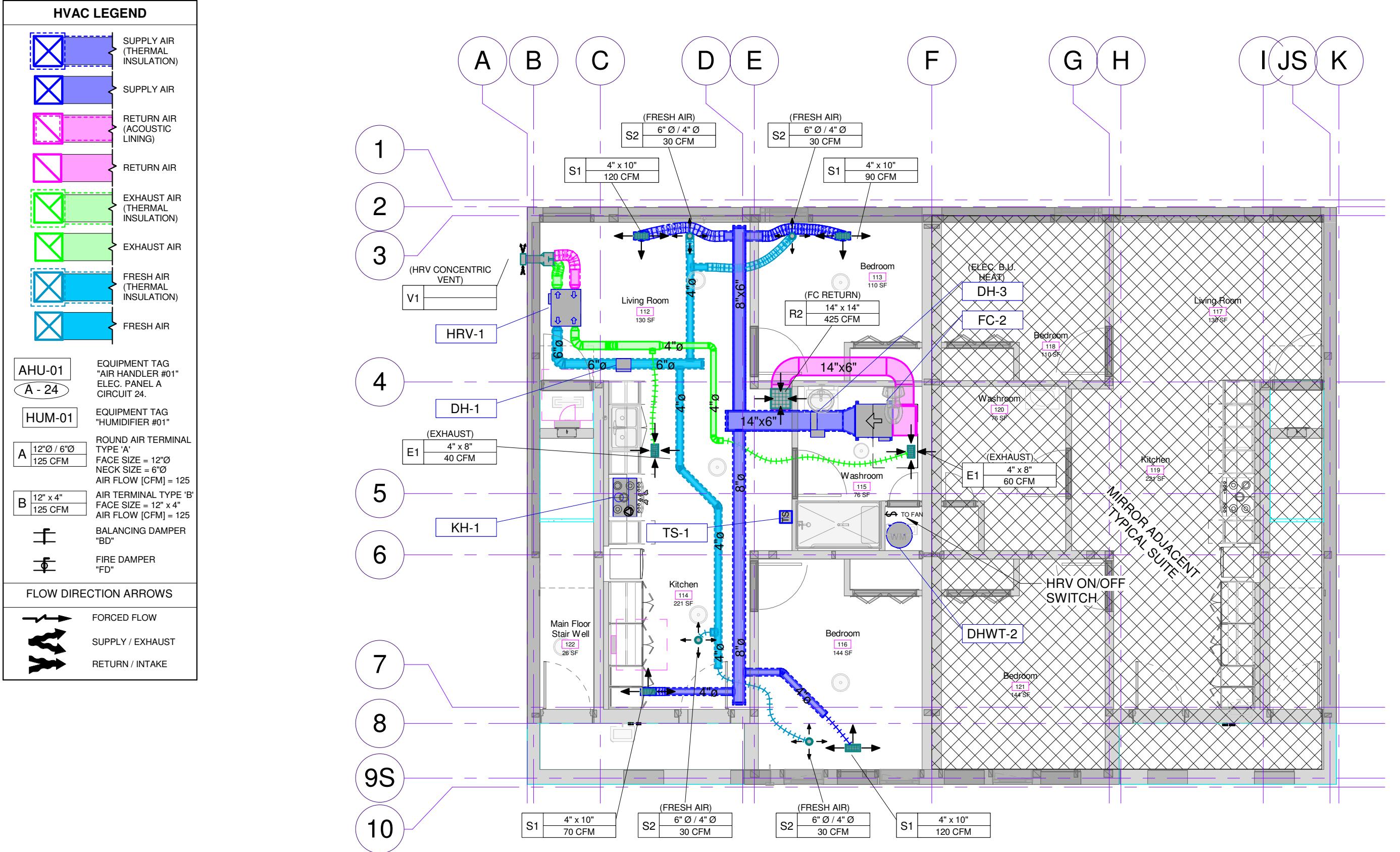


M 3.43. PROVIDE DUCT INSULATION IN ACCORDANCE WITH TABLES OF ASHRAE 90.1, TABLES 6.8.2A, 6.8.2B.	
ALL DUCT WORK SHALL BE INSULATED TO THE CLIMATE ZONE 7 REQUIREMENTS OF THE ATTACHED TABLE 6.8.2B. USE OWENS-CORNING FIBERGLASS 1.5" (38MM) FACED FLEXIBLE ALL-SERVICE DUCT WRAP INSULATION OR AN EQUAL PRODUCT, WITH A DENSITY OF 0.75 LB./CU.FT. (12.0 KG./CU.M.) AND A RFK FINISH FOR ALL DUCTWORK WHERE INDICATED ON THE DRAWINGS. ADHESIVE TAPE WITH 41% VOLUME DRIES OF BONDING ADHESIVE AT 6° (200MM) ARC. ALL PIN PENETRATIONS OR PUNCTURES AND ALL CIRCUMFERENTIAL AND LONGITUDINAL JOINTS IN THE JACKET SHALL BE TAPE WITH EITHER PLAIN FOIL OR FRK BACKING STOCK.	
WHERE INSULATION IS EXPOSED ON ROUND DUCTWORK IN ALL LOCATIONS, PROVIDE OWENS-CORNING OR EQUAL PVC JACKETING AND MOLDED FITTINGS OVER ALL INSULATION AND FITTINGS. SECURE FITTING COVERS WITH 1.5" (38MM) WIDE WHITE VINYL TAPE IN THE THROAT AND AROUND EACH END OF THE FITTING.	
ALL INSULATION SHALL BE APPLIED ACCORDING TO MANUFACTURERS' RECOMMENDATIONS. ALL INSULATION AND COMPONENTS SHALL HAVE MAXIMUM FLAME AND SMOKE SPREAD RATINGS OF 25 AND 50 RESPECTIVELY.	
ALL SUPPLY DUCTS CARRYING OUTDOOR AIR THAT IS NOT TEMPERED OR NOT MIXED WITH INDOOR AIR THAT PASSES THROUGH HEATED SPACE SHALL BE INSULATED TO NOT LESS THAN RSI 0.5 OR AS STATED IN THE APPLICABLE CODE HAVING JURISDICTION OVER THE BUILDING.	
M 3.44. PROVIDE PIPE INSULATION IN ACCORDANCE WITH TABLES OF ASHRAE 90.1, TABLES 6.8.3-1, 6.8.3-2. INSULATION FOR PIPING, FITTINGS, ETC., SHALL BE OWENS-CORNING FIBERGLASS SSL-II PIPE INSULATION OR AN EQUAL PRODUCT WITH A FACTORY-APPLIED KRAFT REINFORCED FOR VAPOR RETARDER JACKET AND DOUBLE ADHESIVE LONGITUDINAL JACKET LAP SEALING. PVC INSULATION CONFORMS BUT STRIP SEAL JACKETS SHALL BE NON-MISMATCHABLE WITH FLAME SPREAD AND SMOKE DEVELOPED RATINGS OF 25 AND 50 RESPECTIVELY OR LESS. INSTALL ACCORDING TO MANUFACTURERS' RECOMMENDATIONS AND TAPE ALL JOINTS. FOR VALVES AND FITTINGS, USE PRE-FORMED FITTINGS OR MITERED SEGMENTS TO MATCH ADJACENT PIPE INSULATION AND COMPONENTS. WHERE INSULATIONS TO BE COVERED WITH PVC COVERS, INSULATION FOR FITTINGS MAY BE REVISED TO OWENS-CORNING FIBERGLASS FACED FLEXIBLE ALL-SERVICE DUCT WRAP INSULATION OR EQUAL, 0.75 LB./CU.FT. (12.0 KG./CU.M.) DENSITY, WITH RFK FINISH. THE UNDERSIDE OF ROOF DRAIN RODS SHALL BE INSULATED WITH FIBERGLASS AF530 OR EQUAL, 3 LB./CU.FT. (4.81 KG./CU.M.) DENSITY RIGID VAPOR SEAL DUCT INSULATION WITH RFK FINISH. PROVIDE CANVAS COVERING. ULC LISTED PLAIN WEAVE COTTON FABRIC, 6.5 OZ/SQ.YD. (220G/SQ.M.) WHICH SHALL BE APPLIED WITH WASHABLE ADHESIVE. FOSTER 30-36 ASBESTOS-FREE APPLIED AT A RATE OF 51.0 SQ.FT./USG (1.25 SQ.M.).	
ALL EXPOSED FITTINGS SHALL BE COVERED WITH OWENS-CORNING OR EQUAL PVC MOLDED FITTINGS. SECURE COVERS WITH 1.5" (38MM) WIDE WHITE VINYL TAPE IN THE THROAT AND AROUND EACH END OF THE FITTING.	
MAINTAIN THE INTEGRITY OF THE VAPOR BARRIER JACKET FOR DOMESTIC COLD WATER AND STORM WATER PIPING SYSTEMS. FOR THESE SYSTEMS, PROTECT INSULATION BY GRINNELL FIG. 167 PROTECTION SHIELDS OR 18-GAUGE (1.24MM THICK) GALVANIZED SHEET STEEL SHIELDS WHERE SUCH INSULATION IS SUPPORTED BY HANGERS OR OTHER TYPES OF SUPPORTS. INSULATION UNDER THE SHIELD OF THE SAME THICKNESS AS INSULATION FOR PIPE 5" (125MM) DIAMETER AND OVER, FLEXIBLE FOAM-TYPE INSULATION WILL NOT BE PERMITTED FOR THIS PROJECT.	
INSULATION THICKNESSES SHALL BE AS FOLLOWS: COLD & HOT WATER: 0.5" (13MM) PIPE INSULATION. INSULATE THE HOT WATER PIPING FROM DOMESTIC WATER HEATERS AND ALL COLD WATER PIPING BETWEEN THE HEAT TRAP AND THE HEATER WITH 1" (25MM) INSULATION RATHER THAN THE 0.5" (13MM) INSULATION AS SPECIFIED. HORIZONTAL STORM PIPING: 0.5" (13MM) PIPE INSULATION.	
M 3.45. PROVIDE PROPER CHROME-PLATED STEEL ESCUTCHEON PLATES FOR EXPOSED UNINSULATED PIPING PENETRATING WALLS, EXCEPT WHERE OPENINGS AROUND PIPING HAVE BEEN FILLED TO THE APPROVAL OF THE CONSULTANT. PIPE ESCUTCHEONS SHALL BE ONE-PIECE TYPE WITH SETSCREWS FOR INSTALLATION AT PLUMBING FIXTURES. ELSEWHERE, USE CHROME-PLATED SLIT TYPE WITH SUBSTANTIAL HINGE POSITIVE LATCHES AND SETSCREWS. SETSCREWS SHALL BE TIGHT AGAINST THE WALL; OUTSIDE DIAMETER TO COVER OPENING OR SLEEVE AND INSIDE SIZE TO FIT AROUND FINISHED PIPE.	
M 3.46. ALL MECHANICAL EQUIPMENT TO BE INSTALLED SO AS TO PROVIDE CLEAR, UN-OBSTRUCTED MAINTENANCE, REPAIR & SERVICE ACCESS FOR THE LIFE OF THE INSTALLATION.	
M 3.47. CONTRACTOR TO CARRY THE COST AND COORDINATION AND MAKE SUBMISSION OF ANY REFRIGERATION PIPING, BOILERS, PRESSURE VESSELS OR PRESSURE PIPING PLANS TO TSSA FOR REVIEW.	
M 3.48. CONTRACTOR TO PROVIDE ADEQUATE EXPANSION TANKS FOR ALL PIPING SYSTEMS WITHIN THE PROJECT INCLUDE DOMESTIC AND HEATING AND COOLING WATER PIPING SYSTEMS. AS PER 7.3.3.3. EXPANSION AND CONTRACTION:	
(1) THE DESIGN AND INSTALLATION OF EVERY PIPING SYSTEM SHALL, WHERE NECESSARY, INCLUDE MEANS TO ACCOMMODATE EXPANSION AND CONTRACTION OF THE PIPING SYSTEM CAUSED BY TEMPERATURE CHANGE OR BUILDING SHRINKAGE.	
M 3.49. CONTRACTOR TO PROVIDE ADEQUATE PROVISIONS TO ARREST WATER HAMMER EFFECTS FOR ALL PIPING SYSTEMS WITHIN THE PROJECT. AS PER 7.6.1.14. WATER HAMMER:	
(1) PROVISION SHALL BE MADE TO PROTECT THE WATER DISTRIBUTION SYSTEM FROM THE ADVERSE EFFECTS OF WATER HAMMER.	
M 3.50. CONTRACTOR TO FURNISH TO THE ENGINEER ALL PIPING PRESSURE TEST REPORTS FOR REVIEW.	
M 3.51. CONTRACTOR SHALL RETAIN, COORDINATE AND PAY FOR THE SERVICES OF A QUALIFIED, LICENSED, UNDERGROUND CONTRACTOR TO COMPLETE THE EXCAVATION, AND BACK-FILLING OF ALL REQUIRED UNDERGROUND SERVICES WITHIN THE SCOPE OF THE PROJECT.	
M 3.52. CONTRACTOR SHALL ATTEND ALL SITE MEETINGS AND COORDINATION REVIEWS AS WELL AS GENERAL REVIEW SITE INSPECTIONS TO BE CONDUCTED BY NORTHSTAR STAFF. THE CONTRACTOR SHALL MAKE AVAILABLE TO NORTHSTAR STAFF ONSITE, THE SAFE ACCESS TO ALL AREAS OF THE CONSTRUCTION SITE TO BE ABLE TO REVIEW THE INSTALLATION. THE CONTRACTOR SHALL REMOVE CEILING TILES AND ACCESS PANELS AS NEEDED TO FACILITY OUR REVIEW.	
M 3.53. CONTRACTOR SHALL COOPERATE WITH NORTHSTAR TO PROVIDE INFORMATION AND PHOTOS, VIDEOS AND COMMENTARY DURING THE COURSE OF THE CONSTRUCTION AS PER OUR REQUESTS. NORTHSTAR RESERVES THE RIGHT TO RECORD ANY CONVERSATION HELD RELATED TO THE PROJECT FOR THE PURPOSES OF ACCURACY AND STAFF TRAINING.	
M 3.54. CONTRACTOR SHALL PREPARE A PROFESSIONAL, DETAILED TRAINING COURSE FOR THE OWNER'S MAINTENANCE AND OPERATIONAL STAFF. THE COURSE SHALL BE ADMINISTERED TO THE OWNER'S TEAM BASED ON AN AGREABLE SCHEDULE AND BEFORE THE BUILDING PROJECT IS HANDED OVER TO THE OWNER. ALL REQUIRED SPECIALISTS ARE TO BE IN ATTENDANCE. A WRITTEN RECORD OF ATTENDEES IS TO BE PROVIDED AS PROOF TO NORTHSTAR THAT THIS PROJECT REQUIREMENT IS COMPLETE. NOTE: MULTIPLE SESSIONS MAY BE REQUIRED TO FULLY EXPLAIN AND TRAIN THE OWNER ON THE SAFE OPERATION OF THE BUILDING SYSTEMS.	
M 3.55. AT THE COMPLETION OF EACH DAY'S WORK AND AT PROJECT COMPLETION, REMOVE FROM THE AREA OF WORK ALL DIRT, RUBBISH, SURPLUS MATERIAL, AND EQUIPMENT ASSOCIATED WITH THE MECHANICAL SYSTEMS INSTALLATION AND NOT REQUIRED IN THE FINISHED WORK.	
M 3.56. BE RESPONSIBLE FOR ANY DAMAGE DONE TO THE WORK AND MATERIALS OF ALL TRADES AND TO OWNER'S MATERIALS AND PROPERTY. REPLACE, AT NO EXPENSE TO THE OWNER, ALL MATERIALS, PROPERTY AND WORK DAMAGED TO SUCH AN EXTENT THAT THEY CANNOT BE RESTORED TO THEIR ORIGINAL CONDITION. TO CONSULTANT'S SATISFACTION, DAMAGED WORK SHALL BE MADE GOOD BY TRADE WHO PERFORMED THE WORK ORIGINALLY, OR AN EXPERT IN THE PARTICULAR WORK, AT THE EXPENSE OF THE TRADE WHO CAUSED THE DAMAGE. IF IT IS NOT KNOWN WHO CAUSED THE DAMAGE, SAID WORK SHALL BE MADE GOOD AT NO EXPENSE TO THE OWNER.	
M 3.57. TAKE ALL SAFETY PRECAUTIONS AND FURNISH AND INSTALL WHERE REQUIRED, GUARDS, FENCES, ETC., AT COMPLETION OF WORK OR AS REQUIRED. FOLLOW THE REQUIREMENTS OF ALL LOCAL LABOUR AUTHORITY REGULATIONS AS WELL AS THAT OF THE OWNER.	
M 3.58. CONTRACTOR TO PROVIDE ALL REQUIRED FIRE WATCHES FOR ANY HOT WORK PLANNED.	
M 3.59. CONTRACTOR TO COORDINATE THE DE-ENERGIZATION OF ALL MECHANICAL EQUIPMENT LISTED TO BE DEMOLISHED WITH THE OWNER AND MECHANICAL CONTRACTOR.	
M 3.60. PROVIDE A HOLSTER OR STORAGE/MOUNT FOR ALL HVAC REMOTE CONTROL THERMOSTATS. CONFIRM WITH THE OWNER THE REQUIRED LOCATION.	
M 3.61. SUPPLY & INSTALL WATER DRIP GUARDS OVER ANY SENSITIVE ELECTRICAL EQUIPMENT WHERE MECHANICAL CONDENSATE MAY CAUSE DAMAGE IF A MALFUNCTION OCCURS.	
M 3.62. PROVIDE A "BALL" TEST AS WELL AS PRESSURE TEST REPORTS FOR ALL DRAINAGE PIPING INSTALLATIONS.	
M 3.63. PROVIDE PRESSURE TEST REPORTS FOR ALL DOMESTIC PIPING INSTALLATIONS TO THE ENGINEER IN A TIMELY MANNER.	
<b>COMMISSIONING - PHASE - MECHANICAL</b>	
M 4.0. CONTRACTOR SHALL ARRANGE AND PAY FOR THE SERVICES OF THE MANUFACTURER'S FACTORY SERVICE AGENT AND APPROVED CONTRACTOR TO SUPERVISE START UP OF THE INSTALLATION. A FULL REPORT IS REQUIRED FROM THE MANUFACTURER OUTLINING THE CONDITION STATUS, SETTINGS AND COMMENTS RELATED TO THE INSTALLATION AND ASSOCIATED COMPONENTS. THE CONTRACTOR IS TO PROVIDE A MINIMUM WRITTEN WARNING OF IMPENDING SITE APPOINTMENT AND REVIEWS OF 48 HOURS TO NORTHSTAR.	
M 4.1. CONTRACTOR TO PROVIDE PERMANENT MARKINGS AND LABELS FOR ALL EQUIPMENT PANELS, DISCONNECTION BOXES, MOTORS, SWITCHES AND DEVICES WITHIN THE PROJECT. ALL MARKINGS TO BE TYPEWRITTEN, PERMANENT, DURABLE VISIBLE AND MATCH THE PLANS.	
M 4.2. CONTRACTOR TO SUPPLY & INSTALL ALL PERMANENT SIGNAGE WITHIN THE PROJECT. ALL MARKINGS TO BE STANDARDS, OFFICIAL, APPROVED AND INCLUDE VISIBLE TYPEWRITTEN MESSAGES, ARE PERMANENT, FIXED TO THE WALL IN A VISIBLE LOCATION AND DURABLE TO MATCH THE PLANS AS WELL AS THE REQUIREMENTS OF ALL APPLICABLE STANDARDS AND CODES WITHIN THE SCOPE OF THE PROJECT.	
M 4.3. CONTRACTOR TO PROVIDE PROFESSIONAL HVAC COMMISSIONING REPORTS FOR EACH MAJOR PIECE OF EQUIPMENT WITHIN THE PROJECT.	
M 4.4. CAN/ULC THIRD PARTY FIRE ALARM MONITORING IS TO BE IN PLACE PRIOR TO OCCUPANCY. ALL WORK MUST BE IN ACCORDANCE WITH CAN/CSA S-561. THIS CONTRACTOR TO SUPPORT THE INSTALLATION AND PROVIDE ANY LOW-VOLTAGE (<50V) INTERLOCKS NECESSARY FOR THE SYSTEM TO OPERATE.	
M 4.5. CONTRACTOR SHALL OBTAIN, AT THEIR OWN EXPENSE, FROM NORTHSTAR A SET OF WHITE PRINTS FOR MARKING UP AS WELL AS A SET OF FILES REPRESENTING THE ELECTRONIC VERSION OF THE PROJECT DRAWINGS. UPON COMPLETION OF THE WORK (AND BEFORE FINAL PAYMENT IS MADE TO THE CONTRACTOR), THE CONTRACTOR SHALL RETAIN AND PAY A COMPETENT DRAFTING SERVICE TO TRANSCRIBE ALL CHANGES AND RELEVANT INFORMATION FROM THE NORTHSTAR DOCUMENTATION TO THE ELECTRONIC CAD FILES. INCLUDED ARE ANY CHANGES TO THE CONTRACTOR'S ORDER, FIELD CHANGES, ADDENDA, CHANGE ORDERS, FIELD CHANGES, JOB CONDITIONS, THESE DRAWINGS ARE TO BE NON-AUTHENTICATED AND BE MARKED "FIELD RECORD" DRAWINGS WITH A DATE. ELECTRONIC RECORD DRAWINGS SHALL BE TURNED OVER TO NORTHSTAR FOR REVIEW. ELECTRONIC RECORD DRAWINGS ARE TO BE SUBMITTED IN AUTO-CAD 2014 FORMAT TO NORTHSTAR AT THE CLOSING OF THE PROJECT. RECORD ON THIS SET ALL CHANGES ASSOCIATED WITH THE WORK, ALL CONDUIT, WIRE COUNTS AND SIMILAR DATA ON FIELD RECORD DRAWINGS. WHERE A ROOM IS BEING RENOVATED OR MODIFIED, ALSO INDICATE EXISTING MECHANICAL INFORMATION.	
M 4.6. CONTRACTOR SHALL MAKE THEMSELVES AVAILABLE WITHOUT ADDITIONAL CHARGES, AND AT ALL AGREEABLE TIMES, TO ASSIST THE MECHANICAL CONTRACTING (OR OTHERWISE) TEAM TO FULLY COMMISSION THE COMPLETE SYSTEM.	
M 4.7. CONTRACTOR TO PREPARE AND DELIVER A COMPLETE MAINTENANCE MANUAL FOR THE PROJECT IN HARD COPY AS WELL AS ELECTRONIC FORMATS. REFER TO SECTION 26 01.10, ELECTRICAL OPERATION AND MAINTENANCE DATA' AND SECTION 26 01.11 "ELECTRICAL OPERATION AND MAINTENANCE MANUAL".	
M 4.8. CONTRACTOR SHALL PREPARE A PROFESSIONAL, DETAILED TRAINING COURSE FOR THE OWNER'S MAINTENANCE AND OPERATIONAL STAFF. THE COURSE SHALL BE ADMINISTERED TO THE OWNER'S TEAM BASED ON AN AGREABLE SCHEDULE AND BEFORE THE BUILDING PROJECT IS HANDED OVER TO THE OWNER.	
M 4.9. CONTRACTOR TO REMOVE ALL SHIPPING MATERIALS AND REFUSE FROM THE SITE AND CLEAN ALL WORK AREAS THOROUGHLY. THIS INCLUDES CLEANING ALL MECHANICAL CONTROL DEVICES, MECHANICAL ROOMS AS WELL AS THE GENERAL SITE.	
M 4.10. CONTRACTOR TO ENSURE THAT ALL DEVICES & EQUIPMENT WHICH ARE SUBJECT TO DAMAGE DUE TO LOW AMBIENT TEMPERATURES ARE PROPERLY WARMED IN SUCH A MANNER AS TO NOT BE DAMAGED AT START-UP.	
M 4.11. CANULC S1001 COORDINATION WILL NOT BE PROVIDED BY NORTHSTAR. THE OWNER OR PRIME CONTRACTOR IS TO RETAIN A CERTIFIED, PROFESSIONAL TO PROVIDE THIS SERVICE AND SUBSEQUENT REPORT. THIS IS TO BE COMPLETED AT THE FINAL STAGE OF THE PROJECT AND IS TO BE COORDINATED BY THE CONTRACTOR. THE CONTRACTOR SHALL PROVIDE NECESSARY LABOUR TO SUPPORT ALL TESTING AND COMMISSIONING OF THE INTEGRATED SYSTEMS.	
M 4.12. CONTRACTOR TO INCLUDE IN THE COST TO PROVIDE SUPPORT FOR ANY ADJUSTMENTS AND SETTINGS FOR ALL EQUIPMENT & SYSTEMS WITHIN THE PROJECT. COORDINATE WITH THE CLIENT A SCHEDULE OF MAINTENANCE AND SERVICE DURING THE WARRANTY PERIOD SO AS TO NOT CREATE DUPLICATION AND INADVERTENT ALTERATIONS AND CHANGES TO THE SETTING AND SYSTEM CONFIGURATION.	
M 4.13. CONTRACTOR TO DEMONSTRATE THAT THE NEWLY INSTALLED EQUIPMENT & SYSTEMS TO THE ENGINEER & OWNER AT THE COMPLETION OF THE PROJECT.	
M 4.14. CONTRACTOR TO REMOVE ALL SHIPPING MATERIALS AND REFUSE FROM THE SITE AND CLEAN ALL WORK AREAS THOROUGHLY.	
M 4.15. PROVIDE THREE COPIES OF MANUFACTURERS' MAINTENANCE DATA AND OPERATING INSTRUCTIONS FOR ALL EQUIPMENT AND SYSTEMS LISTED IN THE CONTRACT. PRINT ON HARD COVER BINDERS. INCLUDE ALL SHOP DRAWINGS, PERMITS, APPROVALS, WIRING DIAGRAMS, LETTERS OF GUARANTEE, AND CERTIFICATES IN THIS MANUAL. ALL DATA SHALL BE NEATLY TYPEWRITTEN. THE CONTRACTOR SHALL INSTRUCT THE OWNER ON-SITE TO THE FULL SATISFACTION OF THE CONSULTANT ON THE OPERATION AND MAINTENANCE OF ALL MECHANICAL SYSTEMS.	
M 4.16. LAMACOID OR SS IDENTIFICATION PLATES SHALL BE ENGRAVED TWO-PLY PLASTIC, 0.125" (3MM) THICK, WITH THE CONTRACTOR'S NAME, ADDRESS, AND CHARTERS ON A BLACK BACKGROUND AND LENGTH AS REQUIRED. ALLOW AN AVERAGE OF 25 LETTERS PER LINE/PLATE. LOCATE IN A CONSPICUOUS LOCATION AND SECURE AT EQUIPMENT WITH SELF-TAPPING SHEET METAL SCREWS OR AT WALLS WITH DOUBLE-SIDED ADHESIVE TAPE. ALL SCREWS USED OUTSIDE SHALL BE STAINLESS STEEL. PLATES SHALL BEAR THE TYPE OF EQUIPMENT AND NUMBER AND SHALL BE CONSISTENT WITH THE IDENTIFICATION SYSTEM PROVIDED BY THE ELECTRICAL CONTRACTOR.	
M 4.17. PROVIDE ALL OF THE REQUIRED AND SPECIFIED NEW REMOTE CONTROL HAND-HELD UNITS TO THE OWNER AT THE SUBSTANTIAL COMPLETION STAGE. ALL REMOTE UNITS TO BE TESTED AT THE COMMISSIONING STAGE.	
M 4.18. CONTRACTOR TO CARRY THE COST OF PROFESSIONAL CLEANING SERVICES FOR ALL MECHANICAL EQUIPMENT INSIDE & OUT, INCLUDING ALL NEW & EXISTING DUCTWORK (FROM CONSTRUCTION DUST).	
M 4.19. EACH MECHANICAL PIECE OF EQUIPMENT IS TO BE FURNISHED WITH NEW, FRESH FILTERS AT THE COMPLETION OF THE COMMISSIONING PHASE.	
M 4.20. CONTRACTOR SHALL ATTEND, PARTICIPATE AND SUPPORT ALL ON SITE AND OFFICE FINALIZATION (INCLUDING MEETINGS) FOR CAN/ULC-S1001 REQUIRED TESTING AT THE CLOSE OUT OF THE PROJECT.	
M 4.21. CONTRACTOR SHALL ATTEND, PARTICIPATE AND SUPPORT ALL ON SITE AND OFFICE FINALIZATION (INCLUDING MEETINGS) FOR CAN/ULC-S1001 REQUIRED TESTING AT THE CLOSE OUT OF THE PROJECT.	
M 4.22. CONTRACTOR TO DEMONSTRATE ALL SYSTEMS TO BE FUNCTIONAL FOR THE INTENDED PURPOSE TO THE OWNER / PROJECT MANAGER.	
FURNISH DEMONSTRATION AND TRAINING IN ACCORDANCE WITH THIS DOCUMENT & THE MANUFACTURERS' INSTALLATION MANUAL. THIS IS TO INCLUDE ONE, 4-HOUR TRAINING SESSION FOR OPERATING PERSONNEL, INSTRUCTING THEM ON INSTALLATION, CARE, MAINTENANCE, TESTING, AND OPERATION OF THE MECHANICAL SYSTEMS.	
BAS (BUILDING AUTOMATION SYSTEMS) CONTROLS TO BE ACCESSIBLE IN FULL ACCORDANCE WITH THE CLIENT'S IT MANAGEMENT AND INTEGRATION PROTOCOLS SO AS TO MAINTAIN THE SECURITY OF THE CLIENT'S IT DATA AND NETWORK.	
PROVIDE ALL OF THE REQUIRED AND SPECIFIED NEW REMOTE CONTROL HAND-HELD UNITS TO THE OWNER AT THE SUBSTANTIAL COMPLETION STAGE.	
WARRANTY PERIOD - PHASE - MECHANICAL	
(04322) PROJECT DRAWING REGISTER	
Sheet #	Sheet Name
E1/M1/P1	Project Cover
E2/M2/P2	Project Cover
M-3	HVAC - Specifications
M-4	HVAC - Specifications
M-5	HVAC - Scope of Work
M-6	HVAC - Scope of Work
M-7	HVAC - Bldg. 1
M-8	HVAC - Bldg. 2
M-9	HVAC - Bldg. 3
M-10	HVAC - Bldg. 4
M-11	HVAC - Bldg. 5
M-12	HVAC - Bldg. 6
M-13	HVAC - Isometric & Elevation Views
M-14	HVAC Details
P-3	Plumbing - Specifications
P-4	Plumbing - Specifications
P-5	Plumbing - Site Plan
P-6	Plumbing - Bldg. 1
P-7	Plumbing - Bldg. 2
P-8	Plumbing - Bldg. 3
P-9	Plumbing - Bldg. 4
P-10	Plumbing - Bldg. 5
P-11	Plumbing - Bldg. 6
P-12	Plumbing - Typical Building
P-13	Plumbing - Details
P-14	Plumbing - Water Schematic
P-15	Plumbing - Sanitary Schematic
E-3	Elec. Power - Specifications
E-4	Elec. Power - Specifications
E-5	Elec. Power - Scope of Work
E-6	Electrical Site Plan
E-7	Elec. - SLD
E-8	Power/Comm - Bldg. 1
E-9	Elec. Lighting - Bldg 1
E-10	Power/Comm - Bldg. 2
E-11	Elec. Lighting - Bldg 2
E-12	Power/Comm - Bldg. 3
E-13	Elec. Lighting - Bldg 3
E-14	Power/Comm - Bldg. 4
E-15	Elec. Lighting - Bldg 4
E-16	Power/Comm - Bldg. 5
E-17	Elec. Lighting - Bldg. 5
E-18	Power/Comm - Bldg. 6
E-19	Elec. Lighting - Bldg 6
E-20	Elec. Typical Building
E-21	Electrical Schedules
E-22	Electrical Details





2 (04322) Building 1 - Level 1 - RCP HVAC - New  
1 : 75

#### FIRE DAMPERS

ALL DUCTS PENETRATING FIRE SEPARATIONS DEFINED ON ARCHITECTURAL DRAWINGS REQUIRE RATED, LISTED AND APPROVED FIRE DAMPERS.

#### DIV. 23, DIV. 26 RESPONSIBILITIES

##### DIV. 26 TO SUPPLY: ELECTRICAL RESISTANCE HEATERS

ALL CONTROL AND ELECTRICAL POWER DEVICES OVER 50 VOLTS (ALSO TO BE INSTALLED, WIRED, & TESTED BY DIV. 26 CONT.)

##### DIV. 23 TO SUPPLY: HEATING / COOLING UNITS, GAS FIRED HVAC EQUIPMENT, EXHAUST FANS, HVAC ELECTRICAL CONTROL DEVICES UNDER 50 VOLTS (ALSO TO BE INSTALLED, WIRED & TESTED BY DIV. 23 CONT.)

#### EXHAUST TERMINALS

ALL EXHAUST DUCTING FROM TERMINALS & FANS TO BE THEMALLY INSULATED A MIN. 10 ft. (3m) FROM EXTERIOR PENETRATION WITH 1" FOIL WRAPPED INSULATION. BACK-DRAFT DAMPER REQUIRED AT FAN OR PENETRATION.

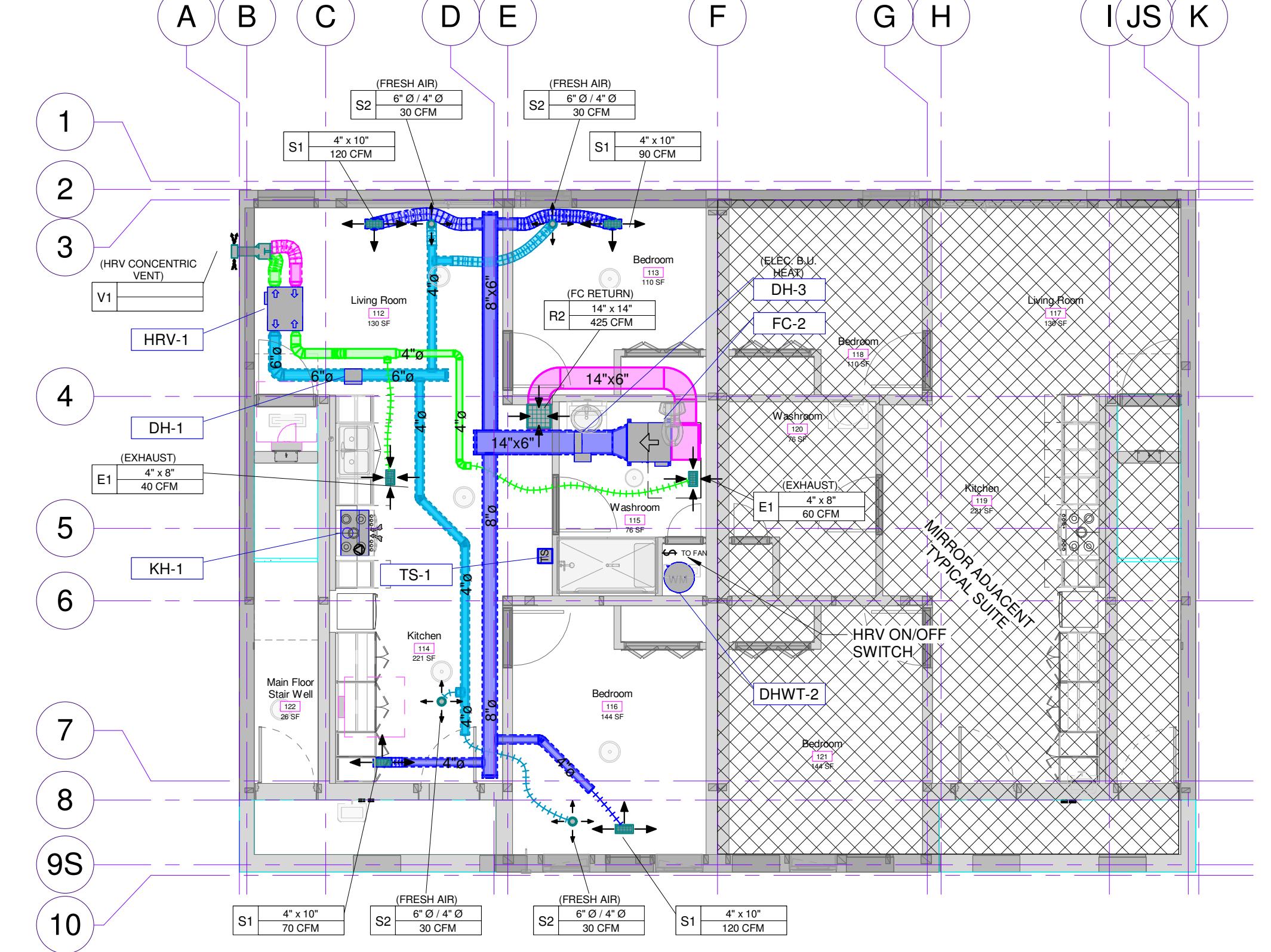
#### HVAC ELEC. DISCONNECTS

SEPARATE, WEATHER-PROOF ELEC. POWER DISCONNECTS TO BE SUPPLIED FOR OUTDOOR MECH. UNIT (I.E. NOT INCLUDED WITH EQUIP.) BY DIV. 26 CONTRACTOR.

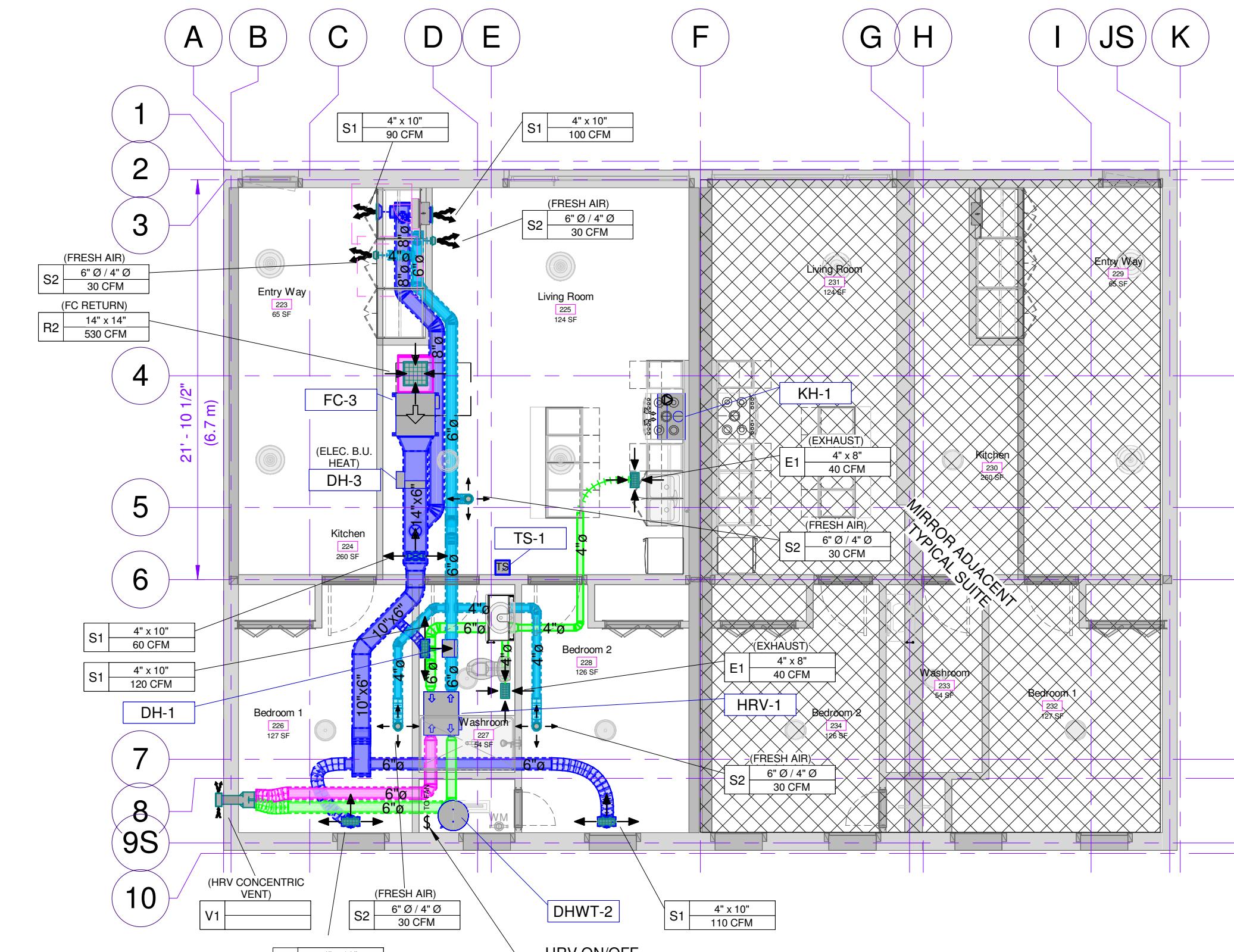
MOUNTING & WIRING TO BE BY DIV. 26 CONTRACTOR INCLUDING PERMANENT TYPE LAMAQOID® LABELS TO IDENTIFY MECH. UNIT AND ELEC. CIRCUIT AS PER DESIGN.

#### REFRIGERANT PIPING & INSTALLATION

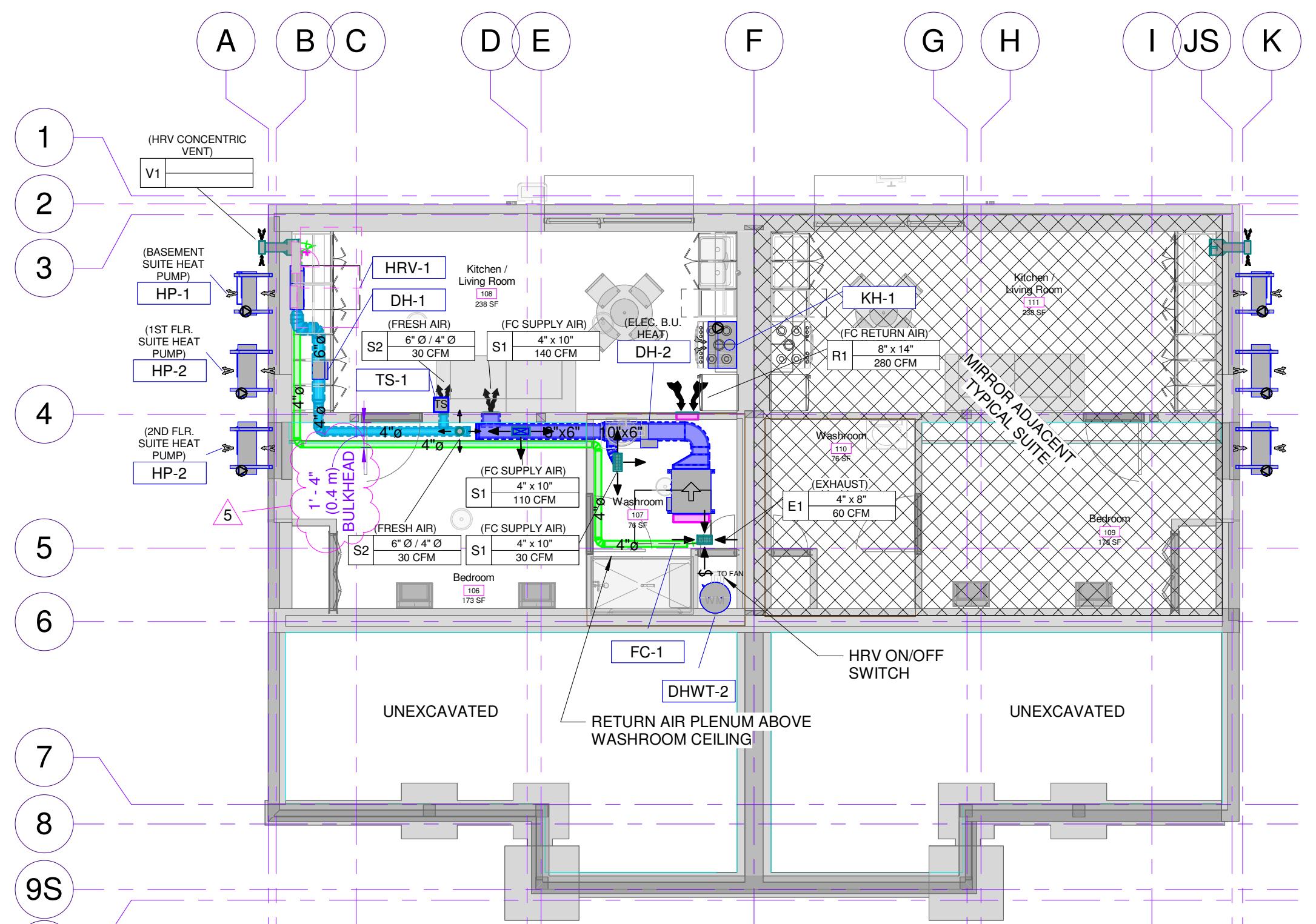
**IMPORTANT INSTALLATION NOTE:**  
COMPLETE INSTALLATION TO BE PROVIDED BY CONTRACTOR THAT HAS COMPLETED FACTORY TRAINING ON SPECIFIED SYSTEMS. ONLY USE MFG. APPROVED, INSULATED LINE-SETS AND FITTINGS.  
SUCTION AND LIQUID LINES SHALL BE TYPE AGC COPPER WITH SOLDER TYPE FITTINGS USING 6/30 SILVER SOLDER. EVACUATE COMPLETED SYSTEM WITH VACUUM PUMP TO ENSURE REMOVAL OF MOISTURE. RECHARGE WITH FREON TO MANUFACTURERS SPECIFICATIONS. THOROUGHLY CHECK ENTIRE SYSTEM WITH LEAK DETECTOR WHEN UNDER PRESSURE AND REPAIR ANY LEAK.



1 (04322) Building 1 - Basement - RCP HVAC - New  
1 : 75



3 (04322) Building 1 - Level 2 - RCP HVAC - New  
1 : 75



1 (04322) Building 1 - Basement - RCP HVAC - New  
1 : 75

04322 PROJECT DRAWING REGISTER	
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M-10	HVAC - Bldg. 4
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E-11	Elec. Lighting - Bldg 2
E-12	Power/Comm - Bldg. 3
E-13	Elec. Lighting - Bldg 3
E-14	Power/Comm - Bldg. 4
E-15	Elec. Lighting - Bldg 4
E-16	Power/Comm - Bldg. 5
E-17	Elec. Lighting - Bldg. 5
E-18	Power/Comm - Bldg. 6
E-19	Elec. Lighting - Bldg. 6
E-20	Elec. Typical Building
E-21	Electrical Schedules
E-22	Electrical Details

- GENERAL DRAWING / DESIGNER NOTES:**
- ALL CONSTRUCTION METHODS AND MATERIALS TO CONFORM TO THE PROVISIONS OF THE PROVINCE OF ONTARIO'S BUILDING CODE, LOCAL REGULATIONS AND AUTHORITIES HAVING JURISDICTION.
  - THE CONSULTANT RESERVES THE RIGHT TO MAKE REASONABLE CHANGES IN ORDER TO ACCOMMODATE CONDITIONS ARISING DURING CONSTRUCTION. FEES WILL BE ADDED FOR ALL CONSTRUCTION COSTS ARISING FROM SUCH CHANGES MAY APPLY AND ARE TO BE NEGOTIATED BETWEEN THE OWNER AND CONTRACTOR.
  - DRAWINGS ONLY SHOW GENERAL INTENT AND SCOPE OF WORK. DETAILS ARE PROVIDED BY THE CONTRACTOR. DO NOT SCALE DRAWINGS.
  - CONTRACTOR/AGENT OWNER TO REPORT ALL DISCOVERIES OF ERRORS, OMISSIONS OR DISCREPANCIES TO THE DESIGNER.
  - PROCEED WITH CONSTRUCTION ONLY USING THE LATEST REVISED DRAWINGS MARKED "ISSUED FOR CONSTRUCTION".
  - THIS DRAWING IS SPECIFIC TO THIS PROJECT AND CANNOT BE USED FOR OTHER "SIMILAR" PROJECTS.
  - THIS DRAWING IS THE PROPERTY OF NORTHSTAR ENGINEERING & TECHNOLOGIES LTD. UN-AUTHORIZED RE-PRODUCTION OR USE IS PROHIBITED.
  - SHOP DRAWINGS:  
BASED ON CONTRACT WITH OWNER, THE ENGINEER WILL REVIEW AND APPROVE DWGS FROM THE CONTRACTOR TO REVIEW THE ITEMS FOR GENERAL CONFORMITY TO THE DESIGN DWGS. THE SHOP DWG REVIEW WILL NOT RELEASE THE CONTRACTOR FROM THE RESPONSIBILITY FOR THE COMPLETE WORKING SYSTEM. THESE SHOP DRAWINGS SHALL CONSIST OF PLUMBING FIXTURES, HVAC EQUIPMENT, HVAC DIFFUSERS, ALLOW
  - THE DESIGNER DOES NOT ACCEPT RESPONSIBILITY FOR OWN DESIGNER'S WORK IN ASSOCIATION WITH THIS PROJECT.
  - REQUEST FOR ANY FOR ANY FULL ASSEMBLY THAT VIOLATE APPLICABLE BUILDING CODES IS NOT ACCEPTED BY THE DESIGNER.
  - REQUESTS FOR CHANGES OR SUBSTITUTIONS TO EQUIPMENT, PLANS AND / OR SPECIFICATIONS WILL BE SUBJECT TO ADDITIONAL FEES CHARGED BY THE CONSULTANT.
  - SITE VISITS TO REVIEW IMPLEMENTED DESIGNS WITHIN THE SCOPE OF THIS PROJECT TO BE ARRANGED WITH THE OWNER.
  - MINIMUM FORTY (40) HOURS PRIOR NOTICE TO BE PROVIDED FOR SITE VISITS - ONCE ARRANGED.
  - REQUESTS FOR THE RELEASE OF THIS DRAWING SET FROM NORTHSTAR ENGINEERING & TECHNOLOGIES LTD. FOR PURCHASE, TRANSFER, ALIENATION OR RELEASE TO A CONTRACTOR TO BE MADE BY THE OWNER OR ARCHITECT IN WRITING.
  - TENDER PRICING BY CONTRACTORS OF DRAWINGS TO BE BASED ON DWGS MARKED "ISSUED FOR TENDER" OR "ISSUED FOR CONSTRUCTION" ONLY.
  - ALL REQUESTS FOR DESIGN CHANGES / SUBSTITUTIONS TO BE MADE IN WRITING. ADDITIONAL FEES MAY APPLY. ALLOW MINIMUM ONE WEEK TO REVIEW AND RESPOND TO CHANGE REQUESTS.

#### DRAWING REVISIONS

No.	Description	Date
1	Preliminary	May 19/22
2	Issued for Review	Apr. 22/22
3	Preliminary for Review	Sep. 09/22
4	Issued for Permit	Oct. 05/22
5	Issued for Tender	May 16/23
6	Re-Issued for Tender	Dec. 20/24

Engineer's Seal:

Client: WW Inc.

Address: Minden, ON

Project Name: Gull River Affordable Housing

Dwg. Name: HVAC - Bldg.1

NSET Project #: 04322

Drawn by: Northstar Eng. Checked by: J.D.L.

Scale: As indicated Revision #: 6.0

Drawing #: M-7

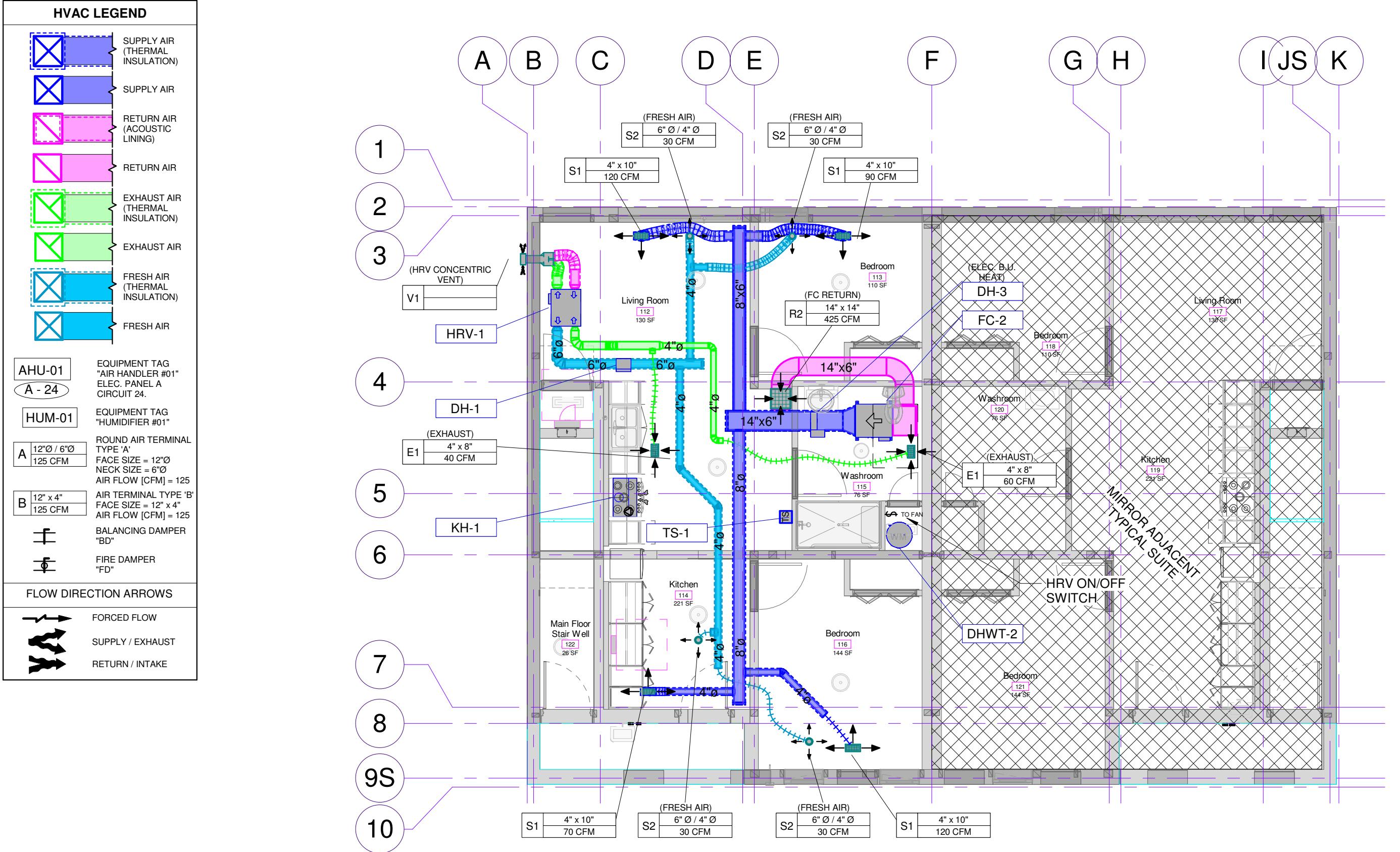
Project Date: Jan. 14/22 Arch-D (24" x 36")

(04322) Air Terminal Schedule - (New) Supplied by Div. 23 - Typical Suites						
Type Mark	Description	Manufacturer	Model	Length	Width	Neck Dia.
E1	GRILLE / EXHAUST / EGG CRATE, ALUM., 1/2" GRID / BORDER 1-1/4" FLAT SURFACE MNT. / WHITE	EH PRICE	80 / F / A / B12	8"	4"	
R1	GRILLE / RETURN / EGG CRATE / 1/2" GRID / FLAT SURFACE MOUNT / c/w COUNTERSUNK SCREWHOLE / WHITE	EH PRICE	80 / F / A / B12	14"	8"	
R2	GRILLE / RETURN / EGG CRATE / 1/2" GRID / FLAT SURFACE MOUNT / c/w COUNTERSUNK SCREWHOLE / WHITE	EH PRICE	80 / F / A / B12	14"	14"	
S1	GRILLE / SUPPLY / LOUVERED / DBL. DFLL / c/w DAMPER / SURFACE MNT. / LONG BLADES / COUNTERSUNK SCREWHOLE / WHITE	EH PRICE	520D / F / L / A / B12	10"	4"	
S2	DIFFUSER / SUPPLY / PLASTIC / ADJ. FLOW / ROUND CONE / WHITE	LIFEBREATH	TECHGRILLE			4"
V1	HRV CONCENTRIC VENT / c/w WALL CAP / 6"Ø	TANDEM TRANSITION	14690			

(04322) Electric Heat Schedule - (New) Typical Suites						
Type Mark	Description	Mfg.	Model	Fuel Type	Voltage	Phase
DH-1	DUCT HEATER / 1kW / 24V SCR MODULATING CONTROLS / 6" ROUND DUCT	THERMOLEC	TER-6-1120	ELEC.	120 V	1
DH-2	DUCT HEATER / 2kW / 10"x6" DUCT / 24V SCR MODULATING CONTROLS	THERMOLEC	MSC0-02LS	ELEC.	208 V	1
DH-3	DUCT HEATER / 3kW / 14"x6" DUCT / 24V SCR MODULATING CONTROLS	THERMOLEC	MSC0-03LS	ELEC.	208 V	1
Grand total					37,534 Btu/h	

(04322) Thermostat Schedule - (New) Typical Suites						
Type Mark	Description	Manufacturer	Model	Supplied By		
TS-1	THERMOSTAT / PROGRAMMABLE / TOUCH SCREEN	HISENSE	HYXE-VA01	DIV. 23		
Grand total						

(04322) Mechanical Equipment Schedule - (New) Typical Suites										
Type Mark	Description	Manufacturer	Model #	Heating Capacity (Input)	Eff.%	Heat Capacity (Output)	Cooling Capacity	Air Flow	E.S.P.	Voltage
DHWT-2	HOT WATER TANK / 80 US GAL. (303L) / TOP ENTRY / DOUBLE ELEC. ELEMENT	BRADFORD WHITE	E32-80R-3	0 Btu/h		0 Btu/h	280 CFM	0.300 in-wg	208 V	1
FC-1	VRF / 0.75 TON / IN									



2 (04322) Building 2 - Level 1 - RCP HVAC - New  
1 : 75

#### FIRE DAMPERS

ALL DUCTS PENETRATING FIRE SEPARATIONS DEFINED ON ARCHITECTURAL DRAWINGS REQUIRE RATED, LISTED AND APPROVED FIRE DAMPERS.

#### DIV. 23, DIV. 26 RESPONSIBILITIES

##### DIV. 26 TO SUPPLY: ELECTRICAL RESISTANCE HEATERS

ALL CONTROL AND ELECTRICAL POWER DEVICES OVER 50 VOLTS (ALSO TO BE INSTALLED, WIRED, & TESTED BY DIV. 26 CONT.)

##### DIV. 23 TO SUPPLY: HEATING / COOLING UNITS, GAS FIRED HVAC EQUIPMENT, EXHAUST FANS, HVAC ELECTRICAL CONTROL DEVICES UNDER 50 VOLTS (ALSO TO BE INSTALLED, WIRED & TESTED BY DIV. 23 CONT.)

#### EXHAUST TERMINALS

ALL EXHAUST DUCTING FROM TERMINALS & FANS TO BE THEMALLY INSULATED A MIN. 10 ft. (3m) FROM EXTERIOR PENETRATION WITH 1" FOIL WRAPPED INSULATION. BACK-DRAFT DAMPER REQUIRED AT FAN OR PENETRATION.

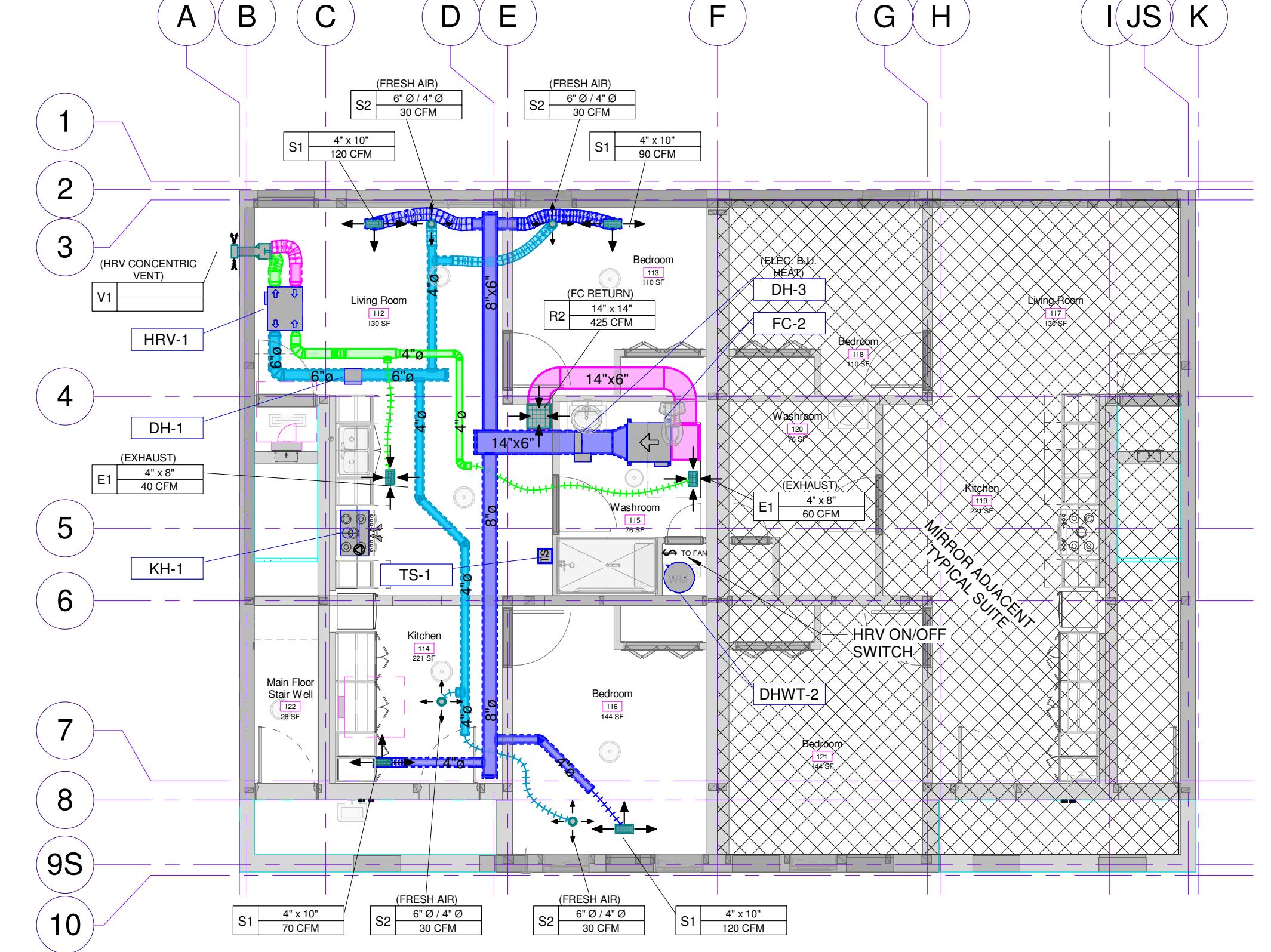
#### HVAC ELEC. DISCONNECTS

SEPARATE, WEATHER-PROOF ELEC. POWER DISCONNECTS TO BE SUPPLIED FOR OUTDOOR MECH. UNIT (I.E. NOT INCLUDED WITH EQUIP.) BY DIV. 26 CONTRACTOR.

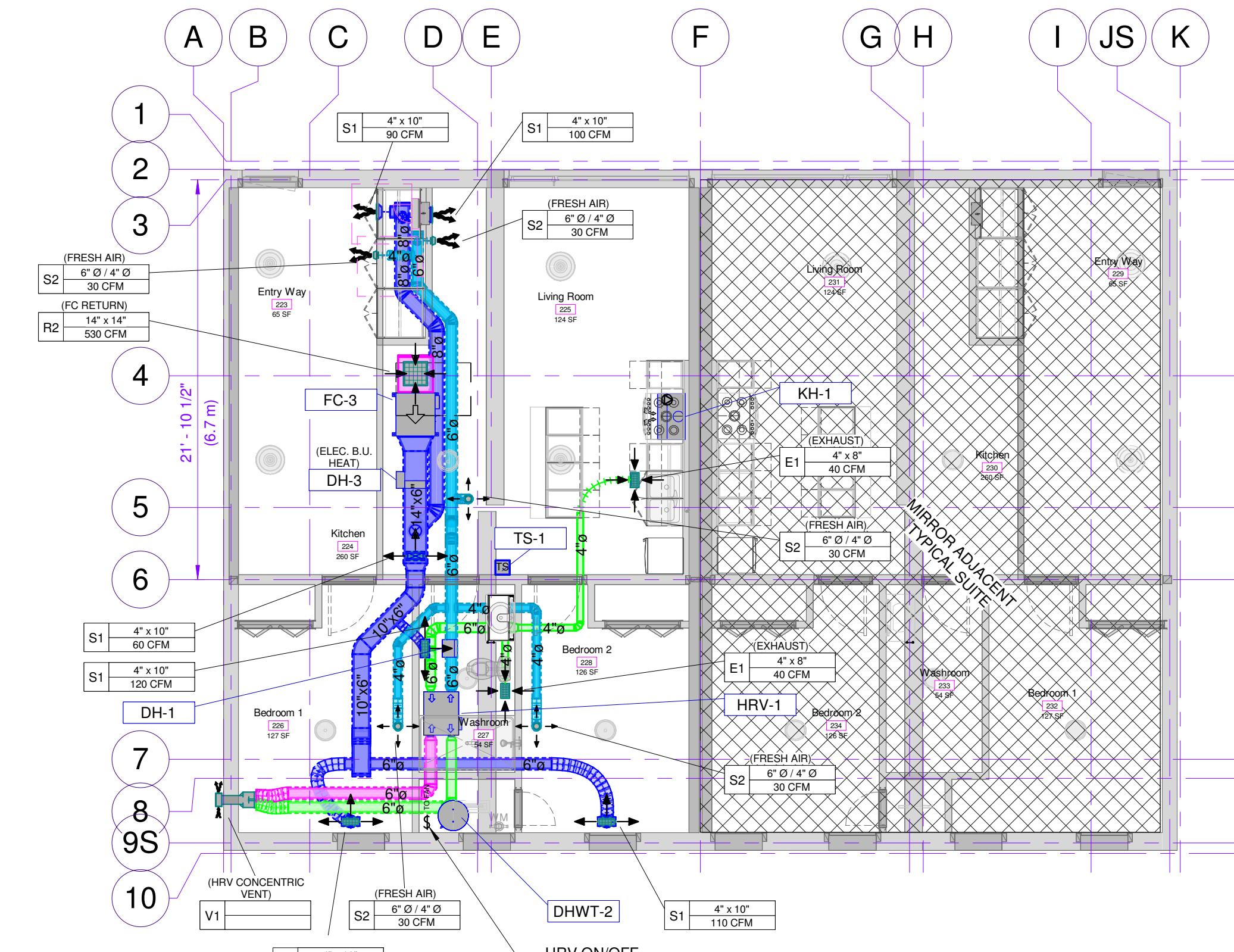
MOUNTING & WIRING TO BE BY DIV. 26 CONTRACTOR INCLUDING PERMANENT TYPE LAMAQOID® LABELS TO IDENTIFY MECH. UNIT AND ELEC. CIRCUIT AS PER DESIGN.

#### REFRIGERANT PIPING & INSTALLATION

IMPORTANT INSTALLATION NOTE:  
COMPLETE INSTALLATION TO BE PROVIDED BY CONTRACTOR THAT HAS COMPLETED FACTORY TRAINING ON SPECIFIED SYSTEMS. ONLY USE MFG. APPROVED, INSULATED LINE-SETS AND FITTINGS.  
SUCTION AND LIQUID LINES SHALL BE TYPE AGR COPPER WITH SOLDER TYPE FITTINGS USING 65/30 SILVER SOLDER. EVACUATE COMPLETED SYSTEM WITH VACUUM PUMP TO ENSURE REMOVAL OF MOISTURE. RECHARGE WITH FREON TO MANUFACTURERS SPECIFICATIONS. THOROUGHLY CHECK ENTIRE SYSTEM WITH LEAK DETECTOR WHEN UNDER PRESSURE AND REPAIR ANY LEAK.



1 (04322) Building 2 - Basement - RCP HVAC - New  
1 : 75



3 (04322) Building 2 - Level 2 - RCP HVAC - New  
1 : 75

04322 PROJECT DRAWING REGISTER	
Sheet #	Sheet Name
E1/M1/P1	Project Cover
E2/M2/P2	Project Cover
M-3	HVAC - Specifications
M-4	HVAC - Specifications
M-5	HVAC - Scope of Work
M-6	HVAC - Scope of Work
M-7	HVAC - Bldg. 1
M-8	HVAC - Bldg. 2
M-9	HVAC - Bldg. 3
M-10	HVAC - Bldg. 4
M-11	HVAC - Bldg. 5
M-12	HVAC - Bldg. 6
M-13	HVAC - Isometric & Elevation Views
M-14	HVAC Details
P-3	Plumbing - Specifications
P-4	Plumbing - Specifications
P-5	Plumbing - Site Plan
P-6	Plumbing - Bldg. 1
P-7	Plumbing - Bldg. 2
P-8	Plumbing - Bldg. 3
P-9	Plumbing - Bldg. 4
P-10	Plumbing - Bldg. 5
P-11	Plumbing - Bldg. 6
P-12	Plumbing - Typical Building
P-13	Plumbing - Details
P-14	Plumbing - Water Schematic
P-15	Plumbing - Sanitary Schematic
E-3	Elec. Power - Specifications
E-4	Elec. Power - Specifications
E-5	Elec. Power - Scope of Work
E-6	Electrical Site Plan
E-7	Elec. - SLD
E-8	Power/Comm - Bldg. 1
E-9	Elec. Lighting - Bldg. 1
E-10	Power/Comm - Bldg. 2
E-11	Elec. Lighting - Bldg. 2
E-12	Power/Comm - Bldg. 3
E-13	Elec. Lighting - Bldg. 3
E-14	Power/Comm - Bldg. 4
E-15	Elec. Lighting - Bldg. 4
E-16	Power/Comm - Bldg. 5
E-17	Elec. Lighting - Bldg. 5
E-18	Power/Comm - Bldg. 6
E-19	Elec. Lighting - Bldg. 6
E-20	Elec. Typical Building
E-21	Electrical Schedules
E-22	Electrical Details

- GENERAL DRAWING / DESIGNER NOTES:**
- ALL CONSTRUCTION METHODS AND MATERIALS TO CONFORM TO THE PROVISIONS OF THE PROVINCE OF ONTARIO'S BUILDING CODE, LOCAL REGULATIONS AND AUTHORITIES HAVING JURISDICTION.
  - THE CONSULTANT RESERVES THE RIGHT TO MAKE REASONABLE CHANGES IN ORDER TO ACCOMMODATE CONDITIONS ARISING DURING CONSTRUCTION. FEES WILL BE APPLIED FOR ALL CONSTRUCTION COSTS ARISING FROM SUCH CHANGES MAY APPLY AND ARE TO BE NEGOTIATED BETWEEN THE OWNER AND CONTRACTOR.
  - DRAWINGS ONLY SHOW GENERAL INTENT AND SCOPE OF WORK. DETAILS, OMISIONS OR DISCREPANCIES ARE PROVIDED BY CONTRACTOR(S). DO NOT SCALE DRAWINGS.
  - CONTRACTOR/AGENT OWNER TO REPORT ALL DISCOVERIES OF ERRORS, OMISSIONS OR DISCREPANCIES TO THE DESIGNER.
  - PROCEED WITH CONSTRUCTION ONLY USING THE LATEST REVISED DRAWINGS MARKED "ISSUED FOR CONSTRUCTION".
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  - THE DESIGNER DOES NOT ACCEPT RESPONSIBILITY FOR OTHER DESIGNER'S WORK IN ASSOCIATION WITH THIS PROJECT.
  - REQUEST FOR QUOTATION FOR ANY FINAL ASSEMBLY/VIAT THAT VIOLATE APPLICABLE BUILDING CODES IS NOT ACCEPTED BY THE DESIGNER.
  - REQUESTS FOR CHANGES OR SUBSTITUTIONS TO EQUIPMENT, PLANS AND / OR SPECIFICATIONS WILL BE SUBJECT TO ADDITIONAL FEES CHARGED BY THE CONSULTANT.
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No.	Description	Date
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4	Issued for Permit	Oct. 05/22
5	Issued for Tender	May 16/23
6	Re-Issued for Tender	Dec. 20/24

Engineer's Seal:

Client: WW Inc.

Address: Minden, ON

Project Name:		Gull River Affordable Housing									
Dwg. Name:		HVAC - Bldg. 2									
NSET Project #:		04322									
Drawn by: Northstar Eng.		Checked by: J.D.L.									
Scale: As indicated		Revision #: 6.0									
Drawing #:		M-8									
Project Date: Jan. 14/22											
Arch-D (24" x 36")											

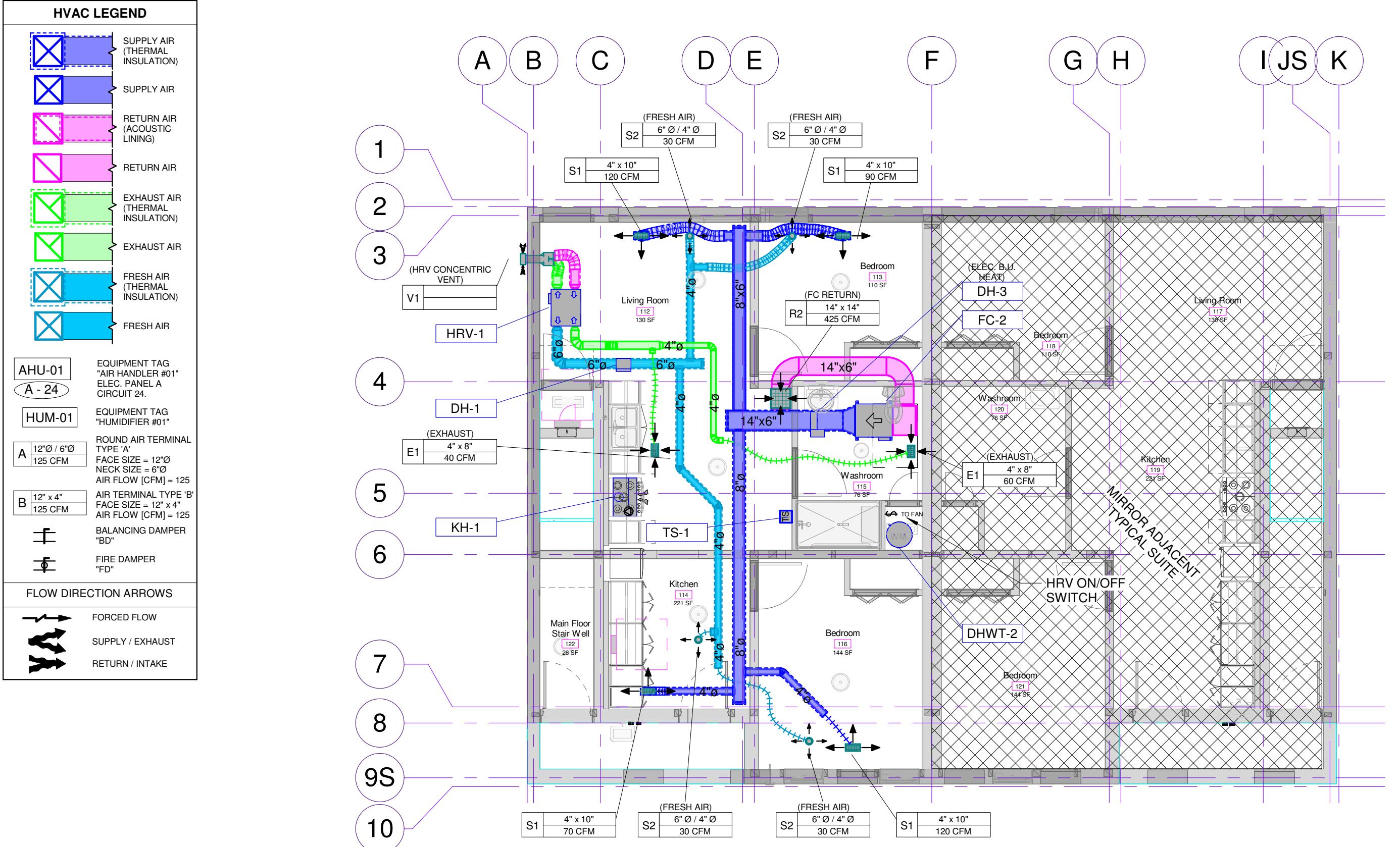
(04322) Air Terminal Schedule - (New) Supplied by Div. 23 - Typical Suites											
Type Mark	Description	Manufacturer	Model	Length	Width	Neck Dia.					
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R1	GRILLE / RETURN / EGG CRATE / 1/2" GRID / FLAT SURFACE MOUNT / c/w COUNTERSUNK SCREWHOLE / WHITE	EH PRICE	80 / F / A / B12	14"	8"						
R2	GRILLE / RETURN / EGG CRATE / 1/2" GRID / FLAT SURFACE MOUNT / c/w COUNTERSUNK SCREWHOLE / WHITE	EH PRICE	80 / F / A / B12	14"	14"						
S1	GRILLE / SUPPLY / LOUVERED / DBL. DFLL / c/w DAMPER / SURFACE MNT. / LONG BLADES / COUNTERSUNK SCREWHOLE / WHITE	EH PRICE	520D / F / L / A / B12	10"	4"						
S2	DIFFUSER / SUPPLY / PLASTIC / ADJ. FLOW / ROUND CONE / WHITE	LIFEBREATH	TECHGRILLE			4"					
V1	HRV CONCENTRIC VENT / c/w WALL CAP / 6"Ø	TANDEM TRANSITION	14690								

(04322) Electric Heat Schedule - (New) Typical Suites											
Type Mark	Description	Mfg.	Model	Fuel Type	Voltage	Phase	Heating Capacity	Supplied By			
DH-1	DUCT HEATER / 1kW / 24V SCR MODULATING CONTROLS / 6" ROUND DUCT	TERMOLEC	TER-6-1120	ELEC.	120 V	1	10,236 Btu/h	DIV. 23			
DH-2	DUCT HEATER / 2kW / 10"x6" DUCT / 24V SCR MODULATING CONTROLS	TERMOLEC	MSC0-02LS	ELEC.	208 V	1	6,824 Btu/h	DIV. 23			
DH-3	DUCT HEATER / 3kW / 14"x6" DUCT / 24V SCR MODULATING CONTROLS	TERMOLEC	MSC0-03LS	ELEC.	208 V	1	20,473 Btu/h	DIV. 23			
Grand total											
37,534 Btu/h											

(04322) Thermostat Schedule - (New) Typical Suites											
Type Mark	Description	Manufacturer	Model	Supplied By							
TS-1	THERMOSTAT / PROGRAMMABLE / TOUCH SCREEN	HISENSE	HYXE-VA01	DIV. 23							
Grand total											

Type Mark	Description	Manufacturer	Model #	Heating Capacity (Input)	Eff.%





2 (04322) Building 4 - Level 1 - RCP HVAC - New  
M-10 1 : 75

#### FIRE DAMPERS

ALL DUCTS PENETRATING FIRE SEPARATIONS DEFINED ON ARCHITECTURAL DRAWINGS REQUIRE RATED, LISTED AND APPROVED FIRE DAMPERS.

#### DIV. 23, DIV. 26 RESPONSIBILITIES

##### DIV. 26 TO SUPPLY: ELECTRICAL RESISTANCE HEATERS

ALL CONTROL AND ELECTRICAL POWER DEVICES OVER 50 VOLTS (ALSO TO BE INSTALLED, WIRED, & TESTED BY DIV. 26 CONT.)

DIV. 23 TO SUPPLY:  
HEATING / COOLING UNITS, GAS FIRED HVAC EQUIPMENT, EXHAUST FANS, HVAC ELECTRICAL CONTROL DEVICES UNDER 50 VOLTS (ALSO TO BE INSTALLED, WIRED & TESTED BY DIV. 23 CONT.)

#### EXHAUST TERMINALS

ALL EXHAUST DUCTING FROM TERMINALS & FANS TO BE THEMALLY INSULATED A MIN. 10 ft. (3m) FROM EXTERIOR PENETRATION WITH 1" FOIL WRAPPED INSULATION. BACK-DRAFT DAMPER REQUIRED AT FAN OR PENETRATION.

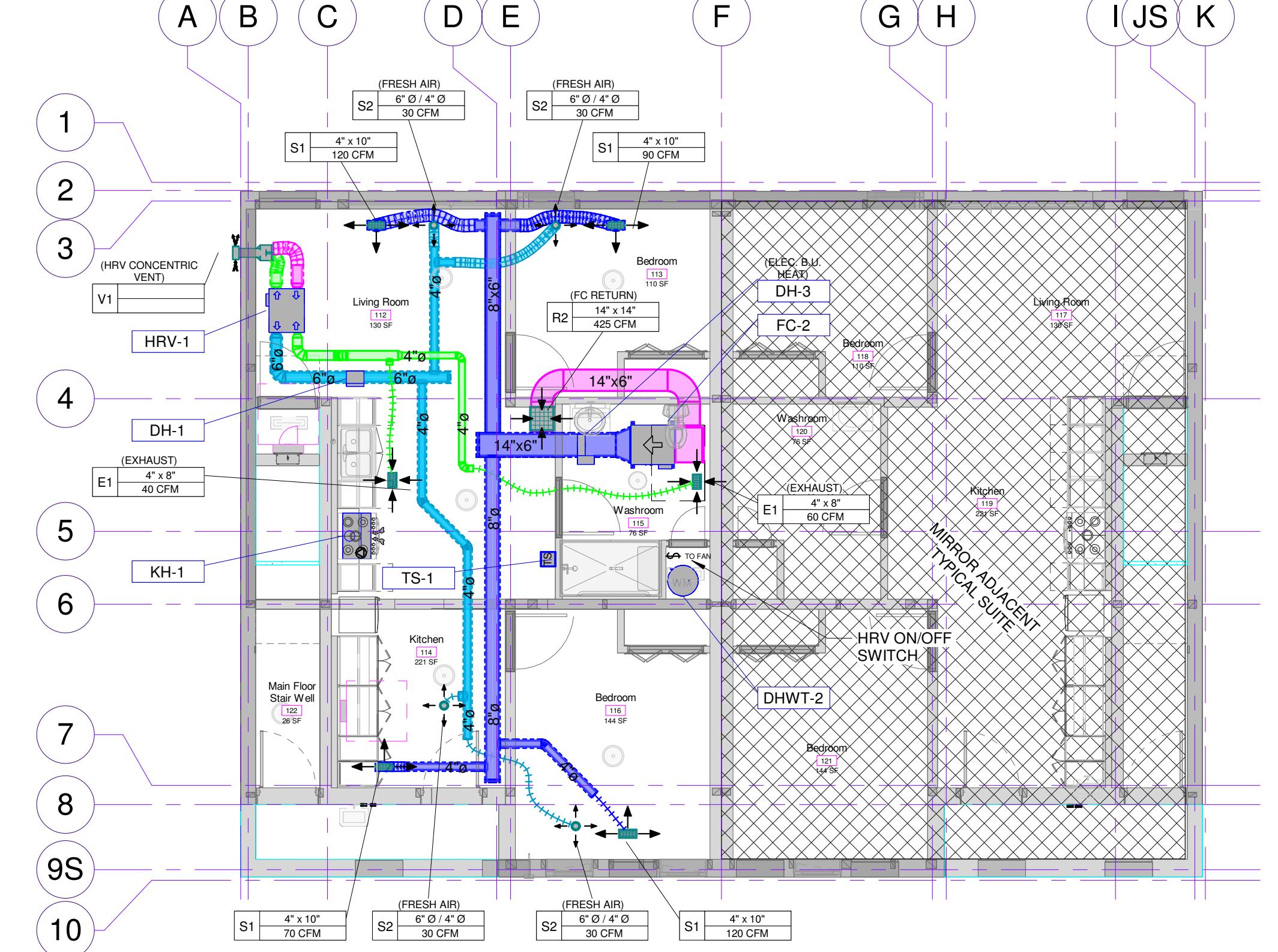
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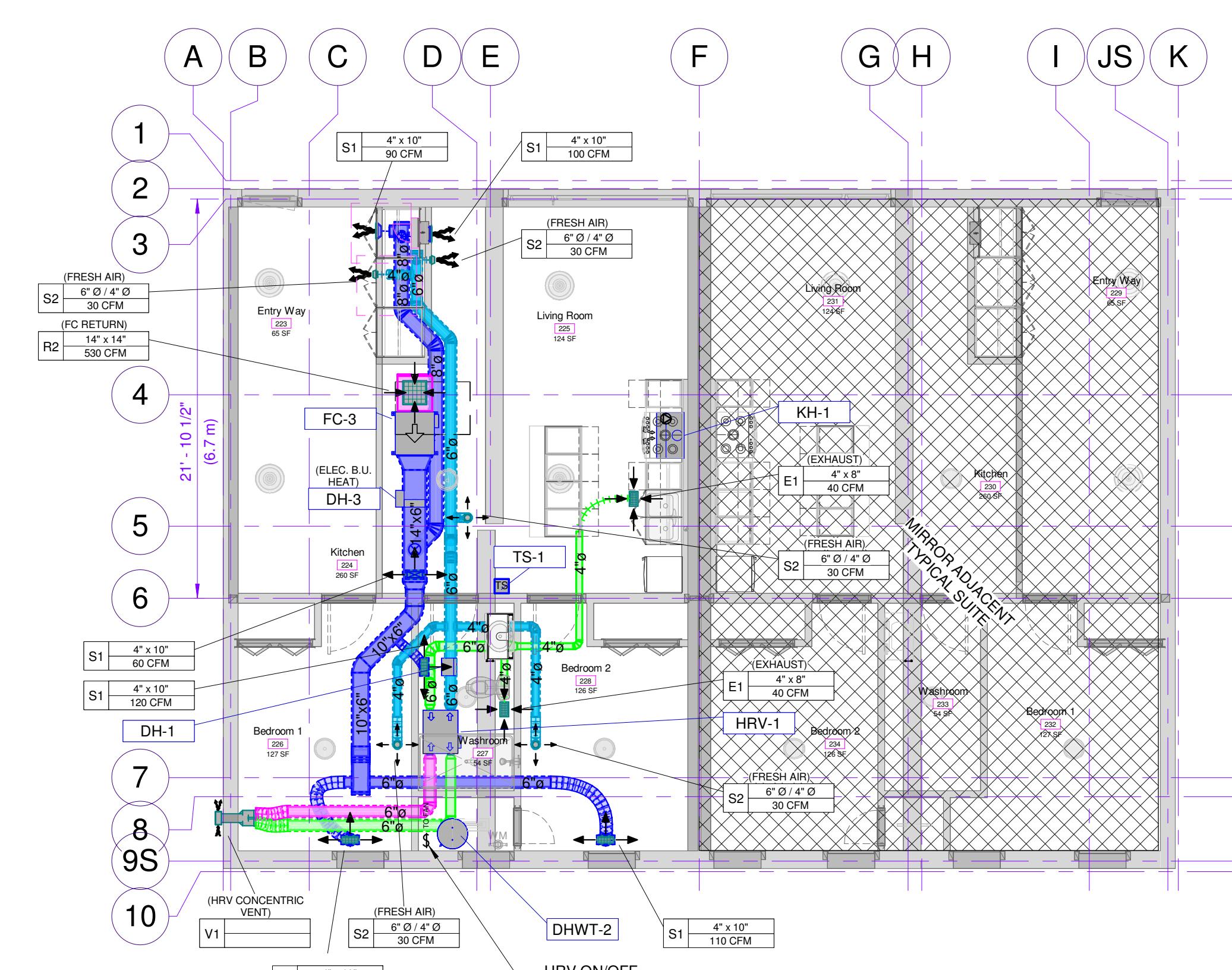
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1 (04322) Building 4 - Basement - RCP HVAC - New  
M-10 1 : 75



3 (04322) Building 4 - Level 2 - RCP HVAC - New  
M-10 1 : 75

04322 PROJECT DRAWING REGISTER	
Sheet #	Sheet Name
E1/M1/P1	Project Cover
E2/M2/P2	Project Cover
M-3	HVAC - Specifications
M-4	HVAC - Specifications
M-5	HVAC - Scope of Work
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M-9	HVAC - Bldg. 3
M-10	HVAC - Bldg. 4
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M-12	HVAC - Bldg. 6
M-13	HVAC - Isometric & Elevation Views
M-14	HVAC Details
P-3	Plumbing - Specifications
P-4	Plumbing - Specifications
P-5	Plumbing - Site Plan
P-6	Plumbing - Bldg. 1
P-7	Plumbing - Bldg. 2
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E-7	Elec. - SLD
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E-9	Elec. Lighting - Bldg. 1
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E-11	Elec. Lighting - Bldg. 2
E-12	Power/Comm - Bldg. 3
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  - THE DESIGNER DOES NOT ACCEPT RESPONSIBILITY FOR OWN DESIGNER'S WORK IN ASSOCIATION WITH THIS PROJECT.
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Engineer's Seal:

Client: WW Inc.

Address: Minden, ON

Project Name: Gull River Affordable Housing

Dwg. Name: HVAC - Bldg.4

NSET Project #: 04322

Drawn by: Northstar Eng. Checked by: J.D.L.

Scale: As indicated Revision #: 6.0

Drawing #: M-10

Project Date: Jan. 14/22

Arch-D (24" x 36")

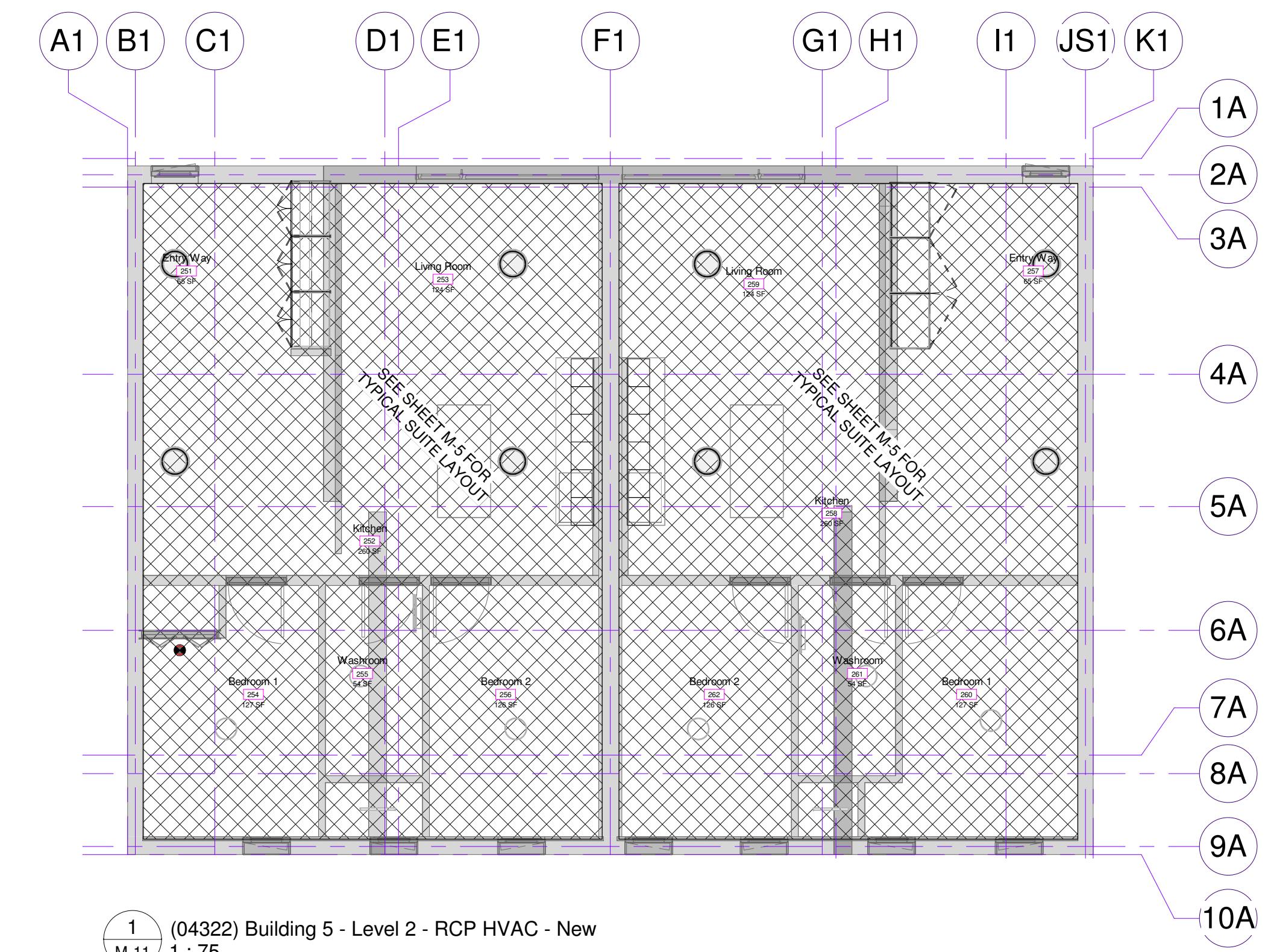
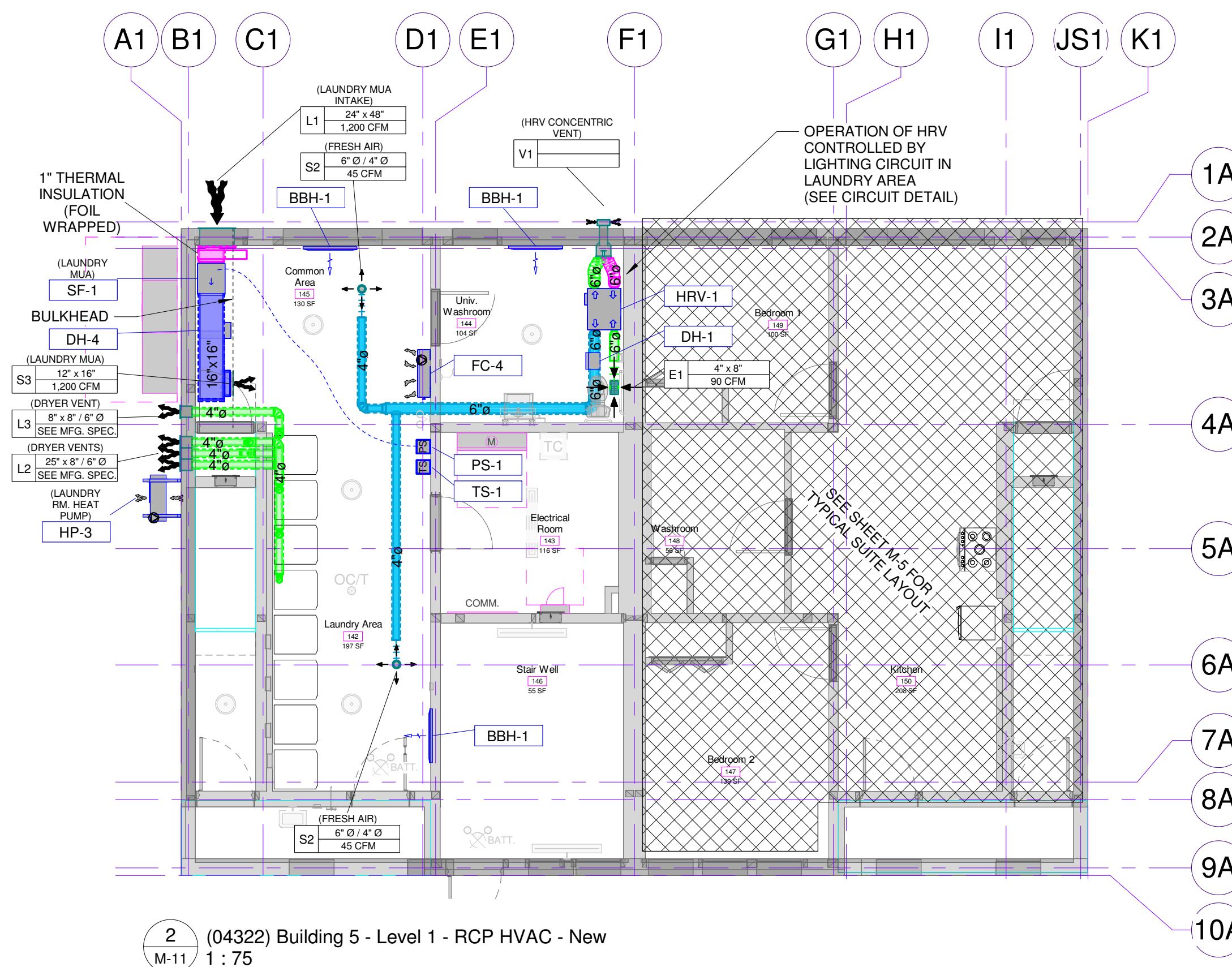
(04322) Air Terminal Schedule - (New) Supplied by Div. 23 - Typical Suites						
Type Mark	Description	Manufacturer	Model	Length	Width	Neck Dia.
E1	GRILLE / EXHAUST / EGG CRATE, ALUM., 1/2" GRID / BORDER 1-1/4" FLAT SURFACE MNT. / WHITE	EH PRICE	80 / F / A / B12	8"	4"	
R1	GRILLE / RETURN / EGG CRATE / 1/2" GRID / FLAT SURFACE MOUNT / c/w COUNTERSUNK SCREWHOLE / WHITE	EH PRICE	80 / F / A / B12	14"	8"	
R2	GRILLE / RETURN / EGG CRATE / 1/2" GRID / FLAT SURFACE MOUNT / c/w COUNTERSUNK SCREWHOLE / WHITE	EH PRICE	80 / F / A / B12	14"	14"	
S1	GRILLE / SUPPLY / LOUVERED / DBL. DFLL / c/w DAMPER / SURFACE MNT. / LONG BLADES / COUNTERSUNK SCREWHOLE / WHITE	EH PRICE	520D / F / L / A / B12	10"	4"	
S2	DIFFUSER / SUPPLY / PLASTIC / ADJ. FLOW / ROUND CONE / WHITE	LIFEBREATH	TECHGRILLE			4"
V1	HRV CONCENTRIC VENT / c/w WALL CAP / 6"	TANDEM TRANSITION	14690			

(04322) Electric Heat Schedule - (New) Typical Suites						
Type Mark	Description	Mfg.	Model	Fuel Type	Voltage	Phase
DH-1	DUCT HEATER / 1kW / 24V SCR MODULATING CONTROLS / 6" ROUND DUCT	TERMOLEC	TER-6-1120	ELEC.	120 V	1
DH-2	DUCT HEATER / 2kW / 10"x6" DUCT / 24V SCR MODULATING CONTROLS	TERMOLEC	MSC0-02LS	ELEC.	208 V	1
DH-3	DUCT HEATER / 3kW / 14"x6" DUCT / 24V SCR MODULATING CONTROLS	TERMOLEC	MSC0-03LS	ELEC.	208 V	1
Grand total						
					37,534	Btu/h

(04322) Thermostat Schedule - (New) Typical Suites						
Type Mark	Description	Manufacturer	Model			
TS-1	THERMOSTAT / PROGRAMMABLE / TOUCH SCREEN	HISENSE	HYXE-VA01			
Grand total						

(04322) Mechanical Equipment Schedule - (New) Typical Suites										
Type Mark	Description	Manufacturer	Model #	Heating Capacity (Input)	Eff.%	Heat Capacity (Output)	Cooling Capacity	Air Flow	E.S.P.	Voltage
DHWT-2	HOT WATER TANK / 80 US GAL. (303L) / TOP ENTRY / DOUBLE ELEC. ELEMENT	BRADFORD WHITE	E32-80R-3	0 Btu/h	0 Btu/h	9,600 Btu/h	280 CFM	0.300 in-wg	208 V	1
FC-1	VRF / 0.75 TON / INDOOR UNIT / CEILING CONCEALED / c/w CONDENSATE PUMP	HISENSE	AVD-09VX25AH	11,300 Btu/h	100	11,300 Btu/h	9,600 Btu/h	1	60	14.4 A</

HVAC LEGEND	
	SUPPLY AIR (THERMAL INSULATION)
	SUPPLY AIR
	RETURN AIR (ACOUSTIC LINING)
	RETURN AIR
	EXHAUST AIR (THERMAL INSULATION)
	EXHAUST AIR
	FRESH AIR (THERMAL INSULATION)
	FRESH AIR



(04322) PROJECT DRAWING REGISTER	
Sheet #	Sheet Name
E1/M1/P1	Project Cover
E2/M2/P2	Project Cover
M-3	HVAC - Specifications
M-4	HVAC - Specifications
M-5	HVAC - Scope of Work
M-6	HVAC - Scope of Work
M-7	HVAC - Bldg. 1
M-8	HVAC - Bldg. 2
M-9	HVAC - Bldg. 3
M-10	HVAC - Bldg. 4
M-11	HVAC - Bldg. 5
M-12	HVAC - Bldg. 6
M-13	HVAC - Isometric & Elevation Views
M-14	HVAC Details
P-3	Plumbing - Specifications
P-4	Plumbing - Specifications
P-5	Plumbing - Site Plan
P-6	Plumbing - Bldg. 1
P-7	Plumbing - Bldg. 2
P-8	Plumbing - Bldg. 3
P-9	Plumbing - Bldg. 4
P-10	Plumbing - Bldg. 5
P-11	Plumbing - Bldg. 6
P-12	Plumbing - Typical Building
P-13	Plumbing - Details
P-14	Plumbing - Water Schematic
P-15	Plumbing - Sanitary Schematic
E-3	Elec. Power - Specifications
E-4	Elec. Power - Specifications
E-5	Elec. Power - Scope of Work
E-6	Electric Site Plan
E-7	Elec. - SLD
E-8	Power/Comm - Bldg. 1
E-9	Elec. Lighting - Bldg. 1
E-10	Power/Comm - Bldg. 2
E-11	Elec. Lighting - Bldg. 2
E-12	Power/Comm - Bldg. 3
E-13	Elec. Lighting - Bldg. 3
E-14	Power/Comm - Bldg. 4
E-15	Elec. Lighting - Bldg. 4
E-16	Power/Comm - Bldg. 5
E-17	Elec. Lighting - Bldg. 5
E-18	Power/Comm - Bldg. 6
E-19	Elec. Lighting - Bldg. 6
E-20	Elec. Typical Building
E-21	Electrical Schedules
E-22	Electrical Details

**NORTHSTAR**  
ENGINEERING & TECHNOLOGIES LTD.

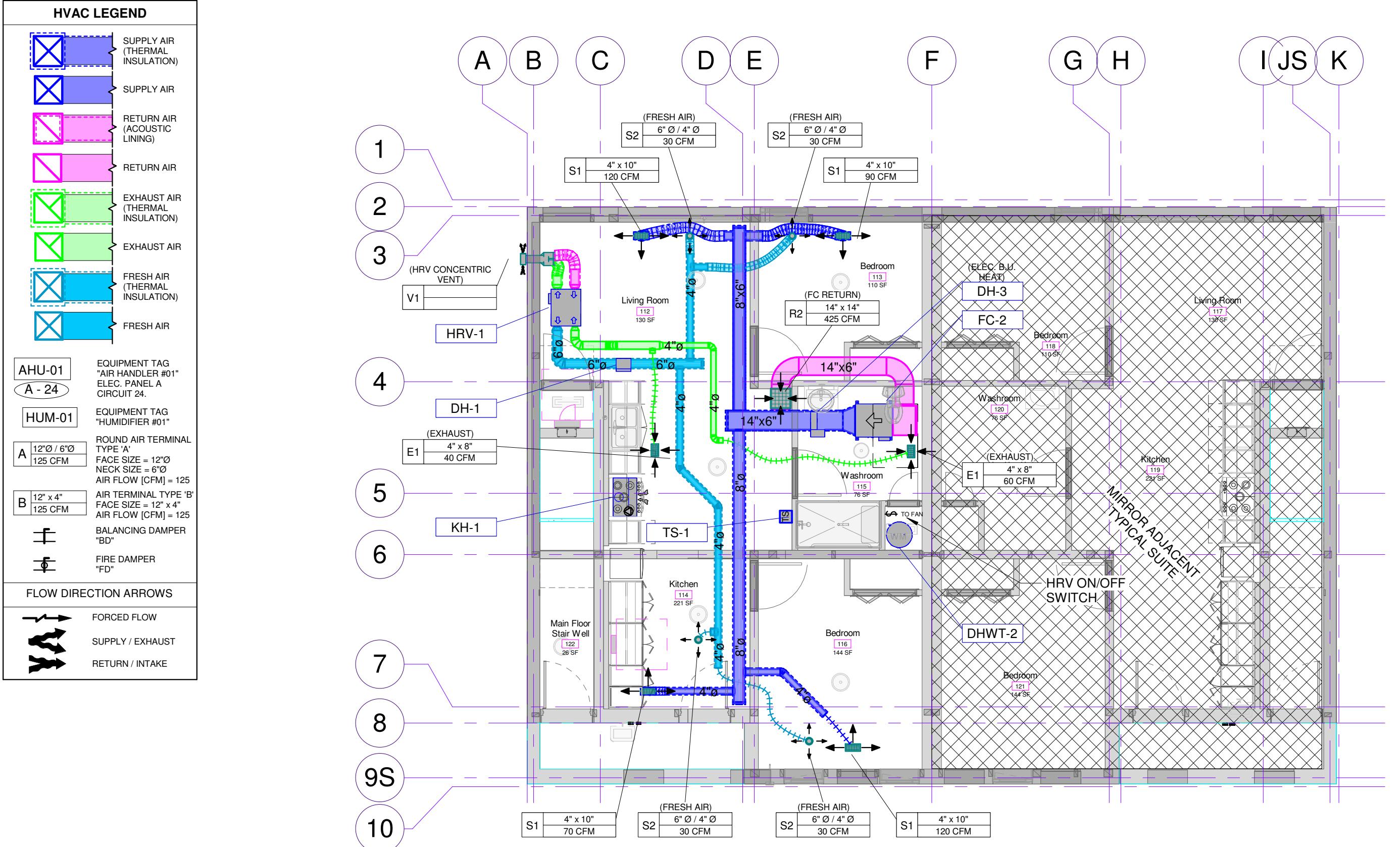
92 Caplan Ave, Suite #517  
Barrie, Ontario L4N 9J2  
Tel. (705) 719-1003 Fax (705) 719-0490  
www.nsct.ca

- GENERAL DRAWING / DESIGNER NOTES:**
- ALL CONSTRUCTION METHODS AND MATERIALS TO CONFORM TO THE REQUIREMENT OF THE PROVINCE OF ONTARIO'S BUILDING CODE, LOCAL REGULATIONS AND AUTHORITIES HAVING JURISDICTION.
  - THE CONSULTANT RESERVES THE RIGHT TO MAKE REASONABLE CHANGES IN ORDER TO ACCOMMODATE CONDITIONS ARISING DURING CONSTRUCTION. THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR ALL CONSTRUCTION COSTS ARISING FROM SUCH CHANGES MAY APPLY AND ARE TO BE NEGOTIATED BETWEEN THE OWNER AND CONTRACTOR.
  - DRAWINGS ONLY SHOW GENERAL INTENT OF WORK. DETAILS ARE PROVIDED AS REFERENCE FOR INFORMATION PROVIDED BY CONTRACTOR(S). DO NOT SCALE DRAWINGS.
  - CONTRACTOR/AGENT OWNER TO REPORT ALL DISCOVERIES OF ERRORS, OMISSIONS OR DISCREPANCIES TO THE DESIGNER.
  - PROCEED WITH CONSTRUCTION ONLY USING THE LATEST REVISED DRAWINGS MARKED "ISSUED FOR CONSTRUCTION".
  - THIS DRAWING IS SPECIFIC TO THIS PROJECT AND CANNOT BE USED FOR OTHER "SIMILAR" PROJECTS.
  - THIS DRAWING IS THE PROPERTY OF NORTHSTAR ENGINEERING & TECHNOLOGIES LTD. UN-AUTHORIZED RE-PRODUCTION OR USE IS PROHIBITED.
  - SHOP DRAWINGS:**  
BASED ON CONTRACT WITH OWNER, THE ENGINEER WILL REVIEW AND APPROVE DWGS FROM THE CONTRACTOR TO REVIEW THE ITEMS FOR GENERAL CONFORMITY TO THE DESIGN DWGS. THE SHOP DWG REVIEW WILL NOT RELEASE THE CONTRACTOR FROM THE RESPONSIBILITY FOR THE COMPLETE WORKING SYSTEM. THESE SHOP DRAWINGS SHALL CONSIST OF PLUMBING FIXTURES, HVAC EQUIPMENT, HVAC DIFFUSERS, ALLOW MINIMUM 1-2 WEEKS FOR COMPLETION (BASED ON COMPLEXITY).
  - THE DESIGNER DOES NOT ACCEPT RESPONSIBILITY FOR OWN DESIGNER'S WORK IN ASSOCIATION WITH THIS PROJECT.
  - REQUEST FOR ANY FOR ANY FINAL ASSEMBLY THAT VIOLATE APPLICABLE BUILDING CODES IS NOT ACCEPTED BY THE DESIGNER.
  - REQUESTS FOR CHANGES OR SUBSTITUTIONS TO EQUIPMENT, PLANS AND / OR SPECIFICATIONS WILL BE SUBJECT TO ADDITIONAL FEES CHARGED BY THE CONSULTANT.
  - SITE VISITS TO REVIEW IMPLEMENTED DESIGNS WITHIN THE SCOPE OF THIS PROJECT TO BE ARRANGED WITH THE OWNER.
  - MINIMUM FORTY EIGHT (48) HOURS PRIOR NOTICE TO BE PROVIDED FOR SITE VISITS - ONCE ARRANGED.
  - REQUESTS FOR THE RELEASE OF THIS DRAWING SET FROM NORTHSTAR ENGINEERING & TECHNOLOGIES LTD. FOR THE PURCHASE OF EQUIPMENT, ACCESSORIES OR CONTRACTOR TO BE MADE BY THE OWNER OR ARCHITECT IN WRITING.
  - TENDER PRICING BY CONTRACTORS OF DRAWINGS TO BE BASED ON DWGS MARKED "ISSUED FOR TENDER" OR "ISSUED FOR CONSTRUCTION" ONLY.
  - ALL REQUESTS FOR DESIGN CHANGES / SUBSTITUTIONS TO BE MADE IN WRITING. ADDITIONAL FEES MAY APPLY. ALLOW MINIMUM ONE WEEK TO REVIEW AND RESPOND TO CHANGE REQUESTS.

DRAWING REVISIONS		
No.	Description	Date
2	Issued for Review	Apr. 22/22
3	Preliminary for Review	Sep. 09/22
4	Issued for Permit	Oct. 05/22
5	Issued for Tender	May 18/23
6	Re-Issued for Tender	Dec. 20/24

Engineer's Seal:

Client:	WW Inc.		
Address:	Minden, ON		
Project Name:	Gull River Affordable Housing		
Dwg. Name:	HVAC - Bldg. 5		
NSET Project #:	04322		
Drawn by:	Northstar Eng.	Checked by:	J.D.L.
Scale:	As indicated	Revision #:	6.0
Drawing #:	M-11		
Project Date:	Jan. 14/22	Arch-D:	(24" x 36")



2 (04322) Building 6 - Level 1 - RCP HVAC - New  
M-12 1 : 75

#### FIRE DAMPERS

ALL DUCTS PENETRATING FIRE SEPARATIONS DEFINED ON ARCHITECTURAL DRAWINGS REQUIRE RATED, LISTED AND APPROVED FIRE DAMPERS.

#### DIV. 23, DIV. 26 RESPONSIBILITIES

DIV. 26 TO SUPPLY:  
ELECTRICAL RESISTANCE HEATERS  
ALL CONTROL AND ELECTRICAL POWER DEVICES OVER 50 VOLTS (ALSO TO BE INSTALLED, WIRED, & TESTED BY DIV. 26 CONT.)

#### EXHAUST TERMINALS

ALL EXHAUST DUCTING FROM TERMINALS & FANS TO BE THEMALLY INSULATED A MIN. 10 ft. (3m) FROM EXTERIOR PENETRATION WITH 1" FOIL WRAPPED INSULATION. BACK-DRAFT DAMPER REQUIRED AT FAN OR PENETRATION.

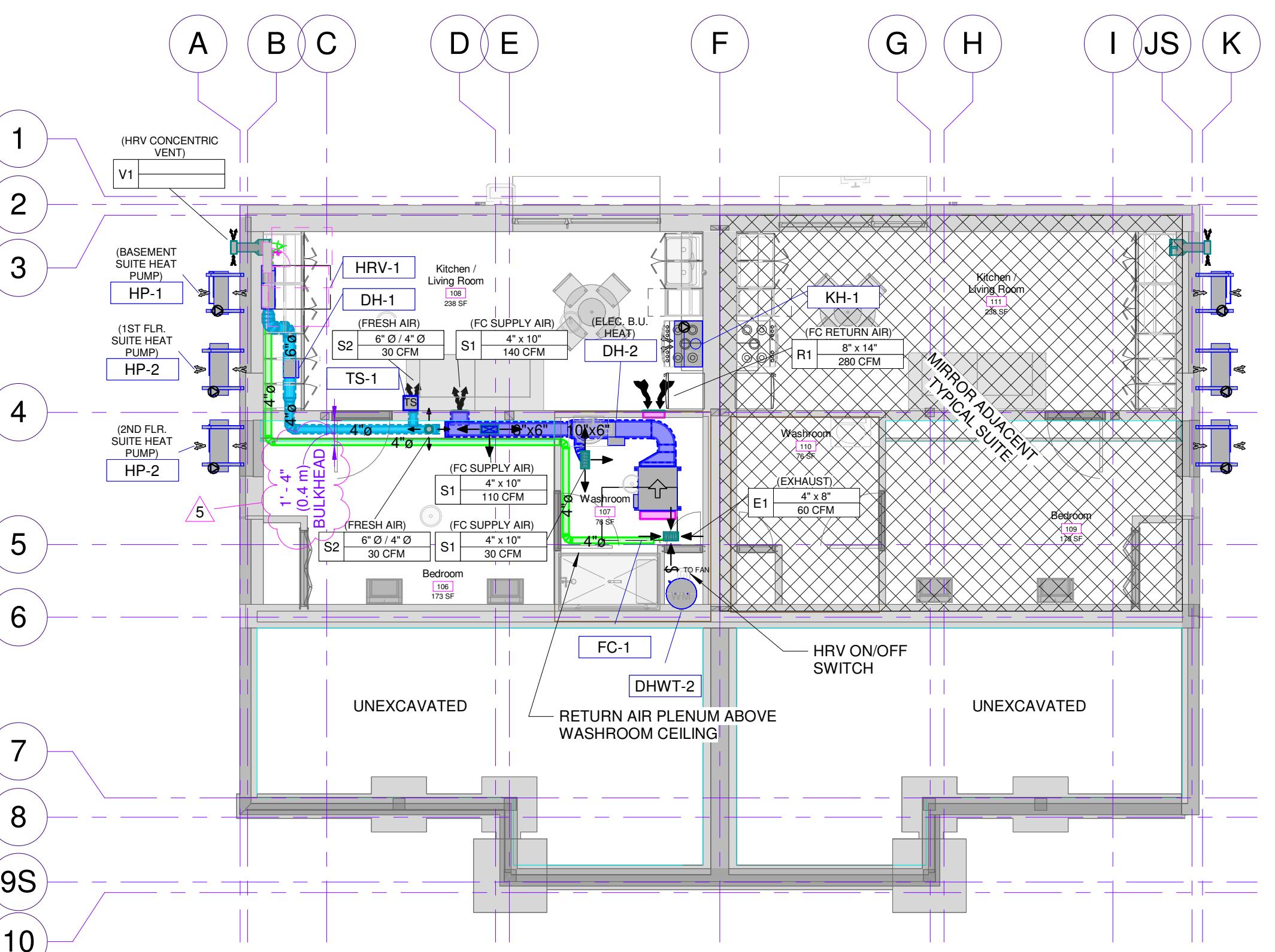
#### HVAC ELEC. DISCONNECTS

SEPARATE, WEATHER-PROOF ELEC. POWER DISCONNECTS TO BE SUPPLIED FOR OUTDOOR MECH. UNIT (I.E. NOT INCLUDED WITH EQUIP.) BY DIV. 26 CONTRACTOR.

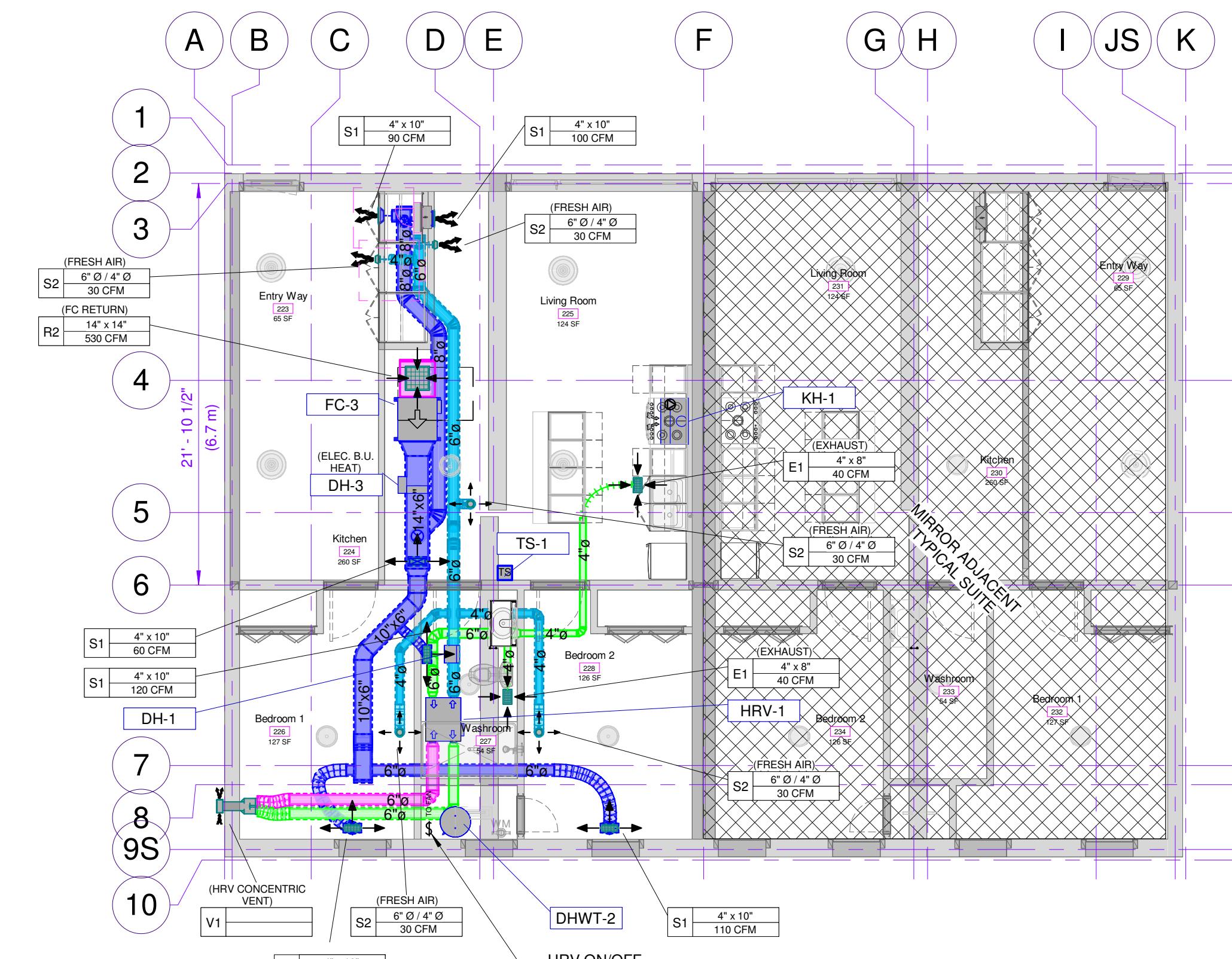
MOUNTING & WIRING TO BE BY DIV. 26 CONTRACTOR INCLUDING PERMANENT TYPE 'LAMAOID' LABELS TO IDENTIFY MECH. UNIT AND ELEC. CIRCUIT AS PER DESIGN.

#### REFRIGERANT PIPING & INSTALLATION

IMPORTANT INSTALLATION NOTE:  
COMPLETE INSTALLATION TO BE PROVIDED BY CONTRACTOR THAT HAS COMPLETED FACTORY TRAINING ON SPECIFIED SYSTEMS. ONLY USE MFG. APPROVED, INSULATED LINE-SETS AND FITTINGS.  
SUCTION AND LIQUID LINES SHALL BE TYPE AGC COPPER WITH SOLDER TYPE FITTINGS USING 6/30 SILVER SOLDER. EVACUATE COMPLETED SYSTEM WITH VACUUM PUMP TO ENSURE REMOVAL OF MOISTURE. RECHARGE WITH FREON TO MANUFACTURERS SPECIFICATIONS. THOROUGHLY CHECK ENTIRE SYSTEM WITH LEAK DETECTOR WHEN UNDER PRESSURE AND REPAIR ANY LEAK.



1 (04322) Building 6 - Basement - RCP HVAC - New  
M-12 1 : 75



3 (04322) Building 6 - Level 2 - RCP HVAC - New  
M-12 1 : 75

04322 PROJECT DRAWING REGISTER	
Sheet #	Sheet Name
E1/M1/P1	Project Cover
E2/M2/P2	Project Cover
M-3	HVAC - Specifications
M-4	HVAC - Specifications
M-5	HVAC - Scope of Work
M-6	HVAC - Scope of Work
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M-8	HVAC - Bldg. 2
M-9	HVAC - Bldg. 3
M-10	HVAC - Bldg. 4
M-11	HVAC - Bldg. 5
M-12	HVAC - Bldg. 6
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M-14	HVAC Details
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P-4	Plumbing - Specifications
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P-8	Plumbing - Bldg. 3
P-9	Plumbing - Bldg. 4
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E-5	Elec. Power - Scope of Work
E-6	Electrical Site Plan
E-7	Elec. - SLD
E-8	Power/Comm - Bldg. 1
E-9	Elec. Lighting - Bldg. 1
E-10	Power/Comm - Bldg. 2
E-11	Elec. Lighting - Bldg. 2
E-12	Power/Comm - Bldg. 3
E-13	Elec. Lighting - Bldg. 3
E-14	Power/Comm - Bldg. 4
E-15	Elec. Lighting - Bldg. 4
E-16	Power/Comm - Bldg. 5
E-17	Elec. Lighting - Bldg. 5
E-18	Power/Comm - Bldg. 6
E-19	Elec. Lighting - Bldg. 6
E-20	Elec. Typical Building
E-21	Electrical Schedules
E-22	Electrical Details

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#### DRAWING REVISIONS

No.	Description	Date
1	Preliminary	May 19/22
2	Issued for Review	Apr. 22/22
3	Preliminary for Review	Sep. 09/22
4	Issued for Permit	Oct. 05/22
5	Issued for Tender	May 16/23
6	Re-Issued for Tender	Dec. 20/24

Engineer's Seal:

Client: WW Inc.

Address: Minden, ON

Project Name: Gull River Affordable Housing

Dwg. Name: HVAC - Bldg.6

NSET Project #: 04322

Drawn by: Northstar Eng. Checked by: J.D.L.

Scale: As indicated Revision #: 6.0

Drawing #: M-12

Project Date: Jan. 14/22

Arch-D (24" x 36")

(04322) Air Terminal Schedule - (New) Supplied by Div. 23 - Typical Suites						
Type Mark	Description	Manufacturer	Model	Length	Width	Neck Dia.
E1	GRILLE / EXHAUST / EGG CRATE, ALUM., 1/2" GRID / BORDER 1-1/4" FLAT SURFACE MNT. / WHITE	EH PRICE	80 / F / A / B12	8"	4"	
R1	GRILLE / RETURN / EGG CRATE / 1/2" GRID / FLAT SURFACE MOUNT / c/w COUNTERSUNK SCREWHOLE / WHITE	EH PRICE	80 / F / A / B12	14"	8"	
R2	GRILLE / RETURN / EGG CRATE / 1/2" GRID / FLAT SURFACE MOUNT / c/w COUNTERSUNK SCREWHOLE / WHITE	EH PRICE	80 / F / A / B12	14"	14"	
S1	GRILLE / SUPPLY / LOUVERED / DBL. DFLL / c/w DAMPER / SURFACE MNT. / LONG BLADES / COUNTERSUNK SCREWHOLE / WHITE	EH PRICE	520D / F / L / A / B12	10"	4"	
S2	DIFFUSER / SUPPLY / PLASTIC / ADJ. FLOW / ROUND CONE / WHITE	LIFEBREATH	TECHGRILLE			4"
V1	HRV CONCENTRIC VENT / c/w WALL CAP / 6"	TANDEM TRANSITION	14690			

(04322) Electric Heat Schedule - (New) Typical Suites						
Type Mark	Description	Mfg.	Model	Fuel Type	Voltage	Phase
DH-1	DUCT HEATER / 1kW / 24V SCR MODULATING CONTROLS / 6" ROUND DUCT	THERMOLEC	TER-6-1120	ELEC.	120 V	1
DH-2	DUCT HEATER / 2kW / 10"x6" DUCT / 24V SCR MODULATING CONTROLS	THERMOLEC	MSC0-02LS	ELEC.	208 V	1
DH-3	DUCT HEATER / 3kW / 14"x6" DUCT / 24V SCR MODULATING CONTROLS	THERMOLEC	MSC0-03LS	ELEC.	208 V	1
Grand total					37,534 Btu/h	

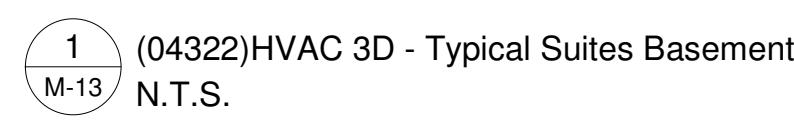
(04322) Thermostat Schedule - (New) Typical Suites						
Type Mark	Description	Manufacturer	Model	Supplied By		
TS-1	THERMOSTAT / PROGRAMMABLE / TOUCH SCREEN	HISENSE	HYXE-VA01	DIV. 23		
Grand total						

(04322) Mechanical Equipment Schedule - (New) Typical Suites										
Type Mark	Description	Manufacturer	Model #	Heating Capacity (Input)	Eff.%	Heat Capacity (Output)	Cooling Capacity	Air Flow	E.S.P.	Voltage
DHWT-2	HOT WATER TANK / 80 US GAL. (303L) / TOP ENTRY / DOUBLE ELEC. ELEMENT	BRADFORD WHITE	E32-80R-3	0 Btu/h	0 Btu/h	9,600 Btu/h	280 CFM	0.300 in-wg	208 V	1
FC-1	VRF / 0.75 TON / INDOOR UNIT / CEILING CONCEALED / c/w CONDENSATE PUMP	HISENSE	AVD-09UX25AH	11,300 Btu/h	100	11,300 Btu/h	9,600 Btu/h	1	60	14.4 A
FC-2	VRF / 1.25 TON / INDOOR UNIT / CEILING CONCEALED / c/w CONDENSATE PUMP	HISENSE	AVD-15H3FCH	17,100 Btu/h	100	17,100 Btu/h	15,400 Btu/h	425 CFM	0.300 in-wg	208 V
FC-3	VRF / 1.6 TON / INDOOR UNIT / CEILING CONCEALED / c/w CONDENSATE PUMP	HISENSE	AVD-19H3FCH	21,500 Btu/h</						

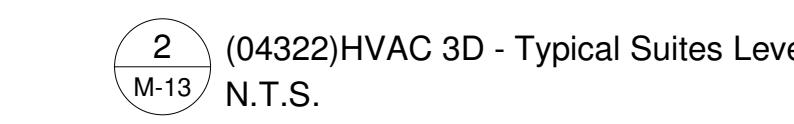
HVAC LEGEND	
	SUPPLY AIR (THERMAL INSULATION)
	SUPPLY AIR
	RETURN AIR (ACOUSTIC LINING)
	RETURN AIR
	EXHAUST AIR (THERMAL INSULATION)
	EXHAUST AIR
	FRESH AIR (THERMAL INSULATION)
	FRESH AIR

AHU-01  
A - 24  
HUM-01  
A 1200 (6x20)  
FACE SIZE = 12" x 20"  
AIR FLOW (CFM) = 125  
B 12" x 4"  
FACE SIZE = 12" x 4"  
AIR FLOW (CFM) = 125  
BALANCING DAMPER "BD"  
FIRE DAMPER "FD"  
FLOW DIRECTION ARROWS  
FORCED FLOW  
SUPPLY / EXHAUST  
RETURN / INTAKE

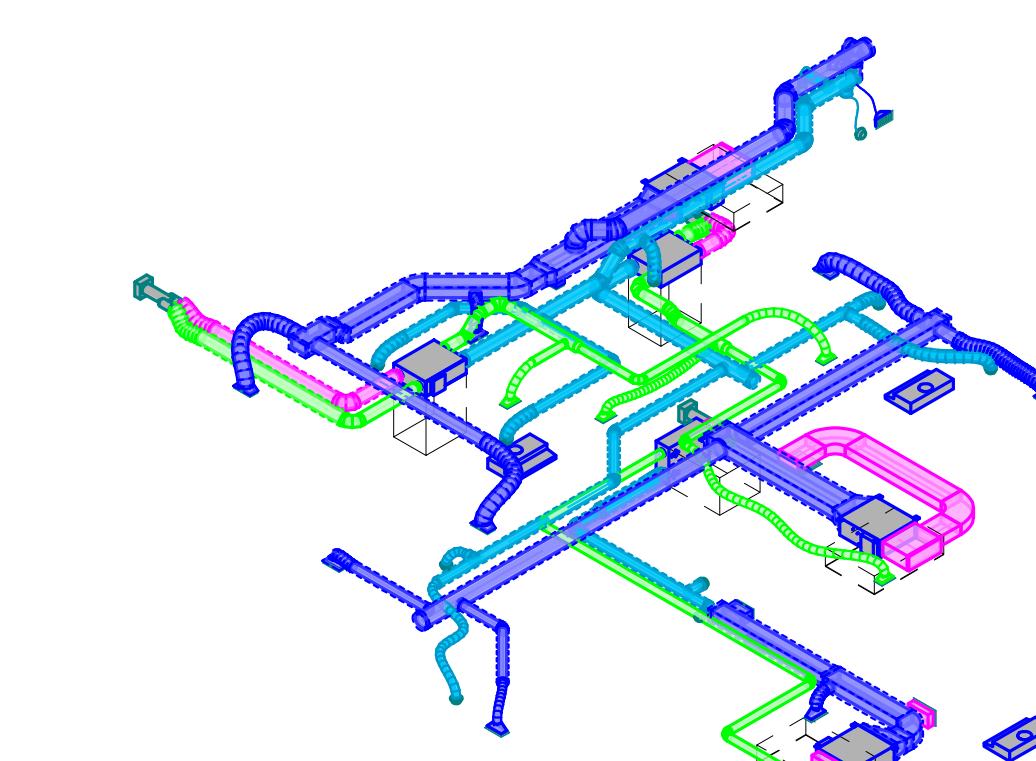
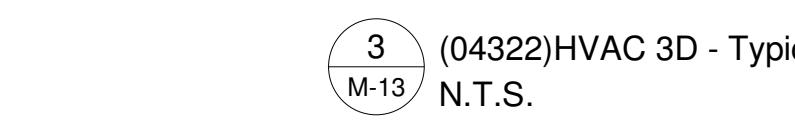
1 (04322) HVAC 3D - Typical Suites Basement  
N.T.S.



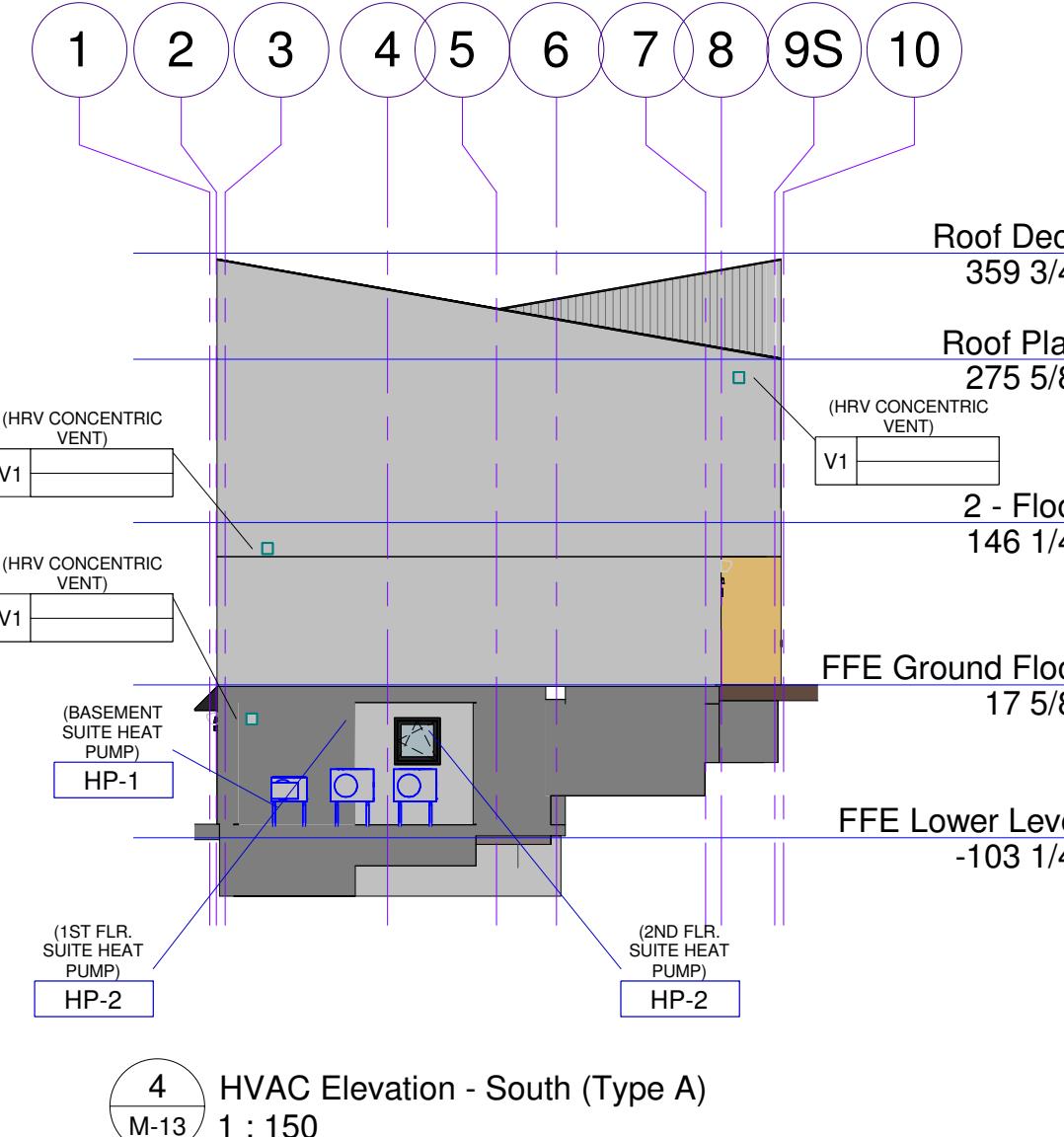
2 (04322) HVAC 3D - Typical Suites Level 1  
N.T.S.



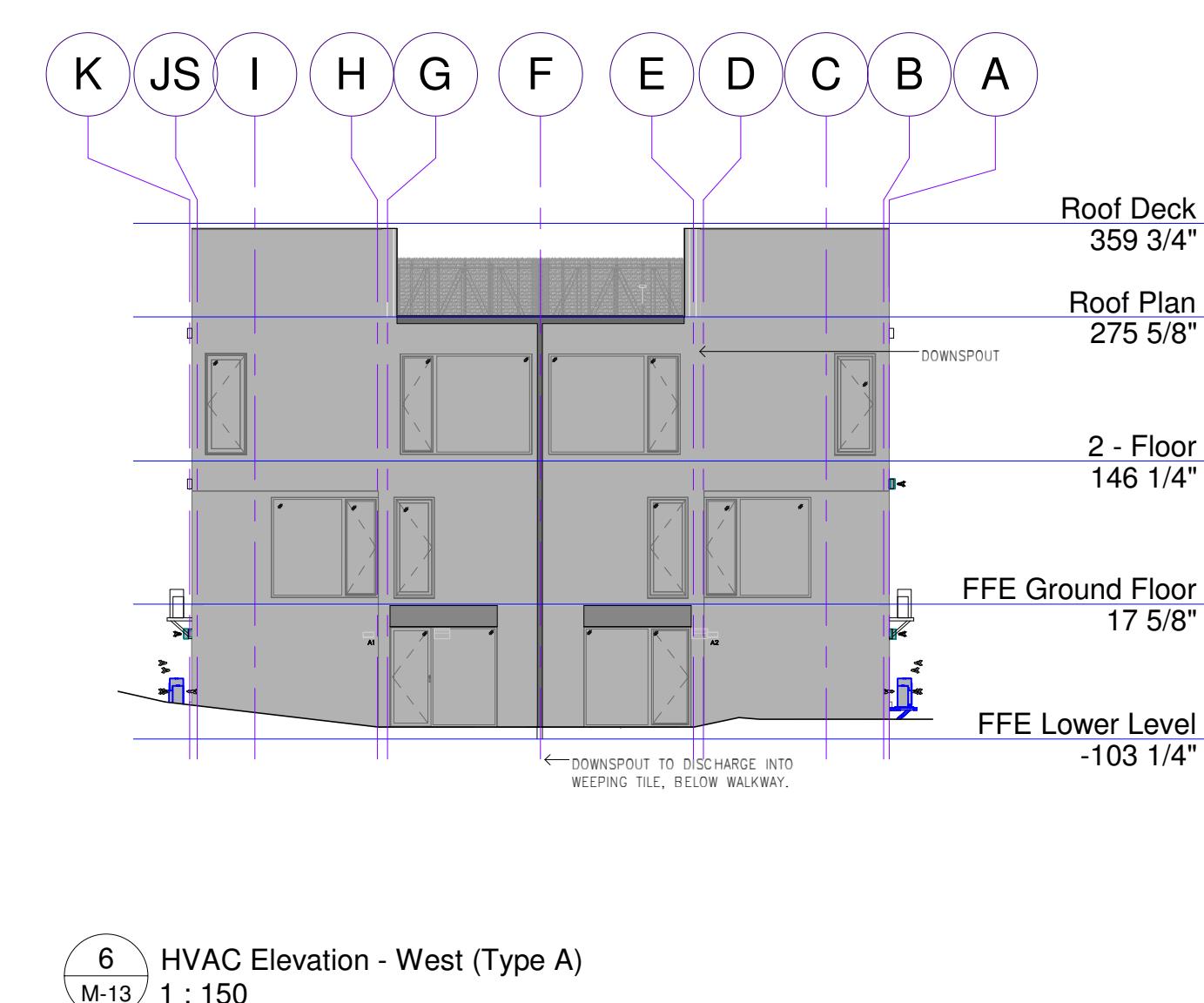
3 (04322) HVAC 3D - Typical Suites Level 2  
N.T.S.



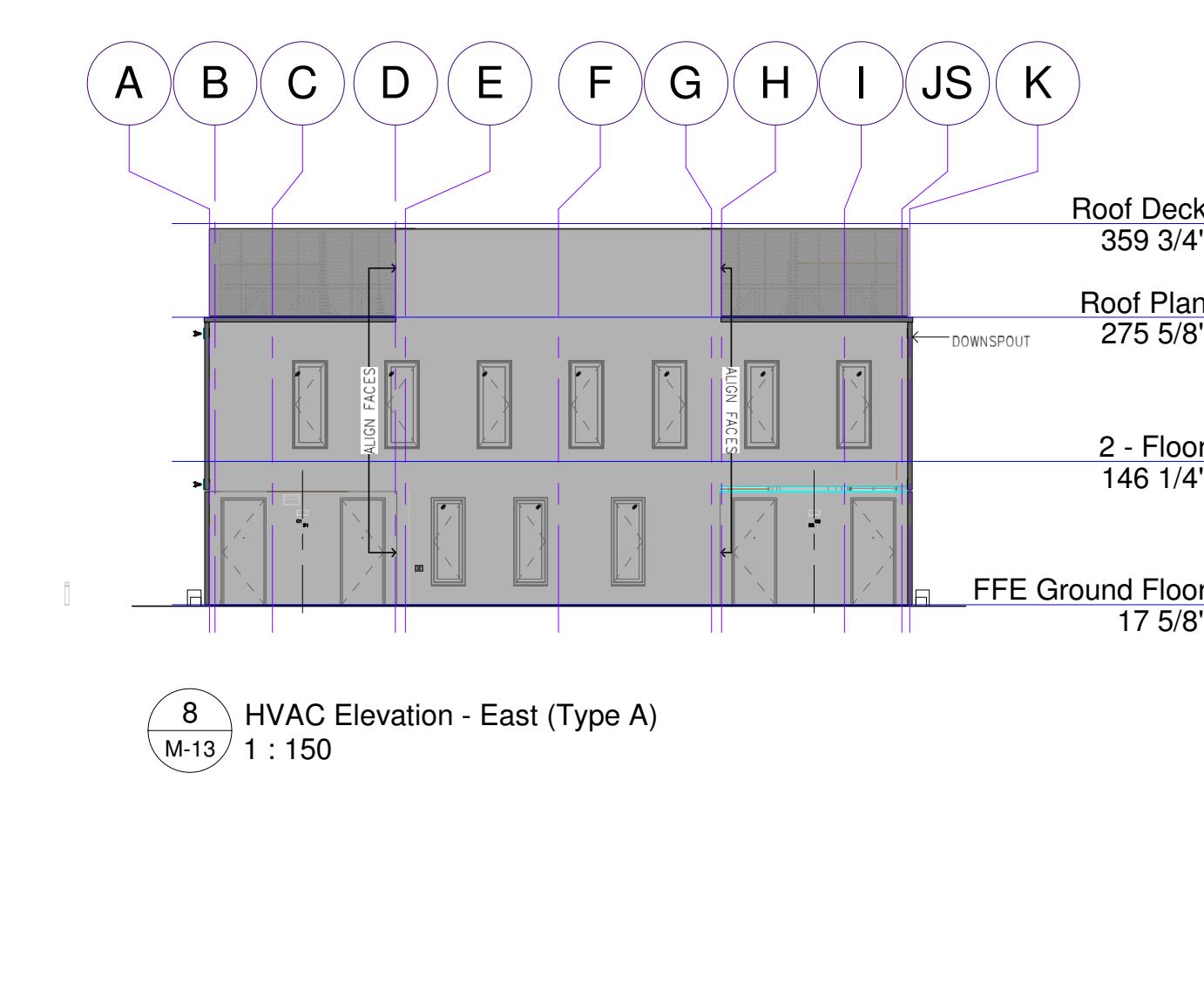
12 (04322) 3D HVAC (Air Side) - Full Building - New  
M-13



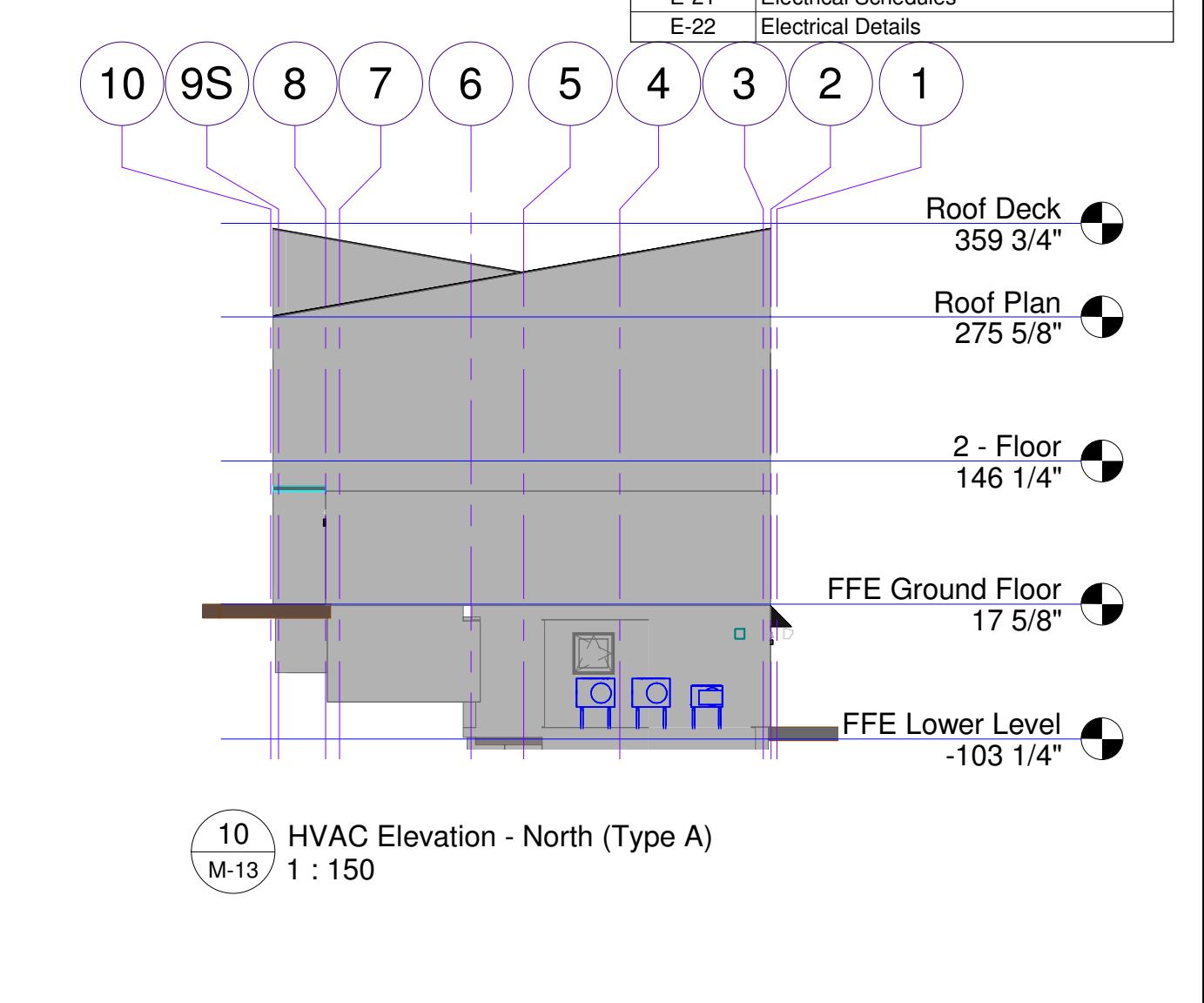
4 HVAC Elevation - South (Type A)  
M-13 1 : 150



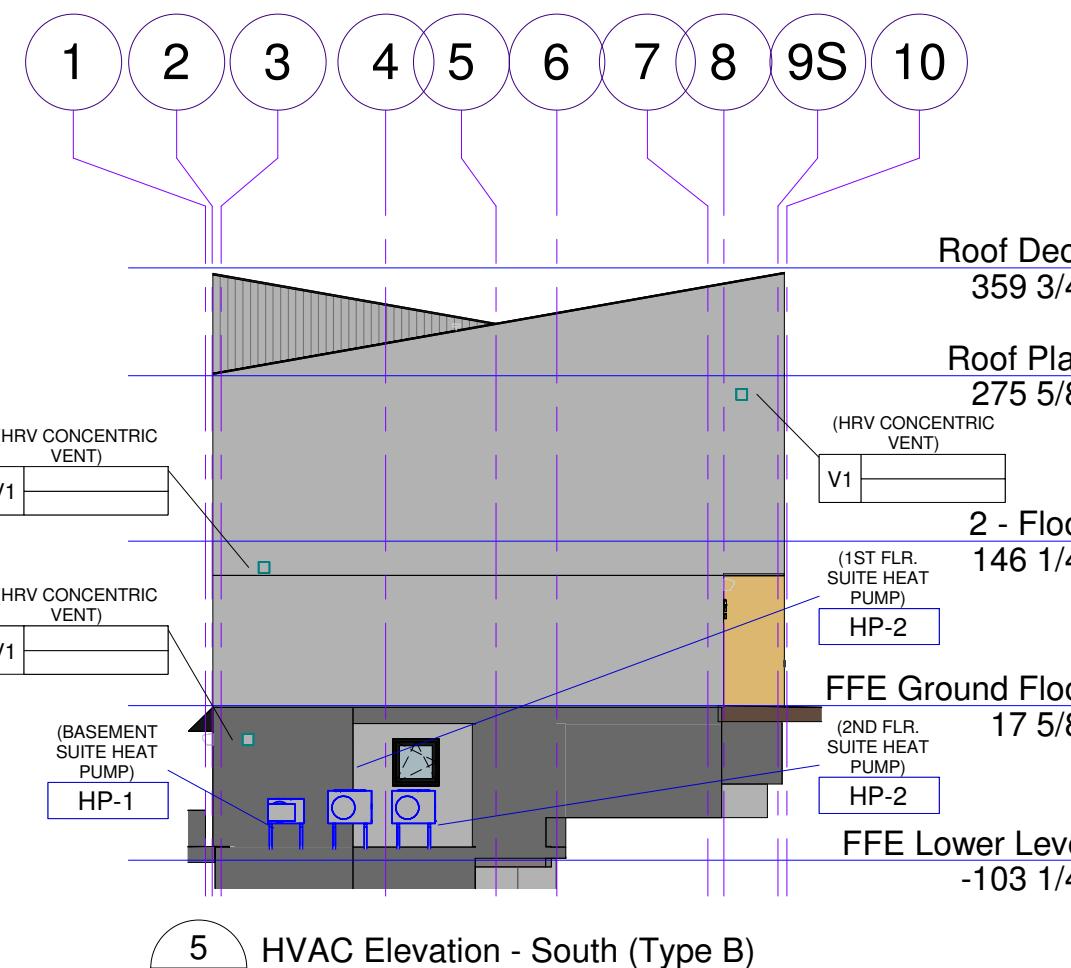
6 HVAC Elevation - West (Type A)  
M-13 1 : 150



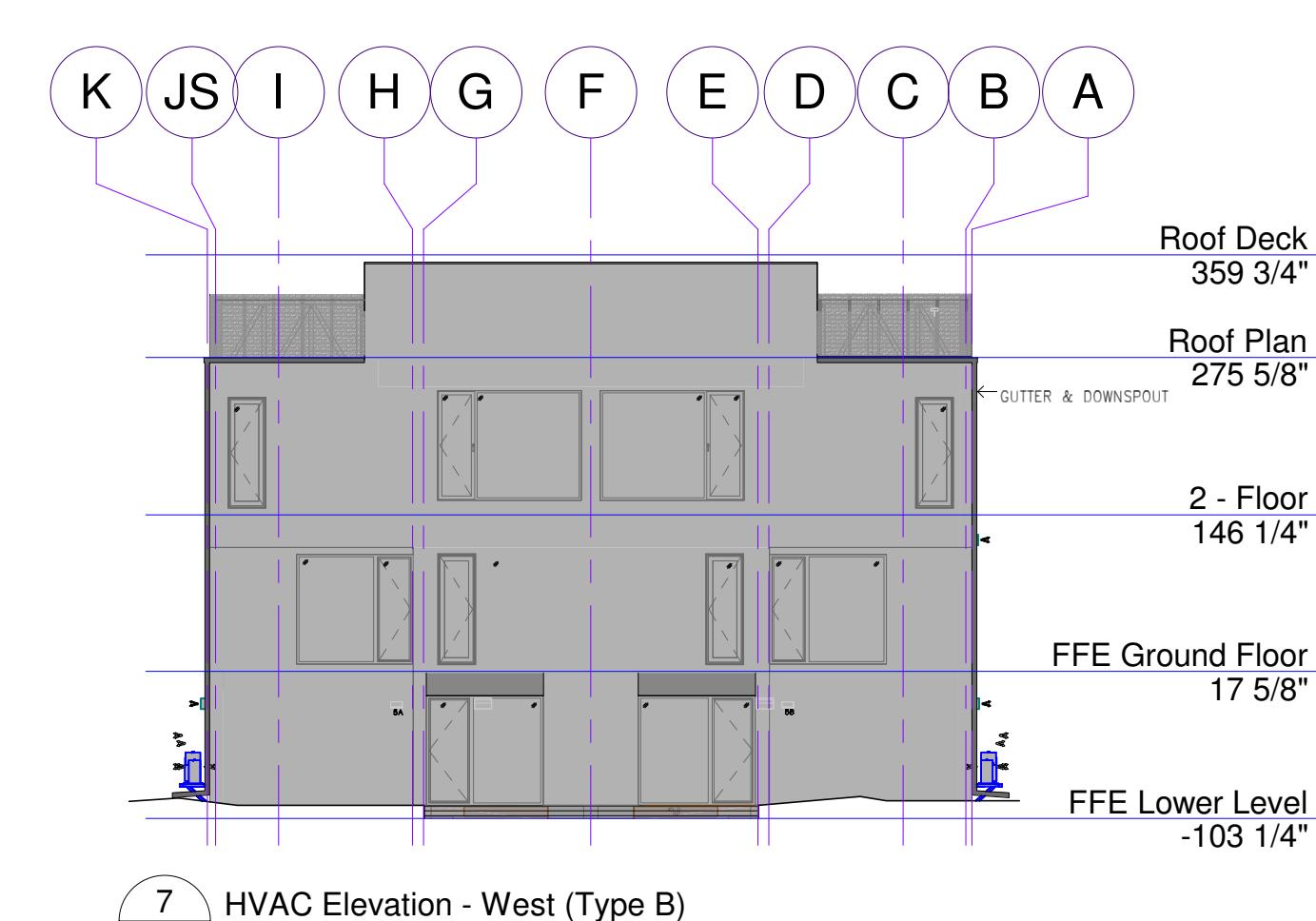
8 (04322) HVAC Elevation - East (Type A)  
M-13 1 : 150



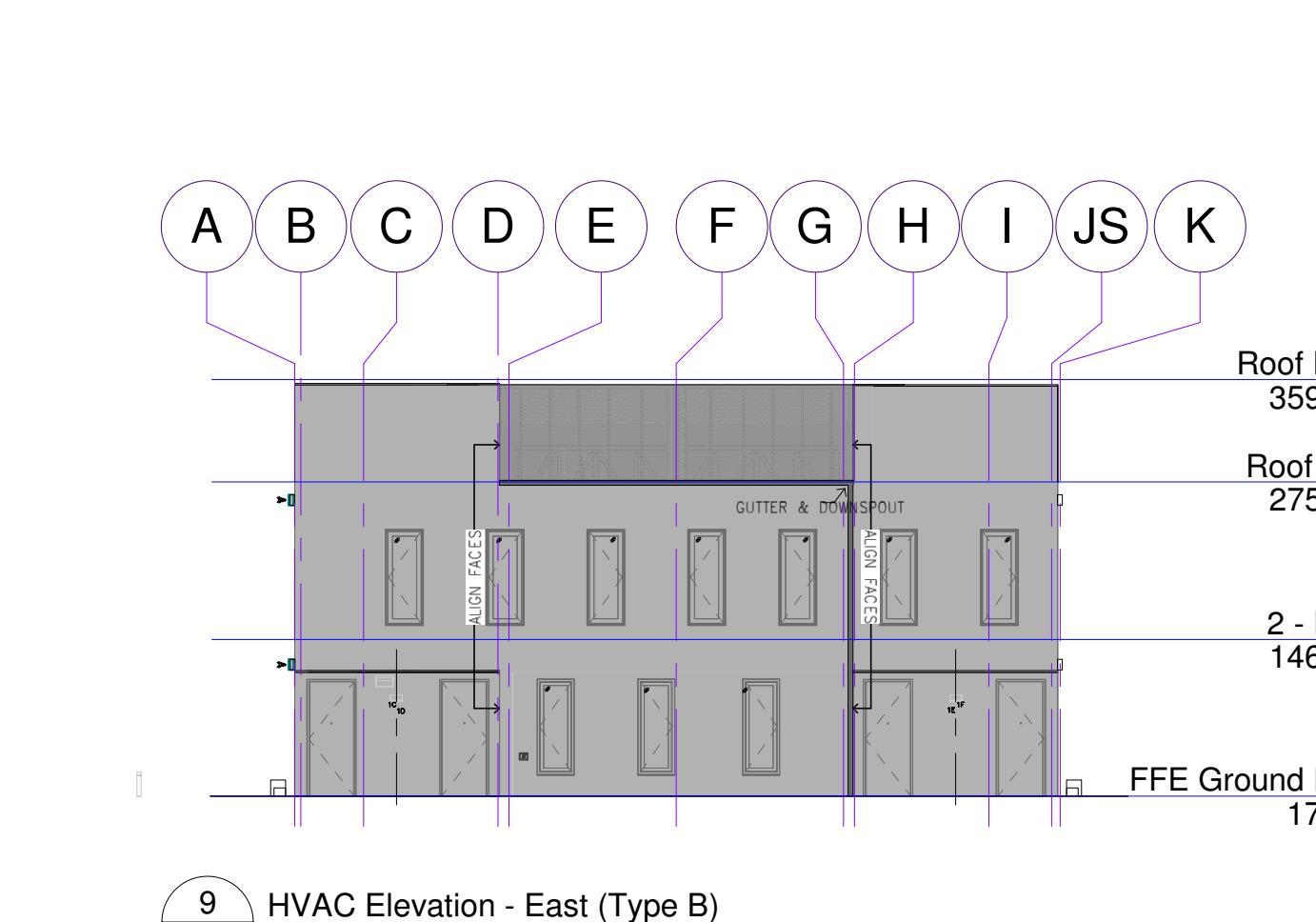
10 (04322) HVAC Elevation - North (Type A)  
M-13 1 : 150



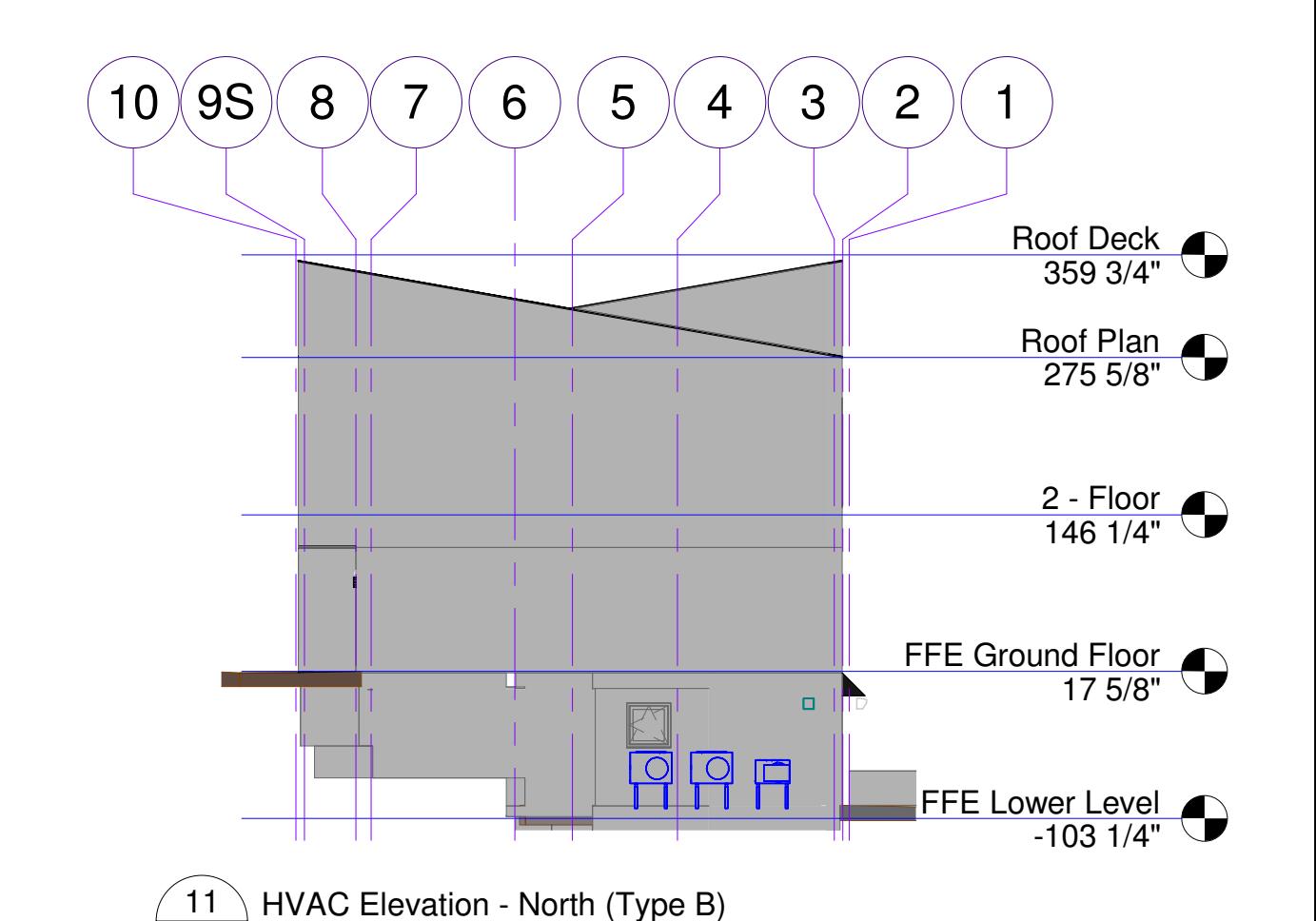
5 HVAC Elevation - South (Type B)  
M-13 1 : 150



7 (04322) HVAC Elevation - West (Type B)  
M-13 1 : 150



9 (04322) HVAC Elevation - East (Type B)  
M-13 1 : 150



11 (04322) HVAC Elevation - North (Type B)  
M-13 1 : 150

(04322) PROJECT DRAWING REGISTER	
Sheet #	Sheet Name
E1/M1/P1	Project Cover
E2/M2/P2	Project Cover
M-3	HVAC - Specifications
M-4	HVAC - Specifications
M-5	HVAC - Scope of Work
M-6	HVAC - Scope of Work
M-7	HVAC - Bldg. 1
M-8	HVAC - Bldg. 2
M-9	HVAC - Bldg. 3
M-10	HVAC - Bldg. 4
M-11	HVAC - Bldg. 5
M-12	HVAC - Bldg. 6
M-13	HVAC - Isometric & Elevation Views
M-14	HVAC Details
P-3	Plumbing - Specifications
P-4	Plumbing - Specifications
P-5	Plumbing - Site Plan
P-6	Plumbing - Bldg. 1
P-7	Plumbing - Bldg. 2
P-8	Plumbing - Bldg. 3
P-9	Plumbing - Bldg. 4
P-10	Plumbing - Bldg. 5
P-11	Plumbing - Bldg. 6
P-12	Plumbing - Typical Building
P-13	Plumbing - Details
P-14	Plumbing - Water Schematic
P-15	Plumbing - Sanitary Schematic
E-3	Elec. Power - Specifications
E-4	Elec. Power - Specifications
E-5	Elec. Power - Scope of Work
E-6	Electrical Site Plan
E-7	Elec. - SLD
E-8	Power/Comm - Bldg. 1
E-9	Elec. Lighting - Bldg 1
E-10	Power/Comm - Bldg. 2
E-11	Elec. Lighting - Bldg 2
E-12	Power/Comm - Bldg. 3
E-13	Elec. Lighting - Bldg 3
E-14	Power/Comm - Bldg. 4
E-15	Elec. Lighting - Bldg 4
E-16	Power/Comm - Bldg. 5
E-17	Elec. Lighting - Bldg 5
E-18	Power/Comm - Bldg. 6
E-19	Elec. Lighting - Bldg 6
E-20	Elec. Typical Building
E-21	Electrical Schedules
E-22	Electrical Details

**NORTHSTAR**  
ENGINEERING & TECHNOLOGIES LTD.  
92 Caplan Ave, Suite #517  
Barrie, Ontario L4N 9J2  
Tel. (705) 719-1003 Fax (705) 719-0490  
dlong@nset.ca www.nset.ca

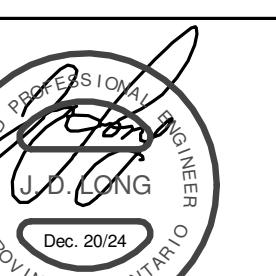
**GENERAL DRAWING / DESIGNER NOTES:**

- [1] ALL CONSTRUCTION METHODS AND MATERIALS TO CONFORM TO THE REQUIREMENT OF THE PROVINCE OF ONTARIO'S BUILDING CODE, LOCAL REGULATIONS AND AUTHORITIES HAVING JURISDICTION.
- [2] THE CONSULTANT RESERVES THE RIGHT TO MAKE REASONABLE CHANGES IN ORDER TO ACCOMMODATE CONDITIONS ARISING DURING CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR ALL CONSTRUCTION COSTS ARISING FROM SUCH CHANGES MAY APPLY AND ARE TO BE NEGOTIATED BETWEEN THE OWNER AND CONTRACTOR.
- [3] DRAWINGS ONLY SHOW GENERAL INTENT AND SCOPE OF WORK. DETAILS ARE PROVIDED AS REFERENCE ONLY. DRAWINGS PROVIDED BY CONTRACTOR(S) DO NOT SCALE DRAWINGS.
- [4] CONTRACTOR/AGENT OWNER TO REPORT ALL DISCOVERIES OF ERRORS, OMISSIONS OR DISCREPANCIES TO THE DESIGNER.
- [5] PROCEED WITH CONSTRUCTION ONLY USING THE LATEST REVISED DRAWINGS MARKED "ISSUED FOR CONSTRUCTION".
- [6] THIS DRAWING IS SPECIFIC TO THIS PROJECT AND CANNOT BE USED FOR OTHER "SIMILAR" PROJECTS.
- [7] THIS DRAWING IS THE PROPERTY OF NORTHSTAR ENGINEERING & TECHNOLOGIES LTD. UN-AUTHORIZED RE-PRODUCTION OR USE IS PROHIBITED.
- [8] **SHOP DRAWINGS:** BASED ON CONTRACT WITH OWNER, THE ENGINEER WILL REVIEW AND APPROVE DWGS FROM THE CONTRACTOR TO REVIEW THE ITEMS FOR GENERAL CONFORMITY TO THE DESIGN DWGS. THE SHOP DWG REVIEW WILL NOT RELEASE THE CONTRACTOR FROM THE RESPONSIBILITY FOR THE COMPLETE WORKING SYSTEM. THESE SHOP DRAWINGS SHALL CONSIST OF PLUMBING FIXTURES, HVAC EQUIPMENT, HVAC DIFFUSERS, MINIMUM 1-2 WEEKS FOR COMPLETION (BASED ON COMPLEXITY).
- [9] THE DESIGNER DOES NOT ACCEPT RESPONSIBILITY FOR OTHER DESIGNER'S WORK IN ASSOCIATION WITH THIS PROJECT.
- [10] REQUESTS FOR ANY FINAL ASSEMBLY THAT VIOLATE APPLICABLE BUILDING CODES IS NOT ACCEPTED BY THE DESIGNER.
- [11] REQUESTS FOR CHANGES OR SUBSTITUTIONS TO EQUIPMENT, PLANS AND / OR SPECIFICATIONS WILL BE SUBJECT TO ADDITIONAL FEES CHARGED BY THE CONSULTANT.
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- [13] MINIMUM FORTY EIGHT (48) HOURS PRIOR NOTICE TO BE PROVIDED FOR SITE VISITS - ONCE ARRANGED.
- [14] REQUESTS FOR THE RELEASE OF THIS DRAWING SET FROM NORTHSTAR ENGINEERING & TECHNOLOGIES LTD. FOR THE PURCHASE OF EQUIPMENT OR SERVICES ACROSS THE CONTRACTOR TO BE MADE BY THE OWNER OR ARCHITECT IN WRITING.
- [15] TENDER PRICING BY CONTRACTORS OF DRAWINGS TO BE BASED ON DWGS MARKED "ISSUED FOR TENDER" OR "ISSUED FOR CONSTRUCTION" ONLY.
- [16] ALL REQUESTS FOR DESIGN CHANGES / SUBSTITUTIONS TO BE MADE IN WRITING. ADDITIONAL FEES MAY APPLY. ALLOW MINIMUM ONE WEEK TO REVIEW AND RESPOND TO CHANGE REQUESTS.

**DRAWING REVISIONS**

No.	Description	Date
2	Issued for Review	Apr. 22/22
3	Preliminary for Review	Sep. 09/22
4	Issued for Permit	Oct. 05/22
6	Re-issued for Tender	Dec. 20/24

Engineer's Seal:



Client:	WW Inc.
Address:	Minden, ON
Project Name:	Gull River Affordable Housing
Dwg. Name:	HVAC - Isometric & Elevation Views
NSET Project #:	04322
Drawn by:	Northstar Eng.
Checked by:	J.D.L.
Scale:	As indicated
Revision #:	6.0
Drawing #:	M-13
Project Date:	Jan. 14/22
Arch-D (24" x 36")	

(04322) PROJECT DRAWING REGISTER

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E-12	Power/Comm - Bldg. 3
E-13	Elec. Lighting - Bldg. 3
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DRAWING REVISIONS

No.	Description	Date
2	Issued for Review	Apr. 22/22
3	Preliminary for Review	Sep. 09/22
4	Issued for Permit	Oct. 05/22
5	Issued for Tender	May 18/23
6	Re-Issued for Tender	Dec. 20/24

Engineer's Seal:

Client: WW Inc.

Address: Minden, ON

Project Name: Gull River Affordable Housing

Dwg. Name: HVAC Details

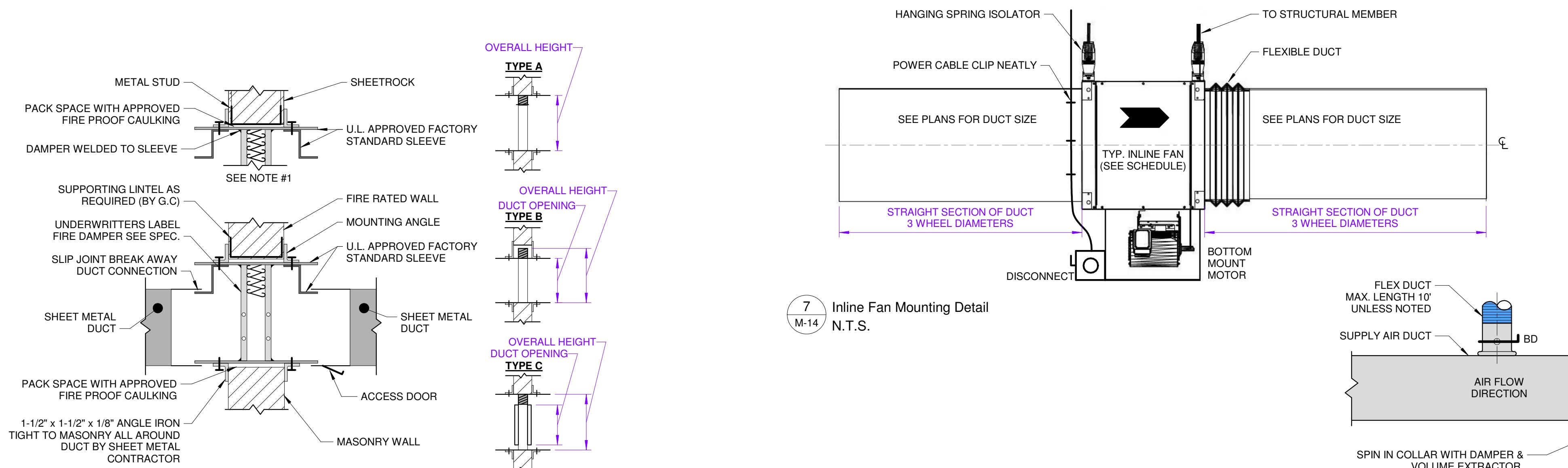
NSET Project #: 04322

Drawn by: Northstar Eng. Checked by: J.D.L.

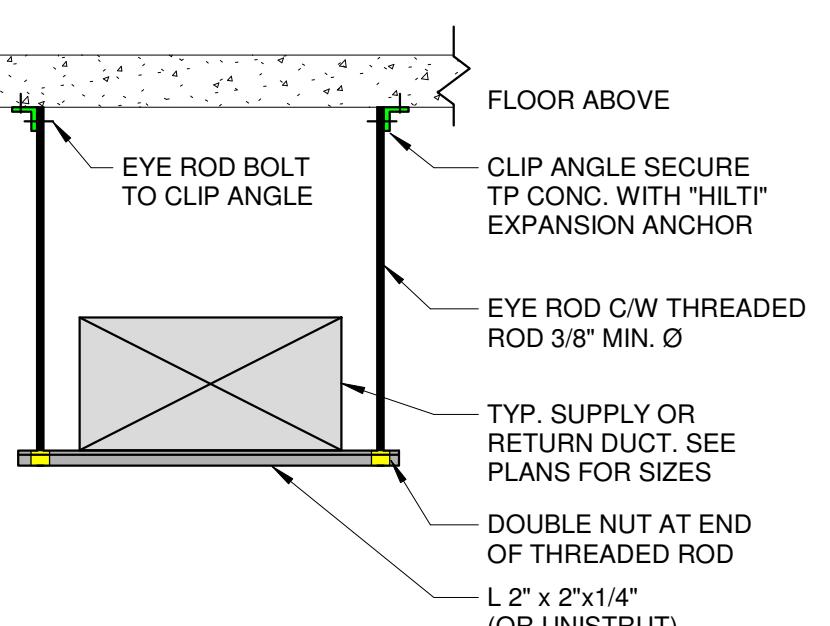
Scale: As indicated Revision #: 6.0

Drawing #: M-14

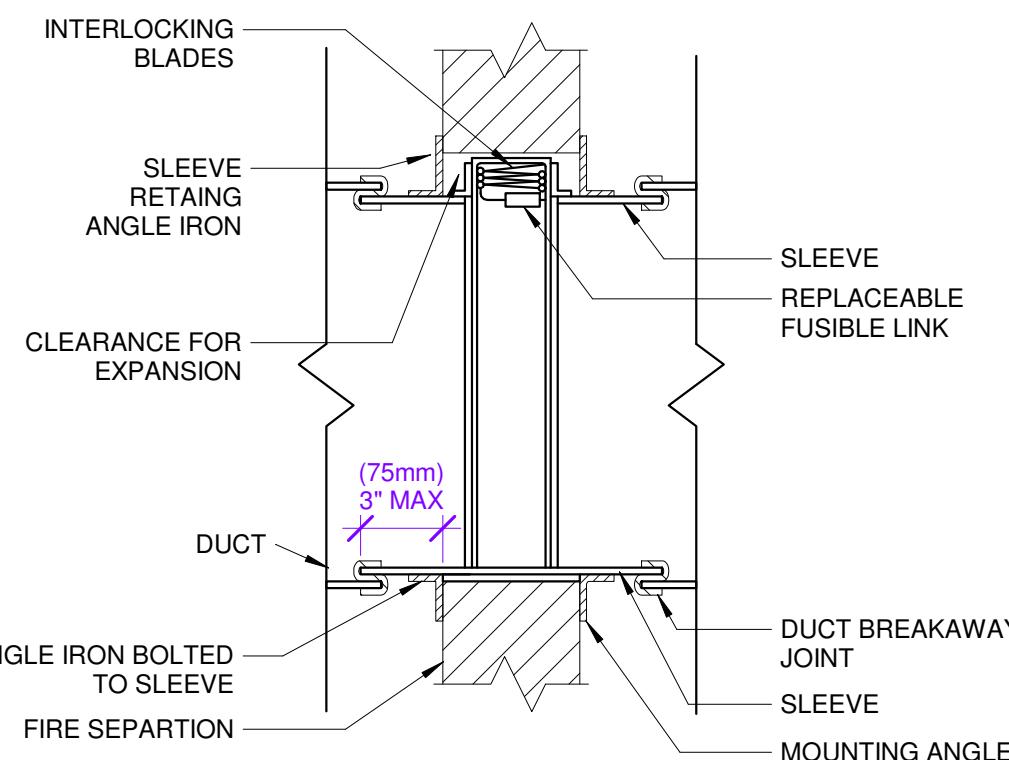
Project Date: Jan. 14/22 Arch-D (24" x 36")



6 Fire Damper / Install  
N.T.S.  
M-14

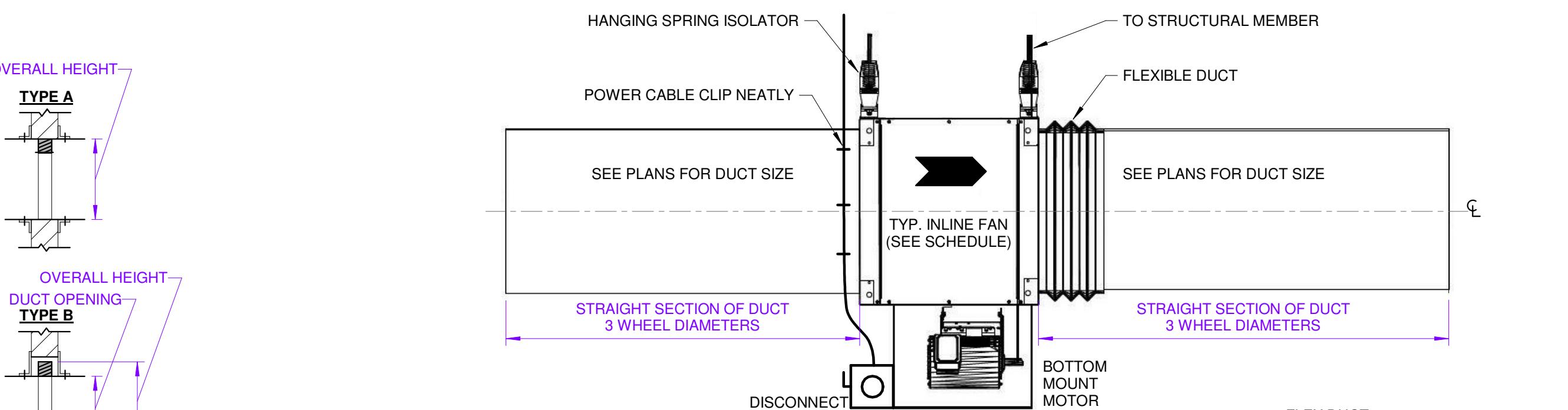
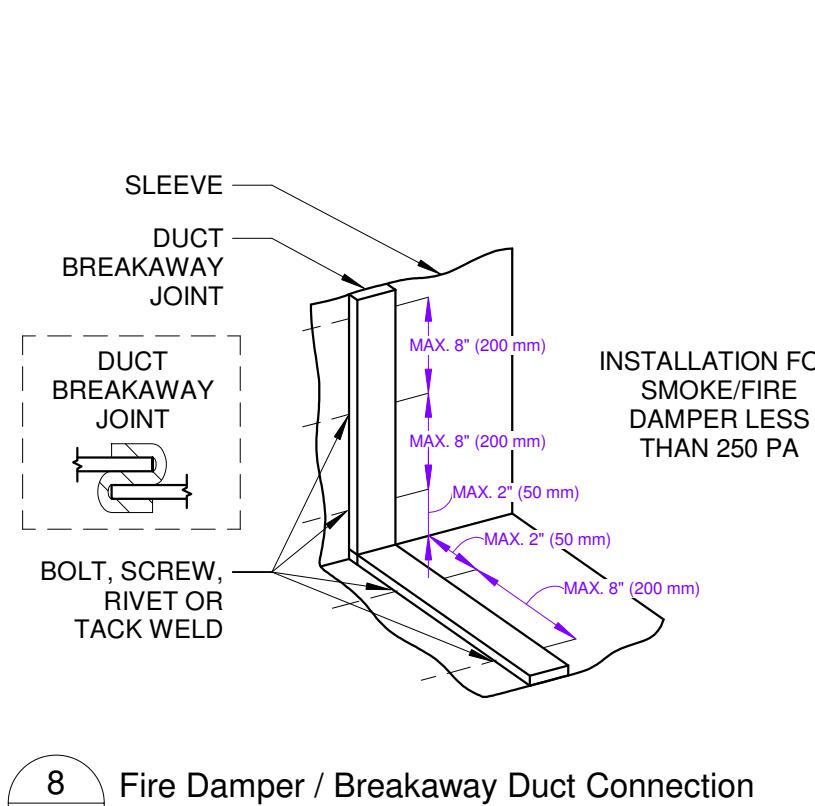


4 Typical Rectangular Duct Support Detail  
N.T.S.  
M-14

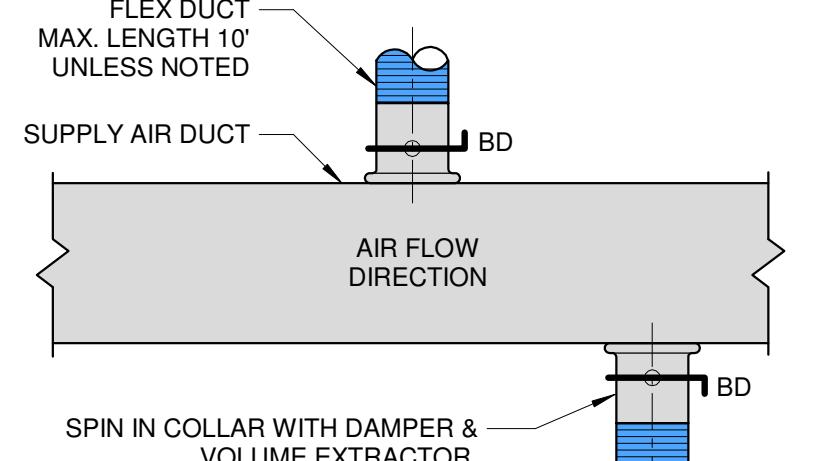


NOTES:  
 INSTALLATION SHALL COMPLY WITH THE MANUFACTURERS  
 INSTALLATION INSTRUCTIONS  
 PROVIDE PROVISIONS TO MANUALLY RE-SET DAMPER  
M-14

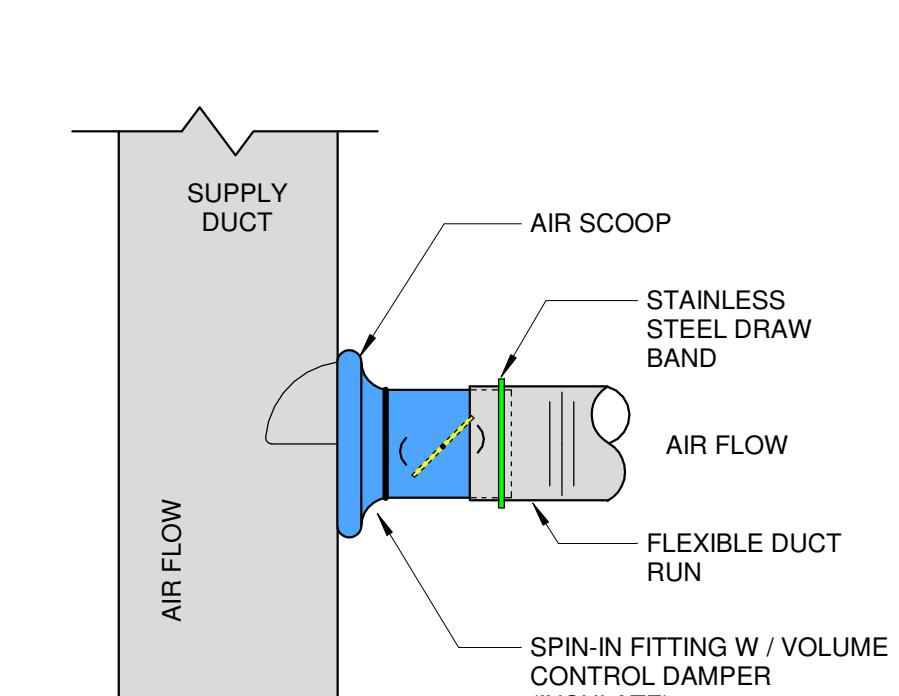
5 Fire Damper Installation  
N.T.S.  
M-14



7 Inline Fan Mounting Detail  
N.T.S.  
M-14



2 Typical Branch Take-off  
N.T.S.  
M-14



3 Typical Flexible Duct Connection  
N.T.S.  
M-14

(04322) Air Terminal Schedule - (New) Supplied by Div. 23 - Quantities per Suite Type						
Suite Type / Area Served	Type Mark	Qty.	Description	Manufacturer	Model	Length
Level 2 Typical Suite	E1	2	GRILLE / EXHAUST / EGG CRATE, ALUM., 1/2" GRID / BORDER 1-1/4" FLAT SURFACE MNT. / WHITE	EH PRICE	80 / F / A / B12	8"
Level 2 Typical Suite	R2	1	GRILLE / RETURN / EGG CRATE / 1/2" GRID / FLAT SURFACE MOUNT / c/w COUNTERSUNK SCREWHOLES / WHITE	EH PRICE	80 / F / A / B12	14"
Level 2 Typical Suite	S1	6	GRILLE / SUPPLY / LOUVERED / DBL. DEF. / c/w DAMPER / SURFACE MNT. / LONG BLADES / COUNTERSUNK SCREWHOLES / WHITE	EH PRICE	520D / F / L / A / B12	10"
Level 2 Typical Suite	S2	5	DIFFUSER / SUPPLY / PLASTIC / ADJ. FLOW / ROUND CONE / WHITE	LIFEBREATH	TECHGRILLE	6"
Level 2 Typical Suite	V1	1	HRV CONCENTRIC VENT / c/w WALL CAP / 6"	TANDEM TRANSITION	14690	4"
Level 2 Typical Suite: 15		15				
Level 1 Typical Suite	E1	2	GRILLE / EXHAUST / EGG CRATE, ALUM., 1/2" GRID / BORDER 1-1/4" FLAT SURFACE MNT. / WHITE	EH PRICE	80 / F / A / B12	8"
Level 1 Typical Suite	R2	1	GRILLE / RETURN / EGG CRATE / 1/2" GRID / FLAT SURFACE MOUNT / c/w COUNTERSUNK SCREWHOLES / WHITE	EH PRICE	80 / F / A / B12	14"
Level 1 Typical Suite	S1	4	GRILLE / SUPPLY / LOUVERED / DBL. DEF. / c/w DAMPER / SURFACE MNT. / LONG BLADES / COUNTERSUNK SCREWHOLES / WHITE	EH PRICE	520D / F / L / A / B12	10"
Level 1 Typical Suite	S2	4	DIFFUSER / SUPPLY / PLASTIC / ADJ. FLOW / ROUND CONE / WHITE	LIFEBREATH	TECHGRILLE	6"
Level 1 Typical Suite	V1	1	HRV CONCENTRIC VENT / c/w WALL CAP / 6"	TANDEM TRANSITION	14690	4"
Level 1 Typical Suite: 12		12				
Laundry/Service Area	E1	1	GRILLE / EXHAUST / EGG CRATE, ALUM., 1/2" GRID / BORDER 1-1/4" FLAT SURFACE MNT. / WHITE	EH PRICE	80 / F / A / B12	8"
Laundry/Service Area	L1	1	LOUVER / INTAKE / 39" BLADE / DRAINABLE BLADE	EH PRICE	DE439	48"
Laundry/Service Area	L2	1	WALL BOX / TRIPLE / 6" DEEP / c/w EXTRUDED ALUMINUM GRILLE	REVERSOMATIC	TWB-8 (ALUM. GRILLE)	25"
Laundry/Service Area	L3	1	WALL BOX / 6" DEEP / c/w EXTRUDED ALUMINUM GRILLE	REVERSOMATIC	SWB-8 (ALUM. GRILLE)	8"
Laundry/Service Area	S2	2	DIFFUSER / SUPPLY / PLASTIC / ADJ. FLOW / ROUND CONE / WHITE	LIFEBREATH	TECHGRILLE	6"
Laundry/Service Area	S3	1	GRILLE / SUPPLY / LOUVERED / DBL. DEF. / SURFACE MNT. / LONG BLADES / COUNTERSUNK SCREWHOLES / WHITE	EH PRICE	520 / F / L / A / B12	16"
Laundry/Service Area	V1	1	HRV CONCENTRIC VENT / c/w WALL CAP / 6"	TANDEM TRANSITION	14690	12"
Laundry/Service Area: 8		8				
Basement Typical Suite	E1	1	GRILLE / EXHAUST / EGG CRATE, ALUM., 1/2" GRID / BORDER 1-1/4" FLAT SURFACE MNT. / WHITE	EH PRICE	80 / F / A / B12	8"
Basement Typical Suite	R1	1	GRILLE / RETURN / EGG CRATE / 1/2" GRID / FLAT SURFACE MOUNT / c/w COUNTERSUNK SCREWHOLES / WHITE	EH PRICE	80 / F / A / B12	14"
Basement Typical Suite	S1	3	GRILLE / SUPPLY / LOUVERED / DBL. DEF. / c/w DAMPER / SURFACE MNT. / LONG BLADES / COUNTERSUNK SCREWHOLES / WHITE	EH PRICE	520D / F / L / A / B12	10"
Basement Typical Suite	S2	2	DIFFUSER / SUPPLY / PLASTIC / ADJ. FLOW / ROUND CONE / WHITE	LIFEBREATH	TECHGRILLE	6"
Basement Typical Suite	V1	1	HRV CONCENTRIC VENT / c/w WALL CAP / 6"	TANDEM TRANSITION	14690	4"
Basement Typical Suite: 8		8				

(MASTER-M) Mechanical Equipment Schedule - (New) - Quantities per Suite Type

Suite Type / Area Served	Type Mark	Description	Manufacturer	Model #	Qty.	Heating Capacity (Input)	Cooling Capacity	Air Flow	E.S.P.	Voltage	Phase	Hz.	MCA	VA	Weight	Supplied By
Level 2 Typical Suite	DH-1	DUCT HEATER / 1kW / 24V SCR MODULATING CONTROLS / 6" ROUND DUCT	THERMOLEC	TER-6-1												

## 22.00 COMMON WORK RESULTS FOR PLUMBING

### 22.00 - 1.0 PLUMBING INSTALLATION

1. SUPPLY & INSTALL COMPLETE PLUMBING SYSTEMS INCLUDING ALL NECESSARY LABOUR, SERVICES, PRODUCTS, MATERIALS & EQUIPMENT.
2. CONSTRUCTION & INSTALLATION METHODS SHALL COMPLY WITH THE CURRENT EDITION OF THE APPLICABLE BUILDING CODE, THE REGIONAL MUNICIPALITY & LOCAL BUILDING & FIRE DEPARTMENT BY-LAWS. ALL TRADES SHALL ALSO COMPLY WITH OTHER CODES, STANDARDS & REGULATIONS REFERRED TO IN THE DRAWINGS. MANUFACTURER'S INSTALLATION MANUALS & DOCUMENTS AND ADOPTED BY THE AUTHORITIES HAVING JURISDICTION.
3. THE SCOPE OF WORK IS AS DESCRIBED HEREIN & SHOWN ON THE DRAWINGS.

### 22.00 - 2.0 DRAWINGS & SPECIFICATIONS

1. DRAWINGS ARE DIAGRAMMATIC & SHOW APPROXIMATE LOCATIONS OF EQUIPMENT / FIXTURES & CONNECTING SERVICES. ANY INFORMATION REGARDING ACCURATE MEASUREMENT OF THE BUILDING ARE TO BE TAKEN AT THE SITE. DO NOT SCALE THE DRAWINGS, & DO NOT USE THE DRAWINGS FOR PREFABRICATION WORK.
2. READ THE PLUMBING DRAWINGS IN CONJUNCTION WITH ALL OTHER STRUCTURAL, ARCHITECTURAL, SITE CIVIL, LANDSCAPE, SPRINKLER, MECHANICAL, ELECTRICAL ETC. DRAWINGS. PROPERLY PLAN, COORDINATE, & ESTABLISH THE LOCATIONS & ROUTING OF SERVICES WITH ALL SUBCONTRACTORS AFFECTED PRIOR TO INSTALLATION SUCH THAT THE SERVICES WILL CLEAR EACH OTHER AS WELL AS ANY OBSTRUCTIONS, INCLUDING STRUCTURAL COMPONENTS OF THE BUILDING.
3. THE DRAWINGS ARE INTENDED TO CONVEY THE SCOPE OF WORK & DO NOT SHOW ARCHITECTURAL & STRUCTURAL DETAILS. PLUMBING CONTRACTOR SHALL PROVIDE, AT PLUMBING CONTRACTOR'S COST, ALL OFFSETS, FITTINGS, & SIMILAR PRODUCTS REQUIRED AS A RESULT OF OBSTRUCTIONS & OTHER ARCHITECTURAL & STRUCTURAL DETAILS BUT NOT SHOWN ON THE DRAWINGS.
4. THE DRAWINGS & SPECIFICATIONS ARE COMPLEMENTARY & INTENDED TO BE COOPERATIVE. PERFORM ALL WORK THAT IS SHOWN, SPECIFIED, OR REASONABLY IMPLIED ON THE DRAWINGS BUT NOT MENTIONED IN THE SPECIFICATION, OR VICE-VERSA, AS THOUGH FULLY COVERED BY BOTH.
5. SHOULD ANY DISCREPANCY APPEAR BETWEEN THE DRAWINGS & SPECIFICATIONS WHICH LEAVES THE PLUMBING CONTRACTOR IN DOUBT AS TO THE TRUE INTENT & MEANING OF THE PLANS & SPECIFICATIONS, A RULING SHALL BE OBTAINED FROM THE ENGINEER. IF THIS IS NOT DONE, IT WILL BE ASSUMED THAT THE MOST EXPENSIVE ALTERNATE HAS BEEN ALLOWED FOR.

### 22.00 - 3.0 PERMITS, FEES, & CERTIFICATES

1. CONTRACTOR TO OBTAIN ALL PERMITS REQUIRED, ARRANGE FOR INSPECTION OF THE WORK BY INSPECTION AUTHORITY & PAY ALL FEES PROVIDED FINAL CERTIFICATE TO THE OWNER.

### 22.00 - 4.0 EXAMINATION OF THE SITE

1. PRIOR TO SUBMITTING THEIR TENDER, THE PLUMBING CONTRACTOR SHALL CAREFULLY EXAMINE THE SITE & ASCERTAIN ALL CONDITIONS, WHICH SHALL AFFECT HIS TRADE. REPORT TO THE CONSULTANT, PRIOR TO BID SUBMITTAL, ANY EXISTING SITE CONDITION THAT WILL OR MAY AFFECT PERFORMANCE OF THE WORK AS PER THE DRAWINGS & SPECIFICATIONS. FAILURE TO DO SO WILL NOT BE GROUNDS FOR ADDITIONAL COSTS.

### 22.00 - 5.0 STANDARD OF MATERIAL & WORKMANSHIP

1. ALL MATERIALS & EQUIPMENT / FIXTURES SHALL BE NEW, CSA APPROVED, BEAR CSA STAMP & BE OF THE BEST COMMERCIAL QUALITY OBTAINABLE FOR THE PURPOSE.
2. ALL WORK SHALL BE EXECUTED IN A NEAT & WORKMANLIKE MANNER BY JOURNEYMAN TRADESMEN WHO PERFORM ONLY THE WORK THAT THEIR CERTIFICATES PERMIT, OR BY APPRENTICE TRADESMEN UNDER DIRECITON ON SITE SUPERVISION OF AN EXPERIENCED JOURNEYMAN TRADESMAN.
3. WORKMANSHIP SHALL BE OF THE HIGHEST STANDARDS THROUGHOUT & SHALL BE MINIMUM OF THE CURRENT TRADE PRACTICES FOR PLUMBING INSTALLATIONS IN THIS BUILDING.
4. UNLESS OTHERWISE SPECIFIED ALL EQUIPMENT / FIXTURES TO BE INSTALLED IN ACCORDANCE WITH THE EQUIPMENT MANUFACTURER'S RECOMMENDATIONS & INSTRUCTIONS, & REQUIREMENTS OF GOVERNING CODES, STANDARDS, & REGULATIONS, GOVERNING CODES, STANDARDS, & REGULATIONS TAKE PRECEDENCE OVER MANUFACTURER'S INSTRUCTIONS.
5. ENSURE THAT PROPER ACCESS & SERVICE CLEARANCES ARE MAINTAINED AROUND EQUIPMENT & WHERE APPLICABLE, ACCESS SPACE FOR FUTURE EQUIPMENT REMOVAL OR REPLACEMENT IS NOT IMPOSED. REMOVE & REPLACE ANY EQUIPMENT WHICH DOES NOT MEET THIS REQUIREMENT.
6. THE PLUMBING CONTRACTOR SHALL BE RESPONSIBLE FOR CORRECTING ALL WORK COMPLETED CONTRARY TO THE INTENT OF THE DRAWINGS & SPECIFICATIONS. PLUMBING CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE CAUSED TO THE OWNER OR ANY OF THE OTHER TRADES BY IMPROPER LOCATION OR CARRYING OUT OF HIS WORK.
7. PROVIDE A CERTIFICATE OF GUARANTEE OF WORKMANSHIP & MATERIAL FOR ONE YEAR FROM DATE OF ACCEPTANCE.

### 22.00 - 6.0 COORDINATION OF THE WORK

1. REVIEW ALL THE CONTRACT DOCUMENTS & COORDINATE THE WORK WITH THE WORK OF ALL OTHER TRADES.
2. PROPERLY PLAN, COORDINATE, & ESTABLISH THE LOCATIONS & ROUTING OF SERVICES WITH ALL SUBCONTRACTORS AFFECTED PRIOR TO INSTALLATION SUCH THAT THE SERVICES WILL CLEAR EACH OTHER AS WELL AS ANY OBSTRUCTIONS, INCLUDING STRUCTURAL COMPONENTS OF THE BUILDING.
3. COORDINATE THE LOCATIONS OF THE PLUMBING FIXTURES WITH THE ARCHITECTURAL, MILLWORK & BUILDING INTERIOR DRAWINGS. THE CONTRACTOR SHALL REVIEW THE ARCHITECTURAL DRAWINGS SECTIONS & ELEVATIONS FOR LOCATIONS PRIOR TO ROUGH-IN. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER OF ANY DISCREPANCIES.

### 22.00 - 7.0 PENETRATIONS

1. ANY OR ALL CUTTING, CORING & PATCHING SHALL BE VERIFIED WITH THE OWNER PRIOR TO PERFORMING WORK. PAYMENT FOR SUCH SERVICES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. ANY PENETRATION OF STRUCTURAL MEMBERS, FLOORS OR CEILINGS TO BE APPROVED IN WRITING BY THE STRUCTURAL ENGINEER OF RECORD.
2. THIS DIVISION SHALL PREPARE SLEEVING DRAWINGS INDICATING THE SIZE & LOCATIONS OF OPENINGS REQUIRED IN CONCRETE FLOOR SLABS, ROOF SLABS/DECKS & WALLS FOR REVIEW BY THE STRUCTURAL ENGINEER & ARCHITECT.

4. CONTRACTORS SHALL NOTIFY THE OWNER OR GENERAL CONTRACTOR (& OTHER CONTRACTORS WHO ARE INVOLVED) OF ALL OPENINGS, FOUNDATION WORK, HANGERS, INSERTS, ANCHORS, OR OTHER PROVISIONS NECESSARY IN THEIR WORK FOR THE INSTALLATION OF HIS WORK, & SHALL FURNISH ALL INFORMATION & NECESSARY MATERIALS IN AMPLE TIME SO THAT PROPER PROVISIONS CAN BE MADE FOR SAME, & SHALL SUPPLY & CORRECTLY, ACCURATELY PLACE ALL INSERTS, SLEEVES, ANCHORS, ETC.
5. FAILURE TO COMPLY WITH THESE REQUIREMENTS ON THE PART OF THIS CONTRACTOR WILL RENDER HIM RESPONSIBLE FOR THE COST OF CUTTING OPENINGS, INSTALLING HANGERS & OTHER PROVISIONS AT A LATER DATE, & THE SUBSEQUENT PATCHING, ETC., THEREBY REQUIRED.
6. NO CUTTING SHALL BE DONE WITHOUT PERMISSION. ALL SUCH WORK SHALL BE DONE BY TRADESMEN SKILLED IN & CERTIFIED FOR THIS PARTICULAR TRADE.
7. ALL PENETRATIONS TO BE APPROVED BY THE ARCHITECT OR LANDLORD IN WRITING.

### 22.05 - 8.0 ACCESS DOORS

1. SUPPLY ACCESS DOORS TO GIVE ACCESS TO ALL PLUMBING WORK WHICH MAY NEED MAINTENANCE, REPAIR OR SHUT OFF VALVES, CLEANOUTS LOCATIONS BUT WHICH IS CONCEALED IN INACCESSIBLE CONSTRUCTION, EXCEPT AS OTHERWISE SPECIFIED HEREIN OR ON THE DRAWINGS.

### 22.05 - 9.0 FIRE STOPPING

1. WHERE PLUMBING WORK PENETRATES FIRE RATED CONSTRUCTION, PROVIDE ULC LISTED & LABELED FIRESTOPPING & SMOKE SEAL MATERIALS INSTALLED IN ACCORDANCE WITH REQUIREMENTS OF CAN-S115 (RATINGS F, FT, FH, AND FTH AS REQUIRED), CAN/ULC-S101, & ALL OTHER GOVERNING AUTHORITIES TO SEAL THE PENETRATIONS.

### 22.05 - 10.0 MOUNTING HEIGHTS

1. IF MOUNTING HEIGHT OF PLUMBING FIXTURES ARE NOT SPECIFIED OR INDICATED, VERIFY BEFORE PROVING WITH INSTALLATION.

2. FOR BARRIER-FREE MOUNTING HEIGHTS FOR FIXTURES, CONFORM TO REQUIREMENTS OF THE GOVERNING CODE OR REGULATION.

3. COORDINATE & CONFIRM THE MOUNTING HEIGHTS WITH THE ARCHITECT PRIOR TO ROUGH-IN.

4. INSTALL PLUMBING FIXTURES AT FOLLOWING HEIGHTS UNLESS INDICATED OTHERWISE:

- LAVATORY - WALL HUNG - BARRIER FREE: 33" (840 MM) FROM FINISHED FLOOR TO FRONT RIM OF BASIN

- LAVATORY - WALL HUNG - STANDARD: 31" (787 MM) TO 33" (840 MM) FROM FINISHED FLOOR TO FRONT RIM OF BASIN

- URINAL - WALL HUNG - BARRIER FREE: MAX. 17" (430 MM) FROM FINISHED FLOOR TO FRONT RIM OF BASIN, 19-3/8" (1000 MM) TO CENTER OF BASIN

- URINAL - WALL HUNG - STANDARD: MAX. 24" (610 MM) FROM FINISHED FLOOR TO FRONT RIM OF BASIN

- SHOWER CONTROL - BARRIER FREE: 42" (1067 MM) FROM FINISHED FLOOR TO CENTER OF VALVE

- SHOWER CONTROL - STANDARD: 42" (1067 MM) FROM FINISHED FLOOR TO CENTER OF VALVE

- DRAINKING FAUCET - BARRIER FREE: 30" (762 MM) FROM FINISHED FLOOR TO OFFICE

- DRAINKING FAUCET - STANDARD: 33" (838 MM) FROM FINISHED FLOOR TO OFFICE

- EMERGENCY EYEWASH STATION: WATER FLOW PATTERN IS POSITIONED BETWEEN 33" (838 MM) & 53" (1346 MM) FROM FINISHED FLOOR

- HOSE BIB: 36" (914 MM) TO 42" (1066 MM) FROM FINISHED FLOOR/ GRADE

### 22.05 - 11.0 CHANGES OR REVISIONS & EXTRAS

1. NO ADDITIONAL MONEY OVER THE CONTRACT PRICE SHALL BE PAID UNLESS AN APPROVED CHANGE ORDER IS ISSUED BY THE ENGINEER.

2. CLAIMS FOR EXTRAS SHALL BE SUBMITTED WITH A COMPLETE BREAKDOWN OF MATERIAL, LABOUR, HOURLY RATES, ETC.

3. THERE SHALL BE NO EXTRA CLAIM FOR RELOCATION OF ANY EQUIPMENT / FIXTURES WITHIN 10 FEET FROM ORIGINAL LOCATION.

4. WHENEVER THE CONSULTANT PROPOSES IN WRITING TO MAKE A CHANGE OR REVISION TO THE DESIGN ARRANGEMENT, QUANTITY OR TYPE OF ANY WORK FROM THAT REQUIRED BY THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL SUBMIT A QUOTATION BEING THE ELECTRICAL CONTRACTOR'S PROPOSED COST FOR EXECUTING THE CHANGE OR REVISION.

5. RELOCATING ANY MECHANICAL EQUIPMENT LESS THAN 10 FEET IS NOT TO BE CONSIDERED AN EXTRA IN THE PROJECT.

6. CONTRACTOR TO PROVIDE PRICING ON ALL NORTHLSTAR ISSUED OFFICIAL CHANGE ORDERS IN THE FORMAT REQUESTED BASED ON THE SPECIFIC ITEM NUMBERS LISTED ON THE NORTHLSTAR CHANGE REQUEST DOCUMENT. ONE PRICE FOR EACH ITEM LISTED. PRICING TO INCLUDE ALL LABOUR AND MATERIALS REQUIRED FOR THE SCOPE REQUESTED. NORTHLSTAR WILL NOT NECESSARILY APPROVE PRICING BASED UPON INDUSTRY PRICE GUIDES SUCH AS "ALL-IN" OR "PER LINEAR FOOT". PRICING SHALL BE REVIEWED BASED ON MARKET CONDITIONS. CONTRACTOR TO PROVIDE CHANGE ORDER PRICING IN A TIMELY MANNER FOR NORTHLSTAR'S REVIEW. NO WORK SHALL PROCEED UNTIL OFFICIAL WRITTEN ACCEPTANCE IS ISSUED BY NORTHLSTAR.

### 22.05 - 12.0 SHOP DRAWINGS:

1. BASED ON CONTRACT WITH OWNER, THE ENGINEER WILL REVIEW SHOP SUBMISSION DWGS FROM THE CONTRACTOR TO REVIEW THE ITEMS FOR GENERAL CONFORMITY TO THE DESIGN DWGS.
2. THESE SHOP DRAWINGS SHALL INCLUDE BUT NOT LIMITED TO PLUMBING FIXTURES, PLUMBING DEVICES, PIPING & ACCESSORIES. ALLOW 10 BUSINESS DAYS TO RETURN REVIEWED SHOP DRAWINGS (BASED ON COMPLETENESS).
3. PLUMBING CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL DIMENSIONS. THE ENGINEER'S REVIEW OF SHOP DRAWINGS SHALL BE FOR GENERAL DESIGN ONLY & SHALL NOT RELIEVE THE PLUMBING CONTRACTOR OR SUPPLIER FROM THEIR RESPONSIBILITY FOR ERRORS, PROPER FITTING, & CONSTRUCTION OF THE WORK & FURNISHING OF MATERIALS. THE REVIEW SHALL NOT BE CONSTRUED AS APPROVING DEPARTURES FROM THE CONTRACT DOCUMENT REQUIREMENTS IF SUCH DEPARTURES ARE NOT SPECIFICALLY NOTED IN A COVERING LETTER ACCOMPANYING SUCH DRAWINGS.

### 22.05 - 13.0 SUBSTITUTIONS

1. FIXTURE / EQUIPMENT SUBSTITUTIONS, IF INITIATED BY THE CONTRACTOR, SHALL BE MADE SO AS TO ENSURE OPERATING PERFORMANCE IS NOT REDUCED. RE-REVIEW OF SPECIFICATIONS FOR SUBSTITUTED EQUIPMENT MAY RESULT IN ADDITIONAL CHARGES BY THIS CONSULTANT. ALL CORRESPONDENCE FOR CLARIFICATION OF DESIGN FEATURES, SPECIFICATIONS, & EQUIPMENT SUBSTITUTIONS SHALL BE MADE IN WRITING, INCLUDING APPROVED SHOP DRAWINGS OF NEW PRODUCTS. ALLOW FOR A 1 WEEK RESPONSE TIME FROM CONSULTANT. ANY ADDITIONAL COSTS RELATED TO EQUIPMENT SUBSTITUTIONS TO BE ABSORBED BY THE CONTRACTOR.

### 22.05 - 14.0 PLUMBING WORK TESTING REQUIREMENTS

1. PIPING, FIXTURES OR EQUIPMENT SHALL NOT BE CONCEALED OR COVERED UNTIL INSPECTED & APPROVED BY THE AUTHORIZED INSPECTION AGENCY & THE ENGINEER. PROVIDE WRITTEN NOTICE (TWO WORKING DAYS) TO THE CONSULTANT BEFORE TESTS.
2. SATISFACTORILY PERFORM ALL TESTING REQUIRED BY GOVERNING AUTHORITIES, CODES, REGULATION. RESULTS OF SUCH TESTS SHALL CONFORM TO THE REQUIREMENTS OF THE APPLICABLE BUILDING CODE & SHALL BE TO THE SATISFACTION OF THE AUTHORIZED INSPECTION AGENCY & THE ENGINEER.

### 22.05 - 15.0 CLEANING AND WASTE REMOVAL

1. CLEAN ALL PLUMBING FIXTURES, PIPING THAT HAS BEEN EXPOSED TO CONSTRUCTION DUST & DIRT, INSIDE & OUT, PRIOR TO TURN OVER TO OWNER. EQUIPMENT IS SUBJECT TO REVIEW BY ENGINEER'S REPRESENTATIVE &/OR OWNER.
2. CONTRACTOR IS RESPONSIBLE FOR REMOVING THEIR OWN WASTE FROM THE SITE. ALL RE-USABLE MATERIALS SHALL BE RECYCLED.

### 22.05 - 16.0 DEMONSTRATION OF THE SYSTEM

1. DEMONSTRATE THE FUNCTION & OPERATION OF EACH SYSTEM TO THE OWNER.

### 22.05 - 17.0 PROJECT CLOSEOUT SUBMITTALS

- PRIOR TO APPLICATION FOR SUBSTANTIAL PERFORMANCE, SUBMIT ALL REQUIRED ITEMS AND DOCUMENTATION SPECIFIED, INCLUDING THE FOLLOWING:
1. RECORD "AS-BUILT" DRAWINGS: AS-BUILT DRAWINGS SHALL BE CLEARLY MARKED IN RED INCLUDING ALL CHANGES TO THE ORIGINAL TENDER DRAWINGS COVERED BY ADDENDA, CHANGE ORDERS, FIELD CHANGES, JOB CONDITIONS, ETC.

### 22.06 - 00 SCHEDULES FOR PLUMBING

#### 22.05-40.13 PLUMBING FIXTURE SCHEDULE

1. REFER TO PLANS & DRAWINGS.
2. SUPPLY & INSTALL ALL FIXTURES LISTED IN SCHEDULES & ALL REQUIRED ACCESSORIES TO COMPLETE A WORKING SYSTEM.

#### 22.07 - 00 PLUMBING INSULATION

1. ALL PLUMBING INSULATION MATERIALS & INSTALLATION IN ACCORDANCE TO ASHRAE 90.1.

2. INSULATE EQUIPMENT DRAINS CARRYING LIQUIDS AT 38°C (100°F) OR HIGHER TEMPERATURE, & SAFETY VALVE/WENT PIPING TO A HEIGHT OF 2.4 M (8 FT.) ABOVE ANY FLOOR, STEP, CATWALK, OR PLATFORM FROM WHICH PERSONNEL WOULD BE WITHIN REACH OF SUCH PIPING WITH 25 MM (1") THICK INSULATION.

3. INSULATE HEAT PUMPS, CONDENSATE DRAIN LINES WITH 25 MM THICK PIPE INSULATION.

4. APPLY INSULATION NEATLY & TIGHTLY IN UNBROKEN LENGTHS & WITH ENDS OF SECTIONS FIRMLY & SQUARELY BUTTED OR ENGAGED TOGETHER. INSULATE FLANGES, VALVES, & FITTINGS WITH SEGMENTS OF INSULATION OF THE SAME TYPE & THICKNESS AS THE PIPING. SECURE INSULATION WITH SOFT ANNEALED GALVANIZED WIRE, FINISH WITH INSULATING & FINISHING CEMENT, AND COTTON WRAPPING APPLIED WHILE THE CEMENT IS STILL WET.

5. COVER EXPOSED INSULATED VALVES AND FITTINGS IN BOILER ROOMS, MECHANICAL ROOMS, EQUIPMENT ROOMS, & AREAS WHERE VEHICULAR TRAFFIC, ETC. COULD DAMAGE THE INSULATION, WITH 220 G/M2 (6 OZ.) CANVAS.

#### 22.07 - 19 PLUMBING PIPING INSULATION

1. ALL PLUMBING INSULATION MATERIALS & INSTALLATION IN ACCORDANCE TO ASHRAE 90.1.
2. ALL DOMESTIC COLD & HOT WATER, NON POTABLE WATER PIPING SHALL BE INSULATED THROUGH: FIBROUS GLASS SPLICE SECTIONAL PIPE INSULATION OF 25 MM (1") THICKNESS WITH FACTORY APPLIED VAPOUR BARRIER JACKET & SELF-SEAL LAP JOINT.

3. ALL SOIL, WASTE AND RAINFOOTER PIPING SHALL BE SIMILARLY INSULATED.

4. DO NOT APPLY INSULATION UNTIL PIPING & HEAT TRACING (IF APPLICABLE), HAS BEEN TESTED, INSPECTED, VERIFIED & ACCEPTED.

5. APPLY INSULATION NEATLY & TIGHTLY IN UNBROKEN LENGTHS & WITH ENDS OF SECTIONS FIRMLY & SQUARELY BUTTED OR ENGAGED TOGETHER. LAP CANVAS OR OTHER SPECIFIED WRAPPING OVER ALL JOINTS & THOROUGHLY CEMENT DOWN WITH ADHESIVE, EXTEND INSULATION THROUGH SLEEVES IN WALLS (EXCEPT FIRE WALLS) OR OTHER OPENINGS IN BUILDING TO MAKE INSULATION & VAPOUR BARRIER CONTINUOUS & OF UNIFORM DIAMETER.

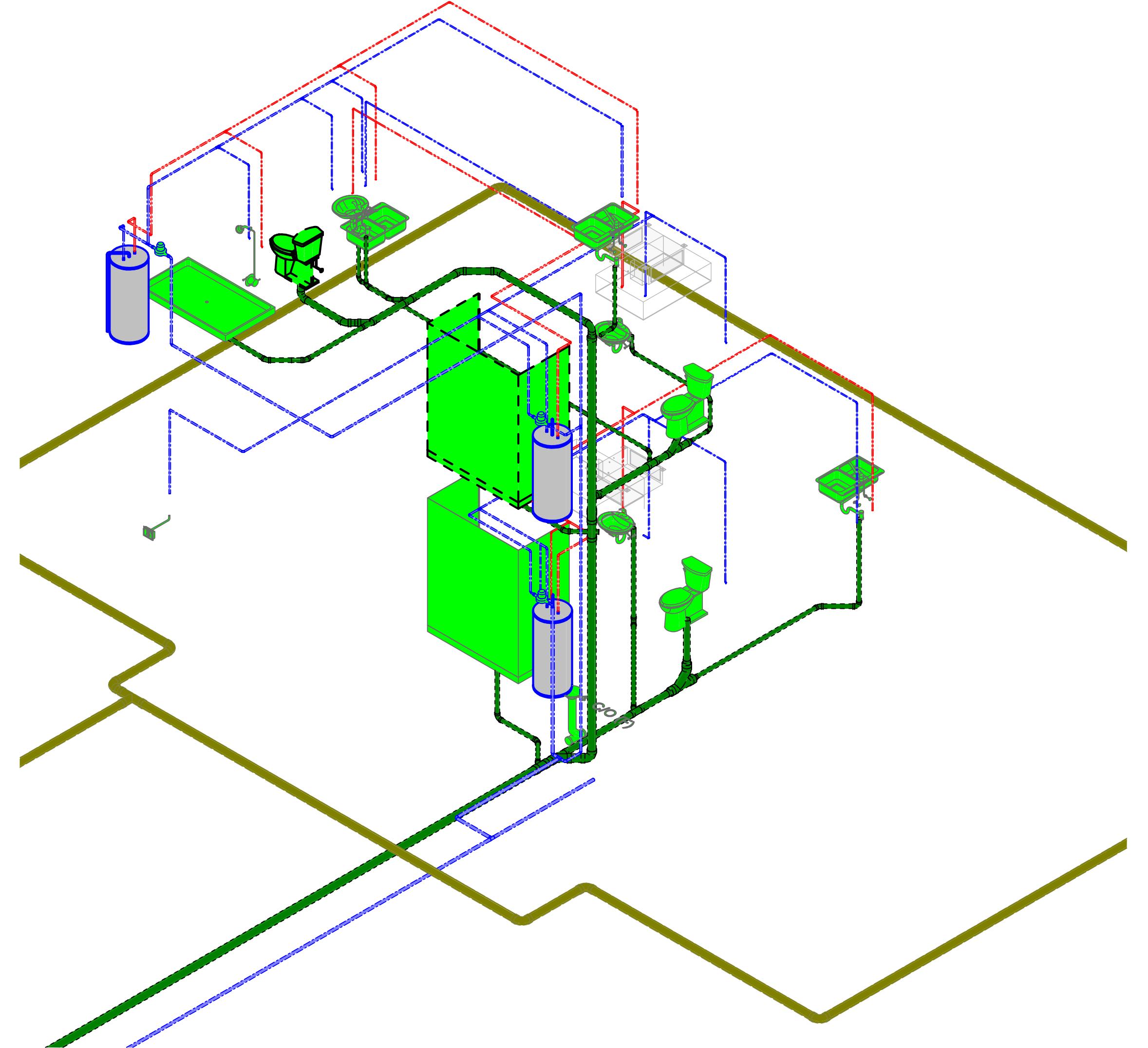
6. AT EXPANSION JOINTS IN PIPING, APPLY INSULATION OVER A SLEEVE 10 MM (1/2 INCH) METAL, FABRICATED TO FIT AROUND EXPANSION JOINT WITHOUT RESTRICTING ITS MOVEMENT. FABRICATE SLEEVE SO IT CAN BE REMOVED TO ALLOW FOR THE REPACKING & L-UBILICATION OF EXPANSION JOINT WITHOUT DAMAGING THE ADJOINING INSULATION. EXTEND SLEEVES A MINIMUM OF 25 MM (3") LONGER THAN EXPANSION JOINT, FIT WITH INSULATION RETAINING FLANGES & WITH A MEANS OF MAINTAINING THE POSITION OF SLEEVE OVER EXPANSION JOINT.

7. WHERE PIPING IS SPECIFIED TO BE HEAT TRACED, PROVIDE OVERSIZED INSULATION TO ACCOMMODATE TRACING CABLE SPECIFIED IN ELECTRICAL SPECIFICATIONS.

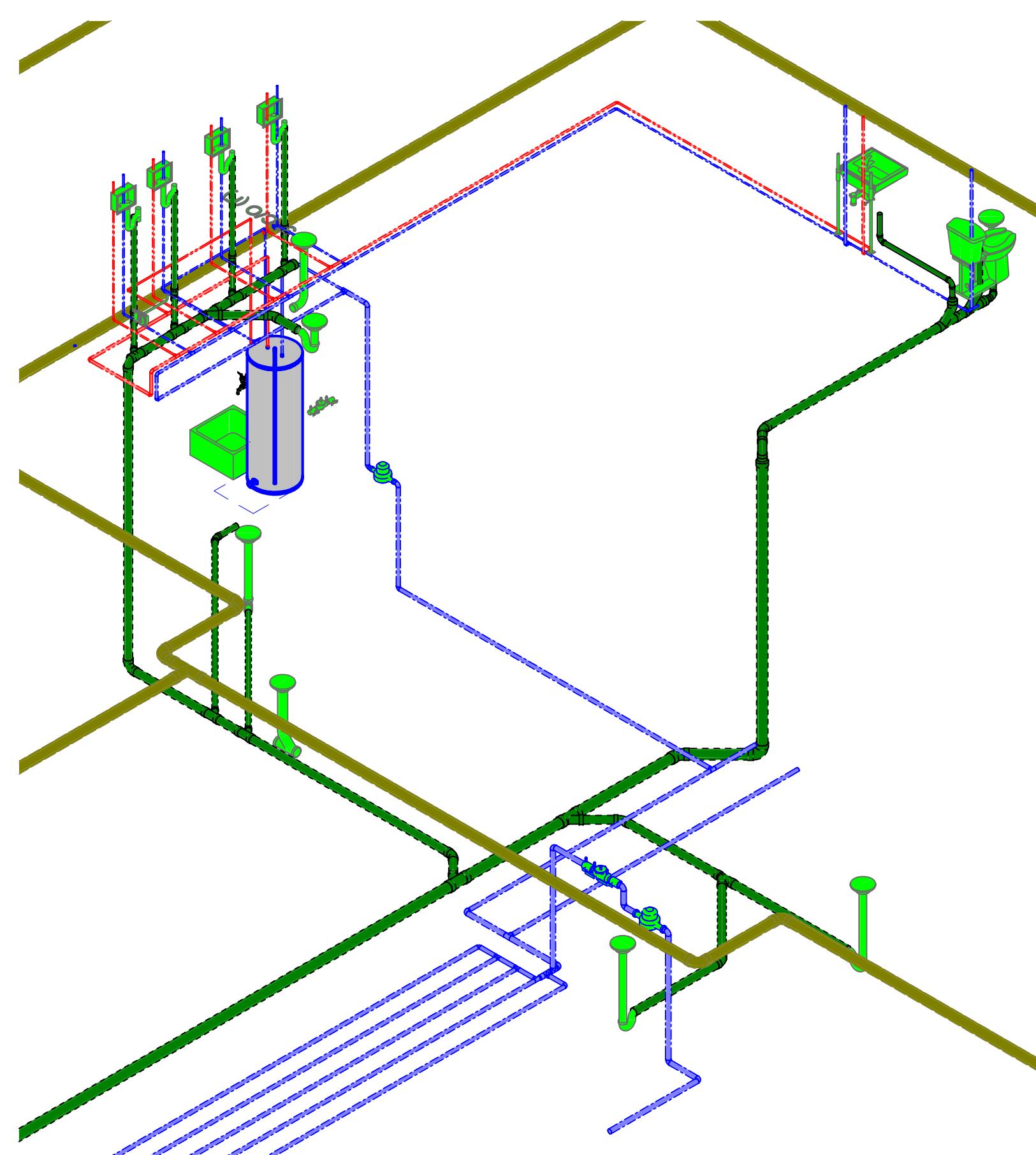
8. ALL BARRIER FREE LATRORIES ARE TO BE WRAPPED WITH ADA COMPLIANT UNDER SINK PLUMBING SAFETY COVER KIT

## 22.11.16 DOMESTIC WATER PIPING

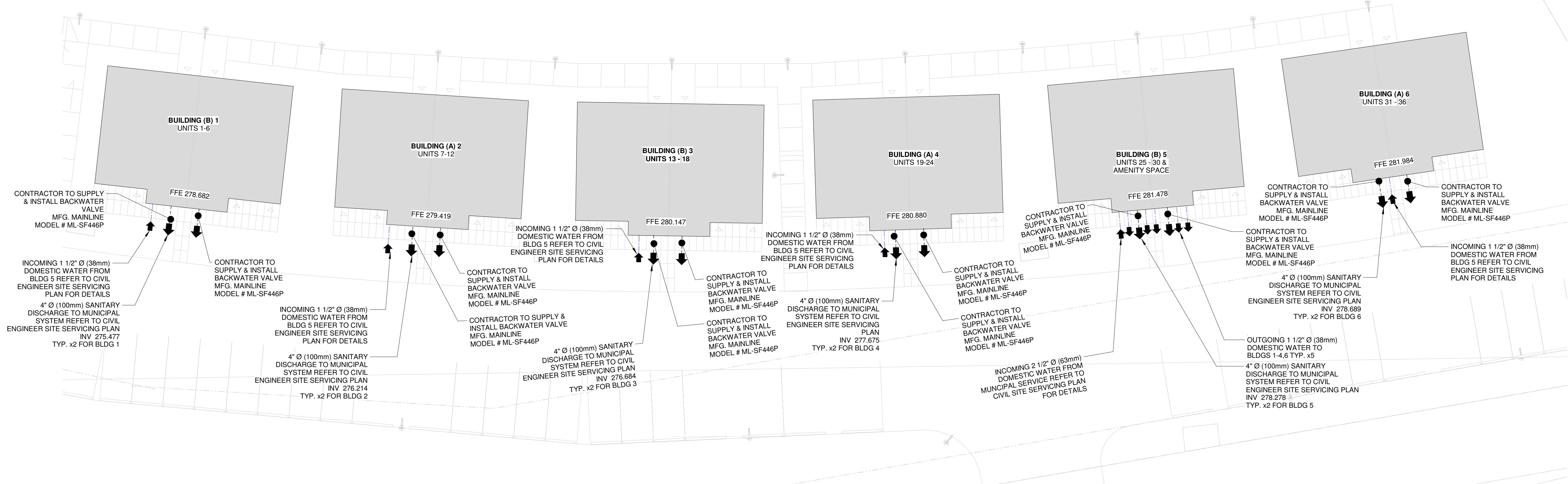
<b>22 14 00 FACILITY STORM DRAINAGE</b>	<b>22 13 19.13 SANITARY DRAINS</b>	<b>22 14 26.13 ROOF DRAINS</b>	<b>22 41 19 RESIDENTIAL BATHTUBS</b>	<b>PLUMBING SCOPE OF WORK:</b>	<b>PLUMBING REPORTS REQUIRED FOR SIGN-OFF:</b>	<b>(04322) PROJECT DRAWING REGISTER</b>
1. ALL PIPING, RELATED MATERIALS & INSTALLATION MUST CONFORM TO APPLICABLE BUILDING CODE, THE REGIONAL MUNICIPALITY & LOCAL BUILDING & FIRE DEPARTMENT BY-LAWS.	ALL DRAIN FIXTURES & INSTALLATION MUST COMPLY TO APPLICABLE BUILDING CODE, THE REGIONAL MUNICIPALITY & LOCAL BUILDING & FIRE DEPARTMENT BY-LAWS.	1. ALL ROOF DRAINS, RELATED MATERIALS & INSTALLATION MUST CONFORM TO APPLICABLE BUILDING CODE, THE REGIONAL MUNICIPALITY & LOCAL BUILDING & FIRE DEPARTMENT BY-LAWS.	1. BATHTUB, RELATED MATERIALS & INSTALLATION MUST CONFORM TO CURRENT APPLICABLE BUILDING CODE, REGIONAL MUNICIPALITY & LOCAL BUILDING & FIRE DEPARTMENT BY-LAWS.	CONTRACTOR TO VISIT THE SITE & FAMILIARIZE THEMSELVES WITH THE REQUIREMENTS OF THIS DESIGN. REFER TO SPECIFICATION & GENERAL PROJECT NOTES & DETAILS INCLUDED IN THIS SET OF DWGS.	1. PIPING PRESSURE TEST REPORT - SANITARY & VENTING.	Sheet #
STORM PIPING & FITTINGS UNDER GROUND:	2. WHERE REQUIRED BY CODE OR WHERE SHOWN, DRAINS SHALL BE TRAPPED, VENTED & HAVE TRAP SEAL PRIMERS INSTALLED. PROVIDE AUTOMATIC TRAP SEAL PRIMER, ANCON NO. MS-810 OR APPROVED EQUAL FOR EVERY FLOOR DRAIN, HUB DRAIN, & COMBINATION DRAINS. TRAP SEAL PRIMER SHALL BE CONNECTED TO NEAREST WATER SUPPLY. WHERE SEVERAL TRAPS WITH PRIMER REQUIREMENTS ARE LOCATED IN CLOSE VICINITY, THE USE OF A PROPERLY SIZED FLUSH TANK IS ACCEPTABLE.	2. ROOF DRAINS ARE TO BE FROM THE ACCEPTABLE MANUFACTURERS LISTED BELOW OR A COMPARABLE APPROVED EQUAL:	2. BATHTUB FAUCET FLOW RATE MUST COMPLY WITH ASHRAE / IEEE 90.1 AT A MAX OF 5.7LPM	THE WORK SHALL CONSIST OF, BUT SHALL NOT BE LIMITED TO THE FOLLOWING:	2. PIPING PRESSURE TEST REPORT - DOMESTIC WATER.	Sheet Name
PLASTIC ASTM F628, "(ABS) SCHEDULE 40 PLASTIC DRAIN WASTE & VENT PIPE"	CAN/CSA-B181.1, "ABS DRAIN, WASTE & VENT PIPE FITTINGS" CAN/CSA-B181.2, "PVC DRAIN, WASTE & VENT PIPE FITTINGS"	ZURN WATTS J.R. SMITH MI FAB	3. BARRIER FREE BATHTUBS MUST COMPLY WITH CURRENT APPLICABLE BUILDING CODE, REGIONAL MUNICIPALITY & LOCAL BUILDING LAWS.	TENDER PHASE	3. BACKFLOW PREVENTER TEST CERTIFICATES.	E1/M1/P1 Project Cover
FERROUS CAN/CSA-B70, "CAST IRON SOIL PIPE, FITTINGS"	CAN/CSA-B182.1, "PLASTIC DRAIN & SEWER PIPE & FITTINGS" CAN/CSA-B182.2, "PVC SEWER PIPE & FITTINGS, (PSM TYPE)" CAN/CSA-B182.4, "PROFILE (RIBBED) PVC SEWER PIPE & FITTINGS" CAN/CSA-B182.6, "PROFILE POLYETHYLENE SEWER PIPE & FITTINGS"	4. ALL FLOOR SURFACES TO SLOPE TO DRAINS UNDER PLUMBING & MECHANICAL EQUIPMENT. ALL FLOOR DRAINS & PENETRATIONS IN FLOOR SURFACES AS WELL AS FLOOR TO WALL INTERFACES IN MECHANICAL ROOMS ABOVE FINISHED SPACES TO BE SEALED & WATER TIGHT.	4. PROVIDED AIR GAP OR USE REDUCED PRESSURED PRINCIPLE BACKFLOW PREVENTION DEVICE FOR TRAP SEAL PRIMING	4. CONTRACTOR WARRANTY & COMPLETION LETTER.	M-3 HVAC - Specifications	
5. CLEANOUTS SHALL BE FULL SIZE FOR PIPES UP TO 100 MM (4") & NOT LESS THAN 100 MM (4") FOR LARGER SIZES.	5. CLEANOUTS SHALL BE FULL SIZE FOR PIPES UP TO 100 MM (4") & NOT LESS THAN 100 MM (4") FOR LARGER SIZES.	6. LOCATE CLEANOUTS TO BE READILY ACCESSIBLE WITH SUFFICIENT CLEARANCES FOR RODDING & CLEANING	6. LOCATE CLEANOUTS TO BE READILY ACCESSIBLE WITH SUFFICIENT CLEARANCES FOR RODDING & CLEANING		M-4 HVAC - Specifications	
3. MINIMUM UNDERGROUND PIPE SIZE SHALL BE 75 MM (3") UNLESS NOTED ON PLANS.	7. INSTALL CLEANOUTS IN SANITARY DRAINAGE PIPING IN THE FOLLOWING LOCATIONS:	7. ALL AREA DRAINS, RELATED MATERIALS & INSTALLATION MUST CONFORM TO APPLICABLE BUILDING CODE, THE REGIONAL MUNICIPALITY & LOCAL BUILDING & FIRE DEPARTMENT BY-LAWS.	7. LAUNDRY TRAY, RELATED MATERIALS & INSTALLATION MUST CONFORM TO CURRENT APPLICABLE BUILDING CODE, REGIONAL MUNICIPALITY & LOCAL BUILDING LAWS.		M-5 HVAC - Scope of Work	
4. MINIMUM PIPE SLOPE TO BE 2.0%, MAXIMUM 8.0% (SEE OPSD - 1006-10, 1006-020). • 75mm (3") & LESS - GRADE DOWN 1:50 (1/4" PER FT.) • 100mm (4") & OVER - GRADE DOWN 1:100 (1/8" PER FT.)	• CHANGES OF DIRECTION MORE THAN 45 DEGREES, ON HORIZONTAL BRANCHES & MAIN DRAINS AT INTERVALS NOT EXCEEDING 15 METERS (50') FOR 100 MM (4") & SMALLER & 30 METERS (100') FOR 150 MM (6") & LARGER.	8. AREA DRAINS ARE TO BE FROM THE ACCEPTABLE MANUFACTURERS LISTED BELOW OR A COMPARABLE APPROVED EQUAL:	8. BARRIER FREE SHOWERS MUST COMPLY WITH CURRENT APPLICABLE BUILDING CODE, REGIONAL MUNICIPALITY & LOCAL BUILDING LAWS.		M-6 HVAC - Scope of Work	
5. PROVIDE ALL EXCAVATION & BACKFILL REQUIRED FOR BURIED PIPES	• DRAIN FROM SINK, KITCHEN PIPING OR GREASE WASTE PIPING, AT INTERVALS NOT EXCEEDING 6 METERS (20') FOR ALL SIZES OF PIPE. • ABOVE EACH DRAIN, TRAP & CLAMPING COLLAR. • ADDED TO A RODDING TRAP. • FOR A GREASE & GREASE INTERCEPTORS AS PER OBC. • ENDS OF ALL HORIZONTAL DRAINAGE LINES. • BASE OF SOIL OR WASTE STACKS. • WHERE REQUIRED BY BUILDING & PLUMBING CODES	9. WHERE REQUIRED BY CODE OR WHERE SHOWN, DRAINS SHALL BE TRAPPED, VENTED & HAVE TRAP SEAL PRIMERS INSTALLED. PROVIDE AUTOMATIC TRAP SEAL PRIMER, ANCON NO. MS-810 OR APPROVED EQUAL FOR EVERY FLOOR DRAIN, HUB DRAIN, & COMBINATION DRAINS. TRAP SEAL PRIMER SHALL BE CONNECTED TO NEAREST WATER SUPPLY.	9. PROVIDED AIR GAP OR USE REDUCED PRESSURED PRINCIPLE BACKFLOW PREVENTION DEVICE FOR TRAP SEAL PRIMING		M-7 HVAC - Bldg. 1	
6. PRESSURE TEST BURIED SYSTEM BEFORE BACKFILLING.	10. WHERE CLEANOUT PASS THROUGH WATERPROOF FLOOR OR ARE EXPOSED IN UNFINISHED BASEMENT AREA, PIPE TUNNEL, ACCESSIBLE CRAWL SPACE OR MECHANICAL ROOM.	11. ON OUTSIDE DRAINS, BRING CLEANOUT TO GRADE & ANCHOR IN CONCRETE COLLAR.	11. ON WET FLOOR AREAS, EXTEND CLEANOUTS TO WALLS OR PROVIDE WITH GASKETTED WATERPROOF TOP.		M-8 HVAC - Bldg. 2	
<b>22 14 16 RAIN WATER LEADERS</b>	12. ALL CLEANOUTS IN FINISHED AREAS SHALL BE THE SAME SHAPE (SQUARE OR ROUND), ACCEPTABLE MANUFACTURERS: JAY R. SMITH, MI FAB, ZURN, WATTS. SEE DETAILED SPECIFICATION	13. COVER CLEANOUT CONCEALED BEHIND FINISHED WALLS WITH ROUND CHROMED BRONZE OF STAINLESS ACCESS PLATE SECURED TO CLEANOUT WITH 6 MM (1/4") DIA. COUNTER SUNK MACHINE SCREW. COVERPLATE SHALL BE SUFFICIENTLY LARGE FOR ACCESS & RODDING. INSTALL CLEANOUT NO MORE THAN 25 MM (1") BEHIND FACES OF FINISHED WALLS.	12. WHERE CLEANOUT PASS THROUGH WATERPROOF FLOOR OR ARE EXPOSED IN UNFINISHED BASEMENT AREA, PIPE TUNNEL, ACCESSIBLE CRAWL SPACE OR MECHANICAL ROOM.		M-9 HVAC - Bldg. 3	
1. ALL PIPING, RELATED MATERIALS & INSTALLATION MUST CONFORM TO APPLICABLE BUILDING CODE, THE REGIONAL MUNICIPALITY & LOCAL BUILDING & FIRE DEPARTMENT BY-LAWS.	14. WHERE CLEANOUTS LOCATE DRAINAGE CLEANOUT FITTINGS IN DRAINAGE PIPING: • AT BASE OF EACH RAINWATER LEADER • AS REQUIRED TO COMPLY WITH APPLICABLE PLUMBING CODE • VERIFY THAT CLEANOUT RODS CAN PROBE AS FAR AS THE NEXT CLEANOUT, AT LEAST.	15. ON OUTSIDE DRAINS, BRING CLEANOUT TO GRADE & ANCHOR IN CONCRETE COLLAR.	15. IN WET FLOOR AREAS, EXTEND CLEANOUTS TO WALLS OR PROVIDE WITH GASKETTED WATERPROOF TOP.		M-10 HVAC - Bldg. 4	
STORM PIPING & FITTINGS ABOVE GROUND:	16. ALL CLEANOUTS: LOCATE DRAINAGE CLEANOUT FITTINGS IN DRAINAGE PIPING: • AT BASE OF EACH RAINWATER LEADER • AS REQUIRED TO COMPLY WITH APPLICABLE PLUMBING CODE • VERIFY THAT CLEANOUT RODS CAN PROBE AS FAR AS THE NEXT CLEANOUT, AT LEAST.	17. ALL CLEANOUTS IN FINISHED AREAS SHALL BE THE SAME SHAPE (SQUARE OR ROUND), ACCEPTABLE MANUFACTURERS: JAY R. SMITH, MI FAB, ZURN, WATTS. SEE DETAILED SPECIFICATION	17. IN WET FLOOR AREAS, EXTEND CLEANOUTS TO WALLS OR PROVIDE WITH GASKETTED WATERPROOF TOP.		M-11 HVAC - Bldg. 5	
PLASTIC ASTM F628, "(ABS) SCHEDULE 40 PLASTIC DRAIN WASTE & VENT PIPE"	18. WHERE CLEANOUT PASS THROUGH WATERPROOF FLOOR OR ARE EXPOSED IN UNFINISHED BASEMENT AREA, PIPE TUNNEL, ACCESSIBLE CRAWL SPACE OR MECHANICAL ROOM.	19. COVER CLEANOUT CONCEALED BEHIND FINISHED WALLS WITH ROUND CHROMED BRONZE OF STAINLESS ACCESS PLATE SECURED TO CLEANOUT WITH 6 MM (1/4") DIA. COUNTER SUNK MACHINE SCREW. COVERPLATE SHALL BE SUFFICIENTLY LARGE FOR ACCESS & RODDING. INSTALL CLEANOUT NO MORE THAN 25 MM (1") BEHIND FACES OF FINISHED WALLS.	18. WHERE CLEANOUT PASS THROUGH WATERPROOF FLOOR OR ARE EXPOSED IN UNFINISHED BASEMENT AREA, PIPE TUNNEL, ACCESSIBLE CRAWL SPACE OR MECHANICAL ROOM.		M-12 HVAC - Bldg. 6	
FERROUS CAN/CSA-B70, "CAST IRON SOIL PIPE, FITTINGS"	20. WHERE CLEANOUT PASS THROUGH WATERPROOF FLOOR OR ARE EXPOSED IN UNFINISHED BASEMENT AREA, PIPE TUNNEL, ACCESSIBLE CRAWL SPACE OR MECHANICAL ROOM.	21. COVER CLEANOUT CONCEALED BEHIND FINISHED WALLS WITH ROUND CHROMED BRONZE OF STAINLESS ACCESS PLATE SECURED TO CLEANOUT WITH 6 MM (1/4") DIA. COUNTER SUNK MACHINE SCREW. COVERPLATE SHALL BE SUFFICIENTLY LARGE FOR ACCESS & RODDING. INSTALL CLEANOUT NO MORE THAN 25 MM (1") BEHIND FACES OF FINISHED WALLS.	21. WHERE CLEANOUT PASS THROUGH WATERPROOF FLOOR OR ARE EXPOSED IN UNFINISHED BASEMENT AREA, PIPE TUNNEL, ACCESSIBLE CRAWL SPACE OR MECHANICAL ROOM.		M-13 HVAC - Isometric & Elevation Views	
<b>22 14 20 FACILITY SANITARY SEWERAGE</b>	22. ALL CLEANOUTS: LOCATE DRAINAGE CLEANOUT FITTINGS IN DRAINAGE PIPING: • AT BASE OF EACH RAINWATER LEADER • AS REQUIRED TO COMPLY WITH APPLICABLE PLUMBING CODE • VERIFY THAT CLEANOUT RODS CAN PROBE AS FAR AS THE NEXT CLEANOUT, AT LEAST.	23. COVER CLEANOUT CONCEALED BEHIND FINISHED WALLS WITH ROUND CHROMED BRONZE OF STAINLESS ACCESS PLATE SECURED TO CLEANOUT WITH 6 MM (1/4") DIA. COUNTER SUNK MACHINE SCREW. COVERPLATE SHALL BE SUFFICIENTLY LARGE FOR ACCESS & RODDING. INSTALL CLEANOUT NO MORE THAN 25 MM (1") BEHIND FACES OF FINISHED WALLS.	23. COVER CLEANOUT CONCEALED BEHIND FINISHED WALLS WITH ROUND CHROMED BRONZE OF STAINLESS ACCESS PLATE SECURED TO CLEANOUT WITH 6 MM (1/4") DIA. COUNTER SUNK MACHINE SCREW. COVERPLATE SHALL BE SUFFICIENTLY LARGE FOR ACCESS & RODDING. INSTALL CLEANOUT NO MORE THAN 25 MM (1") BEHIND FACES OF FINISHED WALLS.		M-14 HVAC Details	
<b>22 13 16 SANITARY WASTE &amp; VENT PIPING</b>	24. WHERE CLEANOUT PASS THROUGH WATERPROOF FLOOR OR ARE EXPOSED IN UNFINISHED BASEMENT AREA, PIPE TUNNEL, ACCESSIBLE CRAWL SPACE OR MECHANICAL ROOM.	25. COVER CLEANOUT CONCEALED BEHIND FINISHED WALLS WITH ROUND CHROMED BRONZE OF STAINLESS ACCESS PLATE SECURED TO CLEANOUT WITH 6 MM (1/4") DIA. COUNTER SUNK MACHINE SCREW. COVERPLATE SHALL BE SUFFICIENTLY LARGE FOR ACCESS & RODDING. INSTALL CLEANOUT NO MORE THAN 25 MM (1") BEHIND FACES OF FINISHED WALLS.	25. COVER CLEANOUT CONCEALED BEHIND FINISHED WALLS WITH ROUND CHROMED BRONZE OF STAINLESS ACCESS PLATE SECURED TO CLEANOUT WITH 6 MM (1/4") DIA. COUNTER SUNK MACHINE SCREW. COVERPLATE SHALL BE SUFFICIENTLY LARGE FOR ACCESS & RODDING. INSTALL CLEANOUT NO MORE THAN 25 MM (1") BEHIND FACES OF FINISHED WALLS.		P-3 Plumbing - Specifications	
1. PIPE & FITTINGS: ALL PIPING, MATERIALS & INSTALLATION TO MEET THE REQUIREMENTS OF APPLICABLE BUILDING CODE. ALL PVC OR ABS TYPE PIPING TO BE USED ABOVE GROUND SHALL BE CONFIRMED TO BE ACCEPTABLE BY THE AUTHORITY HAVING JURISDICTION.	2. PROVIDE AIR GAP OR USE REDUCED PRESSURED PRINCIPLE BACKFLOW PREVENTION DEVICE FOR TRAP SEAL PRIMING.	3. BACKFLOW PREVENTERS MUST BE TESTED & APPROVED	3. BACKFLOW PREVENTERS MUST BE TESTED & APPROVED		P-4 Plumbing - Specifications	
<b>22 13 00 FACILITY SANITARY SEWERAGE</b>	<b>22 13 19.33 BACKWATER VALVES</b>	<b>22 13 19.33 BACKWATER VALVES</b>	<b>22 13 19.33 BACKWATER VALVES</b>		P-5 Plumbing - Site Plan	
1. PIPE & FITTINGS: ALL PIPING, MATERIALS & INSTALLATION TO MEET THE REQUIREMENTS OF APPLICABLE BUILDING CODE. ALL PVC OR ABS TYPE PIPING TO BE USED ABOVE GROUND SHALL BE CONFIRMED TO BE ACCEPTABLE BY THE AUTHORITY HAVING JURISDICTION.	2. PROVIDE AIR GAP OR USE REDUCED PRESSURED PRINCIPLE BACKFLOW PREVENTION DEVICE FOR TRAP SEAL PRIMING.	3. BACKFLOW PREVENTERS MUST BE TESTED & APPROVED	4. BACKFLOW PREVENTERS MUST BE TESTED & APPROVED		P-6 Plumbing - Bldg. 1	
<b>22 13 16 SANITARY WASTE &amp; VENT PIPING</b>	5. BACKFLOW PREVENTERS MUST BE TESTED & APPROVED	6. SUPPORT ALL OVERHEAD PIPES TO APPROVAL.	7. SUPPORT ALL OVERHEAD PIPES TO APPROVAL.		P-7 Plumbing - Bldg. 2	
SANITARY PIPING & FITTINGS UNDER GROUND:	8. PROVIDE AIR GAP OR USE REDUCED PRESSURED PRINCIPLE BACKFLOW PREVENTION DEVICE FOR TRAP SEAL PRIMING.	9. PROVIDE AIR GAP OR USE REDUCED PRESSURED PRINCIPLE BACKFLOW PREVENTION DEVICE FOR TRAP SEAL PRIMING.	10. PROVIDE AIR GAP OR USE REDUCED PRESSURED PRINCIPLE BACKFLOW PREVENTION DEVICE FOR TRAP SEAL PRIMING.		P-8 Plumbing - Bldg. 3	
PLASTIC ASTM F628, "(ABS) SCHEDULE 40 PLASTIC DRAIN WASTE & VENT PIPE"	11. ON OUTSIDE DRAINS, BRING CLEANOUT TO GRADE & ANCHOR IN CONCRETE COLLAR.	12. ALL CLEANOUTS IN FINISHED AREAS SHALL BE THE SAME SHAPE (SQUARE OR ROUND), ACCEPTABLE MANUFACTURERS: JAY R. SMITH, MI FAB, ZURN, WATTS. SEE DETAILED SPECIFICATION	13. COVER CLEANOUT CONCEALED BEHIND FINISHED WALLS WITH ROUND CHROMED BRONZE OF STAINLESS ACCESS PLATE SECURED TO CLEANOUT WITH 6 MM (1/4") DIA. COUNTER SUNK MACHINE SCREW. COVERPLATE SHALL BE SUFFICIENTLY LARGE FOR ACCESS & RODDING. INSTALL CLEANOUT NO MORE THAN 25 MM (1") BEHIND FACES OF FINISHED WALLS.		P-9 Plumbing - Bldg. 4	
FERROUS CAN/CSA-B70, "CAST IRON SOIL PIPE, FITTINGS"	14. WHERE CLEANOUT PASS THROUGH WATERPROOF FLOOR OR ARE EXPOSED IN UNFINISHED BASEMENT AREA, PIPE TUNNEL, ACCESSIBLE CRAWL SPACE OR MECHANICAL ROOM.	15. ON OUTSIDE DRAINS, BRING CLEANOUT TO GRADE & ANCHOR IN CONCRETE COLLAR.	16. WHERE CLEANOUT PASS THROUGH WATERPROOF FLOOR OR ARE EXPOSED IN UNFINISHED BASEMENT AREA, PIPE TUNNEL, ACCESSIBLE CRAWL SPACE OR MECHANICAL ROOM.		P-10 Plumbing - Bldg. 5	
<b>22 13 00 FACILITY SANITARY SEWERAGE</b>	17. WHERE CLEANOUT PASS THROUGH WATERPROOF FLOOR OR ARE EXPOSED IN UNFINISHED BASEMENT AREA, PIPE TUNNEL, ACCESSIBLE CRAWL SPACE OR MECHANICAL ROOM.	18. WHERE CLEANOUT PASS THROUGH WATERPROOF FLOOR OR ARE EXPOSED IN UNFINISHED BASEMENT AREA, PIPE TUNNEL, ACCESSIBLE CRAWL SPACE OR MECHANICAL ROOM.	19. WHERE CLEANOUT PASS THROUGH WATERPROOF FLOOR OR ARE EXPOSED IN UNFINISHED BASEMENT AREA, PIPE TUNNEL, ACCESSIBLE CRAWL SPACE OR MECHANICAL ROOM.		P-11 Plumbing - Bldg. 6	
<b>22 13 16 SANITARY WASTE &amp; VENT PIPING</b>	20. WHERE CLEANOUT PASS THROUGH WATERPROOF FLOOR OR ARE EXPOSED IN UNFINISHED BASEMENT AREA, PIPE TUNNEL, ACCESSIBLE CRAWL SPACE OR MECHANICAL ROOM.	21. WHERE CLEANOUT PASS THROUGH WATERPROOF FLOOR OR ARE EXPOSED IN UNFINISHED BASEMENT AREA, PIPE TUNNEL, ACCESSIBLE CRAWL SPACE OR MECHANICAL ROOM.	22. WHERE CLEANOUT PASS THROUGH WATERPROOF FLOOR OR ARE EXPOSED IN UNFINISHED BASEMENT AREA, PIPE TUNNEL, ACCESSIBLE CRAWL SPACE OR MECHANICAL ROOM.		P-12 Plumbing - Typical Building	
1. PIPE & FITTINGS: ALL PIPING, MATERIALS & INSTALLATION TO MEET THE REQUIREMENTS OF APPLICABLE BUILDING CODE. ALL PVC OR ABS TYPE PIPING TO BE USED ABOVE GROUND SHALL BE CONFIRMED TO BE ACCEPTABLE BY THE AUTHORITY HAVING JURISDICTION.	23. WHERE CLEANOUT PASS THROUGH WATERPROOF FLOOR OR ARE EXPOSED IN UNFINISHED BASEMENT AREA, PIPE TUNNEL, ACCESSIBLE CRAWL SPACE OR MECHANICAL ROOM.	24. WHERE CLEANOUT PASS THROUGH WATERPROOF FLOOR OR ARE EXPOSED IN UNFINISHED BASEMENT AREA, PIPE TUNNEL, ACCESSIBLE CRAWL SPACE OR MECHANICAL ROOM.	25. WHERE CLEANOUT PASS THROUGH WATERPROOF FLOOR OR ARE EXPOSED IN UNFINISHED BASEMENT AREA, PIPE TUNNEL, ACCESSIBLE CRAWL SPACE OR MECHANICAL ROOM.		P-13 Plumbing - Details	
SANITARY PIPING & FITTINGS ABOVE GROUND:	26. ALL SUITE DRAINAGE TO BE CONSTRUCTED USING IPEX SYSTEM 15 CONFORMING TO CAN/CSA-B181.2	27. ALL SANITARY RISERS TO BE CONSTRUCTED OF CAST IRON CONFORMING TO CAN/CSA-B70 & ANSI/AWWA C151/A21.51. FITTINGS SHALL CONFORM TO ASME B16.12.	28. LAY UNDERGROUND PIPING STRAIGHT & TRUE TO LINE & GRADE WITH UNIFORM INVERT. SPIGOT ENDS ON GROOVE SHALL POINT IN DIRECTION OF FLOW.		P-14 Plumbing - Water Schematic	
PLASTIC	29. MINIMUM UNDERGROUND PIPE SIZE SHALL BE 75 MM (3") UNLESS NOTED ON PLANS.	30. PROVIDE COMPLETE PLUMBING VENT SYSTEM AS REQUIRED BY O.B.C. & LOCAL AUTHORITIES.	31. MINIMUM UNDERGROUND PIPE SIZE SHALL BE 75 MM (3") UNLESS NOTED ON PLANS.		P-15 Plumbing - Sanitary Schematic	
FERROUS	32. ALL PVC OR ABS TYPE PIPING TO BE USED ABOVE GROUND SHALL BE PROVIDED WITH U.L.C. LISTED & APPROVED FIRE STOP DEVICE AT ALL PENETRATIONS OF ANY FIRE SEPARATION.	33. PROVIDE PLUMBING VENT SYSTEM AS REQUIRED BY O.B.C. & LOCAL AUTHORITIES.	34. ALL PVC OR ABS TYPE PIPING TO BE USED ABOVE GROUND SHALL BE PROVIDED WITH U.L.C. LISTED & APPROVED FIRE STOP DEVICE AT ALL PENETRATIONS OF ANY FIRE SEPARATION.		P-16 Elec. Power - Specifications	
FERROUS	35. PROVIDE COMPLETE PLUMBING VENT SYSTEM AS REQUIRED BY O.B.C. & LOCAL AUTHORITIES.	36. MINIMUM PIPE SLOPE TO BE 2.0%, MAXIMUM 8.0% (SEE OPSD - 1006-10, 1006-020). • 75mm (3") & LESS - GRADE DOWN 1:50 (1/4" PER FT.) • 100mm (4") & OVER - GRADE DOWN 1:100 (1/8" PER FT.)	37. WHERE CLEANOUT PASS THROUGH WATERPROOF FLOOR OR ARE EXPOSED IN UNFINISHED BASEMENT AREA, PIPE TUNNEL, ACCESSIBLE CRAWL SPACE OR MECHANICAL ROOM.		P-17 Elec. Power - Specifications	
FERROUS	38. WHERE CLEANOUT PASS THROUGH WATERPROOF FLOOR OR ARE EXPOSED IN UNFINISHED BASEMENT AREA, PIPE TUNNEL, ACCESSIBLE CRAWL SPACE OR MECHANICAL ROOM.	39. PROVIDE PLUMBING VENT SYSTEM AS REQUIRED BY O.B.C. & LOCAL AUTHORITIES.	40. WHERE CLEANOUT PASS THROUGH WATERPROOF FLOOR OR ARE EXPOSED IN UNFINISHED BASEMENT AREA, PIPE TUNNEL, ACCESSIBLE CRAWL SPACE OR MECHANICAL ROOM.		P-18 Elec. Power - Scope of Work	
FERROUS	41. WHERE CLEANOUT PASS THROUGH WATERPROOF FLOOR OR ARE EXPOSED IN UNFINISHED BASEMENT AREA, PIPE TUNNEL, ACCESSIBLE CRAWL SPACE OR MECHANICAL ROOM.	42. PROVIDE PLUMBING VENT SYSTEM AS REQUIRED BY O.B.C. & LOCAL AUTHORITIES.	43. WHERE CLEANOUT PASS THROUGH WATERPROOF FLOOR OR ARE EXPOSED IN UNFINISHED BASEMENT AREA, PIPE TUNNEL, ACCESSIBLE CRAWL SPACE OR MECHANICAL ROOM.		P-19 Elec. Power - Scope of Work	
FERROUS	44. WHERE CLEANOUT PASS THROUGH WATERPROOF FLOOR OR ARE EXPOSED IN UNFINISHED BASEMENT AREA, PIPE TUNNEL, ACCESSIBLE CRAWL SPACE OR MECHANICAL ROOM.	45. PROVIDE PLUMBING VENT SYSTEM AS REQUIRED BY O.B.C. & LOCAL AUTHORITIES.	46. WHERE CLEANOUT PASS THROUGH WATERPROOF FLOOR OR ARE EXPOSED IN UNFINISHED BASEMENT AREA, PIPE TUNNEL, ACCESSIBLE CRAWL SPACE OR MECHANICAL ROOM.		P-20 Elec. Power - Scope of Work	
FERROUS	47. WHERE CLEANOUT PASS THROUGH WATERPROOF FLOOR OR ARE EXPOSED IN UNFINISHED BASEMENT AREA, PIPE TUNNEL, ACCESSIBLE CRAWL SPACE OR MECHANICAL ROOM.	48. PROVIDE PLUMBING VENT SYSTEM AS REQUIRED BY O.B.C. & LOCAL AUTHORITIES.	49. WHERE CLEANOUT PASS THROUGH WATERPROOF FLOOR OR ARE EXPOSED IN UNFINISHED BASEMENT AREA, PIPE TUNNEL, ACCESSIBLE CRAWL SPACE OR MECHANICAL ROOM.		P-21 Electrical Schedules	
FERROUS	50. WHERE CLEANOUT PASS THROUGH WATERPROOF FLOOR OR ARE EXPOSED IN UNFINISHED BASEMENT AREA, PIPE TUNNEL, ACCESSIBLE CRAWL SPACE OR MECHANICAL ROOM.	51. PROVIDE				



2 (04322) 3D Plumbing - Typ. Suites Bldg. 1-4,6  
P-5



3 (04322) 3D Plumbing - Common Area Bldg. 5  
P-5



1 (04322) Site - Plumbing Plan - New  
P-5  
1 : 175

04322 PROJECT DRAWING REGISTER	
Sheet #	Sheet Name
E1/M1/P1	Project Cover
E2/M2/P2	Project Cover
M-3	HVAC - Specifications
M-4	HVAC - Specifications
M-5	HVAC - Scope of Work
M-6	HVAC - Scope of Work
M-7	HVAC - Bldg. 1
M-8	HVAC - Bldg. 2
M-9	HVAC - Bldg. 3
M-10	HVAC - Bldg. 4
M-11	HVAC - Bldg. 5
M-12	HVAC - Bldg. 6
M-13	HVAC - Isometric & Elevation Views
M-14	HVAC Details
P-3	Plumbing - Specifications
P-4	Plumbing - Specifications
P-5	Plumbing - Site Plan
P-6	Plumbing - Bldg. 1
P-7	Plumbing - Bldg. 2
P-8	Plumbing - Bldg. 3
P-9	Plumbing - Bldg. 4
P-10	Plumbing - Bldg. 5
P-11	Plumbing - Bldg. 6
P-12	Plumbing - Typical Building
P-13	Plumbing - Details
P-14	Plumbing - Water Schematic
P-15	Plumbing - Sanitary Schematic
E-3	Elec. Power - Specifications
E-4	Elec. Power - Specifications
E-5	Elec. Power - Scope of Work
E-6	Electrical Site Plan
E-7	Elec. - SLD
E-8	Power/Comm - Bldg. 1
E-9	Elec. Lighting - Bldg. 1
E-10	Power/Comm - Bldg. 2
E-11	Elec. Lighting - Bldg. 2
E-12	Power/Comm - Bldg. 3
E-13	Elec. Lighting - Bldg. 3
E-14	Power/Comm - Bldg. 4
E-15	Elec. Lighting - Bldg. 4
E-16	Power/Comm - Bldg. 5
E-17	Elec. Lighting - Bldg. 5
E-18	Power/Comm - Bldg. 6
E-19	Elec. Lighting - Bldg. 6
E-20	Elec. Typical Building
E-21	Electrical Schedules
E-22	Electrical Details

- GENERAL DRAWING / DESIGNER NOTES:**
- [1] ALL CONSTRUCTION METHODS AND MATERIALS TO CONFORM TO THE REQUIREMENT OF THE PROVINCE OF ONTARIO'S BUILDING CODE, LOCAL REGULATIONS AND AUTHORITIES HAVING JURISDICTION.
  - [2] THE CONSULTANT RESERVES THE RIGHT TO MAKE REASONABLE CHANGES IN ORDER TO ACCOMMODATE CONDITIONS ARISING DURING CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR ALL CONSTRUCTION COSTS ARRIVING FROM SUCH CHANGES MAY APPLY AND ARE TO BE NEGOTIATED BETWEEN THE OWNER AND CONTRACTOR.
  - [3] DRAWINGS ONLY SHOW GENERAL INTENT AND SCOPE OF WORK. DETAILED DESIGN IS PROVIDED BY THE DESIGNER. CONTRACTOR(S) DO NOT SCALE DRAWINGS.
  - [4] CONTRACTOR/AGENT/OWNER TO REPORT ALL DISCOVERIES OF ERRORS, OMISSIONS OR DISCREPANCIES TO THE DESIGNER.
  - [5] PROCEED WITH CONSTRUCTION ONLY USING THE LATEST REVISED DRAWINGS MARKED "ISSUED FOR CONSTRUCTION".
  - [6] THIS DRAWING IS SPECIFIC TO THIS PROJECT AND CANNOT BE USED FOR OTHER "SIMILAR" PROJECTS.
  - [7] THIS DRAWING IS THE PROPERTY OF NORTHSTAR ENGINEERING & TECHNOLOGIES LTD. UN-AUTHORIZED RE-PRODUCTION OR USE IS PROHIBITED.
  - [8] **SHOP DRAWINGS:** BASED ON CONTRACT WITH OWNER, THE ENGINEER WILL REVIEW AND APPROVE DWGS FROM THE CONTRACTOR TO REVIEW THE ITEMS FOR GENERAL CONFORMITY TO THE DESIGN DWGS. THE SHOP DWG REVIEW WILL NOT RELEASE THE CONTRACTOR TO BEGIN CONSTRUCTION. THE CONTRACTOR SHALL WORKING SYSTEMS THESE SHOP DRAWINGS SHALL CONSIST OF PLUMBING FIXTURES, HVAC EQUIPMENT, HVAC DIFFUSERS. ALLOW MINIMUM 1-2 WEEKS FOR COMPLETION (BASED ON COMPLEXITY).
  - [9] THE DESIGNER DOES NOT ACCEPT RESPONSIBILITY FOR OWN DESIGNER'S WORK IN ASSOCIATION WITH THIS PROJECT.
  - [10] REQUESTS FOR ANY FINAL ASSEMBLY THAT VIOLATE APPLICABLE BUILDING CODES IS NOT ACCEPTED BY THE DESIGNER.
  - [11] REQUESTS FOR CHANGES OR SUBSTITUTIONS TO EQUIPMENT, PLANS AND / OR SPECIFICATIONS WILL BE SUBJECT TO ADDITIONAL FEES CHARGED BY THE CONSULTANT.
  - [12] SITE VISITS TO REVIEW IMPLEMENTED DESIGNS WITHIN THE SCOPE OF THIS PROJECT TO BE ARRANGED WITH THE OWNER.
  - [13] MINIMUM FORTY EIGHT (48) HOURS PRIOR NOTICE TO BE PROVIDED FOR SITE VISITS - ONCE ARRANGED.
  - [14] REQUESTS FOR THE RELEASE OF THIS DRAWING SET FROM NORTHSTAR ENGINEERING & TECHNOLOGIES LTD. FOR THE PURCHASE, TRANSFER, LEASE OR PROCESS TO A CONTRACTOR TO BE MADE BY THE OWNER OR ARCHITECT IN WRITING.
  - [15] TENDER PRICING BY CONTRACTORS OF DRAWINGS TO BE BASED ON DWGS MARKED "ISSUED FOR TENDER" OR "ISSUED FOR CONSTRUCTION" ONLY.
  - [16] ALL REQUESTS FOR DESIGN CHANGES / SUBSTITUTIONS TO BE MADE IN WRITING. ADDITIONAL FEES MAY APPLY. ALLOW MINIMUM ONE WEEK TO REVIEW AND RESPOND TO CHANGE REQUESTS.

#### DRAWING REVISIONS

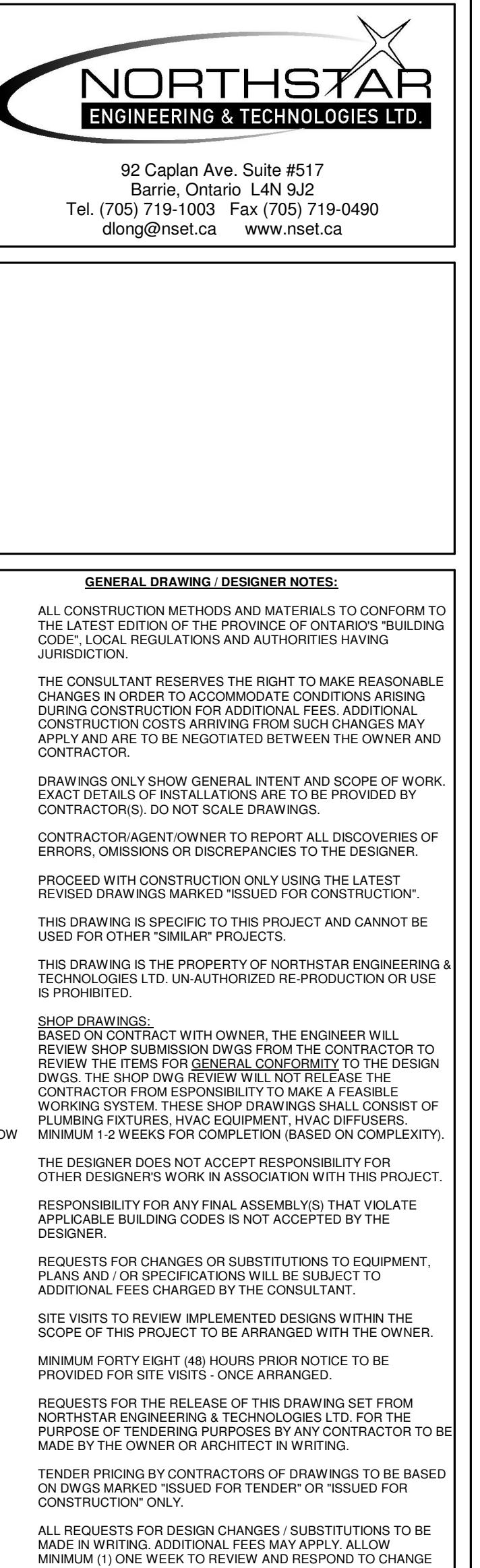
No.	Description	Date
1	Preliminary	May 19/22
3	Preliminary for Review	Sep. 09/22
4	Issued for Permit	Oct. 05/22
5	Issued for Tender	May 18/23
6	Re-Issued for Tender	Dec. 20/24

Engineer's Seal:

Client:	WW Inc.		
Address:	Minden, ON		
Project Name:	Gull River Affordable Housing		
Dwg. Name:	Plumbing - Site Plan		
NSET Project #:	04322		
Drawn by:	Northstar Eng.	Checked by:	J.D.L.
Scale:	As indicated	Revision #:	6.0
Drawing #:	P-5		
Project Date:	Jan. 14/22		
Arch-D:	(24" x 36")		

PLUMBING LEGEND	
	CLEANOUT / STACK
	CLEANOUT / RUN
	CLEANOUT / FITTING
	FLOOR DRAIN c/w P-TRAP & TRAP SEAL PRIMER
	RUNNING TRAP c/w CLEANOUT & TRAP SEAL PRIMER
	VALVE / BALL
	VALVE / GLOBE
	VALVE / GATE
	VALVE / SOLENOID
	VALVE / BALANCING
	VALVE / REDUCING
	VALVE / CHECK
	VALVE / THERMOSTATIC MIXING
	REDUCED PRESSURE ZONE / RPZ
	DOUBLE CHECK VALVE ASSEMBLY / DCVA
	CAP / FITTING
	UNION
	CIRCULATING PUMP
	WATER SCHEMATIC FIXTURE 'XX' DENOTES FIXTURE TYPE MARK
	WATER SCHEMATIC FIXTURE 'XX' DENOTES FIXTURE TYPE MARK
	SANITARY SCHEMATIC FIXTURE 'XX' DENOTES FIXTURE TYPE MARK
	FIXTURE TAG 'XXX' DENOTES TYPE MARK
	STACK 'XXX' DENOTES: <ul style="list-style-type: none"> <li>• SAN - SANITARY</li> <li>• VENT</li> <li>• VTR - VENT TO ROOF</li> <li>• RWL - RAIN WATER LEADER</li> <li>• DCW - DOMESTIC COLD WATER</li> <li>• DHW - DOMESTIC HOT WATER</li> <li>• DHWR - DOMESTIC HOT WATER RECIRCULATION</li> <li>• N.GAS - NATURAL GAS</li> </ul>
	TEE / DROP REFER TO PIPE TYPE
	TEE / RISE REFER TO PIPE TYPE
	ELBOW / DROP REFER TO PIPE TYPE
	ELBOW / RISE REFER TO PIPE TYPE
	DOMESTIC COLD WATER / DCW
	DOMESTIC HOT WATER / DHW
	DOMESTIC HOT WATER RECIRCULATING / DHWR
	VENT
	SANITARY DRAINAGE / UNDERGROUND
	SANITARY DRAINAGE / ABOVE GROUND
	STORM DRAINAGE / UNDERGROUND
	STORM DRAINAGE / ABOVE GROUND
	WEEPING TILE PIPING
	NATURAL GAS PIPING

(04322) PROJECT DRAWING REGISTER	
Sheet #	Sheet Name
E1/M1/P1	Project Cover
E2/M2/P2	Project Cover
M-3	HVAC - Specifications
M-4	HVAC - Specifications
M-5	HVAC - Scope of Work
M-6	HVAC - Scope of Work
M-7	HVAC - Bldg.1
M-8	HVAC - Bldg. 2
M-9	HVAC - Bldg. 3
M-10	HVAC - Bldg.4
M-11	HVAC - Bldg. 5
M-12	HVAC - Bldg.6
M-13	HVAC - Isometric & Elevation Views
M-14	HVAC Details
P-3	Plumbing - Specifications
P-4	Plumbing - Specifications
P-5	Plumbing - Site Plan
P-6	Plumbing - Bldg. 1
P-7	Plumbing - Bldg. 2
P-8	Plumbing - Bldg. 3
P-9	Plumbing - Bldg. 4
P-10	Plumbing -Bldg. 5
P-11	Plumbing - Bldg. 6
P-12	Plumbing -Typical Building
P-13	Plumbing - Details
P-14	Plumbing - Water Schematic
P-15	Plumbing - Sanitary Schematic
E-3	Elec. Power - Specifications
E-4	Elec. Power - Specifications
E-5	Elec. Power - Scope of Work
E-6	Electrical Site Plan
E-7	Elec. - SLD
E-8	Power/Comm - Bldg. 1
E-9	Elec. Lighting - Bldg 1
E-10	Power/Comm - Bldg. 2
E-11	Elec. Lighting - Bldg 2
E-12	Power/Comm - Bldg. 3
E-13	Elec. Lighting - Bldg 3
E-14	Power/Comm - Bldg. 4
E-15	Elec. Lighting - Bldg 4
E-16	Power/Comm. - Bldg. 5
E-17	Elec. Lighting - Bldg. 5
E-18	Power/Comm - Bldg. 6
E-19	Elec. Lighting - Bldg 6
E-20	Elec. Typical Building
E-21	Electrical Schedules
E-22	Electrical Details



ent:	WW Inc.		
dress:	Minden, ON		
ject Name:	Gull River Affordable Housing		
ng. Name:	Plumbing - Bldg. 1		
ET Project #:	04322		
awn by:	Northstar Eng.	Checked by:	J.D.L.
ale:	As indicated	Revision #:	6.0
rawing #:	P-6		
object Date:	Jan. 14/22		
	Arch-D (24" x 36")		

PLUMBING LEGEND										
	CLEANOUT / STACK									
	CLEANOUT / RUN									
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	VALVE / REDUCING									
	VALVE / CHECK									
	VALVE / THERMOSTATIC MIXING									
	RPZ REDUCED PRESSURE ZONE / RPZ									
	DCVA DOUBLE CHECK VALVE ASSEMBLY / DCVA									
	CAP / FITTING									
	UNION									
	CIRCULATING PUMP									
	WATER SCHEMATIC FIXTURE 'XX' DENOTES FIXTURE TYPE MARK									
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	SANITARY SCHEMATIC FIXTURE 'XX' DENOTES FIXTURE TYPE MARK									
	Fixture Tag XXX DENOTES TYPE MARK									
	Stack XXX DENOTES:									
	- SAN - SANITARY									
	- VTR - VENT TO ROOF									
	- RWL - RAIN WATER LEADER									
	- DOV - DOMESTIC COLD WATER									
	- DHW - DOMESTIC HOT WATER									
	- DHWR - DOMESTIC HOT WATER RECIRCULATING									
	- NGAS - NATURAL GAS									
	TEE / DROP REFER TO PIPE TYPE									
	TEE / RISE REFER TO PIPE TYPE									
	ELBOW / DROP REFER TO PIPE TYPE									
	ELBOW / RISE REFER TO PIPE TYPE									
	DOMESTIC COLD WATER / DCW									
	DOMESTIC HOT WATER / DHW									
	DOMESTIC HOT WATER RECIRCULATING / DHWR									
	VENT									
	SANITARY DRAINAGE / UNDERGROUND									
	SANITARY DRAINAGE / ABOVE GROUND									
	STORM DRAINAGE / UNDERGROUND									
	STORM DRAINAGE / ABOVE GROUND									
	WEEPING TILE PIPING									
	NATURAL GAS PIPING									
NOT ALL SYMBOLS APPLY TO FLOOR PLANS / DRAWINGS										

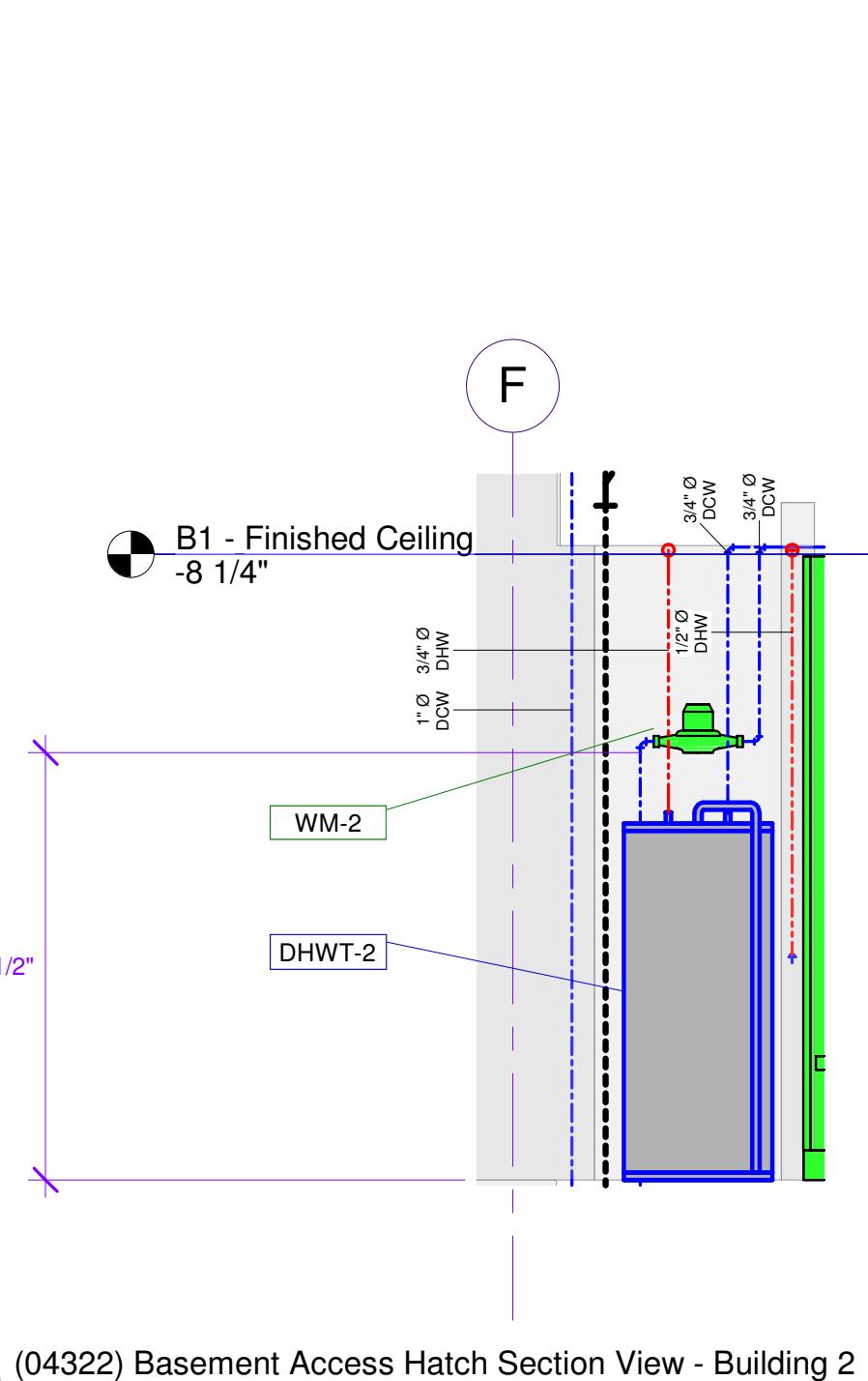
(04322) Plumbing Fixture Schedule - (New) Typical Suite										
Level	Type Mark	Barrier-Free (Blank = N/A)	Qty.	Description	Manufacturer	Model	Accessory 1	Accessory 2	Supplied By	Comments (Controls)
FFE Lower Level	CO-4F	1	1	4" O/C FINISHED	SEE PROJECT SPEC.	SEE PROJECT SPEC.	HEAD: MOEN 52236GBM15 c/w CONTROL; MOEN# T8370 c/w LONGEVITY SC2366 OBC 2BAR PHENOLIC SEAT	DRAIN FIXTURE: WATTS FD-100-C-A	DIV. 22	Typ. Suites
FFE Lower Level	SH-1	Yes	1	SHOWER/ 5-PIECE / c/w GRAB BARS & SEAT / HANDHELD SHOWER VALVE	KINDRED	OCLA2031L/8	FAUCET: MOEN #67425	MIXING VALVE: AMERICAN STD. #605XTMV	DIV. 22	Typ. Suites
FFE Lower Level	SNK-1	1	1	SINK / KITCHEN / DBL. BOWL / 7" DEEP / STAINLESS STEEL / DECK MNT. / SINGLE HANDLE FAUCET	AMERICAN STD.	'COLONY' #0346.403	FAUCET: MOEN #L64600	MIXING VALVE: LAWLER#570-86820	DIV. 22	Typ. Suites
FFE Lower Level	WC-2	Yes	1	TOILET / PRIVATE / BOWL, ELONG., 15" AFF. / FLOOR MOUNT / LINED TANK / OPEN SEAT c/w COVER	AMERICAN STD.	'CADET PRO' "ELONGATED" #215CA.104.020	TANK: GRAVITY / LINED	SEAT: CENTOCO #1600	DIV. 22	Typ. Suites
FFE Lower Level	WM-2	Yes	1	WATER METER / TENANT SUB-METER c/w REMOTE READOUT	BY CONTRACTOR	BY CONTRACTOR	REMOTE READOUT	REMOTE READOUT	DIV. 22	Typ. Suites
			6							
FFE Ground Floor	HB-1	1	1	HYDRANT / NON-FREEZE / 12" WALL THICKNESS/ 3/4" NOM. / c/w VACUUM BREAKER / KEY LOCK	WATTS	HY-725	INTERGRAL VACUUM BREAKER		DIV. 22	Typ. Suites
FFE Ground Floor	SH-1	Yes	1	SHOWER/ 5-PIECE / c/w GRAB BARS & SEAT / HANDHELD SHOWER VALVE	KINDRED	OCLA2366 OBC 2BAR PHENOLIC SEAT	HEAD: MOEN 52236GBM15 c/w CONTROL; MOEN# T8370 c/w LONGEVITY SC2366 OBC 2BAR PHENOLIC SEAT	DRAIN FIXTURE: WATTS FD-100-C-A	DIV. 22	Typ. Suites
FFE Ground Floor	SNK-1	1	1	SINK / KITCHEN / DBL. BOWL / 7" DEEP / STAINLESS STEEL / DECK MNT. / SINGLE HANDLE FAUCET	KINDRED	OCLA2031L/8	FAUCET: MOEN #67425	MIXING VALVE: AMERICAN STD. #605XTMV	DIV. 22	Typ. Suites
FFE Ground Floor	WC-2	Yes	1	TOILET / PRIVATE / BOWL, ELONG., 15" AFF. / FLOOR MOUNT / LINED TANK / OPEN SEAT c/w COVER	AMERICAN STD.	'COLONY' #0346.403	FAUCET: MOEN #L64600	MIXING VALVE: LAWLER#570-86820	DIV. 22	Typ. Suites
FFE Ground Floor	WM-2	Yes	1	WATER METER / TENANT SUB-METER c/w REMOTE READOUT	BY CONTRACTOR	BY CONTRACTOR	REMOTE READOUT	REMOTE READOUT	DIV. 22	Typ. Suites
			6							
2 - Floor	SH-2	No	1	SHOWER/ c/w HEAD & CONTROLS	LONGEVITY	2260	HEAD: MOEN 52236GBM15 c/w CONTROL; MOEN# T8370 c/w LONGEVITY SC2366 OBC 2BAR PHENOLIC SEAT	DRAIN FIXTURE: WATTS FD-100-C-A	DIV. 22	Typ. Suites
2 - Floor	SNK-1	1	1	SINK / KITCHEN / DBL. BOWL / 7" DEEP / STAINLESS STEEL / DECK MNT. / SINGLE HANDLE FAUCET	KINDRED	OCLA2031L/8	FAUCET: MOEN #67425	MIXING VALVE: AMERICAN STD. #605XTMV	DIV. 22	Typ. Suites
2 - Floor	SNK-2	Yes	1	LAVATORY / DROP-IN / SINGLE HANDLE STD. FAUCET	AMERICAN STD.	'COLONY' #0346.403	FAUCET: MOEN #L64600	MIXING VALVE: LAWLER#570-86820	DIV. 22	Typ. Suites
2 - Floor	WC-2	Yes	1	TOILET / PRIVATE / BOWL, ELONG., 15" AFF. / FLOOR MOUNT / LINED TANK / OPEN SEAT c/w COVER	AMERICAN STD.	'CADET PRO' "ELONGATED" #215CA.104.020	TANK: GRAVITY / LINED	SEAT: CENTOCO #1600	DIV. 22	Typ. Suites
2 - Floor	WM-2	Yes	1	WATER METER / TENANT SUB-METER c/w REMOTE READOUT	BY CONTRACTOR	BY CONTRACTOR	REMOTE READOUT	REMOTE READOUT	DIV. 22	Typ. Suites
			5							
Grand total										
17										

NOTE: THIS SCHEDULE DEPICTS THE FIXTURES FOR ONE TYPICAL SUITE ON EACH LEVEL  
SK-1 MODEL # FOR MIRRORED SUITES IS #OCLA2031R/8



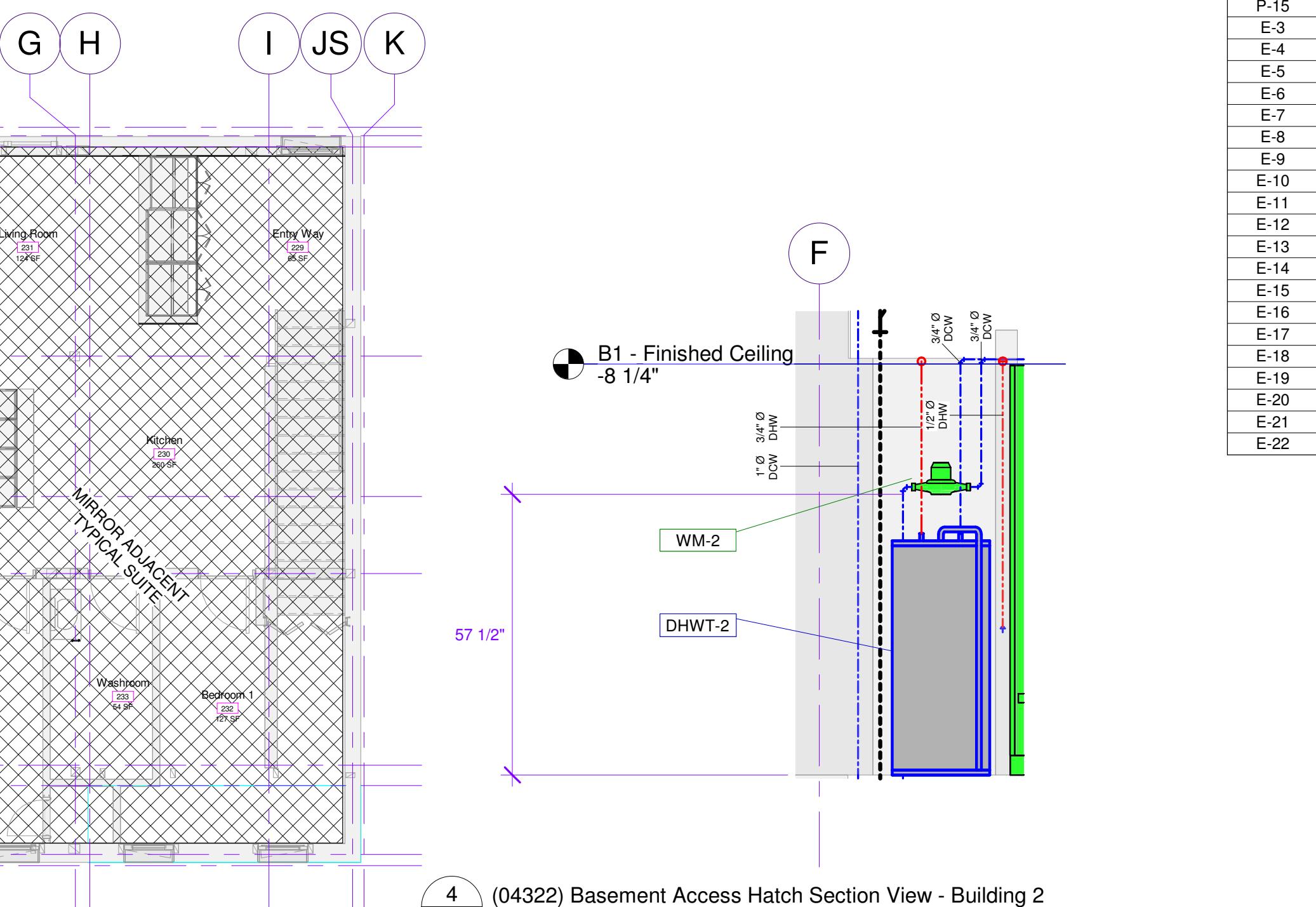
(04322) Building 2 - Level 2 - Plumbing Plan - New  
1 : 75

CONNECT TO WEEPER  
LEAD REFER TO CIVIL  
DWGS (BY OTHERS)  
4" Ø(100mm) SANITARY  
DISCHARGE TO  
MUNICIPAL SERVICE  
REFER TO CIVIL  
ENGINEER SITE  
SERVING PLAN  
FOR  
SPECIFIC INVERT OF  
EACH BUILDING



(04322) Basement Access Hatch Section View - Building 2  
1 : 25

1-1/2" Ø (38mm)  
WATER CLOSET  
DISCHARGE  
FROM  
MUNICIPAL SERVICE  
REFER TO CIVIL  
ENGINEER SITE  
SERVING PLAN  
FOR  
SPECIFIC INVERT OF  
EACH BUILDING



1 (04322) Building 2 - Basement - Plumbing Plan - New  
P-7 1 : 75

2 (04322) Building 2 - Level 1 - Plumbing Plan - New  
P-7 1 : 75

(04322) PROJECT DRAWING REGISTER	
Sheet #	Sheet Name
E1/M1/P1	Project Cover
E2/M2/P2	Project Cover
M-3	HVAC - Specifications
M-4	HVAC - Specifications
M-5	HVAC - Scope of Work
M-6	HVAC - Scope of Work
M-7	HVAC - Bldg. 1
M-8	HVAC - Bldg. 2
M-9	HVAC - Bldg. 3
M-10	HVAC - Bldg. 4
M-11	HVAC - Bldg. 5
M-12	HVAC - Bldg. 6
M-13	HVAC - Isometric & Elevation Views
M-14	HVAC Details
P-3	Plumbing - Specifications
P-4	Plumbing - Specifications
P-5	Plumbing - Site Plan
P-6	Plumbing - Bldg. 1
P-7	Plumbing - Bldg. 2
P-8	Plumbing - Bld

PLUMBING LEGEND									
	CLEANOUT / STACK								
	CLEANOUT / RUN								
	CLEANOUT / FITTING								
	FLOOR DRAIN / P-TRAP & TRAP SEAL PRIMER								
	RUNNING TRAP c/w CLEANOUT & TRAP SEAL PRIMER								
	VALVE / BALL								
	VALVE / GLOBE								
	VALVE / GATE								
	VALVE / SOLENOID								
	VALVE / BALANCING								
	VALVE / REDUCING								
	VALVE / CHECK								
	VALVE / THERMOSTATIC MIXING								
	RPZ REDUCED PRESSURE ZONE / RPZ								
	DOUBLE CHECK VALVE ASSEMBLY / DCVA								
	CAP / FITTING								
	UNION								
	CIRCULATING PUMP								
	WATER SCHEMATIC FIXTURE XX DENOTES FIXTURE TYPE MARK								
	WATER SCHEMATIC FIXTURE XX DENOTES FIXTURE TYPE MARK								
	SANITARY SCHEMATIC FIXTURE XX DENOTES FIXTURE TYPE MARK								
	FIXTURE TAG XXX DENOTES TYPE MARK								
	STACK • SAN - SANITARY • VTR - VENT TO ROOF • RWL - RAIN WATER LEADER • DOV - DOMESTIC COLD WATER • DHW - DOMESTIC HOT WATER • DHWR - DOMESTIC HOT WATER RECIRCULATING • NGAS - NATURAL GAS								
	TEE / DROP REFER TO PIPE TYPE								
	TEE / RISE REFER TO PIPE TYPE								
	ELBOW / DROP REFER TO PIPE TYPE								
	ELBOW / RISE REFER TO PIPE TYPE								
	DOMESTIC COLD WATER / DCW								
	DOMESTIC HOT WATER / DHW								
	DOMESTIC HOT WATER RECYCLING / DHWR								
	VENT								
	SANITARY DRAINAGE / UNDERGROUND								
	SANITARY DRAINAGE / ABOVE GROUND								
	STORM DRAINAGE / UNDERGROUND								
	STORM DRAINAGE / ABOVE GROUND								
	WEPPING TILE PIPING								
	NATURAL GAS PIPING								
NOT ALL SYMBOLS APPLY TO FLOOR PLANS / DRAWINGS									

(04322) Plumbing Fixture Schedule - (New) Typical Suite											
Level	Type Mark	Barrier-Free (Blank = N/A)	Qty.	Description	Manufacturer	Model	Accessory 1	Accessory 2	Supplied By	Comments (Controls)	Group ID / NSET
FFE Lower Level	CO-4F		1	4"Ø C/O / FINISHED	SEE PROJECT SPEC.	SEE PROJECT SPEC.	HEAD: MOEN 52236GBM15 c/w CONTROL:MOEN# T8370 c/w MOEN #62320(CC)	DRAIN FIXTURE: WATTS FD-100-C-A	DIV. 22	Typ. Suites	
FFE Lower Level	SH-1	Yes	1	SHOWER/ 5-PIECE / c/w GRAB BARS & SEAT / HANDHELD SHOWER VALVE	LONGEVITY	SC2366 OBC 2BAR PHENOLIC SEAT	FAUCET: MOEN #67425	MIXING VALVE: AMERICAN STD. #605XTMV	DIV. 22	Typ. Suites	
FFE Lower Level	SNK-1		1	SINK / KITCHEN / DBL. BOWL / 7" DEEP / STAINLESS STEEL / DECK MNT. / SINGLE HANDLE FAUCET	KINDRED	OCLA2031L/8	FAUCET: MOEN #L64600	MIXING VALVE: LAWLER#570-86820	DIV. 22	Typ. Suites	
FFE Lower Level	SNK-2	Yes	1	LAVATORY / DROP-IN / SINGLE HANDLE STD. FAUCET	AMERICAN STD.	"COLONY" #0346.403	TANK: GRAVITY / LINED	SEAT: CENTOCO #1600	DIV. 22	Typ. Suites	
FFE Lower Level	WC-2	Yes	1	TOILET / PRIVATE / BOWL, ELONG., 15" AFF. / FLOOR MOUNT / LINED TANK / OPEN SEAT c/w COVER	AMERICAN STD.	"CADET PRO" "ELONGATED" #215CA.104.020	BY CONTRACTOR	REMOTE READOUT	DIV. 22	Typ. Suites	
FFE Lower Level	WM-2	Yes	1	WATER METER / TENANT SUB-METER c/w REMOTE READOUT	BY CONTRACTOR				DIV. 22	Typ. Suites	
			6								
FFE Ground Floor	HB-1		1	HYDRANT / NON-FREEZE / 12" WALL THICKNESS/ 3/4" NOM. / c/w VACUUM BREAKER / KEY LOCK	WATTS	HY-725	INTERGRAL VACUUM BREAKER		DIV. 22	Typ. Suites	
FFE Ground Floor	SH-1	Yes	1	SHOWER/ 5-PIECE / c/w GRAB BARS & SEAT / HANDHELD SHOWER VALVE	LONGEVITY	SC2366 OBC 2BAR PHENOLIC SEAT	HEAD: MOEN 52236GBM15 c/w CONTROL:MOEN# T8370 c/w MOEN #62320(CC)	DRAIN FIXTURE: WATTS FD-100-C-A	DIV. 22	Typ. Suites	
FFE Ground Floor	SNK-1		1	SINK / KITCHEN / DBL. BOWL / 7" DEEP / STAINLESS STEEL / DECK MNT. / SINGLE HANDLE FAUCET	KINDRED	OCLA2031L/8	FAUCET: MOEN #67425	MIXING VALVE: AMERICAN STD. #605XTMV	DIV. 22	Typ. Suites	
FFE Ground Floor	SNK-2	Yes	1	LAVATORY / DROP-IN / SINGLE HANDLE STD. FAUCET	AMERICAN STD.	"COLONY" #0346.403	FAUCET: MOEN #L64600	MIXING VALVE: LAWLER#570-86820	DIV. 22	Typ. Suites	
FFE Ground Floor	WC-2	Yes	1	TOILET / PRIVATE / BOWL, ELONG., 15" AFF. / FLOOR MOUNT / LINED TANK / OPEN SEAT c/w COVER	AMERICAN STD.	"CADET PRO" "ELONGATED" #215CA.104.020	BY CONTRACTOR	REMOTE READOUT	DIV. 22	Typ. Suites	
FFE Ground Floor	WM-2	Yes	1	WATER METER / TENANT SUB-METER c/w REMOTE READOUT	BY CONTRACTOR				DIV. 22	Typ. Suites	
			6								
2 - Floor	SH-2	No	1	SHOWER/ c/w HEAD & CONTROLS	LONGEVITY	2260	HEAD: MOEN 52236GBM15 c/w CONTROL:MOEN# T8370 c/w MOEN #62320(CC)	DRAIN FIXTURE: WATTS FD-100-C-A	DIV. 22	Typ. Suites	
2 - Floor	SNK-1		1	SINK / KITCHEN / DBL. BOWL / 7" DEEP / STAINLESS STEEL / DECK MNT. / SINGLE HANDLE FAUCET	KINDRED	OCLA2031L/8	FAUCET: MOEN #67425	MIXING VALVE: AMERICAN STD. #605XTMV	DIV. 22	Typ. Suites	
2 - Floor	SNK-2	Yes	1	LAVATORY / DROP-IN / SINGLE HANDLE STD. FAUCET	AMERICAN STD.	"COLONY" #0346.403	FAUCET: MOEN #L64600	MIXING VALVE: LAWLER#570-86820	DIV. 22	Typ. Suites	
2 - Floor	WC-2	Yes	1	TOILET / PRIVATE / BOWL, ELONG., 15" AFF. / FLOOR MOUNT / LINED TANK / OPEN SEAT c/w COVER	AMERICAN STD.	"CADET PRO" "ELONGATED" #215CA.104.020	BY CONTRACTOR	REMOTE READOUT	DIV. 22	Typ. Suites	
			6								
NOTE: THIS SCHEDULE DEPICTS THE FIXTURES FOR ONE TYPICAL SUITE ON EACH LEVEL/TYPE READOUT											
SK-1 MODEL # FOR MIRRORED SUITES IS #OCLA2031R/8											
Grand total											17

(04322) PROJECT DRAWING REGISTER	
Sheet #	Sheet Name
E1/M1/P1	Project Cover
E2/M2/P2	Project Cover
M-3	HVAC - Specifications
M-4	HVAC - Specifications
M-5	HVAC - Scope of Work
M-6	HVAC - Scope of Work
M-7	HVAC - Bldg. 1
M-8	HVAC - Bldg. 2
M-9	HVAC - Bldg. 3
M-10	HVAC - Bldg. 4
M-11	HVAC - Bldg. 5
M-12	HVAC - Bldg. 6
M-13	HVAC - Isometric & Elevation Views
M-14	HVAC Details
P-3	Plumbing - Specifications
P-4	Plumbing - Specifications
P-5	Plumbing - Site Plan
P-6	Plumbing - Bldg. 1
P-7	Plumbing - Bldg. 2
P-8	Plumbing - Bldg. 3
P-9	Plumbing - Bldg. 4
P-10	Plumbing - Bldg. 5
P-11	Plumbing - Bldg. 6
P-12	Plumbing - Typical Building
P-13	Plumbing - Details
P-14	Plumbing - Water Schematic
P-15	Plumbing - Sanitary Schematic
E-3	Elec. Power - Specifications
E-4	Elec. Power - Specifications
E-5	Elec. Power - Scope of Work
E-6	Electrical Site Plan
E-7	Elec. - SLD
E-8	Power/Comm - Bldg. 1
E-9	Elec. Lighting - Bldg. 1
E-10	Power/Comm - Bldg. 2
E-11	Elec. Lighting - Bldg. 2
E-12	Power/Comm - Bldg. 3
E-13	Elec. Lighting - Bldg. 3
E-14	Power/Comm - Bldg. 4
E-15	Elec. Lighting - Bldg. 4
E-16	Power/Comm - Bldg. 5
E-17	Elec. Lighting - Bldg. 5
E-18	Power/Comm - Bldg. 6
E-19	Elec. Lighting - Bldg. 6
E-20	Elec. Typical Building
E-21	Electrical Schedules
E-22	Electrical Details

PLUMBING LEGEND									
	CLEANOUT / STACK								
	CLEANOUT / RUN								
	CLEANOUT / FITTING								
	FLOOR DRAIN / P-TRAP & TRAP SEAL PRIMER								
	RUNNING TRAP c/w CLEANOUT & TRAP SEAL PRIMER								
	VALVE / BALL								
	VALVE / GLOBE								
	VALVE / GATE								
	VALVE / SOLENOID								
	VALVE / BALANCING								
	VALVE / REDUCING								
	VALVE / CHECK								
	VALVE / THERMOSTATIC MIXING								
	REDUCED PRESSURE ZONE / RPZ								
	DOUBLE CHECK VALVE ASSEMBLY / DCVA								
	CAP / FITTING								
	UNION								
	CIRCULATING PUMP								
	WATER SCHEMATIC FIXTURE "XX" DENOTES FIXTURE TYPE MARK								
	WATER SCHEMATIC FIXTURE "XX" DENOTES FIXTURE TYPE MARK								
	SANITARY SCHEMATIC FIXTURE "XX" DENOTES FIXTURE TYPE MARK								
	FIXTURE TAG "XXX" DENOTES TYPE MARK								
	STACK • SAN - SANITARY • VTR - VENT TO ROOF • RWL - RAIN WATER LEADER • DOV - DOMESTIC COLD WATER • DHWR - DOMESTIC HOT WATER • DHWT - DOMESTIC HOT WATER • REG - REGULATOR • NGAS - NATURAL GAS								
	TEE / DROP REFER TO PIPE TYPE								
	TEE / RISE REFER TO PIPE TYPE								
	ELBOW / DROP REFER TO PIPE TYPE								
	ELBOW / RISE REFER TO PIPE TYPE								
	DOMESTIC COLD WATER / DCW								
	DOMESTIC HOT WATER / DHW								
	DOMESTIC HOT WATER RECIRCULATING / DHWR								
	VENT								
	SANITARY DRAINAGE / UNDERGROUND								
	SANITARY DRAINAGE / ABOVE GROUND								
	STORM DRAINAGE / UNDERGROUND								
	STORM DRAINAGE / ABOVE GROUND								
	WEPPING TILE PIPING								
	NATURAL GAS PIPING								
NOT ALL SYMBOLS APPLY TO FLOOR PLANS / DRAWINGS									

(04322) Plumbing Fixture Schedule - (New) Typical Suite											
Level	Type Mark	Barrier-Free (Blank = N/A)	Qty.	Description	Manufacturer	Model	Accessory 1	Accessory 2	Supplied By	Comments (Controls)	Group ID_NSET
FFE Lower Level	CO-4F		1	4" O/C FINISHED	SEE PROJECT SPEC.	SEE PROJECT SPEC.			DIV. 22	Typ. Suites	
FFE Lower Level	SH-1	Yes	1	SHOWER/ 5-PIECE / c/w GRAB BARS & SEAT / HANDHELD SHOWER VALVE	LONGEVITY	SC2366 OBC 2BAR PHENOLIC SEAT	HEAD: MOEN 52236GBM15 c/w CONTROL: MOEN# T8370 c/w MOEN #62320(CC)	DRAIN FIXTURE: WATTS FD-100-C-A	DIV. 22	Typ. Suites	
FFE Lower Level	SNK-1		1	SINK / KITCHEN / DBL. BOWL / 7" DEEP / STAINLESS STEEL / DECK MNT. / SINGLE HANDLE FAUCET	KINDRED	OCLA2031L/8	FAUCET: MOEN #67425	MIXING VALVE: AMERICAN STD. #605XTMV	DIV. 22	Typ. Suites	
FFE Lower Level	SNK-2	Yes	1	LAVATORY / DROP-IN / SINGLE HANDLE STD. FAUCET	AMERICAN STD.	"COLONY" #0346.403	FAUCET: MOEN #L64600	MIXING VALVE: LAWLER#570-86820	DIV. 22	Typ. Suites	
FFE Lower Level	WC-2	Yes	1	TOILET / PRIVATE / BOWL, ELONG., 15" AFF. / FLOOR MOUNT / LINED TANK / OPEN SEAT c/w COVER	AMERICAN STD.	"CADET PRO" "ELONGATED" #215CA.104.020	TANK: GRAVITY / LINED	SEAT: CENTOCO #1600	DIV. 22	Typ. Suites	
FFE Lower Level	WM-2	Yes	1	WATER METER / TENANT SUB-METER c/w REMOTE READOUT	BY CONTRACTOR		REMOTE READOUT		DIV. 22	Typ. Suites	
			6								
FFE Ground Floor	HB-1		1	HYDRANT / NON-FREEZE / 12" WALL THICKNESS/ 3/4" NOM. / c/w VACUUM BREAKER / KEY LOCK	WATTS	HY-725	INTERGRAL VACUUM BREAKER		DIV. 22	Typ. Suites	
FFE Ground Floor	SH-1	Yes	1	SHOWER/ 5-PIECE / c/w GRAB BARS & SEAT / HANDHELD SHOWER VALVE	LONGEVITY	SC2366 OBC 2BAR PHENOLIC SEAT	HEAD: MOEN 52236GBM15 c/w CONTROL: MOEN# T8370 c/w MOEN #62320(CC)	DRAIN FIXTURE: WATTS FD-100-C-A	DIV. 22	Typ. Suites	
FFE Ground Floor	SNK-1		1	SINK / KITCHEN / DBL. BOWL / 7" DEEP / STAINLESS STEEL / DECK MNT. / SINGLE HANDLE FAUCET	KINDRED	OCLA2031L/8	FAUCET: MOEN #67425	MIXING VALVE: AMERICAN STD. #605XTMV	DIV. 22	Typ. Suites	
FFE Ground Floor	SNK-2	Yes	1	LAVATORY / DROP-IN / SINGLE HANDLE STD. FAUCET	AMERICAN STD.	"COLONY" #0346.403	FAUCET: MOEN #L64600	MIXING VALVE: LAWLER#570-86820	DIV. 22	Typ. Suites	
FFE Ground Floor	WC-2	Yes	1	TOILET / PRIVATE / BOWL, ELONG., 15" AFF. / FLOOR MOUNT / LINED TANK / OPEN SEAT c/w COVER	AMERICAN STD.	"CADET PRO" "ELONGATED" #215CA.104.020	TANK: GRAVITY / LINED	SEAT: CENTOCO #1600	DIV. 22	Typ. Suites	
FFE Ground Floor	WM-2	Yes	1	WATER METER / TENANT SUB-METER c/w REMOTE READOUT	BY CONTRACTOR		REMOTE READOUT		DIV. 22	Typ. Suites	
			6								
2 - Floor	SH-2	No	1	SHOWER/ c/w HEAD & CONTROLS	LONGEVITY	2260	HEAD: MOEN 52236GBM15 c/w CONTROL: MOEN# T8370 c/w MOEN #62320(CC)	DRAIN FIXTURE: WATTS FD-100-C-A	DIV. 22	Typ. Suites	
2 - Floor	SNK-1		1	SINK / KITCHEN / DBL. BOWL / 7" DEEP / STAINLESS STEEL / DECK MNT. / SINGLE HANDLE FAUCET	KINDRED	OCLA2031L/8	FAUCET: MOEN #67425	MIXING VALVE: AMERICAN STD. #605XTMV	DIV. 22	Typ. Suites	
2 - Floor	SNK-2	Yes	1	LAVATORY / DROP-IN / SINGLE HANDLE STD. FAUCET	AMERICAN STD.	"COLONY" #0346.403	FAUCET: MOEN #L64600	MIXING VALVE: LAWLER#570-86820	DIV. 22	Typ. Suites	
2 - Floor	WC-2	Yes	1	TOILET / PRIVATE / BOWL, ELONG., 15" AFF. / FLOOR MOUNT / LINED TANK / OPEN SEAT c/w COVER	AMERICAN STD.	"CADET PRO" "ELONGATED" #215CA.104.020	TANK: GRAVITY / LINED	SEAT: CENTOCO #1600	DIV. 22	Typ. Suites	
			6								
NOTE: THIS SCHEDULE DEPICTS THE FIXTURES FOR ONE TYPICAL SUITE ON EACH LEVEL/OTE READOUT											
SK-1 MODEL # FOR MIRRORED SUITES IS #OCLA2031R/8											
Grand total											
17											

(04322) PROJECT DRAWING REGISTER	
Sheet #	Sheet Name
E1/M1/P1	Project Cover
E2/M2/P2	Project Cover
M-3	HVAC - Specifications
M-4	HVAC - Specifications
M-5	HVAC - Scope of Work
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M-7	HVAC - Bldg. 1
M-8	HVAC - Bldg. 2
M-9	HVAC - Bldg. 3
M-10	HVAC - Bldg. 4
M-11	HVAC - Bldg. 5
M-12	HVAC - Bldg. 6
M-13	HVAC - Isometric & Elevation Views
M-14	HVAC Details
P-3	Plumbing - Specifications
P-4	Plumbing - Specifications
P-5	Plumbing - Site Plan
P-6	Plumbing - Bldg. 1
P-7	Plumbing - Bldg. 2
P-8	Plumbing - Bldg. 3
P-9	Plumbing - Bldg. 4
P-10	Plumbing - Bldg. 5
P-11	Plumbing - Bldg. 6
P-12	Plumbing - Typical Building
P-13	Plumbing - Details
P-14	Plumbing - Water Schematic
P-15	Plumbing - Sanitary Schematic
E-3	Elec. Power - Specifications
E-4	Elec. Power - Specifications
E-5	Elec. Power - Scope of Work
E-6	Electrical Site Plan
E-7	Elec. - SLD
E-8	Power/Comm - Bldg. 1
E-9	Elec. Lighting - Bldg. 1
E-10	Power/Comm - Bldg. 2
E-11	Elec. Lighting - Bldg. 2
E-12	Power/Comm - Bldg. 3
E-13	Elec. Lighting - Bldg. 3
E-14	Power/Comm - Bldg. 4
E-15	Elec. Lighting - Bldg. 4
E-16	Power/Comm - Bldg. 5
E-17	Elec. Lighting - Bldg. 5
E-18	Power/Comm - Bldg. 6
E-19	Elec. Lighting - Bldg. 6
E-20	Elec. Typical Building
E-21	Electrical Schedules
E-22	Electrical Details



PLUMBING LEGEND									
	CLEANOUT / STACK								
	CLEANOUT / RUN								
	CLEANOUT / FITTING								
	FLOOR DRAIN c/w P-TRAP & TRAP SEAL PRIMER								
	RUNNING TRAP c/w CLEANOUT & TRAP SEAL PRIMER								
	VALVE / BALL								
	VALVE / GLOBE								
	VALVE / GATE								
	VALVE / SOLENOID								
	VALVE / BALANCING								
	VALVE / REDUCING								
	VALVE / CHECK								
	VALVE / THERMOSTATIC MIXING								
	REDUCED PRESSURE ZONE / RPZ								
	DOUBLE CHECK VALVE ASSEMBLY / DVA								
	CAP / FITTING								
	UNION								
	CIRCULATING PUMP								
	WATER SCHEMATIC FIXTURE XX DENOTES FIXTURE TYPE MARK								
	WATER SCHEMATIC FIXTURE XX DENOTES FIXTURE TYPE MARK								
	SANITARY SCHEMATIC FIXTURE XX DENOTES FIXTURE TYPE MARK								
	FIXTURE TAG XXX DENOTES TYPE MARK								
	STACK • SAN - SANITARY • VTR - VENT TO ROOF • RWL - RAIN WATER LEADER • DCW - DOMESTIC COLD WATER • DHWR - DOMESTIC HOT WATER • RDWR - RECYCLING HOT WATER • NGAS - NATURAL GAS								
	TEE / DROP REFER TO PIPE TYPE								
	TEE / RISE REFER TO PIPE TYPE								
	ELBOW / DROP REFER TO PIPE TYPE								
	ELBOW / RISE REFER TO PIPE TYPE								
	DOMESTIC COLD WATER / DCW								
	DOMESTIC HOT WATER / DHW								
	DOMESTIC HOT WATER RECIRCULATING / DHWR								
	VENT								
	SANITARY DRAINAGE / UNDERGROUND								
	SANITARY DRAINAGE / ABOVE GROUND								
	STORM DRAINAGE / UNDERGROUND								
	STORM DRAINAGE / ABOVE GROUND								
	WEPPING TILE PIPING								
	NATURAL GAS PIPING								
NOT ALL SYMBOLS APPLY TO FLOOR PLANS / DRAWINGS									

(04322) Plumbing Fixture Schedule - (New) Service &amp; Common Areas

Level	Type Mark	Barrier-Free (Blank = N/A)	Qty.	Description	Manufacturer	Model	Accessory 1	Accessory 2	Supplied By	Comments (Controls)	Group ID_NSET
FFE Lower Level	BF-1		1	BACKFLOW PREVENTER / "DCVA" TYPE / 2" CONN., HORIZ. MNT.	WATTS	007-M1-QT			DIV. 22	Service	
FFE Lower Level	BF-2		1	BACKFLOW PREVENTER / "DCVA" TYPE / 1" CONN., HORIZ. MNT.	WATTS	007-M1-QT			DIV. 22	Service	
FFE Lower Level	CO-4F		1	4" Ø C/O / FINISHED	SEE PROJECT SPEC.	SEE PROJECT SPEC.			DIV. 22	Service	
FFE Lower Level	FD-3F		2	FLOOR DRAIN / 3" / FINISHED c/w TRAP & PRIMER	SEE PROJECT SPEC.	SEE PROJECT SPEC.			DIV. 22	Service	
FFE Lower Level	FD-3U		1	FLOOR DRAIN / 3" / UNFINISHED c/w TRAP & PRIMER	SEE PROJECT SPEC.	SEE PROJECT SPEC.			DIV. 22	Service	
FFE Lower Level	MS-1		1	SINK / JANITOR / FLOOR MNT. / PRECAST TERRAZZO / 24"x24"x12" / 3" DRAIN	FIAT	#MSB-2424	FAUCET: FIAT PRODUCTS #830-AA		DIV. 22	Service	
FFE Lower Level	WM-1	Yes	1	WATER METER	BY AHJ	BY AHJ			BY AHJ	Service	
FFE Lower Level	WM-3	Yes	1	WATER METER / TENANT SUB-METER c/w REMOTE READOUT	BY CONTRACTOR	BY CONTRACTOR	REMOTE READOUT		DIV. 22	Service	
			9								
FFE Ground Floor	CO-3F		1	3" Ø C/O / FINISHED	SEE PROJECT SPEC.	SEE PROJECT SPEC.			DIV. 22	Service	
FFE Ground Floor	FD-2F		1	FLOOR DRAIN / 2" / FINISHED c/w TRAP & PRIMER	SEE PROJECT SPEC.	SEE PROJECT SPEC.			DIV. 22	Service	
FFE Ground Floor	FD-3F		1	FLOOR DRAIN / 3" / FINISHED c/w TRAP & PRIMER	SEE PROJECT SPEC.	SEE PROJECT SPEC.			DIV. 22	Service	
FFE Ground Floor	SNK-3	Yes	1	LAVATORY / B.F. / WALL MNT. @ 34" TO RIM / SINGLE HANDLE STD. FAUCET	AMERICAN STD.	9141011.020	FAUCET: MOEN #L64600 STRAINER: Z8746-PC CARRIER: WATTS# CA-421 / COVERING: MCGUIRE #PW2000		DIV. 22	Service	
FFE Ground Floor	WB-1		4	WALL BOX / LAUNDRY / LEAD FREE / 1/2" SUPPLIES / c/w WATER HAMMER ARRESTOR	OATEY	38542	WATER HAMMER ARRESTOR		DIV. 22	Service	
FFE Ground Floor	WC-1	Yes	1	TOILET / B.F. / PUBLIC / BOWL, ELONG. 16 1/2" AFF / FLOOR MNT. / LINED TANK / OPEN SEAT NO COVER	AMERICAN STD.	"CADET PRO" "RIGHT HEIGHT" #215AA.104.020	TANK: GRAVITY / LINED SEAT: CENTOCO #500STSCC.001		DIV. 22	Service	
			9								
			18								
NOTE: SCHEDULE ABOVE IS FOR SERVICE & COMMON AREAS ONLY											

(04322) PROJECT DRAWING REGISTER	
Sheet #	Sheet Name
E1/M1/P1	Project Cover
E2/M2/P2	Project Cover
M-3	HVAC - Specifications
M-4	HVAC - Specifications
M-5	HVAC - Scope of Work
M-6	HVAC - Scope of Work
M-7	HVAC - Bldg. 1
M-8	HVAC - Bldg. 2
M-9	HVAC - Bldg. 3
M-10	HVAC - Bldg. 4
M-11	HVAC - Bldg. 5
M-12	HVAC - Bldg. 6
M-13	HVAC - Isometric & Elevation Views
M-14	HVAC Details
P-3	Plumbing - Specifications
P-4	Plumbing - Specifications
P-5	Plumbing - Site Plan
P-6	Plumbing - Bldg. 1
P-7	Plumbing - Bldg. 2
P-8	Plumbing - Bldg. 3
P-9	Plumbing - Bldg. 4
P-10	Plumbing - Bldg. 5
P-11	Plumbing - Bldg. 6
P-12	Plumbing - Typical Building
P-13	Plumbing - Details
P-14	Plumbing - Water Schematic
P-15	Plumbing - Sanitary Schematic
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E-7	Elec. - SLD
E-8	Power/Comm - Bldg. 1
E-9	Elec. Lighting - Bldg. 1
E-10	Power/Comm - Bldg. 2
E-11	Elec. Lighting - Bldg. 2
E-12	Power/Comm - Bldg. 3
E-13	Elec. Lighting - Bldg. 3
E-14	Power/Comm - Bldg. 4
E-15	Elec. Lighting - Bldg. 4
E-16	Power/Comm - Bldg. 5
E-17	Elec. Lighting - Bldg. 5
E-18	Power/Comm - Bldg. 6
E-19	Elec. Lighting - Bldg. 6
E-20	Elec. Typical Building
E-21	Electrical Schedules
E-22	Electrical Details

- GENERAL DRAWING / DESIGNER NOTES:**
- [1] ALL CONSTRUCTION METHODS AND MATERIALS TO CONFORM TO THE REQUIREMENTS OF THE PROVINCE OF ONTARIO'S BUILDING CODE, LOCAL REGULATIONS AND AUTHORITIES HAVING JURISDICTION.
  - [2] THE CONSULTANT RESERVES THE RIGHT TO MAKE REASONABLE CHANGES IN ORDER TO ACCOMMODATE CONDITIONS ARISING DURING CONSTRUCTION. THE CONSULTANT WILL NOT BE HELD RESPONSIBLE FOR CONSTRUCTION COSTS ARRIVING FROM SUCH CHANGES MAY APPLY AND ARE TO BE NEGOTIATED BETWEEN THE OWNER AND CONTRACTOR.
  - [3] DRAWINGS ONLY SHOW GENERAL INTENT AND SCOPE OF WORK. DETAILS ARE PROVIDED BY THE CONTRACTOR. DRAWINGS PROVIDED BY THE DESIGNER DO NOT SCALE DRAWINGS.
  - [4] CONTRACTOR/AGENT OWNER TO REPORT ALL DISCOVERIES OF ERRORS, OMISSIONS OR DISCREPANCIES TO THE DESIGNER.
  - [5] PROCEED WITH CONSTRUCTION ONLY USING THE LATEST REVISED DRAWINGS ISSUED FOR THIS PROJECT.
  - [6] THIS DRAWING IS SPECIFIC TO THIS PROJECT AND CANNOT BE USED FOR OTHER "SIMILAR" PROJECTS.
  - [7] THIS DRAWING IS THE PROPERTY OF NORTHSTAR ENGINEERING & TECHNOLOGIES LTD. UN-AUTHORIZED RE-PRODUCTION OR USE IS PROHIBITED.
  - [8] SHOP DRAWINGS: BASED ON CONTRACT WITH OWNER, THE ENGINEER WILL REVIEW THE SUBMISSION DWGS FROM THE CONTRACTOR TO REVIEW THE ITEMS FOR GENERAL CONFORMITY TO THE DESIGN DWGS. THE SHOP DWG ISSUED WILL NOT RELEASE THE CONTRACTOR FROM THE CONTRACTUAL OBLIGATIONS OF THE PIPELINE SYSTEM. THESE SHOP DRAWINGS SHALL CONSIST OF PLUMBING FIXTURES, HVAC EQUIPMENT, HVAC DIFFUSERS, MINIMUM 1-2 WEEKS FOR COMPLETION (BASED ON COMPLEXITY).
  - [9] THE DESIGNER DOES NOT ACCEPT RESPONSIBILITY FOR OWN DESIGNER'S WORK IN ASSOCIATION WITH THIS PROJECT.
  - [10] REQUESTS FOR ANY FINAL ASSEMBLY THAT VIOLATE APPLICABLE BUILDING CODES IS NOT ACCEPTED BY THE DESIGNER.
  - [11] REQUESTS FOR CHANGES OR SUBSTITUTIONS TO EQUIPMENT, PLANS AND / OR SPECIFICATIONS WILL BE SUBJECT TO ADDITIONAL FEES CHARGED BY THE CONSULTANT.
  - [12] SITE VISITS TO REVIEW IMPLEMENTED DESIGNS WITHIN THE SCOPE OF THIS PROJECT TO BE ARRANGED WITH THE OWNER.
  - [13] MINIMUM FORTY EIGHT (48) HOURS PRIOR NOTICE TO BE PROVIDED FOR SITE VISITS - ONCE ARRANGED.
  - [14] REQUESTS FOR THE RELEASE OF THIS DRAWING SET FROM NORTHSTAR ENGINEERING & TECHNOLOGIES LTD. FOR THE PURCHASE, TRANSFER, EXCHANGE OR RELEASE TO A CONTRACTOR TO BE MADE BY THE OWNER OR ARCHITECT IN WRITING.
  - [15] TENDER PRICING BY CONTRACTORS OF DRAWINGS TO BE BASED ON DWGS MARKED "ISSUED FOR TENDER" OR "ISSUED FOR CONSTRUCTION" ONLY.
  - [16] ALL REQUESTS FOR DESIGN CHANGES / SUBSTITUTIONS TO BE MADE IN WRITING. ADDITIONAL FEES MAY APPLY. ALLOW MINIMUM ONE WEEK TO REVIEW AND RESPOND TO CHANGE REQUESTS.

DRAWING REVISIONS		
No.	Description	Date
1	Preliminary	May 19/22
3	Preliminary for Review	Sep. 09/22
4	Issued for Permit	Oct. 05/22
5	Issued for Tender	May 18/23
6	Re-Issued for Tender</td	

PLUMBING LEGEND										
●	CLEANOUT / STACK									
●	CLEANOUT / RUN									
II	CLEANOUT / FITTING									
UF	FLOOR DRAIN & TRAP SEAL PRIMER									
RF	RUNNING TRAP c/w CLEANOUT & TRAP SEAL PRIMER									
VK	VALVE / BALL									
VG	VALVE / GLOBE									
VG	VALVE / GATE									
VS	VALVE / SOLENOID									
VB	VALVE / BALANCING									
VR	VALVE / REDUCING									
VC	VALVE / CHECK									
VTM	VALVE / THERMOSTATIC MIXING									
RPZ	REDUCED PRESSURE ZONE / RPZ									
DCAV	DOUBLE CHECK VALVE ASSEMBLY / DCAV									
CF	CAP / FITTING									
U	UNION									
CP	CIRCULATING PUMP									
WS	WATER SCHEMATIC FIXTURE 'XX' DENOTES FIXTURE TYPE MARK									
WS	WATER SCHEMATIC FIXTURE 'XX' DENOTES FIXTURE TYPE MARK									
SS	SANITARY SCHEMATIC FIXTURE 'XX' DENOTES FIXTURE TYPE MARK									
FT	FIXTURE TAG 'XXX' DENOTES TYPE MARK									
SD	STACK 'XX' DENOTES:									
	- SAN - SANITARY									
	- VTR - VENT TO ROOF									
	- RWL - RAIN WATER LEADER									
	- DOW - DOMESTIC COLD WATER									
	- DHW - DOMESTIC HOT WATER									
	- RDW - READING HOT WATER									
	- NGAS - NATURAL GAS									
DP	TEE / DROP REFER TO PIPE TYPE									
DR	TEE / RISE REFER TO PIPE TYPE									
DP	ELBOW / DROP REFER TO PIPE TYPE									
DR	ELBOW / RISE REFER TO PIPE TYPE									
DCW	DOMESTIC COLD WATER / DCW									
DHW	DOMESTIC HOT WATER / DHW									
DHR	DOMESTIC HOT WATER RECIRCULATING / DHWR									
V	VENT									
SDU	SANITARY DRAINAGE / UNDERGROUND									
SAG	SANITARY DRAINAGE / ABOVE GROUND									
SDU	STORM DRAINAGE / UNDERGROUND									
SAG	STORM DRAINAGE / ABOVE GROUND									
WT	WEPPING TILE PIPING									
NG	NATURAL GAS PIPING									
NA	NOT ALL SYMBOLS APPLY TO FLOOR PLANS / DRAWINGS									

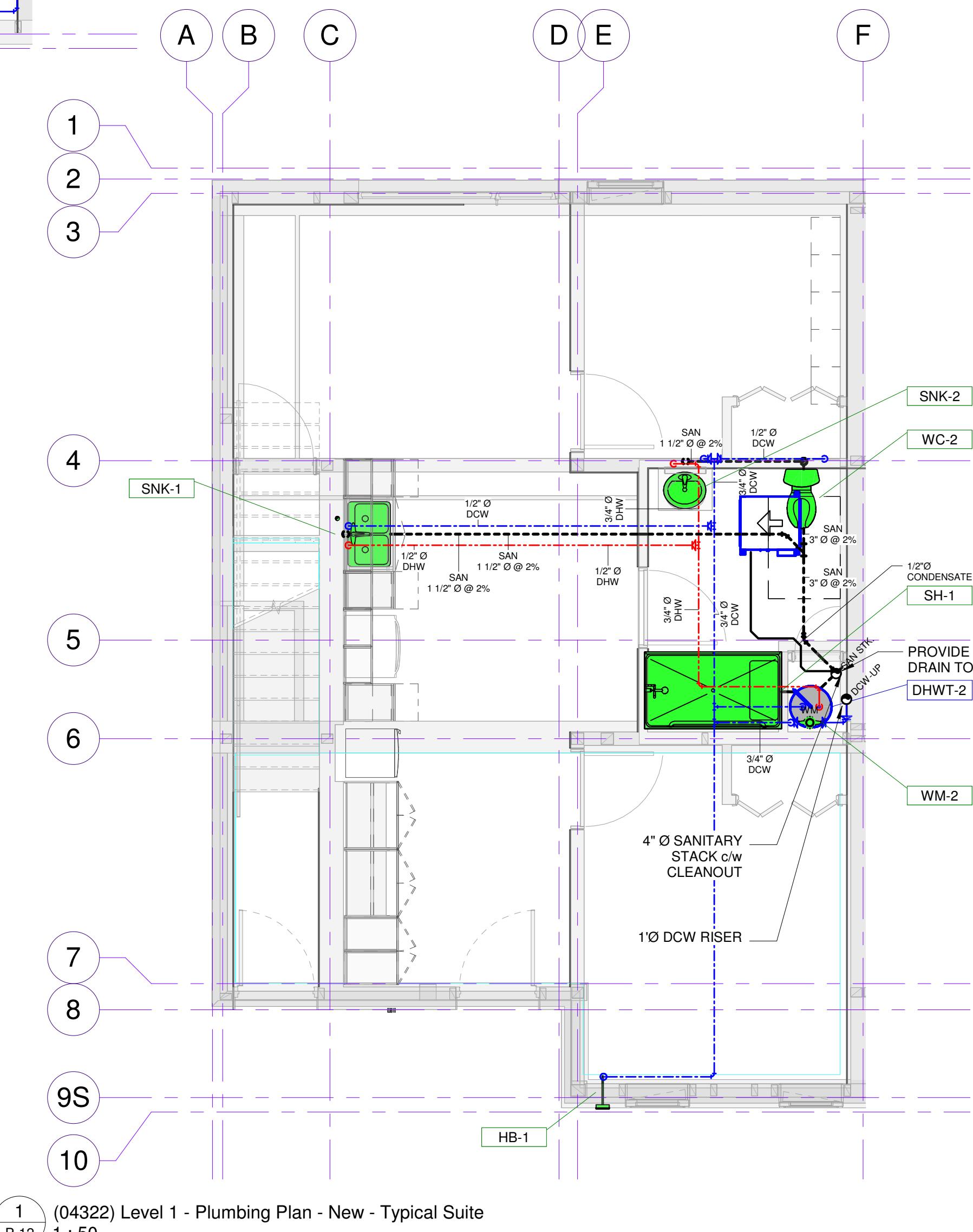
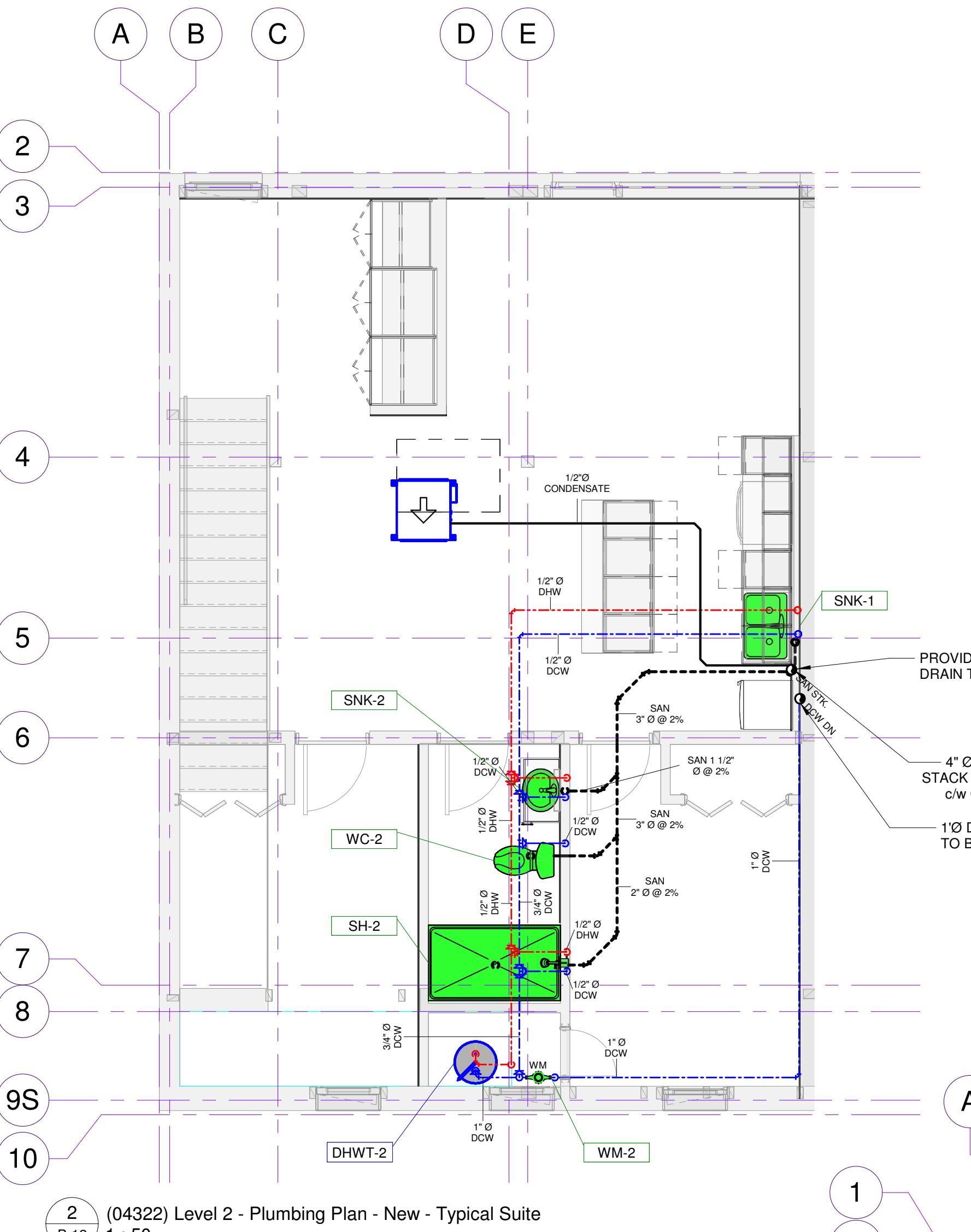
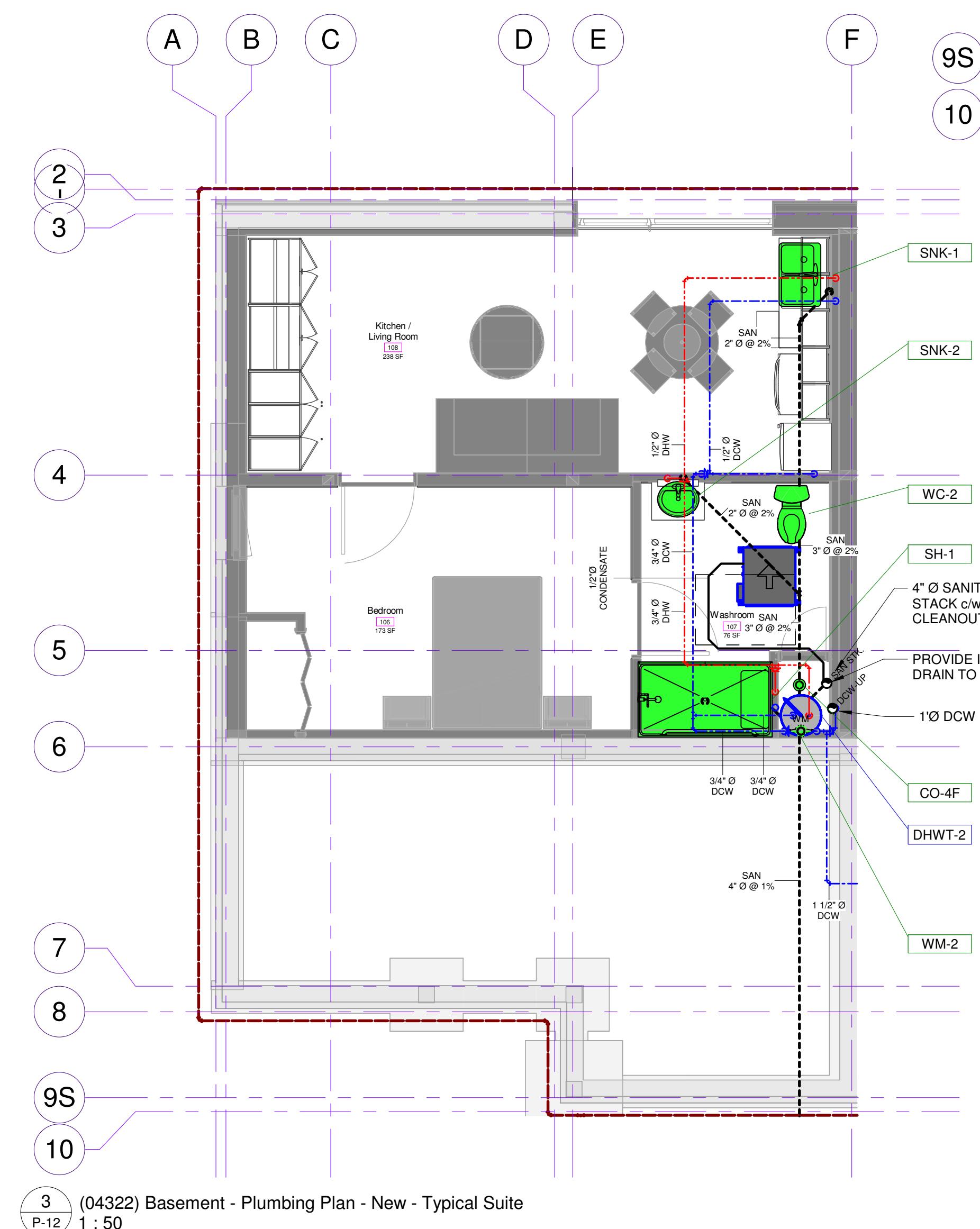
(04322) Plumbing Fixture Schedule - (New) Typical Suite											
Level	Type Mark	Barrier-Free (Blank = N/A)	Qty.	Description	Manufacturer	Model	Accessory 1	Accessory 2	Supplied By	Comments (Controls)	Group ID_NSET
FFE Lower Level	CO-4F		1	4"Ø C/O / FINISHED	SEE PROJECT SPEC.	SEE PROJECT SPEC.	HEAD: MOEN 52236GBM15 c/w CONTROL; MOEN# T8370 c/w MOEN #62320(CC)	DRAIN FIXTURE: WATTS FD-100-C-A	DIV. 22	Typ. Suites	
FFE Lower Level	SH-1	Yes	1	SHOWER/ 5-PIECE / c/w GRAB BARS & SEAT / HANDHELD SHOWER VALVE	LONGEVITY	SC2366 OBC 2BAR PHENOLIC SEAT	FAUCET: MOEN #67425	MIXING VALVE: AMERICAN STD. #605XTMV	DIV. 22	Typ. Suites	
FFE Lower Level	SNK-1		1	SINK / KITCHEN / DBL. BOWL / 7" DEEP / STAINLESS STEEL / DECK MNT. / SINGLE HANDLE FAUCET	KINDRED	OCLA2031L/8	FAUCET: MOEN #67425	MIXING VALVE: AMERICAN STD. #605XTMV	DIV. 22	Typ. Suites	
FFE Lower Level	SNK-2	Yes	1	LAVATORY / DROP-IN / SINGLE HANDLE STD. FAUCET	AMERICAN STD.	"COLONY" #0346.403	FAUCET: MOEN #L64600	MIXING VALVE: LAWLER#570-86820	DIV. 22	Typ. Suites	
FFE Lower Level	WC-2	Yes	1	TOILET / PRIVATE / BOWL, ELONG., 15" AFF. / FLOOR MOUNT / LINED TANK / OPEN SEAT c/w COVER	AMERICAN STD.	"CADET PRO" "ELONGATED" #215CA.104.020	TANK: GRAVITY / LINED	SEAT: CENTOCO #1600	DIV. 22	Typ. Suites	
FFE Lower Level	WM-2	Yes	1	WATER METER / TENANT SUB-METER c/w REMOTE READOUT	BY CONTRACTOR	REMOTE READOUT			DIV. 22	Typ. Suites	
			6								
FFE Ground Floor	HB-1		1	HYDRANT / NON-FREEZE / 12" WALL THICKNESS/ 3/4" NOM. / c/w VACUUM BREAKER / KEY LOCK	WATTS	HY-725	INTERGRAL VACUUM BREAKER		DIV. 22	Typ. Suites	
FFE Ground Floor	SH-1	Yes	1	SHOWER/ 5-PIECE / c/w GRAB BARS & SEAT / HANDHELD SHOWER VALVE	LONGEVITY	SC2366 OBC 2BAR PHENOLIC SEAT	HEAD: MOEN 52236GBM15 c/w CONTROL; MOEN# T8370 c/w MOEN #62320(CC)	DRAIN FIXTURE: WATTS FD-100-C-A	DIV. 22	Typ. Suites	
FFE Ground Floor	SNK-1		1	SINK / KITCHEN / DBL. BOWL / 7" DEEP / STAINLESS STEEL / DECK MNT. / SINGLE HANDLE FAUCET	KINDRED	OCLA2031L/8	FAUCET: MOEN #67425	MIXING VALVE: AMERICAN STD. #605XTMV	DIV. 22	Typ. Suites	
FFE Ground Floor	SNK-2	Yes	1	LAVATORY / DROP-IN / SINGLE HANDLE STD. FAUCET	AMERICAN STD.	"COLONY" #0346.403	FAUCET: MOEN #L64600	MIXING VALVE: LAWLER#570-86820	DIV. 22	Typ. Suites	
FFE Ground Floor	WC-2	Yes	1	TOILET / PRIVATE / BOWL, ELONG., 15" AFF. / FLOOR MOUNT / LINED TANK / OPEN SEAT c/w COVER	AMERICAN STD.	"CADET PRO" "ELONGATED" #215CA.104.020	TANK: GRAVITY / LINED	SEAT: CENTOCO #1600	DIV. 22	Typ. Suites	
FFE Ground Floor	WM-2	Yes	1	WATER METER / TENANT SUB-METER c/w REMOTE READOUT	BY CONTRACTOR	REMOTE READOUT			DIV. 22	Typ. Suites	
			6								
2 - Floor	SH-2	No	1	SHOWER/ c/w HEAD & CONTROLS	LONGEVITY	2260	HEAD: MOEN 52236GBM15 c/w CONTROL; MOEN# T8370 c/w MOEN #62320(CC)	DRAIN FIXTURE: WATTS FD-100-C-A	DIV. 22	Typ. Suites	
2 - Floor	SNK-1		1	SINK / KITCHEN / DBL. BOWL / 7" DEEP / STAINLESS STEEL / DECK MNT. / SINGLE HANDLE FAUCET	KINDRED	OCLA2031L/8	FAUCET: MOEN #67425	MIXING VALVE: AMERICAN STD. #605XTMV	DIV. 22	Typ. Suites	
2 - Floor	SNK-2	Yes	1	LAVATORY / DROP-IN / SINGLE HANDLE STD. FAUCET	AMERICAN STD.	"COLONY" #0346.403	FAUCET: MOEN #L64600	MIXING VALVE: LAWLER#570-86820	DIV. 22	Typ. Suites	
2 - Floor	WC-2	Yes	1	TOILET / PRIVATE / BOWL, ELONG., 15" AFF. / FLOOR MOUNT / LINED TANK / OPEN SEAT c/w COVER	AMERICAN STD.	"CADET PRO" "ELONGATED" #215CA.104.020	TANK: GRAVITY / LINED	SEAT: CENTOCO #1600	DIV. 22	Typ. Suites	
2 - Floor	WM-2	Yes	1	WATER METER / TENANT SUB-METER c/w REMOTE READOUT	BY CONTRACTOR	REMOTE READOUT			DIV. 22	Typ. Suites	
			5								
Grand total											17

NOTE: THIS SCHEDULE DEPICTS THE FIXTURES FOR ONE TYPICAL SUITE ON EACH LEVEL  
SK-1 MODEL # FOR MIRRORED SUITES IS #QCLA2031R/8

(04322) PROJECT DRAWING REGISTER	
Sheet #	Sheet Name
E1/M1/P1	Project Cover
E2/M2/P2	Project Cover
M-3	HVAC - Specifications
M-4	HVAC - Specifications
M-5	HVAC - Scope of Work
M-6	HVAC - Scope of Work
M-7	HVAC - Bldg. 1
M-8	HVAC - Bldg. 2
M-9	HVAC - Bldg. 3
M-10	HVAC - Bldg. 4
M-11	HVAC - Bldg. 5
M-12	HVAC - Bldg. 6
M-13	HVAC - Isometric & Elevation Views
M-14	HVAC Details
P-3	Plumbing - Specifications
P-4	Plumbing - Specifications
P-5	Plumbing - Site Plan
P-6	Plumbing - Bldg. 1
P-7	Plumbing - Bldg. 2
P-8	Plumbing - Bldg. 3
P-9	Plumbing - Bldg. 4
P-10	Plumbing - Bldg. 5
P-11	Plumbing - Bldg. 6
P-12	Plumbing - Typical Building
P-13	Plumbing - Details
P-14	Plumbing - Water Schematic
P-15	Plumbing - Sanitary Schematic
E-3	Elec. Power - Specifications
E-4	Elec. Power - Specifications
E-5	Elec. Power - Scope of Work
E-6	Electrical Site Plan
E-7	Elec. - SLD
E-8	Power/Comm - Bldg. 1
E-9	Elec. Lighting - Bldg 1
E-10	Power/Comm - Bldg. 2
E-11	Elec. Lighting - Bldg 2
E-12	Power/Comm - Bldg. 3
E-13	Elec. Lighting - Bldg 3
E-14	Power/Comm - Bldg. 4
E-15	Elec. Lighting - Bldg 4
E-16	Power/Comm - Bldg. 5
E-17	Elec. Lighting - Bldg 5
E-18	Power/Comm - Bldg. 6
E-19	Elec. Lighting - Bldg 6
E-20	Elec. Typical Building
E-21	Electrical Schedules
E-22	Electrical Details

<tbl

PLUMBING LEGEND	
●	CLEANOUT / STACK
●	CLEANOUT / RUN
●	CLEANOUT / FITTING
●	FLOOR DRAIN c/w TRAP & TRAP SEAL PRIMER
●	RUNNING TRAP c/w CLEANOUT & TRAP SEAL PRIMER
●	VALVE / BALL
●	VALVE / GLOBE
●	VALVE / GATE
●	VALVE / SOLENOID
●	VALVE / BALANCING
●	VALVE / REDUCING
●	VALVE / CHECK
●	VALVE / THERMOSTATIC MIXING
●	REDUCED PRESSURE ZONE / RPZ
●	DOUBLE CHECK VALVE ASSEMBLY / DCVA
●	CAP / FITTING
●	UNION
●	CIRCULATING PUMP
●	WATER SCHEMATIC FIXTURE 'XX' DENOTES FIXTURE TYPE MARK
●	WATER SCHEMATIC FIXTURE 'XX' DENOTES FIXTURE TYPE MARK
●	SANITARY SCHEMATIC FIXTURE 'XX' DENOTES FIXTURE TYPE MARK
●	Fixture Tag 'XXX' DENOTES TYPE MARK
●	Stack 'XXX' DENOTES:
●	- SAN - SANITARY
●	- VTR - VENT TO ROOF
●	- RWL - RAIN WATER LEADER
●	- DOV - DRAIN OVERFLOW
●	- DHW - DOMESTIC HOT WATER
●	- DHWR - DOMESTIC HOT WATER RECIRCULATING
●	- NGAS - NATURAL GAS
●	TEE / DROP REFER TO PIPE TYPE
●	TEE / RISE REFER TO PIPE TYPE
●	ELBOW / DROP REFER TO PIPE TYPE
●	ELBOW / RISE REFER TO PIPE TYPE
●	DOMESTIC COLD WATER / DCW
●	DOMESTIC HOT WATER / DHW
●	DOMESTIC HOT WATER RECIRCULATING / DHWR
●	VENT
●	SANITARY DRAINAGE / UNDERGROUND
●	SANITARY DRAINAGE / ABOVE GROUND
●	STORM DRAINAGE / UNDERGROUND
●	STORM DRAINAGE / ABOVE GROUND
●	WEEPING TILE PIPING
●	NATURAL GAS PIPING
NOT ALL SYMBOLS APPLY TO FLOOR PLANS / DRAWINGS	



(04322) PROJECT DRAWING REGISTER	
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M-9	HVAC - Bldg. 3
M-10	HVAC - Bldg. 4
M-11	HVAC - Bldg. 5
M-12	HVAC - Bldg. 6
M-13	HVAC - Isometric & Elevation Views
M-14	HVAC Details
P-3	Plumbing - Specifications
P-4	Plumbing - Specifications
P-5	Plumbing - Site Plan
P-6	Plumbing - Bldg. 1
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E-7	Elec. - SLD
E-8	Power/Comm - Bldg. 1
E-9	Elec. Lighting - Bldg. 1
E-10	Power/Comm - Bldg. 2
E-11	Elec. Lighting - Bldg. 2
E-12	Power/Comm - Bldg. 3
E-13	Elec. Lighting - Bldg. 3
E-14	Power/Comm - Bldg. 4
E-15	Elec. Lighting - Bldg. 4
E-16	Power/Comm - Bldg. 5
E-17	Elec. Lighting - Bldg. 5
E-18	Power/Comm - Bldg. 6
E-19	Elec. Lighting - Bldg. 6
E-20	Elec. Typical Building
E-21	Electrical Schedules
E-22	Electrical Details

- GENERAL DRAWING / DESIGNER NOTES:**
- [1] ALL CONSTRUCTION METHODS AND MATERIALS TO CONFORM TO THE REQUIREMENT OF THE PROVINCE OF ONTARIO'S BUILDING CODE, LOCAL REGULATIONS AND AUTHORITIES HAVING JURISDICTION.
  - [2] THE CONSULTANT RESERVES THE RIGHT TO MAKE REASONABLE CHANGES IN ORDER TO ACCOMMODATE CONDITIONS ARISING DURING CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR ALL CONSTRUCTION COSTS ARRIVING FROM SUCH CHANGES MAY APPLY AND ARE TO BE NEGOTIATED BETWEEN THE OWNER AND CONTRACTOR.
  - [3] DRAWINGS ONLY SHOW GENERAL INTENT AND SCOPE OF WORK. DETAILS ARE PROVIDED BY THE CONTRACTOR. DRAWINGS PROVIDED BY CONTRACTOR(S) DO NOT SCALE DRAWINGS.
  - [4] CONTRACTOR/AGENT OWNER TO REPORT ALL DISCOVERIES OF ERRORS, OMISSIONS OR DISCREPANCIES TO THE DESIGNER.
  - [5] PROCEED WITH CONSTRUCTION ONLY USING THE LATEST REVISED DRAWINGS ISSUED FOR CONSTRUCTION.
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  - [9] THE DESIGNER DOES NOT ACCEPT RESPONSIBILITY FOR OTHER DESIGNERS WORK IN ASSOCIATION WITH THIS PROJECT.
  - [10] REQUESTS FOR ANY FINAL ASSEMBLY THAT VIOLATE APPLICABLE BUILDING CODES IS NOT ACCEPTED BY THE DESIGNER.
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  - [12] SITE VISITS TO REVIEW IMPLEMENTED DESIGNS WITHIN THE SCOPE OF THIS PROJECT TO BE ARRANGED WITH THE OWNER.
  - [13] MINIMUM FORTY EIGHT (48) HOURS PRIOR NOTICE TO BE PROVIDED FOR SITE VISITS - ONCE ARRANGED.
  - [14] REQUESTS FOR THE RELEASE OF THIS DRAWING SET FROM NORTHSTAR ENGINEERING & TECHNOLOGIES LTD. FOR THE PURCHASE OF EQUIPMENT OR ACCESSORIES BY CONTRACTOR TO BE MADE BY THE OWNER OR ARCHITECT IN WRITING.
  - [15] TENDER PRICING BY CONTRACTORS OF DRAWINGS TO BE BASED ON DWGS MARKED "ISSUED FOR TENDER" OR "ISSUED FOR CONSTRUCTION" ONLY.
  - [16] ALL REQUESTS FOR DESIGN CHANGES / SUBSTITUTIONS TO BE MADE IN WRITING. ADDITIONAL FEES MAY APPLY. ALLOW MINIMUM ONE WEEK TO REVIEW AND RESPOND TO CHANGE REQUESTS.

DRAWING REVISIONS		
No.	Description	Date
5	Issued for Tender	May 18/23
6	Re-Issued for Tender	Dec. 20/24

Engineer's Seal:

Client: WW Inc.  
Address: Minden, ON  
Project Name: Gull River Affordable Housing  
Dwg. Name: Plumbing -Typical Building  
NSET Project #: 04322  
Drawn by: Northstar Eng. Checked by: J.D.L.  
Scale: As indicated Revision #: 6.0  
Drawing #: P-12  
Project Date: Jan. 14/22 Arch-D (24" x 36")

**NORTHSTAR**  
ENGINEERING & TECHNOLOGIES LTD.

92 Caplan Ave. Suite #517  
Barrie, Ontario L4N 9J2  
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dlong@nset.ca www.nset.ca

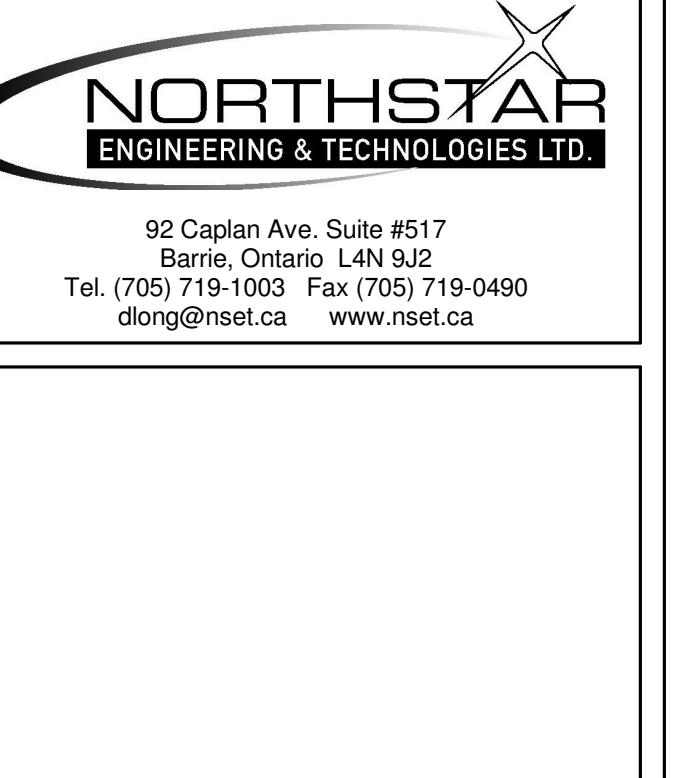
(04322) Hot Water Tank Schedule Typical Suite - (New)																		
Level	Mark	Type Mark	Description	Manufacturer	Model #	Qty.	Energy Source	Heating Capacity (Input)	Eff.%	Heat Capacity (Output)	Voltage	Phase	Hz	MCA	VA	Weight	Accessory 1	Supplied By
2- Floor	DHWT-02	DHWT-2	HOT WATER TANK / 80 US GAL. (303L) / TOP ENTRY / DOUBLE ELEC. ELEMENT	BRADFORD WHITE	E32-80R-3	1		0 Btu/h		0 Btu/h	208 V	1	60	14.4 A	3,000	110 lb	MIXING VALVE: WATSS LFM430	DIV. 23
FFE Ground Floor	DHWT-01	DHWT-2	HOT WATER TANK / 80 US GAL. (303L) / TOP ENTRY / DOUBLE ELEC. ELEMENT	BRADFORD WHITE	E32-80R-3	1				208 V	1	60	14.4 A	3,000	110 lb	MIXING VALVE: WATSS LFM430	DIV. 23	
FFE Lower Level	DHWT-03	DHWT-2	HOT WATER TANK / 80 US GAL. (303L) / TOP ENTRY / DOUBLE ELEC. ELEMENT	BRADFORD WHITE	E32-80R-3	1				208 V	1	60	14.4 A	3,000	110 lb	MIXING VALVE: WATSS LFM430	DIV. 23	
						1		0 Btu/h		0 Btu/h	208 V	1	60	14.4 A	3,000	110 lb	MIXING VALVE: WATSS LFM430	
						3		0 Btu/h		0 Btu/h								9,000

NOTE: HOT WATER TANK SCHEDULE IS FOR ONE TYPICAL SUITE ON EACH LEVEL

(04322) Hot Water Tank Schedule Shared Laundry Area - (New)																		
Level	Mark	Type Mark	Description	Manufacturer	Model #	Qty.	Energy Source	Heating Capacity (Input)	Eff.%	Heat Capacity (Output)	Voltage	Phase	Hz	MCA	VA	Weight	Accessory 1	Supplied By
FFE Lower Level	FC-1-25	DHWT-1	HOT WATER TANK / ELECTRIC / 66 US GAL. (250L) TOP ENTRY / DUAL ELEMENT / 24 GPH FHR @100F	A.O. SMITH	DEN-66	1	ELEC.			208 V	3	60	28.8 A	6,000	176 lb	MIXING VALVE: WATSS LFM430	DIV. 22	
						1		0 Btu/h		0 Btu/h								6,000
						1		0 Btu/h		0 Btu/h								

NOTE: HOT WATER TANK SCHEDULE IS FOR BUILDING 5 COMMUNAL AREA ONLY

(04322) PROJECT DRAWING REGISTER	
Sheet #	Sheet Name
E1/M1/P1	Project Cover
E2/M2/P2	Project Cover
M-3	HVAC - Specifications
M-4	HVAC - Specifications
M-5	HVAC - Scope of Work
M-6	HVAC - Scope of Work
M-7	HVAC - Bldg. 1
M-8	HVAC - Bldg. 2
M-9	HVAC - Bldg. 3
M-10	HVAC - Bldg. 4
M-11	HVAC - Bldg. 5
M-12	HVAC - Bldg. 6
M-13	HVAC - Isometric & Elevation Views
M-14	HVAC Details
P-3	Plumbing - Specifications
P-4	Plumbing - Specifications
P-5	Plumbing - Site Plan
P-6	Plumbing - Bldg. 1
P-7	Plumbing - Bldg. 2
P-8	Plumbing - Bldg. 3
P-9	Plumbing - Bldg. 4
P-10	Plumbing - Bldg. 5
P-11	Plumbing - Bldg. 6
P-12	Plumbing - Typical Building
P-13	Plumbing - Details
P-14	Plumbing - Water Schematic
P-15	Plumbing - Sanitary Schematic
E-3	Elec. Power - Specifications
E-4	Elec. Power - Specifications
E-5	Elec. Power - Scope of Work
E-6	Elec. Electrical Site Plan
E-7	Elec. - SLD
E-8	Elec. Power/Comm - Bldg. 1
E-9	Elec. Lighting - Bldg. 1
E-10	Elec. Power/Comm - Bldg. 2
E-11	Elec. Lighting - Bldg. 2
E-12	Elec. Power/Comm - Bldg. 3
E-13	Elec. Lighting - Bldg. 3
E-14	Elec. Power/Comm - Bldg. 4
E-15	Elec. Lighting - Bldg. 4
E-16	Elec. Power/Comm - Bldg. 5
E-17	Elec. Lighting - Bldg. 5
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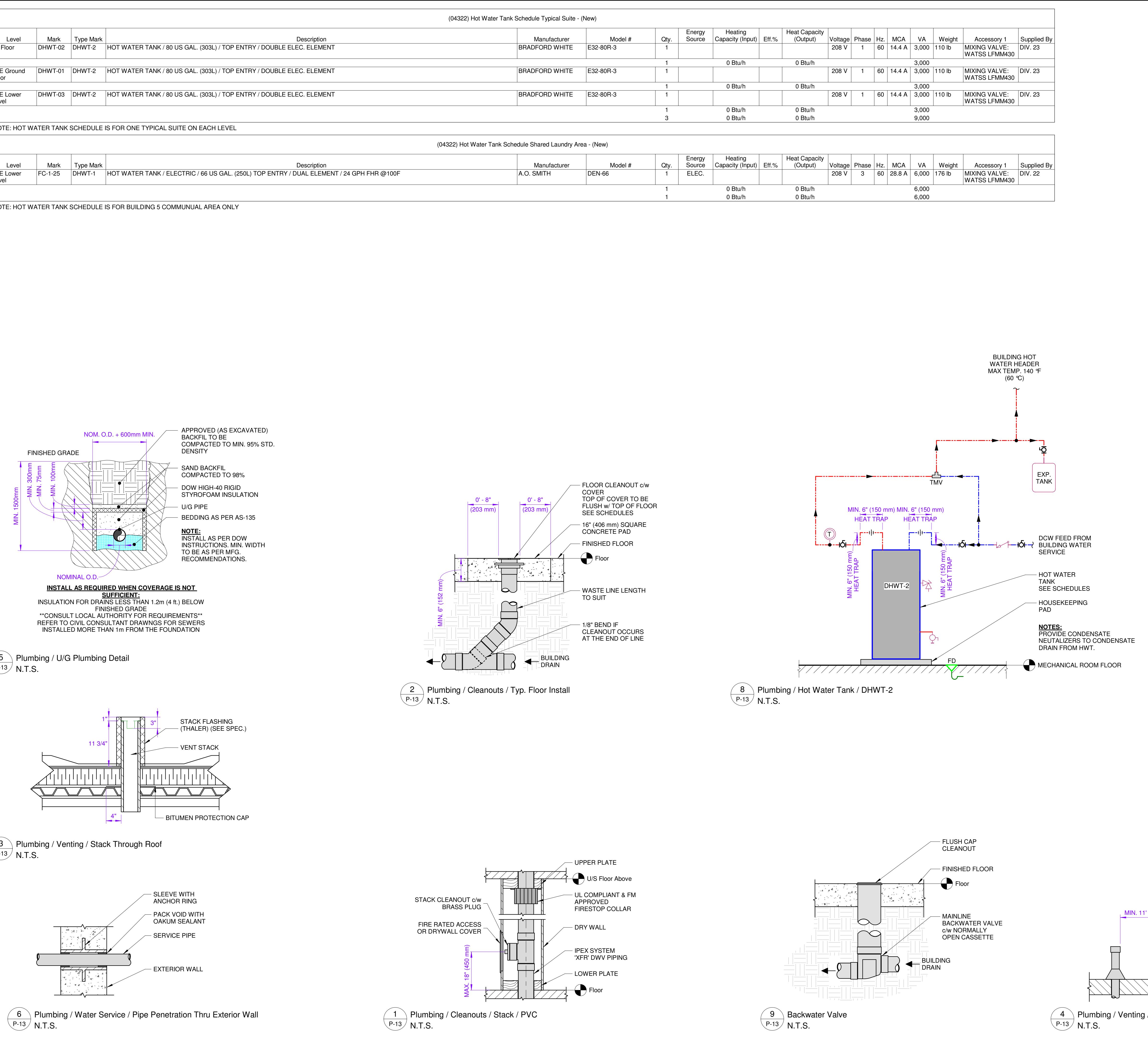
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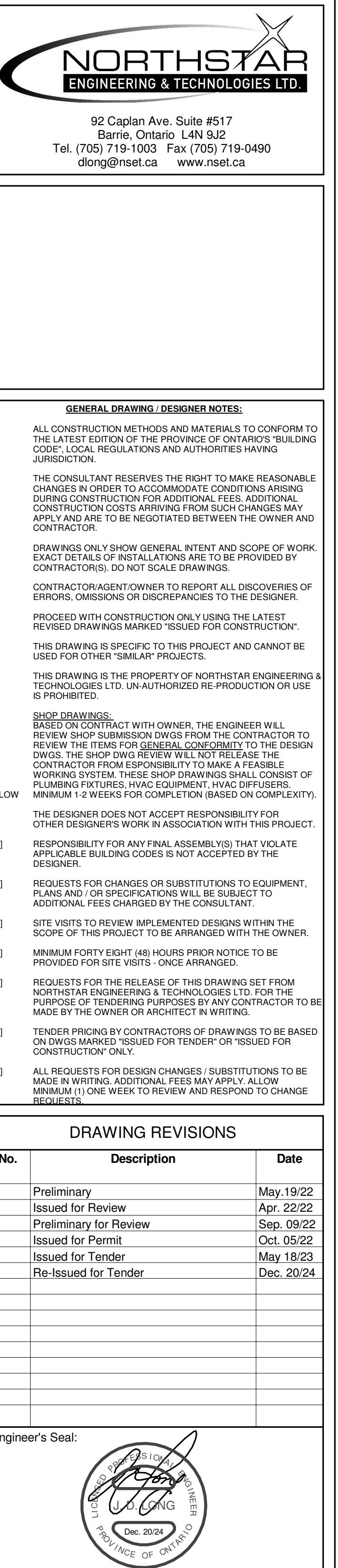
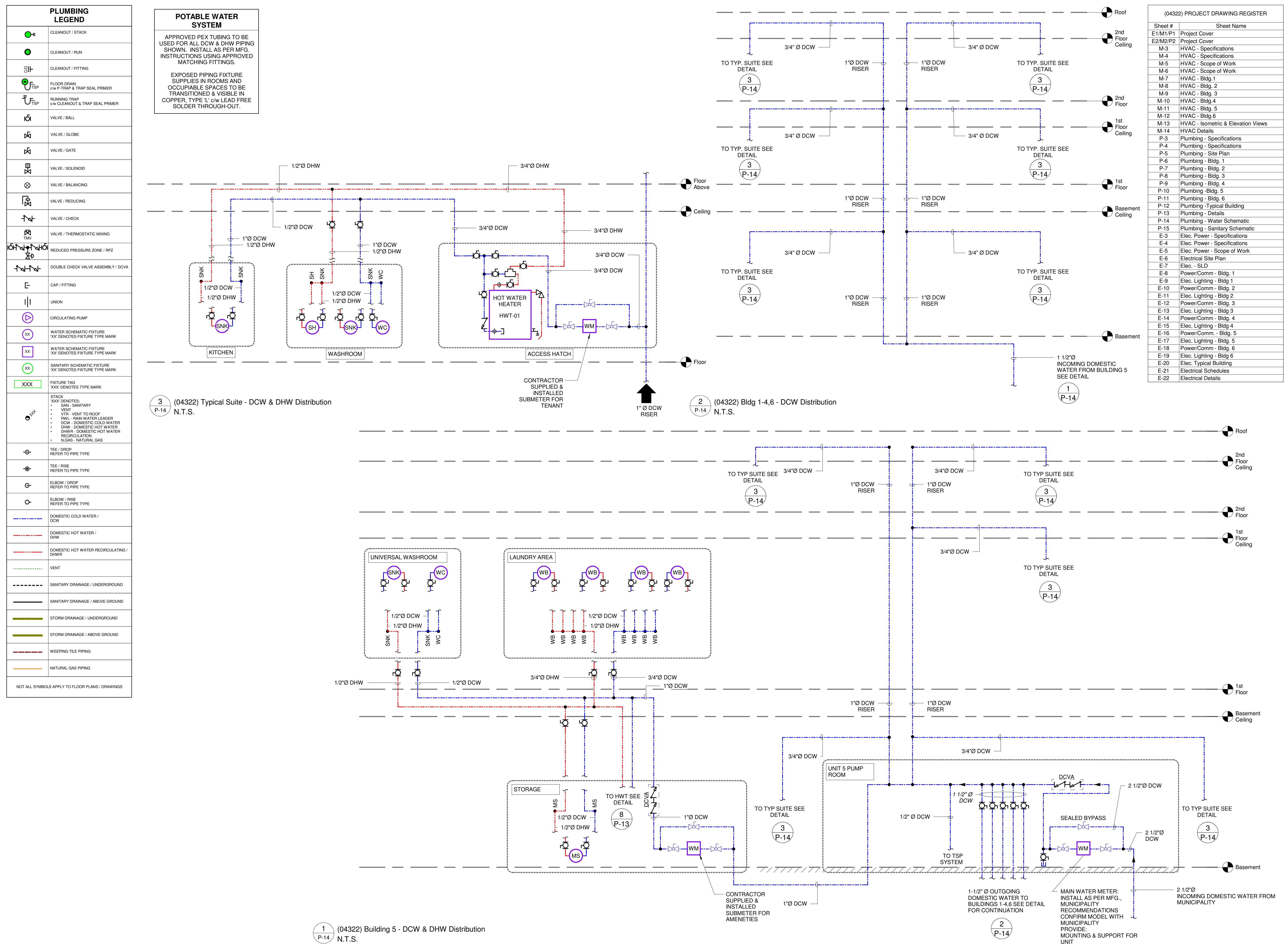
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DRAWING REVISIONS		
No.	Description	Date
1	Preliminary	May 19/22
2	Issued for Review	Apr. 22/22
3	Preliminary for Review	Sep. 09/22
4	Issued for Permit	Oct. 05/22
5	Issued for Tender	May 16/23
6	Re-Issued for Tender	Dec. 20/24

Engineer's Seal:

Client: WW Inc.  
Address: Minden, ON  
Project Name: Gull River Affordable Housing  
Dwg. Name: Plumbing - Details  
NSET Project #: 04322  
Drawn by: Northstar Eng. Checked by: J.D.L.  
Scale: As indicated Revision #: 6.0  
Drawing #: P-13  
Project Date: Jan. 14/22 Arch-D (24" x 36")





lient:	WW Inc.
ddress:	Minden, ON
roject Name:	Gull River Affordable Housing
wg. Name:	Plumbing - Water Schematic
SET Project #:	<b>04322</b>
rawn by: Northstar Eng.	Checked by: J.D.L.
cale: 12" = 1'-0"	Revision #: 6.0
rawing #:	<b>P-14</b>
roject Date: Jan. 14/22	Arch-D (24" x 36")

