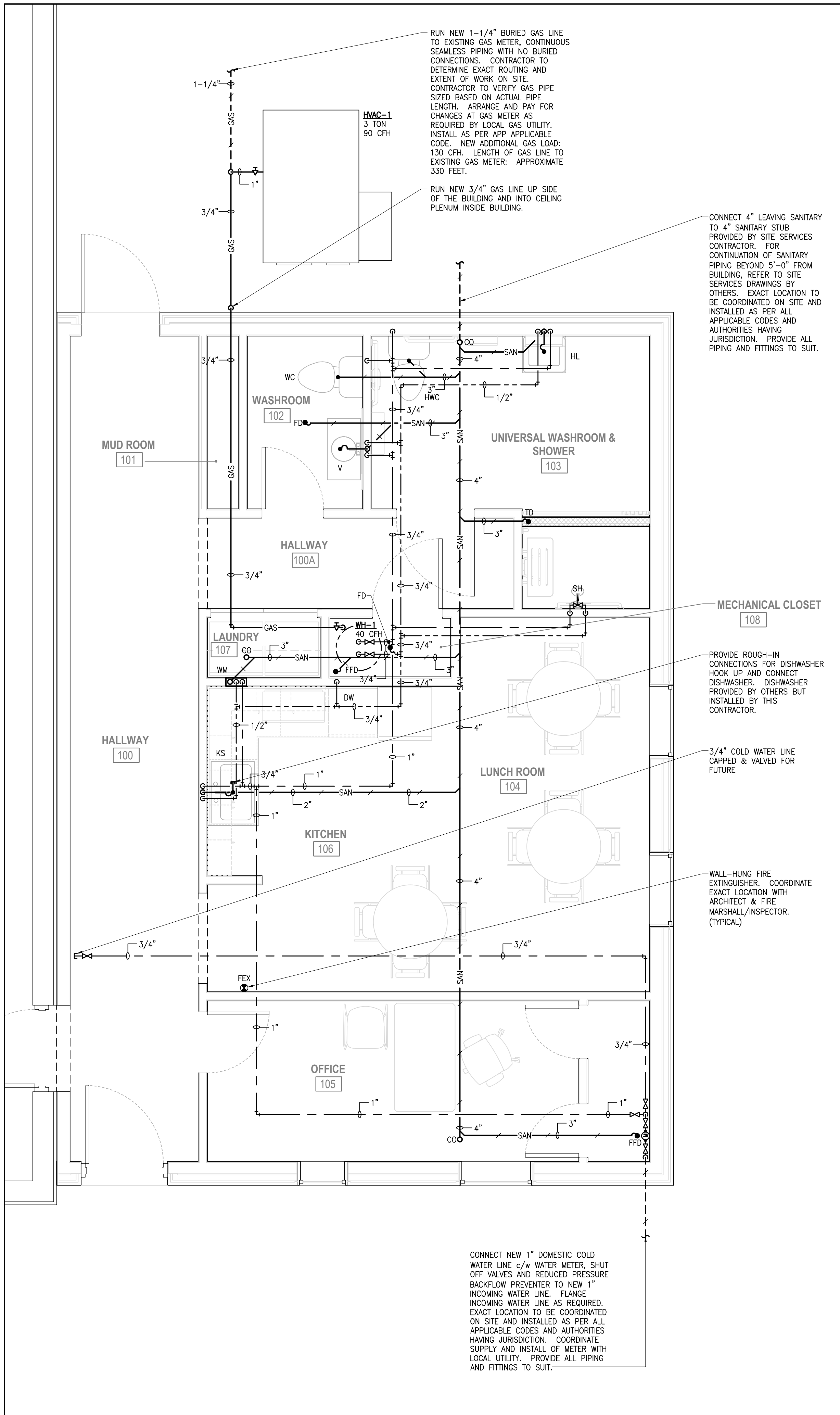
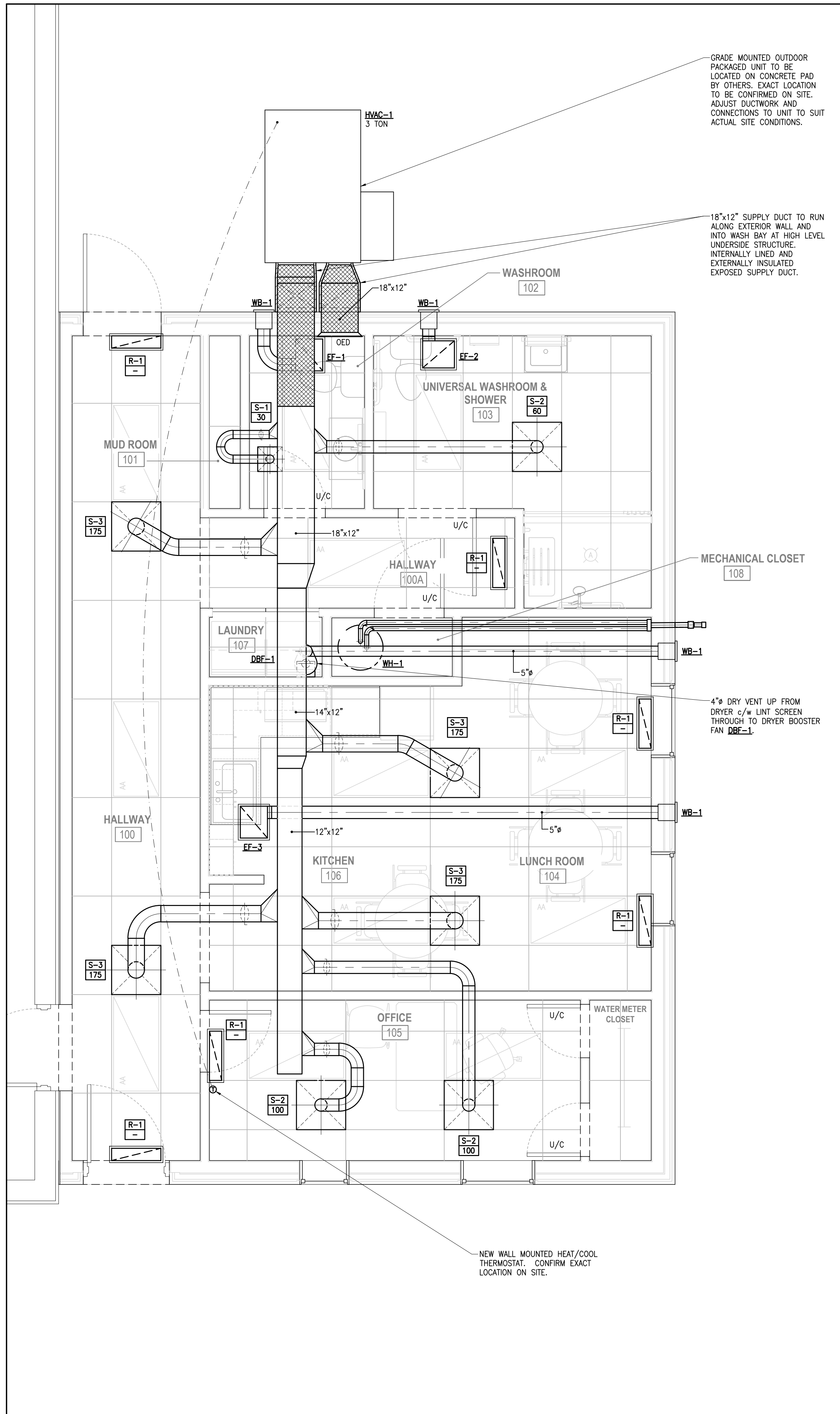




A FLOOR PLAN – PLUMBING
SCALE: 3/8"=1'-0"



B FLOOR PLAN – HVAC
SCALE: 3/8"=1'-0"

SYMBOL	DESCRIPTION
PLUMBING	
	SANITARY PIPING (ABOVE FLOOR)
	SANITARY PIPING (BELOW FLOOR)
	STORM PIPING (ABOVE FLOOR)
	STORM PIPING (BELOW FLOOR)
	COLD WATER PIPING
	DOMESTIC HOT WATER PIPING
	DOMESTIC HOT WATER RECIRCULATING PIPING
	TEMPERED WATER PIPING
	VENT PIPING
	SPRINKLER PIPING
	GAS PIPING
	FIRE PROTECTION PIPING
	CONDENSATE PIPING
	LIQUID REFRIGERATION LINE
	SUCTION REFRIGERATION LINE
	GATE VALVE
	CHECK VALVE
	CHECK VALVE & BALL DRIP
	DOUBLE CHECK VALVE ASSEMBLY
	D.C.V.A. PRESSURE REDUCING PRINCIPLE
	BALL VALVE
	GLOBE VALVE
	ELECTRICALLY SUPERVISED O.S. & Y VALVE
	SOLENOID VALVE
	RADIATION CONTROL VALVE
	MIXING VALVE
	BACKFLOW VALVE
	PRESSURE REDUCING VALVE
	CIRCUIT BALANCE VALVE
	THREE WAY MIXING VALVE
	TEMPERATURE & PRESSURE RELIEF VALVE
	GAS COCK (SHUT OFF VALVE)
	GAS METER
	FLOW SWITCH
	DOMESTIC WATER METER
	IN-LINE PUMP
	STRAINER
	UNION
	THERMOMETER
	PRESSURE GAUGE
	NON-FREEZE WALL HYDRANT (EXTERIOR)
	HOSE BIBB (INTERIOR)
	FLEXIBLE CONNECTION
	CLEAN OUT (FLOOR MOUNTED)
	CLEAN OUT (CEILING MOUNTED)
	FLOOR DRAIN
	HUB DRAIN
	FUNNEL FLOOR DRAIN
	ROOF DRAIN
	AUTOMATIC AIR VENT
DUCTWORK	
	MOTORIZED DAMPER
	BACK DRAFT DAMPER
	SPLITTER DAMPER
	BALANCING DAMPER (SQUARE)
	BALANCING DAMPER (ROUND)
	FIRE DAMPER
	THERMOSTAT
	THERMOSTAT c/w LOCKABLE COVER
	REVERSE-ACTING THERMOSTAT
	EXISTING DUCTWORK TO REMAIN
	EXISTING DUCTWORK TO BE REMOVED
	NEW DUCTWORK
	INDICATES 1" INTERNAL LINING. INCREASE DUCT SIZE BY 1" ON ALL SIDES.
FIRE PROTECTION	
	FIRE HOSE CABINET
	FIRE DEPARTMENT PUMPER CONNECTION
	FIRE EXTINGUISHER – 5LB ABC
	FIRE EXTINGUISHER CABINET – 5LB ABC
	NEW SEMI PENDANT SPRINKLER HEAD, WHITE
	NEW UPRIGHT SPRINKLER HEAD
	NEW SIDEWALL SPRINKLER HEAD
	NEW DRY PENDANT SPRINKLER HEAD
	DEMO SPRINKLER HEAD
ABBREVIATIONS	
OED	OPEN ENDED DUCT
U/C	UNDERCUT DOOR BY MINIMUM 1"
THIS IS A STANDARD LEGEND, NOT ALL SYMBOLS MAY APPEAR ON THE DRAWINGS	
C MECHANICAL LEGEND	
M1	SCALE: NOT TO SCALE

ISSUED FOR PERMIT26.08.12

ISSUED FOR REVIEW26.07.17

revisionsdate no.

CONTRACTORS MUST CHECK AND VERIFY ALL DIMENSIONS AND REPORT ANY DISCREPANCY TO THIS FIRM BEFORE PROCEEDING WITH THE WORK

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PROVINCE OF ONTARIO

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GLENCOE PUBLIC WORKS ADDITION
266 GLENDON DRIVE
GLENCOE, ONTARIO

drawing title :
MECHANICAL PLANS

date : JUL 16, 2026
scale : AS NOTED
drawn by : KJM
project no. : IE 7584

drawing no. :

A M2 ROOF MOUNTED PACKAGED HVAC UNIT SCHEDULE --- NOT TO SCALE

B EXHAUST FAN SCHEDULE
M2 NOT TO SCALE

MANUFACTURER

American Standard Cadet Pro Right Height
Elongated Bowl #3517A.101 w/ lined tank
#4188A.054, 6.0 Litres (1.6 gallons)
Centroc #Z820TS-PC
Zurn #ZH8202RLRK-PC

American Standard Cadet Pro Right Height
Elongated Bowl #3517C.101 w/ lined tank
#4188A.054, 6.0 Litres (1.6 gallons)
Centroc #Z820TS-01
Zurn #ZH8202RLRK-01

American Standard Wheelchair #9140.011.020
Zurn #Z8743-PC, Zurn #Z8700=8-PC and
Zurn #ZH8202RLRK-PC
Delta #Z2C151

American Standard Aquaflyn #0476.028
Zurn #Z8743-PC, Zurn #Z8700=8-PC and
Zurn #ZH8202RLRK-PC
Delta #Z2C151

Frankie #L857308-1
Zurn #Z8702=9-PC and Zurn #ZH8202RLRK-PC
Delta #100LF-HDF

SYMBOL	DESCRIPTION	DRAIN	VENT	HW	CW
(H)WC	WATER CLOSET (FLUSH TANK)	3"	1-1/2"	—	1-1/2"
(H)V	VANITY	1-1/4"	1-1/4"	1/2"	1/2"
HSB	HANDICAPPED SHOWER (TRIM ONLY)	—	—	1/2"	1/2"
KS	KITCHEN SINK	1-1/2"	1-1/4"	1/2"	1/2"
TD	TRENCH DRAIN	3"	1-1/2"	—	PRIME
FD	FLOOR DRAIN	3"	1-1/2"	—	PRIME
FFD	FUNNEL FLOOR DRAIN	3"	1-1/2"	—	PRIME
CO	CLEANOUT	*	—	—	—
WM	WASHING MACHINE	1-1/2"	1-1/4"	1/2"	1/2"

NOTES:

- ALL SANITARY VENTING TO BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF ONTARIO BUILDING CODE.
- ALL FLOOR & HUB DRAINS TO BE TRAPPED, VENTED AND PRIMED BEFORE FLOOR, PROVIDE TRAP SEAL PRIMER IN SUITABLE LOCATION.
- ALL FIXTURES AND EQUIPMENT TO HAVE QUARTER TURN ISOLATION VALVES.
- (H) DENOTES HANDICAP FIXTURE
- ** INDICATES REFER TO FLOOR PLANS FOR SIZE

PLUMBING FIXTURE SCHEDULE

FD: FLOOR DRAIN
ZURN ZN-415-B-P-VP, DURA-COATED CAST IRON BODY WITH BOTTOM OUTLET, COMBINATION INVERTIBLE
MEMBRANE CLAMP AND ADJUSTABLE COLLAR WITH "TYPE B" POLISHED NICKEL BRONZE STRAINER WITH
STAINLESS STEEL SCREWS C/W TRAP PRIMER CONNECTION AND VANDAL-PROOF SECURED TOP. 3" DIA.
CONNECTION.

FED: FUNNEL FLOOR DRAIN
ZURN ZN-211-BE-P-VP, DURA-COATED CAST IRON BODY WITH BOTTOM OUTLET, ADJUSTABLE "TYPE BE"
POLISHED NICKEL BRONZE ROUND STRAINER WITH 4" ROUND FUNNEL C/W TRAP PRIMER CONNECTION,
VANDAL-PROOF SECURED TOP AND SEDIMENT BUCKET. 3" DIA. CONNECTION.

FD: TRENCH DRAIN
ZURN ZS890-B-60, 60" LONG, ALU TYPE 304 (A8) FABRICATED STAINLESS STEEL LINEAR SHOWER DRAIN,
COMPLETELY VERTICALLY ADJUSTABLE ANCHORING SUPPORT LEGS, ANTI-PONDING U-SHAPED CHANNEL
WITH 2" [51MM] NO-HUB CENTER OUTLET, ADJUSTABLE SECURED LEVELING FRAME WITH BUILT-IN TIE
EDGE, INTEGRAL MEMBRANE FLANGE FOR GLUE ON WATERPROOFING MEMBRANE, AND SECURED, LIGHT-DUTY,
SECURED HEEL-PROOF GRATE. DRAIN IS DESIGNED FOR INSTALLATION IN A MINIMUM 2" [51MM] CONCRETE
POUR AND CAN BE ADJUSTED TO ACCOMMODATE 1/4" [6MM] AND 3/8" [10MM] FINISHED TILE
THICKNESSES.

GO: CLEANOUT: JAY R. SMITH #4100 "TWIST-TO-FLOOR" FLOOR CLEANOUT, DUCO COATED CAST IRON
BODY AND REMOVABLE POSITIVE GASKET SEAL CLOSURE PLUG, SECURED WITH STAINLESS STEEL SCREWS,
C.O. CAST IN COVER. (FOR WATER-PROOFED AREAS PROVIDE "F-C" FLANGE), ROUND ADJUSTABLE NICKEL
BRONZE TOP.

TRAP SEAL PRIMER: SMS INC. BPR-500, AUTOMATIC TRAP PRIMER PALM VALVE, CAST BRASS BODY,
SERVING INDIVIDUAL OR REMOTE AREA DRAINS (PRIMER AUTOMATICALLY ACTIVATED WHEN THERE IS A
PRESSURE DROP IN THE SYSTEM) WITH 1/2" (12.7MM) NPT (MALE TO FEMALE) CONNECTIONS WITH
STRAINER AND INTEGRAL BUBBLY FLOW PREVENTER & VACUUM BREAKER. (FOR 2, 3, OR 4 DRAINS PROVIDE
PRIMER UNIT WITH DISTRIBUTION UNIT ASSEMBLY DUO-J TRAP SEAL PRIMER).

1. ALL EQUIPMENT TO BE INSTALLED AS PER MANUFACTURER'S INSTRUCTIONS AND ALL APPLICABLE CODES.
2. ALL DOMESTIC WATER DISTRIBUTION PIPING TO BE INSTALLED ON WARM SIDE OF INSULATION & VAPOUR BARRIER (WHERE APPLICABLE). VAPOUR BARRIER TO BE SUPPORTED SO AS TO NOT BE IN DIRECT CONTACT WITH WATER PIPING.
3. NO PIPING SHALL BE INSTALLED WITHIN EXTERIOR WALLS.
4. ALL DOMESTIC WATER PIPING TO BE HEAT TRACED & INSULATED IN ALL UNHEATED AREA (WHERE APPLICABLE).
5. ALL SANITARY VENTING TO BE GATHERED & EXTENDED UP THROUGH ROOF AS REQUIRED. ALL SANITARY VENTING TO BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITIONS OF THE PROVINCE'S BUILDING CODE AND PLUMBING CODE.
6. ALL FLOOR DRAINS TO BE TRAPPED, VENTED AND PRIMED BELOW FLOOR.
7. ALL DOMESTIC WATER LINES & SANITARY AND STORM ABOVE GRADE TO BE INSTALLED AS HIGH AS POSSIBLE UNDERSIDE OF JOISTS OR STRUCTURE.
8. PROVIDE PIPE SLEEVE WHERE PIPE PENETRATES FIRE-RATED WALL. FILL ALL VOIDS WITH FIRE-RATED MATERIALS.
9. ALL CONDENSATE PIPING TO BE RIGID CPVC.
10. SUPPLY AND INSTALL WASHING MACHINE WALL BOX FOR LAUNDRY ROOM'S WASHING MACHINE. REFER TO THIS DRAWING'S PLUMBING FIXTURE SPECIFICATIONS.
11. GENERAL CONTRACTOR TO NOTIFY INTEGRATED ENGINEERING OF ANY POSSIBLE CONFLICT BETWEEN ALL ELECTRICAL AND SUSPENDED LIGHTING BEFORE ELECTRICALS PART OF THE PROJECT.

GENERAL NOTES
 SCALE: NOT TO SCALE

C **PLUMBING FIXTURE SPECIFICATIONS**
M2 SCALE: NOT TO SCALE

WALL BOX SCHEDULE

SYMBOL	AIR FLOW RANGE (L/s)	NECK SIZE/FACE SIZE	MODEL NO.
S-1 CFM	80 – 160	6"ø/ 12" x 12"	E.H. PRICE MODEL SPD/B12 CEILING SUPPLY (PLAQUE) DIFFUSER
S-2 CFM	80 – 160	6"ø/ 24" x 24"	E.H. PRICE MODEL SPD/B12 CEILING SUPPLY (PLAQUE) DIFFUSER
S-3 CFM	140 – 280	8"ø/ 24" x 24"	E.H. PRICE MODEL SPD/B12 CEILING SUPPLY (PLAQUE) DIFFUSER
R-1 CFM	30 – 250	24" x 6"	E.H. PRICE MODEL 80 SERIES CEILING RETURN GRILLE (CORE/LAY-IN APPLICATION)

H EXHAUST DISCHARGE WALL BOX DETAIL
M2 NOT TO SCALE

FLUID DESIGN TEMP. °C (°F)	PIPE DIAMETER				
	UP TO 13 (1/2")	25 (1") AND LESS	40 (1.5") TO 50 (2")	65 (2.5") TO 100 (4")	125 (5") TO 150 (6")
	HEAVY DENSITY FIBREGLASS INSULATION THICKNESS mm (INCHES)				
DOMESTIC HOT WATER SYSTEMS					
40.6 (105) AND >	25.4 (1.0)	25.4 (1.0)	25.4 (1.0)	38 (1.5)	38 (1.5)
DOMESTIC COLD WATER, SANITARY, STORM AND CONDENSATE DRAINS					
4.4 (40) - 23.9 (75)	25.4 (1.0)	25.4 (1.0)	25.4 (1.0)	25.4 (1.0)	25.4 (1.0)
ALL PIPE INSULATION TO INCLUDE VAPOUR JACKET					

TAG	MANUFACTURER	MODEL	NOMINAL CAPACITY (IMP. GAL.)	HEATING (MBH)	RECOVERY IN GPH 90° RISE	NOTE:
WH-1	BRADFORD WHITE	RG2PDV4-S6N	33	40	43	c/w 2" COMBUSTIBLE & INTAKE AIR VENT THROUGH WALL TO 2" CONCENTRIC VENT KIT. INSTALL PER MANUFACTURER'S RECOMMENDATION & ALL APPLICABLE CODES, 120v/1.

TAG	CANNISTER NATIONAL EQUIPMENT	CANNISTER WEIGHT (LBS)	WALL MOUNT c/w BRACKET	CABINET SUPPLIED	ULC RATING	REMARK
FEX	ABC-025V	5	YES	—	2A, 10BC	c/w STANDARD BRACKET

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IE Project No. 7584



The seal is circular with the text "PROFESSIONAL ENGINEER" at the top and "PROVINCE OF ONTARIO" at the bottom. Inside the seal, the name "T. SINGH" is written, with the number "100569650" below it. The date "AUG 12/26" is in a semi-circular area at the bottom. A signature "T. Singh" is written across the top half of the seal. To the right of the seal is a north arrow pointing towards the top right, with the word "NORTH" written below it.

**SPRIET
ASSOCIATES**



LIMITED
architects
LONDON LTD.
engineers

GLENCOE PUBLIC WORKS ADDITION

266 GLENDON DRIVE GLENCOE, ONTARIO

THIS ABBREVIATED SPECIFICATION DESCRIBES SOME EQUIPMENT AND MATERIALS TO BE INCLUDED IN THE WORK. ONLY FIRST CLASS WORKMANSHIP AND PRACTICES WILL BE ACCEPTED. THE QUALITY AND PERFORMANCE CHARACTERISTICS OF SUBSTITUTED PRODUCT SHALL BE EQUIVALENT TO THE SPECIFIED PRODUCT. ALL SUBSTITUTE PRODUCTS SHALL BE APPROVED BY CONSULTANTS. ANY ADDITIONAL COSTS INCURRED BY ALL TRADES FOR SUBSTITUTED EQUIPMENT INSTALLATION MUST BE INCURRED BY THIS CONTRACTOR.

GENERAL

PERFORM ALL MECHANICAL WORK DETAILED ON THESE DRAWINGS TO PROVIDE A COMPLETE AND FULLY FUNCTIONAL OPERATING SYSTEM TO THE SATISFACTION OF THE MECHANICAL CONSULTANT.

CODES AND STANDARDS: PERFORM ALL WORK IN ACCORDANCE WITH APPLICABLE PROVINCIAL BUILDING CODES, LEGISLATED STANDARDS, MOST RECENT VERSION OF REFERENCED DOCUMENTS IN CODES AND STANDARDS, AND TO GOOD TRADE PRACTICE.

SPECIFIED WORK DESCRIBED OR INDICATED ON DRAWINGS DOES NOT DELEGATE FUNCTION TO ANY SPECIFIED SUBCONTRACTOR OR IDENTIFY ABSOLUTE CONTRACTUAL LIMITS BETWEEN MECHANICAL OR SUBCONTRACTORS.

ENGINEERS FINAL INSPECTION IS IMPERATIVE. PRIOR TO INSTALLATION OF ALL CEILINGS, THIS CONTRACTOR SHALL CONTACT THE MECHANICAL CONSULTING ENGINEER AND THE LANDLORD TO PERFORM A FINAL INSPECTION. WHEN CEILING TILES HAVE BEEN INSTALLED IT WILL BE NECESSARY FOR THE CONTRACTOR TO REMOVE PORTIONS FOR INSPECTION.

CODES AND BYLAWS SHALL BE STRICTLY ADHERED TO. OBTAIN NECESSARY PERMITS, APPROVALS AND INSPECTIONS FROM THE AUTHORITIES HAVING JURISDICTION.

PERMITS AND FEES REQUIRED BY THE AUTHORITIES HAVING JURISDICTION SHALL BE OBTAINED AND PAID FOR BY THIS CONTRACTOR. INCLUDE ALL APPLICABLE TAXES.

EXISTING SITE CONDITIONS AFFECTING THE WORK OF THIS TRADE SHALL BE REVIEWED PRIOR TO TENDER SUBMISSION. FAILURE TO DO SO SHALL NOT RELIEVE CONTRACTOR OF FULL CONTRACT RESPONSIBILITY.

CUTTING, PATCHING AND CORE DRILLING REQUIRED BY THIS TRADE SHALL BE PAID FOR BY THIS CONTRACTOR. X-RAY CONCRETE STRUCTURE IN ACCORDANCE WITH OWNER/LANDLORD STRUCTURAL ENGINEER'S REQUIREMENTS. PROVIDE DETAILS OF NEW OPENING THROUGH STRUCTURAL COMPONENTS FOR ENGINEER'S APPROVAL. INCUR ALL COSTS RELATED FOR STRUCTURAL APPROVAL.

FIRE STOP SHALL BE ULC LISTED FOR THE REQUIRED SEPARATION AND PROVIDED AT ALL PIPE PENETRATIONS THROUGH RAISED ASSEMBLIES.

PREMIUM TIME COSTS SHALL BE INCLUDED FOR WORK OUTSIDE OF NORMAL WORKING HOURS.

FLASHING AND COUNTER FLASHING FOR EXTERIOR PENETRATIONS OR WATERPROOFED FLOORS SHALL BE PROVIDED UNDER THIS CONTRACT.

SUBMIT SHOP DRAWINGS OF ALL FIXTURES AND EQUIPMENT (INCLUDING WIRING DIAGRAMS) TO THE ENGINEER FOR APPROVAL. APPROVAL OF SHOP DRAWINGS IS GRATUITOUS AND DOES NOT RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITIES. WHERE A PRODUCT OR MANUFACTURER IS SPECIFIED ON THE DWGS THAT PRODUCT IS TO BE SUPPLIED. ALTERNATE EQUIPMENT OR PRODUCTS MAY BE ACCEPTED ONLY AFTER REVIEW PRIOR TO TENDER CLOSE, AND ACCEPTANCE OF ALTERNATES MUST BE OBTAINED IN WRITING. ALL RESPONSIBILITY AND ADDITIONAL COSTS INCURRED BY ALL DIVISIONS RESULTING FROM THE USE OF ALTERNATES WILL BE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR.

SHOP DRAWINGS SHALL BE COMPLETE WITH CONTRACTORS REVIEWED STAMP. SUBMIT 6 COPIES FOR ALL EQUIPMENT. ALLOW ONE (1) WEEK FOR ENGINEERS REVIEW. ELECTRONIC SUBMITTALS MAY BE ACCEPTABLE WITH PRIOR AGREEMENT.

EQUIPMENT SUBSTITUTIONS AFTER AWARD OF CONTRACT WILL NOT BE CONSIDERED WITHOUT WRITTEN EXPLANATION AND CONSULTANT'S WRITTEN AUTHORIZATION. THE QUALITY AND PERFORMANCE CHARACTERISTICS OF SUBSTITUTED PRODUCT SHALL BE EQUIVALENT TO THE SPECIFIED PRODUCT. ALL SUBSTITUTE PRODUCTS SHALL BE APPROVED BY CONSULTANTS. ANY ADDITIONAL COSTS INCURRED BY ALL TRADES FOR SUBSTITUTED EQUIPMENT INSTALLATION MUST BE INCURRED BY THIS CONTRACTOR.

PROVIDE ALL LABOUR AND NEW MATERIALS FOR THE COMPLETE INSTALLATION OF THE SYSTEMS AS SHOWN ON THE DRAWINGS. UNLESS OTHERWISE SPECIFIED ALL EQUIPMENT IS TO BE INSTALLED IN ACCORDANCE WITH THE EQUIPMENT MANUFACTURER'S RECOMMENDATIONS AND INSTRUCTIONS, AND REQUIREMENTS OF GOVERNING CODES, STANDARDS, AND REGULATIONS. GOVERNING CODES, STANDARDS, AND REGULATIONS TAKE PRECEDENCE OVER MANUFACTURER'S INSTRUCTIONS.

WHEN INSTALLATION OF EQUIPMENT/SYSTEMS IS COMPLETE BUT PRIOR TO COMMISSIONING, PERFORM START-UP FOR EQUIPMENT/SYSTEMS IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS:

1. SUBMIT A COPY OF EACH EQUIPMENT/SYSTEM MANUFACTURER'S START-UP REPORT SHEET TO THE CONSULTANT FOR REVIEW, AND INCORPORATE ANY COMMENTS.
2. UNDER DIRECT ON-SITE SUPERVISION AND INVOLVEMENT OF THE EQUIPMENT/SYSTEM MANUFACTURER'S REPRESENTATIVE, START-UP THE EQUIPMENT/SYSTEMS. MAKE ANY REQUIRED ADJUSTMENTS. DOCUMENT THE PROCEDURES, LEAVE THE EQUIPMENT/SYSTEMS IN PROPER OPERATING CONDITION, AND SUBMIT A COMPLETE SET OF START-UP DOCUMENTATION SHEETS SIGNED BY THE MANUFACTURER/SUPPLIER AND THE CONTRACTOR

CONTROL WIRING AND DEVICES SHALL BE PROVIDED UNDER THIS CONTRACT FOR ALL LOW VOLTAGE ELECTRICAL DEVICES CONNECTED TO MECHANICAL EQUIPMENT, INCLUDING ALL THERMOSTATS, SENSORS, ETC. WHEN REQUIRED, CONTROL WORK SHALL BE COMPLETED BY OWNER'S/LANDLORD'S APPROVED CONTRACTOR AND PAID FOR UNDER THIS CONTRACT.

ELECTRICAL DEVICES SHALL BE PROVIDED FOR ALL LOAD SIDES INCLUDING WIRING, STARTERS, DISCONNECT, ETC. VERIFY AND COORDINATE VOLTAGE AND PHASE WITH THE ELECTRICAL CONTRACTOR PRIOR TO ORDERING EQUIPMENT.

ACCESS DOORS SHALL BE PROVIDED FOR ALL INACCESSIBLE MECHANICAL EQUIPMENT AND SERVICES REQUIRING INSPECTION OR SERVICE. FINISH SHALL SUIT ARCHITECT/DESIGNERS REQUIREMENTS. ACCESS DOORS SHALL BE RECESSED AS PROVIDED TO SUIT WALL FINISH (EG. TILE).

ARCHITECT/DESIGNER APPROVAL OF AIR TERMINAL, THERMOSTAT, AND ACCESS DOOR LOCATIONS MUST BE OBTAINED PRIOR TO INSTALLATION.

ONE YEAR WRITTEN WARRANTY SHALL BE PROVIDED FOR THE COMPLETE MECHANICAL INSTALLATION FROM DATE OF ACCEPTANCE.

CAD AS-BUILT FILES SHALL BE PRODUCED BY MECHANICAL CONSULTANT BASED ON INFORMATION OBTAINED FROM MECHANICAL CONTRACTOR. CONTRACTOR SHALL ACCURATELY RECORD, ON A SET OF WHITE PRINTS, THE INSTALLED WORK INDICATING EXACT LOCATIONS, ELEVATIONS AND SIZE OF CONCEALED WORK, DIMENSIONED FROM COLUMN/GRID LINES AND BENCHMARKS. WHITE PRINTS SHALL BE DELIVERED TO CONSULTANT FOR UPDATING DRAWING FILES TO AS-BUILT CONDITION. PDGS OF THE AS-BUILT FILES ALONG WITH THE CONTRACTORS ORIGINAL MARKUP SET OF PRINTS SHALL BE TURNED OVER TO THE OWNER.

OPERATING AND MAINTENANCE MANUALS CONTAINING APPROVED SHOP DRAWINGS, AIR AND WATER BALANCING REPORTS, EQUIPMENT DATA SHEETS, WRITTEN WARRANTY, OPERATING INSTRUCTIONS AND MAINTENANCE PROCEDURES SHALL BE SUBMITTED TO CONSULTANT FOR REVIEW. MANUALS SHALL BE SEPARATED WITH DIVIDERS IN APPROPRIATE SECTIONS. MAKE ALL CORRECTIONS REQUESTED BY CONSULTANT AND RESUBMIT FOR REVIEW.

CHANGE NOTICE QUOTATIONS SHALL BE SUBMITTED COMPLETE WITH COST BREAKDOWN OF LABOUR AND MATERIALS. FAILURE TO PROVIDE CHANGE NOTICE, ALL MECHANICAL CHANGE NOTICES SHALL BE PRICED IN ACCORDANCE WITH "MECHANICAL CONTRACTORS ASSOCIATION" (MCA), LABOUR UNITS STRICTLY FOR LABOUR AND FOR MATERIAL CAST USE "ALL PRICER" LESS DISCOUNT, TYPICALLY 20%-30%.

TEMPORARY FILTERS 25MM (1 IN.) SHALL BE PROVIDED AT ALL BASE BUILDING RETURN AIR OPENINGS WHICH REMAIN OPERATIONAL DURING CONSTRUCTION. FILTERS TO BE REPLACED WEEKLY. REMOVE UPON CONSTRUCTION COMPLETION.

EXISTING BASE BUILDING HVAC COMPONENTS REMOVED I.E. LIGHT TROFFERS, DIFFUSERS, VAV BOXES ETC. SHALL BE TURNED OVER TO THE LANDLORD/OWNER AT THEIR DIRECTIONS.

COMPLY WITH THE GENERAL CONTRACTOR'S CONSTRUCTION SCHEDULE.

TEST PIPING: MAINTAIN TEST PRESSURE FOR 4 HRS WITHOUT LOSS OF PRESSURE. HYDRAULICALLY TEST STEAM AND HYDRONIC PIPING WITH 1 1/2 TIMES THE SYSTEM PRESSURE, NATURAL GAS SYSTEMS TO CAN1-B149.1, FUEL OIL TO CSA B139, DRAINAGE AND VENTING TO APPLICABLE BUILDING CODE AND AUTHORITIES HAVING JURISDICTION, DOMESTIC WATER TO 1 1/2 TIMES WORKING PRESSURE, FIRE SYSTEMS IN ACCORDANCE WITH AUTHORITIES HAVING JURISDICTION

LOW PRESSURE METALLIC DUCTWORK

NEW MATERIAL AND EQUIPMENT SHALL BE PROVIDED AND INSTALLED IN ACCORDANCE WITH BASE BUILDING STANDARDS.

SEAL CLASSIFICATION; MAXIMUM PRESSURE OF 500 PA, SMACNA SEAL CLASS = C.

CLASS C; TRANSVERSE JOINTS AND CONNECTIONS SHALL BE MADE AIRTIGHT. AN OIL-RESISTANT POLYMER-TYPE DUCT SEALING COMPOUND IN COMBINATION WITH A POLY-VINYL COATED OPEN WEAVE FIBERGLASS TAPE. LONGITUDINAL JOINTS UNSEALED. BED TAPE IN SEALER AND RECOAT WITH MINIMUM ONE COAT OF SEALER TO MANUFACTURER'S RECOMMENDATIONS. METALLIC DUCT TAPE IS NOT ACCEPTABLE.

SEALANT: OIL RESISTANT, POLYMER TYPE FLAME RESISTANT DUCT SEALANT. ACCEPTABLE MATERIAL DURO DYNE S-2.

TAPE: POLYVINYL TREATED, OPEN WEAVE FIBERGLASS. ACCEPTABLE MATERIAL DURO DYNE FT-2.

RECTANGULAR FITTINGS: STANDARD RADII AND OR SHORT RADIUS WITH TURNING VANES.

ROUND FITTINGS: SMOOTH RADIUS 5 PIECE.

BALANCING AND VOLUME CONTROL DAMPERS SHALL BE PROVIDED IN NEW OR EXISTING DUCTWORK TO PROVIDE A COMPLETE AND BALANCED SYSTEM.

VOLUME DAMPERS ON ALL BRANCH DUCT NEAR CONNECTION TO MAIN DUCT. SPLITTER DAMPER ON MAIN DUCT BRANCHES.

DUCT THICKNESS FABRICATION AND REINFORCEMENT; TO ASHRAE AND SMACNA.

FLEXIBLE DUCTWORK: SPIRAL WOUND FLEXIBLE ALUMINUM, PERFORMANCE -FACTORY TESTED TO 2.5 KPA WITHOUT LEAKAGE. MAXIMUM ALLOWED PRESSURE DIFFERENCE OF 3. SECURED WITH RIGID DUCT COUPLING CLAMPS AT THE INLET OF EACH VAV TERMINAL CONTROL UNIT, PROVIDE A MINIMUM OF 3 DIAMETERS OF STRAIGHT FLEX DUCT, MAXIMUM LENGTH 1500 MM [5'-0"].

DUCTWORK AND HANGERS SHALL BE FABRICATED IN ACCORDANCE WITH THE LATEST ASHRAE AND SMACNA STANDARDS.

STRAP HANGERS: OF SAME MATERIAL AS DUCT, BUT NEXT SHEET METAL THICKNESS HEAVIER THAN DUCT. MAXIMUM SIZE OF DUCT SUPPORTED BY STRAP HANGER IS 500MM.

HANGERS: FOR DUCTS LARGER THAT 500MM: BLACK OR GALVANIZED STEEL ANGLE WITH BLACK OR GALVANIZED STEEL RODS AS FOLLOWS:	DUCT SIZE, MM	ANGLE SIZE, MM	ROD SIZE, MM
UP TO 750	25 X 25 X 3	6	
751 TO 1050	40 X 40 X 3	6	
1051 TO 1500	40 X 40 X 3	6	
1501 TO 2100	50 X 50 X 3	10	

HANGER SPACING:	DUCT SIZE, MM	SPACING, MM
TO 1500		3000
1501 AND OVER		2500

ACCESS DOORS IN INSULATED DUCTS: SANDWICH CONSTRUCTION OF SAME MATERIAL AS DUCT, ONE SHEET METAL THICKNESS HEAVIER, MINIMUM 0.6 MM THICK. COMPLETE WITH SHEET METAL ANGLE FRAME AND 25 MM THICK RIGID GLASS FIBER INSULATION.

FLEXIBLE CONNECTIONS AT THE INLET AND OUTLET OF ALL FANS, HOODS, AND WHERE AT ADDITIONAL LOCATIONS SHOWN ON THE DRAWINGS.

FIRE DAMPER SHALL BE OUT OF AIR STREAM AND ULC LABELED. PROVIDE FIRE DAMPERS AS REQUIRED IN NEW AND EXISTING DUCTWORK C/W ACCESS DOORS.

ACOUSTIC DUCT LINING 25MM [1 IN.] SHALL BE PROVIDED WHERE SHOWN ON DRAWINGS. SECURE WITH MECHANICAL FASTENERS AND ADHESIVE. SEAL RAW EDGES. NOTE DUCT DIMENSIONS ARE CLEAR INSIDE.

25MM (1") FIBREGLASS FLEXIBLE RFFRK THERMAL INSULATION WITH VAPOUR BARRIER SHALL BE PROVIDED ON ALL NEW CONCEALED (INSIDE CEILING PLENUM) SUPPLY DUCTWORK AND ALL EXHAUST DUCTWORK DOWNSTREAM OF THE EXHAUST FAN.

FLEXIBLE DUCT CONNECTIONS SHALL BE DURODYNE NEOPRENE AND INSTALLED BETWEEN ALL AIR HANDLING EQUIPMENT/FANS AND SYSTEM DUCTWORK.

AIR TRANSFER OPENINGS IDENTIFIED WITHOUT DUCT SHALL BE THIS CONTRACTOR'S RESPONSIBILITY TO ADVISE AND CONFIRM PROVISION BY GENERAL TRADES.

FAN SHEAVES SHALL BE ADJUSTED OR REPLACED AS REQUIRED TO OBTAIN DESIGN AIR QUANTITIES. COORDINATE THIS WORK WITH OWNER/LANDLORD.

ACOUSTIC DUCT LINING

FIBROUS GLASS DUCT LINER: AIR STREAM SIDE FACE WITH MAT FACING.

FLAME SPREAD RATING SHALL NOT EXCEED 25. SMOKE DEVELOPMENT RATING SHALL NOT EXCEED 50 WHEN TESTED IN ACCORDANCE WITH CAN/ULC-S102.

RIGID: USE ON FLAT SURFACES WHERE INDICATED, 25 MM THICK TO CGSB 51-GP-10M, FIBROUS GLASS RIGID BOARD DUCT LINER.

DENSITY: 36 KG/M3 MINIMUM.

ACCEPTABLE MATERIAL: RIGID COATED DUCT LINER, FIBERGLAS CANADA.

PLUMBING SYSTEM

EXISTING SANITARY DRAIN LOCATIONS AND INVERT ELEVATIONS SHALL BE VERIFIED ON SITE PRIOR TO COMMENCEMENT OF WORK.

DOMESTIC WATER PIPING, HOT AND COLD, WATER PIPING - TYPE "L" COPPER WITH COPPER FITTINGS USE 95/5 TIN/ANTIMONY SOLDER. PROVIDE TYPE "M" SOFT COPPER PIPING WITHOUT JOINTS BELOW GROUND.

DOMESTIC WATER PIPING ALTERNATES - IF ALLOWED BY MUNICIPALITY AND LANDLORD:

- CPCV: (PEX "QUICKSET" SDR 11 CPCV PIPE AND FITTINGS TO CAN/CSA B137.6, 25/50 FLAME SPREAD AND SMOKE DEVELOPED RATED IN ACCORDANCE WITH CAN/ULC S102.2, CERTIFIED TO NSF/ANSI 61, COMPLETE WITH PRIMER/SOLVENT WELD JOINTS, AND WITH A PRESSURE RATING OF 690 KPA (100 PSI) AT 82.2° C (180° F).
- PEX TUBING: NON-BARRIER TYPE CROSS-LINKED POLYETHYLENE PIPING IN ACCORDANCE WITH CAN/CSA-B137.5, NSF 372, AND ASTM F876, AND TESTED FOR COMPLIANCE BY AN INDEPENDENT THIRD-PARTY AGENCY. THE PIPING IS TO BE COMPLETE WITH BRASS INSERTS AND CRIMP-RING JOINT FITTINGS AND COUPLINGS.

CONDENSATE PIPING TO BE COPPER TYPE 'M'.

DRAIN WASTE AND VENT PIPING - PLASTIC; BELOW GRADE DWV PIPING TO CSA-B181.1, CAN/CSA-B181-2, AND CAN/CSA-B182.1. JOINTS; SOLVENT WELD FOR PVC; TO ASTM D2564, AND SOLVENT WELD FOR ABS; TO ASTM D2235.

DRAINAGE WASTE AND VENT PIPING - COPPER; CSA CLASS 4000, COPPER TUBE AND FITTINGS, ABOVE GROUND SANITARY AND VENT PIPE DWV TO: ASTM B306. FOR URINAL DRAINS USE COPPER TUBE, HARD DRAWN, TYPE L TO ASTM B88M. SOLDER: 95/5 TIN/ANTIMONY, TO ASTM B32, TYPE 50A.

DRAINAGE WASTE AND VENT PIPING (IF SYSTEM 15/XFR NOT ALLOWED) - CAST IRON; CSA CLASS 4000, ABOVE GROUND SANITARY, STORM AND VENT MINIMUM NPS 3, TO: CAN/CSA-B70, WITH ONE LAYER OF PROTECTIVE COATING. MECHANICAL JOINTS NEOPRENE OR BUTYL RUBBER COMPRESSION GASKETS WITH STAINLESS STEEL CLAMPS. ABOVE GROUND SANITARY, STORM AND VENT; TO CAN/CSA-B70. MECHANICAL JOINTS NEOPRENE OR BUTYL RUBBER COMPRESSION GASKETS WITH STAINLESS STEEL CLAMPS.

DRAINAGE WASTE AND VENT PIPING SYSTEM 15/SYSTEM XFR PLASTIC DWV IS ACCEPTABLE FOR ABOVE GROUND WHERE PERMISSIBLE BY LOCAL CODE/BYLAWS.

ABOVE GRADE SANITARY, STORM & VENT: SYSTEM 15 PVC TO CAN/CSA B181.2 WITH INSTALLATION HEIGHT TO A MAXIMUM OF EIGHT (8) FEET AFT INSIDE CONCEALED WALLS DUE TO RETURN CEILING PLENUM IF APPLICABLE. SYSTEM XFR PVC TO CAN/CSA B181.2 FOR ALL PIPING ELSEWHERE AND ABOVE EIGHT (8) FEET A.F.F. FROM CONCEALED WALLS DUE TO RETURN CEILING PLENUM IF APPLICABLE.

INSTALL IN ACCORDANCE WITH THE CANADIAN PLUMBING CODE, PROVINCIAL PLUMBING CODE, AND LOCAL AUTHORITY HAVING JURISDICTION. INSTALL BURIED PIPE ON 150 MM BED OF WASHED CLEAN SAND, SHAPED TO ACCOMMODATE FITTINGS, TO LINE AND GRADE AS INDICATED. BACKFILL WITH WASHED CLEAN SAND. INSTALL PIPING PARALLEL AND CLOSE TO WALLS AND CEILINGS TO CONSERVE HEADROOM AND SPACE, AND TO GRADE AS INDICATED.

HEATING WATER PIPING: 2" AND SMALLER COPPER TYPE ' L ' OR SCHEDULE 40 STEEL PIPE. 2-1/2" AND OVER SCHEDULE 40 STEEL PIPE. DIELECTRIC UNIONS TO BE USED BETWEEN COPPER AND STEEL PIPE. COPPER PIPE FITTINGS TO BE WROUGHT COPPER OR CAST BRONZE SOLDER TYPE. STEEL PIPE FITTINGS UP TO 2" TO BE THREADED JOINTS. STEEL PIPE FITTINGS 2-1/2" AND LARGER TO BE FORGED STEEL BUTT WELDING TYPE WITH ALL JOINTS WELDED. ALL ELBOWS TO BE LONG RADIUS TYPE.

VALVES CRANE OR JENKINS (JENKINS FIGURE NUMBERS LISTED BELOW):

1. TO 1379 KPA [200 PSI] WORKING PRESSURE:			
50 MM [2 IN.] AND SMALLER SOLDERED SCREWED	GATE	GLOBE	BALL
813		106-BP	34
810		106-B	33
2. TO 2068 KPA [300 PSI] WORKING PRESSURE:			
65 MM [2-1/2 IN.] AND LARGER FLANGED	GATE	GLOBE	BALL
454		2342	NOT APPLICABLE
50 MM [2 IN.] AND SMALLER SOLDERED SCREWED	GATE	GLOBE	BALL
9024		106-BP	34
2810		106-B	33
65 MM [2-1/2 IN.] AND LARGER FLANGED	GATE	GLOBE	BALL
204		162	NOT APPLICABLE

3. CHECK VALVES: CRANE 37

4. PROVIDE ALL BRONZE BALL TYPE SHUT OFF VALVES ON MAIN AND BRANCH LINES FOR ISOLATING EACH INDIVIDUAL PLUMBING FIXTURE/EQUIPMENT SERVED.

PLUMBING FIXTURES INCLUDING DOMESTIC HOT WATER HEATERS SHALL BE NEW, OF FIRST QUALITY, IN PERFECT CONDITION AND INSTALLED IN BEST WORKMANLIKE MANNER. VERIFY PLUMBING FIXTURE QUANTITIES AND LOCATIONS WITH ARCHITECT'S/DESIGNER'S DRAWINGS. REUSE OF DOMESTIC WATER HEATER IS NOT PERMITTED.

EXPOSED PIPING AND FITTINGS WITHIN WASHROOMS SHOULD BE CHROME PLATED. PROVIDE CHROME PLATED ESCUTCHEONS ON ALL PIPING PASSING THROUGH FINISHED SURFACES AND MILLWORK.

STAINLESS STEEL WATER HAMMER ARRESTORS EQUAL TO ZURN SHOKTROLL SHALL BE PROVIDED ON ALL LINES SERVING GROUPS OF FIXTURES, QUICK CLOSING VALVES AND FLUSH VALVES.

CHEMICAL TREATMENT

PERFORM CLEANING SERVICES UNDER THE SUPERVISION OF A WATER TREATMENT SPECIALIST WHO SHALL HAVE A MINIMUM OF FIVE (5) YEARS CONTINUOUS LOCAL EXPERIENCE IN THE SUPPLY AND INSTALLATION OF WATER TREATMENT SYSTEMS.

AFTER COMPLETION OF FLUSH CLEANING AND PRESSURE TESTING, CHEMICALLY CLEAN ALL PIPING SYSTEMS UTILIZING LOW FOAMING CHEMICAL DETERGENTS WHICH SHALL NOT ADVERSELY AFFECT SYSTEM COMPONENTS.

PIPE HANGERS AND SUPPORTS

INSERTS FOR CAST-IN-PLACE CONCRETE: GALVANIZED STEEL WEDGE TO MSS-SP-80, TYPE 18, ULC LISTED. ACCEPTABLE MATERIAL: GRINNELL FIG. 281.

STEEL BEAM, BOTTOM FLANGE: COLD PIPING NPS 2 AND UNDER, MALLEABLE IRON C CLAMP TO MSS-SP-58, ACCEPTABLE MATERIAL, GRINNELL FIG. 61. NPS 2 1/2 AND LARGER, GRINNELL FIG. 229.

STEEL BEAM, TOP FLANGE: GRINNELL FIG. 61 NPS 2 AND UNDER, AND GRINNELL FIG. 227 NPS 2 1/2 AND LARGER. STEEL JOIST: GRINNELL FIG. 60.

MIDDLE ROD: CARBON STEEL THREADED ROD.

PIPE ATTACHMENT: COLD PIPING, STEEL OR CAST IRON, HOT PIPING STEEL, GRINNELL FIG. 260. COLD AND HOT COPPER PIPING, COPPER PLATED ATTACHMENT, GRINNELL FIG. CT-65. SUSPENDED HOT PIPING WITH HORIZONTAL MOVEMENT IN EXCESS OF 25 MM: PIPE ROLLER, GRINNELL 174.

SUPPORT SPACING FOR COPPER PIPING:	ROD DIA. MM	MAXIMUM SPACING, M
PIPE DIA. UP TO:		
1 1/4	10	1.8
1 1/2	10	2.4
2	10	2.7
2 1/2	10	3.0

IDENTIFICATION: IDENTIFY PIPING USING COLOUR BANDS CONFORMING TO CGSB 24-GP-3A, INTERVALS BETWEEN BANDS NOT TO EXCEED 15 M.

PIPE INSULATION

PROVIDE ALL LABOUR, MATERIALS, PRODUCTS, EQUIPMENT AND SERVICES TO SUPPLY AND INSTALL THERMAL INSULATION, VAPOUR BARRIERS AND FINISHES FOR MECHANICAL WORK AS INDICATED ON THE DRAWINGS AND SPECIFIED IN THIS SECTION OF THESE SPECIFICATIONS.

MAINTAIN AMBIENT TEMPERATURES AND CONDITIONS REQUIRED BY MANUFACTURERS OF ADHESIVES, MASTICS AND INSULATING CEMENTS.

INSULATION MATERIALS MUST BE MANUFACTURED AT FACILITIES CERTIFIED AND REGISTERED WITH AN APPROVED REGISTRAR TO CONFORM TO ISO 9000 QUALITY STANDARD.

ALL INSULATION PERTAINING TO DIVISION 15 SHALL BE CARRIED OUT BY ONE FIRM SPECIALIZING IN INSULATION WORK. DO NOT MIX SIMILAR PRODUCTS OF MULTIPLE MANUFACTURERS.

ACCEPTABLE INSULATION MANUFACTURERS ARE OWENS CORNING CANADA, JOHNS MANVILLE, MUNSON INSULATION INC, KNAUF FIBER GLASS AND CERTAINTED.

PROVIDE INSULATION AND COVERS IN STRICT ACCORDANCE WITH AUTHORITIES GOVERNING COMBUSTIBILITY AND FIREPROOFING OF MATERIALS AND IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

PROVIDE NON-COMBUSTIBLE INSULATION, JACKETS AND FINISHES HAVING A FLAME SPREAD/SMOKE DEVELOPED RATING OF 25/50 OR LESS, MEETING CAN/ULC S102 REQUIREMENTS.

ATTAIN A COMPLETE AND CONTINUOUS VAPOUR BARRIER OVER INSULATION APPLIED TO COLD AND DUAL TEMPERATURE PIPING. USE EITHER FACTORY APPLIED VAPOUR BARRIER JACKET OR FIELD APPLIED REINFORCED FOIL FLAME RESISTANT TAPE. VAPOUR BARRIER JACKET, APPLY TO PIPING, FITTINGS, VALVES AND INLINE COMPONENTS. SEAL LONGITUDINAL AND CIRCUMFERENTIAL LAPS WITH CHILDERS CPB2 OR BAKOR 230-39 ADHESIVE. IF VAPOUR BARRIER JACKET IS NOT LAPPED, SEAL JOINTS WITH SELF-ADHERING 4" WIDE PLAIN ALUMINUM FOIL TAPE, OR ADHERE 4" WIDE ALUMINUM FOIL TAPE WITH CHILDERS CPB2 OR BAKOR 230-39 ADHESIVE. JACKETING WITH SELF-ADHESIVE LAPS AND SELF-ADHESIVE BARRIER TAPE WILL BE AN ACCEPTABLE ALTERNATIVE CLOSURE SYSTEM.

PROVIDE INSULATION MATERIALS WITH A MINIMUM THERMAL CONDUCTIVITY OF 0.24BTU.IN/(HR. SQ.FT DEG.F) AT 100 DEG.F MEAN TEMPERATURE.

ON HOT PIPING APPLICATIONS, HOLD INSULATION IN PLACE WITH FLARE TYPE STAPLES (OUTWARD CLINCH).

ON COLD PIPING APPLICATIONS, APPLY VAPOUR BARRIER JACKET OVER INSULATION AND SEAL LONGITUDINAL AND CIRCUMFERENTIAL LAPS WITH CHILDERS CPB2 OR BAKELITE 230-39 ADHESIVE. SEAL ALL PIPE TERMINATIONS, INCLUDING FITTINGS, WALL PENETRATIONS AND PIPE SUPPORTS WITH VAPOUR BARRIER MASTIC. FOR CHILLED WATER SYSTEMS PROVIDE VAPOUR SEAL PIPE TERMINATIONS EVERY FOUR PIPE SECTIONS.

APPLY PIPE INSULATION OVER 1-1/2" THICKNESS IN TWO LAYERS WITH JOINTS STAGGERED.

INSULATE FITTINGS WITH FABRICATED MITERED OR PREFORMED SECTIONS OF SPECIFIED INSULATION.

INSULATE OVER FLANGES AND MECHANICAL COUPLINGS WITH SPECIFIED INSULATION AND THICKNESS, SIZED TO SUIT FLANGE DIAMETERS. FILL SPACES BETWEEN INSULATION AND ADJOINING PIPE INSULATION WITH SIMILAR MATERIAL.

INSULATE VALVES AND INLINE COMPONENTS WITH FLEXIBLE INSULATION DENSITY (3/4 LBS./CU.FT.) COMPRESSED NOT MORE THAN 50% OF ORIGINAL THICKNESS. BUILD UP TO SPECIFIED THICKNESS WITH APPROVED ASBESTOS FREE FINISHING CEMENT.

DO NOT INSULATE TERMINAL UNIT AUTOMATIC CONTROL VALVES INSTALLED IN HOT PIPING. DO NOT INSULATE TERMINAL UNIT AUTOMATIC CONTROL VALVES WHICH ARE INSTALLED IN COLD PIPING AND WHICH ARE LOCATED OVER CONDENSATE DRAIN PANS.

UNDER ALL HANGERS USED ON CHILLED WATER AND DOMESTIC COLD WATER, PROVIDE AN INSERT BETWEEN SUPPORT SHIELD AND PIPING FOR PIPING 1-1/2"Ø OR LARGER.

PROVIDE THE FOLLOWING PIPE INSULATION TYPE AS INDICATED IN THE PIPE INSULATION TABLE BELOW. MOLDED FIBROUS GLASS PIPE INSULATION SHALL COMPLY WITH THE REQUIREMENTS OF ASTM C 547.

TYPE P1 OWENS CORNING FIBERGLASS PIPE INSULATION, JOHNS MANVILLE MICRO-LOK AP-T PLUS FIBERGLAS PIPE INSULATION, MUNSON FIBERGLAS PIPE INSULATION OR KNAUF PIPE INSULATION WITH FACTORY APPLIED ALL SERVICE VAPOUR BARRIER JACKET.

DUTY	INSULATION TYPE	THICKNESS	VAPOUR BARRIER
DOMESTIC COLD WATER 4" AND LESS	P-1	1"	YES
DOMESTIC HOT WATER LESS THAN 1-1/2"	P-1	1"	NO
1-1/2" AND LARGER	P-1	1-1/2"	NO
HORIZONTAL STORM (RWL) AND SANITARY DRAINAGE ALL PIPE SIZES	P-1	1"	YES
HEATING WATER PIPING	P-1	1"	YES

FIRE EXTINGUISHERS

FIRE EXTINGUISHERS SHALL BE MULTI-PURPOSE ABC DRY CHEMICAL EXTINGUISHERS.

FIRE EXTINGUISHERS SHALL BE PROVIDED AND INSTALLED BY THIS CONTRACTOR. VERIFY EXACT LOCATION ON SITE WITH OWNER AND FIRE MARSHALL PRIOR TO INSTALL.

FIRE EXTINGUISHERS TO BE INSTALLED AS PER NFPA 10. TOP OF FIRE EXTINGUISHER TO BE A MAXIMUM OF 5'-0" A.F.F. AND BASE OF FIRE EXTINGUISHER TO BE AT LEAST 4" A.F.F.

CONTROLS

INSTALLATION BY THIS CONTRACTOR.

NEW THERMOSTATS AND SENSORS ARE TO BE PROVIDED BY THE EQUIPMENT MANUFACTURER AND INSTALLED IN THE LOCATIONS SHOWN ON THE DRAWINGS.

MOUNTING HEIGHT OF THE THERMOSTATS SHALL BE 1200MM (3'-11") ABOVE FINISHED FLOOR UNLESS NOTED OTHERWISE.

PROVIDE ALL NECESSARY EMT CONDUIT, FITTINGS AND WIRE TO PROVIDE A COMPLETE AND OPERATING CONTROL SYSTEM. HARD WIRE ALL ELECTRICAL CONTROL DEVICES INTO THE ASSOCIATED SYSTEM MAGNETIC STARTER. PROVIDE POWER TO CONTROL PANEL FROM THE NEAREST NORMAL POWER ELECTRICAL DISTRIBUTION PANEL.

ENGRAVED PLASTIC IDENTIFICATION LAMACOID PLATES SHALL BE PROVIDED AT ALL STARTERS AND THERMOSTATS.

THERMOSTAT CONTROL WIRING

- ALL THERMOSTAT/CONTROL WIRING IS TO BE 18 AWG SHIELDED PLENUM RATED FT6 MINIMUM.
- SUPPORT ALL WIRING IN CEILING PLENUM USING WIRE TIES / BRIDLE RINGS.
 - MECHANICAL CONTRACTOR IS TO WIRE AND INSTALL ALL THERMOSTATS AND CONTROL WIRING TO EACH MECHANICAL UNIT SHOWN ON HVAC PLAN.
 - CONTROL WIRING TO BE PLENUM RATED FT-6 CABLE.
 -

TEST, ADJUSTING, BALANCING (TAB)

START TAB ONLY WHEN BUILDING IS ESSENTIALLY COMPLETED, INCLUDING: INSTALLATION OF CEILINGS, DOORS, WINDOWS, OTHER CONSTRUCTION AFFECTING TAB.

AIR SYSTEMS:

- FILTERS IN PLACE, CLEAN.
- DUCT SYSTEMS CLEAN.
- DUCTS, AIR SHAFTS, CEILING PLENUMS ARE AIRTIGHT.
- CORRECT FAN ROTATION.
- FIRE, SMOKE, VOLUME CONTROL DAMPERS INSTALLED AND OPEN.
- COIL FINS COMBED, CLEAN.
- ACCESS DOORS, INSTALLED, CLOSED.
- ALL OUTLETS INSTALLED, VOLUME CONTROL DAMPERS OPEN.

- DO TAB TO FOLLOWING TOLERANCES OF DESIGN VALUES:
- ALL NEW HVAC SYSTEMS: PLUS 5%, MINUS 5%.
 - ALL EXISTING HVAC SYSTEMS: PLUS 10%, MINUS 10%.

INITIAL REPORT TO BE PROVIDED IN PDF FORMAT FOR ENGINEER'S REVIEW. SUBMIT 3 COPIES OF FINAL TAB REPORT TO CONSULTANT FOR VERIFICATION AND APPROVAL, IN ENGLISH IN D-RING BINDERS, COMPLETE WITH INDEX TABS.

PROVIDE SUFFICIENT BALANCING DAMPERS TO FACILITATE SYSTEM BALANCING BALANCE SYSTEM TO VALUES SHOWN & CHANGE OR ADJUST FAN MOTORS AND PULLEYS TO ACHIEVE AIR QUANTITIES AGAINST ACTUAL STATIC PRESSURES. ALLOW FOR REBALANCING OF SYSTEM, AS NECESSARY, AFTER ENGINEER'S REVIEW OF INITIAL BALANCING REPORT. BALANCING PAID FOR BY MECHANICAL CONTRACTOR.

BALANCING TO BE PERFORMED BY A CERTIFIED INDEPENDENT BALANCING CONTRACTOR WHO IS A CURRENT MEMBER OF AABC (ASSOCIATED AIR BALANCE COUNCIL) OR NEBC (NATIONAL ENVIRONMENTAL BALANCING BUREAU). SUBMIT BALANCING REPORT IN TRIPLICATE TO THE CONSULTANT AND THE LANDLORD IND