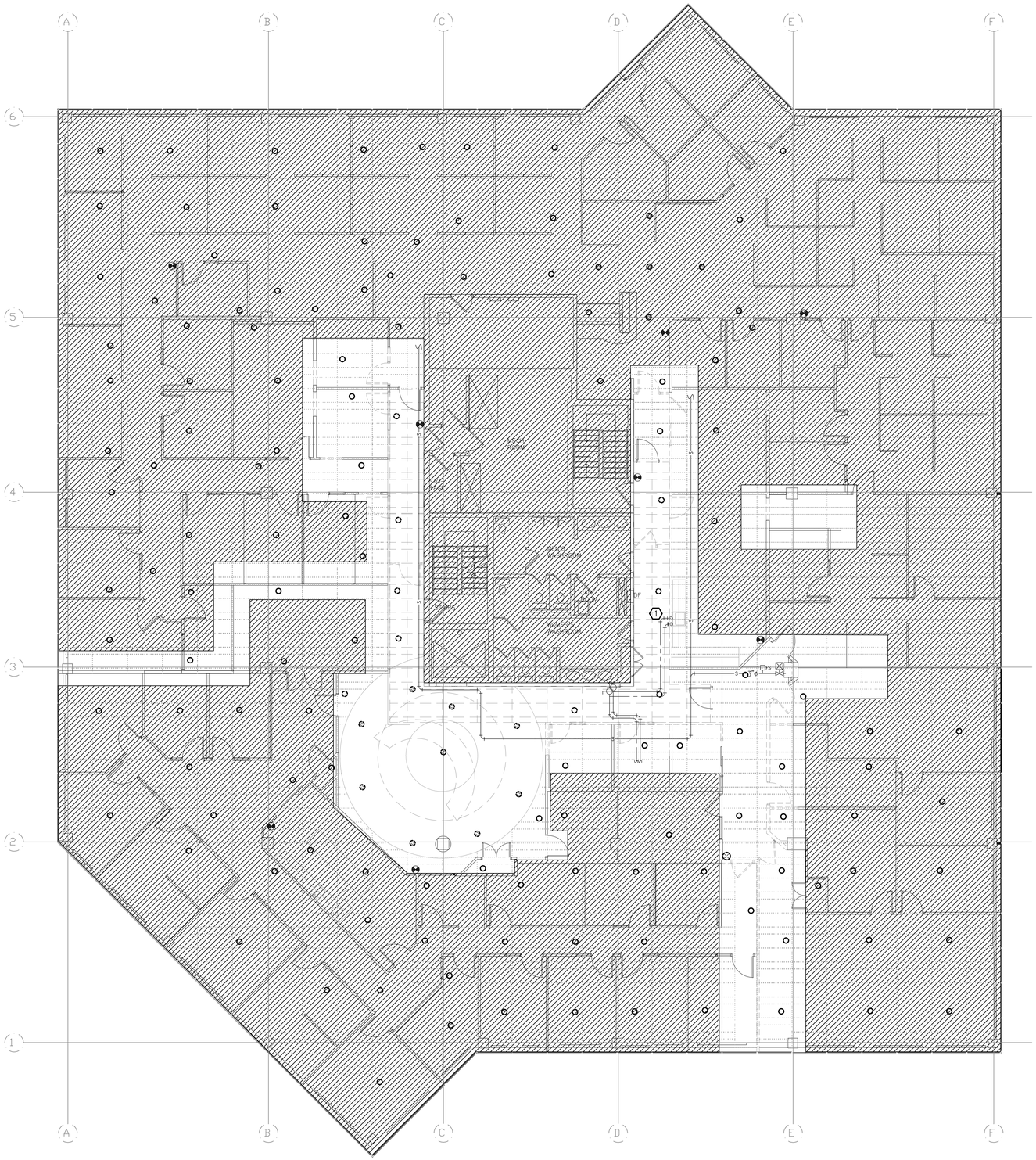

DRAWING NOTES

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1.	ISSUED FOR TENDER	JUL 11/25

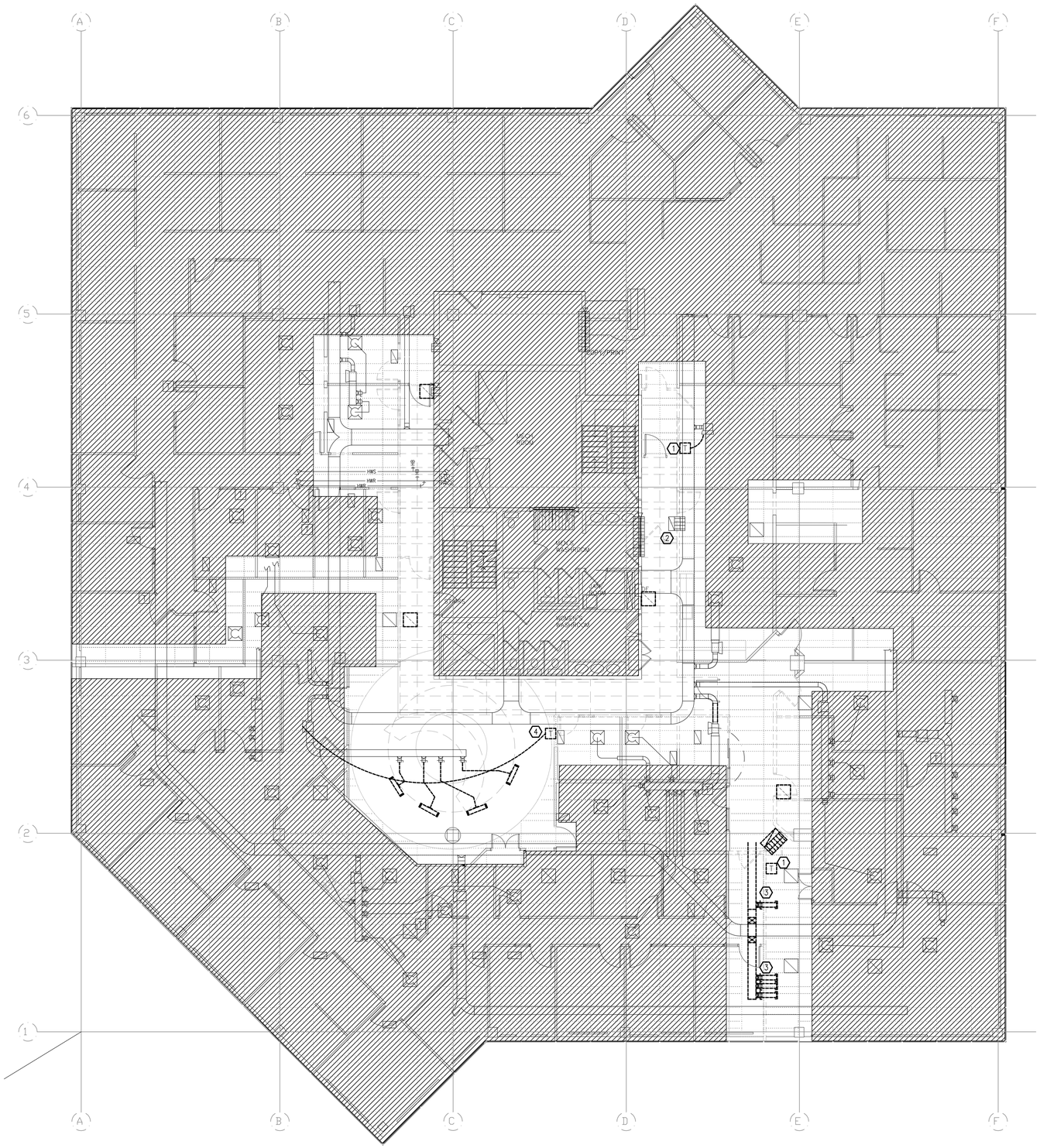
McKEE ENGINEERING
R.J. McKEE ENGINEERING LTD.
1785 Woodward Drive
Ottawa, ON K2C 0P9
CANADA
Tel.:(613) 723-9585
Fax.:(613) 723-9584
www.mckeeottawa.ca

PROJECT:
MERKBURN (DEMISING WALLS)
1050 MORRISON DRIVE
3RD FLOOR
OTTAWA, ON

DRAWING:
MECHANICAL:
PLUBMING AND
FIRE PROTECTION
DEMOLITION

DATE: JUNE 2025
DESIGNED BY: J.W.S.
DRAWN BY: J.W.S.
CHECKED BY: S.C.
SCALE: 1/8"=1'-0"

No. DWGS. 6
PROJECT No. 25070
DRAWING No. MD-1



DRAWING NOTES

1. TEMPERATURE SENSORS LOCATED ON WALL SHOWN TO BE DEMOLISHED ARE TO BE REINSTATED IN NEW WALL.
2. ALL TRANSFER DUCTS PASSING THROUGH EXISTING CORRIDOR WALL TO BE MAINTAINED.
3. REMOVE ABANDONED DUCTWORK LOCATED WITHIN BULKHEAD. BULKHEAD TO BE MAINTAINED.
4. TEMPERATURE SENSOR TO BE COILED AT CEILING AND INSTALLED AT FINAL LOCATION AS PER TENANT FIT-UP DRAWINGS.

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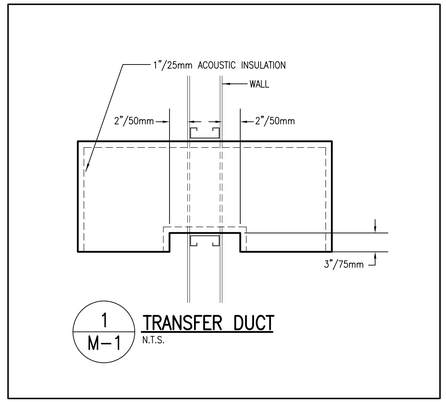
No. DWGS. 6
PROJECT No. 25070
DRAWING No. MD-2

GRILLE & DIFFUSER SCHEDULE

REF.	FUNCTION	THROW DIRECTION	FRAME OR BORDER TYPE	NECK SIZE	COLOR	BALANCING DAMPER	REMARKS
A	SUPPLY	4-WAY	T-BAR	6"ø	WHITE	IN BRANCH	EQUAL TO NAILOR MODEL SERIES RNS 24"X24"



1 / M-1 TRANSFER DUCT
N.T.S.

REMOVED AND/OR RELOCATED	EXISTING TO REMAIN	NEW	HVAC LEGEND
			VERTICAL SUPPLY AIR DUCT
			VERTICAL RETURN OR EXHAUST AIR DUCT
			SUPPLY AIR DUCT
			RETURN OR EXHAUST DUCT
			INTERNAL ACOUSTIC DUCT LINING
			FIRE DAMPER
M	M	M	MOTOR OPERATED DAMPER
S	S	S	SMOKE DAMPER
			BALANCING DAMPER
			BACKDRAFT DAMPER
			SPLITTER DAMPER
			TURNING VANES
			SQUARE TO ROUND TRANSITION
AD AD	AD AD	AD AD	ACCESS DOOR
			FLEXIBLE DUCT (MAX. 6' LENGTH)
			VAV BOX NO ATTENUATOR
			VAV BOX WITH ATTENUATOR
			LIGHT TROFFER DIFFUSER
			LINEAR DIFFUSER
			SQUARE DIFFUSER
			DUCTED RETURN/EXHAUST GRILLE
			EGGCRATE RETURN/EXHAUST GRILLE
			DOOR GRILLE
			FLEXIBLE CONNECTION
	A #	A #	A = DIFFUSER TYPE (SEE SCHEDULE) # = CAPACITY FOR EACH (CFM)
	A B C	A B C	A = VAV BOX SIZE B = BOX MAXIMUM AIR FLOW C = BOX MINIMUM AIR FLOW

REMOVED AND/OR RELOCATED	EXISTING TO REMAIN	NEW	CONTROLS LEGEND
T	T	T	ROOM THERMOSTAT
T	T	T	TEMPERATURE SENSOR
			CONTROL WIRING/TUBING

REMOVED AND/OR RELOCATED	EXISTING TO REMAIN	NEW	HEATING & COOLING LEGEND
HWS	HWS	HWS	HEATING WATER SUPPLY PIPING
HWR	HWR	HWR	HEATING WATER RETURN PIPING

REMOVED AND/OR RELOCATED	EXISTING TO REMAIN	NEW	PLUMBING LEGEND
SAN	SAN	SAN	SANITARY PIPING ABOVE GRADE/FLOOR
SAN	SAN	SAN	SANITARY PIPING BELOW GRADE/FLOOR
C	C	C	CONDENSATE PIPING
V	V	V	SANITARY VENT PIPING
ST	ST	ST	STORM PIPING ABOVE GRADE/FLOOR
ST	ST	ST	STORM PIPING BELOW GRADE/FLOOR
			DOMESTIC COLD WATER PIPING
			DOMESTIC HOT WATER PIPING
			DOMESTIC HOT WATER RECIRCULATION PIPING
			CLEAN OUT
			DRAIN/DRAIN BODY
			HUB DRAIN

REMOVED AND/OR RELOCATED	EXISTING TO REMAIN	NEW	VALVES & FITTINGS LEGEND
			GATE VALVE
			BALL VALVE
M	M	M	2 WAY CONTROL VALVE
			CHECK VALVE
			DOUBLE CHECK VALVE BACKFLOW PREVENTER
			PRESSURE RELIEF VALVE
			PUMP
			ELBOW UP OR DOWN
			BRANCH CONNECTION BOTTOM OR TOP
			CAP
			REDUCER
			UNION OR FLANGE

REMOVED AND/OR RELOCATED	TO BE REMOVED	EXISTING TO REMAIN	NEW	FIRE PROTECTION LEGEND
S		S	S	SPRINKLER PIPING
F		F	F	FIRE STANDPIPE PIPING
				SUPERVISED VALVE
FS		FS	FS	FLOW SWITCH
				PENDANT SPRINKLER HEAD
				FLUSH SPRINKLER HEAD
				FIRE EXTINGUISHER

MECHANICAL DRAWING LIST

DRAWING No.	DESCRIPTION
MD-1	MECHANICAL : PLUMBING AND FIRE PROTECTION DEMOLITION
MD-2	MECHANICAL : HVAC DEMOLITION
M-1	MECHANICAL : LEGEND AND DRAWING LIST
M-2	MECHANICAL : PLUMBING AND FIRE PROTECTION
M-3	MECHANICAL : HVAC
M-4	MECHANICAL : SPECIFICATIONS

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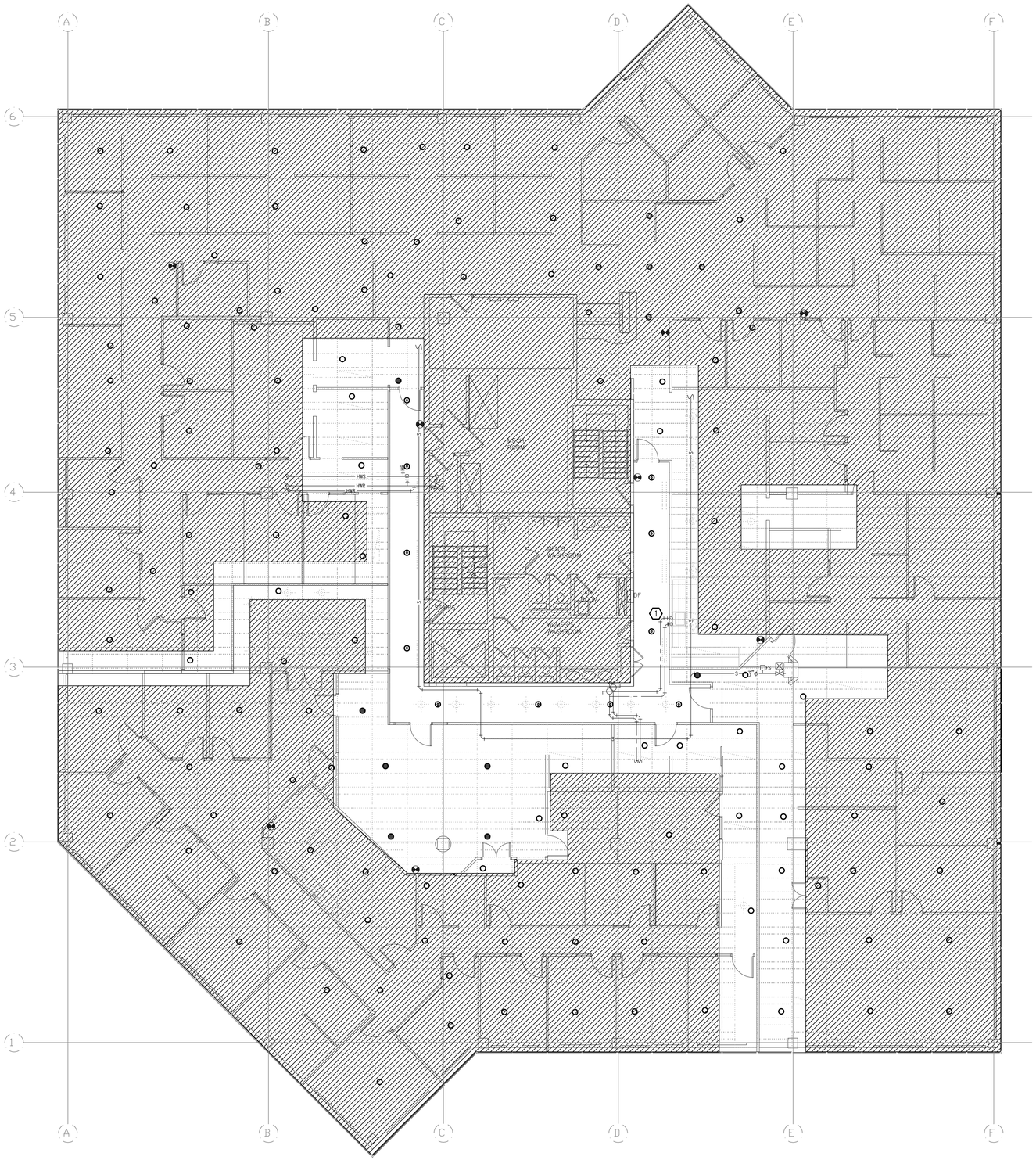
1050 MORRISON DRIVE
3RD FLOOR
OTTAWA, ON

DRAWING:
MECHANICAL:
LEGEND AND
DRAWING LIST

DATE: JUNE 2025
DESIGNED BY: J.W.S.
DRAWN BY: J.W.S.
CHECKED BY: S.C.
SCALE: AS NOTED

No. DWGS. 6
PROJECT No. 25070
DRAWING No. M-1



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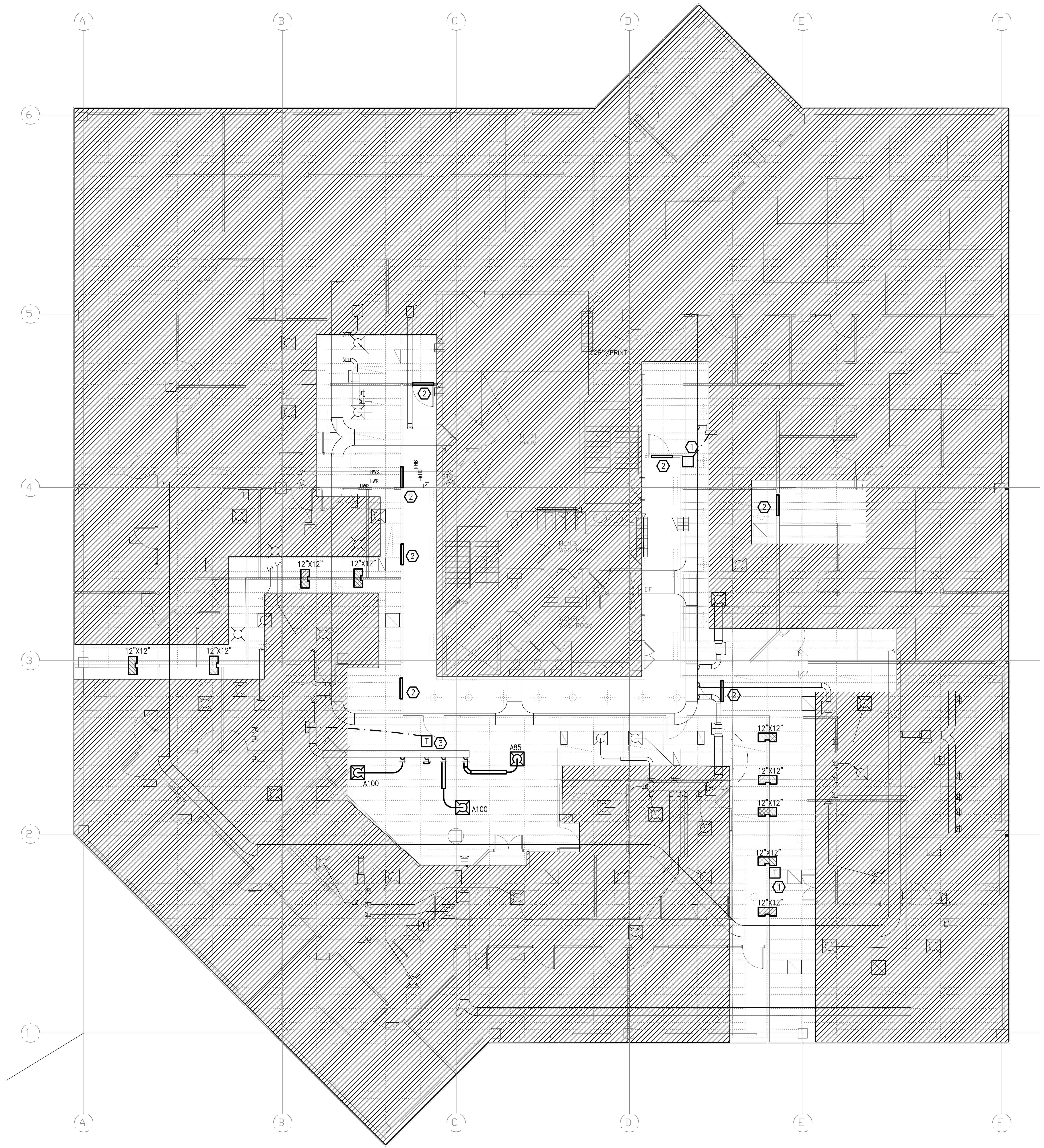
PROJECT No. 25070
DRAWING No. M-2



GENERAL NOTES

1. CONTRACTOR TO SITE VERIFY ALL EXISTING DUCTWORK DIMENSIONS THAT ARE EXISTING AND SHOWN TO BE EXTENDED OR MODIFIED AND MAINTAIN SAME SIZES FOR NEW DUCTWORK.

DRAWING NOTES

⟨1⟩ TEMPERATURE SENSORS TO BE INSTALLED IN NEW WALLS AND RECONNECTED TO ASSOCIATED EQUIPMENT.

⟨2⟩ PROVIDE 36"X12" WALL OPENING WITHIN CEILING SPACE FOR RETURN AIR PATHWAY. COORDINATE LOCATION ON SITE.

⟨3⟩ TEMPERATURE SENSOR TO BE COILED IN CEILING FINAL LOCATION TO BE AS PER TENANT FIT-UP.

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PROJECT No. 25070
DRAWING No. M-3

GENERAL

CONDITIONS OF CONTRACT

ALL CONDITIONS OF CCDC2–2020 (STIPULATED PRICE CONTRACT) SHALL APPLY TO THIS PROJECT.

EXAMINATION OF WORK

THIS PROJECT INVOLVES RENOVATIONS TO THE EXISTING BUILDING, THEREFORE EXAMINE THE SITE AND LOCAL CONDITIONS INCLUDING REVIEW OF CEILING INTERFERENCES TO DETERMINE THE DIFFICULTIES IN CARRYING OUT THE WORK INDICATED AND SPECIFIED PRIOR TO SUBMITTING FINAL PRICE. ALLOW FOR ALL DUCT AND PIPE ELBOWS AND OFFSETS AS REQUIRED TO COORDINATE WITH ALL OTHER SERVICES IN CEILING SPACE. THESE REQUIRED OFFSETS ARE NOT SHOWN ON THE DRAWINGS.

INTENT

ALL WORK SHALL BE CARRIED OUT IN ACCORDANCE WITH STANDARDS OF GOOD PRACTICE SUCH AS SMACNA AND ASHRAE.

TESTING

TEST ALL EQUIPMENT AND MATERIAL WHERE REQUIRED BY THE SPECIFICATIONS OR AUTHORITIES HAVING JURISDICTION TO DEMONSTRATE IT'S PROPER OPERATION TO THE OWNER'S REPRESENTATIVE. TEST PROCEDURES SHALL BE IN ACCORDANCE WITH THE APPLICABLE PORTIONS OF THE ASME, ASHRAE, AND OTHER RECOGNIZED STANDARDS.

PERFORM THE FOLLOWING TESTS AND UPON COMPLETION OF THE MECHANICAL INSTALLATION, TURN OVER TO THE OWNER CERTIFICATION OF THE TESTS WITH DETAILED DATA AS REQUIRED BY EACH. EACH TEST SHALL BE ITEMIZED AS TO THE TIME PERFORMED AND PERSONNEL RESPONSIBLE FOR THE TEST. WHERE LEAKAGE OCCURS, REPAIRS SHALL BE MADE AND THE ENTIRE SYSTEM RE–TESTED. ALL TESTS TO BE MADE BEFORE BACKFILLING OR FURRING IN.

ALL DUCT SYSTEMS, INCLUDING SUPPLY, RETURN AND EXHAUST SHALL BE CHECKED FOR TIGHTNESS. ALL LEAKS SHALL BE REPAIRED BEFORE DUCTS ARE FURRED IN TO ENSURE TOTAL OUTLET CAPACITY IS WITHIN 5% OF THE QUANTITY BEING SUPPLIED BY THE AIR SYSTEM FOR LOW VELOCITY SYSTEMS AND WITHIN 1–1/2% FOR HIGH VELOCITY SYSTEMS.

TESTING AND BALANCING

BALANCE ALL SYSTEMS WHERE AIRFLOW IS GIVEN FOR RATED AIR FLOW, ROOM TEMPERATURE CONTROL AND CHECK CURRENT DRAW AFTER INSTALLATION IS COMPLETE AND IN FULL WORKING ORDER. ADJUST CONTROLS DAMPERS, AND DIFFUSERS FOR PROPER AIR CIRCULATION AND MINIMUM ENERGY CONSUMPTION. ADJUST FAN SPEEDS AS REQUIRED TO OBTAIN SPECIFIC PERFORMANCE. CHANGE PULLEYS/BELTS WITHIN AIR HANDLING EQUIPMENT AS REQUIRED TO ACHIEVE DESIGN AIRFLOW. BALANCE VAV BOXES TO THEIR MAXIMUM AND MINIMUM POSITIONS.

MECHANICAL SYSTEMS SHALL NOT BE CONSIDERED READY FOR FINAL INSPECTION UNTIL BALANCING RESULTS ACCEPTABLE TO THE ENGINEER ARE OBTAINED. IF IT IS FOUND THAT THE SPECIFIED AIR FLOWS CANNOT BE ACHIEVED ON PORTIONS OF THE SYSTEM, THE ACTUAL CONDITIONS SHALL BE REPORTED TO THE ENGINEER FOR CONSIDERATION OF CORRECTIVE ACTION BEFORE CONTINUING THE BALANCING PROCEDURE. PROVIDE INSTRUMENTS AND MANPOWER TO VERIFY RESULTS OF UP TO 30% OF ALL REPORTED MEASUREMENTS. IF MEASURED FLOW AT FINAL INSPECTION SHOWS DEVIATION OF 10% OR MORE OF SELECTED AREAS, THE REPORT SHALL BE REJECTED. IF REPORT IS REJECTED, SYSTEMS SHALL BE REBALANCED AND A NEW CERTIFIED REPORT SUBMITTED AT NO EXTRA COST, FOLLOWING WHICH THE ENGINEER RESERVES THE RIGHT TO REQUEST ADDITIONAL VERIFICATION.

SUBMIT WRITTEN BALANCING REPORT CONFORMING TO AABC AND ASHRAE STANDARDS FOR ENGINEER'S APPROVAL. ONCE REVIEWED AND DEEMED SATISFACTORY BY THE ENGINEER, THE BALANCING CONTRACTOR SHALL SUBMIT 3 COPIES OF THE BALANCING REPORT FOR SUBMISSION TO THE OWNER.

ELECTRIC MOTORS AND WIRING

SUPPLY ALL MECHANICAL EQUIPMENT COMPLETE WITH ELECTRIC MOTORS AS REQUIRED. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE TO SUPPLY ALL MOTOR STARTERS, EXCEPT ON PRE–WIRED PACKAGED EQUIPMENT, DISCONNECT SWITCHES FOR ALL MOTORS FOR THE PROJECT, AND ALL WIRING TO STARTERS EXCEPT WHERE SHOWN OTHERWISE. EQUIPMENT REQUIRING CONNECTION TO AN ELECTRICAL POWER SOURCE SHALL BE CSA OR ULC APPROVED FOR USE AT LOCATION OF INSTALLATION. THE MECHANICAL CONTRACTOR SHALL SUPPLY AND INSTALL ALL LOW VOLTAGE CONTROL WIRING WITHIN EMT CONDUIT FOR A COMPLETE AND OPERATIVE INSTALLATION UNLESS OTHERWISE SPECIFIED. ALL MOTOR EFFICIENCIES SHALL BE IN ACCORDANCE WITH THE ONTARIO BUILDING CODE.

"AS–BUILT" DRAWINGS

KEEP IN THE JOB OFFICE AN EXTRA SET OF WHITE PRINTS AND SPECIFICATIONS ON WHICH ALL CHANGES AND DEVIATIONS SHALL BE RECORDED DAILY. AT COMPLETION OF THE PROJECT TURN THESE OVER TO THE ENGINEER.

SHOP DRAWINGS

BEFORE FABRICATION OR DELIVERY OF ANY MATERIALS OR EQUIPMENT, SUBMIT A MINIMUM OF SIX (6) COMPLETE SETS OF SHOP DRAWINGS AND DATA SHEETS COVERING EQUIPMENT TO BE FURNISHED AND INTENDED FOR INSTALLATION UNDER THE CONTRACT FOR REVIEW BY THE ENGINEER.

SUBMIT AT LEAST FIFTEEN (15) WORKING DAYS BEFORE THE DATE REVIEWED SUBMISSIONS ARE REQUIRED.

ELECTRONIC SHOP DRAWING SUBMISSIONS ARE ACCEPTABLE WITH THE FOLLOWING CONDITIONS: THE SHOP DRAWINGS SHALL BE IN PDF FORMAT WITH A TRANSMITTAL AND INCLUDE THE TRADE CONTRACTOR'S REVIEW STAMP. THE PAGE SIZE SHALL NOT EXCEED 8.5"x11" AND MUST BE FULLY LEGIBLE. IF LARGER SHEET SIZE IS REQUIRED, THE SUBMISSION SHALL BE IN HARD COPY FORMAT RATHER THAN ELECTRONIC.

COORDINATE EACH SUBMISSION WITH REQUIREMENTS OF THE WORK AND CONTRACT. INDIVIDUAL SHOP DRAWINGS WILL NOT BE REVIEWED UNTIL ALL RELATED DRAWINGS ARE AVAILABLE. THE CONTRACTOR SHALL SUBMIT ALL SHOP DRAWINGS SPECIFIED IN A SECTION IN ONE SUBMISSION. MULTIPLE SHOP DRAWING SUBMISSIONS FOR A SPECIFICATION SECTION SHALL NOT BE ACCEPTABLE. IN THE EVENT THAT SHOP DRAWINGS ARE SUBMITTED PIECE MEAL (MULTIPLE SUBMISSIONS) WITHIN A SPECIFICATION SECTION, THE SHOP DRAWINGS SHALL BE REJECTED BY THE CONSULTANT UNTIL ALL SHOP DRAWINGS FROM THAT SECTION HAVE BEEN RECEIVED IN ONE PACKAGE FOR REVIEW.

TEMPORARY AND TRIAL USAGE

TEMPORARY OR TRIAL USAGE BY THE OWNER OF ANY MECHANICAL MACHINERY, APPARATUS, EQUIPMENT OR ANY OTHER WORK OR MATERIALS SUPPLIED UNDER THE CONTRACT BEFORE FINAL WRITTEN ACCEPTANCE BY THE ENGINEER IS NOT TO BE CONSTRUED AS EVIDENCE OF THE ACCEPTANCE OF SAME BY THE OWNER. THE OWNER SHALL HAVE THE PRIVILEGE OF SUCH TEMPORARY AND TRIAL USAGE AS SOON AS THIS CONTRACTOR CLAIMS THAT SAID WORK IS COMPLETED. ANY DAMAGE CAUSED BY DEFECTIVE MATERIAL OR WORKMANSHIP THROUGH TEMPORARY OR TRIAL USAGE BY THE OWNER SHALL BE THE RESPONSIBILITY OF THIS CONTRACTOR.

CEILING TILE REMOVAL/REPLACEMENT

EACH RESPECTIVE SUBTRADE OR PRIME MECHANICAL CONTRACTOR AS THE CASE MAY BE SHALL BE RESPONSIBLE FOR THE REMOVAL AND REINSTALLATION OF ANY CEILING TILES TO SUIT WORK WITHIN THE CEILING SPACE. ANY DAMAGED TILES SHALL BE REPLACED, AT THE RESPECTIVE SUBTRADE OR PRIME MECHANICAL CONTRACTORS COST.

OPERATING AND MAINTENANCE DATA

FURNISH THREE (3) SETS OF OPERATING AND MAINTENANCE DATA FOR ALL NEW EQUIPMENT AND SYSTEMS. DATA SHALL BE ASSEMBLED IN BOOKLET FORM WITH HARD COVER AND INDEX. IDENTIFY FRONT COVER WITH NAME AND LOCATION OF THE PROJECT, CONSULTING ENGINEER AND CONTRACTOR. SUBMIT ONE COPY TO THE ENGINEER FOR REVIEW PRIOR TO FINAL SET OF THREE (3) PRINTED MANUALS AND ONE (1) PDF COPY.

NOTICE TO ENGINEER

PROVIDE ENGINEER WITH MINIMUM FIVE (5) DAYS NOTICE PRIOR TO INSTALLATION OF CEILING AND PARTITIONS SO THAT A FIELD REVIEW OF THE COMPLETED ROUGH IN WORK MAY OCCUR PRIOR TO THESE SYSTEMS BEING CONCEALED.

ACCESS DOORS

SUPPLY TO THE INSTALLING TRADES, ACCESS DOORS FOR VALVES, CLEANOUTS, AIR VENTS, BALANCING DAMPERS, FIRE DAMPERS, EXPANSION JOINTS AND FOR ALL ANCILLARY EQUIPMENT. MATERIAL SHALL BE OF $\frac{1}{8}$" CORE THICKNESS BONDERIZED STEEL COMPLETE WITH HEAVY DUTY RUST RESISTANT CONCEALED HINGES, POSITIVE LOCKING AND SELF–OPENING SCREW DRIVER LOCK. FRAME SHALL BE 12"x12" MINIMUM AND 24"x24" MAXIMUM AS REQUIRED AND SUITABLE FOR THE TYPE OF ASSOCIATED WALL OR CEILING CONSTRUCTION. PROVIDE SUITABLY RATED FIRE RATED ACCESS DOORS FOR INSTALLATION IN FIRE RATED ASSEMBLIES. THIS TRADE SHALL BE RESPONSIBLE FOR ACCURATELY LOCATING THE ACCESS DOORS.

APPROVALS

THE PRICE SUBMITTED FOR THIS CONTRACT SHALL BE BASED ON THE USE OF MATERIALS AND EQUIPMENT AS SPECIFIED. IF THIS CONTRACTOR WISHES TO QUOTE ON EQUIVALENT MATERIALS AND EQUIPMENT HE MUST QUOTE ON PRODUCTS APPROVED BY THE ENGINEER, IN WRITING, AS AN EQUIVALENT TO THE PRODUCT SPECIFIED. THIS CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY ADDITIONAL WORK OR MATERIALS REQUIRED BY THE MECHANICAL TRADE OR OTHER CONTRACTORS TO ACCOMMODATE APPROVED EQUIVALENT MATERIALS OR EQUIPMENT. EXTRAS WILL NOT BE APPROVED TO COVER SUCH WORK.

CUTTING AND PATCHING

THE MECHANICAL CONTRACTOR IS RESPONSIBLE FOR THIS WORK AND SHALL COORDINATE LOCATIONS FOR ALL HOLES FOR PIPES, DUCTS THROUGH FLOORS AND ROOF ETC., AND PROVIDE SLEEVES REQUIRED TO EXECUTE THE MECHANICAL INSTALLATION. SCAN FLOORS AND STRUCTURAL WALLS BEFORE CUTTING TO LOCATE EXISTING REBAR AND CONDUITS, AND OBTAIN OWNER'S APPROVAL FOR PROPOSED CUTTING. PROVIDE ULC APPROVED FIRESTOPPING SYSTEM FOR ALL PENETRATIONS THROUGH RATED ASSEMBLIES. REPAIR ALL EXISTING WORK DAMAGED BY CUTTING AT NO EXTRA COST TO THE CONTRACT.

IDENTIFICATION

INSTALL SELF ADHESIVE PIPE IDENTIFICATION LABELS TO IDENTIFY FLUID MEDIUM AND DIRECTION ON PIPE EITHER SIDE OF WALLS OR FLOORS, AND SO THAT A LABEL IS CLEARLY VISIBLE FROM ANY LOCATION, INCLUDING IN CEILING SPACES.

USE PAINTED LETTERS TO IDENTIFY DUCTWORK SYSTEMS.

SEISMIC RESTRAINT

PROVIDE SEISMIC RESTRAINT OF MECHANICAL SYSTEMS IN ACCORDANCE WITH SECTION 4.1.8 OF THE ONTARIO BUILDING CODE. SUBMIT RESTRAINT DETAILS IN FORM OF SHOP DRAWINGS, STAMPED AND SIGNED BY A SEISMIC ENGINEER LICENSED IN THE PROVINCE OF ONTARIO. HAVE SAME SEISMIC ENGINEER PROVIDE CONFIRMATION IN WRITING AT COMPLETION OF PROJECT THAT THE MECHANICAL INSTALLATION IS IN GENERAL COMPLIANCE WITH THE SHOP DRAWINGS. INCLUDE ALL COSTS FOR SEISMIC DESIGN, MATERIALS AND SITE REVIEW IN TENDER PRICE.

HOURS OF WORK

ANY AUDIBLE TESTING, CORE DRILLING OR ANY OTHER NOISY WORK TO BE PERFORMED AFTER REGULAR WORKING HOURS. MAKE ARRANGEMENTS WITH BUILDING PERSONNEL TO CONFIRM TIMES FOR SUCH WORK.

SHUT–DOWNS OF SERVICES AND SYSTEMS

CONTRACTOR TO COORDINATE ALL DOWN TIME AND SYSTEM SHUTDOWNS WITH BUILDING OWNER OR USER GROUP PRIOR TO PERFORMING WORK. CONTRACTOR TO VERIFY WITH OWNER BEFORE MAKING ANY CONNECTION TO ANY EXISTING SYSTEMS. THIS WILL ENSURE THAT (1) THE OWNER IS AWARE THAT WORK WILL BE DONE ON A SYSTEM AND (2) THAT THE CONTRACTOR IS WORKING ON A SYSTEM THAT IS FUNCTIONING NORMALLY WHEN HE STARTS HIS WORK.

DEMOLITION

FULL EXTENT OF DEMOLITION MAY NOT BE ILLUSTRATED ON DRAWINGS. DEVICES SHOWN ARE BASED ON VISUAL INSPECTION PERFORMED DURING NORMAL WORKING HOURS, SOME EXISTING DEVICES MIGHT NOT BE SHOWN ON DRAWINGS DUE TO THE PRESENCE OF VARIOUS OBSTRUCTIONS. DISCONNECT AND REMOVE ALL EQUIPMENT LOCATED ON EXISTING CEILINGS AND WALLS TO BE DEMOLISHED. REMOVE ALL SERVICES FOR EQUIPMENT WHICH HAVE BECOME REDUNDANT UNDER THE CONTRACT COMPLETE WITH ALL REDUNDANT WIRING, PIPING, DUCTWORK, AND SYSTEMS. ALL ITEMS REMOVED DURING DEMOLITION AND WHICH ARE NOT TO BE REUSED SHALL BE REMOVED FROM SITE.

CONTRACTOR IS RESPONSIBLE FOR THE RECONNECTION OF ANY SERVICES WHICH ARE TO REMAIN AND WHICH HAVE BEEN DISCONNECTED DURING THE COURSE OF DEMOLITION OR CONSTRUCTION. MAINTAIN SERVICES AND SYSTEMS AT ALL TIMES TO AREAS BEYOND THE CONSTRUCTION AREA. REINSTATE IMMEDIATELY ANY EXISTING SERVICES DISRUPTED DURING DEMOLITION NOT INTENDED TO BE REMOVED AS PART OF THIS CONTRACT. RETAIN CONTINUITY OF SAFETY SYSTEMS TO ALL OCCUPIED AREAS OF THE BUILDING THROUGHOUT CONSTRUCTION PERIOD. WHERE SOME EXISTING MATERIALS OR EQUIPMENT ARE TO BE RETAINED IN PLACE OR RECONNECTED, IDENTIFY AND PROTECT THE MATERIALS OR EQUIPMENT PRIOR TO THE COMMENCEMENT OF DEMOLITION. MAINTAIN ADEQUATE STRUCTURAL SUPPORT FOR EQUIPMENT AND MATERIAL DURING DEMOLITION PROCESS.

WHERE EXISTING MATERIALS ARE TO BE RE–USED, THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR THEIR REMOVAL, STORAGE, CLEANING AND REINSTALLATION.

TURN OVER TO THE OWNER IN CLEAN AND SOUND CONDITION ANY REDUNDANT EXISTING MATERIAL OR EQUIPMENT DESIGNATED BY THE OWNER OR SPECIFIED ON DRAWINGS.

CHANGES IN THE WORK

.1 CHANGES IN THE WORK MAY BE REQUESTED FROM TIME TO TIME BY THE ISSUANCE OF A CONTEMPLATED CHANGE NOTICE (CCN) AND/OR PROPOSED CHANGE (PC). REFER TO GENERAL CONDITIONS OF THE CONTRACT OR THE FRONT END SPECIFICATIONS FOR REQUIREMENTS ON HOW TO QUOTE CHANGES IN THE WORK. THOSE REQUIREMENTS TAKE PRECEDENCE OVER THE REQUIREMENTS FOLLOWING IN THIS SECTION.

.2 SHOULD THE BID FORM, GENERAL CONDITIONS OF THE CONTRACT OR FRONT END SPECIFICATIONS NOT ADDRESS HOW TO QUOTE CHANGES IN THE WORK, THE REQUIREMENTS FOLLOWING IN THIS SECTION SHALL APPLY.

.3 PROVIDE DETAILED BREAKDOWNS OF MATERIAL AND LABOUR WITH UNIT PRICES AND EXTENSIONS REQUIRED FOR REVIEW OF CONTEMPLATED CHANGE NOTICES (CCN'S) OR PROPOSED CHANGES (PC'S).

.4 IN ADDITION TO THE NET COST OF THE CHANGE, THE CONTRACTOR SHALL BE ENTITLED TO A 15% FEE TO COVER OVERHEADS AND PROFIT ON THEIR WORK AND A 10% FEE TO COVER OVERHEADS AND PROFIT ON SUB–TRADES.

.5 PLUMBING AND PIPING LABOUR SHALL BE EVALUATED USING "MCAA" LABOUR UNITS. SHEET METAL FIELD LABOUR SHALL BE EVALUATED USING "SMACNA" LABOUR UNITS. JOB FACTORS SHALL NOT BE CONSIDERED APPLICABLE UNLESS CONSTRUCTION WORK IS BEING DONE IN OCCUPIED AREAS OF THE BUILDING.

.6 THE OVERHEAD PERCENTAGE AND USE OF MCAA AND SMACNA LABOUR UNITS INDICATED ABOVE INCLUDES THE FOLLOWING:
- .1 INSURANCE
- .2 BONDING
- .3 FINANCING AND INTEREST
- .4 COORDINATION WITH OTHER TRADES
- .5 SALARIES OF ANY STAFF ABOVE THAT OF THE WORKING FOREMEN EMPLOYED DIRECTLY ON THE WORK.
- .6 LICENSES AND PERMITS
- .7 ONSITE TIMEKEEPING AND SCHEDULING
- .8 REST PERIODS
- .9 CLEANUP BEYOND MCAA RECOMMENDED PRACTICE
- .10 MATERIAL HANDLING
- .11 PERSONAL HYGIENE
- .12 SAFETY TRAINING
- .13 JOB SITE SAFETY TALKS
- .14 WHMIS INFORMATION
- .15 HEALTH AND SAFETY COMMITTEE
- .16 ESCALATING SITE AND SAFETY PROCEDURES
- .17 GARBAGE BINS
- .18 SHIPPING AND DELIVERIES
- .19 PROJECT MANAGEMENT
- .20 ESTIMATING
- .21 SPECIAL CLEANING
- .22 SPECIAL HANDLING/STORAGE
- .23 EQUIPMENT RENTALS FOR SMALL TOOLS
- .24 EQUIPMENT START–UP
- .25 ANY OTHER NON–PRODUCTIVE TIME
- .26 COVID–19 MEASURES

.7 A SINGLE BLENDED LABOUR RATE BASED ON A CREW OF 1 WORKING FOREMAN AND 4 JOURNEYMEN SHALL BE USED FOR NORMAL WORKING HOURS FOR THE DURATION OF THE PROJECT AND SHALL INCLUDE THE FOLLOWING:
- .1 BASE RATE, VACATION PAY, AND STATUARY HOLIDAYS AS PER THE CURRENT COLLECTIVE AGREEMENT FOR UNIONIZED CONTRACTORS.
- .2 UNION DEDUCTIONS FOR BENEFITS (HEALTH AND WELFARE), PENSION, UNION DUES, PROVINCIAL TRAINING FOR EMPLOYEE AND EMPLOYER, LOCAL TRAINING, INDUSTRY FUND, AND STABILIZATION FUND.
- .3 LEGISLATED PAYROLL BURDENS FOR:
  - .1 CANADA PENSION PLAN
  - .2 EMPLOYMENT INSURANCE
  - .3 WORKPLACE SAFETY AND INSURANCE BOARD
  - .4 EMPLOYER HEALTH TAX
  - .5 HST ON INSURANCE PREMIUMS
  - .6 INSURANCE (PL AND PD)
- .4 MCAO GUIDELINES ADDERS FOR:
  - .1 SMALL TOOLS
  - .2 SITE FACILITIES
  - .3 PERSONAL PROTECTION EQUIPMENT
  - .4 PARKING AS PER COLLECTIVE AGREEMENT
  - .5 CLEAN–UP AS PER OCA RECOMMENDED PRACTICE

.8 FOR PREMIUM NIGHT SHIFT (MINIMUM THREE (3) CONSECUTIVE NIGHT SHIFTS), USE THE NORMAL RATE CALCULATION WITH A 20% ADDER TO BASE RATE, VACATION PAY, PENSION, AND HEALTH BENEFITS.

.9 FOR OVERTIME, USE THE NORMAL RATE CALCULATION WITH A 100% ADDER TO BASE RATE, VACATION PAY, PENSION, AND HEALTH AND WELFARE BENEFITS.

.10 PLUMBING AND PIPING MATERIAL SHALL BE BASED ON "ALL–PRICER" LIST PRICING WITH A 30% DISCOUNT APPLIED. SHEET METAL MATERIAL SHALL BE BASED ON CURRENT MARKET PRICING. SUBMIT SUPPLIER INVOICES FOR ALL MATERIALS NOT INCLUDED IN "ALL–PRICER".

.11 THE FOLLOWING JOB EXPENSES SHALL BE CONSIDERED TO BE ACCEPTABLE:
- .1 BONDING COSTS
- .2 WARRANTY COSTS SHALL BE BASED ON 2% OF THE MATERIAL AND LABOUR COST FOR THE CHANGE.
- .3 DRAFTING COSTS SHALL BE CONSIDERED BASED ON 2% OF THE LABOUR COST FOR THE CHANGE.
- .4 HOISTING SHALL BE CHARGED BASED ON THE CURRENT CRANING COSTS.
- .5 EQUIPMENT RENTALS FOR LARGE EQUIPMENT.
- .6 CORE DRILLING.
- .7 TRAVEL IN ACCORDANCE WITH THE APPLICABLE UNION AGREEMENT.
- .8 SHEET METAL DELIVERIES SHALL BE CHARGED PER THE ONTARIO SHEET METAL ASSOCIATION.

.12 THE MECHANICAL CONTRACTOR SHALL SUBMIT A TEMPLATE PROPOSED TO BE USED FOR ANY CCN'S/PC'S AS A FORMAL SHOP DRAWING SUBMISSION FOR REVIEW AND ACCEPTANCE PRIOR TO ANY CCN'S/PC'S BEING ISSUED.

GENERAL REVIEW DECLARATION

PRIOR TO TIME OF OCCUPANCY PERMIT APPLICATION, THE FOLLOWING WORK SHALL BE COMPLETE:
1. FIRE PROTECTION WORK (SPRINKLERS).
2. FIRE EXTINGUISHERS.
3. HVAC SYSTEMS.
4. AIR SYSTEM BALANCING.

PRIOR TO TIME OF OCCUPANCY PERMIT APPLICATION, SUBMIT THE FOLLOWING ITEMS FOR REVIEW:
1. FIRE PROTECTION (SPRINKLERS, AND FIRE HOSE CABINETS) LETTER FROM PROFESSIONAL ENGINEER LICENSED IN ONTARIO, INDICATING CONFORMANCE WITH THE OBC/NFPA OR APPLICABLE STANDARDS REFERENCED IN THE SPECIFICATIONS.
2. COMPLETE BALANCING REPORT WITH NO OUTSTANDING ISSUES.

SUBMISSIONS SHALL BE COMPLETE WITH TRANSMITTALS OR COVER LETTERS SIGNED BY AN APPROPRIATE SKILLED TRADE. THE SIGNATORY SHALL BE REGISTERED WITH SKILLED TRADES ONTARIO.

THE PROJECT MUST BE SUBSTANTIALLY COMPLETE AND READY FOR ITS INTENDED USE. START UP, BALANCE AND COMMISSION ALL SYSTEMS. ENSURE SYSTEMS HAVE BEEN INSTALLED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, MANUFACTURER'S RECOMMENDATIONS, AND INDUSTRY STANDARDS AS THE CASE MAY BE.

PLUMBING AND FIRE PROTECTION

PIPE AND PIPE FITTINGS

FIRE PROTECTION PIPING UP TO NPS 2 SHALL BE SCHEDULE 40 BLACK STEEL TO ASTM A53 WITH THREADED JOINTS. NPS 2–1/2 TO NPS 6 SHALL BE SCHEDULE 40 BLACK STEEL TO ASTM A53 WITH FLANGED JOINTS OR WITH MECHANICAL GROOVED COUPLINGS, OR SCHEDULE 10 TO ASTM A53 WITH WELDED JOINTS OR ROLL GROOVED COUPLINGS.

WHEREVER DISSIMILAR METALS ARE JOINED OR SUPPORTED, THE PIPING SHALL HAVE NON–CONDUCTING TYPE CONNECTIONS OR HANGERS TO PREVENT GALVANIC CORROSION.

PROVIDE ALL VALVES AS SHOWN ON THE DRAWINGS OR REQUIRED BY AUTHORITIES HAVING JURISDICTION.

PROVIDE CHROME PLATED RIGID OR FLEXIBLE SUPPLIES TO FIXTURES WITH STOPS, REDUCERS AND ESCUTCHEON PLATES.

FLOOR AND WALL PLATES

PROVIDE CHROMIUM PLATED SOLID BRASS, PLATES WITH SET SCREWS WHERE ALL PIPES PASS THROUGH THE FINISHED FLOORS, WALLS AND CEILINGS.

HANGERS

SUPPORT ALL PIPING WITH APPROVED ADJUSTABLE CADMIUM OR GALVANIZED STEEL HANGERS, ARRANGED TO SUIT EXPANSION AND CONTRACTION. SUPPORT COPPER PIPING USING INSULATING TAPE BETWEEN COPPER PIPE AND FERROUS HANGERS. USE PROTECTION SADDLE OR SHIELD WITH OVERSIZED HANGERS FOR COLD INSULATED PIPE TO PREVENT PENETRATION OF THE INSULATION VAPOUR BARRIER. SUPPORT SPACING SHALL BE IN ACCORDANCE WITH APPLICABLE STANDARDS.

FIRE

MODIFY EXISTING SPRINKLER SYSTEM AS SHOWN ON DRAWING TO LIGHT HAZARD AS PER NFPA–13. NEW SPRINKLER HEADS SHALL BE SAME BRAND AND STYLE AS EXISTING UNLESS STATED OTHERWISE ON THE DRAWINGS.

PROVIDE LETTER SIGNED BY A PROFESSIONAL ENGINEER LICENSED IN ONTARIO, RETAINED BY THE FIRE PROTECTION CONTRACTOR, AT COMPLETION OF THE WORK CONFIRMING OBC AND NFPA COMPLIANCE.

DRAIN AND REFILL SPRINKLER SYSTEM AS REQUIRED.

COORDINATE SHUTDOWN AND START–UP OF FIRE ALARM SYSTEM WITH ELECTRICAL CONTRACTOR AS REQUIRED.

PROVIDE FIRE WATCH AS REQUIRED.

VENTILATION AND AIR CONDITIONING

DUCTWORK

DUCTWORK SHALL BE OF GALVANIZED STEEL AND SHALL BE LOCK FORMING QUALITY. ALL DUCTWORK SHALL BE CONSTRUCTED, BRACED, CONNECTED AND JOINTED AS RECOMMENDED IN THE LATEST ISSUE OF THE DUCT CONSTRUCTION STANDARDS ISSUED BY THE SHEET METAL NATIONAL ASSOCIATION INC. (SMACNA). ALL DUCTWORK SHALL BE INSTALLED TO CONFORM TO THE ONTARIO BUILDING CODE, NFPA 90A AND 91 AND IN ACCORDANCE WITH OTHER APPLICABLE CODES.

DUCTWORK GAUGES, REINFORCING AND SEALING TECHNIQUES SHALL BE IN ACCORDANCE WITH LATEST EDITION OF SMACNA, FOR THE FOLLOWING CLASSIFICATION.

SYSTEM	PRESSURE CLASS	SEAL CLASS
EXHAUST	–250 Pa	C
RETURN AIR	–250 Pa	C
VAV SUPPLY AIR UPSTREAM OF BOXES	+1000 Pa	A
VAV SUPPLY AIR DOWNSTREAM OF BOXES	+250 Pa	C

JOINTS SHALL BE PITTSBURGH SEAM, LONGITUDINALLY, DRIVE SLIP (450 mm AND UNDER) AND BAR SLIP (ABOVE 450 mm) TRANSVERSELY, AND SHALL BE AIR TIGHT.

RECTANGULAR DUCTWORK IN EXPOSED OR CONCEALED AREAS, INSULATED OR NON–INSULATED, SHALL BE SUPPORTED ON BLACK ROLLED STEEL ANGLES WITH BLACK STEEL THREADED RODS.

ROUND DUCTWORK UP TO 1270MM (50") DIAMETER IN EXPOSED OR CONCEALED AREAS, INSULATED OR NON–INSULATED, SHALL BE SUPPORTED WITH GALVANIZED STEEL STRAPS WITH BLACK STEEL THREADED RODS, EQUAL TO DUCTMATE ROUND DUCT STRAP BRACKET. A GALVANIZED STEEL SUSPENSION RING BAND WITH A THREADED SUPPORT ROD IS ACCEPTABLE UP TO 300MM (12") DIAMETER DUCTWORK, EQUAL TO DUCTMATE ROUND DUCT HANGER. FOR DUCTWORK LARGER THAN 1270MM (50") DIAMETER, SUBMIT SMACNA SUPPORT DETAIL FOR REVIEW.

TURNS IN DUCTWORK SHALL HAVE CENTRE LINE RADIUS NOT LESS THAN 1–1/4 TIMES DUCT WIDTH, OR SHALL HAVE MITRE BENDS WITH HOLLOW TURNING VANES.

RIGID ROUND DUCTWORK SHALL BE SPIRAL GALVANIZED STEEL CONSTRUCTION WITH SLIP JOINT, MADE AIR TIGHT USING HIGH PRESSURE SEALANT AND REINFORCING TAPE.

FLEXIBLE ROUND DUCTWORK SHALL BE CORRUGATED ALUMINIUM CONSTRUCTION, .170 mm THICK, TO CAN/ULC–S110, CLASS 1. WHERE DUCTING IS SPECIFIED TO BE INSULATED, PROVIDE FLEXIBLE DUCT COMPLETE WITH 25 mm THICK FIBREGLASS BLANKET INSULATION AND PLASTIC VAPOUR BARRIER. MAXIMUM LENGTH NOT TO EXCEED 3 m.

DIFFUSER TAKEOFFS SHALL BE CONICAL COMPLETE WITH BUTTERFLY DAMPERS. VAV BOX TAKEOFFS FROM DUCT MAIN SHALL BE CONICAL, WITH RIGID DUCTWORK TO THE VAV BOX. SPIN–ONS SHALL NOT BE USED AT ANY LOCATION. SHOULD HEIGHT OF DUCT BE INSUFFICIENT TO ACCOMMODATE A CONICAL TAKE–OFF FITTING, PROVIDE RECTANGULAR SIDE TAKE–OFF FITTING WITH 45 DEGREE TAPERED ENTRY WITH TRANSITION TO CIRCULAR DUCT.

DIFFUSERS

SIZES INDICATED ON THE DRAWINGS ARE NOMINAL. PROVIDE CORRECT STANDARD PRODUCT NEAREST TO NOMINAL FOR CAPACITY THROW, NOISE LEVEL, THROAT AND OUTLET VELOCITY. CONTRACTOR SHALL BE RESPONSIBLE TO CONFIRM THE EXACT DIFFUSER MODULE DIMENSION FOR COMPATIBILITY WITH THE EXISTING OR NEW SUSPENDED CEILING GRID SYSTEM PRIOR TO SUBMITTING SHOP DRAWINGS. PERFORM NECESSARY MEASUREMENTS ON SITE FOR EXISTING CEILING INSTALLATIONS AND COORDINATE WITH ARCHITECTURAL TRADES AND CEILING SYSTEM SHOP DRAWINGS FOR NEW CEILING CONSTRUCTIONS

STEEL SHALL BE PRIME COATED STAMPED OR COLD ROLLED STEEL WITH EXPOSED JOINTS WELDED AND GROUND FLUSH AND COMPLETELY CLOSED. ALUMINUM SHALL BE EXTRUDED WITH MECHANICAL FASTENERS AND COMPLETELY CLOSED CORNERS. PROVIDE PLASTER FRAMES AS PLASTER STOPS WHERE SET INTO PLASTER OR GYPSUM BOARD. PROVIDE CONCEALED FASTENERS AND OPERATORS. UNLESS STATED OTHERWISE, COLOUR SHALL BE OFF–WHITE. LINEAR DIFFUSERS SHALL INCLUDE FULLY ACOUSTICALLY INSULATED PLENUMS, EVEN IF NOT SPECIFICALLY LISTED IN THE GRILLES AND DIFFUSER SCHEDULES.

ACCEPTABLE MATERIALS: E. H. PRICE, NAILOR INDUSTRIES, KRUEGER, TITUS, METAL–AIRE.

CONTROLS

THE CONTRACTOR IS RESPONSIBLE FOR CONDUCTING THEIR OWN INSPECTION TO DETERMINE THE PROPER OPERATION OF EXISTING EQUIPMENT PRIOR TO COMMENCEMENT OF ANY WORK THAT MAY ADVERSELY AFFECT THE OPERATION OF THE CONTROLS EQUIPMENT. PRIOR TO COMMENCING WORK, THE CONTRACTOR SHALL PROVIDE A REPORT TO THE BUILDING OWNER WITH THEIR FINDINGS, AND OBTAIN DIRECTION FOR ANY REMEDIAL WORK. LOCATE TEMPERATURE SENSORS AS SHOWN ON THE DRAWINGS, AND VERIFY CONNECTION TO CORRECT TERMINAL UNITS AS SHOWN ON DRAWINGS.

INSTALLATION HEIGHT OF NEW SENSORS SHALL BE 1200mm ABOVE THE FINISHED FLOOR TO MEET BARRIER FREE ACCESSIBILITY REQUIREMENTS. CONTROLS CONTRACTOR TO COORDINATE EXACT LOCATION OF SENSORS WITH LATEST ARCHITECTURAL PLANS TO AVOID FURNITURE OR OTHER OBSTRUCTIONS. ADJUST LOCATION AS REQUIRED.

PROVIDE ALL REQUIRED CONTROL HARDWARE, LOW VOLTAGE WIRING, AND OTHER DEVICES FOR PROPER CONTROL OPERATION. ALL EXPOSED WIRING TO BE IN CONDUITS. WIRING TO SENSORS INSTALLED ON EXPOSED BUILDING COLUMNS OR OTHER NON–FURRED OUT ASSEMBLIES SHALL BE IN WIREMOLD.

PROVIDE 120V POWER IN ACCORDANCE WITH THE ELECTRICAL SPECIFICATIONS FOR CONTROL SYSTEM AND ASSOCIATED COMPONENTS. EXTEND EXISTING CIRCUITS SERVING CONTROLS WHERE CIRCUIT CAPACITY IS SUFFICIENT. OBTAIN NEW CIRCUITS COMPLETE WITH NEW CIRCUIT BREAKERS AS REQUIRED FROM BASE BUILDING/LANDLORD PANEL BOARDS. AVOID TENANT PANEL BOARDS. CIRCUITS USED FOR CONTROLS SHALL NOT BE SHARED WITH OTHER SYSTEMS. MAKE FINAL CONNECTIONS. UPDATE PANEL SCHEDULE.

AFTER COMPLETION OF WORK, CONTRACTOR SHALL PERFORM A POINT–BY–POINT VERIFICATION OF ALL NEW AND EXISTING CONTROLS WITHIN THE SCOPE OF WORK, AND SUBMIT A WRITTEN REPORT TO THE BUILDING OWNER.

CONTROLS CONTRACTOR SHALL ASSIST THE BALANCING CONTRACTOR DURING THE EQUIPMENT AND SYSTEM BALANCING PROCEDURES.

UPDATE OPERATOR'S WORK STATION SYSTEM GRAPHICS TO REFLECT ARCHITECTURAL AND MECHANICAL CHANGES.

ACCEPTABLE CONTROLS CONTRACTOR: BAXTEC

THESE DESIGN DOCUMENTS ARE PREPARED SOLELY FOR THE USE BY THE PARTY WITH WHOM THE DESIGN PROFESSIONAL HAS ENTERED INTO A CONTRACT AND THERE ARE NO REPRESENTATIONS OF ANY KIND MADE BY THE DESIGN PROFESSIONAL TO ANY PARTY WITH WHOM THE DESIGN PROFESSIONAL HAS NOT ENTERED INTO A CONTRACT.

THE PAPER COPY OF THE DRAWINGS ISSUED FOR BUILDING PERMIT AND/OR TENDER WILL TAKE PRECEDENCE OVER ELECTRONIC COPIES.

REVISION No.	DESCRIPTION	DATE
1.	ISSUED FOR TENDER	JUL 11/25

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3RD FLOOR
OTTAWA, ON

DRAWING:
MECHANICAL:
SPECIFICATIONS

DATE: JUNE 2025
DESIGNED BY: J.W.S.
DRAWN BY: J.W.S.
CHECKED BY: S.C.
SCALE: AS NOTED
No. DWGS. 6
DRAWING No. M–4
PROJECT No. 25070