

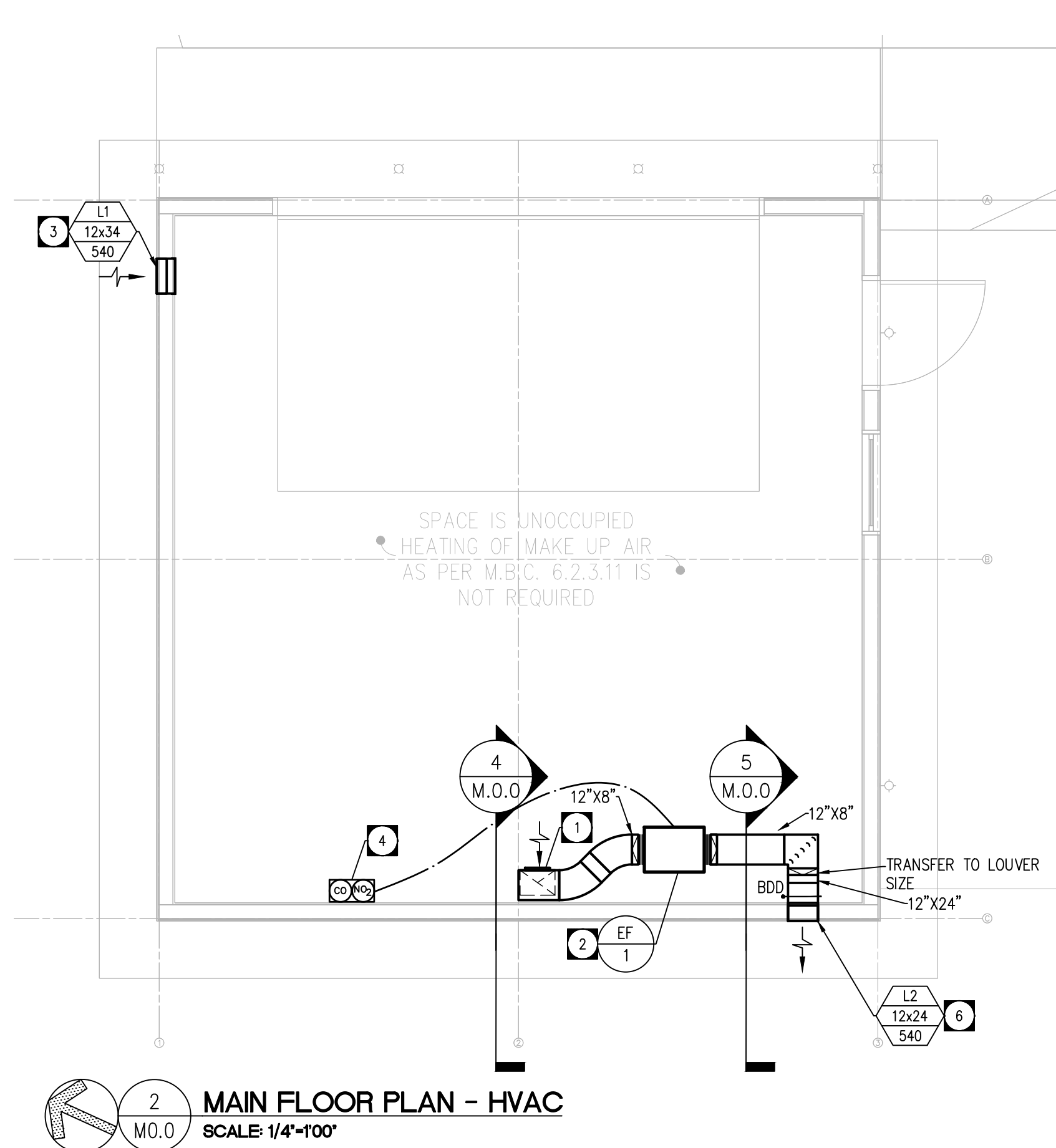
LIST OF ABBREVIATIONS	
A.F.F.	ABOVE FINISHED FLOOR
BB	BASE BOARD HEATER
BIT	BUILT-IN THERMOSTAT
BTU	BRITISH THERMAL UNITS
BTU/HR	BRITISH THERMAL UNITS PER HOUR
C/W	COMPLETE WITH
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
CO	CARBON MONOXIDE
CO2	CARBON DIOXIDE
DHWR	DOMESTIC HOT WATER RETURN
E/A	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EWI	ENTERING WATER TEMPERATURE
FACP	FIRE ALARM CONTROL PANEL
F	FAHRENHEIT
FT	FEET
FU	FIXTURE UNIT
G(#)	NATURAL GAS (LINE PRESSURE)
GPM	GALLONS PER MINUTE
HR	HOURS
KW	KILOWATTS
LAT	LEAVING AIR TEMPERATURE
MAX	MAXIMUM
MBC	MANITOBA BUILDING CODE
MCA	MAXIMUM CURRENT AMPS
MBH	THOUSANDS OF BTU/HR
MECB	MANITOBA ENERGY CODE FOR BUILDINGS
MIN	MINIMUM
MCCP	MAXIMUM OVERCURRENT PROTECTION
MUA	MAKE-UP AIR UNIT
NBC	NATIONAL BUILDING CODE
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
O/A	OUTSIDE AIR
PRV	PRESSURE REGULATING VALVE
PSI	POUNDS PER SQUARE INCH
R/A	RETURN AIR
S/A	SUPPLY AIR
SAN	SANITARY
SQ.FT.	SQUARE FEET
TSTAT	THERMOSTAT
W/	WITH
W/O	WITHOUT
WC	WATER COLUMN

DRAWING LIST	
M.O. SERIES - COVER PAGES AND SITE PLANS	
M.O.0	COVER PAGE, SITE PLAN, FLOOR PLAN, LEGENDS, AND SCHEDULES
M.O. SERIES - SPECIFICATIONS	
M1.0	SPECIFICATIONS

LEGEND	
HVAC	
	DUCT RISE UP / DUCT DROP DOWN
	SUPPLY AIR DIFFUSER
	RETURN AIR GRILLE
	EXHAUST AIR GRILLE
	THERMOSTAT
	ON/OFF SWITCH (DIV. 16)
	DEMOLITION DUCTWORK (ON DEMO DRAWINGS)
	DUCTWORK RENO
	BALANCING DAMPER
	FIRE DAMPER
	BACK DRAFT DAMPER
	FLEXIBLE DUCT CONNECTION
	THERMAL INSULATION
	ACOUSTIC INSULATION
MECHANICAL TAGS	
	GRILLE/DIFFUSER/LOUVER TAG
	MECHANICAL EQUIPMENT TAG
	ALTERNATE EQUIPMENT TAG
	DRAWING NOTE TAG

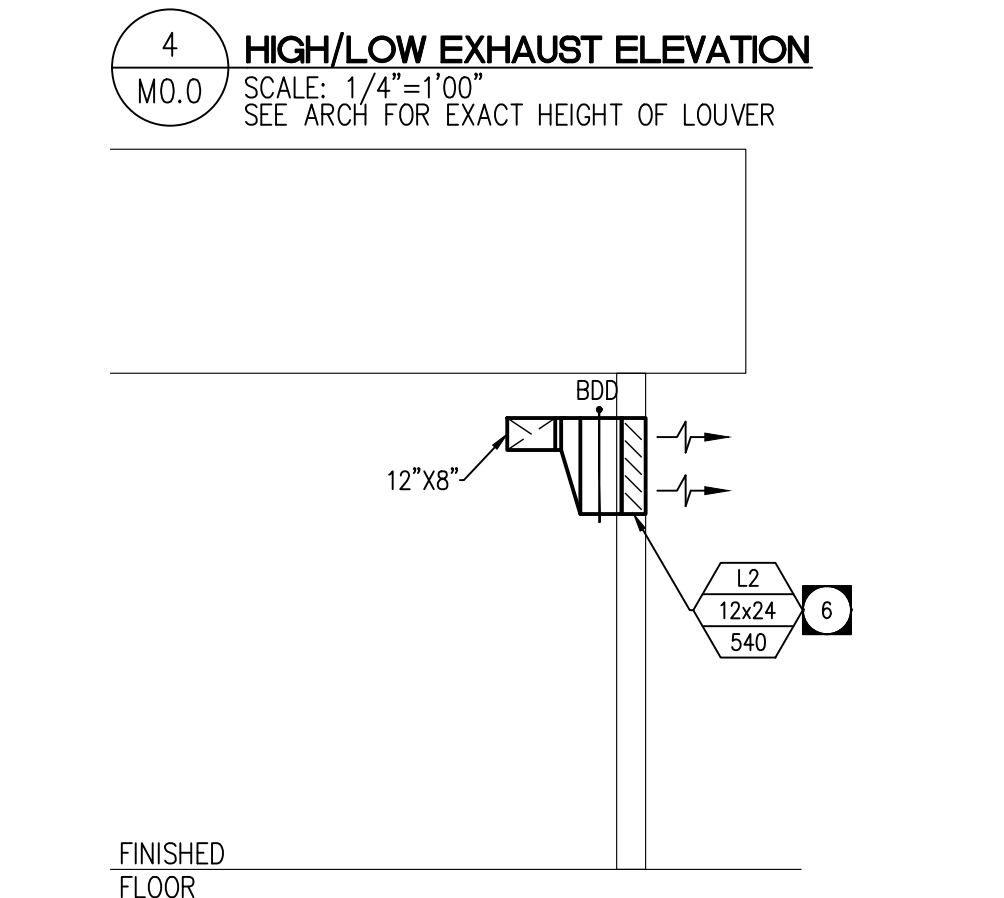
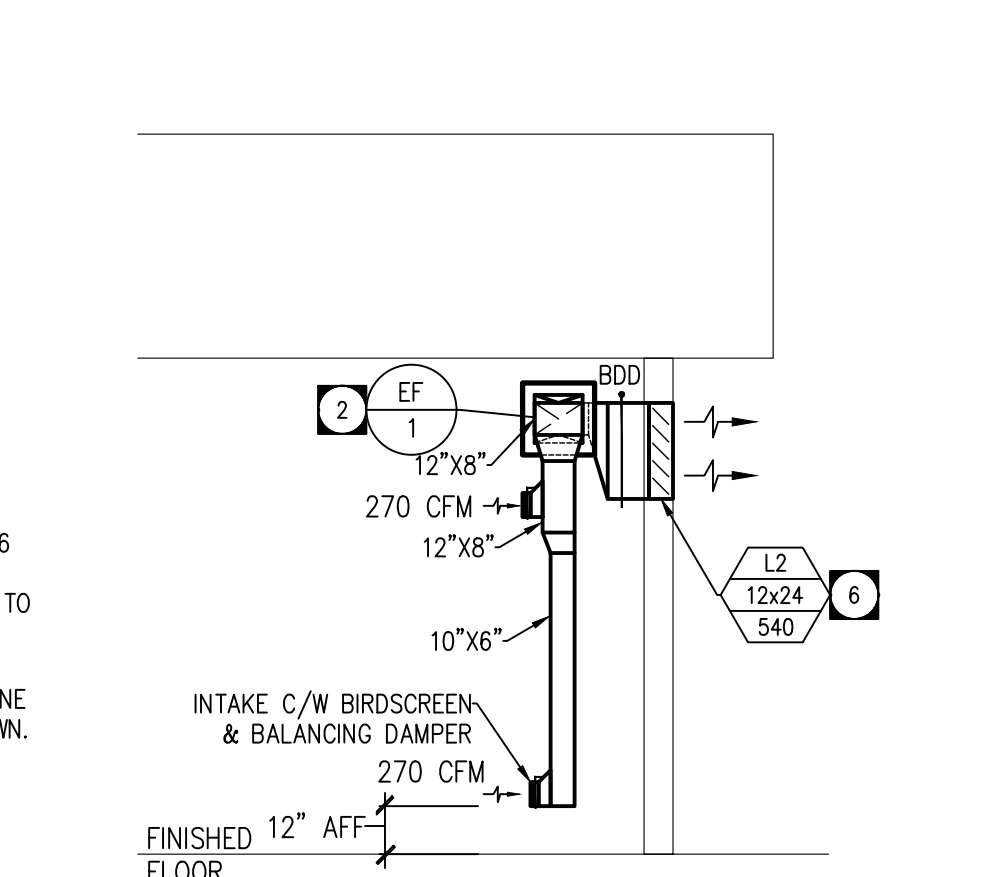
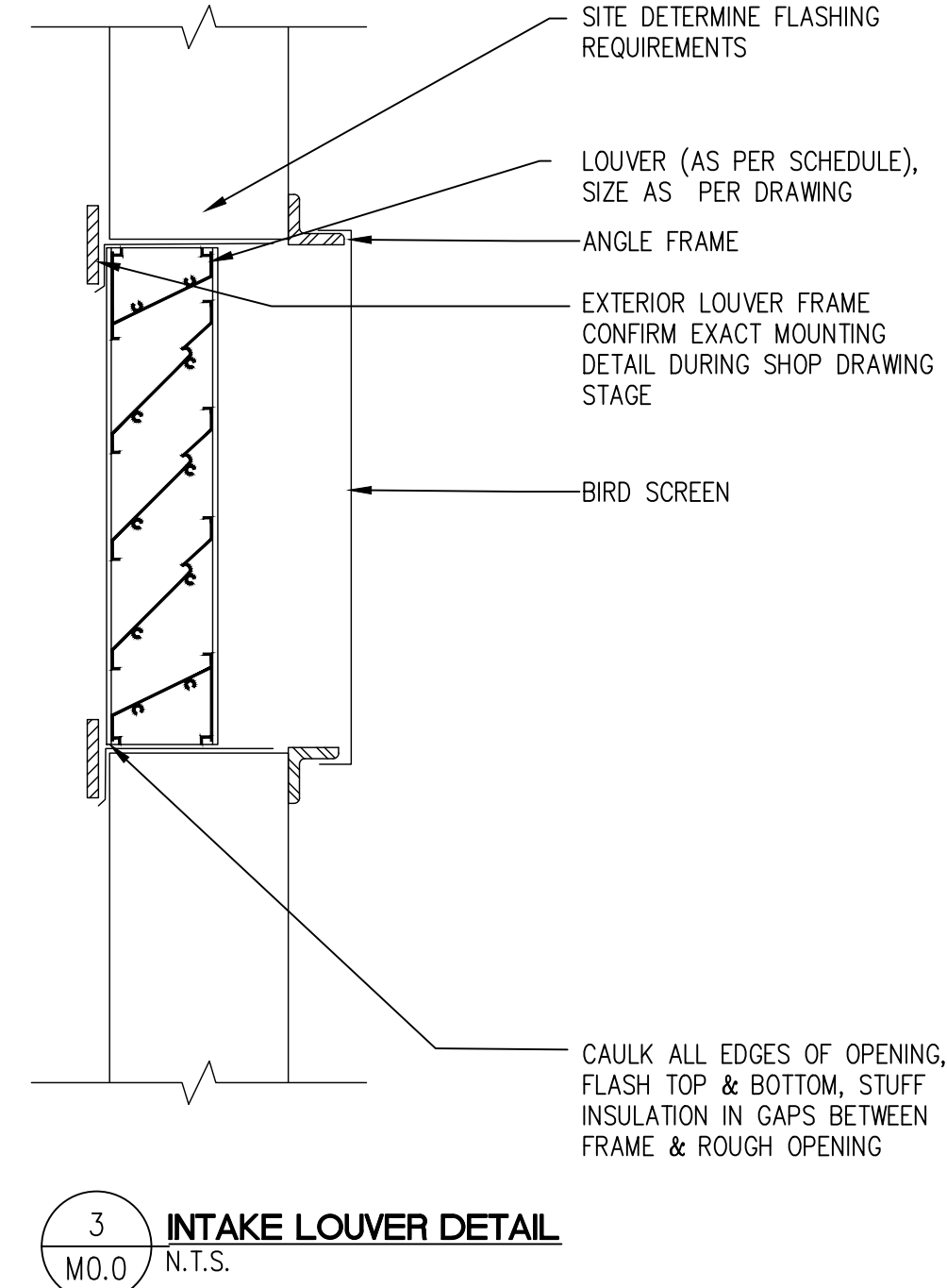
GENERAL NOTES - HVAC

- MECHANICAL SUBCONTRACTOR SHALL VERIFY EXACT LOCATIONS, SIZES, ETC. PRIOR TO COMMENCEMENT OF WORK. VERIFY ALL CONNECTION POINTS ON SITE.
- MECHANICAL SUBCONTRACTOR SHALL ALLOW IN HIS TENDER QUOTATION FOR ALL REQUIRED MODIFICATIONS TO EXISTING HVAC SYSTEMS AND EQUIPMENT (I.E.) RE-ROUTING AND RE-BALANCING OF EXISTING DUCTWORK AS DEEMED NECESSARY DUE TO RENOVATION WORK.
- REFER TO ARCHITECTURAL, ELECTRICAL & STRUCTURAL DRAWINGS FOR COORDINATION PURPOSES.
- MECHANICAL SUBCONTRACTOR SHALL CAREFULLY REMOVE & RELOCATE EXISTING EQUIPMENT AS PER OWNERS REQUIREMENTS.
- ALL CUTTING & PATCHING OF FLOOR SLABS, WALLS ETC. TO BE PERFORMED BY GENERAL CONTRACTOR.
- COORDINATE THE EXACT LOCATION OF THE GRILLES AND DIFFUSERS ON SITE WITH THE ELECTRICAL SUBCONTRACTOR, GENERAL CONTRACTOR, ARCHITECTURAL CEILING PLAN, LIGHTING LAYOUT, ETC. TO ENSURE THAT THERE ARE NOT ANY CONFLICTS DURING INSTALLATION.
- PROVIDE BALANCE DAMPER FOR EACH SUPPLY/EXHAUST AIR GRILLE OR DIFFUSER TO ALLOW FOR THE PROPER BALANCING OF THE SYSTEM. PROVIDE OPPOSED BLADE DAMPERS WITH THE DIFFUSER AND ADJUSTABLE FROM THE DIFFUSER FACE WHEN A DUCT MOUNTED BALANCE DAMPER WOULD NOT BE ACCESSIBLE.
- ALL DUCT DIMENSIONS DENOTE INTERNAL "OPEN" AREA OF THE DUCT.
- ALL DUCTWORK PENETRATING THE BUILDING THERMAL ENVELOPE SHALL BE INSULATED A MINIMUM 10"-0" BACK FROM THE BUILDING PENETRATION, OR AS DETAILED IN SPECIFICATIONS.
- REFER TO ARCHITECTURAL DRAWINGS AND PROVIDE FIRE DAMPERS IN ALL WALLS DENOTED AS FIRE SEPARATIONS. PROVIDE ACCESS DOORS AT ALL FIRE DAMPERS TO ALLOW FOR INSPECTION/TESTING.
- COORDINATE THE EXACT LOCATIONS OF EQUIPMENT, DUCT OPENINGS, AND DUCT LOCATIONS WITH THE EXISTING STRUCTURE AND THE STRUCTURAL SUBCONSULTANT.
- ALL WORK SHALL COMPLY IN EVERY RESPECT WITH ALL NATIONAL, PROVINCIAL AND LOCAL CODES AND BY-LAWS, WHICH SHALL BE CONSIDERED PART OF THE SPECIFICATION. IN THE CASE OF CONFLICTING REQUIREMENTS, BE GOVERNED BY THE MOST STRINGENT REGULATIONS.
- THE MECHANICAL SUBCONTRACTOR SHALL INSTALL HEATING, VENTILATION, AND AIR CONDITIONING SYSTEMS IN COMPLETE ACCORDANCE WITH THE RECOMMENDATIONS OF THE NATIONAL/PROVINCIAL BUILDING CODE, ASHRAE, SMACNA LATEST EDITION DUCT STANDARDS, AND MANITOBA DEPT. OF LABOUR REQUIREMENTS.
- ALL INSULATING MATERIALS, METHODS, SIZES AND TYPES OF INSULATION FOR ALL DUCT WORK SHALL BE INSTALLED TO THE REQUIREMENTS OF THE ASHRAE STANDARDS 90.1-2015 "ENERGY STANDARD FOR BUILDING EXCEPT LOW-RISE RESIDENTIAL BUILDING", STANDARD 90.2 "ENERGY EFFICIENT DESIGN OF LOW-RISE RESIDENTIAL BUILDINGS", THERMAL INSULATION ASSOCIATION OF CANADA (TIAC) STANDARDS AND MANITOBA ENERGY CODE FOR BUILDINGS REQUIREMENTS.
- VENTILATION SUBCONTRACTOR SHALL ENSURE THAT ALL DUCTWORK THAT MAY CONVEY OUTSIDE AIR BE LOCATED A MINIMUM OF 6" (150 MM) AWAY FROM ANY SPRINKLER PIPING. DUCTWORK IN SUCH LOCATIONS SHALL BE PROTECTED WITH A MINIMUM OF 2" (50MM) RIGID DUCT INSULATION WITH VAPOR RETARDING FOIL FINISH. ALTER LOCATION OF DUCTWORK TO SUIT.
- FOR STRUCTURES REQUIRING OR CONTAINING EXISTING FIRE PROTECTION/SPRINKLER SYSTEMS, THE OWNER, PROPERTY MANAGER, TENANT AND/OR GENERAL CONTRACTOR SHALL RETAIN A SPRINKLER CONTRACTOR TO PROVIDE FREEZE PROTECTION IN ALL MECHANICAL AND SERVICE ROOMS UTILIZING DRY AND/OR GLYCOL SYSTEMS.
- ALL CONTROL / ELECTRICAL WIRING TO MEET OR EXCEED FLAME SPREAD RATING OF 25 AND DEVELOPED SMOKE RATING OF 50 AND BE SUITABLE FOR INSTALLATION IN AIR PLENUMS.



DRAWING NOTES - H.V.A.C.

- DUCT EXHAUST DOWN TO LOW LEVEL. PROVIDE LOW AND HIGH DUCT INTAKE WITH BALANCING DAMPER AND BIRD SCREEN. LOW LEVEL INTAKE TO BE 12" AFF. COORDINATE EXACT LOCATION OF DUCT ON SITE WITH OWNER.
- GARAGE EXHAUST FAN TO BE MOUNTED AT HIGH LEVEL WITHIN GARAGE C/W VIBRATION ISOLATION. FAN CONTROLLED BY SPACE CO/NO2 SENSORS.
- MECHANICAL INTAKE LOUVER TO BE INSTALLED AT WALL LINE IN APPROXIMATE LOCATION SHOWN. COORDINATE EXACT LOCATION ON SITE WITH ARCHITECTURAL.
- SUPPLY AND INSTALL GAS DETECTORS APPROXIMATELY WHERE SHOWN. INSTALL CO DETECTOR 5' AFF AND NO2 DETECTOR 1' BELOW CEILING C/W AUDIBLE/VISUAL ALARM (100 PPM CO AND 2 PPM NO2). WIRE TO EXHAUST FAN EF-1 APPROXIMATELY AS SHOWN. REFER TO CONTROL SEQUENCE FOR FURTHER DETAILS AND GENERAL WIRING REQS.
- SUPPLY AND INSTALL FILTER BANK PRIOR TO MOTORIZED DAMPER WITHIN BUILDING ENVELOPE. PROVIDE MINIMUM MERV6 FILTER WITHIN BANK. MOTOR POWERING DAMPER TO BE INSTALLED AT HIGH LEVEL AS CLOSE TO WALL AS POSSIBLE TO MINIMIZE SPACE IMPACT. SEE DETAIL 3-M.O.O.
- MECHANICAL EXHAUST LOUVER TO BE INSTALLED AT WALL LINE WITH BACK DRAFT DAMPER AT APPROXIMATE LOCATION SHOWN. COORDINATE EXACT LOCATION ON SITE WITH ARCHITECTURAL.



FANS (BASED ON GREENHECK OR APPROVED EQUAL)							
TAG	MODEL NUMBER	AIR FLOW (CFM)	E.S.P. (IN WG)	MOTOR HP	MOTOR SPEED (RPM)	VOLTAGE	COMMENT
EF-1	CSP-A700	550	0.500	1/2	1100	120V/1ø/60HZ	1-8

1) INLINE FAN 2) VIBRATION ISOLATION ON HANGERS 3) CORROSION RESISTANT FASTENERS 4) BELT DRIVE 5) NEMA 4 DISCONNECT 6) MOUNTED FROM U/S OF STRUCTURE 7) EQUALS: PENN, TWIN CITY, CDDK

LOUVRES SCHEDULE (GREENHECK OR APPROVED EQUAL)				
TAG	MODEL	THICKNESS	BIRDSCREEN	COMMENT
L-1	EDJ-401	4"	YES	SIZE NOTED ON DRAWINGS, INTAKE NOTES: 1-6
L-2	EDJ-401	4"	YES	SIZE NOTED ON DRAWINGS, DISCHARGE NOTES: 1-6

1) CDLDR/FINISH BY ARCH 2) BIRD SCREEN 3) FIXED BLADE, J STYLE BLADE 4) MECHANICALLY FASTENED W CORROSION RESISTANT FASTENERS 5) SECURITY BARS 6) EQUALS: PRICE

VENTILATION SUMMARY (BASED ON ASHRAE 62.1 2007)					
UNIT	ROOM	# PEOPLE	RATE PER PERSON (CFM/PERSON)	AREA (SQ.FT.)	TOTAL E/A (CFM)
EF-1	STORAGE GARAGE	0	0	540	540

BUILDING IS UNOCCUPIED, HEATING OF MAKE UP AIR AS PER M.B.C. 6.2.3.11 IS NOT REQUIRED. AIR FLOW RATE FROM ASHRAE/MBC HAS BEEN OVERRIDDEN BY N.F.C.C. TO 1 CFM/SQ FT AS PER SECTION 4.1.7.2

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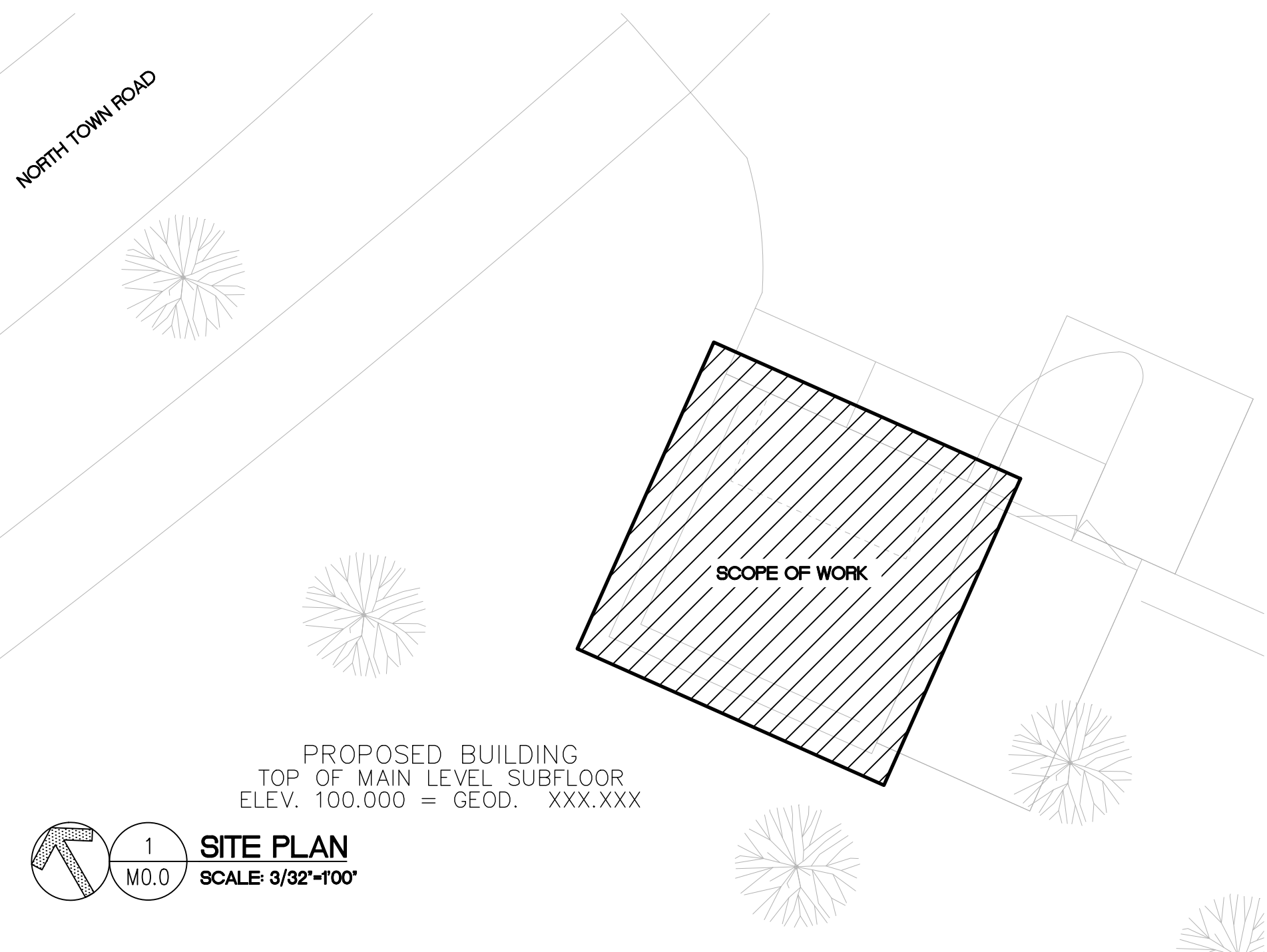
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NOVA 3 ENGINEERING LTD.
PROFESSIONAL ENGINEERS

201-120 FORT STREET TEL: (204) 943-6142
WINNIPEG, MANITOBA R3C 1C7 FAX: (204) 942-1276
WWW.NOVA3.CA - TEL: 39-128M

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Revisions

2020.01.24	Issued for Construction
Date	Revision

Northern Sky Architecture Inc.

100-128 James Avenue
Winnipeg, Manitoba, Canada
R3B 0N8
Tel: (204) 943-6142
Fax: (204) 942-1276
204-943.6767

APEGM
Certificate of Authorization
Nova 3 Engineering Ltd.
No.962 Date: 2020/01/24

Stamp

 Stamp

Project
 City of Winnipeg
 Bridgewater Storage Garage
 North Town Road
 Winnipeg, Manitoba

drawing title	
MECHANICAL TITLE PAGE AND HVAC	
scale as noted	designed by QD
date January 24, 2020	drawn by QD/GS
project no. 19.236	reviewed by JHG
reference no.	sheet M.O.0 REV. 3