

B	12	-	32	5010	3/4"	(19MM)
C	33	-	60	5020	1"	(25MM)
D	61	-	113	5030	1-1/4"	(32MM)
E	114	-	154	5040	1-1/2"	(38MM)
F	155	-	330	5050	2"	(50MM)

HWT-1: DOMESTIC HOT WATER HEATER

A.O. SMITH HW-610 HOT WATER HEATER, 610 MBH HEATING INPUT. COORDINATE ELECTRICAL REQUIREMENTS WITH DIVISION 26.

XT-1: DOMESTIC HOT WATER EXPANSION TANK

AMTROL THERM-X-TROL MODEL ST-12-C, ASME RATED, 6.4 GALLON ACCEPTANCE.

SECTION 15800 - HEATING, VENTILATION & AIR CONDITIONING

- PROVIDE SUPPLY, RETURN AND EXHAUST AIR DUCT SYSTEMS FROM AIR HANDLING EQUIPMENT AND FANS AS SHOWN.
- ALL DUCTWORK INSTALLATION SHALL BE PERFORMED IN ACCORDANCE WITH ASHRAE, SMACNA LATEST EDITION DUCT STANDARDS.
- THIS GENERAL CONTRACTOR SHALL SUPPLY AND INSTALL ALL DUCTWORK INCLUDING APPURTENANCES, HANGERS, DAMPERS, ETC.
- DUCT CONSTRUCTION:
 - RECTANGULAR DUCTWORK SHALL BE CONSTRUCTED FROM GALVANIZED SHEET METAL OF THE FOLLOWING U.S. STANDARD GAUGES:
 - DUCTS UP TO 12" ON LONGEST DIMENSION 26 GA.
 - DUCTS 13" TO 28" ON LONGEST DIMENSION 24 GA.
 - DUCTS 29" TO 54" ON LONGEST DIMENSION 22 GA.
 - DUCTS 55" TO 84" ON LONGEST DIMENSION 20 GA.
 - ROUND AND OVAL DUCTWORK SHALL BE SPIRAL CONDUIT CONSTRUCTION OF ZINC COATED STEEL OF THE FOLLOWING U.S. GAUGES:

CONDUIT SIZE	GAUGE OF METAL
8" AND SMALLER	26
9" TO 22"	24
24" TO 36"	22
38" TO 50"	20

ALL SEAMS AND JOINTS IN ROUND OR OVAL DUCT FITTINGS SHALL BE CONTINUOUSLY WELDED. RE-COAT ZINC COATING DAMAGED BY WELDING PROCEDURE.

- BALANCING DAMPERS SHALL BE CONSTRUCTED FROM GALVANIZED STEEL 2 GAUGES HEAVIER THAN THE DUCTWORK IN WHICH THEY ARE INSTALLED C/W LOCKING QUADRANT AND INDICATING DEVICE.
- TURNING VANES SHALL BE CONSTRUCTED TO THE FOLLOWING REQUIREMENTS:
 - USE DUCT ELBOWS WHICH HAVE A THROAT RADIUS OF 1-1/2 TIMES THE DUCT DIAMETER.
 - WHERE SPACE IS LIMITED, USE DUCT ELBOWS FABRICATED WITH SPACE THROATS AND BACKS AND FITTED WITH ROVANE TURNING VANES.
- THE FOLLOWING DUCT JOINING METHODS SHALL BE USED:
 - PITTSBURGH LOCK OR DOUBLE SLIDE LOCK HAMMERED FLAT FOR LONGITUDINAL JOINTS ON STRAIGHT DUCTWORK.
 - PITTSBURGH LOCK FOR CORNER LOCK OF FITTING.
 - FLAT DRIVE CLEAT JOINT ON ALL SIDE JOINTS 18" (450MM) AND UNDER IN LENGTH.
 - FLAT SLIP CLEAT JOINT ON ALL TRANSVERSE JOINTS 18" (450MM) AND UNDER IN LENGTH.
 - ANGLE "S" OR STANDING DRIVE CLEATS ON ALL SIDE JOINTS 19"(475MM) TO 30"(750MM) ON HEIGHT.
 - STANDING "S" OR STANDING DRIVE CLEATS ON ALL TRANSVERSE JOINTS 19"(475MM) TO 30"(750MM) IN LENGTH.
 - ANGLE "S" OR STANDING DRIVE CLEATS ON ALL TRANSVERSE AND SIDE JOINTS 31"(725MM) TO 72"(1800MM).
 - STANDING "S" OR STANDING DRIVE CLEATS REINFORCED WITH 1 1/2"(38MM) X 4.5MM MILD STEEL BAR ON ALL TRANSVERSE AND SIDE JOINTS 73"(1825MM) AND OVER.
- PROVIDE FIRE DAMPERS WHICH CONFORM TO NFPA REGULATIONS, BEAR ULC LABEL, AND HAVE APPROVAL OF AUTHORITY HAVING JURISDICTION. DAMPERS TO BE TYPE 'B' AND 'C' (UNLESS OTHERWISE NOTED) AND INSTALLED IN DUCTWORK AT FIRE SEPARATIONS WHETHER SHOWN OR NOT. VERIFY LOCATIONS ON ARCHITECTURAL DRAWINGS.
- ALL NEW DUCTWORK SHALL BE SEALED USING DUCT BOND II HIGH PRESSURE, NON-TOXIC, DUCT SEALER THROUGHOUT ALL SEAMS AND JOINTS.
- SUPPORT HORIZONTAL DUCTS ON MAXIMUM 8'-0" (2.4 M) CENTERS BY PERFORATED GALV. STEEL RIVETTED STRAP FOR DUCTWORK 36" (915 MM) (EITHER DIMENSION) OR LESS, AND MINIMUM 1" X 1" X 1/8" (25 X 25 X 2 MM) GALV. IRON UNDER DUCTS OVER 36" (915 MM) (EITHER DIMENSION) WITH 3/8" (6 MM) DIAM. THREADED RODS SUSPENDING ANGLES FROM STRUCTURE.
- PROVIDE ACCESS DOORS WHERE REQUIRED FOR SERVING OF EQUIPMENT AND FIRE DAMPERS.
- PROVIDE 4" (100 MM) FLEXIBLE DUCT CONNECTIONS ON BOTH INLET AND OUTLET DISCHARGE SIDES OF EACH FAN.
- PROVIDE ONE SPARE SET OF FILTERS FOR EACH AIR HANDLING UNIT.
- ALL DUCT MOUNTED MOTORIZED DAMPERS SHALL BE INSULATED LOW LEAKAGE TYPE TO TAMCO 9000 OR EQUAL.
- PROVIDE VIBRATION ISOLATORS FOR ALL MECHANICAL EQUIPMENT, INCLUDING PUMPS, UTILITY FANS, AND VENT SETS, AIR HANDLERS, ROOF-TOPS UNITS, CONDENSING UNITS, COMPRESSED, ETC. AS APPLICABLE. SUBMIT SHOP DRAWINGS PRIOR TO INSTALLATION.
- BACK-DRAFT DAMPERS SHALL BE PROVIDED WITH THE FOLLOWING MINIMUM REQUIREMENTS:
 - 16 GA. GALVANIZED STEEL OR ALUMINUM CHANNEL FRAME; 16 GA. GALVANIZED BLADES C/W STIFFENERS, FULL BLADE-LENGTH SHAFT; BRASS, BALL OR NYLON BUSHING; FELT OR NEOPRENE ANTI-CHATTER BLADE STRIPS; ADJUSTABLE COUNTER-BALANCE.
- CHIMNEYS AND BREECHING SHALL BE LABORATORY TESTED AND LISTED BY THE UNDERWRITERS LABORATORIES INC. FOR USE WITH BUILDING HEATING EQUIPMENT BURNING NATURAL GAS OR PROPANE GAS, AS DESCRIBED IN NFPA 211, SECTION 60. THE DOUBLE WALL STACK SHALL HAVE AN OUTER JACKET OF GALVANIZED STEEL CONFORMING TO ASTM A525. THERE SHALL BE AN AIR SPACE BETWEEN THE WALLS. THE INNER GAS CONVEYING PIPE SHALL BE AN ALUMINUM ALLOY - JOINTS TO BE SECURED WITH SHEET METAL SCREWS.
 - PROVIDE CHIMNEYS AND/OR BREECHING FOR:
 - GAS-FIRED DOMESTIC WATER HEATERS.
- PROVIDE BASE TEE WITH CLEANOUT, ROOF FLASHING AND VENT CAP FOR ALL EQUIPMENT AS REQUIRED.
- ALL AIR AND WATER SYSTEMS SHALL BE BALANCED AND TESTED BY A CERTIFIED A.A.B.C. INDEPENDENT BALANCING AGENCY TO PROVIDE QUANTITIES AS SHOWN. PROVIDE THREE(3) SETS OF BALANCE REPORTS FOR REVIEW BY THE CONTRACT ADMINISTRATOR. ALL BALANCING REPORTS SHALL INCLUDE FIRE DAMPER TESTING AND CERTIFICATION.

15800 - CONTROLS

THE POINTS BELOW DESCRIBE THE CONTROL SEQUENCE OF THE H.V.A.C. EQUIPMENT SPECIFIED IN THE SCHEDULES. ALL CONTROLS TO BE SUPPLIED BY DIV. 15 AND WIRED BY DIV.15. CONTROLS SUB-CONTRACTOR SHALL BE A SUBCONTRACTOR OF THE MECHANICAL SUB-CONTRACTOR. PROVIDE LOCKABLE COVERS FOR ALL THERMOSTATS, NEW OR EXISTING.

- EXHAUST FAN CONTROL:
 - PROVIDE WALL SWITCHES AS SHOWN ON DRAWINGS. FINAL SWITCH LOCATIONS TO BE CONFIRMED WITH CITY OF WINNIPEG PRIOR TO INSTALLATION.
 - PROVIDE MOTORIZED DAMPERS, DAMPER OPERATORS, AND END SWITCHES.
 - WALL SWITCH SHALL OPEN MOTORIZED DAMPERS, EXHAUST FAN SHALL BE ENERGIZED BY DAMPER END SWITCHES.
 - WALL SWITCH SHALL CLOSE MOTORIZED DAMPERS, END SWITCHED SHALL DE-ENERGIZE EXHAUST FAN.

MECHANICAL EQUIPMENT SCHEDULES:

EQUIPMENT THAT IS SUPPLIED WITH A FACTORY-INSTALLED DISCONNECTING MEANS FOR THE CONNECTION OF THE SUPPLY SIDE FEEDER CONDUCTORS MUST BE CERTIFIED SO THAT THESE CONDUCTORS CAN BE OF EITHER ALUMINUM OR COPPER.

MECHANICAL AND ELECTRICAL SUB-CONTRACTORS ARE RESPONSIBLE FOR THE MUTUAL COORDINATION OF ALL ELECTRICAL REQUIREMENTS OF MECHANICAL EQUIPMENT. COORDINATION IS TO INCLUDE THE COMMUNICATION OF ALL FINAL ELECTRICAL NAMEPLATE INFORMATION FROM THE MECHANICAL SUB-CONTRACTOR TO THE ELECTRICAL SUB-CONTRACTOR, THE COMMUNICATION OF THE DETAILED CONTROL INFORMATION AS WELL AS ANY ANCILLARY INFORMATION REQUIRED FOR THE FINAL SYSTEMS TO OPERATE AS INTENDED BY THE CONTRACT ADMINISTRATOR. THE COORDINATION IS TO OCCUR PRIOR TO THE ORDERING OF EQUIPMENT BY EITHER TRADE. NO EXTRA COMPENSATION WILL BE ALLOWED DUE TO FAILURE TO CARRY OUT THIS COORDINATION. REPORT AT ONCE TO THE CONTRACT ADMINISTRATOR ANY DEFECT, DISCREPANCY, OMISSION OR INTERFERENCE AFFECTING THE SATISFACTORY COMPLETION OF WORK.

- DIFFUSERS AND GRILLES: (BASED ON E.H. PRICE)

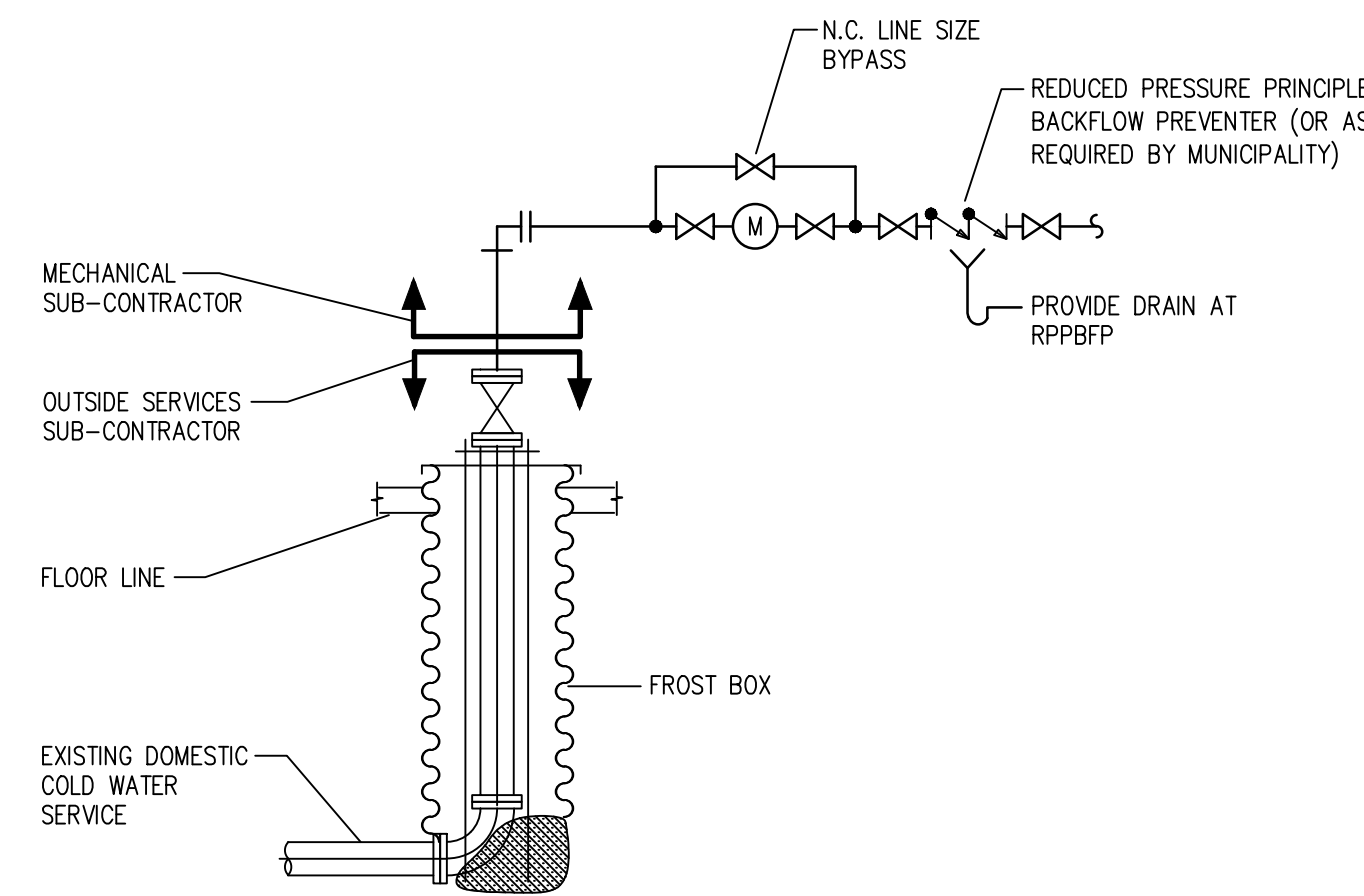
TAG	TYPE	DESCRIPTION	ACCESSORIES
S1	SUPPLY	520D/F /L/A/B12	SIZES ON DRAWINGS
R1	RETURN	80/TB/B12	SIZES ON DRAWINGS
E1	RETURN	530/F/L/A/B12	SIZES ON DRAWINGS
E2	RETURN	80/TB/B12	SIZES ON DRAWINGS

- LOUVRES: (BASED ON GREENHECK)

L1	EXHAUST	ESJ-202	SIZES ON DRAWINGS C/W OPTIONAL FLANGE
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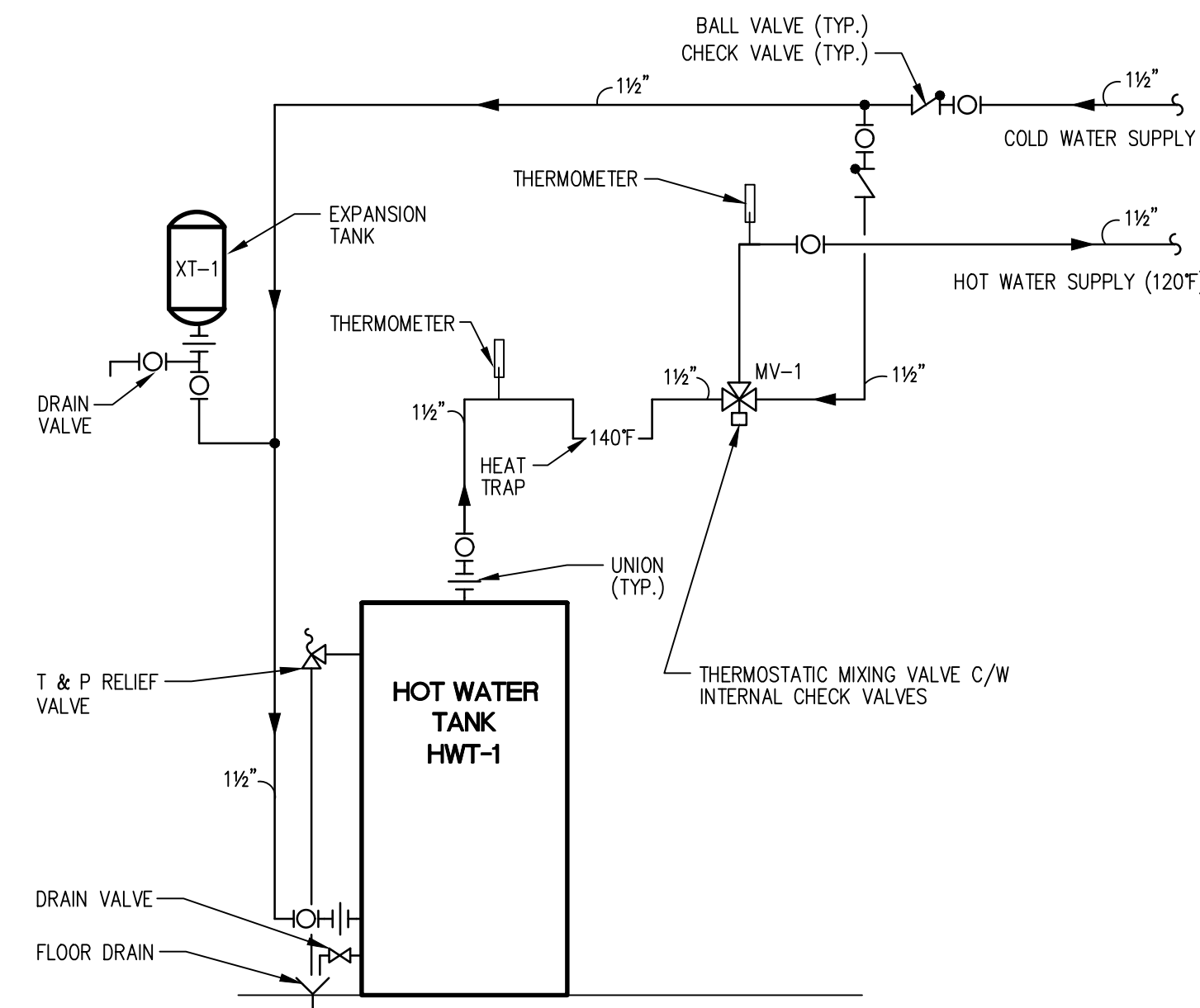
- EXHAUST FANS:

- EF-1 GREENHECK MODEL CUE-060-D DIRECT DRIVE UPBLAST CENTRIFUGAL ROOF EXHAUST FAN, 100 CFM @ 0.3" S.P., 1/60 H.P., 115/1/60 SUPPLY VOLTAGE, 3.9 SONES. COORDINATE ELECTRICAL WITH DIVISION 16.
- EF-2 GREENHECK MODEL CUE-099-4 BELT DRIVE UPBLAST CENTRIFUGAL ROOF EXHAUST FAN, 700 CFM @ 0.5" S.P., 1/4 H.P., 115/1/60 SUPPLY VOLTAGE, 7.6 SONES. COORDINATE ELECTRICAL WITH DIVISION 16.
- EF-3 GREENHECK MODEL CUE-099-4 BELT DRIVE UPBLAST CENTRIFUGAL ROOF EXHAUST FAN, 700 CFM @ 0.5" S.P., 1/4 H.P., 115/1/60 SUPPLY VOLTAGE, 7.6 SONES. COORDINATE ELECTRICAL WITH DIVISION 16.



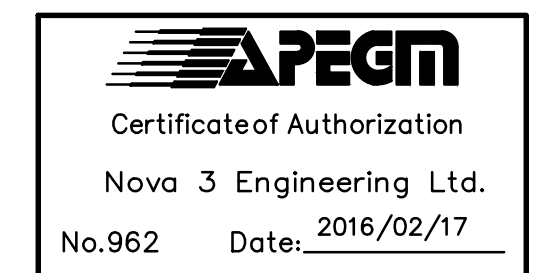
INCOMING WATER SERVICE DETAIL

N.T.S.



DOMESTIC HOT WATER TANK/MIXING VALVE SCHEMATIC

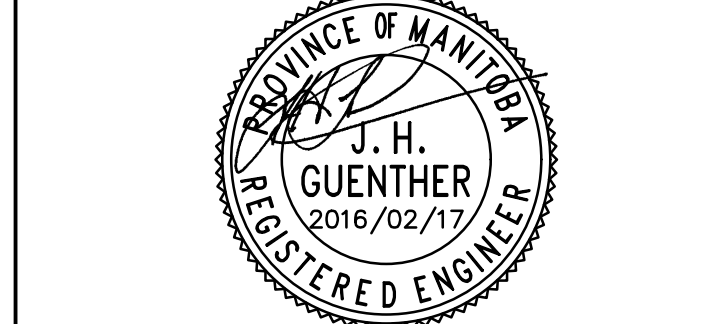
N.T.S. (ALL PIPING TO BE INSTALLED AS PER MANUFACTURERS RECOMMENDATION)



No.	DATE	REVISION /ISSUANCE
5	YY.MM.DD	-
4	YY.MM.DD	-
3	YY.MM.DD	-
2	YY.MM.DD	-
1	16.02.17	ISSUED FOR CONSTRUCTION

Architect

Engineer



Engineer

Project

Sheet Title

Project No.

1426

Date

FEB. 17, 2016

Sheet

MECHANICAL SPECIFICATIONS AND DETAILS

M4.1

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201-120 FORT STREET WINNIPEG, MANITOBA R3C 1C7

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Project

TRANSCONA CENTENNIAL POOL PHASE 1B 1101 WABASHA STREET

Sheet Title

MECHANICAL SPECIFICATIONS AND DETAILS

M4.1