

31" - 36" (787-914MM)	22 (0.85MM)	60" (1524MM)	AS SPECIFIED	NONE	FITTED WITH TURNING VANES.
37" - 48" (940-1220MM)	20 (1.00MM)	60" (1524MM)	AS SPECIFIED	NONE	
49" - 60" (1245-1524MM)	18 (1.31MM)	60" (1524MM)	AS SPECIFIED	NONE	
61" - 84" (+2) (1550-2134MM)	18 (1.31MM)	60" (1524MM)	AS SPECIFIED	1 1/2" BY 1 1/2" BY 1/8" (38 BY 38 BY 3 MM)	

) REQUIRED ON FOUR SIDES. WELD OR BOLT ANGLES WHERE THEY JOIN. MILD STEEL.
) PROVIDE 3/8" (10MM) DIAMETER TIE RODS MAXIMUM 36" (914MM) O.C. AT EACH JOINT.

- MEDIUM PRESSURE RECTANGULAR DUCTWORK:
 - LONGITUDINAL SEAMS: SAME AS FOR LOW PRESSURE DUCTWORK.
 - TRANSVERSE JOINTS DUCTMATE 35, TDC, OR EQUAL, WITH SPECIFIED GASKETS.
 - CROSS BREAK OR BEAD SIDES OF DUCTS.
 - SEAL FLANGED JOINTS, COMPANION ANGLE JOINTS, AND DUCTMATE JOINTS WITH SPECIFIED GASKET MATERIAL, TRIPLE LAPPED AT CORNERS. TORQUE BOLTS EVENLY TO 1/16" COMPRESSION OF TAPE. ALTERNATE: APPLY 3/8" BEAD OF SPECIFIED SEALANT TO BOTH FACES BEFORE BOLTING.
 - CONSTRUCTION AND REINFORCEMENT:

LARGEST DIMENSION OF DUCT	US STD. GAUGE	MAX. JOINT SPACING	TRANSVERSE JOINT SIZE	INTERMEDIATE ANGLE STIFFENER (+1)
THRU 12" (THRU 355MM)	24 (0.7MM)	60" (1524MM)	AS SPECIFIED	NONE
13" - 18" (330-457MM)	22 (0.85MM)	60" (1524MM)	AS SPECIFIED	NONE
19" - 24" (483-610MM)	22 (0.85MM)	60" (1524MM)	AS SPECIFIED	NONE
25" - 36" (635-914MM)	24 (0.70MM)	60" (1524MM)	AS SPECIFIED	1 1/2" BY 1 1/2" BY 1/8" (38 BY 38 BY 3 MM)
37" - 48" (940-1220MM)	22 (0.85MM)	60" (1524MM)	AS SPECIFIED	1 1/2" BY 1 1/2" BY 1/8" (38 BY 38 BY 3 MM)
49" - 60" (1245-1524MM)	20 (1.00MM)	60" (1524MM)	AS SPECIFIED	2" BY 2" BY 3/8" (50 BY 50 BY 4.7 MM)
61" - 96" (+2) 3/4" (1550-2438MM)	18 (1.31MM)	60" (1524MM)	AS SPECIFIED	2 1/2" BY 2 1/2" BY 1/8" (62 BY 62 BY 4.7 MM)
OVER 96" (+3) (OVER 2438MM)	16 (1.61MM)	48" (1220MM)	AS SPECIFIED	3" BY 3" BY 3/8" (75 BY 75 BY 4.7 MM)

) REQUIRED ON FOUR SIDES. WELD OR BOLT ANGLES WHERE THEY JOIN. MILD STEEL.
) PROVIDE 3/8" (10MM) DIAMETER TIE RODS MAXIMUM 36" (914MM) O.C. AT EACH JOINT.
) WELD 24 (610 MM) LONG 3/4" (19 MM) ROUND KNEE BRACE INSIDE DUCT AT EACH CORNER TO INTERMEDIATE STIFFENER 8 FEET (2.4 M) ON CENTER. (C.F. = COMPANION ANGLE FLANGES.)

- ROUND DUCTWORK - HVAC:
 - PROVIDE SPIRAL ROUND DUCTWORK WHERE SHOWN ON THE DRAWINGS.
 - DUCT GAUSES:

ROUND DUCT SIZE	LOW PRESSURE GAUGE	MEDIUM PRESSURE GAUGE
THRU 8" (THRU 200MM)	26	26
9"-14" (230-255MM)	26	26
15"-26" (381-660MM)	26	24

- FITTINGS: UNITED MCGILL, WESTERN ENGINEERING CO., LINDAB, OR EQUAL.
 - LOW PRESSURE:
 - ELBOWS: 26 GAUGE SMOOTH. PLEATED NOT ALLOWED.
 - OTHER: 26 GAUGE UNWELDED. SPOT WELDED AND SEALED JOINTS.
 - MEDIUM PRESSURE:
 - ELBOWS: 20 GAUGE DIE-STAMPED. ALL-WELDED JOINTS.
 - OTHER: 20 GAUGE UNIFORM. ALL-WELDED JOINTS.
 - ELBOWS: RADIUS TO CENTER OF DUCT SHALL NOT BE LESS THAN 1.5 TIMES THE DIAMETER OF THE DUCT.
 - REDUCERS: MACHINE FORMED TO ASME SHORT FLOW NOZZLE SHAPE.
 - CONICAL TAP MACHINE FORMED TO SHORT FLOW NOZZLE SHAPE.
 - LATERALS: MACHINE FORMED TO ASME SHORT FLOW NOZZLE, CONICAL TAP AT 45 DEGREES F.
 - ROUND TAP FITTINGS: SADDLE TYPE FOR ROUND DUCT OR CONICAL FOR RECTANGULAR DUCTS AS SHOWN ON THE DRAWINGS.
- ROUND DUCT JOINTS: JOIN BY MEANS OF COUPLINGS WITH SWAGED BEAD IN CENTER AND SECURED WITH SHEET METAL SCREWS AT EACH END OF COUPLING. MAKE DUCT-TO-FITTINGS JOINTS BY EITHER A TIGHT SLIP FIT OF THE FITTING LAPPED INSIDE THE DUCT OR BY MEANS OF COUPLINGS WITH SWAGED BEAD IN CENTER, SECURED WITH SHEET METAL SCREWS. SCREW SPACING: 6 INCHES (150 MM) UNLESS OTHERWISE SHOWN ON THE DRAWINGS. SEAL JOINTS AND SEAMS WITH SPECIFIED INTERNAL SEALANT APPLIED CONTINUOUSLY AROUND THE COUPLING.

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. FABRICATE AS SPECIFIED. LEAVE 1/8" (3 MM) MAXIMUM GAP BETWEEN DAMPER BLADE AND DUCT WALL. INSTALL DAMPERS IN SEPARATE, FLANGED, BOLTED, REMOVABLE DUCT SECTIONS..

- TURNING VANES SHALL BE CONSTRUCTED TO THE FOLLOWING REQUIREMENTS:
- USE ONLY WHERE SHOWN OR REQUIRED FOR TIGHT TURNS. VANES SHALL BE MINIMUM 16 GAUGE (1.61 MM) CONTINUOUSLY WELDED TO DUCT AT BOTH ENDS. WELDED JOINTS SHALL BE ROUND SMOOTH AND SAND BLASTED BEFORE APPLYING COATING.
 - 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 SQUARE THROATS AND BACKS AND

- 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 5/32" (4.5MM) MILD STEEL BAR ON ALL TRANSVERSE JOINTS AND SIDE JOINTS 73" (1825MM) AND OVER.

- PROVIDE FIRE DAMPERS WHICH CONFORM TO NFPA REGULATIONS, BE MINIMUM 2-HOUR RATED, DYNAMIC (SPRING) TYPE, 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 FIRE DAMPERS SHALL BE BY ONE MANUFACTURER. STANDARD OF ACCEPTANCE: NALOR, PRICE, RUSKIN.

- ALL NEW DUCTWORK SHALL BE SEALED USING DUCT BOND II HIGH PRESSURE, NON-TOXIC, DUCT SEALER THROUGHOUT ALL SEAMS AND JOINTS. DUCT SEALANT SHALL BE TO MEET THE FOLLOWING REQUIREMENTS:
 - FOR NON-FUME EXHAUST DUTY AND GALVANIZED FUME EXHAUST DUTY: UNITED DUCT SEALER, 3M #800, OR EQUAL, NON-FLAMMABLE, U.L. LABELED.
 - TWO-PART TAPE SEALING SYSTEM:
 - FOR INDOOR APPLICATIONS, USE SEALANT THAT HAS A VOC CONTENT OF 250 G/L OR LESS WHEN CALCULATED ACCORDING TO 40 CFR 59, SUBPART D (EPA METHOD 24).
 - SOLVENT-BASED JOINT AND SEAM SEALANT:
 - FOR INDOOR APPLICATIONS, USE SEALANT THAT HAS A VOC CONTENT OF 250 G/L OR LESS WHEN CALCULATED ACCORDING TO 40 CFR 59, SUBPART D (EPA METHOD 24). VOC: MAXIMUM 395 G/L.
 - FLANGED JOINT SEALANT: COMPLY WITH ASTM C 920.
 - FOR INDOOR APPLICATIONS, USE SEALANT THAT HAS A VOC CONTENT OF 250 G/L OR LESS WHEN CALCULATED ACCORDING TO 40 CFR 59, SUBPART D (EPA METHOD 24).
 - SEALING:
 - WHERE FIRESTOPPING IS NOT REQUIRED, SEAL DUCT, PIPE, AND CONDUIT PENETRATIONS THROUGH PARTITIONS WITH G.E. SILICONE SANITARY SEALANT, DOW CORNING 8650 INTERIOR SEALANT, OR EQUAL.
 - PROVIDE 0.125- TO 0.25-INCH (3 MM TO 6 MM) GAP TO BE FILLED WITH SPECIFIED SEALANT FOR NOISE CONTROL.
 - SEAL DUCTS TO THE FOLLOWING SEAL CLASSES ACCORDING TO SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE":
 - COMPLY WITH SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE."
 - OUTDOOR, SUPPLY-AIR DUCTS: SEAL CLASS A.
 - OUTDOOR, EXHAUST DUCTS: SEAL CLASS C.
 - OUTDOOR, RETURN-AIR DUCTS: SEAL CLASS C.
 - UNCONDITIONED SPACE, SUPPLY-AIR DUCTS IN PRESSURE CLASSES 2-INCH WG AND LOWER: SEAL CLASS B.
 - UNCONDITIONED SPACE, SUPPLY-AIR DUCTS IN PRESSURE CLASSES HIGHER THAN 2-INCH WG: SEAL CLASS A.
 - UNCONDITIONED SPACE, EXHAUST DUCTS: SEAL CLASS C.
 - UNCONDITIONED SPACE, RETURN-AIR DUCTS: SEAL CLASS B.
 - CONDITIONED SPACE, SUPPLY-AIR DUCTS IN PRESSURE CLASSES 2-INCH WG AND LOWER: SEAL CLASS C.
 - CONDITIONED SPACE, SUPPLY-AIR DUCTS IN PRESSURE CLASSES HIGHER THAN 2-INCH WG: SEAL CLASS B.
 - CONDITIONED SPACE, EXHAUST DUCTS: SEAL CLASS B.
 - CONDITIONED SPACE, RETURN-AIR DUCTS: SEAL CLASS C.
 - DO NOT SEAL AT FIRE DAMPERS IN A WAY THAT VIOLATES UL OR CODE INSTALLATION REQUIREMENTS.

- GASKET MATERIAL
 - FOR NON-FUME EXHAUST DUTY AND GALVANIZED FUME EXHAUST DUCT DUTY: TREMCO 440, DUCTMATE 440, OR EQUAL, MINIMUM 3/16" THICK BY 1/2" WIDE.

- DUCT SUPPORT:
 - ATTACHMENTS TO STRUCTURE: SEE DIVISION 23 SECTION "HANGERS AND SUPPORTS FOR HVAC PIPING AND EQUIPMENT". MINIMUM ROD OR BOLT SIZE IS 3/8" (9 MM).
 - SUSPEND HORIZONTAL GALVANIZED RECTANGULAR DUCTWORK 48 INCHES (1220 MM) OR LESS IN LARGEST DIMENSION FROM CONSTRUCTION BY 1 INCH BY 18 GAUGE (25 MM BY 1.3 MM) GALVANIZED STRAP HANGERS SCREWED 8 INCHES (200 MM) O.C. TO DUCTS. USE THREE SCREWS MINIMUM PER STRAP. BEND STRAP UNDER DUCT AND SCREW INTO BOTTOM OF DUCT.
 - SUSPEND HORIZONTAL RECTANGULAR STAINLESS STEEL AND COATED DUCTWORK 48 INCHES (1220 MM) OR LESS IN LARGEST DIMENSION FROM CONSTRUCTION BY 1 INCH BY 18 GAUGE (25 MM BY 1.3 MM) GALVANIZED STEEL STRAP HANGERS BOLTED TO MATING FLANGES AT MINIMUM OF THREE LOCATIONS. (TOP, MIDDLE, AND BOTTOM).
 - DUCTS OVER 48 INCHES (1220 MM) IN LARGEST DIMENSION SUPPORT FROM UNISTRUT, SUPERSTRUT, OR EQUAL, TRAPEZE HANGERS SIZED FOR THE LOAD, PER SMACNA STANDARDS.
 - SUPPORT ROUND STEEL DUCTWORK FROM CONSTRUCTION BY 1 INCH BY 18 GAUGE (25 MM BY 1.3 MM) GALVANIZED STRAP HANGERS WITH INSIDE RADIUS OF LOOP HANGER EQUAL TO OUTSIDE RADIUS OF DUCT. FOR DUCTS UNDER 12" DIAMETER, PROVIDE SUPPORTS 10 FEET (3 M) O.C.; 12 FEET (3.6 M) AND OVER, 6 FEET (1.8 M) O.C. PROVIDE NOT LESS THAN ONE HANGER PER BRANCH AND AT EACH CHANGE OF DIRECTION.
 - SUPPORT ROUND FLEXIBLE DUCTWORK FROM CONSTRUCTION BY 2 INCHES BY 26 GAUGE (50 MM BY 0.55 MM) GALVANIZED STRAP HANGERS WITH INSIDE RADIUS OF LOOP HANGER EQUAL TO OUTSIDE RADIUS OF DUCT. LOCATE SUPPORTS TO AVOID KINKS AND SHARP BENDS.
 - DOUBLE FOLD STRAPS AT ATTACHMENT TO STRUCTURE.
 - SPACE HANGERS NOT OVER 96 INCHES (2440 MM) ON CENTER FOR DUCTS SMALLER THAN 18 INCHES (457 MM) IN LARGEST DIMENSION; 60 INCHES (1524 MM) O.C. FOR DUCTS 18 INCHES (457 MM) AND OVER.

- DUCT AND PLENUM LEAK TESTING:
 - LEAK TEST 100% OF DUCTS, COATED DUCTS, WELDED STEEL (GREASE) DUCTS, AND PLENUMS: USE EXTREME CARE IN THE FABRICATION AND INSTALLATION OF THE DUCTWORK AND PLENUMS TO ENSURE THAT IT WILL BE AIRTIGHT. TEST DUCTWORK AND PLENUMS FOR LEAKS IN SECTIONS AS THE WORK PROGRESSES BEFORE INSULATING. FIRE DAMPERS, SMOKE/FIRE DAMPERS, ACCESS PANELS AND APPROPRIATE BRANCH DUCTS SHALL BE IN PLACE DURING THE TESTING. SEAL OFF OPEN ENDS AND THEN TEST BY THE FOLLOWING:
 - DUCT LEAK TEST FOR MEDIUM PRESSURE DUCTWORK: THE EQUIPMENT REQUIRED FOR THIS TESTING COMPRISES A HIGH PRESSURE BLOWER, ORIFICE TEST PIPE ASSEMBLY AND MANOMETER WITH NECESSARY VALVES AND TUBING. THE DUCTWORK SECTION SHALL BE PLACED UNDER AN AIR PRESSURE OF 6 INCHES (150 MM) OF WATER WITH THE BLOWER, WHILE LEAKAGE FLOW THROUGH THE ORIFICE IS MEASURED ON THE MANOMETER. THE MANOMETER READINGS SHALL BE CONVERTED TO CFM FROM A CALIBRATED TEST CURVE. THE LEAKAGE SHALL NOT EXCEED 6 CFM/100 S.F. FOR RECTANGULAR SEAL CLASS "A" DUCTWORK AND 3 CFM/100 SF FOR ROUND SEAL CLASS "A" DUCTWORK. NO LESS THAN 50 SQUARE FEET OF DUCT SHALL BE TESTED AT ONE TIME. THE SUBCONTRACTOR SHALL PROVIDE TEST CONDITIONS, INCLUDING THE TOTAL SQUARE FEET OF DUCTWORK UNDER TEST. FIRE DAMPERS AND ACCESS PANELS SHALL BE INSTALLED. TESTING OF COMPLETE SECTIONS OF THE DUCTWORK MUST BE MADE BEFORE INSTALLATION OF THE FINISHED CEILING OR BEFORE THE DUCTWORK IS FURRED IN INACCESSIBLE SPACE. LEAKS FOUND MUST BE REPAIRED, OR JOINTS REMADE AND THE SECTION RETESTED

- UNTIL TIGHT. LEAKS THAT CAUSE OBJECTIONABLE NOISE MUST BE REPAIRED, REGARDLESS OF THE AMOUNT OF THE LEAKAGE. MAINTAIN A SET OF DRAWINGS FOR RECORDING AND SIGN OFF OF EACH TESTED SECTION.
 - DUCT LEAK TEST FOR LOW PRESSURE DUCTWORK: TESTS AND LEAKAGE REQUIREMENTS ARE THE SAME AS FOR MEDIUM PRESSURE DUCTWORK EXCEPT TEST AT AN AIR PRESSURE OF 2 INCHES (50 MM) OF WATER. TEST ONE REPRESENTATIVE LOW PRESSURE SUPPLY AIR DUCT SECTION ON EACH FLOOR CONSISTING OF DUCTWORK BETWEEN THE TERMINAL (REHEAT COIL, OR VAV TERMINAL) AND THE OUTLETS. SECTION TESTED SHALL NOT HAVE LESS THAN TWO OUTLETS. TEST ONE REPRESENTATIVE LOW PRESSURE EXHAUST DUCT BRANCH AT EACH FLOOR FROM THE INLETS TO THE RISER.
 - LEAK TEST FOR NON-FUME EXHAUST PLENUMS: SAME AS FOR MEDIUM PRESSURE DUCTWORK.
- 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 ALL FANS AND AIR HANDLING EQUIPMENT.
- PROVIDE ONE SPARE SET OF FILTERS FOR EACH AIR HANDLING UNIT.

- DUCT MOUNTED MOTORIZED DAMPERS SHALL BE PROVIDED WITH THE FOLLOWING REQUIREMENTS:
 - ALL MOTORIZED DAMPERS SHALL BE INSULATED LOW LEAKAGE TYPE
 - MOTORIZED DAMPERS SHALL BE LOCATED AS NEAR AS POSSIBLE TO THE PLANE OF THE BUILDING ENVELOPE FOR ALL AIR INTAKE AND OUTLET TYPES.
 - MOTORIZED DAMPERS SHALL CLOSE AUTOMATICALLY WHEN HVAC SYSTEM IS NOT IN OPERATION. STANDARD OF ACCEPTANCE: TAMCO 9000, GREENHECK 100.
- 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.
- PROVIDE WALL CAPS IN ALL SIDEWALL DISCHARGE APPLICATIONS AS INDICATED ON DRAWINGS. WALL CAPS TO BE OF STEEL CONSTRUCTION AND BE BY ONE MANUFACTURER. STANDARD OF ACCEPTANCE: REVERSOMATIC.
- 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 ELECTRONIC SET OF BALANCE AND TESTING REPORTS FOR REVIEW BY THE CONSULTANT. ALL BALANCING REPORTS SHALL INCLUDE FIRE DAMPER TESTING AND CERTIFICATION.
- AUTOMATIC SPACE TEMPERATURE CONTROL DEVICES SHALL BE PROVIDED WITH THE FOLLOWING REQUIREMENTS:
 - SHALL BE INSTALLED WITH TOP OF THERMOSTAT AT 3'-11" (1200 MM) AFF.

CONTROLS

THE POINTS BELOW DESCRIBE THE CONTROL SEQUENCE OF THE HVAC EQUIPMENT SPECIFIED IN THE SCHEDULES. ALL CONTROLS TO BE SUPPLIED AND WIRED BY THE MECHANICAL CONTRACTOR UNLESS OTHERWISE NOTED. CONTROLS CONTRACTOR SHALL BE A SUBCONTRACTOR OF THE MECHANICAL CONTRACTOR. ALL CONTROL WIRING SHALL BE PLENUM RATED IN ACCORDANCE WITH THE LATEST EDITION OF THE CANADIAN ELECTRICAL CODE TO MEET THE DEVELOPED SMOKE/FLAME SPREAD RATINGS OF 25/50. REFER TO ELECTRICAL DRAWINGS AND SPECIFICATIONS FOR ROOM HAZARD CLASSIFICATIONS. ALL ELECTRICAL/MECHANICAL EQUIPMENT, CONTROL WIRING, ACTUATORS, CONTROL DEVICES ETC. SHALL BE INSTALLED IN STRICT CONFORMANCE WITH SECTION 18 OF THE CANADIAN ELECTRICAL CODE FOR EACH ZONE THEREIN. IN CASE OF ANY DISCREPANCIES OBTAIN A WRITTEN RULING FROM THE CONSULTANTS.

- HV CONTROL:
 - UNIT SHALL CYCLE BY TIME CLOCK BY UNIT SUPPLIER.
 - WIRE CONTROL FOR DEFROST ELECTRIC COIL BY UNIT SUPPLIER. TO ENERGIZE COIL WHEN SUPPLY TEMPERATURE IS BELOW 30F(0C).
- CARAGE VENTILATION CONTROL:
 - PROVIDE GAS DETECTOR(S) AND ALARM, DAMPER OPERATOR(S) WITH END SWITCH(ES), DAMPERS, AIR FLOW SWITCHES, RELAYS, ETC.
 - UPON SENSING 25 PPM CO OR 0.7 PPM NO2, SENSOR SHALL ENERGIZE EXHAUST AND MOTORIZED AIR DAMPER OPERATORS TO OPEN.
 - SHOULD AIR FLOW NOT BE PROVEN AT EITHER EXHAUST FAN OR MOTORIZED DAMPER, THE SYSTEM SHALL DE-ENERGIZE AND AN AUDIBLE ALARM SHALL SOUND.

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 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 CONTRACTOR TO THE ELECTRICAL CONTRACTOR, THE COMMUNICATION OF THE DETAILED CONTROL INFORMATION AS WELL AS ANY ANCLLARY 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 CONSULTANT ANY DEFECT, DISCREPANCY, OMISSION OR INTERFERENCE AFFECTING THE SATISFACTORY COMPLETION OF WORK.

- CO/NO2 CARBON MONOXIDE AND NITROGEN DIOXIDE SENSOR
- HONEYWELL 'ANALYTICS' E3SASCO CARBON MONOXIDE SENSOR AND 'ANALYTICS' E3SRMN02 NITROGEN DIOXIDE REMOTE SENSOR. MONITORS C/W DISPLAY SCREEN, DPDT RELAYS, PROGRAMMABLE SET POINTS, ELECTROCHEMICAL CELL AND AUDIBLE ALARM. CO SENSOR SET POINTS AT 25 PPM (TLV-TWA) AND 100 PPM (TLV-STEL), MOUNTED 5' AFF AND CAPABLE OF A 50' RADIUS COVERAGE. NO2 SENSOR SET POINTS AT 0.7 PPM (TLV-TWA) AND 2 PPM (TLV-STEL), MOUNTED 1' BELOW CEILING AND CAPABLE OF A 50' RADIUS COVERAGE. PROVIDE COMMISSIONING FOR SENSOR.

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Stamp	Stamp
	
Nova 3 Engineering Ltd. No.962 Date: 2021-10-25	

Project
 City of Winnipeg
**Churchill Park Maintenance
 Building Renovation**
 430 Churchill Dr
 Winnipeg, Manitoba

drawing title MECHANICAL - SPECIFICATION		
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date	2021-10-20	drawn by HC
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