

GENERAL MECHANICAL SPECIFICATION

SCOPE OF WORK

MECHANICAL DIVISION SHALL FURNISH ALL LABOUR, MATERIALS AND EQUIPMENT NECESSARY FOR THE PROPER AND TIMELY COMPLETION OF THE MECHANICAL SYSTEMS AS SHOWN ON THE DRAWINGS AND/OR AS SPECIFIED. THE SPECIFICATIONS SHALL BE CONSIDERED AS AN INTEGRAL PART OF THE PLANS WHICH ACCOMPANY THEM, NEITHER THE PLANS NOR THE SPECIFICATIONS SHALL BE USED ALONE. ANY ITEMS OR SUBJECT OMITTED FROM ONE BUT WHICH IS MENTIONED OR REASONABLY ADOPTED IN THE OTHER SHALL BE CONSIDERED AS PROPERLY AND SUFFICIENTLY SPECIFIED, AND MUST, THEREFORE, BE PROVIDED. MISINTERPRETATIONS OF EITHER THE PLANS OR THE SPECIFICATIONS SHALL NOT RELIEVE THIS DIVISION OF RESPONSIBILITY.

IT IS THE INTENT THAT THE DRAWINGS AND SPECIFICATIONS TO DESCRIBE COMPLETE MECHANICAL SYSTEMS. ALL MATERIALS AND EQUIPMENT AND THE FURNISHING OF ALL LABOUR REASONABLY IMPLIED BY THESE DRAWINGS AND/OR THE SPECIFICATIONS SHALL BE INCLUDED TO PROVIDE SYSTEMS READY FOR SATISFACTORY OPERATION. REFER TO ALL OTHER TRADE DRAWINGS AND SPECIFICATIONS TO FULLY COORDINATE THE INSTALLATION OF THE WORK.

STANDARD OF ACCEPTANCE

THE ITEM NAMED AND SPECIFIED BY MODEL OR CATALOGUE NUMBER FORMS PART OF SPECIFICATION AND SETS THE STANDARD REGARDING PERFORMANCE QUALITY OF MATERIAL AND WORKMANSHIP.

TENDER PRICES SHALL BE BASED ON THE SPECIFIED EQUIPMENT LISTED AS ACCEPTABLE PRODUCT OR AS BASE BID. ALL ALTERNATES OF LISTED EQUIPMENT MUST BE LISTED SEPARATELY ON THE TENDER FORM WITH COST SAVINGS. THE OWNERS AND THE CONSULTANT HAVE THE OPTION OF ACCEPTING OR REJECTING ALTERNATE EQUIPMENT.

CODES, REGULATIONS AND PERMITS

THE COMPLETE MECHANICAL INSTALLATION SHALL CONFORM TO THE LATEST EDITION OF THE NATIONAL BUILDING CODE, NFPA 13, CANADIAN PLUMBING CODE, ASHRAE AND SMACNA STANDARDS AND LOCAL BY-LAWS CURRENTLY IN FORCE IN THE PROVINCE AND MUNICIPALITY.

ALL MECHANICAL WORK SHALL BE INSTALLED, INSPECTED AND TESTED IN ACCORDANCE WITH GOVERNING CODES, RULES AND REGULATIONS OF THE MUNICIPALITY IN WHICH THE WORK IS PERFORMED AND ALSO OF PROVINCIAL AND FEDERAL AUTHORITIES HAVING JURISDICTION. THE MECHANICAL CONTRACTOR SHALL OBTAIN ALL PERMITS REQUIRED FOR THE INSTALLATION OF MECHANICAL WORK, ARRANGE FOR INSPECTIONS AND TESTS AND PAY ALL FEES AND COSTS FOR THE PERMITS AND INSPECTIONS. ALL NECESSARY PERMITS SHALL BE OBTAINED IMMEDIATELY AFTER NOTIFICATION OF AWARD OF CONTRACT.

IN ADDITION TO THE FOREGOING, THE MECHANICAL CONTRACTOR SHALL PERFORM SUCH OTHER INSPECTIONS AND TESTS AS MAY BE DEEMED NECESSARY BY THE PRIME CONSULTANT.

THE NATIONAL BUILDING CODE AND THE APPLICABLE REQUIREMENTS OF CSA, ASTM, ANSI, ULC, AND NFPA STANDARDS INCLUDING THEIR LATER AMENDMENTS, AS WELL AS PROVINCIAL AND MUNICIPAL BYLAWS AND REGULATIONS SHALL BE CONSIDERED PART OF THIS SPECIFICATION. LACK OF POSSESSION OR KNOWLEDGE OF ANY CODE OR STANDARD REQUIRED FOR PROPER COMPLETION OF THE WORK SHALL NOT CONSTITUTE SUFFICIENT REASON FOR DEVIATION THEREFROM.

RECORD DRAWINGS

CLEARLY RECORD ALL CONTRACT CHANGES AND DEVIATIONS FROM THE CONTRACT DRAWINGS ON A SET OF DRAWINGS AVAILABLE FROM THE GENERAL CONTRACTOR FOR THIS PURPOSE AND FORWARDED TO THE GENERAL CONTRACTOR AT THE COMPLETION OF THE PROJECT.

SITE VISIT

THIS CONTRACTOR SHALL VISIT THE SITE AND EVALUATE ALL EXISTING SITE CONDITIONS AS THEY MAY AFFECT THIS WORK. NO EXTRAS WILL BE ALLOWED FOR ANY EFFECTS FROM FAILING TO COMPLETE A COMPREHENSIVE SITE TOUR TO UNDERSTAND AND ACCOUNT FOR THE IMPACT OF EXISTING SITE CONDITIONS ON THE CONTRACT SCOPE OF WORK.

CUTTING AND PATCHING

THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR AND PAY FOR ALL CUTTING AND PATCHING REQUIRED IN THE SCOPE OF WORK AS DEFINED IN THE GENERAL CONDITIONS. ALL NEW FINISHES SHALL BE EQUAL TO THOSE OF SURROUNDING SURFACES FOR MATERIALS, COLOUR, TEXTURE AND WORKMANSHIP. THIS DIVISION SHALL CLEARLY MARK OUT ALL OPENINGS REQUIRED AND REVIEW WITH THE GENERAL CONTRACTOR BEFORE CUTTING PROCEEDS. THIS DIVISION SHALL INSTALL ALL OPENING FRAMES, SLEEVES, DUCTWORK AND PIPING, LOUVRES, ETC., INTO THE BUILDING STRUCTURE AS CONSTRUCTION PROGRESSES. ANY ITEMS MISSED DURING CONSTRUCTION THAT MUST BE ADDED WILL BE THE RESPONSIBILITY OF THIS DIVISION AND WILL BE COORDINATED WITH THE GENERAL TRADES.

CO-ORDINATION

CONFER AND COOPERATE WITH OTHER TRADES IN ORDER TO ELIMINATE ANY UNNECESSARY DELAYS TO THE CONSTRUCTION SCHEDULE. WHERE DOUBT EXISTS REGARDING OTHER TRADES, CONFER WITH THE SUPERINTENDANT WITHOUT DELAY FOR EXPEDITED INSTRUCTIONS CONCERNING HOW TO PROCEED WITH THE WORK. EXPEDITE DELIVERY OF ALL EQUIPMENT AND MATERIALS TO MEET CONSTRUCTION SCHEDULE. ANY INTERFERENCE ISSUES THAT ARISE SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO DUCTWORK FABRICATION.

COMMISSIONING

ENSURE THAT ALL EQUIPMENT AND SYSTEMS ARE OPERABLE AND SAFE FOR NORMAL OPERATION. ALL TESTING, ADJUSTING, BALANCING WORK AND RECORD KEEPING SHALL BE PERFORMED PRIOR TO COMMISSIONING. OPERATIONAL TESTS ON EQUIPMENT, DUCTWORK, PIPING AND CONTROL SYSTEMS SHALL BE PERFORMED PRIOR TO COMMISSIONING TO VERIFY THAT PRESSURE AND FLOW RATES MEET DESIGN REQUIREMENTS.

SHOP DRAWINGS

SHOP DRAWINGS AND DATA SHEETS FOR EQUIPMENT INTENDED FOR INSTALLATION UNDER THIS CONTRACT SHALL BE SUBMITTED FOR REVIEW. AFTER CHECKING AND WHEN REVIEWED, COPIES WILL BE RETURNED TO THE CONTRACTOR.

ACCESS DOORS

SUPPLY ACCESS DOORS FOR FURRED CEILINGS OR SPACES FOR SERVICING EQUIPMENT AND DUCT ACCESSORIES OR FOR INSPECTION OF LIFE SAFETY OR OPERATING DEVICES. SUPPLY STAINLESS STEEL ACCESS DOORS FOR TILED, MARBLE, TERRAZZO OR SPECIAL SURFACES. STANDARD OF ACCEPTANCE ZURN, ACUDOR, ANCON. ACCESS DOORS SHALL BE FLUSH MOUNTED 600 X 600 MM FOR BODY ENTRY AND 450 X 450 MM FOR SERVICE ENTRY UNLESS OTHERWISE NOTED. DOORS SHALL OPEN 1800 HAVE ROUNDED SAFETY CORNERS, CONCEALED HINGES, SCREWDRIVER LATCHES AND ANCHOR STRAPS. STEEL SHALL BE PRIME COATED. ANY ACCESS DOORS IN FIRE RATED ASSEMBLIES OR SEPARATIONS SHALL BE ULC RATED FOR APPROPRIATE SEPARATION RATING.

MAINTENANCE INSTRUCTIONS

SUPPLY CERTIFIED PERSONNEL TO INSTRUCT OWNERS OPERATING STAFF ON OPERATION OF MECHANICAL EQUIPMENT. SUPPLY MAINTENANCE SPECIALIST PERSONNEL TO INSTRUCT OPERATING STAFF ON MAINTENANCE AND ADJUSTMENT OF MECHANICAL EQUIPMENT AND ANY CHANGES OR MODIFICATIONS IN EQUIPMENT MADE UNDER THE TERMS OF THE GUARANTEE. PROVIDE INSTRUCTION TO OWNERS STAFF DURING REGULAR WORK HOURS PRIOR TO ACCEPTANCE OF THE SYSTEMS FOR REGULAR OPERATION.

BUILDING STRUCTURE

INITIATE NO DRILLING, CUTTING OR WELDING OF THE BUILDING STEEL OR CONCRETE CONSTRUCTION FOR THE PURPOSE OF SUPPORTING MATERIALS OR EQUIPMENT WITHOUT PRIOR APPROVAL OF THE PRIME CONSULTANT.

HVAC AND EQUIPMENT IDENTIFICATION

IDENTIFY ALL HVAC SYSTEMS. INDICATE DUCT SIZE, SERVICE AND DIRECTION OF FLOW. THE LETTERING SHALL BE PROPORTIONAL TO THE OUTSIDE DIAMETER OF THE DUCTWORK. BRADLEY TAGS SHALL BE THE STANDARD OF LABELS.

AIR DISTRIBUTION

DUCTWORK SYSTEMS

THE DUCTWORK AND ACCESSORIES SHALL BE GALVANIZED STEEL AND SHALL BE INSTALLED IN STRICT ACCORDANCE WITH A.S.H.R.A.E. AND S.M.A.C.N.A. STANDARDS FOR METHODS OF SUSPENSION, JOINTS, REINFORCEMENT, CROSS BREAKING, INSULATION AND MATERIAL GAUGES FOR THE REQUIRED FAN SYSTEM OPERATING PRESSURES. FITTINGS SHALL BE FABRICATED WITH SMOOTH TRANSITIONS, PROPER SMACNA RADII AND TRANSITION ANGLES AND QUALITY BALANCING DEVICES.

LONGEST SIDE	GAUGE(US)	TYPE OF JOINTS				
		HEIGHT	SLIP	BAR SLIP	LOCK	"T"
UP TO 11"(275mm)	26	25	24	-	24	-
12"(300mm) TO 24"(600mm)	24	25	22	-	22	-
25"(625mm) TO 60"(1500mm)	22	25	-	22	22	22
61"(1525mm) TO 108"(2700mm)	20	37	-	22	22	22

SEAL ALL DUCT SYSTEM JOINTS WITH GREY HIGH PRESSURE DUCT SEALER. CIRCULAR DUCTWORK SHALL BE FACTORY FABRICATED GALVANIZED SPIRAL SEAM WITH FABRICATE FITTINGS.

1. ALL BRANCH TAKE OFFS TO BE 45 DEG. CONICAL LATERALS.
2. SLEEVE TYPE COUPLING JOINTS ALL SEALED WITH FLEXIBLE MEDIUM PRESSURE DUCT SEALANT AND SCREWS.

FLEXIBLE DUCTWORK SHALL BE U.L.C. LISTED, SOUNDLINED WITH VAPOUR BARRIER. THERMAFLEX MAKE OR EQUIVALENT. MAXIMUM LENGTH TO DIFFUSERS 2000 MM UNLESS OTHERWISE INDICATED. FASTEN WITH SCREWS, WASHERS AND FOIL TAPE AT JOINTS. DUCT TAPE SHALL NOT BE USED.

FLEXIBLE CONNECTIONS: PROVIDE AT ALL FANS AND LIKE EQUIPMENT SUBJECT TO VIBRATION. SUITABLE MATERIALS NEOPRENE COATED GLASS FABRIC, DURO-DYNE OR EQUAL, NOT MORE THAN 4" (100mm) LONG BETWEEN METAL PARTS AND INSTALLED WITH SUFFICIENT SLACK TO PREVENT VIBRATION TRANSMISSION.

LEAKAGE TESTING: WITH FANS OPERATING CARRY OUT VISUAL JOINT INSPECTION USING A SMOKE PENCIL; RESEAL ANY JOINTS WITH OBVIOUS LEAKAGE

DUCTWORK INSULATION

RECTANGULAR DUCTWORK DESCRIBED IN THE SCOPE OF WORK BELOW SHALL BE INSULATED WITH 25 MM THICK FIBREGLASS FLEXIBLE, EMBOSSED FOIL FACED VAPOUR SEALED DUCT INSULATION APPLIED OVER SPOT WELDED PINS ON 85 MM CENTRES, WITH INSULATION CAPPED WITH SPRING CLIP WASHERS OF 25 MM DIAMETER. SEAL ALL JOINTS, PUNCTURES AND BREAKS WITH 100 MM WIDE STRIPS OF ALUMINUM FOIL VAPOUR BARRIER TAPE ADHERING WITH SUITABLE FIRE RETARDANT ADHESIVE. ROUND DUCTWORK SHALL BE INSULATED WITH FLEX 40 MM THICK FOIL FACED SEALED DUCT INSULATION WITH ALL JOINTS TAPED VAPOUR TIGHT.

INSULATE THE FOLLOWING:

1. SUPPLY AIR DUCTWORK.
2. EXHAUST DUCTS WITHIN 1500 MM OF EXTERIOR WALLS.
3. EXTERIOR CONNECTIONS TO HVAC UNITS.

GRILLES AND DIFFUSERS

SUPPLY AND INSTALL DIFFUSERS AND GRILLES AS INDICATED ON DRAWINGS. DIFFUSERS IN RATED ASSEMBLIES SHALL BE U.L.C. LISTED OR EQUIPPED WITH U.L.C. FIRE STOP FLAPS. SEE SCHEDULE FOR GRILLE AND DIFFUSER TYPES.

HANGERS

SUPPORT EACH SECTION OF THE DUCTWORK WITH STEEL RODS ANGLE IRON, "c" CLAMPS AND OR CONCRETE INSERTS ALL AS PER SCHEDULE BELOW:

DUCT SIZES	ANGLE DIM.	RODS DIA.	SPACING
UP TO 24" (750)	1"x 1"x 1/8" (24x25x3mm)	1/4"(6mm)	108"(2700mm)
31" TO 48" (755 TO 1200mm)	2"x 2"x 1/8" 37x37x3mm)	1/4"(6mm)	108"(2700mm)
49" TO 72" (1225 TO 1800mm)	2"x 2"x 1/8" 37x37x3mm)	3/8"(9mm)	108"(2700mm)
73" TO 96" (1825 TO 2400mm)	2"x 2"x 1/8" 37x37x3mm)	3/8"(9mm)	108"(2700mm)

DUCTS UP TO 18" (450mm) MAY BE SUPPORTED WITH GALVANIZED STEEL STRAP HANGERS MANUFACTURED TO SMACNA STANDARDS, SCREWED AT THE TOP AND ON THE BOTTOM OF DUCT. DO NOT BREAK CONTINUITY OF INSULATION VAPOUR BARRIER BY HANGERS OR RODS.

FIRE SEPARATIONS

SUPPLY AND INSTALL. ALL FIRE DAMPERS AND FIRE STOP FLAPS C/W FUSIBLE LINKS AND ACCESS DOORS AS REQUIRED UNDER THE NATIONAL BUILDING CODE & NATIONAL FIRE CODE. DAMPERS SHALL BE TYPE 'B', 100% FREE AREA UNLESS NOTED AND SHALL BE ULC LISTED FOR THE SPECIFIC APPLICATION AND INSTALLATION ORIENTATION. INSTALL AT OUTLETS OR DUCTS PASSING THROUGH FIRE SEPARATIONS. REFER TO THE ARCHITECTURAL DRAWINGS FOR DESIGNATED FIRE SEPARATIONS. INSTALL FIRE DAMPERS IN ACCORDANCE WITH NFPA 90A AND ULC STANDARDS WITH BACKUP ANGLES AND BREAKAWAY JOINTS. PROVIDE DUCT ACCESS DOORS AS WELL AS DRYWALL ACCESS DOORS FOR COMPLETE ACCESSIBILITY. THE CONTRACTOR SHALL DEMONSTRATE COMPLETE KNOWLEDGE AND ABILITY TO INSTALL THESE DEVICES TO THE U.L.C. INSTRUCTIONS BEFORE PROCEEDING WITH SITE WORK. FIRE DAMPERS THAT HAVE BEEN INSTALLED PRIOR TO THE APPROVAL OF THE SHOP DRAWINGS SHALL BE REMOVED FROM THE MOUNTING POSITION. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE LOCATIONS OF ALL FIRE RATED SEPARATIONS APPARENT FROM MECHANICAL OR ARCHITECTURAL DRAWINGS.

SPARE BELTS AND KEYS

PROVIDE A SPARE SET OF BELTS FOR ALL EQUIPMENT BEING SUPPLIED UNDER THIS CONTRACT. EACH SPARE BELT SHALL BE MARKED WITH SIZE, MODEL ETC... AND WHICH PIECE OF EQUIPMENT IT SERVES. PROVIDE A SET IN DUPLICATE OF KEYS FOR THERMOSTATS, KEY OPERATED SWITCHES ETC... EACH KEY SHALL BE MARKED CONCERNING ITS USE.

SUBMITTALS

TESTING AND BALANCING

BALANCE AND TEST AIR AND WATER SYSTEMS AT EACH OUTLET AND AT FAN AND PUMP SYSTEMS. SUPERVISE OPERATING TESTS IN PREPARATION OF THE FINAL EIGHT (8) HOUR OPERATING TEST TO ENSURE THAT ALL SYSTEMS CONFORM TO THE PLAN AND SPECIFICATIONS. PROVIDE THREE TYPED REPORTS OF SYSTEM BALANCE AND OPERATING CONDITIONS, WITH AIR FLOWS AT EACH POINT SHOWN ON THE DRAWINGS.

WATER PRESSURE TEST SHALL BE CONDUCTED ON POTABLE WATER SYSTEM AS PER NATIONAL PLUMBING CODE OF CANADA LATEST EDITION.

ALL DUCTWORK TO BE LEAKAGE TESTED.

INSTRUCT THE OWNER'S REPRESENTATIVE IN THE STARTUP AND OPERATION OF THE SYSTEMS INCLUDING ALL THE AIR SYSTEMS AND HEATING SYSTEMS FOR A MINIMUM OF ONE EIGHT (8) HOUR DAY.

THE TESTING COMPANY SHALL PREPARE FIVE (5) COMPLETELY BOUND BROCHURES CONTAINING AN OUTLINE OF THE SYSTEMS OPERATIONS AND A RECOMMENDED MAINTENANCE PROCEDURE SCHEDULE WITH THE WRITTEN INSTRUCTIONS AND CONTROL DIAGRAMS OF ALL MECHANICAL SYSTEMS IN THESE BROCHURES. INCLUDE IN THIS THE MANUFACTURER'S OPERATING AND MAINTENANCE INSTRUCTIONS. THE TESTING AND BALANCING FIRM SHALL BE CERTIFIED.

ADDITIONAL TESTING AND WITNESSING

- CONTRACTOR TO PROVIDE TRADE CERTIFICATE IN APPLICABLE DISCIPLINE BEFORE START OF WORK.
- CONTRACTOR REGISTRATION CORE, WHSCC, ETC. PROVIDE PROOF OF CLEAR STANDING.

SMALL CRAFT HARBOURS



NOTES

1. ALL ELEVATIONS ARE IN METRES UNLESS OTHERWISE NOTED.
2. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED.
3. DO NOT SCALE FROM DRAWINGS.
4. CONTRACTOR MUST VERIFY ALL DIMENSIONS AND CONDITIONS ON SITE PRIOR TO PROCEEDING WITH ANY PORTION OF THIS WORK.

stamp



permit



O	ISSUED FOR TENDER	DEC 13 2021
D	ISSUED FOR PRE-TENDER REVIEW	NOV 24 2021
C	ISSUED FOR REVIEW	AUG 24 2020
B	ISSUED FOR REVIEW	JUNE 11 2020
A	ISSUED FOR REVIEW	MAY 21 2020

revisions	date
project	project

WHARF RECONSTRUCTION
HARBOUR GRACE, NL

drawing no. dessin

MECHANICAL SPECIFICATION

designed N.C.	concu
date NOVEMBER 2021	
drawn M.K.	dessine
date NOVEMBER 2021	
approved	approve

Tender	Submission
DFO Project Manager	
project number	no. du projet
C2-00201	
drawing no.	no. du dessin
MS-1	