.7 ALUMINIUM AIRFOIL TYPE DAMPERS

.1 THE BLADES AND THE FRAME OF AIRFOIL TYPE MUST BE BUILT OF EXTRUDED ALUMINIUM, 12 GAUGE MINIMUM (2.057 MM). THE BLADES MUST BE MONO-BLOC OF 152 MM LARGE.

.2 THE FRAME IN EXTRUDED ALUMINIUM ARE TO HAVE WITH GROOVES FOR VINYL JOINTS. THE STANDARDS FRAMES MEASURE 50 MM X 100 MM X 15.9MM.

.3 THE HEXAGON SHAPED ALUMINIUM SWIVEL BARS MUST MEASURE 22 MM AND CLIP WITH THE BLADE GROUP.

.4 THE BEARINGS MUST BE WITH DOUBLE SEALS ON AN INNER CELCON ROD INSIDE ANOTHER EXTERNAL POLYCARBONATE BEARING MOUNTED IN THE FRAME, TO PREVENT THE BEARING TO SWIVEL.

.5 BEARINGS MUST BE DESIGNED TO AVOID ALL METAL-ON-METAL OR METAL-ON-BEARING FRICTION. THE INTERCONNECTIONS MUST HAVE THEIR OWN SEPARATE BEARING, CELCON TYPE TO ELIMINATE ALL FRICTION AT THE JOINT LEVEL.

.6 HARDWARE PARTS USED TO JOIN THE BLADES MUST BE INSTALLED ON THE FRAME, OUT OF THE AIR FLOW. ALL THE PARTS MUST BE IN ANTICORROSIVE CADMIUM PLATED STEEL.

.7 TO AVOID AIR LEAKS, THE DAMPER SEALS MUST OVERLAP EACH OTHER.

.8 SOME DAMPER INSTALLATION NEEDS AN INTERMEDIARY SHAFT. THOSE ASSEMBLY PARTS MUST BE INCLUDED.

.9 MAKE-UP AND EXHAUST FRAMES AND BLADES TO BE INSULATED.

.10 PROVIDE FACTORY INSTALLED ACTUATORS, CONNECTED TO THE DDC CONTROLLER.

.11 ACCEPTABLE PRODUCT: T.A. MORRISON 9000 SERIE, OR APPROVED EQUIVALENT.

.8 ECONOMIZER

.1 EACH UNIT MUST BE PROVIDED WITH AN ECONOMIZER, MAKING THE MAKE-UP AIR QUANTITY VARY ACCORDING TO THE EXTERNAL TEMPERATURE AND THEN ALLOW A FREE COOLING. PROBES MUST BE FACTORY MOUNTED AND THE DDC CONTROL MUST INCLUDE THE OPERATION SEQUENCE.

.2 HOODS ON THE MAKE-UP AND ON THE EXHAUSTED AIR AND BIRDS SCREENS MUST BE PROVIDED. THE DAMPENERS MUST BE PROVIDED AND RESPECT THE DAMPER SECTION 3.

.9 FILTERS

.1 1ST STAGE FILTER MUST BE 50 MM THICK, TO BEDISPOSABLE MERV 8 FILTERS, LIKE FARR 30/3.

.10 HEATING COIL

.1 AN HEATING COIL OF 70 KW CAPACITY OPENED UL HOMOLOGATED MUST BE PROVIDED WITH SCR CONTROL. THE FUSES AND THE HIGH TEMPERATURE CUT-OFFMUST BE INCLUDED AND THE COIL ELECTRICAL POWER SUPPLY MUST BE CONNECTED ON SITE.

.11 DDC SYSTEM

.1 THE MANUFACTURER MUST PROVIDE A PROGRAMMABLE STAND-ALONE DIGITAL CONTROL SYSTEM TO CONTROL THE MAKE-UP AIR TEMPERATURE. THE MANUFACTURER MUST PROVIDE AN OPERATION STANDARD SEQUENCE FOR THIS UNIT TYPE. THE CONTROL WILL BE PROGRAMMED TO CONTROL THE RETURN TEMPERATURE, THE MAKE-UP TEMPERATURE AND THE EXHAUST TEMPERATURE.

.12 ELECTRICITY

.1 THE UNIT MUST BE COMPLETELY NEC, CSA AND ETL BUILT AND CERTIFIED.

.2 ALL THE MAJOR COMPONENTS MUST HAVE THE UL SEAL. ALL THE WIRING TO BE IN TYPE LIQUID TIGHT CONDUITS.

.3 THE UNITS MUST BE TOTALLY FACTORY TESTED TO VERIFY THE CONTROLS AND THE CIRCUITS.

.4 THE UNIT MUST BE PROVIDED WITH 120 V INNER LIGHT FIXTURES.

.5 EACH ELECTRICAL EQUIPMENT WILL BE CONNECTED SEPARATELY. SUPPLY FAN, RETURN FAN, COIL AND LIGHTS.

.13CHARACTERISTICS

.1 MODEL: OAH008GVAM
.2 MARK: DAIKIN
.3 RETURN PRESSURE LOSS: 1.0" SO EXT,
.4 SUPPLY FLOW : 5000CFM / 3 HP
RETURN FLOW: 5000 CFM/ 1.5 HP
.5 SUPPLY PRESSURE LOSS: 1.6 SP EXT.
.6 FILTERS : MERV8
.7 ELECTRICAL CONNECTION: 575/3/60

.2 MOTORIZED DAMPENERS

.1 PROVIDE MOTORIZED DAMPENERS WITH HIGH SEALING. THEY MUST BE OF MARK "TAMCO", 1000 SERIE (RECIRCULATION) OR 9000 SERIE (INTAKE AND EXHAUST). DIMENSIONS ON THE PLAN ARE THE FREE DIMENSIONS OF THE DAMPENER (MONTAGE: FLANGES). WHEN THE DUCTS ARE IN STEEL, THE DAMPENERS MUST BE FROM THE SAME MATERIAL.

.3 FAN

.1 SEE PLAN FOR DESCRIPTION

.2 CONTROLS

.1 WORK DESCRIPTION

.1 PROVIDE, INSTALL, CONNECT, ADJUST, CALIBER AND START A COMPLETE AUTOMATIC NUMERIC CONTROL SYSTEM AS SPECIFIED HEREAFTER OR ON THE PLANS INCLUDING ALL CONTROLS DESCRIBED IN THE SEQUENCES. ALL MUST BE CONNECTED TO THE EXISTING DDC OF DANONE JOHNSON CONTROL DE SERVISYS.

.2 PROVIDE THE SHOP DRAWINGS INCLUDING A SCHEME OF THE EXISTING AND PROPOSED NETWORK ARCHITECTURE, SYSTEMS SCHEMES, MATERIAL LIST, OPERATION SEQUENCE, TECHNICAL DATA AND A GRAPHIC SCHEME LIST FOR APPROVAL.

.3 DRAW GRAPHS AND REQUIRED SEQUENCES IN THE EXISTING CONTROL SYSTEM.

.4 DO A PROBE TEST FOR ALL THE CONTROL APPARELS FOR AN OPERATION TO THE OWNER'S SATISFACTION.

.5 PROVIDE A TECHNICAL SUPPORT OF 2 YEARS REQUIRED FOR A GOOD OPERATION DURING THE WARRANTY PERIOD (2 YEARS).

.6 COORDINATE THE EQUIPMENT START UP WITH THE EQUIPMENT MANUFACTURER AND THE SUB-CONTRACTOR IN SYSTEM BALANCING.

.7 PARA-SEISMIC PROTECTION: SEE THE GENERAL CLAUSES

.2 GENERAL

.1 THE NUMERICAL CONTROLS MUST COME FROM ONE UNIQUE MANUFACTURER: JOHNSON CONTROL (SERVISYS).

.2 ALL CONTROLS MUST BE CONNECTED IN BACNET NETWORK AND COMMUNICATE EQUALS. THE GENERAL APPLICATION CONTROLLERS MUST COMMUNICATE WITH ETHERNET LINK AND SPECIFIC APPLICATION OR TERMINAL APPLICATION CONTROLS MUS COMMUNICATE PE LINK MS/TP.

.3 EQUIPMENT DESCRIPTION

1 MANUFACTURER

.1 THE ONLY MANUFACTURER ACCEPTED FOR THIS PROJECT IS JOHNSON CONTROL DE SERVISYS IN ORDER TO INSURE COMPATIBILITY WITH THE EXISTING SYSTEM.

.2 BL: ELECTRICAL BULB THERMOSTAT -30 TO 30°C WITH AUTOMATIC RESET.

.3 TTA, TTR: SHEATH TEMPERATURE PROBE -50 TO 150°C

.4 TTM: AVERAGE TEMPERATURE PROBE 24 FT. -50 TO 150°C

.5 THR, THA: SHEATH HUMIDITY TRANSMITTER 0-100% H, +/- 2% H, 4-20 MA.

.6 HP : ROOM HUMIDITY TRANSMITTER 0-100% H, +/- 2% H, 4-20 MA

.7 LC : CURRENT TRANSMITTER 0-60A, 0-5V C.C., N°H722; 0-200A, CONTACT N.O. DE 1A À 30 V C.A/V C.C.

.8 M-X BÉLIMO ELECTRICAL SERVO-MOTOR, SEE THE TABLE OF THE SERVO MOTORS

.9 VD : COMPLETE VARIABLE FREQUENCY VARIATOR WITH BY-PASS, FUSES, BREAKER , FACTORY BUILD IN A SAME NEMA 1 BOX, LIKE ABB.

.4 EXECUTION

.1 INSTALLATION

.1 ALL THE INSTALLATIONS DESCRIBED ON THE PLANS AND ON THIS QUOTATION, TEMPORARY OR PERMANENT, MUST BE CONFORM TO CANADIAN ELECTRICITY CODE, THE ELECTRICIAN EXAMINATIONS BUREAU AND TO THE SECTION 16 OF THE QUOTATION. ON THE FIELD WORK, THE CCQ NORMS MUST BE RESPECTED.

.2 THE WORK WILL BE EXECUTED BY ELECTRICIANS HAVING A PERMIT ISSUED BY THE PROVINCE OF QUEBEC, ADEQUATELY TRAINED AND EXPERIENCED FOR THIS TYPE OF WORK AND REGULARLY EMPLOYED BY THE CONTROL ENTREPRENEUR.

.3 THE PRESENT SUB-CONTRACTOR WILL BE RESPONSIBLE FOR COMPLETE INSTALLATION OF ALL SYSTEMS COMPONENT PROVIDED BY HIM AND NECESSARY TO THE GOOD SYSTEM OPERATION.

.4 CABLES MUST FOLLOW BUILDING LINES.

.5 ALL COMPONENTS TO BE CSA APPROVED AND UL LISTED WHEN APPLICABLE.

.6 ALL CONTROL EQUIPMENT PIECES MUST BE IDENTIFIED BY IDENTIFICATION PLATE OF LAMICOID TYPE WEARING THE IDENTIFICATION THAT APPEARS ON THE CONTROL DIAGRAM.

.2 CABLES AND ELECTRICAL CONDUITS

.1 THE SUB-CONTRACTOR WILL BE RESPONSIBLE FOR ELECTRICAL CONNECTION STARTING FROM ELECTRICAL DISTRIBUTION PANELS INCLUDING DUCTS, BREAKER BOXES AND CONTROLS OR CONTROL PANELS 120V PRIMARY SUPPLY WIRING .

.2 ALL CONDUCTORS MUST BE CONTINUOUS FORM THE SOURCE TO THE CONNECTED POINT.

.3 ALL CONDUCTORS MUST BE CLEARLY IDENTIFIED WITH THE SAME CODE ON BOTH EXTREMITIES.

.4 THE CONDUCTORS EXPOSED MUST BE PROTECTED BY METALLIC DUCTS WITH THIN WALL EMT AND THE HIDDEN AND ACCESSIBLE CONDUCTORS WILL BE IN CABLE FT4.

.3 COMMISSIONNING

.1 PROVIDE A PROBE TEST AND START-UP REPORT TO BE GIVEN WITH THE AS BUILT REPORT INDICATING THE FREEZING CONDITIONS, THE FIRE CONDITION OR OTHER PROTECTIONS, ALL THE ALARMS, ALL THE INTERLOCKING ARE CONFORM AND INDICATE A GOOD FUNCTION OF THE OPERATIONS SEQUENCES.

.4 FORMATION

.1 PROVIDE THE SERVICES OF AN INSTRUCTOR QUALIFIED TO FORM THE OWNER REPRESENTATIVE ON THE OPERATION, THE MAINTENANCE AND THE CALIBRATION OF THE CONTROL EQUIPMENT.

.2 MINIMAL DURATION OF THE FORMATION WILL BE 2 HOURS PER SYSTEM.

.3 FORMATION REGISTER MUST BE SIGNED BY THE OWNER AND TRANSMITTED TO THE GENERAL ENTREPRENEUR.

.5 CONTROL SEQUENCE

.1 SYSTEMS UC-1 (H TYPE)

.1 STATIONARY

.1 THE FANS DO NOT OPERATE.
.2 THE DAMPENERS ARE IN NORMAL POSITION.
.3 THE ELECTRICAL COIL DOES NOT OPERATE.

.2 IN OPERATION

.1 THE SYSTEM STARTS ACCORDING TO THE OCCUPANCY HOUR PROGRAMMED IN THE CENTRAL CONTROL SYSTEM. AT SYSTEM START, THE RETURN FAN STATS AND 60 SECONDS LATER, THE SUPPLY FAN STARTS. THE MIXING DAMPENERS OPEN TO THE MINIMUM (MINIMUM FRESH AIR).

.3 SUMMER MODE

.1 THE OPERATION IN SUMMER MODE IS DETERMINED WHEN THE EXTERNAL TEMPERATURE IS HIGHER THAN 15°C. THE TTA SHEATH PROBE MODULATES IN SEQUENCE THE MIXING DAMPENERS, THE EXPANSION VALVES AND THE INTERNAL CONTROLS OF THE CONDENSER IN ORDER TO MAINTAIN THE SET POINT (22°C), WHEN THE ROOM PROBE IS IN REQUEST FOR COOLING.

.4 WINTER MODE

.1 THE OPERATION IN WINTER MODE IS DETERMINED WHEN THE EXTERNAL TEMPERATURE IS LOWER THAN 9°C. THE SHEATH PROBE TTA MODULATES THE MIXING DAMPENERS IN ORDER TO MAINTAIN THE TEMPERATURE ABOVE THE SET POINT (17°C) WHEN THE ROOM PROBE IS IN REQUEST FOR COOLING (SEE SUMMER MODE).

.5 SAFETY

.1 THE LOWER LIMIT (BL) STOPS THE SYSTEM ON 4°C DETECTION.

.6 ALARMS

.1 THE FOLLOWING ALARMS MUST BE PROGRAMMED TO THE CENTRAL CONTROL SYSTEM :
.1 LOW SUPPLY TEMPERATURE
.2 SUPPLY AND RETURN FAN FALSE START
.3 LOW FREEZING LIMIT
.4 GAS DETECTION

EN CAS DE DISCORDANCE ENTRE LA VERSION FRANÇAIS ET ANGLAISE DES PLANS, LA VERSION FRANÇAISE PRÉVAUT. / IN CASE OF DISCREPANCIES BETWEEN THE ENGLISH AND THE FRENCH VERSION OF THE PLANS, THE FRENCH VERSION SHALL PREVAIL.

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A B C
A no. du détail *detail no.*
B no.de la feuille-où détail exigé *sheet no. - where detail required*
C no. de la feuille-où détaillé *sheet no. - where detailed*

Projet / *Project*

AÉROGARE DE SEPT-ÎLES
SEPT-ÎLES AIRPORT
QUÉBEC

MISE AUX NORMES DE L'AÉROGARE DE SEPT-ÎLES
UPGRADING TO STANDARDS OF SEPT-ÎLES AIRPORT

Dessin / *Drawing*

MÉCANIQUE / VENTILATION
MECHANICAL/VENTILATION

NOTES-TRANSLATION (SUITE)

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