Part 1 ADDENDUM NO.1

1.1 General

.1 This Addendum is issued prior to tender closing and shall become an integral part of the Tender, Specifications, Drawings and Contract Documents for this project.

.2 In the event of conflicts between the various Contract Documents, the order of precedence shall be as stipulated in the General Conditions of the Contract, except that this Addendum shall take overall precedence.

Part 2 Questions

Q: Please refer to drwg. S2.3 "wall schedule" calling up type W2 "... reinf 15m @ 813 o.c. vert. fill core full height with 20 mpa concrete where reinforcing steel is present" Sections 2/S5.1,3/S5.1,2/S5.2,3/S5.2,4/S5.2 call up "fill all core w/20mpa concrete". Please clarify concrete fill at block walls all cores solid fill or to be filled at steel reinforcing (813 o/c) only.

A: Fill all reinforced cores with 20mpa concrete. Not all cores need to be filled. Only the ones shown for reinforced areas and around the cell doors

Q: On 2/S6.1 Garage Framing Plan the exterior walls are drawn as 'W3' Steel Stud Walls. The sections 3/S6.1 & 4/S6.1 both show a wood framed wall. On 5/AG2.0 Garage Main Floor Plan the exterior walls are drawn as 'WG1' Wood Framed as well. Which would you like to proceed with?

A: The walls are to be wood framed as per AG2.0

Q: Could you please confirm that HG on the room schedule refers to the high build glazed coating of the spec section 09-96-59 wall coatings.

A: Yes this is correct.

Q: Section 083100.02 Fire Rated Floor Door Drawings appear to show a 1250mm x 1250mm opening.

A: Yes this door is not 1250mm x 1250mm as per sheet A2.4 Detail 2 the opening will be 1067mm x 1067mm

Part 3 Drawings

3.1 Drawing C1.0

.1 Add to Detail B: " Note: Gravel Roadway Compaction to be as per Geotechnical Report : Compaction of Base Course: to 98% SPD, Compaction of Sub base course to 95% SPD in max 150 lifts, and compaction of sub grade to be proof rolled to 95% SPD."

3.2 Drawing A0.1

.1 Adjusted locations of light standards to match electrical Drawing E1.1

.2 See attached Drawing A0.1 Rev 01

3.3 Drawing A2.2

.1 Adjusted Ceiling type in Rooms 104, 105 from R1 to R5

.2 Added Ceiling type in Room 103 to R3

.3 See attached Drawing A2.2 Rev 01

3.4 Drawing A2.3

.1 Added Pier at Gridline E to match Structural

.2 Adjusted weeping tile leaders and added new weeping tile line near grid line F

.3 Adjusted condensing unit pad thickness to match structural at 150mm thick

.4 Added Note No.2.

.5 See attached drawing A2.3 Rev 01

3.5 Drawing A2.4

.1 Added notes for fire rated roof truss

.2 See attached drawing A2.4 Rev 01

3.6 Drawing A2.5

.1 Revise note Number 24 at wall mounted TV to Number 27

3.7 Drawing A3.0

.1 The Fir trusses and posts are to be left exposed and are to be stained and sealed

.2 Add a new Down Spout to the center of the front and rear elevation see attached drawing

.3 Concrete splash pads: Standard of Acceptance Barkman: 30"x12"x2 ½" Splash pad Model No. 45-40030 complete with galvanized steel shelf angle secured to the foundation.

.4 See attached drawing A3.0 Rev 01

3.8 Drawing A4.0

.1 Added note to fire stopping in attic.

.2 Adjusted ceiling types in Section B-B

.3 See attached drawing A4.0 Rev 01

3.9 Drawing A4.2

.1 Detail 1: Modified wall AVB note

.2 Detail 3:Added notes to steel framing for dropped drywall ceiling

.3 Detail 5:Ice and water shield to cover entire roof

.4 Detail 5:12 OSB to be changed to 12 Plywood

.5 Detail 7: concrete board to be changed to 12 P.T. Plywood

.6 See attached drawing A4.2 Rev 01

3.10 Drawing A4.3

.1 Section 2: Modify Stainless steel post connection to galvanized post connection

.2 Section 2: Added 38 x 89 Ceiling Framing to overhang

.3 Section 4: Modified Detail

.4 See attached drawing A4.3 Rev 01

3.11 Drawing A4.4

.1 Section 2: Modified slab thickness to 150

.2 Section 2: Modified grade beam thickness to 200 x 610

.3 Section 4: Added 19mm PT plywood capping under post caps.

.4 See attached drawing A4.4 Rev 01

3.12 Drawing A6.0

.1 Bulkhead shown on gridline E between the hallway 115 and office area 106 to be rated with 2 layers of 16mm F.G. Drywall

.2 See attached Drawing A6.0 Rev 01

3.13 Drawing A8.0

.1 Modified Roof Schedule

.2 Revised finish schedule

.3 Revised wall types - W2, W11

.4 See attached drawing A8.0 Rev 01

3.14 Drawing AG2.0

.1 WG2: Change 19mm F.G. Drywall to 16mm F.G. Drywall.

.2 RG1- Note: Ice and water shield on entire roof of Garage

3.15 Drawing AG 2.1

.1 Section 4: Remove Reference to 13 OSB Sheathing use 12 Plywood in place.

Part 4 Structural Drawings

4.1 See Attached Addendum

Part 5 Mechanical Drawings

5.1 Drawing M1.2

.1 Add 4" Type 4 Rigid insulation over septic tank as frost shield. Frost shield to extend across top of tank and 2000 to each side of tank.

Part 6 Electrical Drawings

.1 No Addendums at this time.

Part 7 Specifications

7.1 Section 01 35 29.06 Health and Safety Requirements

.1 Add to section 1.7. General Requirements **".3 Contractor to be CORE Certified and to maintain certification throughout the life of the project"**

.2 Remove Blank section 1.8.2

7.1 Section 07 26 00 Vapour Retarders

.1 Add Section 2.1.2 – Polyethylene-film to CAN/CGSB-51.34, 6mm Thick

7.2 Section 07 61 00 Sheet Metal Roofing

.1 Delete Section 2.2.1

.2 Insert Section 2.2.1: "Zinc coated sheet metal to ASTM-A 653, commercial quality, hot dipped galvanized, coating designation Z275, prefinished as specified. Minimum base metal thickness to be 24 GA."

7.3 Section 07 62 00 Sheet Metal Flashing and Trim

.1 Delete Section 2.2.1

.2 Insert Section 2.2.1" Zinc coated (galvanized) steel sheet similar to metal cladding / roofing: commercial quality to ASTM A 653/A 653M, with Z275 (G90) designation zinc coating and SMP finish. Sheet steel to be min 24 GA.

.3 Add Section 2.4.2 "Form eaves troughs and downpipes from 24 GA steel to be chosen from manufacturers standard color set"

.4 Delete Section 2.5.1

.5 Insert Section 2.5.1 "Form eaves troughs and downpipes from 24 GA steel to be chosen from manufacturers standard color set."

7.4 Section 08 34 63 Detention Doors and Frames Section 2.1.2 Acceptable Manufacturers

.1 Add to acceptable manufacturers **".5 Steelgate Security Products"**

7.5 Section 08 71 00 Door Hardware

.1 Remove Door D16 from hardware set No. 7

.2 Add New Hardware Set#33: for D16

Hardware Set#: 33
Single: D16

Qty	UOM	Item Type	Item Series/Description	Finish
3.0	EA	Hinge	3CB1HW 4.5 X 4 NRP	652
1.0	EA	Mortise Lockset	L9010 07N	626
1.0	EA	Door Closer	4011	689
1.0	EA	Kick Plate	8400 10 X 1 1/2" Less Door Width	630
1.0	EA	Wall Bumper	WS401CVX	626

7.6 Section 23 54 10 – Fan Coils and Condensing Units

.1 Remove Section

.2 Inset New section as attached

7.7 Section 23 72 15 – Heat Recovery Ventilator

.1 Insert New section as attached.

7.8 Section 31 12 13 Rough Grading

.1 Delete Section 3.1.4

.2 Insert Section 3.1.4 "300 mm for concrete paving, walks and precast paving units."

Part 8	**Clarifications**
8.1	**Ice and water shield to cover entire roof of both facility building and garage.**
8.2	**Note NO OSB sheathing is to be used on this project only plywood.**
8.3	**Section 07 13 52 Modified Bituminous Sheet Waterproofing – This section applies to the concrete foundation walls**
Part 9	**Equals Requests**
9.1	**ERV Parent Group Section 09 64 50 Athletic Flooring – Approved as per attached Approval.**
9.2	**Rieger Architectural Products Section 09 80 00 Acoustic Treatment – Accepted for Type 1**

END OF SECTION

Beach Rocke
ENGINEERING LTD.

1050 St. Mary's Road
Winnipeg, Manitoba, Canada R2M 3S9
Telephone: (204) 255-7251
Fax: (204) 257-7239
Email : beach.rocke@mts.net

Project:	Island Lake Facility Building
Details Issued:	N/A
Project No:	13-1399-CG-246
Date:	July 9th 2014

Addenda

Addendums are part of the General Conditions of the Contract. It is to contractor's responsibility to distribute addendums to all appropriate subcontractors. The contractor is not permitted to submit an application for extras based on the following items.

Item/Instigation/Description

Item # 1 **Dowels from footing to bedrock (dowel type 'D4')**

Instigation: Design Continuation

Reference: Structural drawings

All dowels embedded into bedrock from concrete footings below shall be 600mm long with a minimum embedment of 300mm.

Item # 2 **Radio Tower**

Instigation: Design Continuation

Reference: Architectural Drawings

See architectural drawings for the location of the new radio tower foundation. Radio tower and the radio tower foundation shall be designed by others.

Item # 3 **Galvanized Steel**

Instigation: Design Continuation

Reference: Structural Drawings

All exterior steel shall be galvanized including structural slab support angles, Simpson strong tie brackets/clips, grating, grating support angles, etc. Steel grating and grating support angles shall be galvanized throughout the main floor for any pits or trenches.

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Item # 4 **Rigid Insulation**

Instigation: Design Continuation

Reference: Structural Drawings

50mm rigid insulation at exterior thickened edge slab locations shall be placed underside the slab and extend out 1800mm horizontally beyond the edge of the slab itself.

Item # 5 **Beam Hanger**

Instigation: Design Continuation

Reference: Structural Drawings – S2.3

Beams and lintels framing into the concrete block fire wall shall be supported with a Simpson Strong-Tie LGUM 210-3-SDS Beam Hanger, complete with eight (8) 3/8"Ø x 4" long titan hex head fasteners.

Item # 6 **Sheathing description**

Instigation: Design Continuation

Reference: Structural Drawings

In the wall type schedule; Type 'W1' sheathing shall be called up as 12.7mm plywood.

Item # 7 **Wall Type 'W2'**

Instigation: Design Continuation

Reference: Structural Drawings – S2.3, S2.4

All concrete block walls shown on 1/S2.4 shall be wall type 'W2' and concrete block walls shown in details 2/S2.3 and 3/S2.3 shall be wall type 'W2'.

Item # 8 **Metal Roof Decking Gauge**

Instigation: Design Continuation

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Reference: Structural Drawings – S5.1, S5.2, S5.3, S6.1

The metal roof decking for both the Facility building and the Garage shall be of minimum 24 gauge.

Item # 9 **Nailer plate**

Instigation: Design Continuation

Reference: Structural Drawings – S5.1, S5.2, S5.3, S6.1

All nailer plates below bearing trusses shall be 2 ply plates.

Item # 10 **Garage Slab Drop Panel**

Instigation: Design Continuation

Reference: Structural Drawing S6.1

The garage concrete slab drop panel reinforcing spacing shall be at 152mm on centre.

Item # 11 **Garage Wall Type**

Instigation: Design Continuation

Reference: Structural Drawings – S6.1

The garage walls shown shall be wall type 'W1'.

Item # 12 **Steel Beam**

Instigation: Design Continuation

Reference: Structural Drawings – S2.4

Provide W200x36 steel beam along grid line D between base plates BP1 shown on either side of the block wall opening.

Item # 13 **Block Lintel Schedule**

Beach Rocke
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1050 St. Mary's Road
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Instigation: Design Continuation

Reference: Structural Drawings

Revise BL1 to be reinforced with 1-20m bottom. Extend bottom steel past opening 610mm on each side. Reinforce block wall with 3-15m full height vertical on each side of wall opening. Fill three cores on each side of opening, with each core having 1-15m full height vertical.

Revise BL2 to have top and bottom steel extend past opening 610mm on each side. Reinforce block wall with 3-15m full height vertical on each side of wall opening. Fill three cores on each side of opening, with each core having 1-15m full height vertical.

can tec
1948 Main Street, Winnipeg, MB R2V 2B4
PHONE: (204) 943-7222 FAX: (204) 947-5717

PROJECT NAME: Facility Building – Island Lake

SUBMITTED BY: ERV Parent Group

DATE: July 2 2014 PHONE: 204.475-3555

REVIEWED BY: Reid Sitar

The following products have been reviewed in accordance with the General Requirements of the contract documents. It shall be conclusively assumed that the individual or firm, requesting the acceptance of the substitute product, certifies that the substitute will adequately perform the functions called for by the general design drawings and associated specifications, be similar and of equivalent substance to that specified, is suited to the same use and capable of performing the same function as that specified and can be incorporated into the Work, strictly in accordance with the Schedule of Work and Completion Date(s). Furthermore, in the event that the substitute product is accepted, any and all changes required in the applicable Work, and all changes to any other Work, which would become necessary to accommodate the requested substitute, as well as any cost or time impacts that may be associated with the use of the substitute, shall be the responsibility of the individual or firm requesting approval of the substitute product.

Spec. Section	I.D. No.	Proposed Alternate	Accepted	Rejected	Reason
09 64 50 Athletic Flooring		Zip Tiles interlocking tile floor by RB Rubber Products Tile size 28.5 x 28.5 x 5/16" thick	X		

can•tec 1948 Main Street, Winnipeg, MB R2V 2B4
PHONE:(204)943-7222 FAX:(204)947-5717

PROJECT NAME: Facility Building – Island Lake

SUBMITTED BY: Rieger Architectural Products

DATE: July 2 2014 PHONE: 204.475-3555

REVIEWED BY: Reid Sitar

The following products have been reviewed in accordance with the General Requirements of the contract documents. It shall be conclusively assumed that the individual or firm, requesting the acceptance of the substitute product, certifies that the substitute will adequately perform the functions called for by the general design drawings and associated specifications, be similar and of equivalent substance to that specified, is suited to the same use and capable of performing the same function as that specified and can be incorporated into the Work, strictly in accordance with the Schedule of Work and Completion Date(s). Furthermore, in the event that the substitute product is accepted, any and all changes required in the applicable Work, and all changes to any other Work, which would become necessary to accommodate the requested substitute, as well as any cost or time impacts that may be associated with the use of the substitute, shall be the responsibility of the individual or firm requesting approval of the substitute product.

Spec. Section	I.D. No.	Proposed Alternate	Accepted	Rejected	Reason
09 80 00 Acoustical treatment		Demountable Acoustic Units	X For type 1 Only		

Part 1 General

1.1 SECTION INCLUDES

.1 Fan Coils.

.2 Refrigerant cooling coils.

.3 Air cooled condensing units.

.4 Controls.

1.2 RELATED SECTIONS

.1 Section 01 33 00 - Administrative Requirements.

.2 Section 01 61 00 - Common Product Requirements.

.3 Section 01 78 10 - Execution Requirements.

.4 Section 23 07 13 - Duct Insulation: Duct Liner.

.5 Section 26 05 80 - Equipment Wiring: Electrical characteristics and wiring connections [and installation and wiring of thermostats and other controls components].

1.3 REFERENCES

.1 ARI 210/240 - Unitary Air-Conditioning and Air-Source Heat Pump Equipment.

.2 ARI 270 - Sound Rating of Outdoor Unitary Equipment.

.3 ARI 520 - Positive Displacement Condensing Units.

.4 ASHRAE 14 - Methods of Testing for Rating Positive Displacement Condensing Units.

.5 ASHRAE 15 - Safety Standard for Refrigeration Systems.

.6 ASHRAE 90A - Energy Conservation in New Building Design.

.7 ASHRAE 103 - Method of Testing for Annual Fuel Utilization Efficiency of Residential Central Furnaces and Boilers.

.8 NFPA 90A - Installation of Air Conditioning and Ventilating Systems.

.9 NFPA 90B - Installation of Warm Air Heating and Air-Conditioning Systems.

.10 UL 207 - Refrigerant-Containing Components and Accessories, Non-electrical.

.11 UL 303 - Refrigeration and Air-Conditioning Condensing and Compressor Units.

1.4 SUBMITTALS FOR REVIEW

.1 Section 01 33 00: Procedures for submittals.

.2 Product Data: Provide rated capacities, weights, accessories, electrical nameplate data, and wiring diagrams.

.3 Shop Drawings: Indicate assembly, required clearances, and location and size of field connections.

1.5 SUBMITTALS FOR INFORMATION

.1 Section 01 33 00: Procedures for submittals.

.2 Design Data: Indicate refrigerant pipe sizing.

.3 Manufacturer's Instructions: Indicate rigging, assembly, and installation instructions.

1.6 SUBMITTALS AT PROJECT CLOSEOUT

.1 Section 01 78 10: Submittals for project closeout.

.2 Project Record Documents: Record actual locations of components and connections.

.3 Operation and Maintenance Data: Include manufacturer's descriptive literature, operating instructions, installation instructions, maintenance and repair data, and parts listing.

.4 Warranty: Submit manufacturers warranty and ensure forms have been filled out in Owners name and registered with manufacturer.

1.7 QUALITY ASSURANCE

.1 Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.

.2 Installer Qualifications: Company specializing in performing the work of this section approved by manufacturer.

1.8 REGULATORY REQUIREMENTS

.1 Products Requiring Electrical Connection: Listed and classified by CSA as suitable for the purpose specified and indicated.

1.9 WARRANTY

.1 Section 01 78 10: Submittals for project closeout.

.2 Provide [five] year manufacturers warranty for [condensing units] [compressors].

1.10 EXTRA MATERIALS

.1 Section 01 78 10: Submittals for project closeout.

.2 Provide [two] of filters for each furnace.

Part 2 Products

2.1 ELECTRIC FAN COILS

.1 Manufacturer: Carrier Model FB4C (See Schedule).

.1 Other acceptable manufacturers offering equivalent products.

.2 Substitutions: [Refer to Section 01 62 00.]

.2 Units: Self-contained, packaged, factory assembled, pre-wired unit consisting of cabinet, supply fan, heating element, controls, air filter, and accessories; wired for single power connection with control transformer.

.1 Air Flow Configuration: [Upflow].

.2 Heating: Electric.

.3 Electric Refrigeration: Refrigerant cooling coil and outdoor package containing compressor, condenser coil and condenser fan.

.3 Cabinet: Steel with baked enamel finish, easily removed and secured access doors, glass fibre insulation and reflective liner.

.4 Supply Fan: Centrifugal type rubber mounted with direct drive motor.

.5 Motor: Refer to Section 23 05 13; 1750 rpm [single speed] [two-speed] [multi-speed].

.6 Electric Heater: Helix wound bare nichrome wire heating elements arranged in incremental states of 5 kW each, with porcelain insulators.

.7 Electric Heater Operating Controls:

.1 Low voltage adjustable room thermostat energized heater stages in sequence with pre-determined delay between heating stages.

.2 High limit temperature control de-energizes heating elements, automatic resets.

.3 Supply fan starts before electric elements are energized and continues operating after thermostat is satisfied until bonnet temperature reaches minimum setting. Include manual switch for continuous fan operation.

.4 Outdoor thermostat locks out some heating elements until outdoor temperature drops.

.8 Air Filters: 25 mm glass fibre, disposable type arranged for easy replacement.

.9 Performance:

.1 Refer to Furnace Schedule.

2.2 CONDENSING UNITS

.1 Manufacturer: Carrier Model 24ABB3.

.1 Other acceptable manufacturers offering equivalent products.

.1 Carrier Model 24ABB3.

.2 Substitutions: [Refer to Section 01 62 00.]

.2 Construction and Ratings: To ARI 210/240 [, and UL 207 and UL 303]. Testing: ASHRAE 14.

.3 Compressor: [ARI 520;] hermetic, [two speed 1800 and] 3600 rpm, resiliently mounted integral with condenser, with positive lubrication, crankcase heater, high pressure control, motor overload protection, service valves and drier. Provide time delay control to prevent short cycling [and rapid speed changes].

.4 Refrigeration Accessories: Filter Drier, high pressure switch (manual reset), low pressure switch (automatic reset), service valves and gauge ports, thermometer well (in liquid line). [Provide thermostatic expansion valves.] [Provide refrigerant lines, factory cleaned, dried, pressurized and sealed, with insulated suction line.] [Provide reversing valves on heat pump units.]

.5 Air Cooled Condenser: [ARI 520;] aluminum fin and copper tube coil, with direct drive axial propeller fan resiliently mounted, galvanized fan guard.

.1 Rated cooling output: 60000 Btuh.

.6 Electrical Characteristics:

.1 208 volts, single phase, 60 Hz.

.2 Disconnect Switch: Factory mount disconnect switch on equipment to Section 26 05 80.

.7 Refrigeration Operating Controls

.1 Room Thermostat: Cycles condensing unit and supply fan to maintain room temperature setting.

2.3 THERMOSTATS

.1 Manufacturer: Carrier Model 32CSCPACHP-FC.

.1 Other acceptable manufacturers offering equivalent products.

.2 Substitutions: [Refer to Section 01 62 00.]

.2 Adjustable Room Thermostat: Low voltage, to control electric heater stages in sequence with delay between stages, compressor and condenser fan and supply fan to maintain temperature setting. Include system selector switch (heat-off-cool) and fan control switch (auto-on).

.3 Electric solid state microcomputer based room thermostat with remote sensor:

.1 Automatic switching from heating to cooling.

.2 Preferential rate control to minimize overshoot and deviation from setpoint.

.3 Set-up for four separate temperatures per day.

.4 Instant override of setpoint for continuous or timed period from one hour to 31 days.

.5 Short cycle protection.

.6 Programming based on weekdays, Saturday and Sunday OR every day of the week.

.7 Selection features including degree F or degree C display, 12 or 24 hour clock, keyboard disable, remote sensor, fan on-auto.

.8 Battery replacement without program loss.

.9 Thermostat display:

.1 Time of day.

.2 Actual room temperature.

.3 Programmed temperature.

.4 Programmed time.

.5 Duration of timed override.

.6 Day of week.

.7 System mode indication: heating, cooling, auto, off, fan auto, fan on.

Part 3 Execution

3.1 EXAMINATION

.1 Section 01 10 13: Verification of existing conditions before starting work.

.2 Verify that floors are ready for installation of units and openings are as indicated on shop drawings. Verify that supports for air cooled condensers are completed.

.3 Verify that proper power supply is available for furnace and condenser package.

3.2 INSTALLATION

.1 Install to [NFPA 90A] [and] [NFPA 90B].

.2 Install refrigeration systems to ASHRAE 15.

.3 Pipe drain from cooling coils to nearest floor drain.

.4 Mount air cooled condenser-compressor package as shown on drawings.

3.3 DEMONSTRATION AND INSTRUCTIONS

.1 Section 01 78 10: Demonstrating installed work.

.2 Supply initial charge of refrigerant and oil for each refrigeration system. Replace losses of oil or refrigerant prior to end of correction period.

.3 Charge system with refrigerant and test entire system for leaks after completion of installation. Repair leaks, put system into operation, and test equipment performance.

.4 Shut-down system if initial start-up and testing takes place in winter and machines are to remain inoperative. Repeat start-up and testing operation at beginning of first cooling season.

.5 Provide cooling season start-up, and winter season shut-down for first year of operation.

.6 Inspect and test for refrigerant leaks during first year of operation.

3.4 SCHEDULES

.1 Fan coils

	Drawing Code	**FC-1**	**FC-2**	**FC-3**
	Location	Offices	Members area	Cells
	Manufacturer	Carrier	Carrier	Carrier
	Furnace Model	FB4CN060L00	FB4CNP060L00	FB4CNP030000
	Heating Type	electric	electric	electric
	Heating Output	27 kW	27 kW	20 kW
		208/3 phase/60Hz	208/3 phase/60Hz	208/3 phase/60Hz
	Airflow Capacity (L/s)	900	900	424
	External Static Pressure	0.5	0.5	0.5
	Cooling Coil Model	5 TON	5 TON	2.5 TON
	Accessories	Filter kit	Filter kit	Filter kit

.2 CONDENSING UNITS

	Drawing Code	**CU-1**	**CU-2**	**CU-3**
	Location	Cells	Members area	Offices
	Manufacturer	Carrier	Carrier	Carrier
	Model Number	24ABB360A003	24ABB348A003	24ABB330A003
	Cooling			
	Capacity	5 tons	4 tons	2.5 tons
	Accessories	TC-PAC01 (Programmable AC control)		
	Electrical characteristics	208V/1 phase/60Hz	208V/1 phase/60Hz	208V/1 phase/60Hz

END OF SECTION

PART 1 GENERAL

1.1 SECTION INCLUDES

.1 Heat Recovery Ventilators.

.2 Duct Heaters.

1.2 RELATED SECTIONS

.1 Section 01 33 00 – Submittal Procedures.

.2 Section 01 74 21 – Construction/Demolition Waste Management and Disposal

.3 Section 01 78 00 – Closeout Submittals.

.4 Section 23 33 00 – Air Duct Accessories.

.5 Section 23 33 15 – Dampers - Operating.

1.3 REFERENCES

.1 American Bearing Manufacturer's Association (ABMA)

.1 ANSI/ABMA 9 Load Ratings and Fatique Life for Ball Bearings.

.2 ANSI/ABMA 11 Load Ratings and Fatique Life for Roller Bearings.

.2 Air Movement and Control Association (AMCA)

.1 AMCA 210, Laboratory Method of Testing Fans for Aerodynamic Performance Rating (ASHRAE).

.2 AMCA 300 Reverberaut Room Method for Sound Testing of Fans.

.3 American National Standards Institute/Air-Conditioning and Refrigeration Institute (ANSI/ARI)

.1 ANSI/ARI 430, Central Station Air Handling Units.

.4 American Society of Heating Refrigeration and Air-Conditioning Engineers (ASHRAE)

.1 ASHRAE 68, Laboratory Method of Testing to Determine the Sound Power in a Duct.

.2 ASHRAE 84, Method of Testing Air-to-Air Exchangers.

.5 Canadian General Standards Board (CGSB)

.1 CAN/CGSB 1.181, Ready-Mixed Organic Zinc-Rich Coating.

.6 Canadian Standards Association (CSA)

.1 CSA B52 Mechanical Refrigeration Code.

.7 National Electrical Manufacturer's Association (NEMA)

.1 NEMA MG1 Motors and Generators

.2 NEMA ICS 7-1 Safety Standards for Construction and Guide for Selection, Installation and Operation of Adjustable Speed Drive Systems.

.8 Provincial Boiler, Pressure Vessel and Compressed Gas Regulations.

.9 Sheet Metal and Air-Conditioning Contractors' National Association (SMACNA).

1.4 SHOP DRAWINGS AND PRODUCT DATA

.1 Submit shop drawings and product data in accordance with Section 01 33 00 - Submittal Procedures.

.2 Indicate following: fan, fan curves showing point of operation, motor drive, bearings, filters, mixing box, dampers, VAV, coil, include performance data.

1.5 CLOSEOUT SUBMITTALS

.1 Provide operation and maintenance data for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.

.2 Include following: fan, bearings, motor, damper, VAV control, air volume, total cooling, sensible cooling, EDB, EWB, OAT.

1.6 EXTRA MATERIALS

.1 Provide maintenance materials in accordance with Section 01 78 00 - Closeout Submittals.

.2 Provide one spare set of filters.

.3 Provide list of individual manufacturer's recommended spare parts for equipment such as bearings and seals, and addresses of suppliers, together with list of specialized tools necessary for adjusting, repairing or replacing, for placement into operating manual.

.4 Spare filters: in addition to filters installed for startup and commissioning. Immediately prior to acceptance by Owner's Representative, supply 1 complete set of filters for each filter unit or filter bank.

PART 2 PRODUCTS

2.1 HEAT RECOVERY VENTILATORS

.1 Manufacturer: Nu-Air Model See Schedule.

.1 Venmar CES, Life Breath

.2 Other acceptable manufacturers offering equivalent products.

.2 Substitutions: [Refer to Section 01 62 00.]

2.2 GENERAL

.1 Heat exchanger, cross-flow type made of aluminum.

.2 Unit to be self contained with all necessary controls and wiring to facilitate a single point connect. Provide disconnect and vibration isolators.

2.3 CABINET, FANS AND FILTERS

.1 Casing: galvanized, pre-painted steel with foil faced insulation. Double wall construction.

.2 Provide full size access doors to allow for periodic maintenance and inspection. Door construction, same as unit with compression type handles and resilient gaskets.

.3 Drain pans to be formed sections, recessed, fabricated from 1.2 mm stainless steel 304. Piped to nearest floor drain.

.4 Fans: centrifugal type with double blowers and motors rated for single phase 208 V. Separate Motor for the supply and exhaust fan.

.5 Filers: medium efficiency in the supply and exhaust air streams.

.6 Defrost: damper defrost.

.7 Minimum 60% effectiveness in heating.

2.4 ELECTRIC DUCT HEATER

.1 Provide electric duct heater with SCR for tempering air. Thermolec. 208Volts /3 phase/60Hz.

.2 With air flow sensor and inline thermostat.

.3 Install as shown on drawings.

PART 3 EXECUTION

3.1 INSTALLATION

.1 Install units in accordance with manufacturer's instructions and as indicated.

.2 Ensure adequate clearance for servicing and maintenance.

.3 Continuous operation, to be interlocked with fan coil operation.

3.2 SCHEDULES

.1 HEAT RECOVERY VENTILATORS

	Drawing Code	**HRV-1**	**HRV-2**
	Location	Offices	Members area
	Manufacturer	Nu-Air	Nu-Air
	Model	Nu 305	Nu 1200
		115/1 phase/60Hz	115/1 phase/60Hz
	Airflow Capacity (L/s)	142	425
	External Static Pressure	0.5	0.5
	Accessories	Filter kit	Filter kit

.2 DUCT HEATERS

	Drawing Code	**DH-1**	**DH-2A**	**DH-2A**	**DH-3**
	Associated equipment	HRV-1	HRV-2	HRV-2	FC-3
	Manufacturer	Thermolec	Thermolec	Thermolec	Thermolec
	Output	7 kW	20 kW	15 kW	10 kW
	Location	See M2.0	See M2.0	See M2.0	See M2.2
	Temperature setting	0 C	0 C	21 C	21 C
	Electrical characteristics	208V/3 phase/60Hz	208V/3 phase/60Hz	208V/3 phase/60Hz	208V/3 phase/60Hz

END OF SECTION