

**Index** (DTW request)

- Change Name of Section 05 41 00 to “Structural Metal Stud Framing”.
- Change Name of Section 31 05 16 to “Aggregate Materials”.
- Section 11 53 16 – Laboratory Fume Hoods to be renamed and renumbered to 23 38 16.13 - Fume Hoods (for Laboratories)

**Section 01 11 00 – Summary of Work** (DTW Request)

- Add the following sentence 1.2.3:
  - .3 Work covered by the contract documents includes Commissioning of the facility as per Section 01 91 13 – Commissioning (Cx) Requirements including engagement of third party structural engineer for verification of equipment structural support.

**Section 01 33 00 – Submittal Procedures** (DTW Request)

Add the following sentence 1.8:

1.8 STRUCTURAL ATTACHMENTS

- .1 Contractor to engage a third party Professional Structural Engineer, licensed to practice in the Province of Newfoundland and Labrador, for submission of stamped and signed shop drawings indicating acceptable mounting procedures for all equipment which is suspended, mounted or otherwise attached, as per Section 01 91 13 – Commissioning (Cx) Requirements. The Structural Engineer to also verify correct installation of the equipment.

**Section 01 35 21 - LEED® Requirements** (DTW Request)

- Delete Section 01 35 21 in its entirety and replace with new Section 01 35 21 attached.

**Section 01 35 22 - LEED® Product Requirements** (DTW Request)

- Delete Section 01 35 22 in its entirety and replace with new Section 01 35 22 attached.

**Section 01 35 29.06 – Health and Safety Requirements** (DTW Request)

- Delete Section 01 35 29.06 in its entirety and replace with new Section 01 35 29.06 attached.

**Section 01 42 00 – References** (DTW Request)

Delete sentence 1.3.2.2 and replace with the following:

.2 Air Conditioning, Heating and Refrigeration (AHRI).

- Delete sentence 1.3.2.77 and replace with the following:

.77 National Energy Code of Canada for Buildings (NECB).

**Section 01 45 00 – Quality Control** (DTW Request)

- Add the following sentence 1.11:

1.11 FIRE SEPARATIONS

.1 Provide fire separation labelling/stenciling as per Sections 09 91 23 – Interior Painting and 09 91 23.01 – Interior Re-Painting.

**Section 01 91 13 – Commissioning (Cx) Requirements** (DTW Request)

- Add the following sentence 1.8.8:

.8 Where structurally attached equipment is included in the scope of work, engage a third party Professional Structural Engineer, licensed to practice in the Province of Newfoundland and Labrador, for submission of stamped and signed shop drawings indicating acceptable mounting procedures for all equipment which is suspended, mounted or otherwise attached. The Structural Engineer to also verify correct installation of the equipment. This equipment will include but is not limited:

- .1 Gym Diffusers
- .2 Gym Light Grilles
- .3 Gym Heaters
- .4 Basketball Backstops
- .5 Stage Lighting Equipment (Pulleys, Winches, Ceiling Connections)
- .6 Curtains & Curtain Tracks
- .7 Scoreclock
- .8 Cord Reels
- .9 Uni-Strut Track System

- .10 Speakers
- .11 Intercom Speakers
- .12 De-Stratification Fans
- .13 TV Monitors
- .14 Stair Lift System
- .15 Light Pole Bases (Exterior)
- .16 Flagpoles (Exterior)
- .17 Chimney Supports (Oil Furnaces)
- .18 Ladders / Alternating Stairs
- .19 Folding Partitions
- .20 Light Fixtures (Clipped or Chained)
- .21 Overbed Lighting
- .22 Examination Lighting
- .23 Surgical Lighting
- .24 Patient Lift System
- .25 Patient Monitor Mounts
- .26 Ceiling Mounted Diagnostic Equipment
- .27 Cantilevered Diagnostic Equipment
- .28 Bariatric Equipment
- .29 Washroom Grab Bars / Swing Up Bars
- .30 Washroom Ceiling Hung Partitions
- .31 Baby Change Tables - Wall Mounted
- .32 CCTV Cameras
- .33 Fall Arrest Anchors
- .34 Wall Mounted Heat Pumps, Evaporators

**Section 03 35 00 – Concrete Finishing (DTW request)**

- Sentence 1.5.7.2, delete “01510” and replace with “01 51 00”.

**Section 03 35 05 – Concrete Floor Hardeners (DTW request)**

- Sentence 1.5.7.2, delete “01510” and replace with “01 51 00”.

**Section 04 05 12 – Masonry Mortar and Grout (DTW request)**

- Delete sentence 1.3.2.1 and replace with the following:

.1 Submit two samples of mortar showing actual product colour when set.

**Section 06 17 53 – Shop-Fabricated Wood Trusses (NMS Update)**

- Add the following sentence 1.3.1:

- .1 Design light metal plate connected wood trusses in accordance with TPIC truss design procedures for wood truss chords and webs in accordance with engineering properties in CSA O86.
- Add the following sentence 1.3.2:
- .2 Design light metal plate connected wood trusses in accordance with TPIC truss design procedures for truss joint designs to test engineering properties in accordance with CSA S347 and listed in CCMC Registry of Product Evaluations.
- Renumber 1.3.1 to 1.3.3.
- Renumber 1.3.2 to 1.3.4.
- Renumber 1.3.3 to 1.3.5.
- Renumber 1.3.4 to 1.3.6.

**Section 06 20 00 – Finish Carpentry (NMS Update)**

- Add the following sentence 3.2.6:
  - .6 Panelling:
    - .1 Secure panelling and perimeter trim using adhesive recommended for purpose by manufacturer. Fill nail holes caused by temporary fixing with filler matching wood in colour.
    - .2 Secure panelling and perimeter trim using concealed fasteners.
    - .3 Secure panelling and perimeter trim using counter sunk screws plugged with matching wood plugs.
- Add the following sentence 3.2.7:
  - .7 Handrails, wall rails and bumper rails.
    - .1 Install handrails, wall rails and bumper rails in locations indicated.
    - .2 Make joints hair line, dowelled and glued.
    - .3 Install support brackets as required.
    - .4 Install brackets at ends and at 600 mm on centre minimum at intermediate spacings.
    - .5 Install metal backing plates between studs at bracket locations to ensure proper support for brackets and bolts or self-tapping screws.
    - .6 Secure using counter sunk screws plugged with matching wood plugs.

**Section 06 40 00 – Architectural Woodwork (NMS Update)**

- Delete sentence 1.2.5.2 and replace with the following:
  - .2 CSA O112.10, Evaluation of Adhesives for Structural Wood Products (Limited Moisture Exposure).
- Add the following sentence 1.6.4:
  - .4 Store materials off ground, in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
- Add the following sentence 1.6.5:
  - .5 Store and protect architectural woodwork from nicks, scratches, and blemishes.
- Add the following sentence 1.6.6:
  - .6 Replace defective or damaged materials with new.

**Section 06 47 00 – Plastic Laminate Finishes (NMS Update)**

- Delete sentence 1.2.3.1 and replace with the following:
  - .1 CSA O112.10, Evaluation of Adhesives for Structural Wood Products (Limited Moisture Exposure).
- Add the following sentence 1.5.3:
  - .3 Store materials off ground, in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
- Add the following sentence 1.5.4:
  - .4 Store and protect laminate, adhesive, and core materials from [nicks, scratches, and blemishes.
- Add the following sentence 1.5.5:
  - .5 Replace defective or damaged materials with new.
- Sentence 2.1.1.3, delete words “1.6 mm” and replace with “1.27 mm”.
- Sentence 2.1.2.3, delete words “0.75 mm” and replace with “1.0 mm”.

- Delete sentence 2.1.7 and replace with the following:
  - .7 Laminated plastic adhesive: urea resin adhesive to CSA O112.10, contact adhesive to CAN/CGSB-71.20, resorcinol resin adhesive to CSA O112.10, polyvinyl adhesive to CSA O112.10, two component epoxy thermosetting adhesive.
- Delete sentence 3.1.1 and replace with the following:
  - .1 Cover finished laminated plastic veneered surfaces with heavy kraft paper or put in cartons during shipment.
  - .2 Protect installed laminated surfaces in accordance with manufacturer's written recommendations.
    - .1 Remove protection only immediately before final inspection.
  - .3 Protect installed products and components from damage during construction.
  - .4 Repair damage to adjacent materials caused by laminate, adhesive, and core materials installation.

**Section 07 21 13 – Board Insulation (DTW Request & Supplier Request)**

- Sentence 2.1.1, delete words “shiplapped edges”.
- Sentence 2.1.2, delete words “shiplapped edges”.
- Sentence 2.1.4, delete words “shiplapped edges”.

**Section 07 31 13.13 – Fiberglass-Reinforced Asphalt Shingles (NMS Update)**

- Add the following sentence 3.3 Protection:
  - 3.3 Protection
    - .1 Protect installed products and components from damage during construction.
    - .2 Repair damage to adjacent materials caused by asphalt shingles installation.

**Section 07 46 13 – Preformed Metal Siding (NMS Update)**

- Delete sentence 1.2.1 and replace with the following:

.1 American Society of Mechanical Engineers (ASME)

.1 ASME B18.6.3, Machine Screws, Tapping Screws, and Metallic Drive Screws (Inch Series).

- Sentence 2.3.1, delete words “ANSI B18.6.4” and replace with “ASME B18.6.3”.

### **Section 07 46 33 – Plastic Siding (NMS Update)**

- Delete sentence 1.2.1 and replace with the following:

.1 American Society of Mechanical Engineers (ASME)

.1 ASME B18.6.3, Machine Screws, Tapping Screws, and Metallic Drive Screws (Inch Series).

- Sentence 2.1.4, delete words “ANSI B18.6.4” and replace with “ASME B18.6.3”.

### **Section 07 52 00 – Modified Bituminous Membrane Roofing (Supplier Request)**

- Sentence 2.1.1 (Option 2), delete “CGSB 37-GP-56M” and replace with “CGSB-37.56-M”.
- Sentence 2.3.1, delete “CGSB 37-GP-56M” and replace with “CGSB-37.56-M”.
- Sentence 2.3.1.2, delete “Class C” and replace with “Class P”.
- Sentence 2.3.1.3, delete “Grade heavy duty service” and replace with “Grade 2”.
- Sentence 2.4.1, delete “CGSB 37-GP-56M” and replace with “CGSB-37.56-M”.
- Sentence 2.4.1.1, delete “Type 1” and replace with “Type 2”.
- Sentence 2.4.1.2, delete “Class A” and replace with “Class G”.
- Sentence 2.4.1.3, delete “Grade heavy duty service” and replace with “Grade 2”.
- Sentence 2.4.1.6.1, delete words “13.0/10.0 kN/m” and replace with “10.0/10.0 kN/m”.
- Sentence 2.4.1.6.2, delete words “25.0/16.0 kN/m” and replace with “18.0/10.0 kN/m”.
- Sentence 2.4.1.6.4, delete words “80 N” and replace with “75 N”.

- Sentence 2.4.1.6.6, delete words “470” and replace with “420”.
- Sentence 2.4.1.6.7, delete words “-0.2/0.2%” and replace with “-0.8/-0.2%”.
- Sentence 2.5.1, delete “CGSB 37-GP-56M” and replace with “CGSB-37.56-M”.

**Section 07 72 33 – Roof Hatches** (NMS Update)

- Delete sentence 1.2.2.
- Renumber 1.2.3 to 1.2.2.
- Add the following sentence 1.2.3:
  - .3 The Master Painters Institute (MPI)
    - .1 Architectural Painting Specification Manual, MPI #76, Primer, Alkyd, Quick Dry, for Metal.
- Sentence 2.1.8, delete words “CAN/CGSB-1.105” and replace with “MPI #76”.

**Section 07 81 00 – Applied Fireproofing** (DTW Request)

- Add the following sentence 3.4:
  - 3.4 FIRE SEPARATIONS
    - .1 Coordinate fire separation labelling/stenciling as per Sections 09 91 23 – Interior Painting and 09 91 23.01 – Interior Re-Painting.

**Section 07 84 00 – Firestopping** (DTW Request)

- Add the following new sentence 3.5:
  - 3.5 FIRE SEPARATIONS
    - .1 Coordinate fire separation labelling/stenciling as per Sections 09 91 23 – Interior Painting and 09 91 23.01 – Interior Re-Painting.
- Renumber 3.5 to 3.6.

**Section 08 11 00 – Metal Doors and Frames** (Consultant request)

- Delete sentence 2.10.4 and replace with the following:
  - .4 Fill voids between stiffeners of exterior doors with insulation as specified.



**Section 08 51 13 – Aluminum Windows** *(NMS Update)*

- Delete sentence 1.2.1.1 and replace with the following:
  - .1 AA-DAF 45, Designation System for Aluminum Finishes.
- Add the following sentence 1.2.2.1:
  - .1 CAN/CGSB-1.40, Anticorrosive Structural Steel Alkyd Primer.
- Renumber 1.2.2.1 to 1.2.2.2.
- Delete sentence 1.2.3.2.
- Renumber 1.2.3.3 to 1.2.3.2, delete sentence and replace with the following:
  - .2 CAN/CSA-Z91, Health and Safety Code for Suspended Equipment Operations.
- Sentence 2.3.5, delete words “CAN/CSA-G164” and replace with “CAN/CGSB-1.40”.

**Section 08 53 13 – Vinyl Windows** *(NMS Update)*

- Delete sentence 1.2.2.2 and replace with the following:
  - .2 CAN/CSA-Z91, Health and Safety Code for Suspended Equipment Operations.

**Section 08 54 13 – Fibreglass Windows** *(NMS Update)*

- Delete sentence 1.2.2.2 and replace with the following:
  - .2 CAN/CSA-Z91, Health and Safety Code for Suspended Equipment Operations.

**Section 08 71 00 – Door Hardware** *(NMS Update)*

- Delete sentence 3.2.5 and replace with the following:
  - .5 Remove construction cores when directed by Owner’s Representative; install permanent cores and check operation of locks.

**Section 09 22 16 – Non-Structural Metal Framing** (NMS Update)

- Delete sentence 1.2.2 and replace with the following:
  - .2 The Master Painters Institute (MPI)
    - .1 Architectural Painting Specification Manual, MPI #26, Primer, Galvanized Metal, Cementitious.

**Section 09 91 23 – Interior Painting** (DTW Request)

- Add the following new sentence 3.8:
  - 3.8 FIRE SEPARATIONS
    - .1 Contractor to stencil on both sides of fire rated partitions the fire rating for that assembly (i.e.: **1 HR FIRE SEPARATION**).
    - .2 Stenciled fire ratings to be minimum 100 mm high **RED** letters, minimum 150 mm above finished ceilings, and minimum 2400 mm o.c. along partition.
- Renumber 3.8 to 3.9.
- Renumber 3.9 to 3.10.

**Section 09 91 23.01 – Interior Re-Painting** (DTW Request)

- Add the following new sentence 3.7:
  - 3.7 FIRE SEPARATIONS
    - .1 Contractor to stencil on both sides of fire rated partitions the fire rating for that assembly (i.e.: **1 HR FIRE SEPARATION**).
    - .2 Stenciled fire ratings to be minimum 100 mm high **RED** letters, minimum 150 mm above finished ceilings, and minimum 2400 mm o.c. along partition.
- Renumber 3.7 to 3.8.
- Renumber 3.8 to 3.9.
- Renumber 3.9 to 3.10.

**Section 10 11 23 – Tackboards** (NMS Update)

- Delete sentence 1.2.2 and replace with the following:

- .2 American National Standards Institute (ANSI)
  - .1 ANSI A135.4, Hardboard Standard.
  - .2 ANSI A208.1, Particleboard.
  - .3 ANSI A208.2, Medium Density Fiberboard for Interior Use.
- Delete sentence 1.2.3.
- Renumber 1.2.4 to 1.2.3.
- Add the following sentence 1.2.3.2:
  - .2 CAN/ULC-S706, Standard for Wood Fibre Insulating Boards for Buildings.
- Sentence 2.1.6.1, delete words “CAN/CSA A247” and replace with “CAN/ULC-S706”.
- Sentence 2.1.7.1, delete words “CAN/CSA A247” and replace with “CAN/ULC-S706”.

**Section 10 14 53 – Traffic Signage** (NMS Update)

- Add the following sentence 1.2.1.1:
  - .1 ASTM A123/A123M, Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
- Renumber 1.2.1.1 to 1.2.1.2, delete sentence and replace with the following:
  - .1 ASTM A276, Standard Specification for Stainless Steel Bars and Shapes.
- Renumber 1.2.1.2 to 1.2.1.3.
- Renumber 1.2.1.3 to 1.2.1.4.
- Renumber 1.2.1.4 to 1.2.1.5.
- Delete sentence 1.2.2.1 and replace with the following:
  - .1 CSA G40.20/G40.21, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
- Sentence 2.1.1.1, delete words “CAN/CSA-G164” and replace with “ASTM A123/A123M”; delete word “g/m”.

**Section 10 21 13.13 – Metal Toilet Compartments** *(NMS Update)*

- Delete sentence 1.2.3.1 and replace with the following:
  - .1 CSA B651, Accessible Design for the Built Environment.
- Sentence 3.3.1.7, delete words “Barrier Free Design”.

**Section 11 11 13.01 – Compressed Air Systems** *(DTW Request)*

- Add new section.

**Section 11 11 13.02 – Vehicle Exhaust Hose Reel System** *(DTW Request)*

- Add new section.

**Section 11 11 13.03 – Waste Oil Disposal System** *(DTW Request)*

- Add new section.

**Section 11 53 16 – Laboratory Fume Hoods** *(NMS Update)*

- Section to be renumbered and renamed to the following:
  - 23 38 16.13 - Fume Hoods (for Laboratories)

**Section 11 61 43 – Stage Curtains** *(DTW Request)*

- Delete Section 11 61 43 in its entirety and replace with new Section 11 61 43 attached.

**Section 21 13 13 – Wet Pipe Sprinkler Systems** *(Consultant request)*

- Sentence 2.3.3, delete words “1.2 cm” and replace with “12 mm”.
- Sentence 2.12.4, delete words “2.5 cm” and replace with “12 mm”.
- Sentence 2.13.1, delete words “one piece split hinge” and replace with “one piece or split hinge”.
- Delete sentence 3.4 and replace with the following:
  - 3.4 Electrical Connections

- .1 Coordinate electrical work associated with this section under Section 26 05 00 - Common Work Results – Electrical and electrical contractor.
- .2 Coordinate fire alarm system under Division 28.
- .3 Coordinate control and fire alarm wiring, including connections to fire alarm systems, in accordance with Canadian Electrical Code and electrical contractor.
- .4 Wiring in rigid metal conduit or intermediate metal conduit by electrical contractor.

- Sentence 3.6.1, delete words “30 cm” and replace with “300 mm”.

**Section 22 07 19 – Plumbing Piping Insulation** *(Consultant request)*

- Add the following sentence 1.3.2.9:
  - .9 ASTM D1784, Standard Specification for Rigid Poly(Vinyl Chloride) (PVC) Compounds and Chlorinated Poly(Vinyl Chloride) (CPVC) Compounds.
- Delete sentence 1.3.7.2.
- Delete sentence 1.3.7.3.
- Delete sentence 1.3.7.4.
- Delete sentence 1.3.8 and replace with the following:
  - .8 National Energy Code for Buildings (NECB).
- Sentence 3.6.6, delete table and replace with new table below:

Application	Temp °C	TIAC code	Pipe sizes (NPS) and insulation thickness (mm)					
			<i>Run out</i>		<i>to 1</i>	<i>1 1/4 to 2</i>	<i>2 1/2 to 4</i>	<i>5 to 6</i>
Steam	up to 175	A-3	38	50	65	75	90	90
Domestic HWS		A-3	25	25	25	38	38	38
Refrigerated Drinking Water		A-3	25	25	25	25	25	25

Application	Temp °C	TIAC code	Pipe sizes (NPS) and insulation thickness (mm)					
			<i>Run out</i>		<i>to 1</i>	<i>1 1/4 to 2</i>	<i>2 1/2 to 4</i>	<i>5 to 6</i>
Domestic CWS		A-3	25	25	25	25	25	25
RWL and RWP		A-3	25	25	25	25	25	25
Cooling Coil cond. Drain		A-3	25	25	25	25	25	25
Roof Drain Body		C-2	25	25	25	25	25	25
Vent Pipe Plumbing		A-3	25	25	25	25	25	25

**Section 22 10 10 – Plumbing Pumps (DTW request)**

- Delete sentence 1.2.7.

**Section 22 11 18 – Domestic Water Piping Copper (DTW request)**

- Delete sentence 1.1.6.
- Renumber 1.1.7 to 1.1.6.
- Renumber 1.1.8 to 1.1.7.
- Renumber 1.1.9 to 1.1.8.
- Renumber 1.1.10 to 1.1.9.
- Renumber 1.1.11 to 1.1.10.
- Renumber 1.1.12 to 1.1.11.
- Renumber 1.1.13 to 1.1.12.
- Renumber 1.1.14 to 1.1.13.
- Renumber 1.1.15 to 1.1.14.

**Section 22 11 18.01 – Domestic Water Piping Plastic** (*Supplier Request & Consultant request*)

- Delete Section 22 11 18.01 in its entirety and replace with new Section 22 11 18.01 attached.

**Section 22 30 05 – Domestic Water Heaters** (*Consultant request*)

- Delete sentence 2.5.4 and replace with the following:  
.4 Vacuum breaker on steam and hot water side.

**Section 22 42 01 – Plumbing Specialties and Accessories** (*NMS Update, Supplier Request & Consultant request*)

- Delete sentence 1.2.7.
- Sentence 1.3.6.1, delete words “Sizing and Installation Data” and replace with “Installation and Maintenance”.
- Delete sentence 2.1.1.2.
- Renumber 2.1.1.3 to 2.1.1.2.
- Renumber 2.1.1.4 to 2.1.1.3.
- Sentence 2.7.2, delete words “(inlet to domestic hot water tanks)” and replace with “where indicated”.
- Sentence 2.7.2.4, delete words “NPS ¾” and replace with “as indicated”.
- Sentence 2.13.1.6, add the word “Watts”.
- Sentence 2.16.1.10, delete words “Watts PH Pro” and replace with “Watts/Orion”, add the words “Zurn Z9A-NT”.
- Sentence 2.16.2.13, delete words “Watts PH Pro” and replace with “Watts/Orion”, add words “Zurn Z9A-SI”.
- Delete sentence 2.17.5 and replace with the following:  
.5 Pipe and Fittings: Schedule 40, stainless steel, complete with orange of yellow polyethylene cover on vertical piping for high visibility and corrosion resistance.

- Delete sentence 2.17.6 and replace with the following:  
.6 Water supply: NPS ½.
- Add the following sentence 2.17.7:  
.7 Waste: NPS 1 ¼.
- Renumber 2.17.7 to 2.17.8.
- Renumber 2.17.8 to 2.17.9.
- Renumber 2.17.9 to 2.17.10.
- Renumber 2.17.10 to 2.17.11.
- Renumber 2.17.11 to 2.17.12.
- Renumber 2.17.12 to 2.17.13.
- Sentence 2.19.2, add words “Lawler 911”.
- Sentence 2.23.12, add words “Lawler Master Controller”.
- Sentence 2.24.14, add words “Zurn, Wilkins Series WXTF, Watts”.

**Section 22 42 03 – Commercial Washroom Fixtures** (*Supplier Request & DTW Request*)

- Delete sentence 1.2.5.
- Sentence 1.7.1, delete words “Crane”, “Eljer”. Delete words “Architectural Metal Industries” and replace with “AMI Novanni”. Add word “Zurn”.
- Sentence 1.7.2, delete words “Cambridge Brass” and replace with “Delta”. Add word “Zurn”.
- Sentence 2.2.1.1.2, add the following words “, Zurn Z5615”.
- Sentence 2.2.1.2.2, add the following words “,Zurn Z5615”.
- Add the following sentence 2.2.1.3.3:  
.3 Acceptable product: Zurn Z5530-IN.



- Add the following sentence 2.2.1.4.1:
  - .1 Acceptable product: Zurn Z5550-IN.
- Sentence 2.2.1.5.1, delete word “2258 125” and replace with “2634.001”. Add the following words “, Zurn Z5617”.
- Sentence 2.2.1.6.1, delete word “2258 125” and replace with “2634.001”. Add the following words “, Zurn Z5617”.
- Add the following sentence 2.2.1.7.1:
  - .1 Acceptable product: Zurn Z5535-IN.
- Add the following sentence 2.2.1.8.1:
  - .1 Acceptable product: Zurn Z5555-IN.
- Add the following sentence 2.2.1.9.1:
  - .1 Acceptable product: Zurn Z5572.
- Add the following sentence 2.2.1.10.1:
  - .1 Acceptable product: Zurn Z5562.
- Sentence 2.2.2.1.16, delete words “Cambridge Brass” and replace with “Delta”, Add the following words “, Zurn Z6000AV-WS1-IS”.
- Sentence 2.2.2.2.15, delete words “Cambridge Brass” and replace with “Delta”. Add the following words “, Zurn Z6152AV-J”.
- Sentence 2.2.2.3.16, delete words “Cambridge Brass” and replace with “Delta”. Add the following words “, Zurn ZEMS6152AV”.
- Sentence 2.3.1.2, add the following words “, Zurn Z5750”.
- Sentence 2.3.2.2, add the following words “, Zurn Z5760”.
- Sentence 2.3.4.1.17, delete words “Cambridge Brass” and replace with “Delta”. Add the following words “, Zurn Z6003AV-WS1-IS”.
- Sentence 2.3.4.2.18, delete words “Cambridge Brass” and replace with “Delta”. Add the following words “, Zurn Z6195AV-L3”.

- Sentence 2.3.4.3.16, delete words “Cambridge Brass” and replace with “Delta”. Add the following words “, Zurn ZEMS6195AV-BX12”.
- Sentence 2.4.1.2, add the following words “, Zurn Z5344”.
- Sentence 2.4.2.2, add the following words “, Zurn Z5114, Zurn Z5134”.
- Sentence 2.4.3.2, add the following words “, Zurn Z5324”.
- Sentence 2.4.4.2, add the following words “, AMI Novanni 9304”.
- Sentence 2.4.5.10, delete words “Cambridge Brass” and replace with “Delta”. Add the following words “, Zurn Z81101-17F”.
- Sentence 2.4.6.9, delete words “Cambridge Brass” and replace with “Delta”. Add the following words “, Zurn Z7870C”.
- Sentence 2.4.7.20, delete words “Cambridge Brass” and replace with “Delta”. Add the following words “, Zurn Z6913-BX-CWB-F-TMV-1”.
- Sentence 2.4.8.18, delete words “Cambridge Brass” and replace with “Delta”. Add the following words “, Zurn Z6915-BX-CWB-F-TMV-1”.

**Section 22 42 16 – Commercial Lavatories and Sinks (Supplier Request)**

- Sentence 1.7.1, delete words “Crane”, “Eljer”. Delete words “Architectural Metal Industries” and replace with “AMI Novanni”.
- Sentence 1.7.2, delete words “Cambridge Brass” and replace with “Delta”. Add word “Zurn”.
- Sentence 2.2.1.1.1, add the following words “, Zurn Z5888”.
- Sentence 2.2.1.2.12, delete words “Cambridge Brass” and replace with “Delta”. Add the following words “, Zurn Z843M1-CS”.
- Sentence 2.2.2.1.1, add the following words “, Stern Williams HL1810, Stern Williams SBC1700”.
- Sentence 2.2.2.2.13, delete words “Cambridge Brass” and replace with “Delta”.
- Sentence 2.3.1.1.1, add the following words “, Novanni AMI 1017I”.
- Sentence 2.3.1.2.12, add the following words “, Zurn Z871G4-17F”.

- Sentence 2.3.2.1.1, add the following words “, Novanni AMI 20071”.
- Sentence 2.3.2.2.12, delete words “Cambridge Brass” and replace with “Delta”. Add the following words “, Zurn Z871G4-17F”.
- Sentence 2.3.3.1.1, add the following words “, Novanni AMI 5007”.
- Sentence 2.3.3.2.12, add the following words “, Zurn Z871B4-17F”.
- Sentence 2.3.4.1.1, add the following words “, Novanni AMI 5006AI”.
- Sentence 2.3.4.2.12, delete words “Cambridge Brass” and replace with “Delta”. Add the following words “, Zurn Z8702BD-PC”.
- Sentence 2.3.5.1.1, add the following words “, Novanni AMI 1009”.
- Sentence 2.3.5.1.2.7, delete words “Cambridge Brass” and replace with “Delta”. Add the following words “, Zurn Z6920BX-TMV1-CWB-FC-1.0”.
- Sentence 2.4.1.1.1, add the following words “, Zurn MS2620F”.
- Sentence 2.4.1.2.12, delete words “Cambridge Brass” and replace with “Delta”. Add the following words “, Zurn Z843M1-LS1”.
- Sentence 2.4.2.1.1, add the following words “, Zurn MS2620F”.
- Sentence 2.4.2.2.12, delete words “Cambridge Brass” and replace with “Delta”. Add the following words “, Zurn Z843M1-LS1”.

**Section 22 42 20 – Commercial Showers and Bathtubs (Supplier Request)**

- Sentence 1.7.1, delete words “Crane”, “Eljer”. Add words “Zurn”, Stern Williams”.
- Sentence 1.7.2, delete words “Cambridge Brass” and replace with “Delta”. Delete word “Crane”. Add word “Zurn”.
- Sentence 2.2.1.3.23, delete words “Cambridge Brass” and replace with “Delta”. Add the words “,Zurn Z7302-SS-MT-DV-2P-HW15-VB”.
- Sentence 2.2.2.3.23, delete words “Cambridge Brass” and replace with “Delta”. Add the words “,Zurn Z7302-SS-MT-DV-2P-HW15-VB”.
- Sentence 2.3.1.1.19, delete words “Cambridge Brass” and replace with “Delta”. Add the words “,Zurn Z7300-SS-MT-I2”.

- Sentence 2.3.2.24, delete words “Cambridge Brass” and replace with “Delta”. Add the words “,Z7301-SS-MT-DV-2P-HW15-VB”.
- Sentence 2.3.3.1.8, add the words “,Zurn Z7130-SS-I2”.
- Sentence 2.3.4.9, delete words “Cambridge Brass” and replace with “Delta”.
- Sentence 2.3.5.10, delete words “Cambridge Brass” and replace with “Delta”.
- Sentence 2.4.1.5, add the words “,Stern Williams SC-36, Zurn Z7300-SS-MT”.
- Sentence 2.4.3.5, add the words “,Stern Williams HSC-143”.
- Add the following sentence 2.4.5.3:
  - .3 Acceptable product: Lawler 61 Series.

**Section 22 47 00 – Drinking Fountains and Water Coolers** *(Supplier Request)*

- Add the following sentence 2.2.3:
  - .1 DF-3: Self-contained, wall mounted water cooler with bottle filling station, 18 gauge stainless steel type 304, No. 4 satin finish, light touch front and side push bar actuation with raised letters for visually impaired.
    - .1 Trim chrome plated: angle stream anti-squirt bubbler with automatic stream regulator, self-closing valve, screwdriver stop, waste tailpiece, filter, chrome plated waste strainer.
    - .2 Unit to include Green Counter displaying the count of plastic bottles saved from landfill.
    - .3 Bottle filler shall include electric sensor for no-touch activation with automatic 20-second shut off timer.
    - .4 Capacity: 30 L/h at 32°C ambient air, cooled to 10°C. In accordance with ARI 1010.

**Section 23 05 05 – Installation of Pipework** *(Consultant request/Supplier Request)*

- Delete sentence 1.2.1.
- Sentence 3.7.5.3, delete words “CAN/CGSB-1.181”.
- Add the following to sentence 3.9.3, “, or install per manufacturer’s recommendation as specified within the associated approval.”

**Section 23 05 13 – Common Motor Requirements for HVAC Equipment** *(Consultant request)*

- Delete sentence 1.3.2, and replace with the following:
  - .2 National Energy Code for Buildings (NECB).
- Delete sentence 2.2.3 and replace with the following:
  - .3 Motors 1/2 HP and larger: NEMA, Class B, 1.15 service factor, squirrel cage induction, premium efficiency, speed as indicated, continuous duty, enclosure as indicated, ball bearing, maximum temperature rise 40° C, 3 phase, 575 V, unless otherwise indicated, for inverted duty for variable frequency drives.

**Section 23 05 19.01 – Thermometers and Pressure Gauges – Piping Systems** *(Consultant request)*

- Delete sentence 2.2.1 and replace with the following:
  - .1 Industrial, variable angle type, liquid filled, accuracy  $\pm 1$  scale division, 225 mm scale length: to CAN/CGSB14.4 or ASME B40.200.
- Sentence 2.3.1, delete words “CAN/CGSB-14.5” and replace with “CAN/CGSB-14.4 or ASME B40.200”.
- Sentence 2.5.1, delete words “112 mm, dial type:” and replace with “Dial type: 112 mm”, and delete words “B40.1” and replace with “B40.100”.
- Sentence 3.2.2, delete words “in locations as indicated and “.
- Sentence 3.2.2.5, add words “, closed circuit coolers and evaporative condensers”.
- Add the following sentence 3.2.2.7:
  - .7 In other locations as indicated.

**Section 23 05 23.01 – Valves – Bronze** *(Consultant request)*

- Sentence 2.3.1.8, delete words “mPa” and replace with “MPa”.
- Sentence 2.3.1.9, delete words “mPa” and replace with “MPa”.
- Sentence 2.3.4.2, delete words “AISI S420”.
- Sentence 2.4.1.3, delete words “mPa” and replace with “MPa”.

- Sentence 2.4.1.4, delete words “mPa” and replace with “MPa”.
- Sentence 2.4.1.5, delete words “mPa” and replace with “MPa”.
- Sentence 2.4.3, add words “Class 150”.

**Section 23 05 23.02 – Valves – Cast Iron** *(Consultant request)*

- Sentence 2.7.2.3, delete words “mPa” and replace with “MPa”.
- Sentence 2.9.1.3, delete words “Lever or Gear” and replace with “Lever, Gear”

**Section 23 05 23.03 – Valves – Cast Steel** *(NMS Update)*

- Delete sentence 1.3.1.1 and replace with the following:
  - .1 ASME B16.5, Pipe Flanges and Flanged Fittings: NPS through NPS 24 Metric/Inch Standard.
- Delete sentence 1.3.3.1 and replace with the following:
  - .1 ASTM A49, Standard Specification for Heat-Treated Carbon Steel Joint Bars, Micro Alloyed Joint Bars, and Forged Carbon Steel Comprise Joint Bars.
- Delete sentence 1.3.3.2 and replace with the following:
  - .2 ASTM A193/A193M, Standard Specification for Alloy-Steel and Stainless Steel Bolting Materials for High-Temperature or High Pressure Service and Other Special Purpose Applications.

**Section 23 05 23.06 – Valves – CPVC** *(Supplier Request)*

- Add new section.

**Section 23 05 48 – Vibration and Seismic Controls for HVAC Piping and Equipment**  
*(Consultant request)*

- Sentence 2.5.6, add word “Mason”.
- Delete sentence 2.6.4.
- Renumber 2.6.5 to 2.6.4.
- Renumber 2.6.6 to 2.6.5.

- In the renumbered sentence 2.6.4, delete words “Type H4” and replace with “Type H3”.
- In the renumbered sentence 2.6.5, add word “Mason”.
- Sentence 2.9.4, add word ‘Mason’.

**Section 23 05 53.01 – Mechanical Identification** *(Consultant request)*

- Delete sentence 1.3.2.1.

**Section 23 07 13 – Duct Insulation** *(Consultant request)*

- Delete sentence 1.2.5.2
- Delete sentence 1.2.6 and replace with the following:
  - .6 National Energy Code of Canada for Buildings (NECB)
- Renumber sentence 3.3.3.2 to 3.3.4.

**Section 23 07 16 – HVAC Equipment Insulation** *(Consultant request)*

- Delete sentence 1.2.3.2.
- Delete sentence 1.2.6 and replace with the following:
  - .6 National Energy Code of Canada for Buildings (NECB)

**Section 23 07 19 – HVAC Piping Insulation** *(Consultant request)*

- Add the following sentence 1.3.2.9:
  - .9 ASTM D1784, Standard Specification for Rigid Poly(Vinyl Chloride) (PVC) Compounds and Chlorinated Poly(Vinyl Chloride) (CPVC) Compounds.
- Delete sentence 1.3.7.2.
- Delete sentence 1.3.7.3.
- Delete sentence 1.3.7.4.
- Delete sentence 1.3.8 and replace with the following:

.8 National Energy Code of Canada for Buildings (NECB)

- Sentence 2.2.6.1, delete words “CAN/ULC-S702” and replace with “ASTM C547”.
- Sentence 2.8.1.1, delete words “CAN/CGSB-51.53” and replace with “ASTM D1784”.
- Sentence 3.4.1, delete words “Section 22 07 16 – Plumbing Equipment Insulation” and replace with “Section 23 07 16 – HVAC Equipment Insulation”.

**Section 23 11 13 – Facility Fuel-Oil Piping** *(Consultant request)*

- Sentence 2.13.1, delete words “740C” and replace with “74° C”.
- Delete sentence 3.1.1.
- Renumber 3.1.2 to 3.1.1.
- Renumber 3.1.3 to 3.1.2.
- Renumber 3.1.4 to 3.1.3.
- Renumber 3.1.5 to 3.1.4.
- Renumber 3.1.6 to 3.1.5.
- Renumber 3.1.7 to 3.1.6.
- Renumber 3.1.8 to 3.1.7.

**Section 23 20 12 – Pressure Piping – Plastic** *(Supplier Request)*

- Add the following sentence 1.3.1.8:

.8 ASTM F876 Standard Specification for Crosslinked Polyethylene (PEX) Tubing.
- Add the following sentence 1.3.1.9:

.9 ASTM F877 Standard Specification for Crosslinked Polyethylene (PEX) Hot and Cold Water Distribution System.
- Add the following new sentence 1.3.4.1:



.1 CAN/ULC S101 Fire Endurance Tests of Buildings Construction and Materials.

- Renumber sentence 1.3.4.1 to 1.3.4.2.
- Add the following sentence 1.3.4.3:

.3 CAN/ULC S115 Standard Method of Fire Tests of Firestop Systems.

- Sentence 2.1.1, delete word “Pipe:” and replace with “Pipe – CPVC:”.
- Add the following sentence 2.1.2:

.2 PEX: Unless otherwise noted, tubing certified to CSA Standard B137.5 and ASTM F876. Piping shall be rated at 93° at 551kPa, 82°C at 690 kPa, 23°C at 1100 kPa.

.1 Acceptable PEX Material: Uponor hePEX or approved equal.

- Renumber sentence 2.1.2 to 2.1.3. Add the following sentence 2.1.3, “PEX fittings certified to CSA B137.5 and ASTM F877 and certified to be used with PEX tubing.”
- Renumber sentence 2.1.3 to 2.1.4.
- Renumber sentence 2.1.4 to 2.1.5.

### **Section 23 21 13.02 – Hydronic Systems: Steel (NMS Update)**

- Delete sentence 1.3.1.1 and replace with the following:

.1 ASME B16.1, Gray Iron Pipe Flanges and Flanged Fittings: Classes 25, 125, and 250.

- Delete sentence 1.3.1.2 and replace with the following:

.2 ASME B16.3, Malleable Iron Threaded Fittings: Classes 150 and 300.

- Delete sentence 1.3.1.3 and replace with the following:

.3 ASME B16.5, Pipe Flanges and Flanged Fittings: NPS through NPS 24 Metric/Inch Standard.

- Delete sentence 1.3.1.5 and replace with the following:

.5 ASME B18.2.1, Square Hex, Heavy Hex and Askew Head Bolts and Hex, Heavy Hex, Hex Flange. Loded Head and Lag Screws (Inch Series).

- Delete sentence 1.3.1.6 and replace with the following:

.6 ASME B18.2.2, Nuts for General Applications: Machine Screw Nuts, Hex, Square, Hex Flange, and Coupling Nuts (Inch Series).

**Section 23 21 14 – Hydronic Specialities** *(Consultant request)*

- Add the following sentence 1.3.2.2:

.2 ASTM A48, Standard Specification for Gray Iron Castings.

- Add the following sentence 1.3.2.3:

.4 ASTM A216, Standard Specification for Steel Castings, Carbon, Suitable for Fusion Welding, For high Temperature Service.

- Renumber 1.3.2.2 to 1.3.2.4.
- Renumber 1.3.2.3 to 1.3.2.5.
- Renumber 1.3.2.4 to 1.3.2.6.
- Renumber 1.3.2.5 to 1.3.2.7.
- Sentence 2.2.4, delete words “115EC” and replace with “115° C”.
- Sentence 2.3.3, delete words “115EC” and replace with “115° C”.
- Sentence 2.9.7, delete words “Regulator Model 77F-DI” and replace with “7775”; add to end of sentence word “Armstrong”.

**Section 23 21 23 – Hydronic Pumps** *(Consultant request)*

- Delete sentence 1.3.2 and replace with the following:

.2 National Energy Code of Canada for Buildings (NECB)

- Delete sentence 1.3.5.1 and replace with the following:

.1 ANSI/HI 1.3, Rotodynamic (Centrifugal) Pumps for Design and Application.

**Section 23 23 00 – Copper Tubing and Fittings Refrigerant** *(NMS Update)*

- Section to be renamed to “Refrigerant Piping”.
- Delete sentence 1.3.1.2 and replace with the following:
  - .2 ASTM A307, Standard Specification for Carbon Steel Bolts and Studs, and Threaded Rod 60,000 PSI Tensile Strength.

**Section 23 31 13.01 – Metal Ducts – Low Pressure to 500 Pa** *(NMS Update)*

- Delete sentence 1.3.2.2 and replace with the following:
  - .2 ASTM A635/A635M, Standard Specification for Steel, Sheet and Strip, Heavy-Thickness Coils, Hot-Rolled, Alloy, Carbon, Structural, High-Strength Low-Alloy, and High-Strength Low-Alloy with Improved Formability, General Requirements for.
- Add the following sentence 1.5.3:
  - .3 Installers to be certified to journeyman level in sheet metal work.

**Section 23 33 46 – Flexible Ducts** *(Consultant request & NMS Update)*

- Delete sentence 1.3.7.1 and replace with the following:
  - .1 CAN/ULC-S110, Standard Methods of Tests for Air Ducts.
- Sentence 2.5.2.3, delete words “EC” and replace with “° C”.

**Section 23 33 53 – Duct Liners** *(Consultant request & NMS Update)*

- Sentence 1.3.6.1, delete words “DCS HVAC”.
- Sentence 1.3.6.2, delete word “95” and replace with “Under Construction”.
- Sentence 3.1.1, delete word “NIAC” and replace with “TIAC; delete word “FGDLS”.
- Sentence 3.2.1.2.1, delete word “HVAC, DCS” and replace with “HVAC DCS”.

**Section 23 34 00 – HVAC Fans** *(Consultant request & NMS Update)*

- Delete sentence 1.3.1 and replace with the following:

- .1 American National Standards Institute/Air Movement and Control Association (ANSI/AMCA)
  - .1 ANSI/AMCA Standard 99, Standards Handbook.
  - .2 ANSI/AMCA Standard 300, Reverberant Room Method for Sound Testing of Fans.
  - .3 ANSI/AMCA Standard 301, Methods for Calculating Fan Sound Ratings from Laboratory Test Data.
- Delete sentence 1.3.3 and replace with the following:
  - .3 American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE)
    - .1 AHSRAE 51, Laboratory Methods of Testing Fans for Aerodynamic Performance Rating.
- Add the following sentence 1.3.6:
  - .6 The Master Painters Institute (MPI)
    - .1 Architectural Painting Specification Manual, MPI #18, Primer, Zinc Rich, Organic.
- Sentence 2.3.3, delete words “CGSB 1.181” and replace with “MPI #18”.

**Section 23 34 24 – Domestic Fans** *(NMS Update)*

- Delete sentence 1.3.1 and replace with the following:
  - .1 American National Standards Institute/Air Movement and Control Association (ANSI/AMCA)
    - .1 ANSI/AMCA 201, Fans and Systems.
    - .2 ANSI/AMCA Standard 300, Reverberant Room Method for Sound Testing of Fans.
    - .3 ANSI/AMCA Standard 301, Methods for Calculating Fan Sound Ratings from Laboratory Test Data.
    - .4 ANSI/ AMCA 302, Application of Sone Ratings for Non-Ducted Air Moving Devices.
    - .5 ANSI/ AMCA 303, Application of Sound Power Level Ratings for Fans.

**Section 23 36 00 – Air Terminal Units** *(Consultant request)*

- Add the following sentence 1.2.2:

.2 American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE)

.2 AHSRAE 130, Methods of Testing for Rating Ducted Air Terminal Units.

- Renumber 1.2.2 to 1.2.3.
- Renumber 1.2.3 to 1.2.4.
- Renumber 1.2.4 to 1.2.5.
- Add the word “Kruegen” to sentence 2.2.11.
- Add the word “Kruegen” to sentence 2.3.8.
- Add the word “Kruegen” to sentence 2.4.4.

**Section 23 37 13 – Diffusers, Registers and Grilles** *(Consultant request)*

- Delete sentence 1.3.1.1 and replace with the following:
  - .1 ASHRAE 70, Method of Testing for Rating the Performance of Air Outlets and Inlets.
- Add the word “Kruegen” to sentence 2.1.5.

**Section 23 37 20 – Louvres, intakes and Vents** *(Consultant request)*

- Add the following sentence 1.3.1:
  - .1 Air Movement and Control Association (AMCA)
    - .1 AMCA 540, Test Method for Louvres Impacted by Wind Borne Debris.
    - .2 AMCA 550, Test Method for High Velocity Wind Driven Rain Resistant Louvres.
- Renumber 1.3.1 to 1.3.2.
- Renumber 1.3.2 to 1.3.3.
- Renumber 1.3.3 to 1.3.4.
- Renumber 1.3.4 to 13.5.

- Renumber 1.3.5 to 1.3.6.
- Sentence 2.3.3, delete word “stormproof” and replace with “drainable, stormproof”.
- Sentence 2.3.7, delete words “aluminum birdscreen” and replace with “aluminum or galvanized birdscreen”.

**Section 23 44 00 – HVAC Air Filtration** *(Consultant request)*

- Add the following sentence 1.3.2.2:
  - .2 AHSRAE 52.2, Method of Testing General Ventilation Air Cleaning Devices for Removal Efficiency by Particle Size.
- Add the following sentence 1.3.2.3:
  - .3 ASHRAE 145.1, Laboratory Test Method for Assessing the Performance of Gas-Phase Air Cleaning Systems: Loose Granular Media.
- Add the following sentence 1.3.2.4:
  - .4 ASHRAE 145.2, Laboratory Test Method for Assessing the Performance of Gas-Phase Air Cleaning Systems: Air Cleaning Devices.
- Delete sentence 1.3.3.
- Renumber 1.3.4 to 1.3.3.
- Renumber 1.3.5 to 1.3.4.
- Sentence 2.1.1, delete word “50 EC” and replace with “50° C”.
- Sentence 2.3.1, delete words “CAN/CGSB-115.10” and replace with “ASHRAE 52.2”.
- Sentence 2.5.1, delete words “CAN/CGSB-115.14” and replace with “ASHRAE 52.2”.
- Sentence 2.5.4, delete words “ASHRAE 52.1” and replace with “ASHRAE 52.2”.
- Sentence 2.6.1, delete words “CAN/CGSB-115.15” and replace with “ASHRAE 52.2”.
- Sentence 2.6.4, delete words “ASHRAE 52.1” and replace with “ASHRAE 52.2”.

- Delete sentence 2.7.2 and replace with the following:
  - .2 Holding frame: cadmium plated steel or 316 stainless steel by unit manufacturer.
- Sentence 2.10.1.1, delete words “CAN/CGSB-115.16” and replace with “AHSRAE 145.1 and 145.2”.
- Delete sentence 2.10.1.2 and replace with the following:
  - .2 Absorption capacity, 50-55 minute, in accordance with standard accelerated chloropicrin test.
- Sentence 3.6.1, delete words “pre-filter and final filter” and replace with “pre-filter, high efficiency filter and final filter”.

**Section 23 64 19 – Reciprocating Water Chillers** (DWT Request)

- Delete sentence 1.1.6 and replace with the following:
  - .6 Section 23 23 00 – Refrigerant Piping.
- Sentence 2.7.1, delete words “Copper Tubing and Fittings Refrigerant” and replace with “Refrigerant Piping”

**Section 23 65 10 – Condensers, Coolers and Cooling Towers** (Consultant request)

- Sentence 2.9, delete word “Louvest” and replace with “Louvres”.

**Section 23 73 10 – Air Handling – Built-Up** (Consultant request)

- Delete sentence 1.2.2.
- Renumber 1.2.3 to 1.2.2.
- Renumber 1.2.4 to 1.2.3.
- Renumber 1.2.5 to 1.2.4
- Renumber 1.2.6 to 1.2.5.
- Add the following sentence 1.2.5.1:
  - .1 AMCA 204, Standard Balance Quality and Vibration Levels for Fans.

- Renumber 1.2.5.1 to 1.2.5.2.
- Renumber 1.2.5.2 to 1.2.5.3.
- Renumber 1.2.7 to 1.2.6.
- Renumber 1.2.8 to 1.2.7.
- Delete newly renumbered 1.2.7 and replace with the following:
  - .7 Air-Conditioning, Heating and Refrigeration (AHRI)
- Renumber 1.2.9 to 1.2.8.
- Renumber 1.2.10 to 1.2.9.
- Delete sentence 2.3.2 and replace with the following:
  - .2 Fans to be single-inlet, centrifugal plenum type, single width single inlet (SWSI) or double width double inlet (DWDI) airfoil or backward inclined blades. Fans and shafts to be dynamically balanced for fixed or variable speed drive operation prior to installation into air handling unit, then the entire fan assembly dynamically balanced at the factory after it has been installed in the air handling unit. Fans mounted on steel shafts accurately ground and finished. Fans and scrolls furnished with rust resistant enamel coating.
- Delete sentence 2.3.3 and replace with the following:
  - .3 Bearings shall be air handling quality, heavy duty, grease lubricated, ball or roller type. Fan bearings to be sealed against dust and dirt and precision self-aligning ball or roller type. Bearing life shall be L-10 rated at not less than 100,000 hours minimum as defined by ABMA 9 and ABMA 11. Bearings permanently lubricated or lubricated type with lubrication fittings readily accessible at the drive side of the unit. Bearings supported by structural shapes, or die formed sheet structural members, or support plates securely attached to the unit casing. Bearings may not be fastened directly to the unit sheet metal casing.
- Sentence 2.3.6, delete word “MEMA” and replace with “NEMA”.
- Add the following sentence 2.12.3:
  - .3 Wheels shall be dynamically balanced to balance quality grade G6.3 per AMCA 204. Each assembled fan shall be test ran at the factory at the specified RPM. Vibration signatures shall be taken on each fan bearing in



the horizontal, vertical and axial directions. The maximum allowable fan vibration level shall be 5.1 mm/s for a BU-3 fan application category, filter in, at the fan RPM when the fan is flexibly mounted.

**Section 23 81 43 – Water to Air Source Unitary Heat Pumps** *(Consultant request)*

- Delete sentence 1.4.1 and replace with the following:
  - .1 Air-Conditioning, Heating and Refrigeration Institute (AHRI)
- Sentence 1.4.1.1, delete word “ARI” and replace with “AHRI”.

**Section 23 82 36 – Finned Tube Radiation Heaters** *(Consultant request)*

- Add the following sentence 1.3.3:
  - .3 Air-Conditioning, Heating and Refrigeration Institute (AHRI)
- Sentence 2.4.3, delete words “CS-140-47 certified IBR ratings” and replace with “to AHRI”.

**Section 25 05 60 – EMCS: Field Installation** *(Consultant request)*

- Add the following to sentence 2.1.1 “and Section 22 11 18.01 – Domestic Water Piping Plastic”.
- Add the following to sentence 2.1.2, “and Section 22 13 18 – Drainage, Waste and Vent Piping – Plastic”.
- Add the following to sentence 2.1.3, “and Section 23 20 12 Pressure Piping – Plastic”.
- Sentence 2.1.5, delete words “Copper Tubing and Fittings Refrigerant” and replace with “Refrigerant Piping”.

**Section 25 10 02 – EMCS: Operator Work Station (OWS)** *(Consultant request/DTW Request)*

- Sentence 2.1.1.1, delete words “Core 2 Duo” and replace with “Intel i5”.
- Sentence 2.1.3, delete word “CRT” and replace with “monitor”.
- Sentence 2.2.1, delete words “HP, Compac”. Add word “Lenovo”.
- Delete sentence 2.2.2.1 and replace with the following:

.1 Processor: Intel™ i5 Processor.

- Sentence 2.2.2.2, delete words “Vista™ Business” and replace with “7 Pro”.
- Sentence 2.2.2.3, delete word “CRT” and replace with “flat panel”.
- Delete sentence 2.2.2.4 and replace with the following:

.4 Memory: 8 GB Dual Channel DDR3 SDRAM – 2 DIMMs.

- Sentence 2.2.2.5, delete words “250 GB” and replace with “1 Tb”.
- Sentence 2.2.2.7, delete words “256 MB ATI Radeon X 1300 Pro” and replace with “Integrated”.
- Sentence 2.2.2.8, delete words “Sound Blaster Audigy™ HD Software Edition”.
- Sentence 2.2.2.9, delete words “Intel® PRO 10/100”.
- Sentence 2.2.2.10, delete words “Microsoft® Works Suite 2006 – Includes MS WORD 2002, Encarta 2006 + more” and replace with “Office Productivity Software (Pre-Installed): Microsoft® Office – Includes MS WORD 2010, + more”.
- Delete sentence 2.2.2.11.
- Renumber 2.2.2.12 to 2.2.2.11.
- Renumber 2.2.2.13 to 2.2.2.12. Delete renumber sentence and replace with the following:

.12 Mouse: Del Optical USB Mouse or Microsoft Wireless Optical Mouse with Scroll-Ball.

- Delete sentence 2.2.2.14.
- Delete sentence 2.2.2.15.
- Renumber 2.2.2.16 to 2.2.2.13.
- Renumber 2.2.2.17 to 2.2.2.14.
- Renumber 2.2.2.18 to 2.2.2.15.
- Delete renumbered 2.2.2.15.1.1 and replace with the following:

.1 Video: DVI/Display Port.

- Delete renumbered 2.2.2.15.1.2.
- Renumber 2.2.2.18.1.3 to 2.2.2.15.1.2; add to sentence “with minimum of four (4) 3.0 ports”.
- Renumber 2.2.2.18.1.4 to 2.2.2.15.1.3.
- Renumber 2.2.2.18.1.5 to 2.2.2.15.1.4.
- Renumber 2.2.2.18.1.6 to 2.2.2.15.1.5.
- Renumber 2.2.2.18.1.7 to 2.2.2.15.1.6; delete words “10/100” and replace with “10/100/1000 Gigabit”.
- Delete sentence 2.5.2.
- Renumber 2.5.3 to 2.5.2; delete words “Vista™, Business Edition” and replace with “7 Pro”.

**Section 25 30 01 – EMCS: Building Controllers** *(Consultant request)*

- Sentence 1.6.4, delete words “0EC to 44EC” and replace with “0° C to 44° C”.

**Section 25 30 02 – EMCS: Field Control Devices** *(Consultant request)*

- Sentence 2.1.3, delete words “0-32 EC” and replace with “0-32° C”.
- Sentence 2.2.1.2, delete word “EC” and replace with “° C”.
- Sentence 2.3.9, delete word “50 EC” and replace with “50° C”.
- Sentence 2.3.11.1, delete words “□C” and replace with “° C”.
- Sentence 2.3.11.2, delete words “□C” and replace with “° C”.
- Sentence 2.3.11.3, delete words “□C” and replace with “° C”.
- Sentence 2.3.11.4, delete words “□C” and replace with “° C”.
- Sentence 2.3.11.5, delete words “□C” and replace with “° C”.
- Sentence 2.6.1.6, delete word “50 EC” and replace with “50° C”.

- Sentence 2.7.1.6, delete word “50 EC” and replace with “50° C”.
- Sentence 2.8.1.4, delete word “50 C” and replace with “50° C”.
- Sentence 2.10.1.4, delete word “50 C” and replace with “50° C”.
- Sentence 2.13.1.2, delete word “EC” and replace with “° C”.
- Sentence 2.13.1.3, delete word “EC” and replace with “° C”.
- Sentence 2.16.1.4, delete word “EC” and replace with “° C”.
- Sentence 2.17.1.3, delete word “EC” and replace with “° C”.
- Sentence 2.21.1.7, delete word “50 EC” and replace with “50° C”.
- Sentence 2.37.5.2, delete word “EC” and replace with “° C”.

**Section 26 05 20 – Wire and Box Connectors (0-1000V) (NMS Update)**

- Delete sentence 1.3.1.1 and replace with the following:
  - .1 CAN/CSA-C22.2 No.18, Outlet Boxes, Conduit Boxes and Fittings.
- Delete sentence 1.3.1.2 and replace with the following:
  - .2 CAN/CSA-C22.2 No.65, Wire Connectors (Tri-National Standard with UL 486A-486B and NMX-J-543-ANCE-03).

**Section 26 09 23.01 – Metering and Switchboard Instruments (NMS Update)**

- Sentence 1.3.2.1, delete word “-M84”.

**Section 26 41 00.02 – Secondary Lightning Arresters (NMS Update)**

- Delete sentence 1.3.1 and replace with the following:
  - .1 American National Standards Institute /Institute of Electrical and Electronics Engineers (ANSI/IEEE)
    - .1 ANSI/IEEE C62.41, Practice on Surge Voltages in Low-Voltage AC Power Circuits.
- Add the following sentence 1.3.2:

.2 Underwriters' Laboratories of Canada (ULC)

.1 UL 1449, Standard for Surge Protective Devices.

- Sentence 2.1.1, delete words “to CAN/CSA-C233.1” and replace with “to ANSI/IEEE C62.41 and UL 1449”.

### **Section 27 51 16 – Public Address and Mass Notification Systems (NMS Update)**

- Delete sentence 1.2.1.1 and replace with the following:

.1 CS-03, Compliance Specification.

- Delete sentence 2.12.
- Renumber 2.13 to 2.12.
- Renumber 2.14 to 2.13.
- Renumber 2.15 to 2.14.
- Delete sentence 2.16.

### **New Section 27 51 26 – Assistive listening Systems (DTW Request)**

- Add new section.

### **Section 28 13 00 – Intrusion Detection (Form 2) (Supplier Request)**

- Delete sentence 2.5.2 and replace with the following:

.2 System to communicate with external monitoring agency via any redundant combination of self-powered analogue telephone lines, data services or cellular services.

- Delete sentence 2.5.3 and replace with the following:

.3 If non dedicated telephone lines are used, dialer must capture telephone lines for immediate communication to central monitoring agency.

- Delete sentence 2.5.5 and replace with the following:

.5 Provide two completely independent communication channels for communication with the monitoring agency. These may be any combination of the following, provided that the two chosen communication channels are completely independent of each other and do

not share a common point of failure, such as a single telephone cable or fiber optic cable:

- .1 Voice or data over analogue telephone lines
- .2 Fiber optic VOIP or data
- .3 Cellular voice or data network
- .4 Satellite voice or data network

- Add the following sentence 2.5.6:

.6 All local and long distance charges associated with these services shall be paid for by the Division 26 – Electrical Contractor.

- Add the following sentence 2.5.7:

.7 Any communication channel other than a self-powered analogue telephone line must have a backup battery storage capacity sufficient to remain fully operational during power failures for a duration not less than the minimum operational battery run-time requirement of any connected fire or intrusion systems.

- Delete sentence 3.1.6 and replace with the following:

.6 Make connection to two independent communication channels to enable remote monitoring.

### **Section 33 56 13 – Aboveground Fuel Storage Tanks *(Consultant Request)***

- Delete sentence 1.3.6.
- Renumber 1.3.7 to 1.3.6.
- Renumber 1.3.8 to 1.3.7.
- Renumber 1.3.9 to 1.3.8.
- Delete sentence 1.3.8.1.
- Delete sentence 1.3.8.2.
- Delete sentence 1.3.8.3.
- Delete sentence 1.3.8.4.
- Delete sentence 1.3.8.5.
- Renumber 1.3.8.6 to 1.3.8.1.

- Renumber 1.3.8.7 to 1.3.8.2.
- Renumber 1.3.8.8 to 1.3.8.3.
- Renumber 1.3.8.9 to 1.3.8.4.
- Add the following sentence 1.3.9:

.9 Province of Newfoundland and Labrador

.1 Storage and Handling of Gasoline and Associated Products  
Regulations.