SECTION 23 82 00

CONVECTION HEATING AND COOLING UNITS

Display hidden notes to specifier. (Don't know how? [Click Here](https://www.arcat.com/sd/display_hidden_notes.shtml))

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\*\* NOTE TO SPECIFIER \*\* Verano by MDL Solutions; compact lower voltage fan coils and hydronic heating, cooling and Ventilation equipment.  
This section is based on the products of Verano by MDL Solutions, which is located at:  
2275 Upper Middle Rd. E. Suite 101  
Oakville, ON, Canada L6H 0C3  
Phone: 289-799-3414  
Email: \_\_\_\_\_\_\_\_  
Web: mdlsoln.com  
[Click Here] or additional information.  
Incorporated in Canada during 2008, our family business combines several main achievements and ideology from European Ancestry dating back over 250 years. During those times land procurement, transportation and property management was our focus. Today our growth in North America largely comes from understanding our customers need to build the highest quality, most energy efficient, leading edge properties. Our success in large part comes from Condo developers, Building management, Commercial Builders and Institutional (schools). A special team has been developed to work on residential projects.  
The core of the business is state of the art equipment as well as partnering with traditional products that are the most efficient in their class, but also the most economical to install compared to other products in their class. Our Manufacturing solutions are European/ North American / Hong Kong based enabling products to be state of the art upon arrival to North America. All products are ETL/ UL or CSA listed.  
We also point our compass at Architects, Engineers And Installing Contractors. We do it with flair by offering options a lot of options. We provide customizable solutions and tackle every project uniquely. We are defining the way buildings heat, cool and ventilate. This requires revolutionizing products with intensive R&D and our unique manufacturing and global partners understand this. To Bring the most advanced HVAC solutions to the market has enabled our MDL Solutions to be supported by some of the most prestigious buildings and people around the world.

1. GENERAL
   1. SECTION INCLUDES

\*\* NOTE TO SPECIFIER \*\* Delete items below not required for project.

* + 1. Heating. Trench, floor mounted, wall mounted, bench, steel wall and floor, facade, force flow, packaged AHUs - horizontal and vertical, tower radiator,
    2. Cooling. Fan coil units; trench,
    3. Ventilation.
    4. Controls.
  1. RELATED SECTIONS

\*\* NOTE TO SPECIFIER \*\* Delete any sections below not relevant to this project; add others as required.

* + 1. Section 22 05 00 - Common Work Results for Plumbing.
    2. Section 26 05 00 - Common Work Results for Electrical.
  1. REFERENCES

\*\* NOTE TO SPECIFIER \*\* Delete references from the list below that are not actually required by the text of the edited section.

* + 1. Air Conditioning, Heating, and Refrigeration Institute (AHRI).
    2. ASTM International (ASTM):
       1. ASTM G 53 - Practice for Operating Light- and Water-Exposure Apparatus (Fluorescent UV-Condensation Type) for Exposure of Nonmetallic Materials.
    3. American National Standards Institute (ANSI):
       1. ANSI/AHRI 350 - Sound Performance Rating of Non-ducted Indoor Airconditioning and Heat Pump Equipment
       2. ANSI/AHRI 440 - Performance Rating of Fan-Coil Units
    4. CSA Group (CSA):
       1. CSA C22.2 No 236/UL 1995 - Fifth Edition, Heating and Cooling Equipment
    5. European Standards Organization (EN):
       1. EN-10130 - Cold rolled low carbon steel flat products for cold forming
       2. EN-16430 - Fan assisted radiators, convectors and trench convectors. Test method and rating for cooling capacity.
       3. EN-442 - Radiators and convectors. Technical specifications and requirements.
    6. International Standards Organization (ISO):
       1. ISO-3745 - Acoustics Determination of sound power levels and sound energy levels of noise sources using sound pressure - Precision methods for anechoic rooms and hemi-anechoic rooms.
    7. Standards Council of Canada (CAN):
       1. CAN/ULC-S102 - Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies.
    8. National Fire Protection Association (NFPA):
       1. NFPA-90A - Standard for the Installation of Air-Conditioning and Ventilating Systems.
    9. Underwriters Laboratories (UL):
       1. UL 900 - Standard for Air Filter Units.
  1. SUBMITTALS
     1. Submit under provisions of Section 01 30 00 - Administrative Requirements.
     2. Product Data:
        1. Manufacturer's data sheets on each product to be used.
        2. Preparation instructions and recommendations.
        3. Storage and handling requirements and recommendations.
        4. Typical installation methods.

\*\* NOTE TO SPECIFIER \*\* Delete if not applicable to product type.

* + 1. Verification Samples: Two representative units of each type, size, pattern and color.
    2. Shop Drawings: Include details of materials, construction and finish. Include relationship with adjacent construction.
  1. QUALITY ASSURANCE
     1. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with a minimum five years documented experience.
     2. Installer Qualifications: Company specializing in performing Work of this section with minimum two years documented experience with projects of similar scope and complexity.
     3. Source Limitations: Provide each type of product from a single manufacturing source to ensure uniformity.

\*\* NOTE TO SPECIFIER \*\* Include mock-up if the project size or quality warrant the expense. The following is one example of how a mock-up on might be specified. When deciding on the extent of the mock-up, consider all the major different types of work on the project.

* + 1. Mock-Up: Construct a mock-up with actual materials in sufficient time for Architect's review and to not delay construction progress. Locate mock-up as acceptable to Architect and provide temporary foundations and support.
       1. Intent of mock-up is to demonstrate quality of workmanship and visual appearance.
       2. If mock-up is not acceptable, rebuild mock-up until satisfactory results are achieved.
       3. Retain mock-up during construction as a standard for comparison with completed work.
       4. Do not alter or remove mock-up until work is completed or removal is authorized.
  1. PRE-INSTALLATION CONFERENCE
     1. Convene a conference approximately two weeks before scheduled commencement of the Work. Attendees shall include Architect, Contractor and trades involved. Agenda shall include schedule, responsibilities, critical path items and approvals.
  2. DELIVERY, STORAGE, AND HANDLING
     1. Store and handle in strict compliance with manufacturer's written instructions and recommendations.
     2. Protect from damage due to weather, excessive temperature, and construction operations.
     3. All units shall be individually packaged and labeled for eased on site locating and installation
  3. PROJECT CONDITIONS
     1. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.
  4. WARRANTY
     1. Manufacturer's standard limited warranty unless indicated otherwise.

1. PRODUCTS
   1. MANUFACTURERS
      1. Acceptable Manufacturer: VERANO by MDL SOLUTIONS, which is located at: 2275 Upper Middle Rd. E. Suite 101; Oakville, ON, Canada L6H 0C3; Tel: 289-799-3414; Email: [request info ()](https://admin.arcat.com/users.pl?action=UserEmail&company=VERANO+by+MDL+SOLUTIONS&coid=52861&rep=&fax=&message=RE:%20Spec%20Question%20(15760mdl):%20%20&mf=); Web: <https://mdlsoln.com>

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs; coordinate with requirements of Division 1 section on product options and substitutions.

* + 1. Substitutions: Not permitted.
    2. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required.

* 1. HEATING PRODUCTS
     1. Trench Fan Coil: VKN1 Trench Heaters by MDL Solutions. In-floor trench heating device. Concrete proof and suitable for in suite or commercial ancillary areas. Full internal components removable by top access grilles only. 24 V Low Voltage trench fan coil units.
        1. Standards Compliance:
           1. Insulation and Adhesives: NFPA-90A flame spread and smoke generation.
           2. Aluminum Components: ASTM G53 UV-resistance.
           3. Safe Surface Temperature: DHSS DN 4 1992 regulation and revision.
           4. Normative heating power output compliant to EN-16430 for room temperature of 68 degrees F (20 degrees C).
           5. Sound power level according to ISO-3745 standard.

Sound Pressure Level: For distance of 78.75 inches (2 m) in a room of a total volume of 3531 cu ft (100 cu m) and reverb time of 0.5 s assuming room dampening of 8 dB(A).

* + - 1. Heat Output (btu/h): \_\_\_\_\_\_ btu/h (\_\_\_\_\_\_ kWh).
      2. Operating Pressure: 3 00 psi (2068 kPa) maximum.
      3. Operating Temperature: 230 degrees F (110 degrees C) maximum.
      4. Components:
         1. Tray Cover: Hot-dip zinc-magnesium coated steel

\*\* NOTE TO SPECIFIER \*\* Delete finish option not required.

Finish: RAL 9005 black powder coat

Finish: RAL \_\_\_\_\_\_\_\_ powder coat.

* + - * 1. Heat Exchanger: Copper-aluminum. Finish: Black powder coat.

Bleeding valve,

* + - * 1. Fan: Silent and efficient 24 VDC motor.
        2. Cover for connector chamber.,
        3. Fan Cover, so called grille, with airstream nozzles.
        4. Assembly struts,
        5. Fastening anchors,
        6. Tray position adjustment system.
        7. Connectors: 1/2 inch NPT threads.

\*\* NOTE TO SPECIFIER \*\* Delete connector side option not required. Left is standard.

Connection Side: Left (L).

Connection Side: Right (R).

\*\* NOTE TO SPECIFIER \*\* Delete frame type not required.

* + - * 1. Frame Type: L.
        2. Frame Type: F.

\*\* NOTE TO SPECIFIER \*\* Delete grill type options not required.

* + - * 1. Grille Type: Roll-up aluminum, double t-bar. Airflow: 67 percent
        2. Grille Type: Roll-up aluminum, closed profile. Airflow 61 percent
        3. Grille Type: Roll-up wooden grille. Airflow 52 percent.

\*\* NOTE TO SPECIFIER \*\* Wood types are oak, ash, beech, merbau, jatoba.

Wood Type: \_\_\_\_\_\_\_\_

* + - * 1. Grille Type: Linear. Airflow 58 percent.
        2. Grille Type: Modular. Airflow 63 percent.
        3. Grille Type: Stainless steel. Airflow 62 percent.
        4. Assembly cover for protection of heater during transport, handling and installation.
      1. Dimensions:

\*\* NOTE TO SPECIFIER \*\* Delete trench dimension and length options not required. Custom lengths are available. Contact Manufacturer for more information.

* + - * 1. Trench (WxD): 5.5 x 2.55 inches (140 x 65 mm)

Grille (WxD): 6.4 x 0.7 inches (163 x 18 mm)

* + - * 1. Trench (WxD): 6.7 x 2.55 inches (140 x 65 mm)

Grille (WxD): 7.63 x 0.7 inches (194 x 18 mm)

* + - * 1. Trench (WxD): 5.5 x 3.5 inches (140 x 89 mm)

Grille (WxD): 6.4 x 0.7 inches (163 x 18 mm)

* + - * 1. Trench (WxD): 6.7 x 3.5 inches (140 x 89 mm)

Grille (WxD): 7.63 x 0.7 inches (194 x 18 mm)

* + - * 1. Trench Length: 37.5 inch (953 mm)
        2. Trench Length: 43-1/3 inch (1100 mm)
        3. Trench Length: 49-1/4 inch (1250 mm)
        4. Trench Length: 57-1/8 inch (1450 mm)
        5. Trench Length: 65 inch (1651 mm)
        6. Trench Length: 70-3/4 inch (1797 mm)
        7. Trench Length: 78-3/4 inch ()
        8. Trench Length: \_\_\_\_\_\_ inch (\_\_\_\_\_\_ mm)
      1. Additional Equipment:
         1. Assembly set for raised floor.
         2. Bimetal temperature sensor,
         3. Adjustable edge of heater tray.
         4. Heater tray protective film,
         5. Foil sleeve for heat exchanger.
      2. Controls:
         1. Thermostat: \_\_\_\_\_\_\_\_.
         2. Room Temperature Controller: VER-24. Programmable. Color touch display.
         3. Room Temperature Controller: RDD 100
         4. Room Temperature Controller: Siemens RDE 100
         5. Room Temperature Controller: Siemens RAA21
         6. Room Temperature Controller: \_\_\_\_\_\_\_\_
         7. Wireless Controls: \_\_\_\_\_\_\_\_.
    1. Trench Fan Coil: Turbo VKN5 Trench Heaters by MDL Solutions. In-floor trench heating device. Concrete proof and suitable for in suite or commercial ancillary areas. Full internal components removable by top access grilles only.
       1. Standards Compliance:
          1. Insulation and Adhesives: NFPA-90A flame spread and smoke generation.
          2. Aluminum Components: ASTM G53 UV-resistance.
          3. Safe Surface Temperature: DHSS DN 4 1992 regulation and revision.
          4. Normative heating power output compliant to EN-16430 for room temperature of 68 degrees F (20 degrees C).
          5. Sound power level according to ISO-3745 standard.

Sound Pressure Level: For distance of 78.75 inches (2 m) in a room of a total volume of 3531 cu ft (100 cu m) and reverb time of 0.5 s assuming room dampening of 8 dB(A).

* + - 1. Heat Output (btu/h): \_\_\_\_\_\_\_\_.
      2. Operating Pressure: 3 00 psi (2068 kPa) maximum.
      3. Operating Temperature: 230 degrees F (110 degrees C) maximum.
      4. Components:
         1. Tray Cover: Hot-dip zinc-magnesium coated steel

\*\* NOTE TO SPECIFIER \*\* Delete finish option not required.

Finish: RAL 9005 black powder coat

Finish: RAL \_\_\_\_\_\_\_\_.

* + - * 1. Heat Exchanger: Copper-aluminum. Finish: Black powder coat.

Bleeding valve,

* + - * 1. Fan: Silent and efficient 24 VDC motor.
        2. Cover for connector chamber.,
        3. Fan Cover, so called grille, with airstream nozzles.
        4. Assembly struts,
        5. Fastening anchors,
        6. Tray position adjustment system.
        7. Connectors: 3/4 inch NPT half-unions.

\*\* NOTE TO SPECIFIER \*\* Delete connector side option not required. Left is standard.

Connection Side: Left (L).

Connection Side: Right (R).

\*\* NOTE TO SPECIFIER \*\* Delete frame type not required.

* + - * 1. Frame Type: L.
        2. Frame Type: F.

\*\* NOTE TO SPECIFIER \*\* Delete grille type options not required.

* + - * 1. Grille Type: Roll-up aluminum, double t-bar. Airflow: 67 percent
        2. Grille Type: Roll-up aluminum, closed profile. Airflow 61 percent
        3. Grille Type: Roll-up wooden grille. Airflow 52 percent.

\*\* NOTE TO SPECIFIER \*\* Wood types are oak, ash, beech, merbau, jatoba.

Wood Type: \_\_\_\_\_\_\_\_

* + - * 1. Grille Type: Linear. Airflow 58 percent.
        2. Grille Type: Modular. Airflow 63 percent.
        3. Grille Type: Stainless steel. Airflow 62 percent.
      1. Dimensions:

\*\* NOTE TO SPECIFIER \*\* Delete trench dimension and length options not required. Custom lengths are available. Contact Manufacturer for more information.

* + - * 1. Trench (WxD): 9-27/32 x 2.55 inches (250 x 65 mm).

Cover (WxD): 10.7 x 0.7 inches (272 x 18 mm).

* + - * 1. Trench (WxD): 13-3/4 x 2.55 inches (349 x 65 mm).

Cover (WxD): 14.7 x 0.7 inches (373 x 18 mm).

* + - * 1. Trench (WxD): 9-27/32 x 3.5 inches (250 x 89 mm).

Cover (WxD): 10.7 x 0.7 inches (272 x 18 mm).

* + - * 1. Trench (WxD): 13-3/4 x 3.5 inches (349 x 89 mm).

Cover (WxD): 14.7 x 0.7 inches (373 x 18 mm).

* + - * 1. Trench (WxD): 9-27/32 x 4.75 inches (250 x 121 mm).

Cover (WxD): 10.7 x 0.7 inches (272 x 18 mm).

* + - * 1. Trench (WxD): 13-3/4 x 4.75 inches (349 x 121 mm).

Cover (WxD): 14.7 x 0.7 inches (373 x 18 mm).

* + - * 1. Trench Length: 29.5 inch (750 mm)
        2. Trench Length: 42-1/4 inch (1073 mm)
        3. Trench Length: 61 inch (1549 mm)
        4. Trench Length: 76-3/4 inch (1950 mm)
        5. Trench Length: 92-1/2 inch (2350 mm)
        6. Trench Length: 108-1/4 inch (2750 mm)
        7. Trench Length: 124 inch (3150 mm)
        8. Trench Length: 139-3/4 inch (3550 mm)
        9. Trench Length: \_\_\_\_\_\_ inch (\_\_\_\_\_\_ mm)
      1. Accessories:
         1. Assembly set for raised floor.
         2. Bimetal temperature sensor,
         3. Adjustable edge of heater tray.
         4. Heater tray protective film,
         5. Foil sleeve for heat exchanger.
      2. Controls:
         1. Thermostat: \_\_\_\_\_\_\_\_.
         2. Room Temperature Controller: VER-24. Programmable. Color touch display.
         3. Room Temperature Controller: RDD 100
         4. Room Temperature Controller: Siemens RDE 100
         5. Room Temperature Controller: Siemens RAA21
         6. Room Temperature Controller: \_\_\_\_\_\_\_\_
         7. Wireless Controls: \_\_\_\_\_\_\_\_.
    1. Trench Heater: VK15 Trench Heaters by MDL Solutions. In-floor trench heating device. Concrete proof and suitable for in suite or commercial ancillary areas.
       1. Full internal components removable by top access grilles only.
       2. Standards Compliance:
          1. Insulation and Adhesives: NFPA-90A flame spread and smoke generation.
          2. Aluminum Components: ASTM G53 UV-resistance.
          3. Safe Surface Temperature: DHSS DN 4 1992 regulation and revision.
          4. Normative heating power output compliant to EN-16430 for room temperature of 68 degrees F (20 degrees C).
          5. Sound power level according to ISO-3745 standard.

Sound Pressure Level: For distance of 78.75 inches (2 m) in a room of a total volume of 3531 cu ft (100 cu m) and reverb time of 0.5 s assuming room dampening of 8 dB(A).

* + - 1. Heat Output (btu/h): \_\_\_\_\_\_\_\_.
      2. Operating Pressure: 3 00 psi (2068 kPa) maximum.
      3. Operating Temperature: 230 degrees F (110 degrees C) maximum.
      4. Components:
         1. Tray Cover: Hot-dip zinc-magnesium coated steel

Finish: RAL 9005 black powder coat

Finish: RAL \_\_\_\_\_\_\_\_.

* + - * 1. Heat Exchanger: Copper-aluminum. Finish: Black powder coat.

Air vent..

* + - * 1. Dividers for trench heaters; Height greater than or equal to 5-1/2 inches (140 mm)
        2. Fixing anchors.
        3. Leveling brackets. Height less than or equal to (250 mm).
        4. Installation Cover: Protects against damage during transport and installation
        5. Connection space cover..
        6. Connectors: Two, 3/4 inch NPT half-unions; internal threads.

\*\* NOTE TO SPECIFIER \*\* Delete connector side option not required. Right is standard.

Connection Side: Left (L).

Connection Side: Right (R).

\*\* NOTE TO SPECIFIER \*\* Delete frame type not required.

* + - * 1. Frame Type: L. Aluminum.

Finish: Anodized.

Finish: RAL \_\_\_\_\_\_\_\_ powder coat.

Finish: Wood imitation.

* + - * 1. Frame Type: F. Aluminum.

Finish: Anodized.

Finish: RAL \_\_\_\_\_\_\_\_ powder coat.

Finish: Wood imitation.

\*\* NOTE TO SPECIFIER \*\* Delete grille type options not required.

* + - 1. Grille Type: Roll-up aluminum, double t-bar. Airflow: 67 percent
      2. Grille Type: Roll-up aluminum, closed profile. Airflow 61 percent
      3. Grille Type: Roll-up wooden grille. Airflow 52 percent.

\*\* NOTE TO SPECIFIER \*\* Wood types are oak, ash, beech, merbau, jatoba.

* + - * 1. Wood Type: \_\_\_\_\_\_\_\_
      1. Grille Type: Linear. Airflow 58 percent.
      2. Grille Type: Modular. Airflow 63 percent.
      3. Grille Type: Stainless steel. Airflow 62 percent.
      4. Dimensions:

\*\* NOTE TO SPECIFIER \*\* Delete trench dimensions not required. Custom lengths are available. Contact Manufacturer for more information.

* + - * 1. Trench Height: 2.95 inches (75 mm)
        2. Trench Height: 3.54 inches (90 mm)
        3. Trench Height: 4.33 inches (110 mm)
        4. Trench Height: 5.51 inches (140 mm)
        5. Trench Height: 9.84 inches (250 mm)
        6. Trench Height: 13.78 inches (350 mm)
        7. Trench Height: 21.26 inches (540 mm)
        8. Trench Width: 7.88 inches (200 mm). Cover Width: 8.81 inches (224 mm)
        9. Trench Width: 9.84 inches (250 mm). Cover Width: 10.79 inches (274 mm)
        10. Trench Width: 11.42 inches (290 mm). Cover Width: 12.36 inches (314 mm)
        11. Trench Width: 14.96 inches (380 mm). Cover Width: 15.91 inches (404 mm)
        12. Trench Length: 31.50 inches (800 mm)
        13. Trench Length: 39.37 inches (1000 mm)
        14. Trench Length: 51.18 inches (1300 mm)
        15. Trench Length: 63.00 inches (1600 mm)
        16. Trench Length: 74.80 inches (1900 mm)
        17. Trench Length: 86.61 inches (2200 mm)
        18. Trench Length: 98.42 inches (2500 mm)
        19. Trench Length: 110.24 inches (2800 mm)
        20. Trench Length: 125.98 inches (3200 mm)
        21. Trench Length: 141.73 inches (3600 mm)
        22. Trench Length: 157.48 inches (4000 mm)
        23. Trench Length: \_\_\_\_\_\_ inch (\_\_\_\_\_\_ mm).
      1. Accessories:
         1. Bimetal temperature sensor,
         2. Adjustable edge of heater tray.
      2. Controls:
         1. Thermostat: \_\_\_\_\_\_\_\_.
         2. Room Temperature Controller: VER-24. Programmable. Color touch display.
         3. Room Temperature Controller: RDD 100
         4. Room Temperature Controller: Siemens RDE 100
         5. Room Temperature Controller: Siemens RAA21
         6. Room Temperature Controller: \_\_\_\_\_\_\_\_
         7. Wireless Controls: \_\_\_\_\_\_\_\_.
    1. Pedestal Floor and Wall Mounted Radiators: SCV Series, Standard and Caliente by MDL Solutions. Low Surface Temperature (LST) Floor and wall mounted units robust in design and suitable for public facility areas. Top Grille: Supply air. Bottom Opening: Return air.
       1. Floor Mounted SCV Series.
       2. Wall Mounted: CV Series.
       3. Wall Mounted: NCV Series.
       4. Standard Compliance:
          1. Water Source Heating Equipment: Certified for outputs based on EN442.
          2. Aluminum Components: Meet ASTM G53 UV-resistance
          3. Surface Temperature remains safe at all times based on DHSS DN 4 1992 regulation and subsequent revision.
          4. Compliant to A1 fire resistance class
       5. Heat Output (btu/h): \_\_\_\_\_\_\_\_.
       6. Components:
          1. Smooth Casing: Zinc-magnesium galvanized steel. 16 gauge electrolytic galvanized steel. No exposed corners or gaps. All corners must be joined to form one solid piece. Gaps are not permitted.

\*\* NOTE TO SPECIFIER \*\* Delete casing type and finish and grille type options not required. Units do not differ internally. The casing variant does not influence heating powers, hydraulic resistance, and the connectors used.

Casing Type: Standard

Finish: RAL 9003 white powder coat.

Finish: RAL \_\_\_\_\_\_ powder coat.

Standard Grille Type: Long oval.

Standard Grille Type: Cross oval.

Standard Grille Type: Honeycomb oval.

Standard Grille Type: Oval.

Standard Grille Type: As detailed on the drawings.

Casing Type: Caliente

Finish: RAL 9003 white powder coat.

Finish: RAL \_\_\_\_\_\_ powder coat.

Caliente Grille Type: Modular anodized aluminum. Snap profile. Black finish.

Caliente Grille Type: Roll-up aluminum. Closed profile

Caliente Grille Type: Roll-up aluminum grille. Double T-bar.

Caliente Grille Type: Natural wood roll-up.

Caliente Grille Type: Linear aluminum.

Caliente Grille Type: As detailed on the drawings.

Front Face: Detachable. Single uniform piece. Seamless in construction.

Heat Exchanger Support Bracket Mounting: Centered.

Encased legs.

* + - * 1. Heat Exchanger: Copper-aluminum with 1/8 inch (3 mm) air vent.

Standards Certification: ASTM G53 and EN442. Output correction factors will not be considered equivalent to establish output capacities.

Round seamless circulation tubes, type L copper, and two brass collectors.

Fins: Corrugated design.

Supply and Return: Same end.

Supply and Return: Opposite end; optional.

Factory Pressure Tested: 300 psi ()

Coated with dirt repellent and dust proof lacquer in graphite grey. 70 percent gloss to match cabinet.

* + - * 1. Convector Connection:

V-Type. Bottom.

Built-in thermostatic valve.

Connectors; V Type: 3/4 inch NPT male threaded connectors, bottom connection heaters.

C-Type. Side.

Connectors; C Type: 3/4 inch NPT female threaded connectors, side connection heaters.

* + - * 1. Thermal actuator or wireless TRV head (installed inside the casing)

\*\* NOTE TO SPECIFIER \*\* Masking panels are for Caliente series only Delete masking panel not required or delete both if specifying the Standard Series.

* + - * 1. Masking Panels: RAL 9005 black.
        2. Masking Panels: Glass with built-in controller and thermal actuator.
        3. Valve Connections: Internal to unit cabinet valve compartment as provided inside of cabinet unless separate enclosures are supplied.
        4. Options:

Fans: 24 V

Any Wood Pattern

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Wood Bench.

* + - 1. Controls:

\*\* NOTE TO SPECIFIER \*\* Delete controls options not required. VER-34 is for Caliente series only.

* + - * 1. Thermostat: Built in. \_\_\_\_\_\_\_\_.
        2. Room Temperature Controller: VER-15S. Programmable.
        3. Room Temperature Controller: VER-34. Built in. Programmable.
        4. Valve to be specifically shortened to be concealed within casing.

Suitable for one or two pipe systems.

Connection: Floor.

Connection: Wall.

Operational Duty: Shutoff. balancing, and zone control.

Actuator: 0 to 10 V at 24 VDC power requirements

Actuator: Manual.

Two Pipe: Continuously adjustable between 0.132 to 2.642 gpm ().

Single Pipe 9.07 gpm diverting capability with 35 percent flow through unit.

\*\* NOTE TO SPECIFIER \*\* Delete dimension options not required.

* + - 1. Dimensions:
         1. Floor Mounted Convectors

Height: 4 inches (102 mm).

Height: 6.5 inches (165 mm).

Height: 9 inches (229 mm).

Height: 12 inches (305 mm).

Width: 6.5 inches (165 mm).

Width: 8.7 inches (221 mm).

Width: 11.2 inches (284 mm).

* + - * 1. Wall mounted convectors.

Height: 9 inches (229 mm).

Height: 12 inches (305 mm).

Height: 15 inches (381 mm).

Height: 23.5 inches (597 mm).

Width: 5.75 inches (146 mm).

Width: 8.25 inches (209 mm).

\*\* NOTE TO SPECIFIER \*\* Length ranges from 34.5 to 101.5 inches. See manufacturers website for more information.

* + - * 1. Radiator Length: \_\_\_\_\_\_\_\_

\*\* NOTE TO SPECIFIER \*\* Caliente series only Delete the following three paragraphs if not required.

* + - * 1. Options:

Fans: 24 V

Any Wood Pattern

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Wood Bench.

* + 1. Bench Heater: Comodo Bench Type Convector Heater by MDL Solutions. LST hydronic heating device floor mounted shall be robust in design and provide suitable for public facility areas.
       1. Water Source Heating Equipment: Certified for outputs based on EN442.
       2. Fire Safety Class: A1.
       3. No harmless fumes from any of raw materials nor cotes.
       4. Operational Pressure: 145 psi (1.0 MPa) maximum.
       5. Operational Temperature: 203 degrees F (95 degrees C) maximum.
       6. Factory Pressure Test: 188.5 psi (1.3 MPa).
       7. Ordinal Heat Output for Water Parameters: 75/65/20 degrees C, -T=50
       8. Components:
          1. Cover: Galvanized steel with zinc-magnesium layer.

Finish: Powder Coat: RAL 7047 and RAL 9005.

* + - * 1. Unit Sides: Tempered glass.
        2. Heat Exchanger: Copper tubing with aluminum fins on water side heat exchanger.
        3. Valves:

Air vent valve.

Thermostatic valve (TRV).

* + - * 1. Connections: ET 3/4 inch.

\*\* NOTE TO SPECIFIER \*\* Other wood materials and finishes concerning sitting bench convector are available on demand..

* + - * 1. Sitting boards that is made from coated oak wood
      1. Dimensions:

\*\* NOTE TO SPECIFIER \*\* Delete bench length option not required.

* + - * 1. Bench Length: 41.81 inch (1062 mm).

Heat Output: 4712 btu/h (1381 W).

Water Capacity: 0.33 gallons (1.25 dm3)

* + - * 1. Bench Length: 61.50 inch (1562 mm).

Heat Output: 5330 btu/h (1562 W).

Water Capacity: 0.49 gallons (1.86 dm3)

* + - * 1. Height: 17.83 inch (453 mm).
        2. Width: 16.53 inch (420 mm).
    1. Steel Wall and Floor Heater: Convector Heaters by MDL Solutions. LST hydronic heating device wall mounted shall be robust in design and provide suitable for public facility areas.
       1. Each individual heat exchanger shall have EN 442 certification. Output Correction factors will not be considered equivalent to establish output capacities.
       2. Fire Safety Class: A1
       3. No harmless fumes from any of raw materials nor cotes.
       4. DC01 Steel Materials: Tested to 190 psi (13 bars).
       5. Welding: Automatic welding processes
       6. Produced in accordance with EN 10130 material standard; cold rolled, low carbon steel flat product for cold forming wet paint and epoxy powder coatings.
       7. Salt Spray Test: For 700 hours.
       8. Operational Pressure: 145 psi (1.0 MPa) maximum.
       9. Operational Temperature: 203 degrees F (95 degrees C) maximum.
       10. Factory Pressure Test: 188.5 psi (1.3 MPa).
       11. Ordinal Heat Output for Water Parameters: 75/65/20 degrees C, -T=50
       12. Components:
           1. Cover: Galvanized steel with zinc-magnesium layer.

Finish: Powder Coat: RAL 7047 and RAL 9005.

* + - * 1. Unit Sides: Tempered glass.
        2. Heat Exchanger: Copper tubing with aluminum fins on water side heat exchanger.
        3. Valves:

Air vent valve.

Thermostatic valve.

* + - * 1. Connections: ET 3/4 inch.
      1. Flat surface: Capable of conducting a large part of heat from the top.
      2. Front surface allowing for freely touching.
      3. Connection: 4 inputs/outputs. 1/2 inch (13 mm).
      4. Connection: 6 inputs/outputs. 1/2 inch (13 mm).
      5. World Standard Color: RAL 9016, epoxy polyester electrostatic powder paint.
      6. Environment friendly water-based primer.
      7. Corrosion resistant.
      8. Special package resistant to any impacts.
      9. Ready to install with packaged accessories

\*\* NOTE TO SPECIFIER \*\* Optional. Delete if not required.

* + - 1. Piping cover panels.
      2. Dimensions:

\*\* NOTE TO SPECIFIER \*\* Delete heater type, dimension, and connection options not required.

* + - * 1. Horizontal Steel Premium:

Height: 12 inch (305 mm).

Height: 15.5 inch (394 mm).

Height: 19.5 inch (495 mm).

Height: 25.5 inch (648 mm).

Depth: 2.75 inch (70 mm).

Depth: 4 inch (102 mm).

Length: 15.5 inch (394 mm).

Length: 102.5 inch (2604 mm).

* + - * 1. Vertical Steel Premium:

Height: 63 inch (1600 mm).

Height: 70 inch (1778 mm).

Height: 78 inch (1981 mm).

Depth: 2.75 inch (70 mm).

Depth: 4 inch (102 mm).

Width: 19.7 inch (500 mm).

* + - * 1. Horizontal Wall Steel Premium:

Height: 12 inch (305 mm).

Height: 15.5 inch (394 mm).

Height: 19.5 inch (495 mm).

Height: 23.5 inch (597 mm)

Depth: 2.75 inch (70 mm).

Depth: 4 inch (102 mm).

Length: 15.5 inch (394 mm).

Length: 102.5 inch (2604 mm).

* + 1. Facade Heater: VKF Facade Heaters by MDL Solutions. LST hydronic heating device wall mounted shall be robust in design and provide suitable for public facility areas.
       1. Water Source Heating Equipment: Certified for outputs based on EN442.
       2. Heat Output (btu/h): \_\_\_\_\_\_\_\_.
       3. Casing: Aluminum or hot-dip galvanized steel sheet with zinc magnesium coating, powder painted in RAL 9007
       4. Heat Exchanger: Copper and aluminum heat exchanger powder-coated in black RAL 9005 with air vent.
       5. Fixing elements.
       6. Water Connection: 2, 3/4 inch NPT internal thread.
       7. Dimensions (HxWxL): 2.16 x 4.72 x 27.56 to 630 inches (55 x 120 x 700 to 16000 mm)
          1. Maximum Lengths of Single Element: 236.22 inch (6000 mm)
       8. Water Capacity for 39.37 inch (1 m) Long Heat Exchanger: 0.08 gallons (0.31 dm3).
       9. Working Pressure: 145 psi (1.0 MPa) maximum.
       10. Test Pressure: 188.5 psi (1.3 MPa)
       11. Operating Temperature: 230 degrees F (110 degree C).

\*\* NOTE TO SPECIFIER \*\* It is possible to custom the length of the connection chamber to make connection valves and pipes invisible..

* + - 1. Thermal Output: Ts/Tr/Ti - Supply, Return, and Inside Temperature
         1. 194/158/68 degrees F (90/70/20 degrees C): 453 W/m
         2. 167/149/68 degrees F (75/65/20 degrees C): 349 W/m
         3. 158/131/68 degrees F (70/55/20 degrees C): 276 W/m
         4. 131/113/68 degrees F (55/45/20 degrees C): 167 W/m
         5. 122/104/68 degrees F (50/40/20 degrees C): 129 W/m
    1. Force Flow Heater: PFWB. MDL Low Surface Temperature (LST) Wall Mount units by MDL Solutions. LST hydronic heating device wall mounted shall be robust in design and provide suitable for public facility areas.
       1. LST hydronic heating device wall mounted shall be robust in design and provide suitable for public facility areas.
       2. The water source heating equipment shall be certified for outputs based on EN442 standards
       3. All aluminum components shall be certified to meet ASTM G53 UV-resistance
       4. Surface temperature remains safe at all times based on DHSS DN 4 1992 regulation and subsequent revision.
          1. Size: \_\_\_\_\_\_\_\_.
          2. Configuration: 2 pipe.
          3. Number of Fan Blowers: \_\_\_\_\_\_\_\_.
          4. Nominal Air Flow: \_\_\_\_\_\_\_\_ cfm.
          5. Total Cooling Capacity: \_\_\_\_\_\_\_\_
          6. Sensible Cooling Capacity: \_\_\_\_\_\_\_\_
          7. Sensible Heating Capacity: \_\_\_\_\_\_\_\_

\*\* NOTE TO SPECIFIER \*\* Delete dimension/model options not required.

* + - 1. Dimensions PFWB-06 (L x H x D): 23.94 x 19.45 x 9.84 (608 x 494 x 250 mm)
      2. Dimensions PFWB-09 (L x H x D): 25.91 x 19.45 x 9.84 (658 x 494 x 250 mm)
      3. Dimensions PFWB-12 (L x H x D): 31.81 x 19.45 x 9.84 (808 x 494 x 250 mm)
      4. Dimensions PFWB-15 (L x H x D): 37.72 x 19.45 x 9.84 (958 x 494 x 250 mm)
      5. Dimensions PFWB-18 (L x H x D): 39.69 x 19.45 x 9.84 (1008 x 494 x 250 mm)
      6. Dimensions PFWB-24 (L x H x D): 53.46 x 19.45 x 9.84 (1358 x 494 x 250 mm)
      7. Dimensions PFWB-30 (L x H x D): 59.37 x 19.45 x 9.84 (1508 x 494 x 250 mm)
      8. Dimensions PFWB-36 (L x H x D): 65.28 x 19.45 x 9.84 (1658 x 494 x 250 mm)
      9. Dimensions PFWB-40 (L x H x D): 71.18 x 19.45 x 9.84 (1808 x 494 x 250 mm)
      10. Dimensions PFWBC-06 (L x H x D): 23.94 x 19.45 x 9.25 (608 x 494 x 235 mm)
      11. Dimensions PFWBC-09 (L x H x D): 25.91 x 19.45 x 9.25 (658 x 494 x 235 mm)
      12. Dimensions PFWBC-12 (L x H x D): 31.81 x 19.45 x 9.25 (808 x 494 x 235 mm)
      13. Dimensions PFWBC-15 (L x H x D): 37.72 x 19.45 x 9.25 (958 x 494 x 235 mm)
      14. Dimensions PFWBC-18 (L x H x D): 39.69 x 19.45 x 9.25 (1008 x 494 x 235 mm)
      15. Dimensions PFWBC-24 (L x H x D): 53.46 x 19.45 x 9.25 (1358 x 494 x 235 mm)
      16. Dimensions PFWBC-30 (L x H x D): 59.37 x 19.45 x 9.25 (1508 x 494 x 235 mm)
      17. Dimensions PFWBC-36 (L x H x D): 65.28 x 19.45 x 9.25 (1658 x 494 x 235 mm)
      18. Dimensions PFWBC-40 (L x H x D): 71.18 x 19.45 x 9.25 (1808 x 494 x 235 mm)
      19. Cabinets: Structure: 16 gauge galvanized sheet-steel. Holes for attaching structure to wall or ceiling. Fabricated with heat exchanger support bracket and full backplate.
          1. Standard configuration will be center mounted with valve concealment section.
          2. Fabricated such that there are no exposed corners or gaps. Join corners to form one solid piece. Gaps are not permitted.
          3. Coating: Epoxy polyester baked at 392 degrees F (200 C).

Finish Color: White.

Finish Color: As determined by the Architect.

Finish: Any Wood Pattern finish

Finish: Any image licensed to the final owner may be used

* + - * 1. Drain Pan: "V" type.
        2. Installation Orientation: Vertically and horizontally.
        3. Fire resistant insulation: Fitted internally to provide both thermal and acoustic insulation.
        4. Top Grille: Supply air. Bottom Opening: Return air.
        5. Front Face: Single uniform piece seamless in construction.
        6. Valve Connections: Internal to unit cabinet valve compartment as provided inside of cabinet unless separate enclosures are supplied.
        7. The unit shall come with locate and fasten support structure. Units to be fastened to supporting structure.

\*\* NOTE TO SPECIFIER \*\* Optional. Delete if not required.

* + - * 1. Supply air grille to be selected from Catalogued standards.
      1. Heat Exchanger: Copper and aluminum. Ultra-low thermal inertia in design.
         1. Certification: ASTM G53 and EN442.
         2. Output Correction Factors: Will not be considered equivalent to establish output capacities.
         3. Round, Seamless Circulation Tubes: Type L copper, and two brass collectors.
         4. Fins: Connected to heat exchanger by expansion method only.
         5. Factory Pressure Tested: 300 psi (2.07 MPa).
         6. Easily removable from cabinet if required.
         7. Coated with dirt repellent and dust proof lacquer in graphite grey; 70 percent gloss to match cabinet.
         8. Air Vents: 1/8 inch (3 mm) air vents.
         9. Fins: Corrugated by design.

\*\* NOTE TO SPECIFIER \*\* Delete options not required.

* + - * 1. Supply and Return Connections: Same end.
        2. Supply and Return Connections: Opposite ends.
        3. Connections: NPT threaded
        4. Connections: Bare for solder onsite.
      1. Valves and Controls:

\*\* NOTE TO SPECIFIER \*\* Delete control options not required.

* + - * 1. Specifically shortened thermostatic valve fully concealed in the casing.
        2. Suitable for one or two pipe systems.
        3. Connection: Wall.
        4. Connection: Floor.
        5. The valve shall have as standard operation duty of shutoff/ Balancing and zone control.
        6. Actuator: 0-10 V at 24 VDC power requirements OR manual TRV.
        7. Two pipe continuous adjustable between (0.132 to 2.642) UsGPM.
        8. Single pipe 9.07 UsGPM diverting capability with 35 percent flow through unit.
        9. Microprocessor Controls: S3 type. The PCB (printed circuit board) microprocessor control board relays control the operation of the indoor-fan motor, water valves (ON/OFF or modulating) and electric heater (if fitted), to maintain room conditions at a user-defined set point. Temperature settings, fan speeds and other control functions can be changed by the infrared handset or wired wall pad.
        10. Electro-Mechanical Controls: W3 type. A 24 VAC signal from the thermostat which working power is from C and R or from indoor room to terminal G(G/G0/G1) supplies power to the blower motor. When G(G/G0/G1) is powered ON, the vane motor is working and open the vane at maximum position. When G(G/G0/G1) is powered OFF, the vane motor will close the vane. The condensate pump will run continuously, as long as coil temperature is less than 59 degrees F (15 degrees C). Alarm interlock relay for unit failure notification in limited PCB. Normally open or normally closed contacts are available for field connection.
    1. Horizontal Through-Wall Packaged Air Terminal Units: Verano PTAC series by MDL Solutions.
       1. Efficient design with EER as high as 13.0 and COP of 3.55.
       2. Exceeds current AHRI standards and DOE requirements.
       3. Outlet Design: Optimized air discharge configurations with large axial blower wheels and lower blower speeds resulting in lower sound levels in occupied spaces.
       4. Temperature sensors: Detect if compressor or evaporator is too cold and signals to stop operation of unit.
       5. Performs self-diagnostics and displays appropriate error codes.
       6. Rapid Heat Mode: Electric heat is engaged to raise room temperature quickly. When room temperature is met unit will revert to standard heat pump mode.
       7. Easy installation, two stage heater, and standard control panels. Cooling with Electric
       8. Key Components PTAC:
          1. Power Cord: LCDI 230 V 20 A/30 A
          2. Rotary Compressor: On-Off.
          3. Architectural Grille.
          4. Wall Sleeve.
          5. Axial-Flow Fan Blade.
          6. Manual fresh Air Vent.
          7. Cross-flow Blower.
          8. Louver.
          9. Easy-access Filter.
          10. Control Panel Cover.
          11. Control Panel.
          12. Thermostat Connector: 24 V.
       9. Options:

\*\* NOTE TO SPECIFIER \*\* Delete options not required.

* + - * 1. Insulated 18 gauge Steel Wall Sleeve (WxHxD): 42 x 16 x 14 inch (1067 x 406 x 354 mm).
        2. Outdoor Grille: Stamped aluminum to attach to wall sleeve.
        3. Outdoor Grille: Silver aluminum architectural grille.
        4. Panel cover locks.
        5. Condensate drainage hose kit.
        6. Optional controllers.
        7. Leveling legs.
        8. Electrical Subbase Kit.
        9. Non-Electrical Subbase Ki.

\*\* NOTE TO SPECIFIER \*\* Delete unit types and model options not required.

* + - 1. Heater: Power Supply: 208-230 /1 / 60
         1. Model PTAC-CEH-07-X. Cooling: 6800/7200 btu/h. Heating: 230 V, 3 kW.
         2. Model PTAC-CEH-09-X. Cooling: 9300/9500 btu/h. Heating: 230 V, 3 kW.
         3. Model PTAC-CEH-12-X. Cooling: 11800/12000 btu/h. Heating: 230 V, 3 kW.
         4. Model PTAC-CEH-16-X. Cooling: 14300/14500 btu/h. Heating: 230 V, 5 kW.
      2. Cooling with Electric Heater: Power Supply: 265 /1 / 60
         1. Model PTAC-CEH-07-Z. Cooling: 7000 btu/h. Heating: 3 kW.
         2. Model PTAC-CEH-09-Z. Cooling: 9200 btu/h. Heating: 3 kW.
         3. Model PTAC-CEH-12-Z. Cooling: 12000 btu/h. Heating: 3 kW.
         4. Model PTAC-CEH-16-Z. Cooling: 15000 btu/h. Heating: 5 kW.
      3. High Efficiency Cooling with Electric Heater: Power Supply: 208-230/1/60
         1. Model iPTAC-CEH-07-X. Cooling: 6800/7200 btu/h. Heating: 230 V, 3 kW.
         2. Model iPTAC-CEH-09-X. Cooling: 9300/9500 btu/h. Heating: 230 V, 3 kW.
         3. Model iPTAC-CEH-12-X. Cooling: 12280/12750 btu/h. Heating: 230 V, 3 kW.
         4. Model iPTAC-CEH-16-X. Cooling: 14300/14500 btu/h. Heating: 230 V, 5 kW.
      4. High Efficiency Cooling with Electric Heater: Power Supply: 265 /1 / 60
         1. Model iPTAC-CEH-07-Z. Cooling: 7000 btu/h. Heating: 3kW.
         2. Model iPTAC-CEH-09-Z. Cooling: 9500 btu/h. Heating: 3kW.
         3. Model iPTAC-CEH-12-Z. Cooling: 12500 btu/h. Heating: 3kW.
         4. Model iPTAC-CEH-16-Z. Cooling: 15000 btu/h. Heating: 5kW.
      5. Heat Pump with Electric Heater: Power Supply: 208-230 /1 / 60
         1. Model PTAC-HEH-07-X. Cooling: 6800/7200 btu/h. Heating: 230 V, 3 kW.
         2. Model PTAC-HEH-09-X. Cooling: 9300/9500 btu/h. Heating: 230 V, 3 kW.
         3. Model PTAC-HEH-12-X. Cooling: 11800/12000 btu/h. Heating: 230 V, 3 kW.
         4. Model PTAC-HEH-16-X. Cooling: 14300/14500 btu/h. Heating: 230 V, 3 kW.
      6. Heat Pump with Electric Heater: Power Supply: 265 /1 / 60
         1. Model PTAC-HEH-07-Z. Cooling: 7000 btu/h. Heating: 6100 btu/h.
         2. Model PTAC-HEH-09-Z. Cooling: 9200 btu/h. Heating: 8500 btu/h.
         3. Model PTAC-HEH-12-Z. Cooling: 12000 btu/h. Heating: 11400 btu/h.
         4. Model PTAC-HEH-16-Z. Cooling: 15000 btu/h. Heating: 14000 btu/h.
      7. High EfficiencyHeat Pump with Electric Heater: Power Supply: 208-230 /1 / 60
         1. Model iPTAC-HEH-07-X. Cooling: 6800/7200 btu/h. 6300/6400 btu/h.
         2. Model iPTAC-HEH-09-X. Cooling: 9300/9500 btu/h. 8300/8500 btu/h.
         3. Model iPTAC-HEH-12-X. Cooling: 12280/12750 btu/h. 11000/11400 btu/h.
         4. Model iPTAC-HEH-16-X. Cooling: 14300/14500 btu/h. 13200/13600 btu/h.
      8. High Efficiency Heat Pump with Electric Heater: Power Supply: 265 /1 / 60
         1. Model iPTAC-HEH-07-Z. Cooling: 7200 btu/h. Heating: 6100 btu/h.
         2. Model iPTAC-HEH-09-Z. Cooling: 9500 btu/h. Heating: 8500 btu/h.
         3. Model iPTAC-HEH-12-Z. Cooling: 12500 btu/h. Heating: 11400 btu/h.
         4. Model iPTAC-HEH-16-Z. Cooling: 15000 btu/h. Heating: 14000 btu/h.
    1. Vertical Packaged Air Terminal Units: Verano VTAC series by MDL Solutions.
       1. EER as high as 12.1 and COP of 3.55 exceeding current DOE requirements.
       2. Dimensions (WxHxD): 23 x 32 x 23 inches (584 x 813 x 584 mm)
       3. Compressor and Evaporator Freeze Protection: Temperature sensors detect if freezing occurs and stops unit operation.
       4. Self-Diagnostics: Will display appropriate error code.
       5. Rapid Heat Mode: When room temperature is met, unit reverts to standard heat pump mode.
       6. Quiet Operation: Brushless DC motors with stepless configuration. Dual fan motors are permanently lubricated and totally enclosed.
       7. Flexibility: Can supply conditioned air to multiple rooms.
       8. Temperature Control: Microprocessor controls are programmed to interface with temperature sensors to maximize comfort conditions.
       9. Power Failure Restart: Unit setting prior to outage is remembered and resumed.
       10. Front desk control.
       11. Continuous Fresh Air Intake: Manually set fresh air vent.
       12. Accessories:
           1. Wall Plenum: 18 gauge.

Dimensions (WxH): 19-3/4 x 32 inch (501 x 813 mm).

Depth: adjustable from 6 to 15 inches (152 to 381 mm) deep.

* + - * 1. Outdoor Grilles (WxHxD): 19-3/4 x 32 x 1-1/4 inch (501 x 813 x 32 mm) minimum.
        2. Controller: 24 V wire thermostat or exterior controller.
      1. Power Supply: 208-230 V / 1 Ph / 60 Hz.
      2. Size: \_\_\_\_\_\_\_\_.
      3. Cooling:
         1. Capacity: \_\_\_\_\_\_ btu/h
         2. EER: \_\_\_\_\_ btu/h
         3. Power Input: \_\_\_\_\_.
      4. Heating:
         1. Capacity: \_\_\_\_\_\_.
         2. COP: \_\_\_\_\_\_.
         3. Power Input: \_\_\_\_\_\_.
      5. Electric Heater: \_\_\_\_\_\_\_\_.
      6. Air Flow High Fan: \_\_\_\_\_\_ cfm at \_\_\_\_\_\_\_ inch of water.
      7. Air Flow Low Fan: \_\_\_\_\_\_ cfm at \_\_\_\_\_\_\_ inch of water.
    1. Tower Panel Radiator: Verano Tower Radiator Model TWL Caspian Series by MDL Solutions. Esthetic and decorative.
       1. Type: Straight.
       2. Tested for leakages and welding quality.
       3. Products are produced in compliance with international quality standards;
          1. ISO 9001, EN 442, DIN and CE certified.
       4. Finish: RAL 9016 Epoxy Polyester Electrostatic Powder Paint.
       5. Corrosion resistant.
       6. Optimum Heat Output and Number of Tubes
       7. High Pressure Resistance
       8. Ready to Install: Relevant Wall Fixing Accessories included
       9. Bottom Middle Connections: 4 x R 1/2 inch (13 mm).
       10. Bottom Middle Connections: 6 x R 1/2 inch (13 mm).
       11. Connections: 4 x 1/2 inch (13 mm).
       12. Connections: 6 x 1/2 inch (13 mm).
       13. Dimensions:

\*\* NOTE TO SPECIFIER \*\* Unit width options are 15-3/4, 16-11/16, 23-5/8, and 31-1/2 inch (400, 500, 600, and 800 mm).

* + - * 1. Unit Width: \_\_\_\_\_\_\_\_.

\*\* NOTE TO SPECIFIER \*\* Unit width options are 23-5/8, 31-1/2, 39-3/8, 47-1/4, 55-1/8, 63, and 70-13/16 inches (00, 800, 1000, 1200, 1400, 1600, and 1800 mm).

* + - * 1. Unit Height: \_\_\_\_\_\_\_\_.
    1. Towel Radiators: Verano Towel Radiator, Model TWL Caspian Series by MDL Solutions. Esthetic & Decorative.
       1. Type: Straight.
       2. Tested for leakages and welding quality.
       3. Products are produced in compliance with international quality standards;
          1. ISO 9001, EN 442, DIN and CE certified.
       4. Finish: RAL 9016 Epoxy Polyester Electrostatic Powder Paint.
       5. Corrosion resistant.
       6. Optimum Heat Output and Number of Tubes
       7. High Pressure Resistance
       8. Ready to Install: Relevant Wall Fixing Accessories included
       9. Bottom Middle Connections: 4 x R 1/2 inch (13 mm).
       10. Bottom Middle Connections: 6 x R 1/2 inch (13 mm).
       11. Connections: 4 x 1/2 inch (13 mm).
       12. Connections: 6 x 1/2 inch (13 mm).
       13. Dimensions:

\*\* NOTE TO SPECIFIER \*\* Unit width options are 15-3/4, 16-11/16, 23-5/8, and 31-1/2 inch (400, 500, 600, and 800 mm).

* + - * 1. Unit Width: \_\_\_\_\_\_\_\_.

\*\* NOTE TO SPECIFIER \*\* Unit width options are 23-5/8, 31-1/2, 39-3/8, 47-1/4, 55-1/8, 63, and 70-13/16 inches (600, 800, 1000, 1200, 1400, 1600, and 1800 mm).

* + - * 1. Unit Height: \_\_\_\_\_\_\_\_.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required.

* 1. COOLING
     1. Fan Coil Units:
        1. Basis of Design: MDL PDWS Slimline Series. Model CVK by MDL Solutions. Slim Duct Fan Coil designed for efficiency and quiet operation.
           1. Standards Compliance: Conform to the following.

UL 1995 Standard for Safety for Heating and Cooling Equipment

CSA C22.2 No. 236 - Standard for Safety for Heating and Cooling Equipment

* + - * 1. Heat Output (btu/h): \_\_\_\_\_\_\_\_.
        2. Cooling Output (btu/h): \_\_\_\_\_\_\_\_.
        3. Structure: Heavy gauge galvanized steel panels, couplings for duct connections, and gravity drain pan for condensation.

\*\* NOTE TO SPECIFIER \*\* Optional Delete if not required.

Fire resistant and acoustic insulation for internal casing. Insulation is also fitted on the top of coil.

* + - * 1. Condensate Pans: Positive sloped, steel with powder coated finish. Coated with self-extinguishing closed cell expanded polyethylene with thermal properties.
        2. Coils: Seamless copper tubes and headers.

Tubes: Mechanically expanded into corrugated aluminum fin material for a permanent primary to secondary surface bond.

Coils are tested at 435 psi (kPa) and recommended for operation at 232 psi (kPa).

Coils include manual air vent and water purge valves.

* + - * 1. Fans:

Housings: Double inlet forward curved centrifugal type. Constructed from heavy gauge galvanized steel with die-formed inlet cones.

Wheels: Statically and dynamically balanced for smooth, quiet operation.

* + - * 1. EC Motor: Include driven controls PCB, a constant torque, permanent magnet, brush less DC motor with preliminary 3-speed setting that allows for precise air balancing. The driven PCB cooperates with thermostat.
        2. Air filter: Easily removable and washable. Made from self-extinguishing acrylic with an efficiency of class Merv 2-4.

\*\* NOTE TO SPECIFIER \*\* Delete controls option not required.

* + - * 1. Controls: Complete Function Control: S type.

Printed Circuit Board (PCB): Mod bus microprocessor controls functionality of the indoor fan motor, water valves (ON/OFF) and electric heater (optional), to maintain room conditions at a user-defined set point. Temperature settings, fan speeds and other control functions can be changed by either infrared handset or wired wall pad controller.

* + - * 1. Controls: Flexible Function Control: W type.

Suitable for connecting with an external 24 VAC thermostat which sends H/M/L control signal to EC motor. The PCB includes zone control application, simple error diagnostic and electric heater control

\*\* NOTE TO SPECIFIER \*\* Delete unit type and options not required.

* + - * 1. Hydronic Ducted Unit 3-row coil 2-pipe.

Model: \_\_\_\_\_\_\_\_.

Number Of Fan Blowers: Two.

Number Of Fan Blowers: Three.

Number Of Fan Blowers: Four..

Power Supply (V/Ph/Hz): 115/1/60 or 220/1/60

Operation Control: S. Complete function on board PCB with integrated group control functionality.

Operation Control: W. Flexible function on board PCB with zone control functionality.

Air Flow (L/M/H): \_\_\_\_\_\_\_\_ cfm ()

Total Cooling Capacity(L/M/H): \_\_\_\_\_\_\_\_ btu/h

Sensible Cooling Capacity (L/M/H): \_\_\_\_\_\_\_\_ btu/h

Heating Capacity (L/M/H): \_\_\_\_\_\_\_\_ btu/h.

Maximum Heater Capacity: \_\_\_\_\_\_\_\_ kW

* + - * 1. Hydronic Ducted Unit 3+1R coil 4-pipe with EC Motor.

Model: \_\_\_\_\_\_\_\_.

Number Of Fan Blowers: Two.

Number Of Fan Blowers: Three.

Number Of Fan Blowers: Four..

Power Supply (V/Ph/Hz): 115/1/60 or 220/1/60

Operation Control: S. Complete function on board PCB with integrated group control functionality.

Operation Control: W. Flexible function on board PCB with zone control functionality.

Air Flow (L/M/H): \_\_\_\_\_\_\_\_ cfm ()

Total Cooling Capacity(L/M/H): \_\_\_\_\_\_\_\_ btu/h

Sensible Cooling Capacity (L/M/H): \_\_\_\_\_\_\_\_ btu/h

Heating Capacity (L/M/H): \_\_\_\_\_\_\_\_ btu/h.

Maximum Heater Capacity: \_\_\_\_\_\_\_\_ kW

* + - * 1. Dimensions (WxH): 18-15/16 inches (481 mm) x 7-7/8 inches (200 mm).

Length: 31-1/2 inches (800 mm).

Length: 45-5/8 inches (1159 mm).

Length: 61-13/16 inches (1570 mm).

* + - 1. Basis of Design: Verano Clima-Trench Fan Coil. Model CVK by MDL Solutions. Assembled in a way to keep fan motor on room side and coil heat exchanger on window side.
         1. Heat Output (btu/h): \_\_\_\_\_\_\_\_.
         2. Cooling Output (btu/h): \_\_\_\_\_\_\_\_.
         3. Components:

Trench Casing: Hot-dip zinc-magnesium coated steel

Finish: RAL 9005 black powder coat

Finish: RAL \_\_\_\_\_\_\_\_.

Heat Exchanger: Copper-aluminum. Finish: Black powder coat.

Bleeding valve.

Fan: Silent and efficient 24 VDC EC motor.

Cover for connection space.

Fan Cover.

Fixed and leveling anchors.

Water Connectors: Two, 3/4 inch NPT half-unions.

\*\* NOTE TO SPECIFIER \*\* Delete connector side option not required. Right is standard.

Connection Side: Left (L).

Connection Side: Right (R).

Condensate Connectors: Two, 3/4 inch NPT half-unions.

Drain Kit. Must be connected to the sewage system.

Decorative Frame Type: L. Aluminum.

Finish: Anodized.

Finish: RAL \_\_\_\_\_\_\_\_ powder coat.

Finish: Wood imitation.

Decorative Frame Type: F. Aluminum.

Finish: Anodized.

Finish: RAL \_\_\_\_\_\_\_\_ powder coat.

Finish: Wood imitation.

Decorative Frame Finish: Natural aluminum

Grille Type: Roll-up.

Grille Type: Linear.

Grille Type: Modular.

Grille Height: (18 mm)

Grille: Natural aluminum

Grille: Anodized aluminum

Grille: Aluminum. RAL \_\_\_\_\_\_ powder coat.

Grille: Stainless steel.

* + - * 1. 2 Pipe Design:

Trench (HxW): 3.5 x 6.7 inches ()

Trench Cover Width: 7.6 inches ()

Trench (HxW): 5.5 x 13.7 inches ()

Trench Cover Width: 14.75 inches ()

Trench Cover Depth: 0.7 inches ()

Trench Length: 27.5 inch ()

Trench Length: 43.3 inch ()

Trench Length: 59 inch ()

Trench Length: 74.8 inch ()

Trench Length: 90.5 inch ()

Trench Length: 104.3 inch ()

Trench Length: \_\_\_\_\_\_\_\_ inch ()

* + - * 1. 4 Pipe Design:

Trench (HxW): 5.5 x 13.7 inches ()

Trench Cover Width: 14.75 inches ()

Trench Length: 37.4 inch ()

Trench Length: 51.2 inch ()

Trench Length: 67 inch ()

Trench Length: 82.7 inch ()

Trench Length: 98.4 inch ()

Trench Length: 112.2 inch ()

Trench Length: \_\_\_\_\_\_\_\_ inch ()

* + - * 1. Controls:

Thermostat: \_\_\_\_\_\_\_\_.

Room Temperature Controller: VER-24. Programmable. Color touch display.

Room Temperature Controller: RDD 100

Room Temperature Controller: Siemens RDE 100

Room Temperature Controller: Siemens RAA21

Room Temperature Controller: \_\_\_\_\_\_\_\_

Wireless Controls: \_\_\_\_\_\_\_\_.

* + - 1. Basis of Design: Verano Super Slim Fan Coil. Model PFWSL by MDL Solutions.
         1. All-in-one solution for cooling, heating and dehumidification. It achieves high energy saving levels as it can be combined with low-temperature heat generators such as heat pump, condensing boilers and solar collectors. With its sophisticated temperature regulator, it guarantees thermal comfort in every season. It heats and cools extremely quickly and once the desired temperature is reached it maintains it accurately and silently.

Air Flow (L/M/H): \_\_\_\_\_\_\_\_ cfm ()

Total Cooling Capacity(L/M/H): \_\_\_\_\_\_\_\_ btu/h.

Sensible Cooling Capacity (L/M/H): \_\_\_\_\_\_\_\_ btu/h.

Heating Capacity (L/M/H): \_\_\_\_\_\_\_\_ btu/h.

Maximum Heater Capacity: \_\_\_\_\_\_\_\_ kW.

* + - * 1. Structural: Galvanized sheet-steel with holes for attaching structure to wall or ceiling.

Drain Pan: "V" type. Ensures unit can be installed vertically and horizontally.

Fire Resistant Insulation: Fitted internally. Thermal and acoustic.

* + - * 1. Fascia: Steel-sheet with electrostatic coating, RAL 9010 which is resistant to rust, corrosion, chemical agents, solvents, aliphatic compounds and alcohols.
        2. Air Delivery Grille: ABS. Color: RAL 9010.
        3. Configuration: 2 pipe
        4. Heat Exchanger: Highly efficient coil in which copper pipes and aluminum fins are fixed by mechanical expansion.

Coil Connections: Provided with anti-torsion system, hand air vent and water purge valves.

Coils: Tested at 25 bar. Recommended for operating at 8 bar.

* + - * 1. Blower and Motor: Specially designed and tested EC motors, allowing blower wheel to provide optimum performance in airflow-efficiency and quiet operation.
        2. Air Filter: ABS with Nylon filter. Easy removal for cleaning; rinsing with water or by gently vacuuming.
        3. Power Supply (V/Ph/Hz): 115/1/60

\*\* NOTE TO SPECIFIER \*\* Delete fan blower option not required.

* + - * 1. Number of Fan Blowers: 1.
        2. Number of Fan Blowers: 2.

\*\* NOTE TO SPECIFIER \*\* Delete dimension options not required.

* + - * 1. Dimensions (LxHxW): 29-1/8 x 22-13./16 x 5-1/8
        2. Dimensions (LxHxW): 37 x 22-13./16 x 5-1/8
        3. Dimensions (LxHxW): 44-7/8 x 22-13./16 x 5-1/8
        4. Dimensions (LxHxW): 52-3/4 x 22-13./16 x 5-1/8
        5. Dimensions (LxHxW): 60-5/8 x 22-13./16 x 5-1/8

\*\* NOTE TO SPECIFIER \*\* Delete Controls option not required.

* + - * 1. Microprocessor Controls: S type. Complete function on board PCB with integrated group control functionality.

Printed Circuit Board Modbus microprocessor controls functionality of the indoor fan motor, water valves (ON/OFF) and electric heater (optional), to maintain room conditions at a user-defined set point. Temperature settings, fan speeds and other control functions can be changed by either infrared handset or wired wall pad controller.

Includes zone control application, simple error diagnostic and electric heater control (optional).

* + - * 1. Electro-Mechanical Controls: W type. Flexible function on board PCB with zone control functionality.

Suitable for connecting with an external 24 VAC thermostat which sends H/M/L control signal to EC motor.

* + - 1. Basis of Design: Verano Hydronic Cassette Fan Coil. Model PCG and PCH Series by MDL Solutions. ECM Fan Coil under 9 inches (229 mm) in height; 150 to 740 cfm (4.25 to 20.95 cu m per min).
         1. AHRI and ETL (C USA) certified.
      2. Energy Efficient 6-50 W; Lower Voltage fan motors with 120 V electrical connections
         1. Air Flow (L/M/H): \_\_\_\_\_\_\_\_ cfm
         2. Cooling Capacity(L/M/H): \_\_\_\_\_\_\_\_ btu/h.
         3. Sensible Cooling Capacity (L/M/H): \_\_\_\_\_\_\_\_ btu/h.

\*\* NOTE TO SPECIFIER \*\* Delete heating option not required.

* + - * 1. Heating: Hydronic Capacity (L/M/H): \_\_\_\_\_\_\_\_ btu/h.
        2. Heating: Electric Heater Capacity: \_\_\_\_\_\_\_\_ kW.

\*\* NOTE TO SPECIFIER \*\* Delete configuration option not required.

* + - * 1. Configuration: 2 pipe. Chilled and hot water.
        2. Configuration: 2 pipe. Chilled water with electric heater.
        3. Configuration: 4 pipe. Chilled and hot water.

\*\* NOTE TO SPECIFIER \*\* Delete number of fan blower option not required.

* + - * 1. Number Of Fan Blowers: One
        2. Number Of Fan Blowers: Two

\*\* NOTE TO SPECIFIER \*\* Delete power supply option not required.

* + - * 1. Power Supply (V/Ph/Hz): 115/1/60
        2. Power Supply (V/Ph/Hz): 220/1/60

\*\* NOTE TO SPECIFIER \*\* Delete dimension and size options not required.

* + - * 1. Dimensions:

PCG-04 (LxWxH): 26.8 x 26.8 x 10 inches (680 x 680 x 254 mm).

PCG-08 (LxWxH): 26.8 x 26.8 x 11.4 inches (680 x 680 x 290 mm).

PCG-09 (LxWxH): 48.8 x 26.8 x 10 inches (1240 x 680 x 254 mm).

PCG-16 (LxWxH): 48.8 x 26.8 x 11.4 inches (1240 x 680 x 290 mm).

PCH-12 (LxWxH): 32.7 x 32.7 x 10.2 inches (830 x 830 x 260 mm).

PCH-20 (LxWxH): 38.6 x 38.6 x 11.4 inches (980 x 980 x 290 mm).

\*\* NOTE TO SPECIFIER \*\* Delete casing option not required.

* + - * 1. Casing: G Series. Galvanized steel sheet with zinc magnesium coating.
        2. Casing: H Series. Galvanized steel sheet with zinc magnesium coating.
        3. Branch Duct: 3.9 inch (99 mm)
        4. EC motor.
        5. Return Air plenum with air filter.
        6. Centrifugal Fans: Statically and dynamically balanced.
        7. Modulating Valve with drain pump. 24 V.
        8. Louvers.
        9. Zone control product operation.
        10. Limited LED diagnostics.
        11. Internal Connection Points: 3/4 inch NPT
        12. Options:

\*\* NOTE TO SPECIFIER \*\* Delete options not required.

Fresh air up to 15 percent.

Infrared handset controller wireless.

Signal modulating Valves, 24 V.

Continuous Modulation or On/off.

Valves.

Electric heat.

Preheat configuration.

Complete diagnostic.

Up to 32 Secondary Slave units control with IR handset.

Up to 2048 unit Control via BMS control.

\*\* NOTE TO SPECIFIER \*\* Delete operation control and control boxes options not required.

* + - * 1. Operation Control: Type S. Complete function onboard PCB with integrated group control functionality, incl. 1 pc return air
        2. sensor and 2 pcs temperature sensors.
        3. Operation Control: Type W. Limited function onboard PCB with drain pump, louver and zone control functionality, includes 1 pc coil temperature sensor
        4. Operation Control: Type X. No control box pre-installed.
        5. Plug-And-Play Control Boxes: SK USA NCG H 001 A ECM.

PCG(H)-(V/P)S configuration complete function integrated controller, compatible with IR handset controller, wired wall pad, serial networking for master slave and MODBUS applications.

* + - * 1. Plug-And-Play Control Boxes: SK USA NCGH 002 A ECM.

PCG(H)-(V/P)W configuration limited function controller, compatible with standard wired thermostat controller, with zone control functionality.

* + - * 1. Plug-And-Play Control Boxes: SK USA NCGH 003 A ECM.

PCG(H) H)--(V/P)W EH configuration limited function controller, compatible with standard wired thermostat controller, with zone control functionality , with electrical heater

* + - 1. Basis of Design: Verano Highwall Fan Coil. Model SWC by MDL Solutions.
         1. Indoor, downward discharge 2 pipe High Wall Mounted low profile, chilled or hot water coil, to be matched with a commercial chiller, water source heat pumps, or hot water boiler, 180 F maximum. Units shall come complete with hot water coil, fan, ECM fan motor, piping connectors, electrical controls, condensate pump, and hanging brackets.
         2. Standards Compliance:

Certified by ETL.

Insulation and Adhesive per NFPA-90A requirements for flame spread and smoke generation. Insulation: Rated to UL94 VO.

Equipment Wiring: Comply with NEC requirements.

* + - * 1. Size: \_\_\_\_\_\_\_\_.

\*\* NOTE TO SPECIFIER \*\* Delete configuration option not required.

* + - * 1. Configuration: 2 pipe. Chilled and hot water.
        2. Configuration: 2 pipe. Chilled water with electric heater.
        3. Number Of Fan Blowers: One
        4. Air Flow (L/M/H): \_\_\_\_\_\_\_\_ cfm ()
        5. Cooling Capacity(L/M/H): \_\_\_\_\_\_\_\_ btu/h.
        6. Sensible Cooling Capacity (L/M/H): \_\_\_\_\_\_\_\_ btu/h.

\*\* NOTE TO SPECIFIER \*\* Delete heating option not required.

* + - * 1. Heating: Hydronic Capacity (L/M/H): \_\_\_\_\_\_\_\_ btu/h.
        2. Heating: Electric Heater Capacity: \_\_\_\_\_\_\_\_ kW.

\*\* NOTE TO SPECIFIER \*\* Delete power supply option not required.

* + - * 1. Power Supply (V/Ph/Hz): 115/1/60
        2. Power Supply (V/Ph/Hz): 220/1/60

\*\* NOTE TO SPECIFIER \*\* Delete dimension and model options not required.

* + - * 1. Dimensions (LxHxD) SWC-04: 34.45 x 11.81 x 8.66 inches
        2. Dimensions (LxHxD) SWC-06: 34.45 x 11.81 x 8.66 inches
        3. Dimensions (LxHxD) SWC-12: 34.45 x 11.81 x 8.66 inches
        4. Dimensions (LxHxD) SWC-15: 34.45 x 11.81 x 8.66 inches
        5. Dimensions (LxHxD) SWC-18: 34.45 x 11.81 x 8.66 inches
        6. Dimensions (LxHxD) SWC-20: 41.34 x 12.20 x 9.25
        7. Dimensions (LxHxD) SWC-24: 41.34 x 12.20 x 9.25
        8. Dimensions (LxHxD) SWC-30: 41.34 x 12.20 x 9.25
        9. Unit Cabinet: Galvanized sheet steel. Filter tracks and cleanable filters accessible from below. Adjacent room cooling provided by a knockout in cabinet side pane. Provisions to accommodate a limited amount of ductwork.
        10. Fan: Centrifugal, direct-drive blower type with air intake in center of unit and discharge on perimeter.

Air Louvers: Adjustable discharge.

Air Outlet Vanes: Fully insulated aluminum to prevent condensation from forming.

Manually Adjustable: For unit sizes 08 and 12.

Motor Adjustable: for unit sizes 18 to 36.

* + - * 1. Fascia: Constructed of high impact polystyrene.
        2. Cooling Coil: For installation in a 2-pipe system. 1/2 inch diameter copper tubes. Aluminum fins bonded to tubes by mechanical expansion. Working Pressure: 325 psig.

Manual air vent on upper connection and drain port on lower connection.

* + - * 1. Motors: 3-speed. Enclosed and with thermal overload protection, sealed for life lubricated bearings, and external rotor allowing good heat dissipation.
        2. Controls: 24-V. Easily operated by user from wall-mounted thermostat. A normally closed float control in the condensate sump shuts unit down in case of pump malfunction.
        3. Alarm Interlock Relay: Includes a relay for unit failure notification. Normally open/normally closed contacts are available for field connection.
        4. Filters: Filter track with factory-supplied cleanable filters.
        5. Operating Characteristics: A one-coil unit installed in a 2-pipe system shall be capable of providing cooling as specified by the operating mode of the central water supply system.
        6. Special Features:

Thermostat: Commercial grade to control unit operation and provide single speed fan capability. Automatic changeover from cooling or heating shall be provided.

Motorized Valve Accessory: Two-position, spring return two or three-way valve.

Microprocessor Control: Enables room conditions to be maintained at a user defined set point. Allows automatic control of fan speed based on demand in space.

Controller: Either an infrared transmitter or pendant transmitter. Allows programming of a weekly operating schedule.

* + - * 1. Wall-Mounted Pendant: For communication to microprocessor controller shall be available to replace the standard infrared remote control.
        2. Aquastat: Available for use with a 2-pipe heating/cooling changeover system.
      1. Basis of Design: Verano ECM Duct Fan Coil. Model PDWA by MDL Solutions.
         1. Standards Compliance: AHRI rated and certified capacity fan coil units.
         2. Size: \_\_\_\_\_\_\_\_.
         3. Configuration: 2 pipe.
         4. Number of Fan Blowers: \_\_\_\_\_\_\_\_.
         5. Nominal Air Flow: \_\_\_\_\_\_\_\_ cfm.
         6. Total Cooling Capacity: \_\_\_\_\_\_\_\_ btu/h
         7. Sensible Cooling Capacity: \_\_\_\_\_\_\_\_ btu/h

\*\* NOTE TO SPECIFIER \*\* Delete heating option not required.

* + - * 1. Heating: Hydronic Capacity (L/M/H): \_\_\_\_\_\_\_\_ btu/h.
        2. Heating: Electric Heater Capacity: \_\_\_\_\_\_\_\_ kW.

\*\* NOTE TO SPECIFIER \*\* Delete power supply option not required.

* + - * 1. Power Supply (V/Ph/Hz): 115/1/60
        2. Power Supply (V/Ph/Hz): 220/1/60

\*\* NOTE TO SPECIFIER \*\* Delete dimension and model options not required.

* + - * 1. Dimensions PDWA-200 (LxHxD): 29.72 x 9.84 x 21.65
        2. Dimensions PDWA-300 (LxHxD): 33.66 x 9.84 x 21.65
        3. Dimensions PDWA-400 (LxHxD): 37.6 x 9.84 x 21.65
        4. Dimensions PDWA-500 (LxHxD): 45.47 x 9.84 x 21.65
        5. Dimensions PDWA-600 (LxHxD): 49.41 x 9.84 x 21.65
        6. Dimensions PDWA-800 (LxHxD): 65.16 x 9.84 x 21.65
        7. Dimensions PDWA-1000 (LxHxD): 69.09 x 9.84 x 21.65
        8. Dimensions PDWA-1200 (LxHxD): 73.03 x 9.84 x 21.65
        9. Dimensions PDWA-1400 (LxHxD): 69.09 x 11.81 x 24.41
        10. Dimensions PDWA-1600 (LxHxD): 76.97 x 11.81 x 24.41
        11. Cabinet: heavy-gauge galvanized steel construction.

Exterior Panels: Insulated with 1/2 inch (15 mm) thick neoprene spray coated glass fiber lining material secured in place with adhesive.

Exposed Edges: Sealed to prevent fibers from entering airstream.

Meets NFPA 90A requirements and flame spread and smoke developed fire hazard ratings of CAN/ULC-S102.

Accessible galvanized steel filter holding frame.

Air Filter Units: Glass fiber, 1 inch (25 mm) thick, disposable, UL Class 1, 25 to 30 percent efficient MERV 8 filters in accordance with requirements of UL 900. Cardboard framed.

* + - * 1. Coils: Factory tested. 1/2 inch (12 mm) O.D. seamless copper tubes mechanically expanded into plate type aluminum fins. Equipped with copper pipe headers, a manual air vent, and a drain plug.
        2. Drain Pan: Full width, watertight stainless steel or non-corrossive thermally insulated material sloped for positive drainage and equipped with two 3/4 inch (20 mm) O.D. drain connections. Factory insulated with 25/50 rated closed cell insulation conforming to CAN/ULC-S102 and NFPA 90A requirements.

Secondary Drain Pans: Constructed and insulated as for primary drain pans, provided where required to collect condensate from pipe headers and field supplied valves.

* + - * 1. Fan: Centrifugal, forward curved, double width and inlet galvanized steel fan wheel, each dynamically balanced,
        2. Motor: Thermal overload protected, Electrically Commutated Motor. 3-speed plus "off" motor control switch with faceplate, factory mounted in an electrical box secured to unit in an accessible location. Factory connected to motor. Fan assemblies are to be accessible and easily removable.
        3. Modulating Valves: 24 V signal.

\*\* NOTE TO SPECIFIER \*\* Delete horizontal Units paragraph if not required.

* + - * 1. Horizontal Units: Suspended. Equipped with four top casing holes for hanger rod connections.

Rubber-in-shear vibration isolation elements factory supplied with each unit for each suspension point;

Double deflection discharge grille or flanged discharge duct connection collar as indicated, and either a bottom or rear single deflection return air grille as shown;

Removable bottom and side panels, and bottom access to the filter holding frame;

\*\* NOTE TO SPECIFIER \*\* Delete controls option not required.

* + - * 1. Microprocessor Controls: S3 type. The PCB (printed circuit board) microprocessor control board relays control the operation of the indoor-fan motor, water valves (ON/OFF or modulating) and electric heater (if fitted), to maintain room conditions at a user-defined set point. Temperature settings, fan speeds and other control functions can be changed by the infrared handset or wired wall pad.
        2. Electro-Mechanical Controls: W3 type. A 24 VAC signal from the thermostat which working power is from C and R or from indoor room to terminal G(G/G0/G1) supplies power to the blower motor. When G(G/G0/G1) is powered ON, the vane motor is working and open the vane at maximum position. When G(G/G0/G1) is powered OFF, the vane motor will close the vane. The condensate pump will run continuously, as long as coil temperature is less than 59 degrees F. Alarm interlock relay for unit failure notification in limited PCB. Normally open or normally closed contacts are available for field connection.
      1. Basis of Design: Verano ECM High Static Fan Coil. Model PDWB by MDL Solutions. Duct fan coil designed to meet and exceed demanding requirements for efficiency and quiet operation.
         1. Standards Compliance:

AHRI rated and certified capacity fan coil units.

ETL listed and labelled

CAN/CSA-C22.2 No. 236, Heating and Cooling Equipment.

UL/ANSI 1995, Heating and Cooling Equipment

ANSI/AHRI Standard 350, Sound Performance Rating of Non-Ducted Indoor Air-Conditioning Equipment.

ANSI/AHRI Standard 440, Performance Rating of Room Fan-Coils.

NFPA 90A and CAN/ULC-S102.

* + - * 1. Size: \_\_\_\_\_\_\_\_.
        2. Nominal Air Flow: \_\_\_\_\_\_\_\_ cfm.
        3. Total Cooling Capacity: \_\_\_\_\_\_\_\_ btu/h
        4. Sensible Cooling Capacity: \_\_\_\_\_\_\_\_btu/h

\*\* NOTE TO SPECIFIER \*\* Delete heating option not required.

* + - * 1. Heating: Hydronic Capacity (L/M/H): \_\_\_\_\_\_\_\_ btu/h.
        2. Heating: Electric Heater Capacity: \_\_\_\_\_\_\_\_ kW.

\*\* NOTE TO SPECIFIER \*\* Delete configuration option not required.

* + - * 1. Configuration: 2 pipe. Chilled and hot water.
        2. Configuration: 2 pipe. Chilled water with electric heater.
        3. Configuration: 4 pipe. Chilled and hot water.

\*\* NOTE TO SPECIFIER \*\* Delete number of fan blower option not required.

* + - * 1. Number Of Fan Blowers: One.
        2. Number Of Fan Blowers: Two.
        3. Number Of Fan Blowers: Three.
        4. Number Of Fan Blowers: Four.

\*\* NOTE TO SPECIFIER \*\* Delete power supply option not required.

* + - * 1. Power Supply (V/Ph/Hz): 115/1/60
        2. Power Supply (V/Ph/Hz): 220/1/60
        3. Dimensions:

\*\* NOTE TO SPECIFIER \*\* Delete dimension and model options not required.

PDWB-200 (LxHxD): 29.72 x 9.84 x 21.65 inches (755 x 250 x 550 mm).

PDWB-300 (LxHxD): 33.66 x 9.84 x 21.65 inches (855 x 250 x 550 mm).

PDWB-400 (LxHxD): 37.6 x 9.84 x 21.65 inches (955 x 250 x 550 mm).

PDWB-500 (LxHxD): 45.47 x 9.84 x 21.65 inches (1155 x 250 x 550 mm).

PDWB-600 (LxHxD): 49.41 x 9.84 x 21.65 inches (1255 x 250 x 550 mm).).

PDWB-800 (LxHxD): 65.16 x 9.84 x 21.65 inches (1554 x 250 x 550 mm).).

PDWB-1000 (LxHxD): 69.09 x 9.84 x 21.65 inches (1755 x 250 x 550 mm).

PDWB-1200 (LxHxD): 73.03 x 9.84 x 21.65 inches (1855 x 250 x 550 mm).

PDWB-1400 (LxHxD): 69.09 x 11.81 x 24.41 inches (1855 x 300 x 620 mm).

PDWB-1600 (LxHxD): 76.97 x 11.81 x 24.41 inches (1955 x 300 x 620 mm).

* + - * 1. Cabinet: Heavy-gauge galvanized steel construction.

Exterior Panels: Insulated with 1/2 inch (15 mm) thick neoprene spray coated glass fiber lining material secured in place with adhesive.

Exposed Edges: Sealed to prevent fibers from entering airstream.

Meets NFPA 90A requirements and flame spread and smoke developed fire hazard ratings of CAN/ULC-S102.

Accessible galvanized steel filter holding frame.

Air Filter Units: Glass fiber, 1 inch (25 mm) thick, disposable, UL Class 1, 25 to 30 percent efficient MERV 8 filters in accordance with requirements of UL 900. Cardboard framed.

* + - * 1. Coils: Factory tested. 1/2 inch (12 mm) O.D. seamless copper tubes mechanically expanded into plate type aluminum fins. Equipped with copper pipe headers, a manual air vent, and a drain plug.
        2. Drain Pan: Full width, watertight stainless steel or non-corrossive thermally insulated material sloped for positive drainage and equipped with two 3/4 inch (20 mm) O.D. drain connections. Factory insulated with 25/50 rated closed cell insulation conforming to CAN/ULC-S102 and NFPA 90A requirements.

Secondary Drain Pans: Constructed and insulated as for primary drain pans, provided where required to collect condensate from pipe headers and field supplied valves.

* + - * 1. Fan: Centrifugal, forward curved, double width and inlet galvanized steel fan wheel, each dynamically balanced,
        2. Motor: Thermal overload protected, Electrically Commutated Motor. 3-speed plus "off" motor control switch with faceplate, factory mounted in an electrical box secured to unit in an accessible location. Factory connected to motor. Fan assemblies are to be accessible and easily removable.
        3. Modulating Valves: 24 V signal.

\*\* NOTE TO SPECIFIER \*\* Delete horizontal units if not required.

* + - * 1. Horizontal Units: Suspended. Equipped with four top casing holes for hanger rod connections.

Rubber-in-shear vibration isolation elements factory supplied with each unit for each suspension point;

Double deflection discharge grille or flanged discharge duct connection collar as indicated, and either a bottom or rear single deflection return air grille as shown;

Removable bottom and side panels, and bottom access to the filter holding frame;

\*\* NOTE TO SPECIFIER \*\* Delete control option not required.

* + - * 1. Microprocessor Controls: S3 type. The PCB (printed circuit board) microprocessor control board relays control the operation of the indoor-fan motor, water valves (ON/OFF or modulating) and electric heater (if fitted), to maintain room conditions at a user-defined set point. Temperature settings, fan speeds and other control functions can be changed by the infrared handset or wired wall pad.
        2. Electro-Mechanical Controls: W3 type. A 24 VAC signal from the thermostat which working power is from C and R or from indoor room to terminal G(G/G0/G1) supplies power to the blower motor. When G(G/G0/G1) is powered ON, the vane motor is working and open the vane at maximum position. When G(G/G0/G1) is powered OFF, the vane motor will close the vane. The condensate pump will run continuously, as long as coil temperature is less than 59 degrees F. Alarm interlock relay for unit failure notification in limited PCB. Normally open or normally closed contacts are available for field connection.
      1. Basis of Design: Verano Vertical Mini AHU Ducted Fan Coils. Model VAHU by MDL Solutions. Design for installation in suspended ceiling or any application where high CPM ductable units are needed.
         1. Size: \_\_\_\_\_\_\_\_.
         2. Nominal Air Flow: \_\_\_\_\_\_\_\_ cfm.
         3. Total Cooling Capacity: \_\_\_\_\_\_\_\_ btu/h.
         4. Sensible Cooling Capacity: \_\_\_\_\_\_\_\_ btu/h.

\*\* NOTE TO SPECIFIER \*\* Delete heating option not required.

* + - * 1. Heating: Hydronic Capacity (L/M/H): \_\_\_\_\_\_\_\_ btu/h.
        2. Heating: Electric Heater Capacity: \_\_\_\_\_\_\_\_ kW.

\*\* NOTE TO SPECIFIER \*\* Delete configuration option not required.

* + - * 1. Configuration: 2 pipe. Chilled and hot water.
        2. Configuration: 2 pipe. Chilled water with electric heater.
        3. Configuration: 4 pipe. Chilled and hot water.
        4. Coil Connection: Left.
        5. Coil Connection: Right.

\*\* NOTE TO SPECIFIER \*\* Delete number of fan blower option not required.

* + - * 1. Number Of Fan Blowers: One.
        2. Number Of Fan Blowers: Two.
        3. Power Supply: 220 V, 1 Ph, 60 Hz
        4. Dimensions:

\*\* NOTE TO SPECIFIER \*\* Delete dimensions and model options not required.

VAHU-200 (LxHxD: 33-7/16 x 59-7/16 x 26-3/8 inch (850 x 1510 x 670 mm)

VAHU-300 (LxHxD: 41-5/16 x 59-7/16 x 26-3/8 inch (1050 x 1510 x 670 mm)

VAHU-400 (LxHxD: 49-3/16 x 59-7/16 x 26-3/8 inch (1250 x 1510 x 670 mm)

VAHU-600 (LxHxD: 61 x 59-7/16 x 26-3/8 inch (1550 x 1510 x 670 mm)

VAHU-800 (LxHxD: 74 x 59-7/16 x 26-3/8 inch (1880 x 1510 x 670 mm)

* + - * 1. Air handling terminal unit for suspended ceiling installation. Suitable for ducted air distribution.

Constructed of sandwich panels to achieve low noise during operation and provide easy access to fans, motors and filters.

Ships completely assembled.

Motor wiring is introduced into control box reducing site installation time.

* + - * 1. Frameless Structure: Integrated folding steel structure panels tested to ensure there is no air leakage.
        2. Casing: Double skinned. Two panels with internal insulation. Each panel is 1 inch (25 mm) thick.

Inner Panels: Plane galvanized steel.

Outer Panels: Pre-coated galvanized steel.

Insulation: High-pressure PU foam sandwiched between panels reinforcing the casing.

* + - * 1. Filter: Washable, double-layer acrylic nylon with aluminum frame.

Filtration Level: G4; Merv 8.

Filtration Level: F8 (Merv 14).

* + - * 1. Cooling Coil: Standard Cu/Al 3/8 inch OD.

Manifolds: Steel with threaded connections.

Manual Air-Vent valve.

Aluminum Fins: Pre-coated for protection by hydrophilic blue fin process.

Coils: Tested at 435 psi.

Recommended Operating Pressure: 232 psi.

* + - * 1. Drain Pan: Single wall painting steel with 3/16 inch insulation on outer wall.

Pan extends full length and width of coil and is sloped for positive drainage. Galvanized Drain Connector: 3/4 inch male pipe threaded.

* + - * 1. Fans: Housing, impeller, mounting feet, and DC motor.

Housing: Hot-dip galvanized steel.

Side Panel: Includes inlet cones whose inlet conditions are designed for optimum aerodynamics.

Scroll: Fixed on side panel by spot welding.

Wheel: Hot-dip galvanized steel.

Forward curved blades feature an advanced aerodynamic design for maximum efficiency and minimum noise level.

Impeller: Fixed on center plate and on end ring with riveting compression.

Withstand continuous operation with maximum power.

Fully balanced according to ANSI/AMCA-204

Mounting Feet: Galvanized steel sheet formed with unique technique to ensure adequate strength.

* + - * 1. Fan Motors: YZWWSL external rotor BLDC motor controlled by 0 to 10 VDC or Modbus RS485.

Motor significantly reduces motor torque fluctuation, vibration and noise resulting in high efficiency, reliability, and long-life operation.

Operation Control: S Type. Complete function on board PCB with integrated group control functionality.

Operation Control: W Type. Flexible function on board PCB with zone control functionality.

* + - * 1. Accessories:

\*\* NOTE TO SPECIFIER \*\* Delete accessories not required.

Filter Module: G4 (Merv 8).

Mixing and Recirculating Chamber.

Modulating 2-Way Valve Kit: 0 to 10 V.

On/Off 2-way valve kit.

On/Off 3-way valve kit.

Electrical heating module.

AC/EC thermostat.

AQI control PCB-S5.

Complete function PCB-S6.

Wired wall pad.

Differential pressure transducer.

* + - 1. Basis of Design: Verano Horizontal Mini AHU. Model HAHU by MDL Solutions.
         1. Standards Compliance:

UL 1995,

CSA C22.2 No. 236-11.

* + - * 1. Size: \_\_\_\_\_\_\_\_.
        2. Nominal Air Flow: \_\_\_\_\_\_\_\_ cfm.
        3. Total Cooling Capacity: \_\_\_\_\_\_\_\_
        4. Sensible Cooling Capacity: \_\_\_\_\_\_\_\_

\*\* NOTE TO SPECIFIER \*\* Delete heating option not required.

* + - * 1. Heating: Hydronic Capacity (L/M/H): \_\_\_\_\_\_\_\_ btu/h.
        2. Heating: Electric Heater Capacity: \_\_\_\_\_\_\_\_ kW.

\*\* NOTE TO SPECIFIER \*\* Delete configuration option not required.

* + - * 1. Configuration: 2 pipe, 4 rows. Chilled and hot water.
        2. Configuration: 2 pipe, 6 rows. Chilled water with electric heater.
        3. Configuration: 4 pipe, 4 rows cooling, 2 row heating. Chilled and hot water.

\*\* NOTE TO SPECIFIER \*\* Delete number of fan blower option not required.

* + - * 1. Number Of Fan Blowers: One.
        2. Number Of Fan Blowers: Two.
        3. Power Supply (V/Ph/Hz): 220/1/60
        4. Dimensions:

HAHU-V-200 (LxWxH): 50-3/8 x 51-9/16 x 25-3/16 inch (1280 x 1310 x 640 mm).

HAHU-V-300 (LxWxH): 58-1/4 x 51-9/16 x 25-3/16 inch (1480 x 1310 x 640 mm).

HAHU-V-400 (LxWxH): 66-1/8 x 51-9/16 x 25-3/16 inch (1680 x 1310 x 640 mm).

HAHU-V-600 (LxWxH): 74 x 51-9/16 x 25-3/16 inch (1880 x 1310 x 640 mm).

HAHU-V-800 (LxWxH): 85-13/16 x 51-9/16 x 25-3/16 inch (2180 x 1310 x 640 mm).

HAHU-P-200 (LxWxH): 50-3/8 x 51-9/16 x 25-3/16 inch (1280 x 1310 x 640 mm).

HAHU-P-300 (LxWxH): 58-1/4 x 51-9/16 x 25-3/16 inch (1480 x 1310 x 640 mm).

HAHU-P-400 (LxWxH): 66-1/8 x 51-9/16 x 25-3/16 inch (1680 x 1310 x 640 mm).

HAHU-P-600 (LxWxH): 74 x 51-9/16 x 25-3/16 inch (1880 x 1310 x 640 mm).

HAHU-P-800 (LxWxH): 85-13/16 x 51-9/16 x 25-3/16 inch (2180 x 1310 x 640 mm).

* + - * 1. Air handling terminal unit for suspended ceiling installation. Suitable for ducted air distribution.

Constructed of sandwich panels to achieve low noise during operation and provide easy access to fans, motors and filters.

Ships completely assembled.

Motor wiring is introduced into control box reducing site installation time.

* + - * 1. Frameless Structure: Integrated folding steel structure panels tested to ensure there is no air leakage.
        2. Casing: Double skinned. Two panels with internal insulation. Each panel is 1 inch (25 mm) thick.

Inner Panels: Plane galvanized steel.

Outer Panels: Pre-coated galvanized steel.

Insulation: High-pressure PU foam sandwiched between panels reinforcing the casing.

* + - * 1. Filter: Washable, double-layer acrylic nylon with aluminum frame.

Filtration Level: G4; Merv 8.

Filtration Level: F8 (Merv 14).

* + - * 1. Cooling Coil: Standard Cu/Al 3/8 inch OD.

Manifolds: Steel with threaded connections.

Manual Air-Vent valve.

Aluminum Fins: Pre-coated for protection by hydrophilic blue fin process.

Coils: Tested at 435 psi.

Recommended Operating Pressure: 232 psi.

* + - * 1. Drain Pan: Single wall painting steel with 3/16 inch insulation on outer wall.

Pan extends full length and width of coil and is sloped for positive drainage. Galvanized Drain Connector: 3/4 inch male pipe threaded.

* + - * 1. Fans: Housing, impeller, mounting feet, and DC motor.

Housing: Hot-dip galvanized steel.

Side Panel: Includes inlet cones whose inlet conditions are designed for optimum aerodynamics.

Scroll: Fixed on side panel by spot welding.

Wheel: Hot-dip galvanized steel.

Forward curved blades feature an advanced aerodynamic design for maximum efficiency and minimum noise level.

Impeller: Fixed on center plate and on end ring with riveting compression.

Withstand continuous operation with maximum power.

Fully balanced according to ANSI/AMCA-204

Mounting Feet: Galvanized steel sheet formed with unique technique to ensure adequate strength.

* + - * 1. Fan Motors: YZWWSL external rotor BLDC motor controlled by 0 to 10 VDC or Modbus RS485.

Motor significantly reduces motor torque fluctuation, vibration and noise resulting in high efficiency, reliability, and long-life operation.

* + - * 1. Control System (W4 type): 0 to 10 VDC motor modulating signal received from thermostat, powered by R and C or by indoor room terminals Vsp and GND.

Input Signal is greater than 2 VDC: Unit is turned on.

Input Signal is lower than 1.5 VDC: Unit is turned off.

Motor Speed: Dependent on input signal.

Motor RPM: Can be set from 300 to 1500.

Transformer: 40 VA 240 to 24/12 VAC transformer which supplies power input to thermostat and other devices.

* + - * 1. Accessories:

\*\* NOTE TO SPECIFIER \*\* Delete accessories not required.

Filter Module: G4 (Merv 8).

Mixing and Recirculating Chamber.

Modulating 2-Way Valve Kit: 0 to 10 V.

On/Off 2-way valve kit.

On/Off 3-way valve kit.

Electrical heating module.

AC/EC thermostat.

AQI control PCB-S5.

Complete function PCB-S6.

Wired wall pad.

Differential pressure transducer.

\*\* NOTE TO SPECIFIER \*\* could add more data if space permits

* + - 1. Basis of Design: Verano Slim One Way Cassette Fan Coil by MDL Solutions.
         1. Configuration: 2 pipe. Chilled and hot water.
         2. Number Of Fan Blowers: One
         3. Power Supply (V/Ph/Hz): 115 / 1 / 60 (1)

\*\* NOTE TO SPECIFIER \*\* Delete model option not required.

* + - * 1. Model PCSL-01-V-ECM Performance Requirements.

Air Flow (L/M/H): 88/206/265 cfm.

Total Cooling Capacity (L/M/H): 3480/7029/8633 btu/h.

Sensible Cooling Capacity (L/M/H): 2423/4982/6108 btu/h.

FCEER Rating: 250. Class: A.

Heating Capacity (L/M/H): 4129/8496/10441 btu/h.

Maximum Heater Capacity: 1.0 kW.

FCCOP Rating: 297. Class: A.

Sound Pressure Level (L/M/H): 35/40/44.

Sound Power Level (L/M/H): 26/31/35.

* + - * 1. Model PCSL-02-V-ECM Performance Requirements.

Air Flow (L/M/H): 147/265/353 cfm.

Total Cooling Capacity (L/M/H): 5357/8633/10851 btu/h.

Sensible Cooling Capacity (L/M/H): 3753/6108/7746 btu/h.

FCEER Rating: 232. Class: A.

Heating Capacity (L/M/H): 6381/10441/13239 btu/h.

Maximum Heater Capacity: 1.0 kW.

FCCOP Rating: 288. Class: A.

Sound Pressure Level (L/M/H): 38/44/47.

Sound Power Level (L/M/H): 29/35/38.

* + - * 1. Dimensions (LxWxH): 46-9/16 x 18-3/8 x 6-15/16 inch (1183 x 467 x 176 mm).

\*\* NOTE TO SPECIFIER \*\* Delete operation control option not required.

* + - * 1. Operation Control: S. Complete function onboard PCB.
        2. Operation Control: W. Flexible function onboard PCB.
  1. VENTILATION
     1. Trench Ventilation Fan Coil: Model VCVK Series Ventilation Clima-convector by MDL Solutions. In-floor trench heating device. Concrete proof and suitable for in suite or commercial ancillary areas. Full internal components removable by top access grilles only.
        1. Standards Compliance:
           1. Insulation and Adhesives: NFPA-90A flame spread and smoke generation.
           2. Aluminum Components: ASTM G53 UV-resistance.
           3. Safe Surface Temperature: DHSS DN 4 1992 regulation and revision.
           4. Normative heating power output compliant to EN-16430 for room temperature of 68 degrees F (20 degrees C).
        2. Heat Output (btu/h): \_\_\_\_\_\_\_\_.
        3. Cooling Output (btu/h): \_\_\_\_\_\_\_\_.
        4. Components:
           1. Trench Casing: Hot-dip zinc-magnesium coated steel.

Finish: RAL 9005 black powder coat.

Finish: RAL \_\_\_\_\_\_\_\_.

* + - * 1. Heat Exchanger: Copper-aluminum. Finish: Black powder coat.

Bleeding valve.

* + - * 1. Fan: Silent and efficient 24 VDC EC motor.

\*\* NOTE TO SPECIFIER \*\* The tangential fan is optional. Delete if not required.

Tangential fan.

* + - * 1. Cover for connection space.
        2. Fan Cover.
        3. Condensate Connectors: 3/4 inch NPT half-unions.
        4. Condensate removal kit/
        5. Fixed anchors.
        6. Duct Connection: 4 inch (102 mm) diameter mechanical ventilation,
        7. Air Flow Modulator: Built in.
        8. Tray position adjustment system.
        9. Installation Cover to protect fan coil unit from damage during transport and installation.
        10. Dust filter.
        11. Insulation between trench casing and grille.
        12. Height adjustments.
        13. Mounting kit for raised floor.
      1. Trench Cover Width: 14.7 inches (373 mm)
      2. Trench (HxW): 7-1/8 x 13-3/4 inches (180 x 350 mm)

\*\* NOTE TO SPECIFIER \*\* Delete trench length options not required.

* + - 1. Trench Length: 49-1/4 inch (1250 mm)
      2. Trench Length: 78-1/4 inch (1988 mm)
      3. Trench Length: 108-1/4 inch (275 mm)
      4. Trench Length: \_\_\_\_\_\_\_\_ inch ()
         1. Connectors: 3/4 inch NPT half-unions.

\*\* NOTE TO SPECIFIER \*\* Delete connector side option not required. Left is standard.

Connection Side: Left (L).

Connection Side: Right (R).

\*\* NOTE TO SPECIFIER \*\* Delete grille options not required.

* + - 1. Grille Type: Roll-up.
      2. Grille Type: Linear.
      3. Grille Type: Modular.
      4. Grille Height: (18 mm)
      5. Grille: Natural aluminum
      6. Grille: Anodized aluminum
      7. Grille: Powder coated in RAL aluminum. Color as determined by Architect.
      8. Grille: Stainless steel.

\*\* NOTE TO SPECIFIER \*\* Delete frame type and finish options not required.

* + - 1. Decorative Frame Type: L.
      2. Decorative Frame Type: F.
      3. Decorative Frame Finish: Natural aluminum
      4. Decorative Frame Finish: Anodized aluminum
      5. Decorative Frame Finish: Powder coated in RAL aluminum. Color as determined by the Architect.
      6. Accessories:
         1. Assembly cover.
         2. Assembly set for raised floor.
         3. Bimetal temperature sensor,
         4. Adjustable edge of heater tray.
         5. Heater tray protective film,
         6. Foil sleeve for heat exchanger.
      7. Controls:

\*\* NOTE TO SPECIFIER \*\* Delete controls options not required.

* + - * 1. Thermostat: \_\_\_\_\_\_\_\_.
        2. Room Temperature Controller: VER-24. Programmable. Color touch display.
        3. Room Temperature Controller: RDD 100.
        4. Room Temperature Controller: Siemens RDE 100.
        5. Room Temperature Controller: Siemens RAA21.
        6. Room Temperature Controller: \_\_\_\_\_\_\_\_.
        7. Wireless Controls: \_\_\_\_\_\_\_\_.

1. EXECUTION
   1. EXAMINATION
      1. Do not begin installation until substrates have been properly constructed and prepared.
      2. If substrate preparation is the responsibility of another installer, notify Architect in writing of unsatisfactory preparation before proceeding.
   2. PREPARATION
      1. Clean surfaces thoroughly prior to installation.
      2. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
   3. INSTALLATION
      1. Install in accordance with manufacturer's instructions approved submittals and in proper relationship with adjacent construction.
   4. FIELD QUALITY CONTROL
      1. Field Inspection: Coordinate field inspection in accordance with appropriate sections in Division 01.

\*\* NOTE TO SPECIFIER \*\* Include if manufacturer provides field quality control with onsite personnel for instruction or supervision of product installation, application, erection or construction. Delete if not required.

* + 1. Manufacturer's Services: Coordinate manufacturer's services in accordance with appropriate sections in Division 01.
  1. CLEANING AND PROTECTION
     1. Clean products in accordance with the manufacturers recommendations.
     2. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION