



RHEIA, LLC
4636 S 35th Street
Phoenix, AZ 85040
www.rheiacomfort.com

RHEIA AIR DISTRIBUTION SYSTEM

CSI Section: 23 00 00 HVAC Air Distribution System

1.0 RECOGNITION

The Rheia Air Distribution System components recognized in this report have been evaluated for use as an HVAC above-ground air distribution system. The connecting, sealing, and flame resistance characteristics have been evaluated and found to comply with the intent of the provisions of the following codes and regulations:

- 2021, 2018, and 2015 International Building Code® (IBC)
- 2021, 2018, and 2015 International Residential Code® (IRC)
- 2021, 2018 and 2015 International Energy Conservation Code (IECC)
- 2021, 2018, and 2015 International Mechanical Code® (IMC)
- 2021, 2018, and 2015 Uniform Mechanical Code® (UMC)
- 2022 California Building Code (CBC) – attached Supplement.
- 2022 California Residential Code (CRC) – attached Supplement.
- 2022 California Energy Code (CEC) – attached Supplement.
- 2023 Florida Building Code, Building (FBC, Building) – attached Supplement.
- 2023 Florida Building Code, Energy Conservation (FBC, Energy) – attached supplement.
- 2023 Florida Building Code, Residential (FBC, Residential) – attached Supplement.

2.0 LIMITATIONS

Use of the Rheia Air Distribution System recognized in this report is subject to the following limitations:

2.1 Rheia air distribution system components shall be limited to HVAC systems with a maximum air temperature of 250°F (121°C), at the discharge of the unit entering the duct system.

2.2 The Rheia Air Distribution System shall be sized and installed in accordance with the applicable code, the manufacturer’s published installation instructions, and this report. Where there is a conflict, the most restrictive requirements shall govern.

2.3 Fire and Smoke Dampers shall be installed where required by the applicable code.

2.4 The indoor unit shall bear the seal of an accredited third-party certification agency showing conformance to ANSI/UL 1995.

2.5 All system components, including the condensing unit, must comply with and be installed per the applicable code.

2.6 Ducts shall be designed by a Rheia-approved contractor with the assistance of Rheia design software. The Rheia software is used to determine duct sizing, discharge volume, and the number of supply ducts supplying each space. The discharge dampers are then adjusted to yield the required airflow. The completed system shall be balanced to verify minimum air flow is satisfied. Plans shall bear the seal of a registered design professional where required by the applicable code.

2.7 The design and installation of the air handling unit is beyond the scope of this listing.

2.8 In areas enforcing the 2021 UMC the maximum length of flexible air ducts shall be not more than 5 feet except in Residential occupancies.

2.9 The Rheia Air Distribution System recognized in this report is produced (1) the duct in Abbeville, SC, and Phoenix, AZ; (2) the fittings in Jeffersonville, IN; and Louisville, KY.

3.0 PRODUCT USE

3.1 General: Rheia is an above-ground supply duct and fitting system that uses multiple supply lines of 3- or 4-inch diameter flexible air ducts to convey conditioned air to each space served by the unit. The number of “home run” ducts supplying each space is adjusted to deliver the required amount of conditioned air while operating within the HVAC unit fan's static pressure parameters.

3.2 Design: The Rheia Design process uses ACCA Manuals J and S, to size the HVAC equipment and then to determine the quantity of conditioned air to be supplied to each space. Designers then use the proprietary Rheia design process, based on ACCA Manual D, to determine the size and number of ducts required to supply each space without exceeding the static pressure limits of the HVAC equipment. Each run is terminated through a supply boot containing a 5-position balancing damper. The required airflow rate to each conditioned space is obtained by adjusting the dampers on each supply duct.

The product described in this Uniform Evaluation Service (UES) Report has been evaluated as an alternative material, design or method of construction in order to satisfy and comply with the intent of the provision of the code, as noted in this report, and for at least equivalence to that prescribed in the code in quality, strength, effectiveness, fire resistance, durability and safety, as applicable, in accordance with Section 104.2.3 of the 2024 IBC and Section 104.11 of previous editions. This document shall only be reproduced in its entirety.





Originally Issued: 09/18/2024

Valid Through: 09/30/2025

3.3 Installation:

3.3.1 Installation General: The Rheia design requires the interior HVAC evaporator unit and all the air ducts to be installed within the conditioned space as defined by the applicable code. The duct located inside the conditioned space must be separated by a minimum R-8 insulation from unconditioned spaces.

3.3.2 Ducts located outside the conditioned space shall be insulated and sealed as required by the applicable code.

3.3.3 Ducts shall be pressure tested for leakage as required by the applicable code.

3.3.4 After installation, the Rheia system shall be balanced in accordance with the manufacturer's instructions.

4.0 PRODUCT DESCRIPTION

4.1 General: Rheia is a supply air duct and fittings system compatible with all air handling equipment for use in above-ground duct systems. The Rheia Air Distribution System consists of conventional air handling equipment, installed within the conditioned space, supplying conditioned air via multiple small diameter (3- or 4-inch) air ducts serving each conditioned space served by the unit. The air ducts are installed within the thermal envelope of each structure. The air ducts connect to the air handler at the supply plenum and from there they are installed completely in the conditioned space of the occupancy. Each duct runs in a "home run" fashion from the supply air plenum to the space they are intended to condition. The Rheia Air Distribution system includes the necessary air duct fittings, with snap-fit fittings to connect system components together. A threaded Ferrule component is used to connect the duct to other components in the system.

4.2 Ducts: The duct is uninsulated, either 3-inch or 4-inch diameter, UL181 certified, class 1 flexible air duct constructed from a fiberglass cloth fabric bonded to a corrosion-resistant spring steel wire helix bearing the UL mark.

4.3 Hanger Bars: The hanger bars are manufactured using standard steel a minimum of No. 22 gage 0.58-inch square shape (1.4 cm).

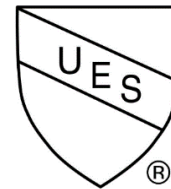
4.4 Connector Components: The injection molded Ferrule, Coupler, and Elbow Extension connector components are UL94 V-0 PC/ABS meeting UL 2043, and UL-181C bearing the marks of ETL and Intertek.

4.5 Distribution Components: The injection molded ceiling pass-through, high-sidewall boot assemblies, and manifold takeoffs are UL94 V-0 PC/ABS.

4.6 Diffuser Components: The Diffuser Components injection molded slotted and ceiling diffusers are UL94 HB ABS. The floor diffusers are metal.

5.0 IDENTIFICATION

The Rheia Air Distribution System is identified by RHEIA, LLC's name and trademark, product name, Rheia Air Distribution System and the Evaluation Report number (ER.880) on the product literature. The IAPMO Uniform Evaluation Service Mark of Conformity may also be used as shown below:



IAPMO UES ER-880

6.0 SUBSTANTIATING DATA

6.1 Reports of follow-up testing in accordance with UL 2043 Fourth Edition, "Standard for Fire Test for Heat and Visible Smoke Release for Discrete Products and Their Accessories Installed in Air-Handling Spaces" (July 13, 2018).

6.2 Reports of follow-up testing in accordance with UL 181C for fittings.

6.3 Reports of follow up testing in accordance with UL 181-05 Factory-made Air Ducts and Air Connectors—with revisions through April 2017.

6.4 Test reports are from laboratories in compliance with ISO/IEC 17025.

7.0 STATEMENT OF RECOGNITION

This evaluation report describes the results of research completed by IAPMO Uniform Evaluation Service on RHEIA, LLC's Rheia Air Distribution System to assess conformance to the codes shown in Section 1.0 of this report and serves as documentation of the product certification. Products are manufactured at locations noted in Section 2.9 of this report under a quality control program with periodic inspection under the supervision of IAPMO UES.

For additional information about this evaluation report please visit www.uniform-es.org or email us at info@uniform-es.org



CALIFORNIA SUPPLEMENT

RHEIA, LLC
4636 S 35th Street
Phoenix, AZ 85040
www.rheiacomfort.com

RHEIA AIR DISTRIBUTION SYSTEM

CSI Section: 23 00 00 HVAC Air Distribution System

1.0 RECOGNITION

The Rheia Air Distribution System components recognized in this report have been evaluated for use as an HVAC above-ground air distribution system. The connecting, sealing, and fire resistance characteristics have been evaluated and found to comply with the intent of the provisions of the following codes and regulations:

- 2022 California Building Code (CBC)
- 2022 California Residential Code (CRC)
- 2022 California Energy Code (CEC)

2.0 LIMITATIONS

Use of the Rheia Air Distribution System recognized in this report is subject to the following limitations in addition to those in ER-880:

2.1 This supplement expires concurrently with ER-880.

2.2 The maximum length of flexible air ducts shall be not more than 5 feet except in Residential occupancies and HCAi, (formerly OSHPD) 1, 1R, 2, 3, 4, & 5 buildings (see 2.3 below).

2.3 HCAi, (formerly OSHPD) 1, 1R, 2, 3, 4 & 5: In hospital building projects and all other healthcare facilities, including clinics and correctional treatment centers, flexible ducts of not more than 10 feet (3048 mm) in length may be used to connect supply, return or exhaust-air terminal devices to rigid duct systems. Where constant volume, variable volume, or mixing boxes are utilized, a flexible duct of not more than 10 feet (3048 mm), may be used on the inlet side for alignment. An internal impervious liner shall be provided to isolate insulation material from conditioned air.

2.4 The use of Flexible air connectors is not permitted.

For additional information about this evaluation report please visit www.uniform-es.org or email us at info@uniform-es.org



FLORIDA SUPPLEMENT

RHEIA, LLC
4636 S 35th Street
Phoenix, AZ 85040
www.rheiacomfort.com

RHEIA AIR DISTRIBUTION SYSTEM

CSI Section: 23 00 00 HVAC Air Distribution System

1.0 RECOGNITION

The Rheia Air Distribution System as evaluated and represented in IAPMO UES Evaluation Report ER-880 with changes as noted in this supplement is a satisfactory alternative for use in buildings built under the following codes:

- 2023 Florida Building Code, Building (FBC, Building)
- 2023 Florida Building Code, Energy Conservation (FBC, Energy)
- 2023 Florida Building Code, Residential (FBC, Residential)

2.0 LIMITATIONS

Use of the Rheia Air Distribution System recognized in this report is subject to the following limitations in addition to those in ER-880:

2.1 This supplement expires concurrently with ER-880.

2.2 Installation of return air systems shall be in accordance with ER-880 and Section M1602 Florida Building Code, Residential, as applicable. The HVAC interior unit and the supply ducts are located within the conditioned space.

2.3 Design requirements shall be determined in accordance with the Florida Building Code, Building, or Florida Building Code, Residential, or Florida Building Code, Energy, as applicable.

2.4 A duct air leakage test is not required where the duct and air handlers are located entirely within the building thermal envelope.

2.5 Verification shall be provided that a quality assurance agency audits the manufacturer's quality assurance program and audits the production quality of products in accordance with Section (5)(d) of Florida Rule 61G20-3.008. The quality assurance agency shall be approved by the Commission (or the building official when the report holder does not possess an approval by the Commission).

For additional information about this evaluation report please visit www.uniform-es.org or email at info@uniform-es.org