



Building Code References

Code Compliance Topic	Code Section	Code States	Comments
UL listed duct	2021 IRC M1601.1 2018 IRC M1601.1 2015 IRC M1601.1	"Above-ground duct systems shall be listed and labeled in accordance with UL 181."	The Rheia supply air distribution systems uses the S-TL flexible air duct manufactured by Thermaflex . This is a Class 1 air duct certified by UL Standard 181. https://thermaflexsite.wpengine.com/wp-content/uploads/2019/04/S-TL-Product-Sheet.pdf
Maximum flexible duct length	2021 IMC 603.6.1 2018 IMC 603.6.1 2015 IMC 603.6.1 2012 IMC 603.6.1	"Flexible air ducts shall not be limited in length."	The code defines Flexible Air Ducts and Flexible Air Connectors differently. Flexible Air Connectors have a limit in length while Flexible Air Ducts do not. Thermaflex S-TL is classified as a Flexible Air Duct, and therefore does not have any limit in length.
Manifold	2021 IRC M1601.1 2018 IRC M1601.1 2015 IRC M1601.1 2012 IRC M1061.1	"Fibrous glass duct construction shall conform to SMACNA Fibrous Glass Duct Construction Standards or NAIMA Fibrous Glass Duct Construction Standards."	The Rheia Manifold is fabricated by the installing contractor out of 1" duct board. The contractors will follow these standards when fabricating the manifolds.
Can Rheia's flexible air duct penetrate through a wall, floor, or ceiling assembly?	2021 IMC 603.6.1 - 603.6.2 2018 IMC 603.6.1 - 603.6.2 2015 IMC 603.6.1 - 603.6.2 2012 IMC 603.6.1 - 603.6.2	"Flexible Air <u>Connectors</u> shall not pass through any wall, floor or ceiling." Flexible Air <u>Ducts</u> have no such restriction.	The code defines Flexible Air Ducts and Flexible Air Connectors differently. Flexible Air Connectors have a restriction on passing through walls, floors and ceilings while Flexible Air Ducts do not. Thermaflex S-TL is classified as a Flexible Air Duct, and therefore can pass through walls, floors or ceilings.
Use of uninsulated ducts in conditioned space	2021 IRC N1103.3 2018 IRC N1103.3.1 2015 IRC N1103.3.1 2012 IRC N1103.2.1	Ducts shall be insulated to minimum R-8. "Exception: Duct or portions thereof located completely inside the building thermal envelope."	Rheia systems are designed to remain completely inside the building thermal envelope, and therefore are not required to have insulation by code. Any duct, Rheia or otherwise, outside the building thermal envelope will be insulated to R-8.
Duct design process	2021 IRC M1601.1 2018 IRC M1601.1 2015 IRC M1601.1 2012 IRC M1601.1	"Duct systems serving heating, cooling and ventilation equipment shall be installed in accordance with the provisions of this section and ACCA Manual D, the appliance manufacturer's installation instructions or other approved methods."	The Rheia duct design process differs from a Manual D design but uses all the same principles and calculation methodology. Similar to Manual D, a Rheia duct design uses friction rates, duct lengths, fitting losses, and static pressure calculations to determine the overall static pressure of the duct system. Manual D uses this information to calculate duct sizes, while Rheia uses this information to calculate the number of 3" and 4" Rheia ducts required for each room.



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Duct leakage	2018 IRC N1103.3.3 2015 IRC N1103.3.3 2012 IRC N1103.2.2	Ducts shall be pressure tested to determine air leakage at rough-in or post construction. Exception: A duct air-leakage test shall not be required where the ducts and air handlers are located entirely within the building thermal envelope.	Rheia systems are designed to remain completely inside the building thermal envelope, and therefore are not required to be pressure tested for leakage. Duct leakage tests can still be performed on Rheia systems by taping off the supply registers just like a conventional system. All leakage tests to date have met code and Energy Star requirements without the use of tape or mastic.
Duct leakage	2021 IRC N1103.3.5	Ducts shall be pressure tested to determine air leakage at rough-in or postconstruction.	Homes built under the 2021 IRC will require duct leakage testing even with all ductwork in conditioned space. Duct leakage tests can be performed on Rheia systems by taping off the supply registers just like a conventional system. All leakage tests to date have met code and Energy Star requirements without the use of tape or mastic.
Duct support - strapping	2021 IRC M16.1.4.4 2018 IRC M1601.4.4 2015 IRC M1601.4.4 2012 IRC M1601.4.3	Non metallic and factory made ducts listed in accordance with UL 181 shall be supported in accordance with the manufacturer's installation instructions	Rheia ducts are required to be supported the same as conventional flex ducts. Strapping can be used to support Rheia ducts, and several Rheia ducts can be supported with a single strap. Local jurisdictions often provide requirements on maximum distance between supports.
Fire caulking	2021 IRC R302.11 2018 IRC R302.11 2015 IRC R302.11 2012 IRC R302.11	Fire blocking shall be provided at openings around ducts at the ceiling and floor level with an approved material to resist the free passage of flame and products of combustion.	Rheia ducts and the Rheia manifold are required to be fire caulked at penetrations of a ceiling or floor just like conventional ductwork.
Distance from fire sprinkler	2021 IRC Table P2904.2.2 2018 IRC Table P2904.2.2 2015 IRC Table P2904.2.2 2012 IRC Table P2904.2.2	Minimum distance required from the side of a ceiling or wall warm air register to a sprinkler shall be 12". Minimum distance required in front of a wall warm air register to a sprinkler shall be 18".	Rheia duct designs will take into consideration the fire sprinkler layout and not locate supply air registers inside the minimum distance required per this code section.