Owner / Applicant Information

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Carrier Corporation
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Submitter Information

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Designer Information

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Indianapolis IN

Phone 3173763241

Email sotiri.hovardas@carrier.com

Project Information

Carrier Field Trial
64 Millet Ct

Danville IN 46122

County HENDRICKS

Project Type New [ ] Addition [ ] Alteration [Y] Existing [ ] Change of Occupancy [ ]

Project Status [U] F=Filed U or Null=Unfiled

IDHS Issued Correction order? [No] Has Violation been Issued? [No]

Violation Issued by: NA

Local Building Official

Phone: 3177453012 Email: blofton@danvilleindiana.org

Local Fire Official

Phone: 3177453012 Email: rroberts@danvilleindiana.org

Variance Details

Code Name: Other Code (Not in the list provided)

2020 IRC Sec. M1411.1

Conditions:

Residential HVAC field test units will use R-454B refrigerant in A2L classification (mildly flammable) in accordance with 2019 ASHRAE 34 and 2019 UL 60335-2-40 (and 2019 ASHRAE 15). Current Indiana Residential Code does not allow for A2L refrigerants to be used based upon outdated standards referenced - 2016 ASHRAE 34 (required for compliance with Section M1411.1) and 2012 UL 60335-2-40 (required for compliance with Section M1413.1).

The outdated 2016 ASHRAE 34 standard lumps lower flammable refrigerants (including R-454B) into A2 category, which is prohibited in residential occupancies per 2016 ASHRAE 15 (required for compliance with UL 60335-2-40). The 2019 ASHRAE 34 splits the A2 category into A2 and new category A2L (lower flammability) and the 2019 ASHRAE 15 addresses the use of A2L refrigerants in residential occupancies. The new 2019 UL 60335-2-40 provides testing procedures for the A2L refrigerants and allows units using A2L refrigerants to be listed for residential use.

The project involves field testing of HVAC units to evaluate heating/cooling performance of the systems that utilize the newly classified A2L refrigerants. All field test locations are residences of Carrier Corporation employees.

DEMONSTRATION THAT PUBLIC HEALTH, SAFETY, AND WELFARE ARE PROTECTED:

1=Non-compliance with the rule will not be adverse to the public health, safety or w

[1]

2= Applicant will undertake alternative actions in lieu of compliance with the rule to ensure that granting of the variance will not be adverse to public health, safety, or welfare. Explain why alternative actions would be adequate (be specific).

Facts:

1. The test units will be tested per 2019 UL 60335-2-40 and certified by UL prior to installation.

2. The test units will comply with 2019 ASHRAE 34 and 2019 ASHRAE 15 (including newly developed standard 2019 ASHRAE 15.2 Safety Standard for Refrigeration Systems in Residential Applications), which are anticipated to be referenced in 2021 model codes.

3. Indoor units will have a refrigerant detector and mitigation circuit. If a refrigerant leak is detected, the refrigeration system will shut down and the fan on the unit will immediately turn on to dilute the refrigerant, mitigating the risk for unsafe conditions. Activation of the detector will also trigger a sensor that will notify the technician (via data logging system) and will notify the homeowner (via email).

4. Electrical relays on indoor units and contactors on outdoor units will be UL listed as non-ignition sources.

DEMONSTRATION OF UNDUE HARDSHIP OR HISTORICALLY SIGNIFICANT STRUCTURE:

[ ] Imposition of the rule would result in an undue hardship (unusual difficulty) because of physical limitations of the construction site or its utility services.

[Y] Imposition of the rule would result in an undue hardship (unusual difficulty) because of major operational problems in the use of the building or structure.

[ ] Imposition of the rule would result in an undue hardship (unusual difficulty) because of excessive costs of additional or altered construction elements.

[ ] Imposition of the rule would prevent the preservation of an architecturally or a historically significant part of the building or structure

Facts:

Many states are beginning to enforce mandatory lower Global Warming Potential refrigerants, phasing out HFC refrigerants by 2023 (in accordance with U.S. EPA mandates). The only viable lower Global Warming Potential refrigerant is an A2L (mildly flammable) refrigerant. The 2019 standards provide for safe use of these A2L refrigerants. It is critical that field testing be

completed utilizing the new refrigerants in order to ensure the efficiency of the units prior to mass production.

Variance Details

Code Name: Other Code (Not in the list provided)

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