www.icc-es.org | (800) 423-6587 | (562) 699-0543 *A Subsidiary of the International Code Council®*

ICC-ES Evaluation Report
ESR-4629

Reissued May 2023

This report is subject to renewal May 2024.

DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION
Section: 07 21 00—Thermal Insulation

REPORT HOLDER:

IKO INDUSTRIES LTD.

EVALUATION SUBJECT:

ENER-AIR™

1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2021, 2018, 2015, 2012 and 2009 International Building Code® (IBC)
- 2021, 2018, 2015, 2012 and 2009 International Residential Code® (IRC)
- 2021, 2018, 2015, 2012 and 2009 International Energy Conservation Code® (IECC)

Properties evaluated:

- Physical properties
- Surface-burning characteristics
- Thermal resistance
- Water vapor transmission

2.0 USES

Ener-Air insulation boards are rigid polyisocyanurate foam insulation boards used as nonstructural thermal insulation material In Type V-B construction under the IBC or structures constructed in accordance with the IRC. The insulation boards may be used with a thermal barrier within or on interior and exterior walls, ceiling assemblies and in attics and crawl spaces with a thermal or ignition barrier.

3.0 DESCRIPTION

3.1 ENER-AIR:

Ener-Air has a closed-cell, rigid polyisocyanurate foam plastic core, reinforced and bonded on both sides to a coated glass fiber facer. Ener-Air insulation boards are classified as Type II, Class I, Grade 2 material in accordance with ASTM C1289. The boards have a nominal density of 3.5 pcf (56.1 kg/m^3). Ener-Air is available in 4-feet-by-8-feet (1219 mm by 2438 mm) and 4-feet-by-9-feet (1219 mm by 2743 mm) square panels. The panels are available in thicknesses between $^1/_2$-inch (12.7 mm) and 2 inches (51 mm).

3.2 Surface-burning characteristics:

The foam plastic boards have a flame-spread index of 75 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E84 (UL 723) at a maximum thickness of 2 inches (51 mm).

3.3 Thermal Resistance, *R*-values:

The insulation boards have a thermal resistance (*R*-value) at a mean temperature of 75°F(24°C) as shown in Table 1.

3.4 Vapor Retarder:

At a minimum thickness of one inch (25.4 mm), the insulation boards have a vapor permeance of greater than 1.0 perm (5.7x10^{-11} kg/PA-s-m^2) and less than or equal to 10 perms (5.7 x 10^{-10} kg/PA-s-m^2) when tested in accordance with ASTM E96 (Procedure A), and qualify as a Class III vapor retarder.

4.0 DESIGN AND INSTALLATION

4.1 General:

Ener-Air insulation boards must be installed in accordance with the report holder's published installation instructions and this report. The report holder's published installation instructions and this report must be strictly adhered to, and a copy of the instructions must be available on the jobsite during installation.

At a maximum of 2 inches (51 mm), Ener-Air may be used as nonstructural insulating material with a thermal barrier on any or all surfaces (wall or ceiling assembly) in any type of structure. For interior and exterior wall applications, the insulation may be attached with fasteners spaced a maximum of 16 inches (406 mm) on center in the field and 12 inches (305 mm) on center on the perimeter. Fasteners must be of sufficient length to penetrate through the wall framing a minimum of 1$^1/_2$ inches (38.1 mm).

The boards must be covered on the outside with approved wall coverings that are structurally adequate to resist all required forces. Fasteners and fastening methods for all

exterior wall coverings over Ener-Air must be installed in accordance with 2021 and 2018 IBC Section 2603.11, 2603.12 or 2603.13 (2015 IBC Sections 2603.11 and 2603.12) and 2021, 2018 and 2015 IRC Sections R703.15, R703.16 or R703.17, as applicable. All walls must be braced in accordance with 2021, 2018 and 2015 IBC Section 2308.6 (2012 and 2009 IBC Section 2308.9.3 and 2308.12.4) or IRC Section R602.12, as applicable. The insulation boards must be covered by a water-resistive barrier complying with 2021 and 2018 IBC Section 1403.2 (2015, 2012 and 2009 IBC Section 1404.2) or IRC Section R703.2, as applicable.

4.2 Attics and Crawl Spaces:

When the insulation boards are installed within attics and crawl spaces, where entry is made only for service of utilities, an ignition barrier must be installed in accordance with IBC Section 2603.4.1.6 or IRC R316.5.3 or R316.5.4, as applicable. The ignition barrier must be consistent with the requirements for the type of construction required by the applicable code, and must be installed in such a manner that the foam plastic insulation is not exposed.

5.0 CONDITIONS OF USE

The Ener-Air described in this report complies with, or is a suitable alternative to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

5.1 Installation must comply with this report and the manufacturer's published instructions. In the event of a conflict between this report and the manufacturer's published installation instructions, this report governs.

5.2 The insulation boards must be covered with an approved exterior wall covering, including a water-resistive barrier complying with 2021 and 2018 IBC Section 1403.2 (2015, 2012 and 2009 IBC Section 1404.2) or IRC Section R703.2, as applicable.

5.3 The insulation boards must not be used as a nailing base for exterior siding materials. All nailing must be into the wall framing as required by the siding manufacturer's instructions or the applicable code.

5.4 The insulation boards must be separated from the interior of the building by an approved thermal barrier in accordance with IBC Section 2603.4 or IRC Section R316.4, as applicable.

5.5 Use of the insulation board in areas where the probability of termite infestation is "very heavy" installation must be in accordance with 2018 and 2015 IBC Section 2603.8 [2012 IBC Section 2603.9 (2009 IBC Section 2603.8)] and IRC Section R318.4, as applicable.

5.6 The insulation boards are a Class III vapor retarder as described in Section 3.4 and its use is subject to the requirements of 2021 and 2018 IBC Section 1404.3 (2015, 2012 and 2009 IBC Section 1405.3) and IRC Section R702.7 and R806.5 (2009 IRC Sections R601.3 and R806.4).

5.7 Jobsite certification and labeling of the insulation must comply with 2021, 2018 and 2015 IBC Section N1101.10 [2012 IRC Section N1101.12 (2009 IRC Section N1101.4)] or 2021, 2018, 2015 and 2012 IECC Section C303.1 or R303.1.14 and R401.3 (2009 IECC Section 303.1), as applicable.

5.8 The insulation boards are produced by IKO® Industries, Ltd. in Brampton, Ontario, Canada and High River, Alberta, Canada, under a quality control program with inspections by ICC-ES.

6.0 EVIDENCE SUBMITTED

Data in accordance with the ICC-ES Acceptance Criteria for Foam Plastic Insulation (AC12), dated June 2015 (editorially revised December 2020).

7.0 IDENTIFICATION

7.1 The boards are packaged in bundles that bear a label including the name and address of (IKO® Industries Ltd.), the date of manufacture, the ASTM C1289 type, the surface burning characteristic and the evaluation report number (ESR-4629).

7.2 The report holder's contact information is the following:

IKO INDUSTRIES LTD.
40 HANSEN ROAD SOUTH
BRAMPTON, ONTARIO L6W 3H4
CANADA
(905) 457-2880
www.iko.com

TABLE 1—THERMAL RESISTANCE (*R*-VALUES)

THICKNESS (inches)	*R*-VALUE [(°F-ft²-hr)/BTU] at 75°F MEAN TEMPERATURE
1.0	5.6
2.0	11.2

For **SI:** 1 inch = 25.4 mm; 1 (°F-ft²-hr)/BTU = 0.176 K-m²/W

DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION
Section: 07 21 00—Thermal Insulation

REPORT HOLDER:

IKO INDUSTRIES LTD.

EVALUATION SUBJECT:

ENER-AIR™

1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that Ener-Air, described in ICC-ES evaluation report ESR-4629, has also been evaluated for compliance with the codes noted below.

Applicable code editions:

- 2020 *Florida Building Code—Building*
- 2020 *Florida Building Code—Residential*

2.0 CONCLUSIONS

The Ener-Air, described in Sections 2.0 through 7.0 of ICC-ES evaluation report ESR-4629, complies with the Florida Building Code—*Building* and Florida Building Code—*Residential*. The design requirements shall be determined in accordance with the *Florida Building Code—Building* or the *Florida Building Code—Residential,* as applicable. The installation requirements noted in ICC-ES evaluation report ESR-4629 for the 2018 *International Building Code*® meet the requirements of the *Florida Building Code—Building* or the *Florida Building Code—Residential,* as applicable, with the following conditions:

1. Use of the insulation boards to resist structural loads is outside the scope of this report. The walls must be braced in accordance with the requirements of the *Florida Building Code—Building* or the *Florida Building Code—Residential*, as applicable.
2. Installation must meet the requirements of Sections 1403.8 and 2603.8 of the *Florida Building Code—Building* and Section R318.7 of the *Florida Building Code—Residential*.

Use of the Ener-Air has also been found to be in compliance with the High-Velocity Hurricane Zone provisions of the *Florida Building Code—Building* or the *Florida Building Code—Residential.*

For products falling under Florida Rule 61G20-3, verification that the report holder's quality assurance program is audited by a quality assurance entity approved by the Florida Building Commission for the type of inspections being conducted is the responsibility of an approved validation entity (or the code official when the report holder does not possess an approval by the Commission).

This supplement expires concurrently with the evaluation report, reissued May 2023.