1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2013 Abu Dhabi International Building Code (ADIBC)†

†The ADIBC is based on the 2009 IBC. 2009 IBC code sections referenced in this report are the same sections in the ADIBC.

Properties evaluated:

- Physical properties
- Thermal resistance

For evaluation for compliance with codes adopted by Los Angeles Department of Building and Safety (LADBS), see ESR-2784 LABC and LARC Supplement.

For evaluation of compliance with codes adopted by the California Office of Statewide Health Planning and Development (OSHPD) and Division of State Architects (DSA), see the ESR-2784 CBC, CRC and CEC Supplement.

2.0 USES

The BASF expandable polystyrene beads designated as NEOPOR® F2200, NEOPOR® F2300, NEOPOR® F2400, NEOPOR® F5300, NEOPOR® F5300 Plus, NEOPOR® KF2200, NEOPOR® KF2300, NEOPOR® KF2300S and NEOPOR® KF2400 are used by independent manufacturers to produce expanded polystyrene (EPS) insulation products.
evaluation report and has been qualified in accordance with Section 4.5.1.2 of AC12.

The R-values noted in Table 3 are only applicable to EPS products produced from BASF NEOPOR® F2200, NEOPOR® F2300, NEOPOR® F2400, NEOPOR® F5300, NEOPOR® F5300 Plus, NEOPOR® KF2200, NEOPOR® KF2300, NEOPOR® KF2300S and NEOPOR® KF2400 beads with the EPS products recognized with the noted R-values in a current ICC-ES evaluation report. The products must comply with ICC-ES qualification and labeling requirements, and must be manufactured under a quality control system meeting both BASF specifications and ICC-ES requirements.

4.0 INSTALLATION

4.1 General:
Installation must be as noted in the corresponding current ICC-ES evaluation report on the EPS insulation product, or as otherwise permitted by the code official under Section 2603 of the IBC or Section R316 of the IRC, as applicable.

4.2 Attics and Crawl Spaces:
EPS insulation products produced from the EPS beads of the resin type, density, and thickness shown in Table 2 of this report can be used on walls in attics and crawl spaces without covering applied to the attic or crawl space side of the foam plastic, provided all of the following conditions are met:

a. Entry to the attic or crawl space is only to service utilities, and no storage is permitted.
b. There are no interconnected attic or crawl space areas.
c. Air in the attic or crawl space is not circulated to other parts of the building.
d. Attic ventilation is provided when required by 2018 IBC Section 1202.2 (2015, 2012 and 2009 IBC Section 1203.2) or IRC Section R806, as applicable.
e. Under-floor (crawl space) ventilation is provided when required by 2018 IBC Section 1202.4 [2015 IBC Section 1203.4 (2012 and 2009 IBC Section 1203.3)] or IRC Section R408.1, as applicable.
f. Combustion air is provided in accordance with Section 701 of the International Mechanical Code®.
g. The EPS type and maximum thickness are as specified in Table 2.

5.0 CONDITIONS OF USE

The BASF NEOPOR® Expandable Polystyrene Beads described in this report comply with, or are suitable alternatives to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

5.1 The minimum density and maximum thickness of the foam plastic insulation products manufactured from the expanded beads are as noted in Table 1 of this report.

5.2 Products manufactured from the beads must be recognized in a current ICC-ES evaluation report.

5.3 Except as noted in Section 4.2 of this report, the EPS insulation products produced from the EPS beads must be separated from the building interior by a thermal barrier complying with IBC Section 2603.4 or IRC Section R316.4 or as applicable.

5.4 The beads are produced in Ludwigshafen, Germany, and Ulsan, Korea 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 October 2017), including data in accordance with NFPA 286.

7.0 IDENTIFICATION

7.1 Each container of beads bears a label with the manufacturer’s name (BASF SE or BASF Company Ltd.) and address; the bead identification (series); the evaluation report number (ESR-2784).

7.2 The report holder’s contact information is the following.

BASF CORPORATION
1609 BIDDLE AVENUE
WYANDOTTE, MICHIGAN 48192
(734) 324-5235
www.neopor-insulation.com

| TABLE 1—MINIMUM INSULATION BOARD DENSITY AND MAXIMUM THICKNESS |
|---------------------------------|----------------|----------------|----------------|
| **NEOPOR® GRADE DESIGNATION**   | **ASTM C578 EPS TYPE** | **MINIMUM DENSITY (pcf)** | **MAXIMUM THICKNESS (INCHES)** |
| F5300, F5300 Plus               | I               | 0.90            | 6              |
| F2200, F2300, F2400, F5300, F5300, Plus KF2200, KF2300, KF2300S, KF2400 | VIII         | 1.15            | 6              |
| F2200, F2300, F2400, F5300, F5300 Plus KF2200, KF2300, KF2300S, KF2400 | II             | 1.35            | 6              |
| F2200, F2300, F2400, F5300, F5300 Plus KF2200, KF2300, KF2300S, KF2400 | IX             | 1.80            | 6              |

For SI: 1 inch = 25.4 mm, 1 pcf = 16.02 kg/m³.

*Except as noted in Section 3.0.*
TABLE 2—TYPE AND MAXIMUM THICKNESS FOR EPS PRODUCTS USED IN ATTICS OR CRAWL SPACES

<table>
<thead>
<tr>
<th>NEOPOR® GRADE DESIGNATION</th>
<th>ASTM C578 EPS TYPE</th>
<th>MAXIMUM THICKNESS (INCHES)</th>
</tr>
</thead>
<tbody>
<tr>
<td>F5300, F5300 Plus</td>
<td>I</td>
<td>4.0</td>
</tr>
<tr>
<td>F2200, F2300, F2400, F5300, F5300 Plus</td>
<td>VIII</td>
<td>3.2</td>
</tr>
<tr>
<td>KF2200, KF2300, KF2300S, KF2400</td>
<td>II</td>
<td>2.66</td>
</tr>
<tr>
<td>F2200, F2300, F2400, F5300, F5300 Plus</td>
<td>IX</td>
<td>2</td>
</tr>
</tbody>
</table>

For SI: 1 inch = 25.4 mm, 1 pcf = 16.02 kg/m³.

TABLE 3—MINIMUM DENSITY AND R-VALUE

<table>
<thead>
<tr>
<th>ASTM C578 EPS TYPE</th>
<th>MINIMUM DENSITY (pcf)</th>
<th>R-VALUE (*F-ft²-h/Btu) 75°F MEAN TEMP.</th>
<th>R-VALUE (*F-ft²-h/Btu) 40°F MEAN TEMP.</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>0.90</td>
<td>4.3</td>
<td>4.7</td>
</tr>
<tr>
<td>VIII</td>
<td>1.15</td>
<td>4.5</td>
<td>4.8</td>
</tr>
<tr>
<td>II</td>
<td>1.35</td>
<td>4.5</td>
<td>4.9</td>
</tr>
<tr>
<td>II</td>
<td>1.45</td>
<td>4.6</td>
<td>4.9</td>
</tr>
<tr>
<td>IX</td>
<td>1.80</td>
<td>4.6</td>
<td>4.9</td>
</tr>
</tbody>
</table>

For SI: 1 inch = 25.4 mm, 1 pcf = 16.02 kg/m³, 1 °F-ft²-h/Btu = 0.176 m²-K/W.
1.0 REPORT PURPOSE AND SCOPE

Purpose:
The purpose of this evaluation report supplement is to indicate that BASF Neopor® Expandable Polystyrene Beads NEOPOR® F2200, NEOPOR® F2300, NEOPOR® F2400, NEOPOR® F5300, NEOPOR® F5300 Plus, NEOPOR® KF2200, NEOPOR® KF2300, NEOPOR® KF2300S and NEOPOR® KF2400, described in ICC-ES evaluation report ESR-2784, for use by independent manufacturers to produce expanded polystyrene (EPS) rigid foam insulation boards, have also been evaluated for compliance with the codes noted below as adopted by the Los Angeles Department of Building and Safety (LADBS).

Applicable code editions:

- 2017 City of Los Angeles Building Code (LABC)
- 2017 City of Los Angeles Residential Code (LARC)

2.0 CONCLUSIONS

The BASF Neopor® Expandable Polystyrene Beads NEOPOR® F2200, NEOPOR® F2300, NEOPOR® F2400, NEOPOR® F5300, NEOPOR® F5300 Plus, KF2200, NEOPOR® KF2300, NEOPOR® KF2300S and NEOPOR® KF2400, described in Sections 2.0 through 7.0 of the evaluation report ESR-2784, and the ICC-ES certified expanded polystyrene (EPS) rigid foam insulation boards produced from these beads, comply with the LABC Section 2603 and LARC Section R316, and are subjected to the conditions of use described in this supplement.

3.0 CONDITIONS OF USE

The BASF Neopor® Expandable Polystyrene Beads NEOPOR® F2200, NEOPOR® F2300, NEOPOR® F2400, NEOPOR® F5300, NEOPOR® F5300 Plus, KF2200, NEOPOR® KF2300, NEOPOR® KF2300S and NEOPOR® KF2400, described in this evaluation report supplement must comply with the following condition:

All applicable sections in the evaluation report ESR-2784.

The ICC-ES certified expanded polystyrene (EPS) rigid foam insulation boards produced by independent manufacturers from BASF Neopor® Expandable Polystyrene Beads NEOPOR® F2200, NEOPOR® F2300, NEOPOR® F2400, NEOPOR® F5300, NEOPOR® F5300 Plus, KF2200, NEOPOR® KF2300, NEOPOR® KF2300S and NEOPOR® KF2400, must comply with all of the following conditions:

All applicable sections in the ICC-ES evaluation report for the expanded polystyrene (EPS) rigid foam insulation boards.

The installation, conditions of use and identification are in accordance with the 2015 International Building Code® (2015 IBC) and 2015 International Residential Code® (2015 IRC) provisions noted in the ICC-ES evaluation report for the expanded polystyrene (EPS) rigid foam insulation boards.

This supplement expires concurrently with the evaluation report, reissued April 2020.
1.0 REPORT PURPOSE AND SCOPE

Purpose:
The purpose of this evaluation report supplement is to indicate that BASF Neopor® Expandable Polystyrene Beads Neopor® F2200, Neopor® F2300, Neopor® F2400, Neopor® F5300, Neopor® F5300 Plus, Neopor® KF2200, Neopor® KF2300, Neopor® KF2300S and Neopor® KF2400, recognized in ICC-ES evaluation report ESR-2784, for use by independent manufacturers to produce expanded polystyrene (EPS) rigid foam insulation boards, have also been evaluated for compliance with the codes noted below, provided the insulation products are recognized in an ICC-ES evaluation report with a CBC and CRC Supplement.

Applicable code editions:
- 2019 California Building Code (CBC)
- 2019 California Residential Code (CRC)
- 2019 California Energy Code (CEC)

2.0 CONCLUSIONS

2.1 CBC:
The BASF Neopor® Expandable Polystyrene Beads Neopor® F2200, Neopor® F2300, Neopor® F2400, Neopor® F5300, Neopor® F5300 Plus, Neopor® KF2200, Neopor® KF2300, Neopor® KF2300S and Neopor® KF2400, described in Sections 2.0 through 7.0 of the evaluation report ESR-2784, comply with the 2019 California Building Code (CBC), and the insulation boards produced from these beads also comply with the 2019 International Building Code® (IBC) provisions, as applicable, of the evaluation report and the additional requirements of the 2019 CBC, under the following condition:

The insulation boards produced from these beads have not been evaluated under CBC Chapter 7A, for use in the exterior design and construction of new buildings located in any Fire Hazard Severity Zone within State Responsibility Areas or any Wildland–Urban Interface Area.

2.1.1 OHSPD: The BASF Neopor® Expandable Polystyrene Beads Neopor® F2200, Neopor® F2300, Neopor® F2400, Neopor® F5300, Neopor® F5300 Plus, Neopor® KF2200, Neopor® KF2300, Neopor® KF2300S and Neopor® KF2400, described in Sections 2.0 through 7.0 of the evaluation report ESR-2784, and the ICC-ES certified expanded polystyrene (EPS) rigid foam insulation boards produced from these beads recognized in an ICC-ES evaluation report with a CBC Supplement, comply with CBC Section 803.4 [OSHPD 1,1R, 2, 4 and 5] and amended CBC Chapter 26 [OSHPD 1, 1R, 2, 3, 4 and 5], and the insulation boards produced from these beads also comply with these 2019 CBC OSHPD requirements, provided the insulation boards are recognized in an ICC-ES evaluation report with a CBC Supplement.
2.1.2 DSA: The BASF Neopor® Expandable Polystyrene Beads Neopor® F2200, Neopor® F2300, Neopor® F2400, Neopor® F5300, Neopor® F5300 Plus, Neopor® KF2200, Neopor® KF2300, Neopor® KF2300S and Neopor® KF2400, described in Sections 2.0 through 7.0 of the evaluation report ESR-2784, comply with CBC Section 803.4 [DSA-SS and DSA-SS/CC] and amended CBC Chapter 26 [DSA-SS and DSA-SS/CC], and the insulation boards produced from these beads also comply with these 2019 CBC DSA requirements, provided the insulation boards are recognized in an ICC-ES evaluation report with a CBC Supplement.

2.2 CRC:
The BASF Neopor® Expandable Polystyrene Beads Neopor® F2200, Neopor® F2300, Neopor® F2400, Neopor® F5300, Neopor® F5300 Plus, Neopor® KF2200, Neopor® KF2300, Neopor® KF2300S and Neopor® KF2400, described in Sections 2.0 through 7.0 of the evaluation report ESR-2784, comply with 2019 California Residential Code (CRC), and the insulation boards produced from these beads also comply with the 2019 CRC, provided the insulation boards are recognized in an ICC-ES evaluation report with a CRC Supplement and are installed in accordance with the 2018 International Residential Code (IRC) provisions, as applicable, of the evaluation report and the additional requirements of the 2019 CRC, under the following condition:

- The insulations produced from these beads have not been evaluated under CRC Section R337, for use in the exterior design and construction of new buildings located in any Fire Hazard Severity Zone within State Responsibility Areas or any Wildland–Urban Interface Area.

2.3 CEC:
The BASF Neopor® Expandable Polystyrene Beads Neopor® F2200, Neopor® F2300, Neopor® F2400, Neopor® F5300, Neopor® F5300 Plus, Neopor® KF2200, Neopor® KF2300, Neopor® KF2300S and Neopor® KF2400, described in Sections 2.0 through 7.0 of the evaluation report ESR-2784, comply with 2019 California Energy Code (CEC), and the insulation boards produced from these beads also comply with the 2019 CEC, provided the insulation boards are recognized in an ICC-ES evaluation report with a CEC Supplement and are installed in accordance with the 2018 International Building Code® (IBC) or 2018 International Residential Code (IRC) provisions, as applicable, of the evaluation report and the additional requirements of the 2016 CEC, under the following condition:

- In accordance with Section 110.8 of the 2019 California Energy Code (CEC), verification of certification by the Department of Consumer Affairs, Bureau of Home Furnishings and Thermal Insulation, must be provided to the code official, demonstrating that the expanded polystyrene (EPS) rigid foam insulation boards conductive thermal performance is approved pursuant to the California Code of Regulations, Title 24, Part 12, Chapters 12-13, Article 3, “Standards for Insulating Material.”

The products recognized in this supplement have not been evaluated for compliance with the International Wildland–Urban Interface Code®.

This supplement expires concurrently with the evaluation report, reissued April 2020.
DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION
Section: 07 231 00—Thermal Insulation

REPORT HOLDER:
BASF CORPORATION

EVALUATION SUBJECT:
BASF NEOPOR® EXPANDABLE POLYSTYRENE BEADS F2200, F2300, F2400, F5300, F5300 PLUS, KF2200, KF2300, KF2300S AND KF2400

1.0 REPORT PURPOSE AND SCOPE
Purpose:
The purpose of this evaluation report supplement is to indicate that BASF NEOPOR® Expandable Polystyrene Beads F2200, NEOPOR® F2300, NEOPOR® F2400, NEOPOR® F5300, NEOPOR® F5300 Plus, NEOPOR® KF2200, NEOPOR® KF2300, NEOPOR® KF2300S and NEOPOR® KF2400 recognized in ICC-ES master evaluation report ESR-2784, has also been evaluated for compliance with the codes noted below.

Applicable code editions:
- 2017 Florida Building Code—Building
- 2017 Florida Building Code—Residential

2.0 CONCLUSIONS
The BASF NEOPOR® Expandable Polystyrene Beads F2200, NEOPOR® F2300, NEOPOR® F2400, NEOPOR® F5300, NEOPOR® F5300 Plus, NEOPOR® KF2200, NEOPOR® KF2300, NEOPOR® KF2300S and NEOPOR® KF2400 described in Sections 2.0 through 7.0 of the master evaluation report ESR-2784, have also been found to be in compliance with the High-Velocity Hurricane Zone provisions of the Florida Building Code—Building and Florida Building Code—Residential.

For products falling under Florida Rule 9N-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 April 2020.