NATIONAL ASSOCIATION OF STATE FIRE MARSHALS

Position Statement

Exterior Wall Fire Spread

FS96-18

ISSUE: Recent changes in the energy codes, that in some cases requires insulation to be installed on the exterior of the building wall, contribute to the spread of fire up the wall.

VOTE: NASFM recommends a **Positive Vote** on Public Comment for FS96-18 concerning the spread of fire up the exterior wall of buildings 40 feet or less in height that are not required to be tested to NFPA 285. **Do not take the option to vote to support the committee action as that would give a negative vote to FS96-18.**

BACKGROUND: This public comment, supported by the National Association of State Fire Marshals (NASFM) and the ICC Fire Code Action Committee (FCAC), simplifies and revises the original proposal to a listing of the wall configurations that are acceptable when the exterior wall is not required to comply with IBC Section 1402.5, which requires walls greater than 40 feet in height to be tested in accordance with NFPA 285. The proposal is in response to the recent changes in the IECC for increased insulation, which in some cases is installed on the exterior of the wall and can contribute to the spread of fire up the exterior wall. This concern is documented by NFPA and the U.S. Fire Administration's National Fire Incident Reporting System (NFIRS 5.0) which documents that there is an annual average of 7645 residential fires that spread on the exterior wall surface with 50 casualties, 345 injuries and $539M in property damage.

The deemed to comply wall configurations included in this proposal include the majority of current wall configurations in use today. Other wall configurations can be approved by the code official per IBC Section 104.11 Alternative materials, designs and methods of construction and equipment.

The included configurations are based on testing completed by UL following the procedures of ASTM E2707 with various burner flame ignitions ranging from 50 kW - 300 kW. Of the 32 tests completed, 20 were with a flame ignition of 100 kW. The 100-kW flame was selected as the basis for the original proposal, this public comment and the deem to comply wall configurations. This decision allows for testing of the flame spread **up** the exterior of the wall, as compared to the 150-kW basis for ASTM E2707, which is designed for flame penetrations **thru** the wall.

The tests completed by UL comprised either 2x4 or 2x6 walls with structural wood panels (plywood or OSB) and different exterior materials. Walls with non-combustible

siding, such as EIFS, stucco, fiber cement over no insulation or a combustible insulation had no sustained ignition when exposed to the 100-kW fire in the UL testing. Walls with no sustained ignition are included in the proposal as deemed to comply wall configurations. Other wall configurations with mineral wool exterior insulation is also included as deemed to comply based on testing done on walls with mineral wool exterior insulation, which also had no flame spread up the exterior surface of the wall. Walls with siding that melted (vinyl) and mineral wool insulation also passed the test. Walls with a siding that melted with foam plastic insulation failed the test. Vinyl siding over structural wood panels (no exterior insulation) passed the test when the wall was 16 feet high.

The UL testing is reported in two reports: (1) Study of Residential Attic Fire Mitigation Tactics and Exterior Fire Spread Hazards on Fire Fighter Safety (available at: https://ulfirefightersafety.org/docs/Attic-Final Report-Online.pdf), and (2) Verification Services Project for Exterior Wall Mock-up Fire Demonstration with Comfortboard 80 Insulation (available by request from proponent).

COST IMPACT: The code change proposal will increase the cost of construction. In zones 6-7 there could be a cost increase depending upon the design and the basis for cost consideration. However, in zones 1-5 and 8 design using the U-value configuration for solution and code compliance as compared to the R value code solutions are available that will reduce the cost of construction.

RECOMMENDED ACTIONS:
(1). Vote to support (positive) the Public Comment on FS96-18 during the ICC Public Comment Hearings (PCH) October 24-31 in Richmond, Virginia, **or**

(2). Vote to support Public Comment FS96-18 (positive) during the ICC electronic voting under cdpACCESS.

Note: If you vote at the PCH you do not need to follow up with an electronic vote in cdpACCESS. Votes at the hearing are carried forward.

Who Are State Fire Marshals?

State Fire Marshals are the senior fire officials in the United States. State Fire Marshals' responsibilities vary from state to state, but they are primarily responsible for fire safety code adoption and enforcement, fire and arson investigation, fire incident data reporting and analysis, public education, and advising Governors and State Legislatures on fire protection policy issues. Some State Fire Marshals are responsible for fire fighter training, hazardous materials incident responses, wildland fire response and the regulation of natural gas and other pipelines.