



CLMA Technical Bulletin

2015 IRC Requirements for Composite Decking & Guard Systems

The 2015 International Residential Code (IRC) has been updated and revised to include requirements specific to plastic composite deck boards, stair treads, guards, and handrails. Section R507.3 of the 2015 IRC was significantly expanded from the 2012 IRC:

R507.3 Plastic composite deck boards, stair treads, guards, or handrails. Plastic composite exterior deck boards, stair treads, guards and handrails shall comply with the requirements of ASTM D7032 and the requirements of Section 507.3.

R507.3.1 Labeling. Plastic composite deck boards and stair treads, or their packaging, shall bear a label that indicates compliance to ASTM D7032 and includes the allowable load and maximum allowable span determined in accordance with ASTM D7032. Plastic or composite handrails and guards, or their packaging, shall bear a label that indicates compliance to ASTM D7032 and includes the maximum allowable span determined in accordance with ASTM D7032.

R507.3.2 Flame spread index. Plastic composite deck boards, stair treads, guards, and handrails shall exhibit a flame spread index not exceeding 200 when tested in accordance with ASTM E 84 or UL 723 with the test specimen remaining in place during the test.

Exception: Plastic composites determined to be noncombustible.

R507.3.3 Decay resistance. Plastic composite deck boards, stair treads, guards and handrails containing wood, cellulosic or other biodegradable materials shall be decay resistant in accordance with ASTM D7032.

R507.3.4 Termite resistance. Where required by Section 318, plastic composite deck boards, stair treads, guards and handrails containing wood, cellulosic or other biodegradable materials shall be termite resistant in accordance with ASTM D7032.

507.3.5 Installation of plastic composites. Plastic composite deck boards, stair treads, guards and handrails shall be installed in accordance with this code and the manufacturer's instructions.

Many of the 2015 IRC requirements for plastic composite plastic composite deck boards, stair treads, guards and handrails are self-explanatory (such as requiring installation in accordance with the manufacturer's instructions). However, some IRC requirements are deserving of explanation.

To comply with the building codes, manufacturers of plastic composite deck boards, stair treads, guards and handrails must satisfy the requirements of ASTM D7032, the "Standard Specification for Establishing Performance Ratings for Wood-Plastic Composite Deck Boards and Guardrail Systems (Guards or Handrails)." ASTM D7032 contains performance requirements specific to plastic composite exterior deck-related products that align with IRC requirements, including flexural tests, bio-degradation tests, fire performance tests, creep recovery tests, and mechanical fastener holding tests. The standard requires consideration of the effects of

temperature, moisture, freeze-thaw, ultraviolet exposure, concentrated load and duration of load on deck boards, stair treads, guards, and handrails.

For the manufacturer, ASTM D7032 describes how to determine the allowable load and maximum allowable span for plastic composite deck boards, stair treads, and guard systems. This is commonly described as the “load and span rating”. An example: based on results of the testing, a specific plastic composite deck board may be rated for a maximum load of 40 pounds per square foot (PSF) at a maximum span of 16” on center (O.C.) when used as a deck board; and the same deck board may be rated for 12” O.C. when used as a stair tread (stair treads are required to be tested to higher loads by the IRC and by ASTM D7032).

During design and construction of the deck, plastic composite deck boards would be selected to achieve the minimum required live load, as determined by IRC requirements, and installed on deck joists spaced to not exceed the maximum allowable span for the code-required live load rating. Assuming the deck boards would also be used as stair treads, the spacing of the stair stringers must not exceed the maximum allowable span for the specific deck board (determined via ASTM D7032) used as a stair tread.

To assist with verifying plastic composite deck boards, stair treads, guards, and handrails meet or exceed building code requirements, the IRC requires the manufacturer to label their products or packaging with load and span ratings and to indicate compliance with ASTM D7032.

CLMA

The Composite Lumber Manufacturers Association is the national trade association representing the manufacturers and suppliers of composite lumber to the residential and commercial building construction markets.

For over 10 years, CLMA has advanced the growth of the composite deck and railing industry through proactive technical, advocacy, and awareness efforts.

CLMA develops technical bulletins in an effort to address common questions about wood plastic composite decking and railing systems. This document is for informational purposes only, and is not intended to revoke or change the requirements or specifications of the individual manufacturers or local, state and federal building officials that have jurisdiction in your area. Individual manufacturers should be consulted for specifics about their respective products.

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