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Standard Methods of Testing Structural Insulating Roof Deck[1]

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INTRODUCTION

The test methods presented herein relating to structural properties were developed to measure the resistance of insulating roof deck to forces expected or possible when the product is used as roof decking, usually in exposed beam construction.

Insulating roof deck is a laminated composite of interior and weather-resistant grades of insulating board where the interior, factory-finished board provides the finished ceiling and the glued-laminated composite provides the structural deck, the base for built-up or other roofing and the thermal insulation. Vapor barriers are provided where use conditions require. While these test methods were developed specifically for measuring the deflection and strength characteristics of roof deck of insulating board, the concept is based on loads and forces applicable to any structural deck. Results of test are presented in terms usually used by architects and structural engineers.

Presented here are methods of test only. The criteria to be applied to the results of test are a matter that must be considered when these methods are used to determine limiting values for a procurement specification or for any purpose. A case in point is the accelerated aging exposure detailed in Sections 25 and 29. That exposure cycling was developed many years ago to obtain a measure of the resistance of a material to deterioration under exterior exposure conditions. It was selected for inclusion in this compilation of structural test methods for insulating roof deck, fully realizing that roof deck usually would not be subjected to a combination of exposures as severe as for materials exposed directly to the elements. It was the considered opinion, however, that the procedure would ensure adequate performance of insulating roof deck in use.

The methods presented herein are only for structural properties. For physical properties such as thermal conductivity and vapor permeability, which are important to the use of these materials, the appropriate ASTM methods for determining those properties of any engineering material are referenced and should be used. Instructions are included in these methods for specimen preparation and presentation of the results.

1. Scope

1.1 These methods cover determination of the following properties of structural insulating roof deck. In all structural tests the specimens are loaded as beams with the finished (ceiling) face in tension.

	Sections
Equivalent Uniform Load	8-12
Concentrated Load	13-16
Sustained Uniform Load (Sag)	18-20
Impact Load	21-24
Resistance to Cyclic Exposure	25-29
Thermal Conductance (Test Method C 177)	30-32
Water Vapor Permeance (Test Method C 355)	33-37

1.2 The values stated in inch-pound units are to be regarded as the standard. The metric equivalents of inch-pound units may be approximate.

1.3 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards:*

[1] These methods are under the jurisdiction of ASTM Committee D07 on Wood and are the direct responsibility of Subcommittee D07.03 on Panel Products.

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