COMMERCIAL & RESIDENTIAL GARAGE DOOR DIVISION

DASMA TECHNICAL DATA SHEET

#157

Door & Access Systems Manufacturers Association International

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Garage Doors and Foam Plastics: Fire Protection – U.S. Applications

Introduction

The use of foam plastic materials in sectional garage doors has become a choice among many manufacturers because of its insulation value, and in some cases its contribution to the strength of a garage door section. Common types of foam plastics used in garage doors include expanded polystyrene (EPS), extruded polystyrene (XPS), polyurethane and polyurethane/isocyanurate. Foam may be purchased in sheets or blocks and attached as a non-structural material, or it may be bonded to facings to form insulated, structural "sandwich" panels. Foam may also be "foamed-in-place" and used as an adhesive between the facings to create an insulated, structural panel. The use of foam plastic creates fire protection concerns, due to the high flammability of some foam products. This TDS explains how those concerns are addressed in U.S. building codes.

U.S. Model Building Codes, Foam Plastics, and Garage Doors

Foam Plastics[1]

U.S. model building codes require that the foam plastic itself meet certain ratings. These ratings are to measure the relative flame spread and smoke developed based on testing in accordance with ASTM E84 or UL 723. The ratings determined for a specific product are based on a comparison to the performance of known products such as cement board and wood of a certain set of parameters. The codes all concur that the flame spread index should not exceed 75 and the smoke-developed index should not exceed 450.

Note: Technical Data Sheets are information tools only and should not be used as substitutes for instructions from individual manufacturers. Always consult with individual manufacturers for specific recommendations for their products and check the applicable local regulations.

This Technical Data Sheet was prepared by the members of DASMA's Commercial & Residential Garage Door Division Technical Committee. DASMA is a trade association comprising manufacturers of rolling doors, fire doors, grilles, counter shutters, sheet doors, and related products; upward-acting residential and commercial garage doors; operating devices for garage doors and gates, sensing devices, and electronic remote controls for garage doors and gate operators; as well as companies that manufacture or supply either raw materials or significant components used in the manufacture and installation of the Active Members' products.

Covering Foam Plastics[2]

When foam plastic is used in a garage door, the codes require that the foam plastic be covered with a less flammable material of specified type and thickness, to minimize the foam's contribution to a fire. The foam plastic is to be covered with minimum .125" wood, .010" steel, or .032" aluminum. However, there is an allowance for doors with thinner facings, or facings of other material types: testing to ANSI/DASMA 107.

ANSI/DASMA 107[2]

Garage door constructions using foam plastics and facings that do not meet the minimum material type and thickness requirements shown above can comply with the codes through a test of the complete garage door assembly to ANSI/DASMA 107, *Room Fire Test Standard for Garage Doors Using Foam Plastic Insulation.* This standard includes a description of the test method, performance data to be obtained, and the acceptance criteria to use in evaluating the performance data. ANSI/DASMA 107 has been accepted by U.S. model building codes for the evaluation of garage doors that contain foam plastic.

IMPORTANT NOTES

(1) Sectional garage doors are not intended for installation in a fire rated wall. There are other products, such as rolling steel fire doors, manufactured for this purpose.
(2) U.S. model building codes exempt garage doors used in conjunction with one- and two-family dwellings from the requirement to cover the foam plastic or test to ANSI/DASMA 107.[2]
(3) Foam plastic in garage doors is not addressed in either the International Wildland Urban Interface Code or in Chapter 7A ("Exterior Wildfire Exposure") of the California Building Code. See DASMA TDS 186.
(4) See DASMA TDS 159 for Canadian applications.

[1] Sources of information:
2012/2015/2018/2021 International Building Code, Section 2603.3

[2] Sources of information:
2012/2015/2018/2021 International Building Code, Section 2604.1.9
2012/2015/2018/2021 International Residential Code, Section R316.5.6

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