

Approval Standard

for

Steel Deck

Nominal 1½ in. (38.1 mm Deep)

as Component of Class 1 Insulated

Steel Roof Deck Construction

Class Number 4451

October 1978

Foreword

Approval Standards are intended to verify that the products and services described will meet stated conditions of performance, safety and quality useful to the ends of property conservation. The purpose of Approval Standards is to present the criteria for Approval of various types of products and services, as guidance for FM Approvals personnel, manufacturers, users and authorities having jurisdiction.

Products submitted for Approval shall demonstrate that they meet the intent of the Approval Standard, and that quality control in manufacturing and/or applications shall ensure a consistently uniform and reliable product or service. Approval Standards strive to be performance-oriented and to facilitate technological development.

For examining equipment, materials and services, Approval Standards:

- a) must be useful to the ends of property conservation by preventing, limiting or not causing damage under the conditions stated by the Approval listing; and
- b) must be readily identifiable.

Continuance of Approval and Listing depends on compliance with the Master Agreement, satisfactory performance in the field, on successful re-examinations of equipment, materials, and services as appropriate, and on periodic follow-up audits of the manufacturing facility or service/application.

FM Approvals LLC reserves the right in its sole judgement to change or revise its standards, criteria, methods, or procedures.

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I INTRODUCTION

- 1.1 Steel roof deck is a structural component and must possess certain physical properties to support total uniform and concentrated construction loads as well as resist anticipated wind uplift forces without affecting the adhesive and mechanical bonds between above—deck components.
- 1.2 The Approval program will include investigation of raw materials employed in the manufacture of steel roof deck, quality of side lap, flatness of top flange surface, performance during deflection and other physical tests, conformance to manufacturer's submitted dimensional specifications, and compatibility of the deck finish with approved adhesives. In addition, Approval examination will include review of design and erection specifications and inspection of the product manufacturing facility. Field inspection by the building owner's representative is necessary to ensure conformance with conditions of approval during installation of FM Approved steel deck.
- 1.3 Steel roof deck which complies with the approval examination will qualify as a FM Approved component for Insulated Steel Deck Roofs.
- 1.4 Continued Approval will depend upon satisfactory field experience.

II STEEL DECK INVESTIGATION

2.1 Steel Roof Deck Materials

In order to qualify for Approval, steel deck must satisfy the following criteria:

- 2.1.1 Steel employed in the manufacture of steel roof deck shall conform to the provisions of:
- 2.1.2 ASTM Designation A611, Grade C, D or E structural quality cold rolled carbon steel for painted finish, latest issue or
- 2.1.3 ASTM Designation A446, Grade A, B, C, D or E structural quality steel for hot dip galvanized finish, latest issue; or
- 2.1.4 ASTM Designation A570, Grade C structural quality hot rolled carbon steel (16 gauge or thicker), latest issue.

2.2 Steel Deck Side Lap

- 2.2.1 In order to preserve the bond to the above—deck components under moving loads during roof construction, individual sheets must be fastened together securely at their side laps in a manner which will limit the differential deflection between adjacent sheets under anticipated loads.
- 2.2.2 Individual sheets having overlapping, interlocking, or other side joint connection shall be capable of securement to adjacent sheets by approved means. The means employed shall resist a moving concentrated load of 300 lb (136.4 kg) applied downward to the underlying sheet over a 6 in. by 3 in. (152.4 mm × 76.2 mm) area located ½ in. (12.7 mm) from the side lap web (6 in. (152.4 mm) dimension parallel to ribs) without dislodging the fastener or side lap joint.