

**A/D Fire Protection Systems, Inc.**  
**Design No. AD/IMF 120-01**  
**Loaded Restrained or Unrestrained Composite Beam**  
**Firefilm II, Firefilm IIIC, Firefilm III, Firefilm A3**  
**ASTM E 119**  
**CAN/ULC-S101 (With Load Restricted Factor = 0.71)<sup>1</sup>**  
**Ratings: See Table AD/IMF 120-01**

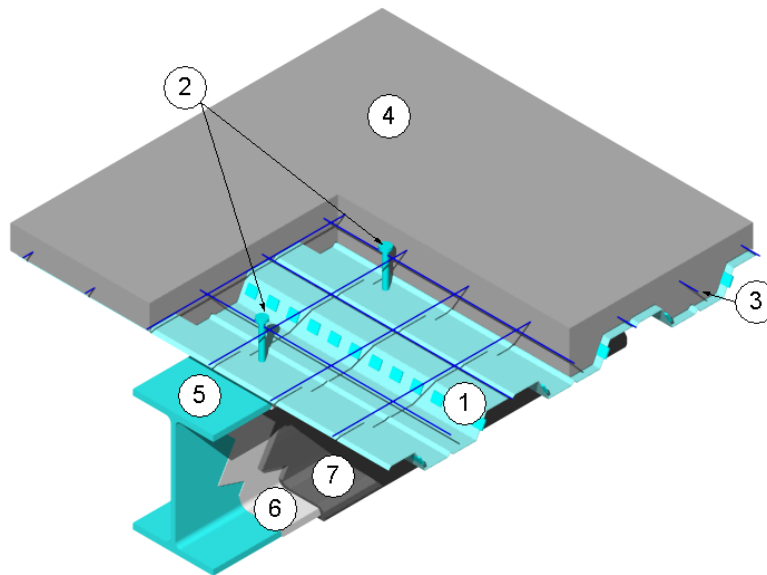


**Table AD/IMF 120-01**

| Restrained<br>Assembly Rating<br>(Hour) | Unrestrained<br>Assembly<br>Rating (Hour) | Unrestrained<br>Beam Rating<br>(Hour) | Min. Concrete Cover<br>Thickness |                | Min. Dry Film Thickness on Beam with<br>Min. (W/D) Ratio Indicated |                   |
|-----------------------------------------|-------------------------------------------|---------------------------------------|----------------------------------|----------------|--------------------------------------------------------------------|-------------------|
|                                         |                                           |                                       | Normal<br>Density                | Low<br>Density | W6X12<br>W/D=0.51                                                  | W6X25<br>W/D=0.82 |
| 2                                       | 0, see item 1                             | 1                                     | 4-1/2"                           | 3-1/4"         | 0.065"                                                             | 0.045"            |
| 2                                       | 0, see item 1                             | 2                                     | 4-1/2"                           | 3-1/4"         | ---                                                                | 0.101"            |
| 1-1/2                                   | 0, see item 1                             | 1                                     | 4"                               | 2-3/4"         | 0.065"                                                             | 0.045"            |
| 1                                       | 0, see item 1                             | 1                                     | 3-1/4"                           | 2-1/2"         | 0.065"                                                             | 0.045"            |
| 3/4                                     | 0, see item 1                             | 3/4                                   | 2-1/2"                           | 2-1/2"         | 0.045"                                                             | 0.045"            |

<sup>1</sup> For application in Canada (CAN/ULC S101), a Load Restricted Factor (0.71) shall be applied to the factored resistance of all structural members or components.



1. **FLOOR UNITS:** Fluted composite or non-composite floor deck made from sheet steel conforming to ASTM A1008 (A1008M) with a min. yield strength of 33 ksi (230 MPa), or select other acceptable structural sheet steels or high strength low alloy steels from the North American Specification for the Design of Cold-Formed Steel Structural Members. Install min. 0.030 in. fluted sections or 0.040/0.040 in. thick cellular sections, welded to top of structural steel beam (Item 5) and covered with min. concrete (Item 4) requirements as required herein. When max. clear span of floor units is less than or equal to 9 ft., 6 in., unrestrained assembly rating is increased to 2, 1, or 3/4 hour to match the unrestrained beam rating.
2. **SHEAR STUD CONNECTORS:** (Optional) When used puddle weld steel studs, headed type or equivalent per AISC specifications, to composite steel floor deck (Item 1) and structural steel beam (Item 5) providing a nominal concrete cover over the steel stud heads as required. Install shear stud connectors per AISC guidelines to provide composite action between the beam and the concrete deck assembly as required.
3. **CONCRETE REINFORCEMENT:** Non-structural applications – Use min. 6 in. x 6 in. 9 GA wire mesh installed mid-depth of concrete (Item 4) topping.
4. **CONCRETE:** Use min. compressive strength of 3500 psi. Place concrete topping (as measured from top of floor units (Item 1) to wearing surface of concrete) as required by rated floor construction.
5. **SOLID STRUCTURAL STEEL BEAM:** Use steel sections, I-beam or W-beam, having min. W/D ratio based on three sided exposure, with one surface in contact with composite steel floor deck (Item 1). Intumescent mastic fireproofing

(Item 7) thickness for min. W/D ratio based on one side in contact with composite steel floor units (Item 1). Refer to Table AD/IMF 120-01 above for specific application thickness of intumescent mastic fireproofing (Item 7).

W/D Ratio:

W = Weight of steel beam (lb./ft)

D = Heated perimeter of steel beam (inches)

6. **PRIMER COATING:** Apply an approximate 2 mil dry film thickness of primer recommended by the certified intumescent mastic fireproofing manufacturer, which is compatible with the intumescent mastic fireproofing (Item 7), to the solid structural steel beam (Item 5).
7. **CERTIFIED COMPONENT:** Intumescent Fireproofing  
  
**CERTIFIED MANUFACTURER:** A/D Fire Protection Systems, Inc.  
  
**CERTIFIED PRODUCT:** Firefilm II, Firefilm III, Firefilm IIIC, and Firefilm A3  
  
Install intumescent mastic fireproofing in accordance with Table AD/IMF 120-01 above. Apply only to clean and dry surfaces free of loose scale and oil. Apply in one or more coats to achieve min. thickness of intumescent mastic fireproofing to three exposed sides of solid structural steel beam (Item 5) as noted in Table AD/IMF 120-01. Allow each coat to set before applying next coat. Voids (flutes) between floor units (Item 1) and top of solid structural steel beam (Item 5) shall have the same thickness of fireproofing, or flute spaces above structural steel beam (Item 5) shall be completely filled with mineral wool insulation (not shown) having a min. density of 6.0 pcf.
8. **FINISH COATING:** (Optional, Not Shown): Apply a Silicone Alkyd paint designated A/D COLORCOAT per the manufacturer's published specification.



*Consult the listing report on the Directory of Building Products (<https://bpdirectory.intertek.com>) for the edition of the standard(s) evaluated.*

*Compliance of the assembly described in this Design Listing with the referenced standard relies on verification that the assembly constructed in the field is consistent with that described herein. Intertek certified products may be verified by the approved Intertek label; other products must be verified by the Authority Having Jurisdiction as meeting the specifications stated herein*