Fire Service Features

Chapter 5
Firefighting Access and Water Supplies

Presenter

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Fire Service Features
MSFC Chapter 5

• Best addressed:
  − Development review
  − Early site plan review
Minnesota State Fire Code
Chapter 5

• Provisions are really about time:
  − Assist with rapid and efficient fire department operations

Fire Apparatus Access to Buildings

Fire Service Features – Definitions

• Fire Apparatus Access Road:
  − Provides access to a facility or building
  − Includes streets, fire lanes, parking lots and access roadways
Fire Service Features – Definitions

• Fire Lane:
  – Allows passage of fire apparatus
  – Not necessarily intended for other vehicles

F.D. Access – MSFC 503.1.1

• Required for new facilities, buildings and additions
• Must be able to get apparatus within 150 ft. of all portions of the building
• How far away from building?:
  – No minimums specified
  – Aerial apparatus considerations

F.D. Access – MSFC 503.1.1
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150 foot maximum distance

F.D. Access – MSFC 503.1.1

How the 150 foot maximum distance is measured

F.D. Access – Building Addition

200 Feet

New Addition

Existing Building
F.D. Access – MSFC 503.1.1*

- Exception added to clarify that FD access roads are not required when the road serves two or fewer:
  - Group R-3 (single family homes)
  - Group U (garages, barns, sheds, etc.)

F.D. Access – MSFC 503.1.1.1*

- Can increase 150’ distance if building:
  - Is sprinklered (no maximum distance)
  - Group R sprinkler-protected buildings (up to 600 feet)*
  - Difficult location/topography and alternative means of fire protection provided (up to 300 feet)*

F.D. Access Roads

Fire apparatus roads can terminate further from the house when sprinkler-protected*
**F.D. Access – Width**

- 20 foot minimum width – MSFC 503.2.1
- Exception added for sprinkler-protected residences – 16 ft. width*

**F.D. Access Roads**

F.D. apparatus access roads can be narrower if sprinkler-protected*

**F. D. Access Specifications**

- Turn-around provisions if over 150 ft. in length – MSFC 503.2.5
F.D. Access – MSFC 503.2.5

• Turn-around provisions will vary depending on local FD needs or equipment
• Exception added allowing 300 ft. dead-end road for sprinkler-protected Group R buildings

Premise Identification

MSFC Section 505

Premise Identification – MSFC 505.1

• Approved address numbers or building identification
• Plainly legible and visible from street
• Can require at additional locations
• Numbers to be at least 4” height and ½” stroke
• Address numbers to be maintained
Fire Department Key Boxes

MSFC 506

Key Boxes – MSFC 506

• Code Official can require key boxes:
  – To provide access to or within structure
• Approved location
• Approved type of key box
• Containing keys to gain access as required
• Must be maintained (new keys, etc.)

F.D. Key Boxes – 2015 MSFC 506

506.1 Where required. Where access to or within a structure or an area is unduly difficult necessary because of secured openings or where immediate access is necessary for life-saving or fire-fighting purposes, the fire code official is authorized to require a key box to be installed in an approved location. The key box shall be of an approved type and shall contain keys to gain necessary access as required by the fire code official.

Exception: One and two family dwellings need not be provided with lock boxes.
Firefighting Water Supplies
MSFC 507

• Approved water supply to be provided:
  – Applies to new buildings & additions to existing buildings
• Capable of supplying minimum flows
• Types:
  – Reservoirs, tanks
  – Water mains
  – Other fixed systems

Fire Flows – 2015 MSFC –Table 507.3*

<table>
<thead>
<tr>
<th>Hazard Classification</th>
<th>Sprinklered Building</th>
<th>Unsprinklered or partially sprinklered building</th>
<th>Duration (minutes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Light Hazard</td>
<td>100 gpm available for fire department use</td>
<td>250 gpm available for fire department use</td>
<td>30</td>
</tr>
<tr>
<td>Ordinary Hazard</td>
<td>250 gpm available for fire department use</td>
<td>500 gpm available for fire department use</td>
<td>60</td>
</tr>
<tr>
<td>Extra Hazard</td>
<td>500 gpm available for fire department use</td>
<td>750 gpm available for fire department use</td>
<td>90</td>
</tr>
<tr>
<td>High Piled Combustible Storage</td>
<td>Hose stream demand from sprinkler installation standard (NFPA 13) or 500 gpm, whichever is larger.</td>
<td>1000 gpm available for fire department use</td>
<td>120</td>
</tr>
<tr>
<td>Other Group H Occupancies</td>
<td>Hose stream demand from sprinkler installation standard (NFPA 13, MSFC Chapter 34, etc.), or 500 gpm, whichever is larger.</td>
<td>1000 gpm available for fire department use</td>
<td>120</td>
</tr>
</tbody>
</table>
The Age-Old Question

• The owner is building outside the city where there is no water so they cannot provide:
  – Water for firefighting
  – Sprinkler protection
• Sorry – wrong answer
• No municipal water supply shifts the responsibility to property owner

Fire Protection Water Supplies

MSFC 507.5.1

• Requires any portion of a building to be within 300 ft. of a hydrant

  • Can increase distance to 400 ft. if the building is sprinkler-protected*
  • Can increase distance to 600 ft. if Group R-3 occupancy and sprinkler-protected*

Hydrant Spacing – Most Occupancies*

Hydrant spacing for non sprinkler-protected occupancies
Hydrant Spacing – Group R-3 & U*

800 feet 800 feet

Increased hydrant spacing for R-3 (1 & 2 family dwellings) and Miscellaneous occupancies (non-sprinkler-protected)

Hydrant Spacing – Commercial*

600 feet 600 feet 600 feet 600 feet

Hydrant spacing for non sprinkler-protected buildings

Hydrant Spacing – Commercial*

800 feet 800 feet

Increased hydrant spacing for sprinkler-protected buildings
Hydrant Spacing – R-3 Occupancies*

Increased hydrant spacing for sprinkler-protected R-3 occupancies

Hydrant for Standpipes – MSFC 507.5.1.1

• Fire hydrant to be located within 100 ft. of standpipe fire department connection (FDC)
• Does not apply to sprinkler system FDCs
• Exception allows an increase where acceptable to fire code official
Access Roads & Water Supplies

• MSFC allows a great deal of flexibility for sprinklered buildings
• FD access and water supply requirements are closely related:
  – A hydrant is of little value if you cannot drive a fire truck to it
  – They use 150 ft. as a basis (length of typical pre-connected hose line)

Fire Protection Water Supplies

• Cannot obstruct hydrants or other fire protection system controls (MSFC 507.5.4)
Fire Protection Water Supplies
MSFC 507

- Must maintain 3 ft. clear space around hydrants (MSFC 507.5.5)
- Can require posts if hydrant is subject to vehicle impact (MSFC 507.5.6)

Fire Command Center – MSFC 508**

- Minimum size increased from 96 sq. ft. in 2006 IFC to 200 sq. ft. in 2012 IFC

Emergency Responder Radio Coverage

- Section 510 was added to the IFC requiring emergency responder radio coverage for all new buildings**
- MSFC moved this to an optional appendix chapter (Appendix L)*
Questions

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