

Fire Department Review/Approval Process

- Design consultations, questions and pre-submittal reviews should be addressed to John Lippitt
- Site plan approvals will bear the signature of Scott Strassburg

Design Choices Determine Applicable Code Requirements

- The designer and/or owner chooses the height of the building, the side of fire access, fire lane location and whether the fire lane will be the street or on-site.
- Owner is responsible for compliance with the State Building Code

Design Choices Determine Applicable Code Requirements --Cont'd

- ...Fire Department "wants"...
- ...Fire Department "needs"...
- ... Fire Department is "making us"....

Top 4 Reasons for Fire Department Rejection of Plans

- Applicant is committed to a design which does not comply with the code minimums.
- Applicant does not acknowledge the Fire Department review comments to the Plan Commission.
- Applicant does not ask for clarification.
- Applicant is not familiar with the Code.

Wisconsin Administrative Code Comm. 62.0509

- Prescribes the minimum requirements for fire apparatus access to public buildings and places of employment.
- Comm. 62.0509 is a section in the State Building Code.
- This section was approved by the State legislature and is the mandatory state code.

International Fire Code (IFC)

- The IFC supports, compliments and is part of the State Building Code.
- The IFC is not more or less restrictive.
- Numerous chapters adopted by Wis. Admin. Code for the design and construction of public buildings and places of employment.
- The IFC also regulates the use, operations and maintenance of buildings and processes.

**Madison General Ordinances
(MGO) Chapter 34 –
Fire Prevention Code**

- MGO 34 adopts the IFC and State Building Code as the base documents for local enforcement.
- Specifies asphalt or concrete for fire apparatus access roads.
- Sets the maximum grade for fire apparatus access at 8%.

**Madison General Ordinances
(MGO) Chapter 34 –
Fire Prevention Code—Cont'd**

- Reviewed by the Building and Fire Code Review, Licensing and Appeals Board and approved by the Council.

**Comm 62.0509
FIRE APPARATUS ACCESS**

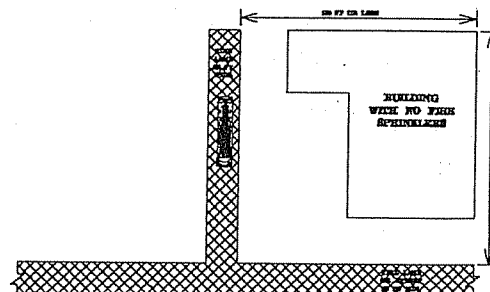
These are department rules in addition to the requirements in IFC Chapter 5.

(1) GENERAL

Unobstructed fire lanes that are accessible **from** a public road shall be provided for every facility, building or portion of a building in accordance with this code.

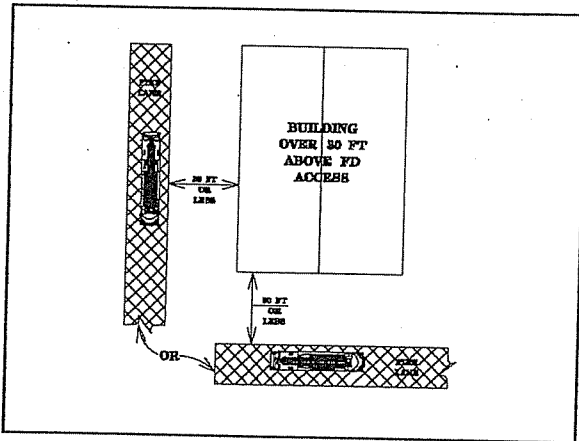
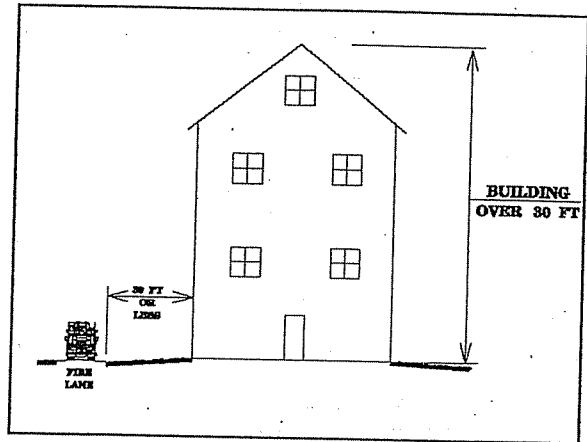
(2) EXTENT (a) 1.

Except as provided in par. (b), the fire lane shall extend to within 150 feet of all portions of the building or facility or any portion of the exterior wall of the first story as measured by an approved route around the exterior of the building or facility.



(2) EXTENT (a) 2.

Where any part of the building or facility is more than 30 feet above the lowest level of fire apparatus access, the fire lane shall also be parallel to one entire side of the building or facility with the near edge of the fire lane within 30 feet of the building or facility on that parallel side.

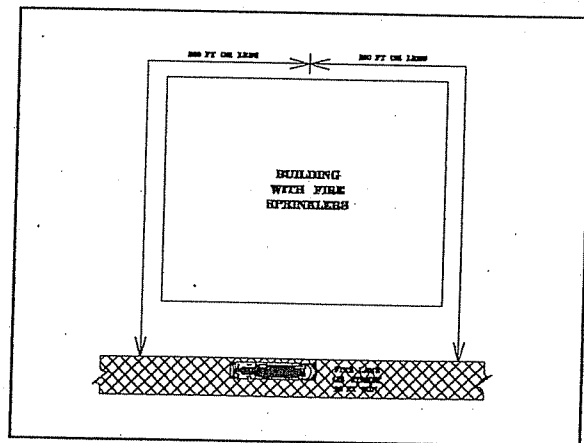


(2) EXTENT (b)

The fire code official may increase the dimension of 150 feet where any one of the following conditions are met:

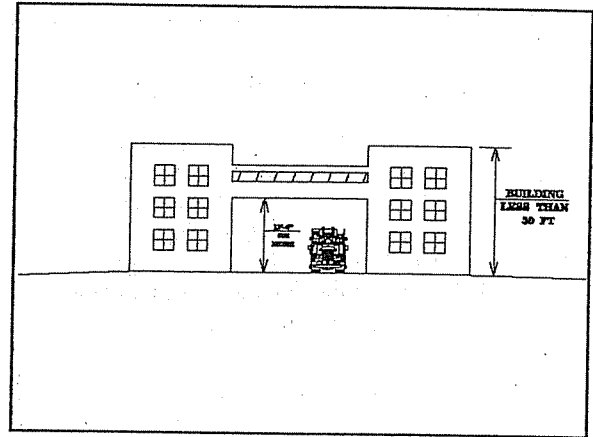
(2) EXTENT (b)—Cont'd

1. The building is equipped with a complete automatic fire sprinkler system.
2. A code-complying fire lane cannot be provided due to location on property, topography, grades, waterways or other similar conditions, and an approved alternative means of fire protection is provided.



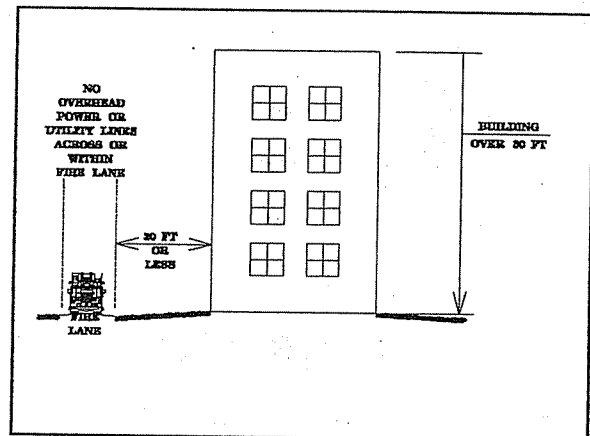
(3) DIMENSIONS (a)

A fire lane shall have a minimum unobstructed vertical clearance of 13.5 feet.



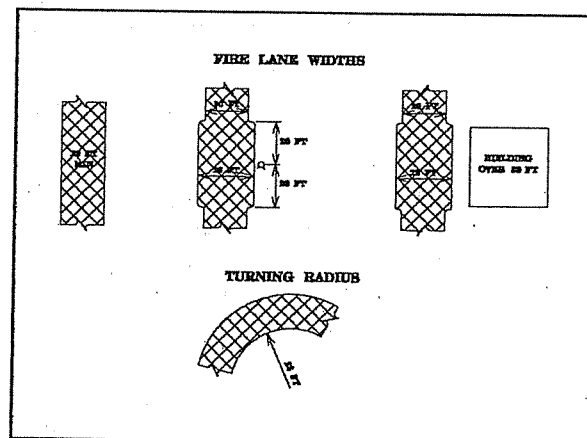
(3) DIMENSIONS (b)

Buildings or facilities with any part more than 30 feet above the lowest level of fire apparatus access shall be provided with a fire lane capable of accommodating aerial fire apparatus. Overhead power or utility lines may not be located across or within a fire lane for aerial fire apparatus.



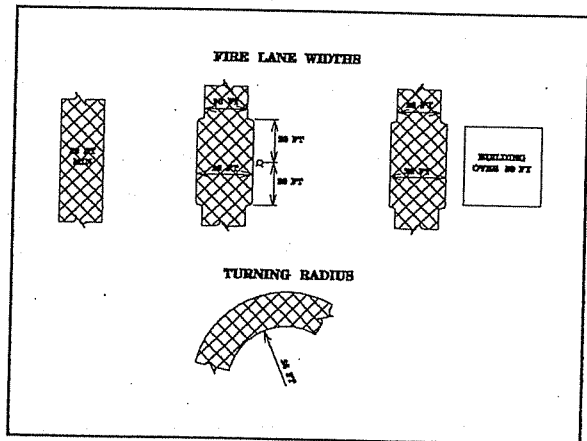
(3) DIMENSIONS (c)

Except as noted in pars. (d) and (e), a fire lane shall have a minimum unobstructed width of 20 feet.



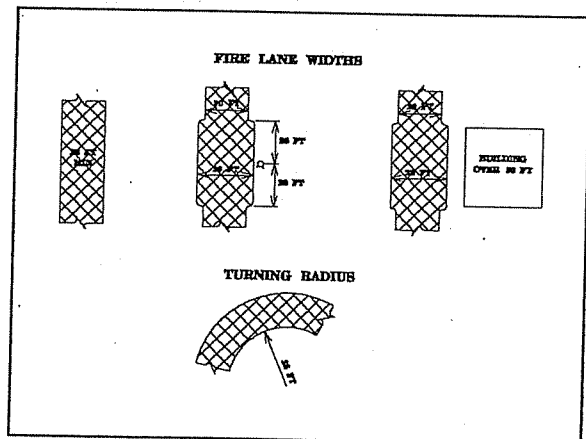
(3) DIMENSIONS (d)

Where a fire hydrant is provided to supply fire apparatus on the fire lane, the minimum unobstructed width shall be 26 feet for a minimum distance of 20 feet on each side of the fire hydrant.



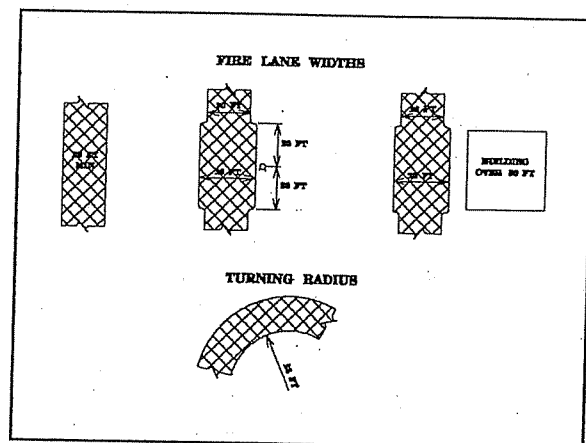
(3) DIMENSIONS (e)

Where any part of the building or facility is more than 30 feet above the lowest level of fire apparatus access, the minimum unobstructed width of the fire lane parallel to one side of the building or facility as required under sub. (2)(a)2., shall be 26 feet. (This is the aerial apparatus access for the building.)



(4) TURNING RADIUS

The inside turning radius of a fire lane shall be 28 feet or as determined by the fire code official.

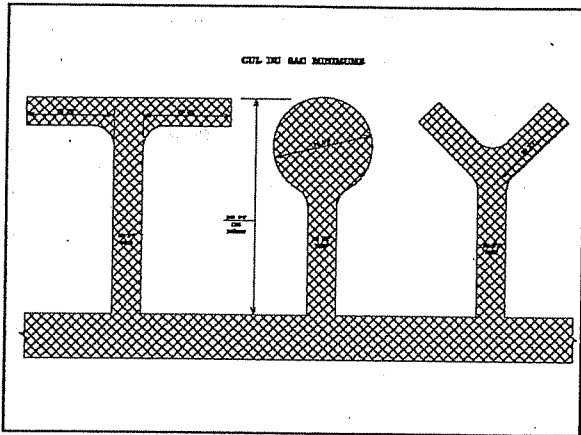


(5) DEAD ENDS

A dead-end fire lane that is longer than 150 feet shall terminate in a turnaround area which consists of one of the following:

(5) DEAD ENDS—Cont'd

- A cul-de-sac with a minimum diameter of 70 feet.
- A 45° wye with a minimum length of 60 feet per side.
- A 90° tee with a minimum length of 60 feet per side.

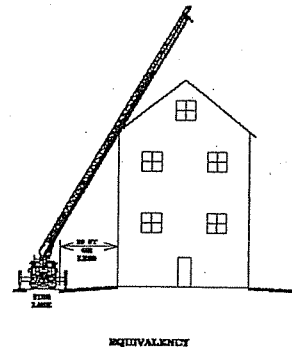


Equivalency Guide

The design professional and property owner **may** suggest other alternative design schemes for providing equivalent protection. This document serves only as a guide and does not commit the MFD to any alternative designs. The MFD may suggest or require other safety improvements in addition to the items included in this guide.

Aerial Access Equivalency

Where a building is over 30-ft in height aerial apparatus access is required; you may consider a performance based design concept that demonstrates equivalency with site plans showing alternate fire lane locations and section view details showing the ladder truck reaching the building from different locations.



Buildings Up To And Including Four Stories

1. Where fire sprinklers are not required in the building, consider upgrading to provide fire sprinklers per NFPA 13 or NFPA 13R as applicable, including balconies.
2. Where an NFPA 13R fire sprinkler system is required by code, consider upgrading to provide sprinklers per NFPA 13 throughout the building, including balconies in R occupancies.

Buildings Up to and Including Four Stories – Cont'd

3. Provide a Class I Manual-wet Standpipe System in all stair enclosures.
4. As applicable; provide a complete monitored smoke detection system in all occupiable areas; or consider providing smoke detection throughout the means of egress system, storage rooms and other common use areas.

Buildings Up to and Including Four Stories – Cont'd

5. Enclosure allowing firefighter access from the fire lane to the roof.
6. Where aerial apparatus access is required; consider locating 26-foot wide fire lanes on two or more sides of the building that accumulatively exceed one entire side, with no side providing less than 50% of the required length.

Buildings Between Five Stories and High-rise

1. Provide a Fire Command Center per the IFC.
2. Consider providing fire sprinklers per NFPA 13 throughout the building, including balconies in R occupancies.

Buildings Between Five Stories and High-rise – Cont'd

3. Provide pressurized fire-resistance-rated stair enclosures.
4. Provide a Class I Automatic-wet Standpipe System in all stair enclosures.

Buildings Between Five Stories and High-rise – Cont'd

5. As applicable, provide a complete monitored smoke detection system in all occupiable areas; or consider providing smoke detection throughout the means of egress system, storage rooms and other common use areas.

**Buildings Between Five Stories
and High-rise—Cont'd.**

6. Consider providing an emergency voice/alarm communication system throughout the building.
7. Provide a smoke control system on each floor.

**Buildings Between Five Stories
and High-rise—Cont'd.**

8. Provide areas of refuge assistance, with a fire-resistance-rated vestibule at the entrance to the stair enclosure.
9. Provide a standby power generator.
10. Provide an elevator with standby power.

**Buildings Between Five Stories
and High-rise—Cont'd.**

11. Provide two-way firefighter communications service; either MFD radio re-broadcast, or hard-wired fire telephones.
12. Consider locating 26-foot wide fire lanes on two or more sides of the building that accumulatively exceed one entire side, with no side providing less than 50% of the required length.

High-Rise Buildings

1. Provide a mechanical smoke control system on each floor.
2. As applicable; provide a complete monitored smoke detection system in all occupiable areas; or consider providing smoke detection throughout the means of egress system, storage rooms and other common use areas.

High-Rise Buildings – Cont'd

3. Provide fire sprinklers on balconies in R occupancies.
4. Provide areas of refuge assistance, with a fire-resistance-rated vestibule at the entrance to stair enclosure.

High-Rise Buildings – Cont'd

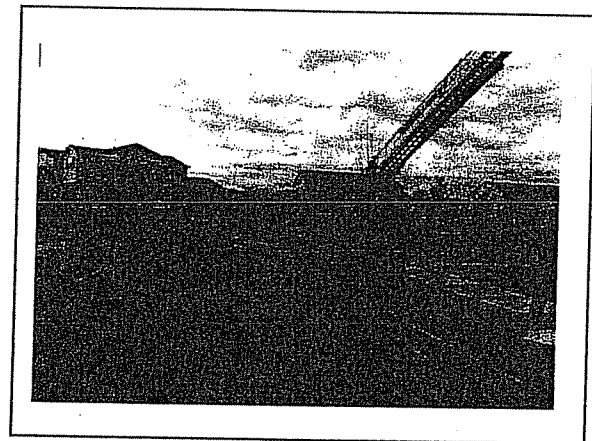
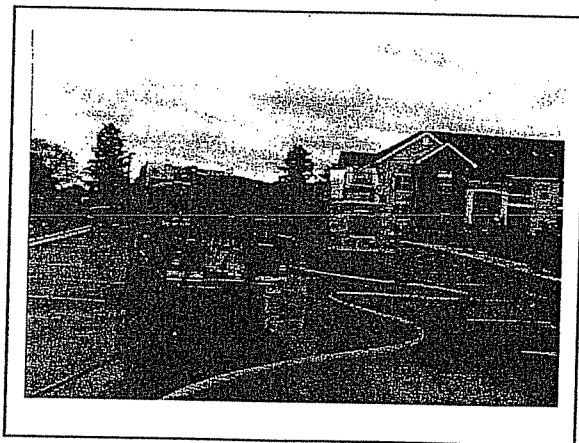
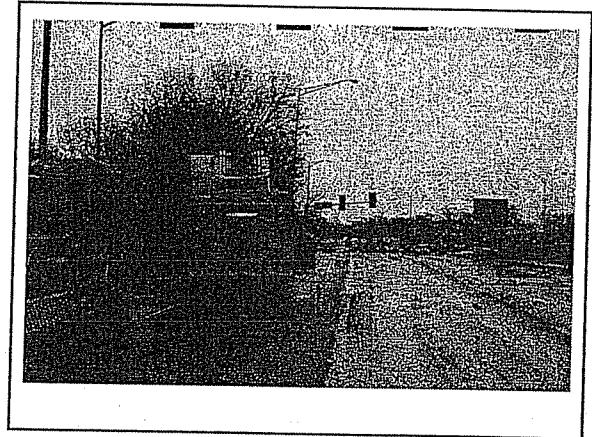
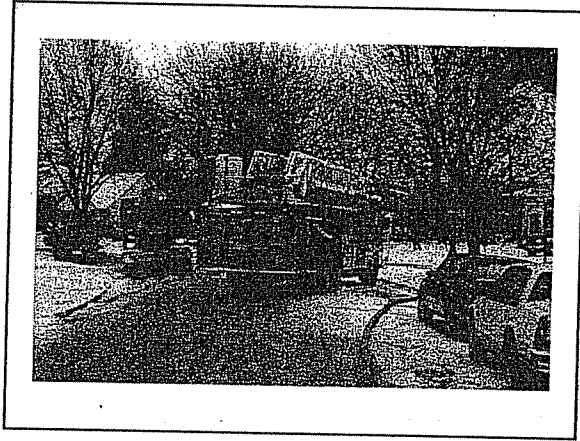
5. Consider locating 26-foot wide fire lanes on two or more sides of the building that accumulatively exceed one entire side, with no side providing less than 50% of the required length.

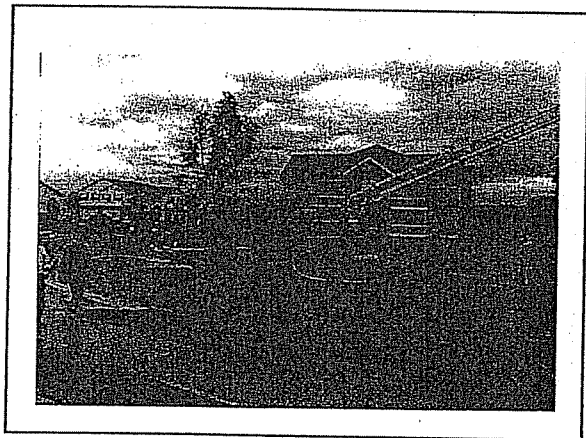
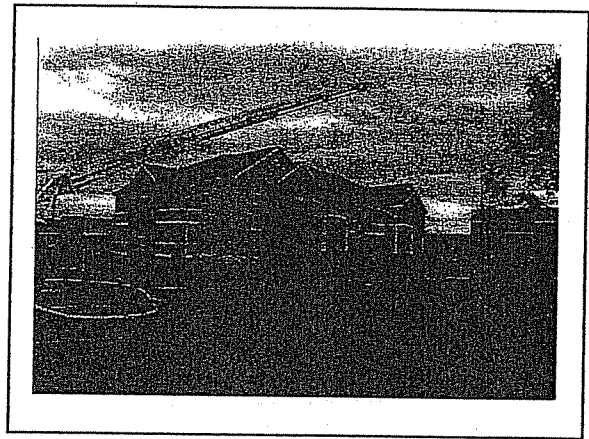
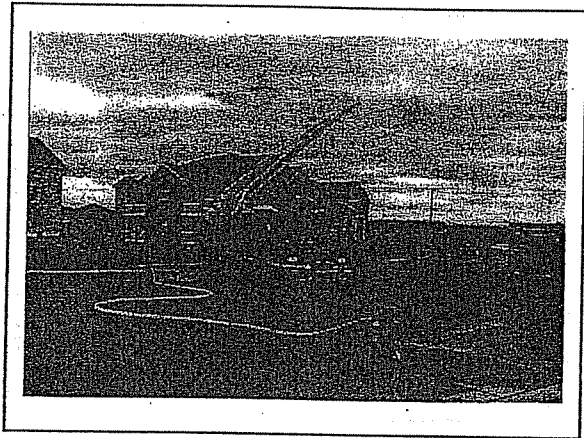
Approval of Equivalent Designs

- Informal process (letter from owner)
- Formal process (Petition For Variance)

Fire Access Worksheet

A completed worksheet is required for all site plan reviews. The worksheet assists the applicant in applying the code to the project.





The End

Do you have any questions?
Do you have any comments?

City of Madison Fire Department (MFD)

Equivalency Guide for Code Deficient Fire Apparatus Access

February 17, 2005

All new public buildings and places of employment must be provided with approved fire apparatus access as required by Wisconsin Commercial Building Code, s. Comm 62.0509. The City of Madison Fire Prevention Code s. MGO 34.19, also has regulations for fire access. The MFD expects the design professional will produce construction documents that propose fire lanes in accordance with the applicable codes.

Where a proposed new construction project cannot provide fire apparatus access in compliance with the codes, an alternative design scheme must be developed to provide for an equivalency with the codes; this alternative design scheme must be acceptable to the MFD. The design professional and property owner must consider site constraints, the class of construction, the type of occupancy and the use of the premises when considering options for providing acceptable equivalent protection. One, or a combination, of the options listed below may be considered for providing an equivalent level of fire safety; based on the hazard, all of the applicable issues, and the level of the deficiency upon the premises. Where an item listed below is required by the code for the project, that item may not be used for providing equivalency.

The design professional and property owner may suggest other alternative design schemes for providing equivalent protection. This document serves only as a guide and does not commit the MFD to any alternative designs. The MFD may suggest or require other safety improvements in addition to the items included in this guide.

The following lists of options are choices for the design professional and property owner:

Buildings Up To And Including Four Stories

1. Where fire sprinklers are not required in the building, consider upgrading to provide fire sprinklers per NFPA 13 or NFPA 13R as applicable, including balconies.
2. Where an NFPA 13R fire sprinkler system is required by code, consider upgrading to provide sprinklers per NFPA 13 throughout the building, including balconies in R occupancies.
3. Consider upgrading to ESFR sprinklers in high-piled combustible storage areas.
4. Provide a Class I Manual-wet Standpipe System in all stair enclosures.
5. As applicable; provide a complete monitored smoke detection system in all occupiable areas; or consider providing smoke detection throughout the means of egress system, storage rooms and other common use areas.
6. Provide a fire-resistance-rated stair enclosure allowing firefighter access from the fire lane to the roof.
7. Where aerial apparatus access is required; consider locating 26-foot wide fire lanes on two or more sides of the building that accumulatively exceed one entire side, with no side providing less than 50% of the required length.

Buildings Between Five Stories and High-rise

1. Provide a Fire Command Center per the IFC.
2. Consider providing fire sprinklers per NFPA 13 throughout the building, including balconies in R occupancies.
3. Provide pressurized fire-resistance-rated stair enclosures.
4. Provide a Class I Automatic-wet Standpipe System in all stair enclosures.
5. As applicable; provide a complete monitored smoke detection system in all occupiable areas; or consider providing smoke detection throughout the means of egress system, storage rooms and other common use areas.
6. Consider providing an emergency voice/alarm communication system throughout the building.
7. Provide a smoke control system on each floor.
8. Provide areas of refuge assistance, with a fire-resistance-rated vestibule at the entrance to the stair enclosure.
9. Provide a standby power generator.
10. Provide an elevator with standby power.

11. Provide two-way firefighter communications service; either MFD radio re-broadcast, or hard-wired fire telephones.
12. Consider locating 26-foot wide fire lanes on two or more sides of the building that accumulatively exceed one entire side, with no side providing less than 50% of the required length.

High-rise Buildings

1. Provide a mechanical smoke control system on each floor.
2. As applicable; provide a complete monitored smoke detection system in all occupiable areas; or consider providing smoke detection throughout the means of egress system, storage rooms and other common use areas.
3. Provide fire sprinklers on balconies in R occupancies.
4. Provide areas of refuge assistance, with a fire-resistance-rated vestibule at the entrance to stair enclosure.
5. Consider locating 26-foot wide fire lanes on two or more sides of the building that accumulatively exceed one entire side, with no side providing less than 50% of the required length.

Where a building is over 30-ft in height aerial apparatus access is required; you may consider a performance based design concept that demonstrates equivalency with site plans showing alternate fire lane locations and section view details showing the ladder truck reaching the building from different locations.

All final site plans for new public buildings and places of employment located within the City of Madison must receive MFD approval prior to construction.

City Approval Process

The property owner has two choices for obtaining City approval of construction documents that are not in compliance with the codes for fire apparatus access; it is the property owners' choice, either one process or the other, they do not need to obtain both. Those choices are listed as follows:

1. Informal Process:

Where an alternate design scheme is necessary for a project, that design scheme must be documented by the property owner in the form of a letter, and the letter must be submitted to the MFD Fire Protection Engineer (FPE) for approval. In the letter, the property owner must identify the known deficiencies in detail, state why they cannot comply with the code, and list a detailed description of all features they are proposing to provide for equivalency. If upon review the letter is acceptable to the MFD, the letter will be stamped approved and signed by the FPE. A copy of the approved letter will be returned to the property owner, a copy will be faxed to the Supervisor of the Building Inspection Unit for their records, and a copy will be retained by the MFD in the permanent street file. The property owner must include a copy of the approved letter with the site plans submittal to the zoning office prior to receiving a City permit.

2. Formal Process:

The property owner may submit an application for a Petition for Variance to the City Board of Building Code, Fire Code and Licensing Appeals. The formal process is facilitated by the Supervisor of the Building Inspection Unit (BI), contact BI for variance submittal information. The completed City Board approved variance must be included as part of the site plans submittal to the zoning office prior to receiving a City permit.



CITY OF MADISON FIRE DEPARTMENT

Fire Prevention Division

325 W. Johnson St., Madison, WI 53703-2295

Phone: 608-266-4484 ♦ FAX: 608-267-1153

FIRE APPARATUS ACCESS AND FIRE HYDRANT WORKSHEET

1. Building is completely protected by an automatic fire sprinkler system, per IBC section 903.3.1.1 or 903.3.1.2? (YES or NO)
2. Fire lanes are constructed of concrete or asphalt, designed to support a minimum load of 80,000-lbs? (YES or NO)
3. Fire lanes are unobstructed? (YES or NO)
4. Fire lanes are accessible from a public road? (YES or NO)
5. Fire lanes extend to within 150-feet of any portion of the exterior wall of the first story of the building? (YES or NO)
6. Is any part of the building greater than 30-feet above the lowest level of fire apparatus access? (YES or NO)
If yes, answer the following five questions:
 - a) Is the aerial apparatus fire lane parallel to one entire side of the building? (YES or NO)
 - b) Is the near edge of the aerial apparatus fire lane within 30-feet of the building on that parallel side? (YES or NO)
 - c) Are there any overhead power or utility lines located across the aerial apparatus fire lane? (YES or NO)
 - d) The aerial apparatus fire lane has a minimum unobstructed width of 26-feet? (YES or NO)
 - e) Are there any obstructions between the aerial apparatus fire lane and the building? (YES or NO)
7. For buildings less than 30-feet in height: the fire lane has a minimum unobstructed width of at least 20-feet? (YES or NO)
8. Fire apparatus access has an unobstructed vertical clearance of at least 13½-feet? (YES or NO)
9. Is the minimum inside turning radius of the fire lane at least 28-feet? (YES or NO)
10. Is the fire lane dead-ended with a length greater than 150-feet? (YES or NO)
If yes, answer the following three questions:
 - a) Is an area for turning around fire apparatus provided by a cul-de-sac with a minimum inside diameter of 70-feet? (YES or NO)
 - b) Is an area for turning around fire apparatus provided by a 45-degree wye with a minimum length of 60-feet per side? (YES or NO)
 - c) Is an area for turning around fire apparatus provided by a 90-degree tee with a minimum length of 60-feet per side? (YES or NO)
11. Is the grade of the fire lane not more than a slope of 8%? (YES or NO)
12. Is a fire hydrant provided to supply fire apparatus on the fire lane? (YES or NO)
If yes, the minimum unobstructed width of the fire lane shall be at least 26-feet wide for at least 20-feet on each side of the fire hydrant, and be positioned so the largest hydrant outlet faces the fire lane.
NOTE: Fire hydrants shall be installed and in-service prior to combustible construction on the project site.
13. Are all portions of the exterior walls of the building within 500-feet of at least two fire hydrants? (YES or NO)
NOTE: Distances shall be measured along the path of the hose lay as it comes off the fire apparatus.
14. Is there at least 40-feet between a fire hydrant and the building, (YES or NO) and is the fire hydrant setback neither less than 5-feet nor more than 10-feet from the curb or edge of the street or fire lane? (YES or NO)
NOTE: Fire hydrants located in parking lot islands shall be a minimum of 3½-feet from the center of hydrant to the curb.
15. Are there any obstructions, including but not limited to power poles, trees, bushes, fences or posts located, or grade changes exceeding 1½-feet, within 5-feet of a fire hydrant? (YES or NO)

NOTE: This worksheet is based on MGO 34.19 and Comm 62.0509, Wis. Admin. Code, please see the codes for details.