EMTN **DOW CORNING CORPORATION**

EMTN

DOW CORNING PROJECT: **ASIAN PILLAR PROJECT**

AK PROCESS PROJECT No: **51202280**

LOCATION: **ZHANGJIAGANG, JIANGSU PROVINCE, PR CHINA**

DOCUMENT TITLE: **Mandatory Fire Protection of Structure Steel**

DOCUMENT No: **DC 15.300.002** **AK 0136-OBJ-100280001**

ITEM No: **No OFF:**

ISSUE:	0				
DATE:	02-Aug-2007				
PURPOSE:	FEP				
PREPARED BY:					
CHECKED BY:					
DC APPROVED BY:					

0	Amend document No.
-	First issue to all parties.
ISSUE	ALTERATION

EMTN **DOW CORNING CORPORATION**

APPLICABLE SITES: GLB **DOCUMENT NO:** 15.300.002

ISSUED BY: Fire Protection Technology Team **EFFECTIVE DATE:** 01-AUG-2000

Deleted: Corporate Safety & Loss Prevention

Deleted: 01-JUN-2000

MANDATORY FIRE PROTECTION OF STRUCTURAL STEEL

1. SCOPE

1.1. This document specifies the requirements for fire protection of structural steel. These requirements include:

A. When, where, and what type of steel protection is required.

B. The basis for the design and installation of steel protection.

1.2. This standard applies to all types of structural steel. This includes, but is not limited to, building steel, equipment supports, storage tank supports, and piping supports (see also definition of structural steel in Section 3.0).

1.3. This document applies to structural steel in all Dow Corning facilities, as follows:

A. All new structural steel.

B. Existing structural steel, as follows:
1. When required by local codes and regulations.
2. When expanding or modifying existing structural steel.
3. When adding, modifying, or changing protection for existing structural steel.
4. As specifically indicated in Section 2.5, C.
5. When specified by Corporate or Site Safety & Loss Prevention.

2. DISCUSSION

2.1. In the following table is a brief outline of section 2.0 to aid in the usage of this document.

Section 2.0 Outline

Section No.	Section Title	Description
2.1	none	Outline of Section 2.0.
2.2	Background Information	This is a nonmandatory section which provides background information and discusses essential concepts, including the purpose of steel protection, active versus passive protection, and “important equipment”. A synopsis of requirements is provided in Section 2.2,D.
2.3	General Requirements	This section specifies the general requirements for steel fire protection, particularly when protection is required.
2.4	Steel Requiring Protection	This section specifies which structural steel elements require fire protection and also which elements do *not* require protection.
2.5	Type of Protection	This section specifies the type of steel fire protection (active or passive) which may be used in which cases. A summary table outlining permissible protection is

		included.

2.2. Background Information: (not mandatory)

A. Purpose of Fire Protection for Structural Steel:

1. When structural steel is exposed to heat, such as during a fire, it begins to lose strength. If the exposure is of sufficient duration and intensity, the steel can potentially fail and collapse.
2. Failure of structural steel due to fire exposure can result in significant property damage and business interruption. Failure of steel can also impact life safety, specifically in the case of multi-story, occupied structures.
3. For structural steel supporting process equipment, storage tanks, or process piping, failure of the steel can also result in the release of significant quantities of flammable or combustible materials (which could intensify the fire) or other hazardous materials.
4. To prevent serious deformation or failure of structural steel during fire exposure, fire protection is provided for the steel. Such protection may be active such as by sprinklers or passive such as by fireproofing or concrete.

B. Active versus Passive Protection:

1. Passive protection generally has been preferred over active protection for fire protection of structural steel. This is based on the following:
   a. Passive protection is not subject to mechanical failure.
   b. Passive protection is not subject to damage from explosions (as are sprinklers).
   c. Passive protection is not dependent on other systems to perform (such as sprinklers are on fire water supply systems).
   d. Passive protection does not require periodic testing (it must, however, be inspected and maintained).
2. As a result, passive protection has been the traditional means of steel protection used within Dow Corning prior to the writing of this document.
3. However, there are many problems associated with passive protection, particularly spray-on fireproofing. These include: corrosion of steel substrate, relatively high cost, additional maintenance (e.g., patching, cleaning, painting, etc.) and a finite life. While corrosion of the steel substrate can be greatly minimized through good installation and maintenance practices (see other EMTN documents), it cannot be eliminated completely, and the ability to control the other problems is somewhat limited. Therefore, there has been a strong desire to use active protection, namely sprinklers, instead.
   a. It is worth noting that due to the significant concerns associated with corrosion of steel underneath fireproofing, a Corrective Action Team (CAT) sponsored by Corporate Facilities Engineering was formed in 1993 The complete report of their findings can be found as EMTN document 07.250.006.

Deleted: to specifically study this issue and recommend possible means of minimizing corrosion.

4. It was concluded that sprinklers could in fact provide a reasonably high level of protection for structural steel within Dow Corning. This is based on the following:
   a. Typical materials present in open process structures within Dow Corning (e.g., chlorosilanes, siloxanes, SYLTHERM®, etc.) generally present minimal fire and explosion hazards as compared with hydrocarbons. (See Section 2.2,B,5 for additional discussion on enclosed process structures.)
   b. Empirical studies by Factory Mutual Research Corporation suggest that chlorosilanes and methyl chloride do not present an Unconfined Vapor Cloud Explosion (UVCE) hazard. Therefore, the risk of an explosion impairing sprinkler protection in Dow Corning's basic processes is assumed to be minimal.
   c. Higher hazard materials (such as hydrocarbons) typically exist only in relatively small quantities or in enclosed process buildings. (See Section 2.2,B,5 for additional discussion on enclosed process structures.)
   d. There is strong emphasis on primary containment in the design of new Dow Corning facilities. This not only minimizes the potential for a spill of flammable/combustible materials, but also the size of a spill.

e. Additional loss prevention features typically employed, particularly drainage, and Temperature Safe Valves (TSVs) would minimize the degree and extent of fire exposure to structural steel. In other words, it is likely that only a small number of structural elements would be exposed and only for a short duration.
f. Serious fire exposure to a small number of structural steel elements (such as what would occur in the case of sprinkler failure), in most cases would not be expected to result in catastrophic consequences.
g. Sprinkler systems within Dow Corning historically have a very high degree of reliability.
h. In most cases, the infrastructure exists to allow use of sprinklers for protection of structural steel. This includes water supplies, water distribution systems, inspection and testing programs, etc.
i. Manual fire protection systems are also available to assist in controlling the fire and keeping structural steel cool.
j. Sprinklers are used by other large chemical companies for protection of structural steel.

5. The protection of structural steel in enclosed process buildings has not been consistent ranging from fireproofing to sprinklers, to no protection whatsoever. In general, though, specific steel protection has not been provided for enclosed process buildings within Dow Corning.
   a. Sprinklers are normally provided in enclosed buildings, but such systems typically have been designed to protect equipment only. As a result, sufficient cooling is not expected to be provided for building steel, specifically vertical members.
   b. Area sprinklers installed in enclosed buildings will normally afford sufficient protection for horizontal steel members (beams) provided that the sprinklers are adequate (i.e., proper sprinkler density and coverage is provided). Supplementary sprinkler protection may be needed in some cases, however, to protect some horizontal members.
6. Despite the fact that significant quantities of hydrocarbons are often present in enclosed process buildings (unlike open process structures), sprinklers are considered to be an acceptable means of protection for building steel in such buildings as well. This is based on the fact that the operation of sprinklers is critical for the overall fire protection of enclosed buildings, and passive steel protection would provide only an incremental reduction in risk. In other words, should sprinklers in an enclosed building fail, for whatever reason, the consequences would be catastrophic, regardless of the type of steel protection afforded. (Due to the enclosed nature of the building, heat would be readily contained, and manual fire fighting efforts would be inhibited. Consequently, major damage to equipment and the process would be sustained.)
7. Despite the above, passive fire protection may still be warranted in some cases, such as the following:
   a. Where important equipment is concerned. (See Section 2.2, C.)
   b. Where drainage is poor.
   c. Where significant quantities of higher fire hazard materials are handled in open process structures.
   d. Where sprinkler systems do not presently exist and the installation of such would either be impractical or costly (e.g., in tank farms).
   e. In existing facilities which are already provided with passive protection and/or where expansion of the sprinkler system to protect steel is not practical due to water supply or other limitations.
   f. Where required by building codes or regulations.
8. It is worth noting that while Dow Corning's insurance carrier prefers the use of passive fire protection, active protection of steel as outlined in this document will not significantly impact Dow Corning's insurance program.

C. "Important Equipment":

1. The structural supports of certain process equipment represent a substantially greater risk from a loss prevention standpoint than do the supports for other equipment. As a result, steel protection, which offers a high degree of reliability, *may* be needed for such supports (see Section 2.2.C 3 thru 5). While sprinklers have proven to be very reliable, they are inherently less reliable than passive protection that is properly installed and maintained, and sprinkler systems are subject to damage from an explosion. In addition, there is an inherent time delay associated with the operation of sprinklers during which time serious steel deformation can occur.
2. The determination of what equipment is "important" is somewhat subjective and requires some understanding of the fire hazards. It is very important therefore that the steel protection scheme for any new equipment or process be reviewed with Safety & Loss Prevention personnel.
3. In general, important equipment is any equipment where failure or deformation of the supports for such equipment due to fire exposure, even for a short duration, would likely result in extremely serious consequences. These consequences could include the following:
   a. Serious exposure to plant personnel or surrounding community.
   b. Release of large quantities of flammable or combustible materials which could intensify fire or result in an explosion.
   c. Release of significant quantities of highly hazardous or toxic materials.
   d. Extended interruption in operations.
   e. Very costly repairs.
   f. Serious environmental contamination.
4. Typical examples of important equipment are as follows:
   a. Distillation columns.
   b. Fluid bed reactors.
   c. Air coolers.
   d. Unique or "one-of-a-kind" equipment which is essential to the process.
   e. Equipment with long replacement times (e.g., >6 months) which is essential to the process.
   f. Equipment with supports which, if damaged due to fire exposure, would require the process to be shut down for an extended period of time to facilitate repair/replacement of steel.
   g. Equipment with significant hold-ups (e.g., >378 liters or >100 gallons) of liquid hydrocarbons.
   h. Equipment with large hold-ups (e.g., >1890 liters or >500 gallons) of other flammable liquids, such as chlorosilanes.
   i. Equipment with large hold-ups (e.g., >1890 liters or >500 gallons) of hazardous or toxic materials, such as methyl chloride, HCl, etc.
5. It is essential to understand that even though a piece of equipment may be considered as "important", passive steel protection is not always warranted and depends on other factors, most notably the equipment's location (see Table 2.5). If the equipment is located more than 30 feet above grade (or other solid surfaces) or the risk of fire exposure is otherwise minimal, active protection will suffice. Examples:
   a. Fluid bed reactors (FBRs) are considered important equipment. However, passive protection generally is not necessary for such equipment, for several reasons: (1) FBRs are typically supported from building steel >30 feet above grade; (2) Slight deformation of building steel such as might occur before sprinklers could activate would probably not result in serious consequences; and (3) Catastrophic steel failure is unlikely.
   b. A horizontal storage vessel containing a large quantity of flammable liquids could be considered as important. However, if the vessel were installed on steel saddles where the lowest point of the saddle is less than 12 inches, passive protection would not be required (in fact, *no* protection would be required; see Sections 2.4,H,1, and

Deleted: protection which offers a high degree of reliability

Deleted: ,

Deleted: sprinklers (sometimes as long

Deleted: as a couple minutes),

Deleted: easily

Deleted: (e.g., >100 gallons)

Deleted: (e.g., >500 gallons)

Deleted: (e.g., >500 gallons)

2.4,H,7).

D. Synopsis of requirements - The following is a synopsis of the requirements. Due to the number of variables involved and the many exceptions, this synopsis should be used for overview purposes only.

1. Essential terms (see Section 3.0 for definitions): active protection, important equipment, passive protection, protection, steel fire protection, and structural steel.
2. Protection must be provided for structural steel whenever flammable or combustible liquids exist and when required by codes or regulations.
3. Protection must be provided for all structural steel, including equipment supports, in open process structures up to 10 meters (32 feet) above grade (or other solid surfaces)
4. For open process structures, protection may be active or passive, as follows:
   a. For new structures with adequate drainage (minimum 2% slope), sprinklers may be used for protection.
   b. For in existing structures, existing fireproofing must be maintained as long as practical.
      1. Sprinklers may be used for protection of steel in existing buildings if drainage is adequate.
5. Protection must be provided for all vertical structural steel in enclosed process structures (building columns, etc.). Sprinklers may be used for such protection.
6. Passive protection must be provided for supports of "important equipment" located at grade or other solid surfaces in open and enclosed process structures.
7. Passive fire protection must be provided for supports of storage tanks.
8. Protection must be provided for certain pipe rack supports. Where rack is integral with a building, sprinklers may used for protection.
9. Where sprinklers are acceptable as a means of protection, passive protection is also acceptable and may be used if desired.

Deleted: 0

2.3. General Requirements:

A. The requirements which follow are base requirements, and recognizing that unique situations will exist from time to time. Corporate Safety Industrial Hygiene & Loss Prevention may allow deviations from these based on a review of the specific situation without need to process any formal variance or exemption. Any such deviations, however, must be properly documented.

B. Fire protection for structural steel shall be provided in the following cases:

1. When required by building codes, fire codes, or other regulations.
2. Whenever flammable liquids, combustible liquids, or liquified flammable gases are stored, handled or processed, except for the following occupancies:
   a. Laboratories
   b. Mini-plants
   c. Areas for the sole purpose of storing materials in containers – (warehouses etc.)
3. When recommended by any one of the following:
   a. Safety Industrial Hygiene & Loss Prevention Department (Site or Corporate)
   b. Safety Audit Teams
   c. Process Change Request

Deleted: Container storage areas

C. Steel fire protection may be either active or passive except as specifically stated elsewhere in this document. (See Section 2.5.)

1. Active protection shall be automatic sprinklers which shall be designed and installed in accordance with EMTN Document Number 15.330.001, and 15.330.002.
2. Passive protection shall be as specified in EMTN Document Number 07.250.000, and such protection shall be installed and maintained in accordance with the associated EMTN documents (see references).

Deleted: 2

D. Where the requirements of this document conflicts with any codes or regulations, such codes or regulations shall take precedence.

2.4. Steel Requiring Protection:

A. When steel fire protection is required (see Section 2.3,B), extent of steel protection shall be as specified in the sections which follow.

B. All steel as specified by governmental codes or regulations shall be provided with protection.

C. Structural steel in open process structures, including equipment supports, shall be provided with protection as follows:
1. Up to and including 30 feet above grade.
2. Up to and including 30 feet above any solid floor or other surface where burning liquids could readily pool.

D. Structural steel in enclosed process buildings, including individual equipment supports, shall be provided with protection as follows:
1. Building columns at all floors. (Note: Protection of beams is not necessary, but building must be provided with general sprinkler protection at each floor.)
2. Individual equipment supports where equipment is supported from grade or off of floors, such as from legs, skirts or saddles. (Note: Specific steel protection is normally not needed where equipment supports are integral with the building steel, such as in the case of a vessel suspended between floors.)

E. Structural steel supporting the following storage tanks shall be provided with protection:
1. Storage tanks containing flammable liquids.
2. Storage tanks containing combustible liquids having flash points <93°C (<200°F).
3. Storage tanks containing combustible liquids having flash points >93°C (>200°F) or liquified flammable gases which are located as follows:
   a. In the same containment area as tanks or vessels containing flammable liquids, or
   b. Within 15 feet of the drainage path of flammable liquids.

Deleted: <200°F.

Deleted: ≥200°F

F. Structural steel supporting pipe racks containing process piping or critical service piping shall be provided with protection where the supports are located as follows:
1. In a containment area with tanks or vessels containing flammable liquids, or
2. Within 15 feet of exposed drainage paths for flammable liquids, including sloped surfaces, open trenches, flumes, etc. (Note: Protection is not required where the drainage path is not exposed, such as in the case of piping or trenches with solid covers, or where the only liquids are combustible liquids that are below their flash point temperature.)

G. Steel protection shall also be provided where specifically recommended by:
1. Safety & Loss Prevention (Site or Corporate)
2. Safety Audit Teams
3. Process Change Request

Deleted: with protection

H. Steel fire protection is not required for the following:
1. Steel tank/vessel saddles where the height of the saddle at its lowest point is less than 12 inches. (See drawing)
2. Top flanges of horizontal steel members in open process structures (applicable only in case of passive fire protection).
3. Wind bracing, cross-bracing and other types of bracing except where localized failure of the bracing due to fire exposure could easily result in widespread structural failure upon application of a lateral force, such as from a strong wind or fire water streams. Notes:
   a. In most cases, only a limited number of braces would be expected to be exposed to fire, and in the case of a relatively large structure, the entire structure would likely provide sufficient lateral stability to prevent serious structural failure.

However, in the case of a relatively small structure, such as a one or two-bay tower, this may not be true.

Deleted:

b. Consult with a qualified structural engineer for assistance in this respect.

4. Any non-load bearing steel.
5. Steel supporting only decking/flooring, stairs, cat walks, ladders, etc. (i.e., not supporting any equipment).
6. Steel supporting tank truck and rail car loading/unloading stations.
7. Load cells where application of fire protection would impair operation of the cell (applicable only in case of passive fire protection). Check with load cell manufacturer. (Note: some canister-type load cells can be fireproofed).
   a. If fire protection cannot be provided for load cells, it may be desirable to provide secondary supports to assist in supporting loads in case of a fire. Consult with Corporate Safety & Loss Prevention.
8. Where allowed by Corporate Safety & Loss Prevention.

2.5. Type of Protection:

A. The type of protection, active or passive, shall be as specified in the sections which follow.

B. For process structures, including equipment supports and new steel being added to existing structures, protection of structural steel shall be as specified in Table 2.5, except as specified below.
   1. Active protection shall not be permitted in portions of open process structures where:
      a. The drainage for liquids is not adequate.
         1. Adequate drainage is considered to consist of a minimum 2% slope directed to trenches or drains which are capable of removing the expected spills plus firewater discharge (sprinklers and monitor nozzles) without pooling. See EMTN Document Number 02.775.001 for additional information on containment design.
      b. Hydrocarbons are stored, handled or processed, except where such are:
         1. Combustible liquids at temperatures below their flash points.
         2. Alcohols or other highly water soluble liquids.
         3. Gases, including methyl chloride.
         4. Lubrication oils and greases.
         5. Present in quantities of 38 liters (10 gallons) or less.
      c. Where the sprinkler system and/or fire water supply cannot provide adequate steel protection.
      d. Where other unusually severe fire or explosion hazards exist (e.g., severe three-dimensional fire hazards or Unconfined Vapor Cloud Explosion Hazards). Consult with Corporate Safety & Loss Prevention for more information.
   2. Where Table 2.5 specifies passive protection only for equipment supports and pipe rack supports, active protection may be used when the only flammable and combustible liquids present are trichlorosilane and/or SYLTHERM®.
   3. Where Table 2.5 specifies active or passive protection (“A or P”), either type may be used as appropriate.

C. For existing process structures (including equipment supports) utilizing passive steel fire protection, such protection shall be maintained as long as reasonably practical.
   1. Where maintenance of the passive protection is no longer practical due to the protection having reached its useful life, severe corrosion of the steel substrate, or other reasons, the protection approach specified for new structures (see Section 2.5, B.7) may be employed once the passive protection has been removed.
      a. Note that if any of the conditions as specified under Section 2.2 exist, provision of active protection is not permissible unless approved by Corporate Safety & Loss Prevention.

D. For other building types where steel protection is required by building codes or other regulations, the

fire protection shall be as specified by such code or regulation.

E. For storage tanks, steel fire protection shall be as specified in the Table 2.5.

F. For pipe rack supports, steel fire protection shall be as specified in Table 2.5.

Table 2.5 - Structural Steel Protection Summary

Type of Structural Steel		Type Process Structure (O=Open, E=Enclosed)	Protection Method (A=Active, P=Passive)	Comments
Building steel, process structures (does not include equipment supports)	All structural steel (beams, columns, and braces[1])	O	A or P[2,3]	
	Horizontal structural steel	E	none[2,4]	
	Vertical structural steel		A or P[2]	On all floors, regardless of building height
Building steel, other buildings		na	none[2]	
Vessel skirts	Skirt interior	O or E	A	Provide sprinklers for full height of skirt interior per EMTN Document Number 15.330.001
	Skirt exterior		P[5]	In open process structures, provide protection up to 30 feet above grade or top of skirt, whichever is lowest
Supports of *important equipment*[6] where equipment is:	located at grade[7]	O or E	P[5,8]	
	located on solid floors/decking[7]		P[5,8]	
	located on open grating[7]		A or P[3,8]	
	suspended between floors (supported by building steel)	O	A or P[3]	
		E	none[2,4]	.
Supports for storage tanks (e.g., legs & saddles)		na	P[8]	As specified in Section 2.4, E.
Supports for all other equipment		O or E	none	General sprinkler protection will normally provide sufficient protection
Pipe rack supports	Integral with process building	O or E	A or P[3]	
	Others	O	P[5]	Protection required only in certain cases. See Section 2.4, F.

NOTES TO TABLE:
1. See 2.4,H,3 for discussion regarding braces.
2. Unless passive protection required by building codes or regulations.
3. Active protection is not permitted for open process structures in cases specified under Section 2.5,B,1.
4. See Section 2.2,B,5,b
5. See Section 2.5.
6. See Sections 3.7, 2.2,C.
7. And when supported by legs, saddles or skirts.
8. Except as specified in Sections2.3,B,1.

3. DEFINITIONS

3.1.	Active Protection: For purposes of	Fire protection which is active, or dynamic, in nature. this standard, active protection shall mean automatic sprinklers.
3.2.	Building Steel: used to support braces. Includes individual equipment	For purposes of this document, structural steel which is general building loads, such as beams, columns, and steel which is used to support equipment except for supports (see Section 2.2, C).
3.3.	Combustible Liquid:	A liquid with a flash point ≥ 38° (>100°F).
3.4.	Container Storage Area: of flammable Typically	Separate area used for the storage of portable containers and combustible liquids such as pails, drums, totes, etc. detached or segregated from other areas by fire walls.
3.5.	Fireproofing: fire protection.	A material applied over structural steel to provide passive Commonly a sprayed-on material.
3.6.	Flammable Liquid:	A liquid with a flash point less than 38°C (100°F).
3.7.	Important Equipment: of the supports duration, would Section 2.2,C for	As used herein, equipment where failure or deformation for such equipment due to fire exposure, even for a short likely result in extremely serious consequences. (See additional discussion.)
3.8.	Liquified Flammable refrigeration or the Gas:	A flammable gas in a liquid state either due to application of pressure. Example: methyl chloride.
3.9.	Passive Protection: Passive protection fire resistive and reinforced	Fire protection which is passive, or static, in nature. may consist of spray-on fireproofing, fire resistive panels, construction assemblies, fire resistive thermal insulation, concrete.
3.10.	Protection:	See definition of “Steel Fire Protection”.
3.11.	Steel Fire Protection: structural steel under reasonably	Either active or passive fire protection provided for designed to prevent deformation and failure of the steel expected fire conditions.
3.12.	Storage Tank: exclusively for the	Vessel, either indoors or outdoors, which is used

Deleted: ≥100°F.

	processing,	storage of materials, that is, not used for any type of chemical, physical, or otherwise.
3.13.	Structural Steel: describes any equipment, equipment	For purposes of this document, general term which load-bearing steel used to support building loads, vessels, and piping. This includes building steel and individual supports. (See Sections 3.2 and 3.14.)
3.14.	Supports: designed to such as saddles, (see Section 3.2) even (such as a vessel horizontal building	For purposes of this document, individual structural steel support the loads of vessels, piping, or other equipment legs, and skirts. Does not include main building steel where equipment is supported directly from such steel suspended between floors and supported directly by members).

Deleted: Page Break

4. **RELATED EMTN DOCUMENTS**

	TITLE
00.400.003 Authorization	Mandatory EMTN Document and Waiver
02.775.001	Spill Containment Guidelines
07.250.000 Criteria	Mandatory Fireproofing Engineering Design
07.250.001 Spray-Applied Fireproofing Coatings	Master Construction Specification for
07.250/005	Fire Proofing Maintenance and Inspection
07.250.004	Mandatory Fireproofing Coating Materials
15.330.000	Sprinkler System Engineering Design Criteria
15.330.001 Criteria	Deluge Sprinkler System Engineering Design

5. **REFERENCES**

5.1. Revision(s):

Date	Description
00-FEB-1994	Document Adopted
01-APR-2000	Changed footer to match document number
01-AUG-2000	Minor Revisions from ISO Review

Deleted:

5.2. Miscellaneous Reference(s):
Local building and fire codes, including, but not limited to:
Uniform Building/Fire Codes
Basic Building/Fire Codes
Standard Building/Fire Codes
Fire Protection Standard FPS-13, Corporate Safety, Health & Loss Prevention Manual

6. **ATTACHMENTS**

6.1. Miscellaneous Attachment(s) Revision Date

None