



**FIREFIGHTING PROCEDURES**  
**VOLUME 1, BOOK 12**  
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**PLACES OF WORSHIP FIRES**

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## GLOSSARY

<b>Attic or Cockloft Vent</b>	Some places of worship have a ventilation opening for the concealed attic space. For firefighters, this ventilation opening provides an excellent location for water application to extinguish fire in the area above the concealed attic or cockloft. This ventilation opening is typically located on the front or rear of the long side of a place of worship. When located in the front, it will be a few feet above the Rose window. <i>(Photos 1A, 1B)</i>
<b>Bell Tower</b>	Tower that contains one or more bells or that is designed to hold bells along with the framework for the bells and their ringing equipment. Some bell towers also incorporate clocks. There is no uniform design for the construction of a bell tower. A bell tower is considered a collapse hazard. <i>(Photo 2)</i>
<b>Buttress</b>	An architectural structure built against a wall which serves to support or reinforce the wall. Buttresses are fairly common on older places of worship, as a means of providing support to act against the lateral forces from the roof structures that lack adequate bracing. The purpose of any buttress is to resist the lateral forces pushing a wall outward by redirecting them to the ground. The 'thrust' of weight from the roof is the main reason why buttresses were used. <i>(Photo 3)</i>
<b>Choir Loft</b>	A narrow-recessed balcony or loft area on an interior upper floor of a place of worship. Usually located above the main entrance and accessed by a narrow stair. It is common to find a pipe organ located in the choir loft. <i>(Photo 4)</i>
<b>Clearstory Windows</b>	In architecture, a clearstory is a high section of wall that contains windows above eye level. The purpose of clearstory windows is to admit light, fresh air, or both. In a place of worship, these walls rise above the rooflines of the lower aisles where the windows are located. Clearstory windows are often located on the exposure 2 and 4 sides. <i>(Photo5)</i>
<b>Corner Safe Areas</b>	Positioning of a Tower Ladder that places it in an area at the corners of the structure, (1, 2 corner 1, 4 corner, 2, 3 corner or 3, 4 corner) out of the collapse zone of intersecting walls. <i>(Photo 6 and 7)</i>
<b>Cruciform Architecture</b>	Type of architecture where the structure is shaped like a cross. Usually, though not exclusively, a structure built with the layout developed in Gothic architecture.
<b>Flying Buttress</b>	A specific form of buttressing, "fly" because the buttress is not in contact with the wall all the way to the ground. The lateral forces are transmitted across an intervening space. Flying buttresses have two key parts: a massive vertical masonry block on the outside of the building and an arch bridging the gap between that buttress and the wall. <i>(Photo 8)</i>

- Gothic Architecture** A 12<sup>th</sup>-century-type of architecture/construction. Some of the features of the Gothic style are pointed arches, tall designs, flying buttresses, vaulted ceilings and large, open interior areas and built in the shape of a Crucifix (Cross). This type of architecture has many common features that firefighters must be aware of, more than any other architecture type. All firefighters should be aware of this type of architecture and the inherent features.
- Masonry Domes** An architectural element that resembles the hollow upper half of a sphere. A curved structure, with no angles or corners that does not require any interior structural support. The shape of the dome is very good at spreading weight evenly in all directions so that no part of the dome has to support more weight than any other part. The upper portion of a masonry dome is always in compression while the base and lower portion is in tension. The masonry dome produces thrusts downward and outward and may be supported by columns or piers. The transition area where the dome receives this support can be a potential failure point. Although uncommon, when this type of dome collapses, it is usually catastrophic. (*Photo 9*)
- Minaret** Type of tower typically found built into or adjacent to mosques from which the call to prayer is announced. The minaret is one of the most visible aspects of mosque architecture. Due to its tall height, the minaret must be considered a collapse hazard. (*Photo 10*)
- Nave** The main body of the church. It provides the central approach to the altar. (*Photo 11*)
- Place of Worship** Structure where people gather to worship together, such as a church, mosque, synagogue or temple.
- Rose Window** Often used as a generic term applied to a circular window, but is especially used for those found in places of worship. This window is sometimes covered with an unbreakable clear plastic to protect the stained glass. A tower ladder shall be placed to operate at the Rose Window out of the collapse zone in a corner safe area when possible. Operating a tower ladder stream into a Rose Window may extinguish fire at the upper reaches of the church. (*Photo 12*)
- Steeple** An ornamental tapered pointed architectural structure, usually ending in a spire with a Crucifix or other religious artifact at its tip. Steeples may be stand-alone structures, erected on a roof or tower of a place of worship or incorporated into the entrance or center of the building. A steeple is considered a collapse hazard. (*Photo 13*)
- Transept** A transverse section, of any building, which lies across the main body of the building. In churches, a transept is an area set crosswise to the nave in a cruciform ("cross-shaped").

## **1. INTRODUCTION**

### **1.1 BACKGROUND**

- 1.1.1 According to a March 2017 report from the NFPA there are approximately 1,570 fires in places of worship annually in the US.
- 1.1.2 New York City has over 6,000 places of worship, several thousand more than any other US city.
- 1.1.3 These low frequency high consequence fires are often difficult, fast spreading, and resource intensive.
- 1.1.4 These fires challenge the best prepared and staffed fire departments and have resulted in structural collapse of part or all of the structure and at times have injured and killed Firefighters.
- 1.1.5 Most fires in places of worship that are discovered and reported quickly will be extinguished with the use of one or two handlines. However, strategically the Incident Commander (IC) must always be preparing for an exterior attack. This is especially true when fire extends to any of the many hidden voids or to an area containing any type of truss roof.

### **1.2 PURPOSE**

- 1.2.1 To describe the general features commonly found in places of worship which can be found in every community in New York City.
- 1.2.2 The tactics discussed herein should be used as a guide when the architectural features and/or hazards discussed in this document are present.
- 1.2.3 Occasionally, places of worship will be found occupying portions of a Taxpayer (store front), Brownstone, Rowframe, or Private Dwelling. These occupancies typically do not contain the architectural features described herein. As such, firefighting procedures for these occupancies shall be based on the building type (e.g., Firefighting Procedures Taxpayer, Brownstone, etc.) when the described architectural features are not present.
- 1.2.4 To identify construction features and associated problem areas as they relate to fire.

### **1.3 DESCRIPTION**

- 1.3.1 A place of worship is a building where people gather to worship together, such as a church, mosque, synagogue or temple.
- 1.3.2 It is not intended, nor is it necessary to describe and date each type and style of place of worship.

- 1.3.3 It is sufficient to know the general features common to many of the different places of worship. This can be accomplished prior to a response via BISP, Pre-Incident Guidelines (PG), Familiarization Drills, CIDS entries and also on scene via size-up.
- 1.3.4 The architectural history of past cultures demonstrates that the place of worship was often the most elaborate, most permanent, and the most influential building in the community.
- 1.3.5 The characterization of religious architecture is complex. There are no basic architectural requirements common to all religions and the functions of any one religion involve many different kinds of activity, all of which change with the evolution of cultural patterns. Because of the lack of standardization, characterization is approached in this document in a general way for firefighting purposes based on architectural features rather than religion type or construction type.
- 1.3.6 There is one exception, Gothic architecture (see glossary). This type of architecture has many common features that firefighters must be aware of, more than any other architecture type and is therefore defined. All firefighters should be aware of this type of architecture and the inherent features.
- 1.3.7 New York City is home to a diverse variety of religious beliefs and practices. Equally diverse are their houses of worship and their architectural features. Many of these structures are centuries old while others are newly constructed. Many religions place spiritual significance on specific architectural features, some of these features are similar or common to more than one religion and or time period.
- 1.3.8 Categorizing places of worship based on architectural features can generally be divided into two very general categories that firefighters must be familiar with.
- **Older architecture:** Spans several styles with similar characteristics. Generally recognizable due to their common distinct architectural features such as ornate decorations, large arched or pointed windows, massive walls, large columns, capitals, buttresses, large vaulted spaces, steeples, bell towers, and domes.
  - **Newer architecture:** Generally recognizable due to their large open area often without the high vaulted ceilings, simplification of form and a lack of ornate decorations with a distinct modern look. (Photo 14)
- Both older and newer architecture places of worship are susceptible to early collapse.*
- 1.3.9 The older style is susceptible to early collapse due to the large high timber truss roof. Along with the roof, the bell tower, steeple and walls are also prone to collapse.
- 1.3.10 The newer style is susceptible to early collapse due to lightweight truss construction and may also have a bell tower, steeple or other features described within this bulletin.

1.3.11 The 5 major defects or faults in the construction of places of worship are:

- Early collapse potential.
- Numerous concealed voids.
- The vast quantity of combustible material used in the truss roof construction.
- Lack of fire suppression and detection systems.
- Large open areas with limited or no fire stopping.

## 2. FIRE EXTENSION

2.1 Places of worship contain many avenues of fire extension, which contribute to rapid fire spread and early increased collapse potential. Fire spread may not be obvious during fire operations because structural elements are covered by finishing material or obscured by smoke conditions. Knowledge of the avenues of fire extension and the effects of fire on the various structural members is necessary in order to develop tactics to accomplish rapid fire control and provide for the safety of members.

2.1.1 **Attic space** - Firefighters must gain access to the attic space to check for fire extension. Access to the attic may be a narrow spiral staircase, which will slow Firefighters' entrance to the area. Finding a stairway that leads to the attic space may take time. However, it is very important to check the attic since an unnoticed fire in this area could cause collapse of the roof truss beams and ceiling. This is especially important during salvage and overhaul, when the fire may appear to be extinguished, but it can be burning in this concealed area unknown to Firefighters operating below.

2.1.2 **Combustible interior** - Old dried out lumber with an accumulation of candle wax buildup contribute to the fire load. Also adding to the fire load are chairs, wood pews, floors, pulpits, tapestry, combustible wall hangings, and holiday decorations.

2.1.3 **Concealed spaces** - There are numerous concealed spaces located in a place of worship. Hollow columns with stone or brick veneer are often designed to look like solid columns. Likewise, walls are made to look like stone. However, these too are many times a veneer covering wood lath and plaster. Areas behind these walls and columns can be an avenue of fire extension.

2.1.4 **Truss roof** - Fire extension inside walls can quickly spread upwards unimpeded into inaccessible areas of the cockloft, attic or truss loft area above the ceiling of the structure. The destruction of the roof supporting members results in an early increased collapse potential. Once fire enters the upper inaccessible areas of the structure, the decision must be made to employ Tower Ladder streams that were positioned early on as part of the incident strategy and street management plan.

2.1.5 **Large open areas** - There are limited or no fire stops or doors allowing fire to quickly spread unchecked both vertically and horizontally.

## 2.2 ADDITIONAL CONSIDERATIONS

2.2.1 **Automatic fire alarms/systems** - Delayed discovery and reporting of fires due to an absence of automatic alarms and/or a lack of fire suppression system may result in advance fires on arrival.

## 2.3 RENOVATED AND REPURPOSED STRUCTURES

2.3.1 Places of worship can also be found in any type of renovated structure such as a Factory, Movie Theater, etc. It is not feasible to describe every type of renovation or feature. However, the tactics discussed herein should be used as a guide when the architectural features and/or hazards discussed in this document are present. (Photo 15)

2.3.2 Likewise, structures that formally served as places of worship have been renovated and repurposed and may contain a variety of businesses such as restaurants, bars, nightclubs and marketplaces. These structures have also been converted into residential spaces. It is important to remember that these renovated and repurposed structures retain many of the inherent features of places of worship discussed within this document. (Photo 16)

2.3.3 Additionally, hazards such as exterior insulation finishing systems (EIFS), cell sites and fire escapes present additional operational challenges. (Photo 17)

## 3. FEATURES

3.1 **Access and Egress** - Schools, parking lots, ministry officers, large courtyards, one way and narrow streets, and religious residences can all negatively impact apparatus positioning. Often times, these obstacles will negate the optimal positioning and limit the number of sides that apparatus can access the structure. These obstacles must be considered as part of the street management plan.

3.2 **Attic Vent** - Some places of worship have a ventilation opening for the concealed attic space. For firefighters, this ventilation opening provides an excellent location for water application to extinguish fire in the concealed attic or cockloft. This ventilation opening is typically located on the front or rear of the long side of a place of worship. When located in the front, it will be a few feet above the Rose window. When fire is located within the large open area, the first priority is a tower ladder stream into the rose window. However, when fire is not visible within the large area but suspected to be within the concealed area of the attic or cockloft, water application into the ventilation opening is the priority. Water application into the ventilation opening should also be the priority following the control of a fire within the large open space using the rose window.

3.3 **Bell Tower** - Access can be via narrow stairs that will be difficult for firefighters. The height of the bell tower increases the collapse potential. Due to an increased collapse risk, the IC must perform a risk benefit analysis prior to ordering a handline stretched into a bell tower. The minaret found in mosque architecture presents a similar increased hazard.



- 3.4 Buttress and Flying Buttress** - On the exterior of many places of worship, the location of the roof supporting members of the side wall can easily be determined by locating the buttress projection from the side wall. On some places of worship an architectural feature that serves a similar purpose is known as a flying buttress. A flying buttress creates an arch which is located several feet from the structure.
- 3.5 Cellar Area** - These areas often include large meeting halls, day care facilities, class rooms, kitchens and offices. The ceilings of these areas often support heavy religious statues (Photo 18) and may have terrazzo or other stone type flooring increasing the potential for floor collapse when fire enters the basement ceiling weakening the 1<sup>st</sup> floor support. These flooring systems can mask heat conditions for members operating above. Cellar windows are often small and covered with thick window bars. This will limit ventilation and make access or egress via these windows difficult and time consuming. Cellar fires may extend via hidden voids. Units operating above the cellar must immediately check for extension on the first floor and in the cockloft/attic area.
- 3.6 Choir Lofts** - Often located directly above the main entrance below the large rose window. A small narrow stair usually provides access to this area making access difficult. This is also the area where a large pipe organ will usually be found. It is common for the pipes from this organ to partially block part of the rose window affecting stream application into the Rose window. When a fire involves the underside of the choir loft, the possibility of collapse is present.
- 3.7 High Vaulted Ceiling** - These ceilings can be 60 or more feet in height. Heat and smoke conditions at ground level will not provide an accurate indication of fire conditions above. Large plaster sections can be dislodged and can fall from these great heights, striking and injuring firefighters. Thermal imaging cameras must be used to evaluate heat and fire conditions above. This height requires a hoseline of sufficient size (2 ½) to adequately reach the ceiling and apply water. (Photo 19)

#### **4. COLLAPSE CONSIDERATIONS**

- 4.1** Collapse is always a major concern for Firefighters in a place of worship. Places of worship have some unique architectural features and when coupled with the large amount of wood used in their construction can result in early collapse as fire weakens the structure. Collapse dangers include the bell tower, minaret, steeple, ceilings, sidewalls and the roof.
- 4.2** There may be a steeple above the bell tower. The steeple is the tapered, pointed structure, usually with a Crucifix or other religious artifact at its tip. A steeple atop a bell tower is MORE UNSTABLE than a dome above a tower. Some temples and Mosques may have a dome at the top of the tower.
- 4.3** Cell phone antennas and lighting may be affixed to the tower, adding additional weight to the structure.

*Both older and newer architecture places of worship are susceptible to early collapse.*

- 4.4 The older style is susceptible to early collapse due to the large high timber truss roof. Along with the roof, the minaret, bell tower and steeple are also exceptionally prone to collapse.
- 4.5 The newer style is susceptible to early collapse due to lightweight truss construction and may also have a minaret, bell tower, steeple or other features described.
- 4.6 The exposure 2 and 4 sidewalls are also a collapse danger. The roof of a place of worship is supported by the sidewalls. Sidewalls run parallel with the ridge and are the bearing walls. These sidewalls support the roof sometimes with the aid of a buttress or flying buttress. An uncontrolled fire burning in the attic space will weaken the roof. When the roof fails, it can push the sidewalls out into the street. Conversely, when the sidewalls are weakened by fire and fail, the roof will collapse and fall, along with the ceiling, into the nave or floor area.
- 4.7 When evaluating the collapse potential and establishing collapse zones, the exposure 2 and 4 sides due to the bearing walls and the exposure side of the steeple or bell tower (front of the building) are the most dangerous areas during a fire.

## **5. FIRE OPERATIONS**

### **5.1 GENERAL**

- 5.1.2 The first arriving officer should locate and size-up the fire and determine if the fire can be extinguished by a handline. When it is determined that the fire cannot be controlled with handlines, the initial strategy must be an exterior fire attack.
- 5.1.3 Once fire has gained headway in a place of worship, it is difficult to prevent it from involving the entire structure. It will spread with amazing rapidity through the many voids and large open spaces to all parts of the structure.
- 5.1.4 When the fire is not brought under early control, a heavy loss to structure and contents may be expected, a partial or entire structural collapse may occur.
- 5.1.5 The fire may extend to exposures, and brand patrols may be required to extinguish spot fires.
- 5.1.6 Have adequate forces on hand.
- 5.1.7 When the initial attack is delayed, the fire may force an exterior fire attack, virtually conceding loss of the building and contents.

## **5.2 STREET MANAGEMENT PLAN**

- 5.2.1 Fire in places of worship often require the use of Tower Ladders, first arriving units must take positions that allow the necessary units and equipment to arrive and operate effectively.
- 5.2.2 It is critical for first responding units to address street management and fire control. Positions should be taken outside of the potential collapse zone.
- 5.2.3 Apparatus shall be parked in such a manner that special equipment, ambulances, etc., can make their way to and from the scene when ordered by the IC.
- 5.2.4 Tower Ladders should be placed near the front of the structure, in a “corner safe” area outside of the collapse danger zone.
- 5.2.5 Subsequent arriving Tower Ladders should be positioned to reach additional sides of the structure.

## **5.3 COMMUNICATIONS**

- 5.3.1 There are many terms used to describe features and locations unique to places of worship. To ensure common terminology is used, firefighters should use these terms when communicating on the fireground.
- 5.3.2 The most frequent and beneficial terminology unique to places of worship for firefighters are used within this document and listed within the glossary.
- 5.3.3 Exposure identification and common terminology. A firefighter operating from inside the place of worship may mistakenly report the area near the altar or bema as the front. This may be because of his or her familiarity in what is considered the front during a religious service. This may differ from the front of the structure as viewed from the command post. The IC must designate early in the operation exposure 1 so that proper and clear communications will take place.

## **6 ENGINE OPERATIONS**

### **6.1 GENERAL**

- 6.1.1 Fire conditions discussed are to be considered of such magnitude as to require the use of two hoselines for extinguishment. Fires in places of worship are particularly vulnerable to the quick spread of fire due to their basic design and use of combustible construction material.
- 6.1.2 When the fire is located in a large open area of a place of worship or the reach of the stream is required to reach higher elevations, the initial lines will generally be 2-1/2 inch.

- 6.1.3 For a cellar fire where operations will be in close quarters, mobility of operations are a prime consideration, therefore the interior hoselines stretched should generally be 1 ¾ ".

## **6.2 CELLAR FIRES**

- 6.2.1 Fires in places of worship may originate in the cellar where the following may be a source of fire origin.

- Gas/oil fired boilers for heat or hot water.
- Electrical service panel boxes.
- Kitchen stoves used in day care facilities.

### **6.2.2 First Hoseline:**

Proper placement of the first hoseline requires a coordinated size-up and communication by the first Engine and Ladder Officer. After size-up, the first hoseline should be stretched to the entrance door that provides the quickest access to the cellar in order to extinguish the fire.

### **6.2.3 Second Hoseline:**

Initially positioned and charged outside the fire building as a back-up for the first hoseline. When not needed to back-up the first hoseline, it can be used to extinguish any fire that may extend to the floor above or be positioned as per the IC.

## **6.3 FIRST FLOOR AND CHOIR LOFT FIRES**

### **6.3.1 First Hoseline:**

Proper placement of the first hoseline requires a coordinated size-up and communication by the first Engine and Ladder Officer. After size-up, the first hoseline should be stretched through the entrance door that provides the quickest access to the fire.

### **6.3.2 Second Hoseline:**

Initially positioned and charged outside the fire building as a back-up for the first hoseline. When not needed to back-up the first hoseline, it can be used to extinguish any fire discovered in the cellar.

### **6.3.3 Third Hoseline:**

The use of a third line would be directed by the IC. The use of a third line would not be an initial consideration when there is an advanced fire. Whenever two hoselines are stretched and operating and the fire does not show immediate signs of extinguishment, the IC should prepare for an exterior attack.

## **6.4 FIRE IN ATTIC SPACE AND BELL TOWER**

- 6.4.1 In most cases when fire does spread into the attic or bell tower, it cannot be extinguished by the use of handlines due to the limited access to the space and lack of ventilation. Firefighters will have to be withdrawn and an exterior operation employed.
- 6.4.2 For a fire in the attic, the ceiling may collapse before the roof trusses which may cause an explosion-like eruption inside the place of worship, which can knock Firefighters off ladders and blow out windows.

## **7. LADDER COMPANY OPERATIONS**

### **7.1 GENERAL**

- 7.1.1 Interior operating forces at an apparent small, localized fire may be unaware of fire involvement in the trusses above them.
- 7.1.2 Members shall use a thermal imaging camera from below to assess when fire has involved the truss space.
- 7.1.3 When fire is found to involve the truss space, exterior operations should be the primary tactical consideration.
- 7.1.4 Units are reminded of the collapse potential of these type roof systems.
- 7.1.5 Consider the use of search ropes due to the large floor areas of these structures.
- 7.1.6 Seating areas are often large areas with movable seats. This can delay searches.

### **7.2 VENTILATION**

- 7.2.1 Ventilation of the large vaulted spaces will be difficult. Venting the side windows, sometimes made with stain glass, will not effectively ventilate the upper portions of the structure. Likewise, venting the Rose window may not provide adequate ventilation. Generally, it is best to vent the window closest to the fire in conjunction with hoseline advancement and fire extinguishment.
- 7.2.2 As soon as the first hoselines knock down the fire, it is imperative that the walls and attic area are checked for fire extension.

### **7.3 GENERAL AREAS OF RESPONSIBILITY**

- 7.3.1 **First Ladder to Arrive:**
- Primary search of the fire floor.
  - Determine the life hazard and rescue as required.

- Locate and confine the fire.
- Ladder building as needed.
- Attempt an examination of the cellar for fire.
- Pending arrival of the second ladder company, assume responsibility for the entire structure.

**7.3.2 Second Ladder to Arrive:**

- Coordinate with first Ladder Company and conduct primary search of areas not yet covered.
- Reinforce laddering and removal operations when necessary.
- Examine above the fire for extension.
- Ensure that the cellar is examined for fire.

**7.3.3 Third and Later Arriving Ladder to Arrive:**

- Operate as ordered by the IC.

**7.4 TOWER LADDERS**

7.4.1 Different types of roof coverings, such as slate and terracotta tile add significant dead load to the structure. Additionally, when struck by the stream from a tower ladder or other large caliber device, sharp or heavy pieces can become dislodged and become flying projectiles injuring civilians and firefighters. (Photo 20)

7.4.2 Taking into consideration many variables, including but not limited to, the location of fire and fire extension within the fire building, exposure protection concerns, and collapse potential, tower ladders shall be positioned as follows:

- Generally, the primary position of the 1<sup>st</sup> arriving tower ladder is in front of the fire building able to reach the Rose window in a corner safe position when possible.
- When the building faces on two streets and the front of the building is covered by tower ladder(s); then place the additional tower ladder(s) to cover the other street front.
- Additional tower ladders should be positioned so that the fire can be cut off and driven back to the point of origin.
- When apparatus is a rear mount aerial ladder, place it away from the immediate fire building in order to leave the area accessible for a tower ladder.

**8. IC CONSIDERATIONS - BATTALION AND DEPUTY CHIEFS**

- 8.1** Monitor the radio in quarters and while responding. Be aware of any changes in response patterns. This will forewarn you of any delays in responses, identify units responding and the apparatus they are equipped with. This is essential information on ladder company responses.
- 8.2** The first to arrive Battalion Chief shall assume the position of the IC and establish the Incident Command Post in proximity to the front of the fire building but outside the potential collapse zone.
- 8.3** Fires in these occupancies require a quick assessment of conditions.
- 8.4** The IC must size-up the situation and note what actions have been taken prior to arrival.
- 8.5** The IC shall determine when sufficient resources are present to deal with conditions and when needed, transmit the necessary alarms or special call additional units.
- 8.6** Consideration shall be given to special calling additional Tower Ladders to adequately cover accessible sides of the structure and Battalion Chiefs to supervise sectors and or groups as the incident expands. When the IC cannot get a clear situation report from units on the scene, the IC may have to change tactics to an exterior operation.
- 8.7** Consider transmitting an additional alarm when the use of two handlines are anticipated or are in operation on the interior of a place of worship.
- 8.8** Consider transmitting an additional alarm for an advanced fire in the cellar, when fire is venting from any window or fire is discovered in any void.
- 8.9** Tower ladder streams are the most effective, versatile and mobile large caliber streams that we have. A properly positioned tower ladder can cover a building with a frontage of 100 feet.
- 8.10** Some places of worship have ventilation openings for the concealed roof space. This ventilation opening provides an excellent location for water application to extinguish fire in the area above the concealed attic or cockloft.
- 8.11** When fire is located within the large open area of the nave, the first priority is a tower ladder stream into the Rose window. However, when fire is not visible within the large area but suspected to be within the concealed area of the attic or cockloft, water application into the ventilation opening is the priority.
- 8.12** Water application into the ventilation opening should also be the priority following the control of a fire within the large open space using the Rose window.

- 8.13** At major fires, consideration must be given to the flying brand hazard. The force of updrafts will send large pieces of burning material quite some distance. This probably will start minor fires in the surrounding area. Patrols must be initiated to manage this situation.
- 8.14** Additional chiefs should be special called to supervise and coordinate sectors and/or groups of the operation. They may be effectively used where operations are conducted on more than one street front.
- 8.15** Once the decision is made to conduct a defensive/exterior operation, the IC shall verify that all members have been removed from the interior of the structure.
- 8.16** There are many special units which can be a great asset in the extinguishment of fires in these buildings:
- 8.16.1 Tower Ladders are a must due to their great versatility in getting water into inaccessible areas, and in opening roofs.
- 8.16.2 Satellites can lay 6" hose and a manifold at the front or rear of a building, allowing for shorter and quicker stretches.
- 8.16.3 In special cases, the Satellite Water System will be required for fires involving a large number of buildings.
- 8.16.4 Chief Officers should allow for an interior attack to continue only as long as significant progress is made toward overall extinguishment of the fire. The rapid spread of fire coupled with the weakening of structural components severely limit the operational time period for safe and effective interior operations.

**Note:** Places of Worship often contain historical and/or faith-based artifacts. Many of these items hold significant symbolic meaning. Consideration shall be given, when consistent with safety, to preserve these items either by removal or by protecting them in place.

## **9. CONCLUSION**

- 9.1** A fire in a place of worship presents a complex and difficult operation. The points brought out in this document have made use of the vast experience of FDNY members, both past and present. It has stressed construction and firefighting features that are common to many places of worship.
- 9.2** Because of the variety of structures encountered, it is almost impossible to devise an operating procedure for every situation. Judgments based on knowledge of common architectural features of places of worship and sound firefighting principles must be made.





Attic or Cockloft Vent (Photo 1A)



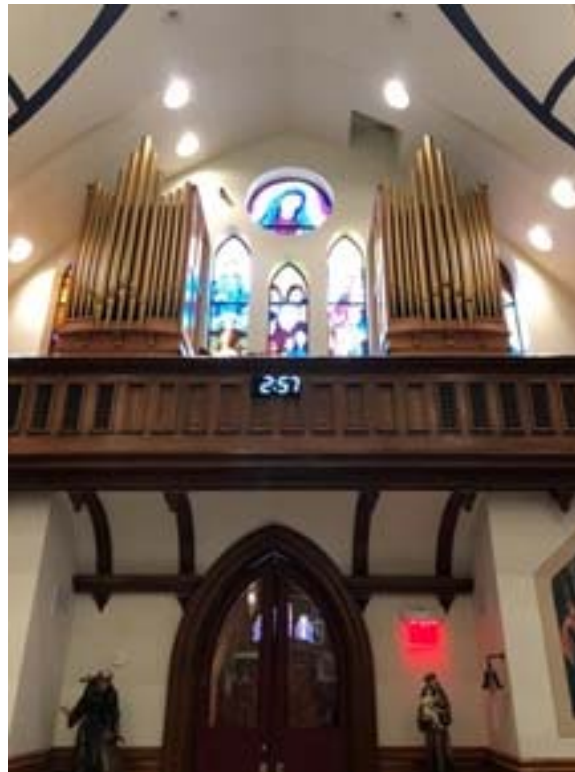
Attic or Cockloft Vent (Photo 1B)



Bell Tower (Photo 2)



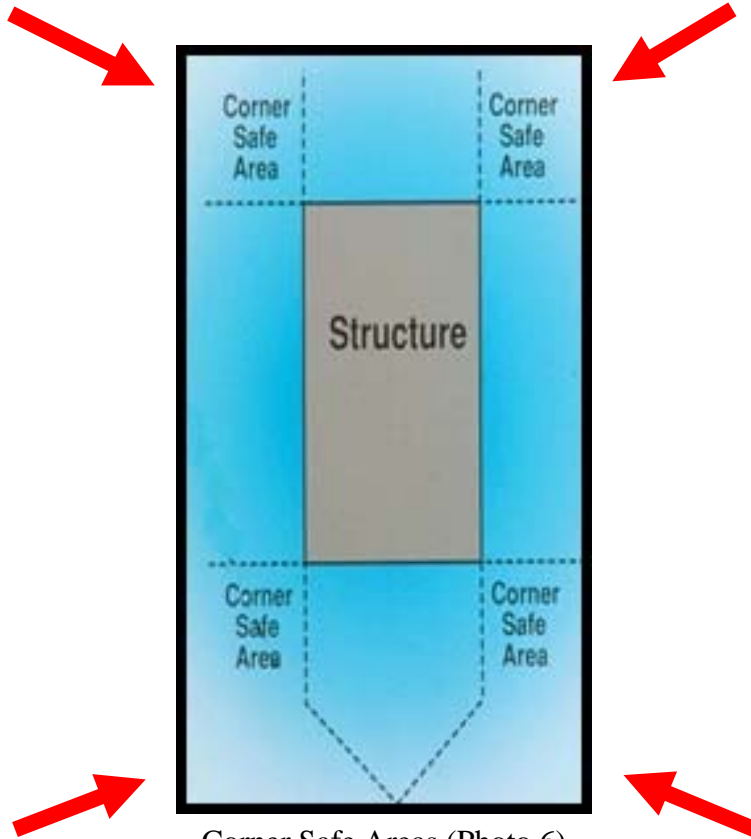
Buttress (Photo 3)



Choir Loft (Photo 4)



Clearstory Windows (Photo 5)



Corner Safe Areas (Photo 6)



Corner Safe Areas (Photo 7)



Flying Buttress (Photo 8)



Masonry Domes (Photo 9)



Minaret (Photo 10)



Nave (Photo 11)



Rose Window (Photo 12)



Steeple (Photo 13)





Newer Architecture (Photo 14)



Renovated Movie Theater into a Place of Worship (Photo 15)





Repurposed Place of Worship into a Business (Photo 16)



Hazards such as Exterior Insulation Finishing Systems (EIFS) (Photo 17)



Cellar Ceilings may support Heavy Religious Statues (Photo 18)



High Vaulted Ceiling (Photo 19)



Roof Coverings (Slate/Terracotta tiles) add significant Dead Load.  
In addition, TL stream may dislodge tiles and cause injury (Photo 20)