

# Fire and Life Safety Plan Review

FLSPR-Student Workbook

*1st Edition, 1st Printing-August 2007*



**FEMA**



PLAN REVIEW CHECKLIST
-----------------------

<b>Project Name</b>		<b>Project Number</b>	
<b>Project Address</b>			
		<b>Parcel Number</b>	
<b>Owner</b>		<b>Telephone</b>	
<b>Address</b>		<b>Fax</b>	
		<b>Email</b>	
<b>Architect/Designer</b>		<b>Telephone</b>	
<b>Address</b>		<b>Fax</b>	
		<b>Email</b>	
<b>Reviewer</b>		<b>Date</b>	
<b>Review Type/Date</b>	<b>Preliminary</b>	<b>Resubmittal</b>	<b>FINAL</b>
<b>APPROVED FOR PERMIT RELEASE by</b>			<b>DATE</b>
<b>Codes/Editions Used for Review</b>	<b>Building</b>	<b>Fire</b>	<b>Mechanical</b>
	<b>Plumbing/Gas</b>	<b>Electrical</b>	<b>Other</b>
<b>Notes/Special Conditions</b>			

**SECTION A--SITE PLANS**

<b>Site Plan Date:</b>		<b>Sheets</b>		
<b>Stamped and Signed by:</b>				
<b>1. FIRE PROTECTION WATER SUPPLY</b>				
		<b>Yes</b>	<b>No</b>	<b>Capacity</b>
<b>Onsite Storage</b>				
<b>Public Water Main</b>				
<b>Other (specify)</b>				
<b>Fire Flow Test Data</b>				
<b>Location</b>		<b>Date</b>		<b>Time</b>
<b>Performed by</b>				
<b>Static Pressure in psi</b>		<b>Pitot Pressure in psi</b>		<b>Residual Pressure in psi</b>
<b>Number of Outlets</b>		<b>Outlets Size(s)</b>		<b>Available Flow at 20 psi</b>
<b>Required Fire Flow at 20 psi</b>				
<b>(See Also Section E: Standpipe and Sprinkler Systems)</b>				<b>GPM</b>
<b>Fire Protection Systems</b>				
<b>Manual Firefighting</b>				
<b>Notes/Special Considerations</b>				

**FIRE AND LIFE SAFETY PLAN REVIEW**

---

<b>2. FIRE DEPARTMENT ACCESS</b>		
	<b>Shown</b>	<b>Required</b>
<b>Public Street Width</b>		
<b>Onsite Street/Fire Lane Width</b>		
<b>All-Weather Surface</b>		
<b>Overhead Clearance</b>		
<b>Turning Radii (inside)</b>		
<b>Turning Radii (outside)</b>		
<b>Dead-end Lengths</b>		
<b>Turnarounds</b>		
<b>Access Grades</b>		
<b>Bridges/Culverts</b>		
<b>Gate Access</b>		
<b>Walkways</b>		
<b>Maximum Distance Between Building Exterior and Access Roadway</b>		
<b>Number of Hydrants</b>		
<b>Hydrant(s) Spacing</b>		
<b>Distance of Hydrant(s) to Building</b>		
<b>Distance of Hydrant(s) to Fire Department Connection</b>		
<b>Utility Shutoffs</b>		
<b>Notes/Special Considerations</b>		

<b>3. SITE DEMOLITION/CONSTRUCTION ACCESS CONCERNS</b>

<b>SECTION B--ARCHITECTURAL/STRUCTURAL PLANS</b>
--------------------------------------------------

Architectural Plan Date:	Sheets:
Stamped and Signed by:	
Structural Plan Date:	Sheets:
Stamped and Signed by:	

<b>1. OCCUPANCY CLASSIFICATION</b>	
Select One	
<b>Assembly</b>	<b>Subclass</b>
<b>Business</b>	
<b>Educational</b>	<b>Subclass</b>
<b>Detention and Correctional</b>	<b>Subclass</b>
<b>Health Care</b>	<b>Subclass</b>
<b>Mercantile</b>	
<b>Storage</b>	<b>Subclass</b>
<b>Factory/Industrial</b>	<b>Subclass</b>
<b>Residential</b>	<b>Subclass</b>
<b>Mixed</b>	
<b>High Rise</b>	
<b>Performance Group (ICC Only)</b>	
<b>Other (Specify)</b>	
<b>Notes/Special Considerations</b>	

**FIRE AND LIFE SAFETY PLAN REVIEW**

<b>2. CONSTRUCTION CLASSIFICATION</b>			
Type I	Subclass		
Type II	Subclass		
Type III	Subclass		
Type IV	Subclass		
Type V	Subclass		
Type VI	Subclass		
Mixed (specify)			
Notes/Special Considerations			
<b>3. FIRE-RESISTANCE RATINGS</b>			
	Shown	Required	Design Number(s)
Exterior Walls (bearing)			
Exterior Walls (nonbearing)			
Openings in Exterior Walls			
Columns (supporting other columns or more than one floor)			
Columns (supporting one floor only)			
Columns (supporting roofs only)			
Beams, Girders, Trusses, and Arches (supporting columns or more than one floor)			
Beams, Girders, Trusses, and Arches (supporting one floor only)			
Beams, Girders, Trusses, and Arches (supporting roofs only)			
Floor and Floor/Ceiling Assemblies			
Roof and Roof/Ceiling Assemblies			
Interior Bearing Walls (supporting columns, other than bearing walls, or more than one floor)			

**FIRE AND LIFE SAFETY PLAN REVIEW**

Interior Bearing Walls (supporting one floor only)			
<b>3. FIRE-RESISTANCE RATINGS</b>			
	<b>Shown</b>	<b>Required</b>	<b>Design Number(s)</b>
Walls of Horizontal Exits			
Interior Bearing Walls (supporting roofs only)			
Party and Firewalls			
Roof Coverings			
<b>Notes/Special Considerations</b>			
<b>4. ALLOWABLE AREA AND HEIGHT</b>			
	<b>Amount</b>		
Floor Area Shown (footprint)			
Height Shown (feet)			
Height Shown (stories)			
Base Area Allowed by Code			
Maximum Height Allowed by Code (feet)			
Maximum Height Allowed by Code (stories)			
Area Increase Permitted for Automatic Sprinklers			
Height Increase Permitted for Automatic Sprinklers			
Area Increase Permitted for Setbacks			
Other Increases Permitted (specify)			
	<b>Yes</b>	<b>No</b>	
Total Area is Acceptable			
Total Height is Acceptable			
<b>Notes/Special Considerations</b>			

**FIRE AND LIFE SAFETY PLAN REVIEW**

5. OCCUPANT LOAD		
	Amount	
Basement		
First Floor		
Second Floor		
Third Floor		
Fourth Floor		
Fifth Floor		
Sixth Floor		
Seventh Floor		
Eighth Floor		
Ninth Floor		
Tenth Floor		
Special uses or rooms		
Total for Entire Building		
6. MEANS OF EGRESS		
	Shown	Minimum Required
Number of Exits Provided		
Egress Capacity		
	Shown	Maximum Allowed
Travel Distance		
Common Path of Travel Distance		
Dead-End Travel Distance		
	Shown	Required
Direction of Door Swing		
	Yes	No
Exit Separation (1/2 diagonal rule) meets requirements for separation		
Net Clear Opening Acceptable		
Panic Hardware		
	Required	
	Shown	
Locks Acceptable		

**FIRE AND LIFE SAFETY PLAN REVIEW**

	Yes	No
Exit Discharge Acceptable		
<b>Interior Stairways</b>		
Stair Width Acceptable		
Maximum Riser Height Acceptable		
Minimum Riser Height Acceptable		
Minimum Tread Depth Acceptable		
Handrails Provided on Each Side		
Guards Provided on Open Sides		
Minimum Height of Handrails and Guardrails is Acceptable		
Maximum Spacing of Intermediate Rails is Acceptable		
Size of Handrail is Acceptable		
Handrail is Graspable Along Entire Length		
Handrail Extensions are Provided		
Space Between Handrail and Wall/Surface is Acceptable		
Proper Landings are Provided		
Adequate Headroom is Provided		
Buildings Over Three Stories have at least One Stairway to Roof		
Buildings Over Three Stories Identification Signs in Each Stairway		
<b>Horizontal Exits</b>		
Door Swing Acceptable		
Adequate Floor Area Provided on Either Side		
<b>Outside Stairs</b>		
Stair Width Acceptable		
Maximum Riser Height Acceptable		
Minimum Riser Height Acceptable		
Minimum Tread Depth Acceptable		
Handrails Provided on Each Side		
Guards Provided on Open Sides		
Minimum Height of Handrails and Guardrails is Acceptable		
Maximum Spacing of Intermediate Rails is Acceptable		
Size of Handrail is Acceptable		
Handrail is Graspable Along Entire Length		
Handrail Extensions are Provided		
Space Between Handrail and Wall/Surface is Acceptable		
Proper Landings are Provided		
Adequate Headroom is Provided		
Proper Separation/Protection is Provided		
<b>Ramps</b>		
Walking Surface Slip Resistant		
Minimum Width Acceptable		
Maximum Slope Acceptable		

**FIRE AND LIFE SAFETY PLAN REVIEW**

<b>Ramps</b>			
		Yes	No
<b>Edge Protection Provided</b>			
<b>Handrails Provided</b>			
<b>Landings Provided</b>			
<b>Notes/Special Considerations</b>			
<b>7. BUILDING COMPARTMENTALIZATION</b>			
		Yes	No
<b>Fire Separation Assemblies/Occupancy Separations</b>			
<b>Shown</b>			
<b>Required</b>			
<b>Fire-Resistance Rating(s) Required</b>			
<b>Design Numbers</b>			
<b>Separation of Hazardous Areas</b>			
<b>Shown</b>			
<b>Required</b>			
<b>Fire-Resistance Rating(s) Required</b>			
<b>Design Numbers</b>			
<b>Smoke Barriers</b>			
<b>Shown</b>			
<b>Required</b>			
<b>Fire-Resistance Rating(s) Required</b>			
<b>Design Numbers</b>			
<b>Exit Access Corridors</b>			
<b>Shown</b>			
<b>Required</b>			
<b>Fire-Resistance Rating(s) Required</b>			
<b>Design Numbers</b>			
<b>Exit Passageways</b>			
<b>Shown</b>			
<b>Required</b>			
<b>Fire-Resistance Rating(s) Required</b>			
<b>Design Numbers</b>			
<b>Penetrations of Fire-Rated Assemblies</b>			
<b>Shown</b>			
<b>Listed Penetration Sealant(s) Shown</b>			
<b>Fire-Resistance Rating(s) Required</b>			
<b>Design Numbers</b>			
<b>Doors/Dampers in Fire-Rated Assemblies</b>			
<b>Proper Fire-Rated Assembly Provided</b>			
<b>Doors Self-Closing and Self-Latching</b>			
<b>Draft Stops Provided at all Combustible Concealed Spaces</b>			
<b>Fire Stops Shown</b>			



**FIRE AND LIFE SAFETY PLAN REVIEW**

<b>11. PORTABLE FIRE EXTINGUISHERS</b>		
	<b>Number Shown</b>	<b>Number Required</b>
Portable Fire Extinguishers		
Class Shown		
Class Required		
Special Hazards (Kitchens/Flammable Liquids, etc.)		
<b>12. SPECIAL ATRIUM REQUIREMENTS</b>		
	<b>Rating Shown</b>	<b>Rating Required</b>
Separation from Adjoining Spaces		
	<b>Yes</b>	<b>No</b>
Automatic Fire Sprinkler Protection Provided		
Engineered Smoke Control/Management System Provided		
Notes/Special Considerations		
<b>13. SPECIAL HIGHRISE REQUIREMENTS</b>		
	<b>Yes</b>	<b>No</b>
Floor Surface Used For Human Occupancy Located More Than 75 ft. Above Lowest Level of Fire Department Vehicle Access		
Smokeproof Enclosures Provided		
<b>Automatic Fire Detection System</b>		
Smoke Detectors Located in Mechanical, Electrical, Transformer, Telephone Equipment, Elevator Machine, and Similar Rooms		
Smoke Detector Located in Every Elevator Lobby		
Smoke Detector Located in all Recirculating Air Systems Serving More than One Story		
Smoke Detector Located in Every Connection to a Return Air Vertical Duct Serving a Recirculating System of More than One Story		
Voice Command Fire Alarm System Provided		
Two-Way Fire Department Communication System Provided		
<b>Fire Command Center</b>		
Command Center Provided		
Required Fire Separation Provided		
Location Approved By Fire Department		
<b>Required Controls in Fire Command Center</b>		
<b>Smoke Control</b>		
Natural Ventilation Provided		
Mechanical Ventilation Provided		
<b>Elevators and Elevator Lobbies</b>		
Elevator Recall Provided		

**FIRE AND LIFE SAFETY PLAN REVIEW**

---

<b>13. SPECIAL HIGH RISE REQUIREMENTS</b>		
	<b>Yes</b>	<b>No</b>
<b>Elevator Lobbies Provided on All Floors Except Main Floor</b>		
<b>Rating Shown</b>		
<b>Rating Required</b>		
<b>Design Numbers</b>		
<b>Standby/Emergency Power and Light</b>		
<b>Generator provided</b>		
<b>Two-hour fuel supply provided</b>		
<b>Standby Loads (elevator, smoke control, fire pumps) transfer within 60 seconds</b>		
<b>Emergency Loads (voice/fire alarm, fire department communication, elevator car lighting, emergency lighting) transfer within 10 seconds</b>		
<b>Notes/Special Considerations</b>		

**SECTION C--MECHANICAL PLANS**

Mechanical Plan Date:	Sheets:
-----------------------	---------

Stamped and Signed by:

**1. VENTS, CHIMNEYS AND FLUES**

	Shown	Required
Classification		
Termination Above Roof		
Combustion Air		
Fire Dampers		
Smoke Dampers		

**2. AIR DUCTS**

	Yes	No
Approved materials		
Space Above Ceiling Meets Requirements for Plenum		

**3. HEATING SYSTEM**

Steam/Hot Water	Electric	Gas
Solid Fuel	Solar	Heat Pump
Btu/Hour Output		
	Yes	No
Fire Separation Required for Boiler		
Equipment Listings Included		
Adequate Clearances from Combustibles		

**4. STAIR ENCLOSURE PRESSURIZATION**

	Yes	No
Positive Pressure Required		
Engineered Design Solution Provided		

**5. COMMERCIAL COOKING OPERATIONS**

	Yes	No
Hood Over Heat Sources <span style="float:right;">Type:</span>		
Proper Clearances Provided		
Proper Grease Removal Provided		
Exhaust Ducts Provided <span style="float:right;">Metal Gage:</span>		
Cleanouts Provided		
Proper Clearances Provided		
Liquid-tight Joints Provided		
	Shown	Required
Air Velocity		
Makeup Air		
Location of Exhaust Termination		

**FIRE AND LIFE SAFETY PLAN REVIEW**

<b>Clearance Above Roof Surface of Exhaust Discharge</b>		
<b>Clearance From Adjoining Property of Exhaust Discharge</b>		
	<b>Yes</b>	<b>No</b>
<b>Automatic Makeup Air Shutdown Provided</b>		
<b>6. APPLIANCES</b>		
	<b>Yes</b>	<b>No</b>
<b>Electric</b>		
<b>Gas</b>		
<b>Solid Fuel</b>		
<b>Shutdowns Provided</b>		
<b>Fixed Fire Protection System Provided</b>		
<b>Fire System Manual Release Shown</b>		
<b>Portable Fire Protection Equipment Provided</b>		
<b>Portable Fire Protection Equipment Suitable for Hazard</b>		
<b>7. SPECIAL VENTILATION SYSTEMS</b>		
<b>Notes/Special Considerations</b>		

**SECTION D--ELECTRICAL PLANS**

Electrical Plan Date:		Sheets:	
Stamped and Signed by:			
<b>1. SERVICE</b>			
Size	Voltage	Phase	
		Shown	Required
Main Service Disconnect			
Location			
Sign Provided When Additional Service Mains Exist			
<b>2. FIRE PUMPS</b>			
		Yes	No
Separate Service Provided for Fire Pump			
Separate Disconnect Provided for Fire Pump and Building			
<b>2. EMERGENCY GENERATOR</b>			
Size	Location		
Type	Diesel	Gas/LPG	
		Yes	No
Minimum 8-hour Fuel Supply Provided			
<b>3. EGRESS ILLUMINATION</b>			
		Yes	No
Normal Illumination: All Portions of Means of Egress			
Emergency Lighting: All Portions of Means of Egress			
Provided for Other Required Areas			
Type Provided			
<b>4. EXIT SIGNS</b>			
		Yes	No
Signs Provided at all Exits			
Directional Signage Provided			
All Exit Signs Provided with "Normal" Illumination			
All Exit Signs Provided with "Emergency" Illumination			
<b>5. EMERGENCY/STANDBY POWER</b>			
		Yes	No
Fire Alarm System			
Fire Pump			
Smoke Control			
Elevators			
Toxic Gas Scrubbers/Treatment Systems			
Health Care Equipment			

**FIRE AND LIFE SAFETY PLAN REVIEW**

<b>6. FIRE ALARM AND DETECTION SYSTEM</b>			
		<b>Required</b>	<b>Provided</b>
<b>Manual Fire Alarm and Detection System</b>			
<b>Automatic Fire Alarm and Detection System</b>			
<b>Combination Manual and Automatic Fire Alarm and Detection System</b>			
<b>Manufacturer</b>		<b>Fire Alarm Control Panel Location</b>	
<b>Voltage</b>	<b>Location of Fire Alarm Control Panel (FACP) Dedicated AC Circuit</b>		
		<b>Yes</b>	<b>No</b>
<b>Secondary Power Provided</b>			
<b>Secondary Power Calculations Provided</b>			
<b>Voltage Drop Calculations Provided</b>			
<b>Location of FACP Acceptable</b>			
<b>Location of Remote Annunciator Acceptable</b>			
<b>Electrical</b>			
<b>Initiating Device Circuit Wiring Style</b>			
<b>Notification Appliance Device Circuit Wiring Style</b>			
<b>Signaling Line Circuit Wiring Style</b>			
		<b>Yes</b>	<b>No</b>
<b>Addressable System Provided</b>			
<b>Alarm Verification Provided</b>			
<b>Voice Alarm Message Acceptable (if provided)</b>			
<b>Type of Conductors Acceptable</b>			
<b>End-of-Line-Device Location Identified/Provided</b>			
<b>Power to FACP on Dedicated Circuit</b>			
<b>FACP Circuit Properly Identified in Panelboard</b>			
<b>Location of Panelboard Circuit Identified at FACP</b>			
<b>Access to FACP Circuit Limited to Authorized Persons</b>			
<b>Initiating Devices</b>			
		<b>Yes</b>	<b>No</b>
<b>Pull Station Locations Acceptable</b>			
<b>Smoke Detector Type and Locations Acceptable</b>			
<b>Heat Detector Type and Locations Acceptable</b>			
<b>Water Flow Switches Acceptable</b>			
<b>Alarm Connections to Fire Suppression Systems Provided</b>			
<b>Supervisory Connections to Fire Suppression Systems Provided</b>			
<b>Other Type of Devices Provided</b>			
<b>Indicating Appliances</b>			
		<b>Yes</b>	<b>No</b>
<b>Visual Appliances Type and Locations are Acceptable</b>			
<b>Audible Appliances Type and Locations are Acceptable</b>			

**FIRE AND LIFE SAFETY PLAN REVIEW**

---

<b>Elevator</b>		
	<b>Yes</b>	<b>No</b>
<b>Elevator Recall (Phase I)</b>		
<b>Firefighter Service (Phase II)</b>		
<b>Smoke Control</b>		
	<b>Yes</b>	<b>No</b>
<b>HVAC Shutdown and Controls</b>		
<b>Automatic Door Closures</b>		
<b>Stairway Door Controls</b>		
<b>Exit Door Controls</b>		
<b>Fire Pump Controls</b>		
	<b>Yes</b>	<b>No</b>
<b>Pump Running</b>		
<b>Loss of Phase</b>		
<b>Phase Reversal</b>		
<b>Pump Overheating</b>		
<b>Generator Controls</b>		
	<b>Yes</b>	<b>No</b>
<b>Emergency Fuel Controls</b>		
<b>Generator Running</b>		
<b>Low Battery</b>		
<b>Monitoring Service</b>		
<b>Local Alarm Only</b>	<b>Auxiliary</b>	<b>Proprietary</b>
<b>Remote Station</b>	<b>Central Station</b>	<b>Other</b>
	<b>Yes</b>	<b>No</b>
<b>Central Station Information Identification Provided at FACP</b>		
<b>System will be Certificated (if monitored by Central Station)</b>		
<b>DACT Provided with Two Telephone Lines</b>		
<b>DACT Connected Ahead of PBX Equipment</b>		
<b>Notes/Special Considerations</b>		

**SECTION E--SPRINKLER AND STANDPIPE PLANS**

Fire Protection Plan Date:	Sheets:
----------------------------	---------

Stamped and Signed by:

**1. STANDPIPE SYSTEM**

			Required	Provided
<b>Manual Standpipe System</b>				
<b>Class:</b>	I	II	III	
<b>Water Supply</b>				
			Yes	No
<b>Water Supply Combined With Sprinkler System Demand</b>				
			<b>GPM</b>	<b>PSI</b>
<b>Demand</b>				
			Yes	No
<b>Backflow Prevention Device Required</b>				
<b>Backflow Prevention Device Provided</b>				
<b>Supervision Provided of Control Valves</b>				
<b>Fire Department Connection Location Approved</b>				
<b>Class I Outlets</b>				
			Yes	No
<b>Located in Each Required Stairway</b>				
<b>Maximum Travel Distance to Outlet Does Not Exceed 150 ft. (unsprinklered) or 200 ft. (sprinklered)</b>				
<b>Located on Each Side of Horizontal Exits</b>				
<b>Located In Each Exit Passageway</b>				
<b>In Covered Mall Buildings, Located at Entrance to Each Exit Passageway or Exit Corridor and at Exterior Public Entrances</b>				
<b>Class II Outlets</b>				
			Yes	No
<b>Maximum Travel Distance to Outlet Does Not Exceed 130 feet</b>				
<b>100 ft. of Hose and Nozzle Provided/Connected for Each Outlet</b>				
<b>Class III Outlets</b>				
			Yes	No
<b>Meet Requirements of Both Class I and Class II</b>				
<b>Roof Outlet/Manifold</b>				
			Yes	No
<b>Roof Outlet Manifold Required</b>				
<b>Roof Outlet Manifold Provided</b>				
<b>Number of Outlets</b>				
<b>Location of Roof Outlet Manifold Control Valve</b>				
<b>Pressure Regulating Devices</b>				
			Yes	No
<b>Pressure-Reducing Valves</b>				

**FIRE AND LIFE SAFETY PLAN REVIEW**

Pressure Control Valve		
Pressure Restricting Orifice		

<b>2. AUTOMATIC SPRINKLER SYSTEM</b>		
	<b>Yes</b>	<b>No</b>
Automatic Fire Sprinkler System Required		
Automatic Fire Sprinkler System Provided		
Limited Area System		
Wet	Dry	Pre-Action
Deluge	Antifreeze	Other
	<b>Hazard</b>	<b>Group</b>
Hazard Classification		
<b>Special Considerations</b>	<b>Yes</b>	<b>No</b>
High-Piled Storage, Rolled Paper, Flammable Liquids, Tire Storage		
Other Special Hazards		
<b>Storage Occupancies</b>		
Miscellaneous/Incidental Storage Areas		
Commodity Classifications Shown		
Group A, B, or C Plastics Identified		
Class Adjusted for Plastic Content		
Commodity Classification(s)		
Maximum Storage Height Shown		
Storage Method (Solid Pile/Rack/Pallet) Shown		
Rack Configuration (Single/Double/Multiple/Flow-through) Shown		
Pallets Described (Solid/Slatted/Wood/Plastic/Metal/Slave)		
Aisle Widths Shown		
Mechanized or Carousel Storage		
<b>Standard Selected</b>		
	<b>Yes</b>	<b>No</b>
NFPA 13: <i>Installation of Automatic Sprinkler Systems</i>		
NFPA 13R: <i>Sprinkler Systems for Residential Occupancies up to and Including Four Stories in Height</i>		
NFPA 13D: <i>One- and Two-Family Dwellings and Mobile Homes</i>		
Other Standard (specify)		
Special Ruling (specify)		
Hydraulic Calculations Required		
Hydraulic Calculations Provided		
Hydraulic "Safety Margin" Provided		
Pipe Schedule System		
<b>Water Supply</b>		
	<b>Yes</b>	<b>No</b>
Water Supply Combined With Standpipe System Demand		
	<b>GPM</b>	<b>PSI</b>
Demand		
	<b>Yes</b>	<b>No</b>
<b>Exterior Considerations</b>		
Backflow Prevention Device Required		
Backflow Prevention Device Provided	Class:	
Exterior Control Valve Location Approved		
Supervision Provided for Control Valves		
Fire Department Connection Location Approved		

**FIRE AND LIFE SAFETY PLAN REVIEW**

<b>Pipe or Tube</b>		
Pipe or Tube: Ferrous	Copper	CPVC/PEX
Layout: Tree	Loop	Grid
	<b>Yes</b>	<b>No</b>
Maximum Service Area per Riser Identified		
Hangers Shown		
Earthquake Bracing Shown (four-way/ Lateral/Longitudinal)		
Pipe Slope for Drainage Shown		
Auxiliary Drains Required		
Auxiliary Drains Provided		
<b>Valves</b>		
	<b>Yes</b>	<b>No</b>
Indicating Valves for Water Supplies Shown		
Alarm/Dry Pipe/Pre-Action/Deluge Valve Shown		
Sectional Control/Floor Isolation Valves Provided		
Supervision Provided for Control Valves		
Inspector's Test Valve Location Shown		
<b>Alarms</b>		
	<b>Yes</b>	<b>No</b>
Water Flow Alarm Shown		
Flow Switch(es) Shown		
Retard Chamber Apparatus Shown		
High/Low Air Pressure Alarm Shown		
<b>Sprinklers</b>		
	<b>Yes</b>	<b>No</b>
Correct Sprinklers Selected for Hazard		
Coverage Provided in All Areas (Except Limited Area Systems)		
Area per Sprinkler Identified		
Sprinklers Installed in Concealed Combustible Spaces		
Vertical Obstructions to Discharge Identified		
Horizontal Obstructions to Discharge Identified		
Spare Sprinklers and Cabinet Identified		
<b>Calculations</b>		
	<b>Yes</b>	<b>No</b>
Design Density Specified		
Area of Application (Remote Area) Identified		
Adjustments for Dry-Pipe or Quick Response Sprinklers Identified		
Hydraulic Nameplates Identified		
<b>Miscellaneous</b>		
	<b>Yes</b>	<b>No</b>
Air Compressor Provided		
Notes/Special Considerations		

## Activity 2.1

### Evaluating the Code Footprint

#### Purpose

To evaluate a set of drawings to determine if required information is provided (code footprint).

#### Directions

1. You will work in your table groups for 30 minutes.
2. Review the condominium resort project plans and list five items on an easel pad that do not appear on the plans and that prevent you from completing a review on this project.  
  
Example: Address numbers.
3. Using your own building, fire, or mechanical codes, identify the code section that refers to the missing items.  
  
Example: Address numbers: IFC 505.1.
4. Select a spokesperson to report, and be prepared to discuss your findings with the rest of the class. There will be additional discussion about this activity.



## Activity 3.1

### Fire Apparatus Access Roads

#### Purpose

To determine fire apparatus access requirements for new construction.

#### Directions

1. You will work at your plan check table.
2. Using the condominium resort plans and your locally adopted fire codes, complete the Plan Review Checklist for fire apparatus access.



## Activity 3.2

### Fire Flow Comparisons

#### Purpose

To determine minimum fire flow requirements for new construction.

#### Directions

1. You will work in your table groups for 15 minutes.
2. Each table group will use a different fire flow calculation method assigned by the instructor.
  - a. ISO (base building only without exposure surcharges).
  - b. Iowa State University and NFA formulas.
  - c. Model fire code annex or appendix.
  - d. NFPA 1142.
3. Using the fire flow calculation method assigned to your group, compute the minimum required fire flow for the Canterbury Home. Canterbury Home Description: One-story, 11,439 ft.<sup>2</sup>, wood-frame protected (Type 5A), fully sprinklered per NFPA 13 design (all occupied spaces and attic), multifamily residential occupancy.
4. Select a spokesperson to report, and be prepared to discuss your findings with the rest of the class.



### **Activity 3.3**

#### **Site Plan Evaluation**

##### **Purpose**

To evaluate civil (site) drawings to determine compliance with requirements for fire department access, water flow requirements, and the presence of special hazards.

##### **Directions**

1. You will work at your plan check table for about 45 minutes.
2. Review the Canterbury Home project plans and complete the worksheet on the following page.
3. At the end of the activity, you will have about 15 minutes to explain and discuss your answers with the rest of the class.



**Activity 3.3 (cont'd)**

**Worksheet**

1. What is the final maximum grade on 79th Street, from 36th Avenue to the western edge of the project property line?

---

---

---

---

2. What is the total length of the 6-inch water service from the tee on 79th Street to where it enters the building?

---

---

---

3. What is the linear spacing between the fire hydrants on the site plan?

---

---

---

4. How many new fire hydrants will be added as part of this project?

---

---

---

**FIRE AND LIFE SAFETY PLAN REVIEW**

---

5. What materials will be used in the construction of the manholes?

---

---

---

6. How many maple trees will be added as part of this project?

---

---

---

7. What is the total linear distance from the grease interceptor to its first downstream cleanout?

---

---

---

8. Who is going to install the 6-inch water main for the fire line?

---

---

---

9. What is the distance between the trash enclosure and the nearest exterior wall?

---

---

---

10. What is the distance from the exterior wall to the north property line?

---

---

---

### Activity 4.1

#### Occupancy Classes

##### Purpose

To identify occupancy classifications, accessory use areas, and incidental use areas.

##### Directions

1. You will work at your plan check tables in teams of two for 30 minutes.
2. Using your locally adopted building code and given the Canterbury Home project plans, complete the chart below by giving them an occupancy classification, or by selecting them as accessory or incidental use areas.

<b>Space</b>	<b>Occupancy Class?</b>	<b>Accessory Use? (Y/N)</b>	<b>Incidental Use? (Y/N)</b>
Mechanical Room 128			
Activity Room 119			
Dining Room 118			
Kitchen/Pantry 114			
Office 124			

3. At the end of the activity, be prepared to explain your answers.



## Activity 4.2

### Gross and Net Area

#### Purpose

To evaluate your ability to measure gross and net floor areas correctly.

#### Directions

1. You will work at your plan check tables for 20 minutes.
2. Refer to the "Maximum Floor Area Allowances per Occupant" table in your building code.
3. Given the Canterbury Home project plans, determine whether to select the gross or net square footage as the occupant factor, and measure the floor area of the following spaces:

Space	Gross Sq. Ft.	Net Sq. Ft.
Mechanical Room 128		
Activity Room 119		
Dining Room 118		
Kitchen/Pantry 114		
Office 124		

4. At the end of the activity, be prepared to explain your answers.



### **Activity 4.3**

#### **Construction Type**

##### **Purpose**

To verify materials and methods used to determine construction type for new construction.

##### **Directions**

1. You will work at your plan check table.
2. Using the condominium resort plans and your locally adopted building code, complete the Plan Review Checklist for construction type.



## **Activity 4.4**

### **Area and Height Limits**

#### **Purpose**

To identify and interpret area and height limitations for new construction.

#### **Directions**

1. You will work at your plan check table.
2. Using the condominium resort plans and your locally adopted building code, complete the Plan Review Checklist for allowable area and height.



## Activity 4.5

### Fire-Rated Assemblies: Part 1

#### Purpose

To evaluate architectural and structural drawings to determine compliance with requirements for fire-rated assemblies.

#### Directions

1. You will work at your plan check table.
2. Using the condominium resort plans and your locally adopted building code, complete the Plan Review Checklist for fire-rated assemblies. List any locations where fire-resistance-rated construction is required, but does not appear on the plans.



## Activity 4.6

### Fire-Rated Assemblies: Part 2

#### Purpose

To explain the differences and application of listed fire-rated assemblies, calculated fire resistance, and specified assemblies.

#### Directions

1. You will work on a computer in the classroom, the breakout room, or the student computer lab.
2. Using resources available on the following Web sites, answer the questions listed on the following worksheet.
  - a. UL:  
<http://database.ul.com/cgibin/XYV/template/LISEXT/1FRAME/gothrnbr.html>
  - b. Gypsum Association: <http://www.gypsum.org/download.html>
3. The answers will be due on the morning of Day 5.



**Activity 4.6 (cont'd)**

**Worksheet**

Given the following information, briefly describe the type of fire-resistive rated assembly that it is, and provide its rating in hours.

	<b>Assembly Identifier</b>	<b>Assembly Type</b>	<b>Hourly Rating</b>
	<i>Example: UL P910</i>	<i>Floor-ceiling</i>	<i>2</i>
1.	Gypsum Association WP7451		
2.	Gypsum Association CM 1400		
3.	Gypsum Association RC 2601		
4.	UL G218		
5.	UL U605		
6.	UL C-AJ-1240		
7.	UL HW-D-0029		
8.	UL CW-D-2010		
9.	UL V-1		
10.	UL-X-751		



### Activity 4.7

#### Fire Resistance and Setbacks

##### Purpose

To identify and compare differences among building code requirements that establish fire-resistance requirements based on site separation.

##### Directions

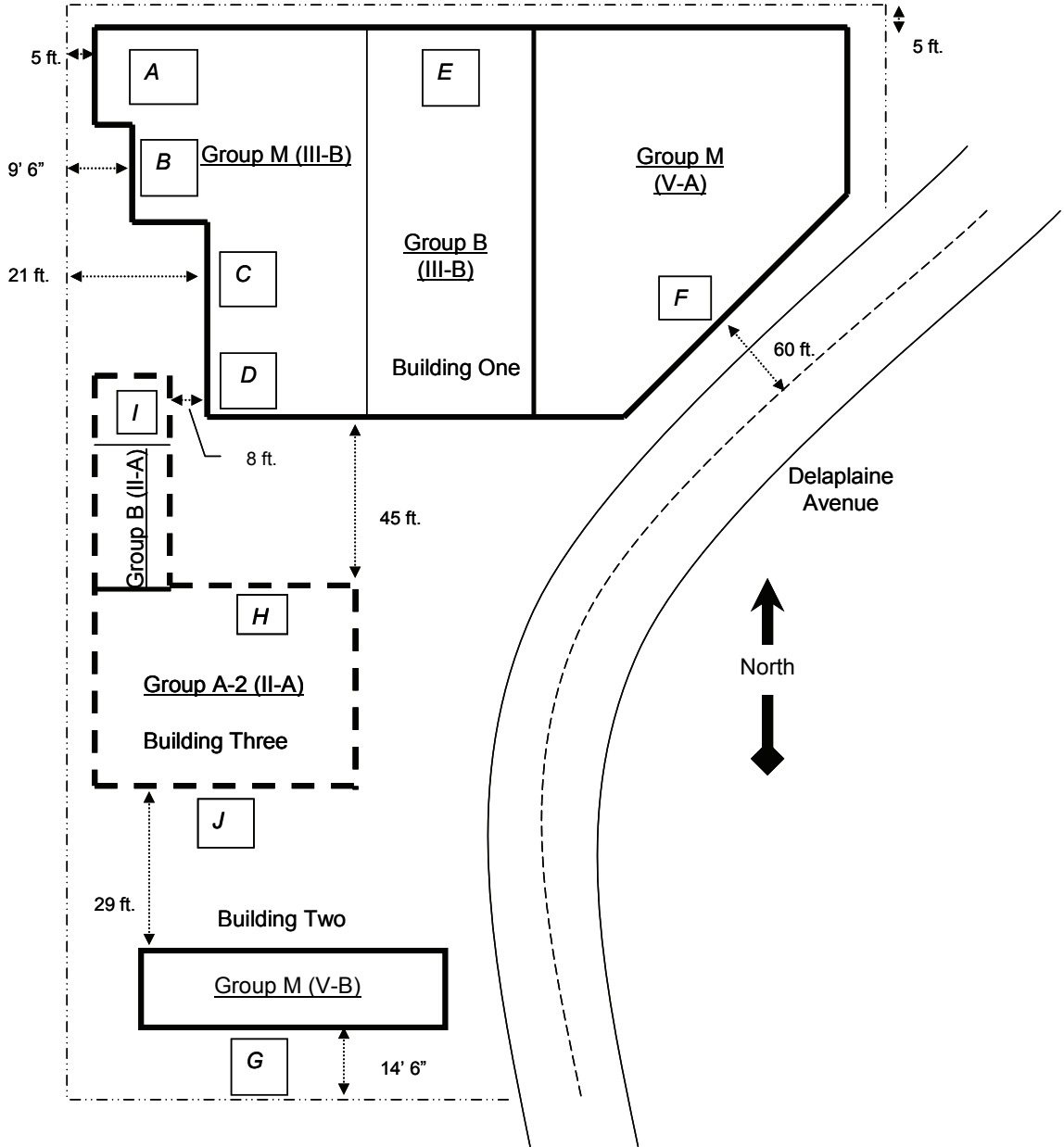
1. You will work at your group tables.
2. Given the following site plan and your locally adopted building code, answer the following questions.
  - a. What is the minimum required fire-resistance rating (in hours) of Wall A?  
\_\_\_\_\_
  - b. What is the minimum required fire-resistance rating (in hours) of Wall B?  
\_\_\_\_\_
  - c. What is the minimum required fire-resistance rating (in hours) of Wall C?  
\_\_\_\_\_
  - d. Is Wall E required to have the same fire-resistance rating along its entire length?  
\_\_\_\_\_
  - e. What is the amount (percentage of wall area) of unprotected openings permitted in Wall H?  
\_\_\_\_\_
  - f. What is the amount (percentage of wall area) of protected openings permitted in Wall F?  
\_\_\_\_\_
  - g. What is the minimum required fire-resistance rating (in hours) of Wall G?  
\_\_\_\_\_



Activity 4.7 (cont'd)

Site Plan

Not to scale  
Use marked dimensions





## Activity 5.1

### Means of Egress

#### Purpose

To identify and interpret building and fire code requirements that establish means of egress requirements.

#### Directions

1. You will work at your plan check table.
2. Using the Canterbury Home plans and your locally adopted building code, complete the following activities.
  - a. Determine the occupant capacity of the Living Room (Room 120).  
\_\_\_\_\_ persons.
  - b. Determine the occupant capacity of the Activity Room (Room 119).  
\_\_\_\_\_ persons.
  - c. Measure the remoteness of Exit Door 138 from Entry Door 121. \_\_\_\_\_ feet.
  - d. Measure the travel distance from Exit Door 138 to Entry Door 121. \_\_\_\_\_ feet.
  - e. List the fire-resistance rating of the mechanical room door. \_\_\_\_\_ hour(s).
  - f. Are delayed egress locking devices permitted on the exit doors? \_\_\_\_\_
  - g. Is the fire extinguisher cabinet in Hall 100 an obstruction to the means of egress?  
\_\_\_\_\_  
\_\_\_\_\_
  - h. Identify any dead-end corridors on the plans.  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
  - i. Measure the common path of exit travel from the southwest corner of Room 103.  
\_\_\_\_\_ feet.



## Activity 5.2

### Occupant Load and Means of Egress

#### Purpose

To identify and interpret building and fire code requirements that establish provisions for means of egress.

#### Directions

1. You will work at your plan check table.
2. Using the condominium resort plans, complete the Plan Review Checklist for occupant load and means of egress.



### **Activity 5.3**

#### **Vertical Opening Fire Resistance**

##### **Purpose**

To identify and interpret the building and fire code requirements that establish the provisions for vertical opening arrangements and protection.

##### **Directions**

1. You will work at your plan check table.
2. Using the condominium resort plans, complete the Plan Review Checklist for fire resistance of vertical openings.



## **Activity 5.4**

### **Interior Finishes**

#### **Purpose**

To identify and interpret the building and fire code requirements that establish requirements for interior finishes.

#### **Directions**

1. You will work at your plan check table.
2. Using the condominium resort plans, complete the Plan Review Checklist for interior finishes.



## Activity 5.5

### Life Safety and Fire Protection Concepts

#### Purpose

To explain the building code applications for special uses and occupancies.

#### Directions

1. You will work with your table group.
2. Special detailed requirements based on use and occupancy or in special structures are intended to address the specific life safety and fire protection requirements unique to these facilities.

For example, the essential life safety and fire protection concepts related to motion picture projection rooms are to **confine the hazard to a single location and provide adequate ventilation.**

3. Based on the requirements within your locally adopted building code, each table group is to develop a one-page easel pad summary of the key life safety and fire protection concepts that the code addresses within the assigned occupancy type.
4. Choose a spokesperson to present your group's findings to the class.

<b>Table</b>	<b>Occupancy/Use</b>
1	Covered mall buildings
2	Stages and platforms
3	Special amusement buildings
4	Highrise buildings
5	Aircraft-related occupancies
6	Buildings surrounded by water



## Activity 6.1

### Egress Illumination

#### Purpose

To identify normal and emergency egress illumination requirements.

#### Directions

1. You will work at your plan check table.
2. Using the condominium resort plans, complete the Plan Review Checklist for normal and emergency egress illumination requirements.



## Activity 7.1

### Mechanical Systems

#### Purpose

To evaluate architectural, mechanical, and electrical drawings to determine compliance with requirements for fire and smoke dampers and combustion air.

#### Directions

1. You will work at your plan check table.
2. Using the condominium resort plans, complete the Plan Review Checklist for mechanical systems.



## Activity 8.1

### Fire Protection Systems

#### Purpose

To determine where and what types of active fire protection systems (sprinklers, standpipes, fire alarms, and other extinguishing systems) are required, based on occupancy or construction.

#### Directions

1. You will work in your table groups.
2. Given the list of occupancies and uses on the worksheet, identify which active fire protection systems are required by your building or fire codes.



Activity 8.1 (cont'd)

Worksheet

	Description	NFPA 13D Design Sprinkler	NFPA 13R Design Sprinkler	NFPA 13 Design Sprinkler	Manual Fire Alarm System	Automatic Fire Alarm System	Standpipe System	Smoke Management/Control System	Commercial Kitchen Hood and Suppression System
1	26,000 ft <sup>2</sup> factory occupancy manufacturing organic coatings.								
2	Five-story hospital with round-the-clock food service.								
3	Highrise office building with three-story atrium connecting 6th to 8th floors.								
4	One-story, 86,000 ft <sup>2</sup> elementary school with all classroom doors exiting to ground level.								
5	One-story, Group A-4, Type III-B construction, 600,000 ft <sup>2</sup> with 60 feet of clearance on all sides.								
6	Four-story Group R, Division 2 occupancy of Type II-A construction, and having interior egress corridors.								
7	Five-story single-family dwelling.								
8	Three-story special amusement building for more than 213 occupants for more than 90 days.								
9	Church with seating for 3,000 persons, an attached and nonseparated gymnasium for 10,000 persons, and an attached, separated adult and child day care center.								
10	One-story motor vehicle repair garage with a 11,864 ft <sup>2</sup> fire area.								

