



Collaborative Bachelor's Degree Program of Fire Protection and Safety
Engineering Technology between Southwest Jiaotong University and
Oklahoma State University, U.S.A.




FPST 1213 Fire and Safety Hazard Recognition

Plans Review

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Plans Review




- Purpose
 - To verify that structures that are new, remodeled or have changed in occupancy classification meet applicable codes.
 - Main benefit is community safety
 - Involves
 - Local Building Official or City Engineer
 - Building Departments
 - Experts in electrical, plumbing, structural and mechanical (HVAC) systems
 - Fire Departments
 - Experts in sprinklers, standpipes, detection and alarm systems and life safety codes

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Plans Review Process



- Process
 - Apply
 - Submit
 - Change
 - Accept
 - Authorize
- Change Orders
 - Client changes that take place after the contract is written must be documented.
 - All changes typically collected into one main document called an "as built" drawing

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Supporting Documents



- Sprinkler calculations
- Chemical Safety data Sheets
- Material specifications
- Manufacturer's product submittals
 - "Cut Sheets"
 - P 660

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PLAN AND DRAWING TYPES

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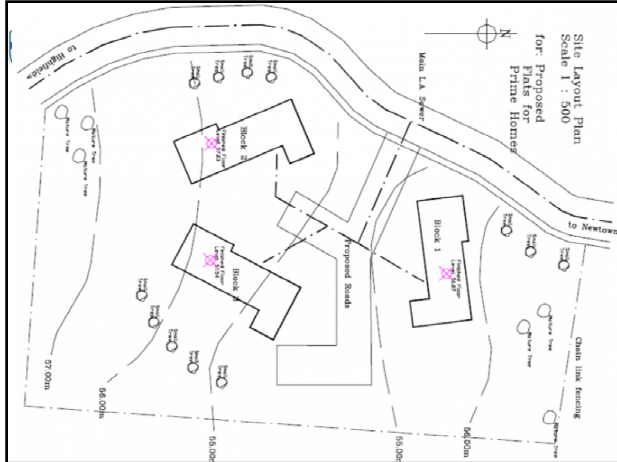


Site Plan

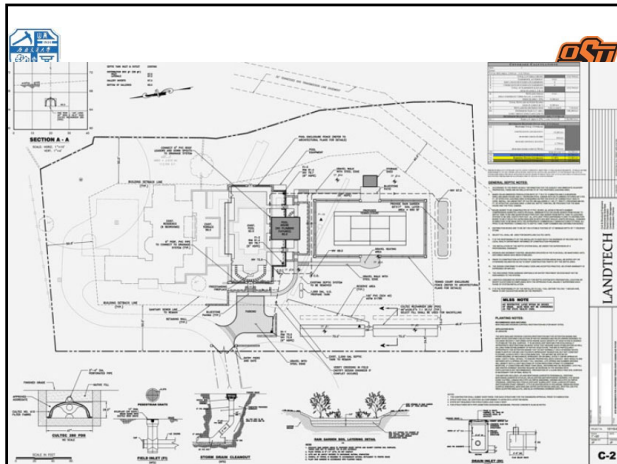


- 2D
- Lot dimensions
- Utility lines
- Contour lines
 - Benchmark


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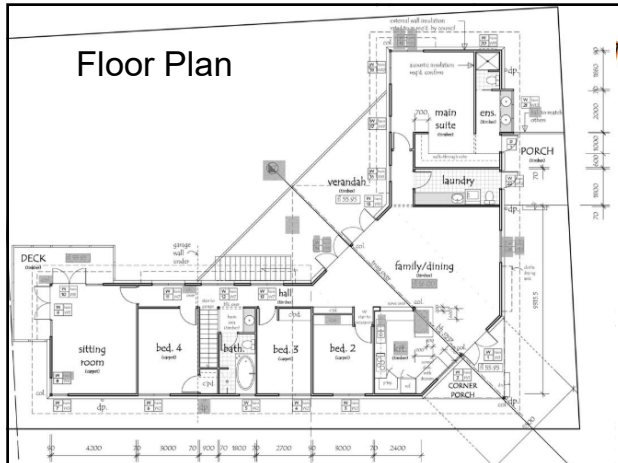


Floor Plan

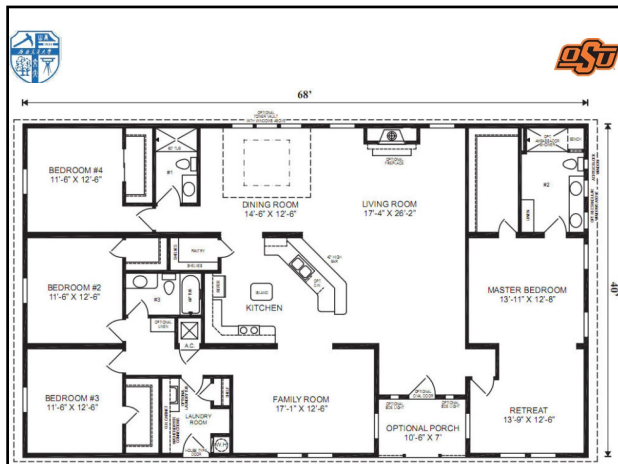


- 2D
- Basic structure
- Doors
- Windows
- Walls
- No utilities
- Dimensions
 - Determining size and position


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Elevation Plans

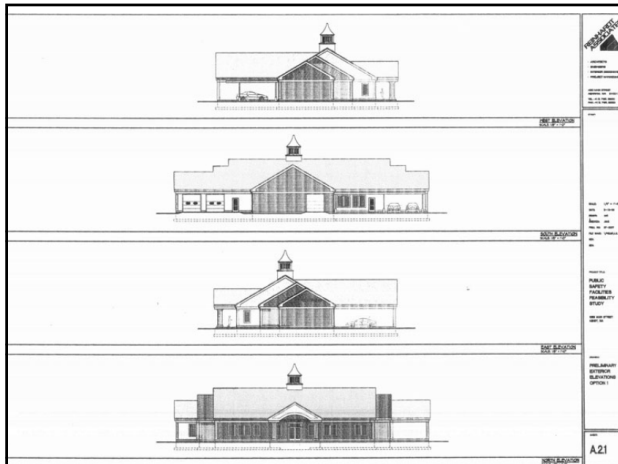


- 2D
- Exterior view
- Typically 4 views
- Sides labeled by name or direction they face


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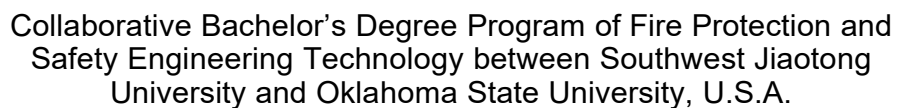


Section view



- Cut a piece out to see inside
 - Cross section

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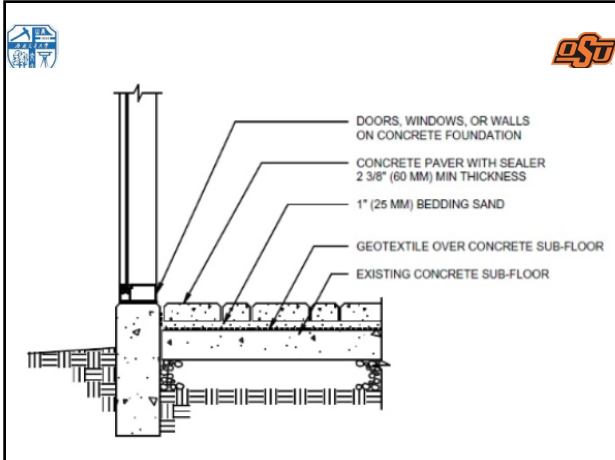




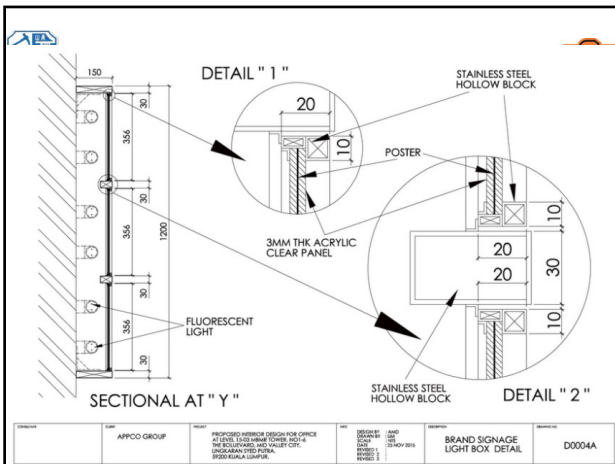
Detail view

- A zoomed-in view to show specifics

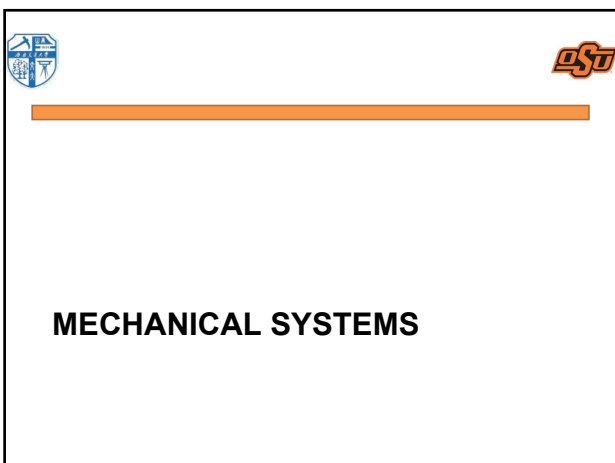
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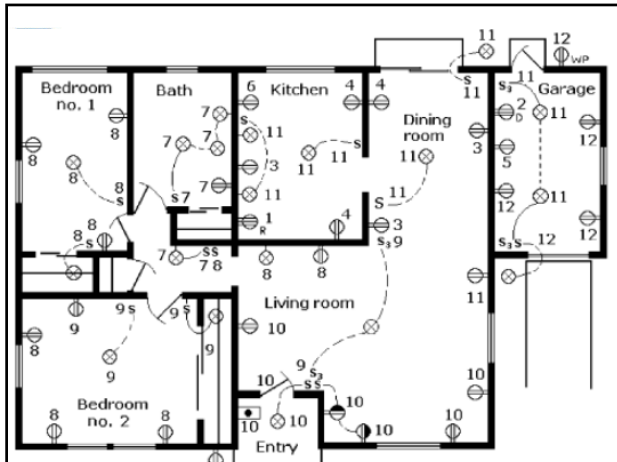


Electrical Plans

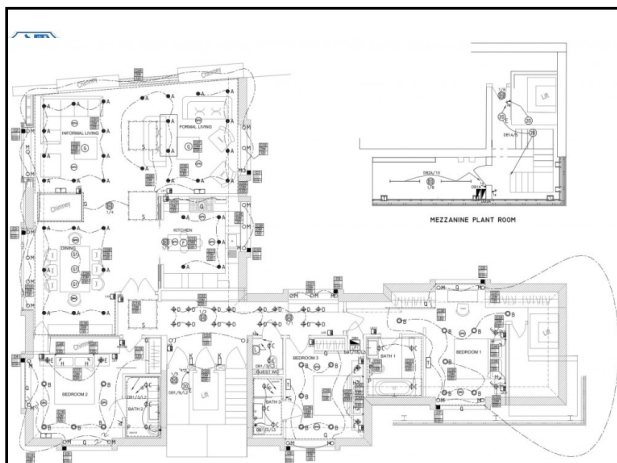


- Switches
- Outlets
- Lights
- Can also show
 - Emergency lighting
 - Illuminated exit signs
 - Fire detection
 - Alarm system power supply

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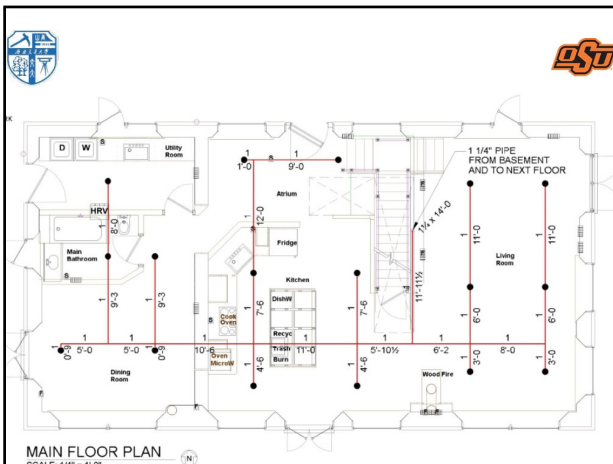


Sprinkler Systems

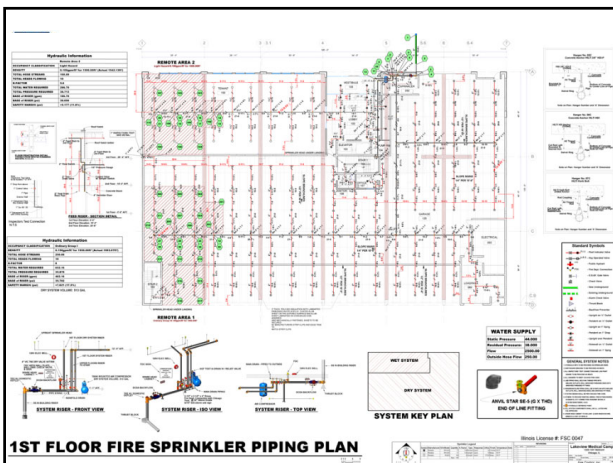


- Riser location
- Branch lines
- Cross mains
- Types of system
- Water supply connection

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Additional System Documents

- Standpipe hose system information
- Special agent fire suppression system
- Fire detection and alarm system
- Fire pump calculations
- Sprinkler calculations
- HVAC system
- Plumbing diagram

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Systematic Plans Review

- Overall size
 - Height and area
 - Type of construction
 - Any limitations for the proposed building site?
 - Effects on fire control?
 - Parapet walls
 - Sloping grades
 - Fire equipment access
- Building compartmentalization
 - Fire walls
 - Horizontal and vertical shafts
 - Fire barriers
 - Fire dampers, fire stops fire doors

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Occupancy Classification

- Responsibility of architect (design professional)
- Confirmed by inspector
- Identified on drawings
- Critical to know to determine required fire resistance ratings

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Occupant Load



- Determined before life safety and fire-protection features
 - The first step
- Determined by occupant density or occupant load factors given in codes
- Provided by architect

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Means of Egress



- Must show means of egress on drawings other than the floor plan such as mechanical (HVAC), plumbing, and electrical
 - Ensure fire walls are not penetrated and if so, that they are sealed properly
 - Fire door ratings
 - Should also evaluate
 - Interior finishes
 - Head room
 - Obstacles
 - etc.
- Exit capacity

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Additional Concerns



- Building contents and fire load
 - Furnishings
 - Decorations
 - Interior finishes
- Building insulation
- Fire extinguishers

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Inspectors need to be able to
verify that all code requirements
regarding fire and life safety are
met before and during
construction

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Additional Drawings

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