



PLAN SUBMITTAL REQUIREMENT

FOR COMMERCIAL AND INDUSTRIAL BUILDINGS

*Including Tenant Improvements, Additions,
Remodels and Accessory Structures*



**CITY OF UNDERWOOD
BUILDING & SAFETY DEPARTMENT**

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**INCOMPLETE PLANS WILL
NOT BE ACCEPTED**

Fire Sprinkler Plan Review Requirements

Sprinkler Plan Reviews are based on the specified edition of the applicable NFPA 13 standard as referenced by the building code. In order to perform a thorough Sprinkler Plan Review, the following items should be submitted:

1. Complete plans and specifications for the sprinkler system and related equipment.
2. Description and locations of uses within the building.
3. Design details in accordance with the appropriate reference standard (i.e. NFPA 13, 13D, 13R) as referenced by the building code.
4. Design calculations indicating the discharge requirements of the system with evaluation of the arrangement and source of the water supply.
5. Results of a current flow test indicating the location and date of the test.
6. Working drawings indicating all pipe sizes and the spacing between branch lines and sprinklers on the branch line.
7. Material specifications and equipment specifications. All material used should be verified that they are installed in accordance with their listing.

General Information for Submittal

- Submit two (02) complete sets of plans in blueprint or photocopy form, with a plan check deposit.
 - Provide two (02) additional plot (site) plans if parcel is on septic along with a completed septic permit application
 - Pencil drawings or original drawings are not acceptable
- Plans prepared by an Iowa Registered Professional must be wet stamped, signed and dated on all sheets.
- If plans are NOT prepared by a Licensed Iowa Design Registered Professional then the following information must be on the plans.
 - Iowa Licensed Contractor must place their business name and license number on all sheets prepared by them along with the required signature and date.
- Provide Title Block on each sheet of plans with the following information;
 - Address, Assessor's Parcel Number of proposed construction site
 - Name and Address of design professional, contractor or owner/builder
- The cover sheet for the plans must indicate the square footage break-down, providing all areas separately.
- Plans must be drawn to an approved scale and fully dimensioned: Plot (site) plan approved scales; 1"=10', 1"=20' & 1"=30'/Construction plans (other than details) approved scales; 1/4"=1'-0" & 1/8"=1'-0" can be used if pre-approved by County Staff.
- Minimum paper size for all plan sets; 11"X 17" paper.
- Revisions to plans must be made on the original drawings and new blueprints or photocopies submitted. No pencil drawing or marks will be accepted on plans at submittal.
- Additions, Remodels, and Tenant Improvements, plans must have complete existing layout (floor) plan, showing what was/is existing prior to remodel or addition. Indicate and label the use of each existing room within the structure along with the door and window locations and sizes.

Plans and specifications must be of sufficient clarity to indicate the location, nature and extent of the work proposed and show in detail that it will conform to the provisions of the technical codes and all relevant laws, ordinances, rules and regulations. The following information is standard requirement for construction documents:

Building Plan Review Requirements

In order to perform a thorough Building Plan Review, the following specifications, drawings and details should be submitted:

1. Complete architectural plans, structural plans and material specifications of all work.
2. A site plan including the following information:
 - a. Size and location of all new construction and all existing structures on the site.
 - b. Distances from lot lines.
 - c. Established street grades and proposed finish grades.
3. Architectural plans and specifications to include:
 - a. Description of uses and the proposed use group(s) for all portions of the building. The design approach for mixed-uses (as applicable).
 - b. Proposed type of construction of the building.
 - c. Full dimensioned drawings to determine areas and building height.
 - d. Adequate details and dimensions to evaluate means of egress, including occupant loads for each floor, exit arrangement and sizes, corridors, doors, stairs, etc.

- e. Exit signs/means of egress lighting, including power supply.
 - f. Accessibility scoping provisions.
 - g. Description and details of proposed special occupancies such as a covered mall, high-rise, mezzanine, atrium, public garage, etc.
 - h. Adequate details to evaluate fire resistive construction requirements, including data substantiating required ratings.
 - i. Details of plastic, insulation, and safety glazing installation.
 - j. Details of required fire protection systems.
4. Structural plans, specifications, and engineering details to include:
 - a. Soils report indicating the soil type and recommended allowable bearing pressure and foundation type.
 - b. Signed and sealed structural design calculations which support the member sizes on the drawings.
 - c. Details of foundations and superstructure.
 - d. Provisions for required special inspections.
 - e. Applicable construction standards and material specifications (i.e., masonry, concrete, wood, steel, etc.).
 - f. Design Criteria:
 - Ground Snow Load: 30 pounds per square foot
 - Wind Speed: 90 mph for a 3 second gust with Exposure C
 - Seismic Design Category: B
 - Weathering Probability for Concrete: Severe
 - Frost Line Depth: 42 inches below finished grade
 - Termites: Moderate to Heavy
 - Decay: Slight to Moderate
 - Winter Design Temperature: -5 degrees
 - Flood Hazards: Map revised date of February 4, 2005



Mechanical Plan Review Requirements

1. Complete plans and specifications of all heating, ventilating and air-conditioning work.
2. Complete information on all the mechanical equipment and materials including listing, labeling, installation and compliance with specified quality control standards
3. Details on the HVAC equipment including the equipment capacity (Btu/h input), controls, equipment location, access and clearances.
4. A ventilation schedule indicating the outdoor air rates, the estimated occupant load/1,000 ft², the floor area of the space and the amount of outdoor air supplied to each space.
5. The location of all outdoor air intakes with respect to sources of combustibles.
6. Duct construction and installation methods, flame spread/smoke development ratings of materials, flexible air duct and connector listing and duct support spacing.

7. Condensate disposal, routing of piping and auxiliary and secondary drain systems.
8. Required exhaust systems, routing of piping and auxiliary and secondary drain systems.
9. Complete details of all Type I and II kitchen hoods, grease duct construction and velocity, clearance to combustibles and fire suppression system. (If applicable).
10. Details of all duct penetrations through fire resistance rated assemblies including shaft, fire dampers and smoke damper locations.
11. Method of supplying combustion air to all fuel fired appliances, the location and size of openings and criteria used to size the openings.
12. Details on the vents used to vent the products of combustion from all fuel burning appliances including the type of venting system, the sizing criteria required for the type of vent and routing of the vent.
13. Boiler and water heater equipment and piping details including safety controls and distribution piping layout.
14. Details on the type of refrigerant, calculations indicating the quantity of refrigerant and refrigerant piping material and the type of connections.
15. Complete details on the gas piping system including materials, installation, valve locations, sizing criteria and calculations (i.e., the longest run of piping, the pressure and pressure drop).



Plumbing Plan Review Requirements

1. Complete plans and specifications of all plumbing work.
2. Plumbing fixture specifications including identification of the applicable referenced quality control standards and the maximum flow rates for the plumbing fixtures.
3. The basis for the number of plumbing fixtures provided including the occupant load used the use group and fixtures rate from the plumbing code.
4. Complete dimensions for bathrooms, the location of plumbing fixtures and the wall and floor surface materials.
5. Site plan which indicates the routing of the sanitary, storm and water service with the burial depths for all sewers and water service.
6. Water distribution system sizing criteria and calculations.
7. Water supply and distribution piping plan showing the incoming water supply, distribution piping, and pipe size, the location of the water hammer arrestors and the location of the valves.
8. The location of all backflow preventers, the type of backflow preventers provided for each piece of equipment or outlet and the specified quality control standards referenced in the code.
9. Drainage system piping plan showing the layout of all piping, of plumbing fixtures and the location of cleanouts.
10. Riser diagram(s) of the drain, waste and vent piping including the building drain, all horizontal branches and the connections and layout of all fixtures. Pipe sizes, directions of flow, grade of horizontal piping, drainage fixture loads and the method of venting all plumbing fixtures.

11. The location of all indirect waste connections, standpipes, grease traps and separators and sizing, if applicable.
12. Complete details of the water heater, the method of supplying tempered water to accessible fixtures and the temperature and pressure relief valve discharge.
13. Complete details of the method of draining storm water from the roof including calculations to verify pipe and /or gutter size, the location of all roof drains and the roof area that each group of roof drains is intended to serve and an independent secondary roof drainage system.
14. Piping material specifications to verify compliance with the specified quality control standards for all sanitary, storm and potable water piping (e.g., ASTM B88 for cooper pipe), the type of joints and connections for all piping, the pipe hanger support spacing and details of anchorage and bracing.



Electrical Plan Review Requirements

1. Complete plans and specifications of all electrical work.
2. Labeling criteria of all electrical equipment.
3. Lighting floor plan including electrical circuits indicating conduit and wiring sizes.
4. Power floor plans including electrical circuits indicating conduit and wiring sizes, equipment and disconnect switches.
5. Exit sign/means of egress lighting location and power supply.
6. Single line diagram including the available fault current and bus bracing.
7. Panel board schedule.
8. Lighting fixtures schedule.
9. Symbol schedule and diagrams.
10. Provide all service and loads calculations.
11. Specifications to include requirements for:
 - a. Raceway and conduit with fittings.
 - b. Wire and cable.
 - c. Electrical boxes, and fittings and installation.
 - d. Electrical connections.
 - e. Electrical wiring devices.
 - f. Circuit and motor disconnects.
 - g. Hangers and supporting devices.
 - h. Electrical identification.
 - i. Service entrance and details.
 - j. Overcurrent protection.
 - k. Switchboards.
 - l. Grounding.
 - m. Transformers
 - n. Panelboards.
 - o. Motor control centers.
 - p. Lighting fixtures.

Energy Plan Review Requirements

Commercial Energy Plan Reviews are based on Chapter 7 of the IECC or the referenced edition of *ASHRAE/IES 90.1-1989*, Energy Code for Commercial and High-Rise Residential Buildings as applicable. In order to perform a thorough Energy Plan Review,

the following specifications, drawings and details should be submitted:

Envelope

1. Architectural plans and specifications to include:
 - a. Description of uses and the proposed use group(s) for all portions of the building.
 - b. Thermal performance of envelope components
 - c. Fenestration performance details (U-factor, SC, SHGC, VLT, air leakage rates, etc.).
 - d. Fully dimensioned drawings to determine gross and net areas of all envelope components.
 - e. Details of vapor barrier and insulation installation, caulking, gasketing, weather stripping and other means of sealing joints, cracks, holes and penetrations in the building envelope.
 - f. ENVSTD output (where applicable).^a
2. Design conditions (interior and exterior) consistent with local climate.

Electrical Power & Lighting^b

1. Complete plans and specifications of all electrical work.
2. Riser diagrams(s) of the distribution system indicating:
 - a. Check metering provisions for individual dwelling units.
 - b. Subdivision of feeders by end use: 1) Lighting, 2) HVAC, 3) SWH and systems over 20 kW.^a
3. Lighting fixture schedule(s) depicting location, fixture lamps, ballasts, ballast specifications, fixture input watts, fixture wiring methods power factor, etc.
4. Lighting plans(s) for building exterior including total exterior Connected Lighting Power (CLP).
5. Lighting and power floor plans for building interiors including total interior CLP.
6. LTGSTD output (where applicable).
7. Interior and exterior means of lighting control.
8. Electric motor schedule including type, HP and efficiencies.^a

Mechanical System & Equipment

1. Mechanical equipment data, plans and specifications of all mechanical work including:
 - a. Equipment type, capacity (Btuh) and efficiency (peak and part-load).
 - b. System design air flow rates (cfm).
 - c. Details of equipment/system sizing.
 - d. System and/or zone control capabilities including terminal device schedule, provisions for humidity control (where applicable) and the corresponding testing of system controls.^a
 - e. Provisions or automatic setback/shutdown.
 - f. Indicate supply and exhaust systems to have automatic shutoff or volume reduction dampers.
 - g. Energy consumed by fans in the form of an Air Transport Factor (ATF) and pumps.
2. Economizers (air or water) including provisions for integrated control.^a
3. Duct construction and system static pressure(s), including provisions for sealing.
4. Duct and/or hydronic-piping lining and insulation materials.
5. Provisions for air and/or hydronic system balancing.
6. Boiler and water heater equipment and piping details including safety controls and distribution piping layout.

Service Water Heating (SWH)

1. SWH equipment data including type, capacity and efficiency.
2. SWH pipe insulation, thickness, conductivity and vapor retarder (where appropriate).
3. Water conservation requirements.
4. Energy conservation measures for swimming pools (where applicable).

Footnotes:

- ^a Commercial buildings and residential buildings greater than three stories in height only.
- ^b Multi-family residential buildings three stories or less in height, the non-dwelling-unit portions only.

Accessibility Plan Review Requirements

Accessibility Plan Reviews are based on the specified edition of the ICC/ANSI A117.1 standard as referenced by the building code. In order to perform a thorough Accessibility Plan Review, the following specifications, drawings and details should be submitted.

1. Complete architectural plans and material specifications of all work. Details and plans drawn to scale with sufficient clarity, details and dimensions to show the nature and extent of the work proposed.
2. A site plan including the following information:
 - a. Size and location of all new construction and all existing structures on the site.
 - b. Location of any recreational facilities (i.e., pool, tennis courts, etc.)
 - c. Established street grades and proposed finished grade.
 - d. Accessible parking, other locations of public access to the facility, accessible exterior routes and locations of accessible entrances.
3. Architectural plans and specifications to include:
 - a. Description of uses and the proposed use group(s) for all portions of the building. The design approach for mixed-uses, as applicable.
 - b. Fully dimensioned drawings to determine areas and building height.
 - c. Adequate details and dimensions to evaluate accessible means of egress, including occupant loads for each floor, exit arrangement and sizes, corridors, doors, stairs, areas of refuge, etc.
 - d. Adequate details and dimensions to evaluate the accessible route to areas required to be accessible, including corridors, doors, protruding objects, maneuvering clearances, clear floor space at fixtures and controls, etc.
 - e. Accessibility provisions including but not limited to access to services, seating, listening systems, accessible fixtures, elevators, work surfaces, etc.
 - f. Accessible plumbing facilities and details.
 - g. Tactile signage provided.
 - h. Details of required fire protection systems.

Note: The ICC Accessibility Review will cover the scoping requirements in Chapter 11 of the IBC and other accessibility related requirements mainstreamed throughout the applicable building code. Technical requirements covered will be based on the applicable edition of ICC/ANSI A117.1.

