

## Submittal Guide and Building Plan Requirements for Commercial Projects

### The following items are required for new commercial projects.

Drawings should be drawn to scale and shall provide the necessary information to verify compliance with the building code.

### All drawings shall bear the stamp and signature of the design professional responsible for the design.

In addition to submitting 2 sets of construction drawings it is highly recommended an Electronic copy is submitted also (they can be submitted via email, thumb drive or compact disc). Failure to provide an electronic copy may result in additional charges.

### **Two (2) sets of construction drawings shall be submitted and shall include:**

1. **Title Page Drawing;** to include the contact information for all design professionals, description of square footage per floor, number of floors, type of construction to be utilized, area modifications utilized, use group classification(s), separation or non- separation of mixed use groups, design occupant load(s), finish materials classification, design codes utilized.
2. **Site Plan Drawings;** to include all utility layouts, handicap parking & access, designated fire lanes, distance between adjacent structures and property lines.
3. **Floor Plan Drawings;** to include the use of all areas, location & types of fire resistant construction, U.L. Listing of fire resistant construction, means of egress components, handicap access.
4. **Structural Drawings;** to include the structural design calculations, geo-technical engineering report, uniform live loads, dead loads, roof & snow loads, wind loads, footing construction detail, foundation construction details, framing construction details, concrete construction details, masonry construction details, wood construction details, steel construction details.
5. **Electrical Drawings;** to include all lighting facilities, electrically operated equipment, and electrical circuits required for all service equipment of the building or structure. Drawings should include panel schedules, grounding systems, and wiring methods.
6. **Mechanical Drawings;** to include size & type of appliances, construction of flues and chimney systems, ventilation air provided, fresh air make-up provided, location of all ducting and piping.
7. **Plumbing Drawings;** to include a plan view and a riser diagram of waste & water piping, pipe sizing, grade of piping, drainage fixture unit loads on stacks and drains, water distribution design criteria.
8. **Fire Protection Systems;** to include the submittal guide for each type of system. See specific submittal guide requirements.

**▶ PLAN SUBMITTAL REQUIREMENTS FOR COMMERCIAL CONSTRUCTION ◀**

**PLANS AND SPECIFICATIONS:**

*Your Plan Review will reflect the extent and completeness of the documents you submit. This document is a listing (by discipline) of the plans, specifications, and engineering details which should be submitted. Please submit two complete sets of materials when requesting a Plan Review.*

**▶ BUILDING PLAN REQUIREMENTS:** {The following specifications, drawings and details should be submitted}

Complete signed and sealed architectural plans, structural plans and material specifications of all work.

A site plan including the following information:

- Size and location of all new construction and all existing structures on the site.
- Distances from lot lines.
- Established street grades and proposed finish grades.

Architectural plans and specifications to include:

- Description of uses and the proposed use group(s) for all portions of the building. The design approach for mixed-uses (as applicable).
- Proposed type of construction of the building.
- Fully dimensioned drawings to determine areas and building height.
- Adequate details and dimensions to evaluate means of egress, including occupant loads for each floor, exit arrangement and sizes, corridors, doors, stairs, etc.
- Exit signs/means of egress lighting, including power supply.
- Accessibility provisions.
- Description and details of proposed special occupancies such as a covered mall, high-rise, mezzanine, atrium, public garage, etc.
- Adequate details to evaluate fire resistive construction requirements, including data substantiating required ratings.
- Details of plastic, insulation, and safety glazing installation.
- Details of required fire protection systems.

Structural plans, specifications, and engineering details to include:

- Soils report indicating the soil type and recommended allowable bearing pressure and foundation type.
- Signed and sealed structural design calculations which support the member sizes on the drawings.
- Local design load criteria, including frost depth.
- Earthquake seismic zone/effective peak acceleration coefficient.
- Details of foundations and superstructure.
- Provisions for required special inspections.
- Applicable construction standards and material specifications (i.e., masonry, concrete, wood, steel, etc.).

**▶ MECHANICAL PLAN REQUIREMENTS:**

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

Complete signed and sealed plans and specifications of all heating, ventilating and air conditioning work.

Labeling criteria of all mechanical equipment.

Heating equipment data including the following information:

- Equipment capacity (BTU).
- Controls.
- Appliance layouts showing location, access and clearances.
- Disconnect switches.
- Indoor and outdoor design temperatures.

Ventilation data, ductwork and equipment including the following:

- Ventilation schedule indicating the amount of outside air (in c.f.m.) supplied to each room or space.
- Layout showing outside air intakes.
- Construction of ducts, including support and sheet metal thickness.
- Duct lining and insulation materials with flame spread and smoke-developed ratings.
- Exhaust fan ductwork layout and termination to the outside.
- Size of louvers and grilles for attic ventilation.

Boiler and water heater equipment and piping details including safety controls and distribution piping layout.

Gas and fuel oil piping layout, material, sizes, and valves.

Combustion air intake quantities and details.

Commercial kitchen exhaust equipment details including hood and fan drawings, details of automatic fire suppression, and clearances.

Chimney and chimney connector or vent and vent connector details and connector gages and clearances.

Mechanical refrigeration equipment data and details.

Solid fuel burning appliance details including incinerator and fireplace drawings and details.

Energy conservation equipment data and details.

**► PLAN SUBMITTAL REQUIREMENTS FOR COMMERCIAL CONSTRUCTION ◀**

**► PLUMBING PLAN REQUIREMENTS:**

In order to perform a thorough Plumbing Plan Review, the following specifications, drawings and details should be submitted:  
 Complete signed and sealed plans and specifications of all plumbing work.  
 Plumbing fixture and piping material specifications including identification of the applicable referenced standard.

Plumbing fixture information to include:

The occupant load used to determine the number of required plumbing fixtures.	Separate facilities for each sex.	Anti-scald shower valves.
Number and distribution based on the use group.	Accessible plumbing facilities and details.	

Plumbing piping plan showing layout, pitch of drainage lines, cleanouts, size of traps, and riser diagram.  
 Water supply and distribution plan showing piping sizes, valves, water heater details and temperature-pressure relief valve with discharge pipe.  
 Sanitary drainage and vent system riser diagram showing drainage fixture units (dfu), sizes and vent termination details through the roof.  
 Potable water system riser diagram showing piping sizes and provisions for protection of potable water supply.  
 Piping support and installation schedule.  
 Storm drainage details including rain gutter or roof drain sizes and downspout/leader sizes.  
 Health care plumbing and fixture details.

**► ELECTRICAL PLAN REQUIREMENTS:**

In order to perform a thorough Electrical Plan Review, the following specifications, drawings and details should be submitted:  
 Complete signed and sealed plans and specifications of all electrical work.  
 Labeling criteria of all electrical equipment.  
 Lighting floor plan including electrical circuits indicating conduit and wiring sizes.  
 Power floor plans including electrical circuits indicating conduit and wiring sizes, equipment and disconnect switches.  
 Exit sign/means of egress lighting location and power supply.  
 Panelboard schedule. Lighting fixture schedule. Symbol schedule and diagrams.  
 Specifications to include requirements for:

1. Raceway and conduit with fittings.	11. Switchboards.
2. Wire and cable.	12. Grounding.
3. Electrical boxes, fittings and installation.	13. Transformers.
4. Electrical connections.	14. Panelboards.
5. Electrical wiring devices.	15. Motor control centers.
6. Circuit and motor disconnects.	16. Lighting fixtures.
7. Hangers and supporting devices.	17. Fire protective signaling systems.
8. Electrical identification.	18. Automatic fire detection systems.
9. Service entrance and details.	19. Emergency/standby systems.
10. Overcurrent protection.	

**► SPRINKLER PLAN REQUIREMENTS:**

In order to perform a thorough Sprinkler Plan Review, the following items should be submitted:  
 Complete signed and sealed plans and specifications for the sprinkler system and related equipment with description and locations of uses within the building. Design details in accordance with the appropriate reference standard (i.e. NFPA 13, 13D, 13R) as referenced by the ICC International Building Code:

Working plans shall be drawn to an indicated scale, on sheets of uniform size, with a plan of each floor, and shall show those items from the following list that pertain to the design of the system.

- i. Name of owner and occupant.
- ii. Location, including street address.
- iii. Point of compass.
- iv. Full height cross section, or schematic diagram, including structural member information if required for clarity and including ceiling construction and method of protection for nonmetallic piping.
- v. Location of partitions.
- vi. Location of fire walls.
- vii. Occupancy class of each area or room.
- viii. Location and size of concealed spaces, closets, attics, and bathrooms.
- ix. Any small enclosures in which no sprinklers are to be installed.
- x. Size of city main in street and whether dead end or circulating; if dead end, direction and distance to nearest circulating main; and city main test results and system elevation relative to test hydrant (see A-9-2.1).
- xi. Other sources of water supply, with pressure or elevation.
- xii. Make, type, model, and nominal K-factor of sprinklers.
- xiii. Temperature rating and location of high-temperature sprinklers.
- xiv. Total area protected by each system on each floor.

## ► PLAN SUBMITTAL REQUIREMENTS FOR COMMERCIAL CONSTRUCTION ◀

### SPRINKLER PLAN REQUIREMENTS, Cont.

- xv. Number of sprinklers on each riser per floor.
- xvi. Total number of sprinklers on each dry pipe system, preaction system, combined dry pipe-preaction system, or deluge system.
- xvii. Approximate capacity in gallons of each dry pipe system.
- xviii. Pipe type and schedule of wall thickness.
- xix. Nominal pipe size and cutting lengths of pipe (or center-to-center dimensions). Where typical branch lines prevail, it shall be necessary to size only one typical line.
- xx. Location and size of riser nipples.
- xxi. Type of fittings and joints and location of all welds and bends. The contractor shall specify on drawing any sections to be shop welded and the type of fittings or formations to be used.
- xxii. Type and locations of hangers, sleeves, braces, and methods of securing sprinklers when applicable.
- xxiii. All control valves, check valves, drain pipes, and test connections.
- xxiv. Make, type, model, and size of alarm or dry pipe valve.
- xxv. Make, type, model, and size of preaction or deluge valve.
- xxvi. Kind and location of alarm bells.
- xxvii. Size and location of standpipe risers, hose outlets, hand hose, monitor nozzles, and related equipment.
- xxviii. Private fire service main sizes, lengths, locations, weights, materials, point of connection to city main; the sizes, types and locations of valves, valve indicators, regulators, meters, and valve pits; and the depth that the top of the pipe is laid below grade.
- xxix. Piping provisions for flushing.
- xxx. Where the equipment is to be installed as an addition to an existing system, enough of the existing system indicated on the plans to make all conditions clear.
- xxxi. For hydraulically designed systems, the information on the hydraulic data nameplate.
- xxxii. A graphic representation of the scale used on all plans.
- xxxiii. Name and address of contractor.
- xxxiv. Hydraulic reference points shown on the plan that correspond with comparable reference points on the hydraulic calculation sheets.
- xxxv. The minimum rate of water application (density), the design area of water application, in-rack sprinkler demand, and the water required for hose streams both inside and outside.
- xxxvi. The total quantity of water and the pressure required noted at a common reference point for each system.
- xxxvii. Relative elevations of sprinklers, junction points, and supply or reference points.
- xxxviii. If room design method is used, all unprotected wall openings throughout the floor protected.
- xxxix. Calculation of loads for sizing and details of sway bracing.
  - xl. The setting for pressure-reducing valves.
  - xli. Information about backflow preventers (manufacturer, size, type).
  - xlii. Information about antifreeze solution used (type and amount).
  - xlili. Size and location of hydrants, showing size and number of outlets and if outlets are to be equipped with independent gate valves. Whether hose houses and equipment are to be provided, and by whom, shall be indicated. Static and residual hydrants that were used in flow tests shall be shown.
  - xliv. Size, location, and piping arrangement of fire department connections.

*Design calculations indicating the discharge requirements of the system with evaluation of the arrangement and source of the water supply. Results of a current flow test indicating the location and date of the test. Working drawings indicating all pipe sizes and the spacing between branch lines and sprinklers on the branch line. Material specifications and equipment specifications. All materials used should be verified that they are installed in accordance with their listing.*

### ► ENERGY PLAN REVIEW REQUIREMENTS:

Commercial Energy Plan Reviews are based on Chapter 7 of the IECC or the referenced edition of *ASHRAE/IER 90.1, Energy Code for Commercial and High-Rise Residential Buildings* as applicable.

In order to perform a thorough Energy Plan Review for commercial buildings and residential buildings greater than three stories in height, the following specifications, drawings and details should be submitted:

#### GENERAL

1. Complete signed and sealed architectural, mechanical, plumbing and electrical plans and specifications of all work.
2. A site plan including the size and location of all new construction and all existing structures on the site.
3. Interior and exterior design conditions consistent with climate.
4. Labeling criteria of all mechanical, electrical and service water heating (SWH) peripherals and equipment.

#### 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, weatherstripping and other means of sealing joints, cracks, holes and penetrations in the building envelope.
  - f. ENVSTD output (where applicable).
2. Design conditions (interior and exterior) consistent with local climate.

## ► PLAN SUBMITTAL REQUIREMENTS FOR COMMERCIAL CONSTRUCTION ◀

### ENERGY PLAN REQUIREMENTS, Cont.

#### ELECTRICAL POWER & LIGHTING

1. Complete plans and specifications of all electrical work.
2. Riser diagram(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.
3. Lighting fixture schedule(s) depicting location, fixture lamps, ballasts, ballast specifications, fixture input watts, fixture wiring methods, power factor, etc.
4. Lighting plan(s) for building exteriors including total exterior Connected Lighting Power.
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.

#### MECHANICAL SYSTEMS & EQUIPMENT

1. Mechanical equipment data, plans and specifications of all mechanical work including:
  - a. Equipment type, capacity (Btu/h) 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. <sup>a</sup>
  - e. Provisions for 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. <sup>a</sup>
2. Economizers (air or water) including provisions for integrated control. <sup>a</sup>
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).
  - <sup>a</sup> Commercial buildings and residential buildings greater than three stories in height only.
  - <sup>b</sup> Multifamily residential buildings three stories or less in height; the non-dwelling-unit portions only.

### ► ACCESSIBILITY PLAN 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 signed and sealed (as required by applicable laws) 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 Accessibility Review will cover the scoping requirements in Chapter 11 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. Accessible and Usable Buildings and Facilities.*

## DIRECTIONS TO THE SITE LOCATION

Please give directions to the work site from a known landmark and/or intersection. Use a directional drawing also in the space provided below if that would assist.

Applicant: \_\_\_\_\_ Phone: \_\_\_\_\_

Site Street Address: \_\_\_\_\_

Directions: \_\_\_\_\_

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Use this space if needed to further clarify the site location:

Please Note: Inspectors cannot inspect what they cannot find, Be certain the directions are clear. Use Road or Street names, distances between turn offs, and the direction of that travel (North South East or West). Landmarks are very helpful.