



## PLAN REVIEW SERVICES

# CONSTRUCTION DOCUMENTS NECESSARY FOR A THOROUGH PLAN REVIEW

### **PRELIMINARY BUILDING REVIEW**--two sets of the following:

- Architectural/engineering design development drawings indicating size of the building, occupancy group(s), and type of construction. Drawings to include building plans and sections with means of egress, fire separation assembly locations and fire protection systems proposed.
- Soil boring and geotechnical recommendations report
- Foundation structural calculations

### **BUILDING REVIEW**--two sets of the following:

- Complete architectural/structural plans
- Site plan, including distance to lot lines
- Soil boring and geotechnical recommendations report, including the description and bearing value
- Structural calculations or other substantiation of structural performance
- General specifications
- Fire-resistance rated assembly specifications

### **COMPLETE REVIEW** (Building, Mechanical, Plumbing and Electrical)--two sets of the following:

- The documentation needed for a Building Review
- Complete Mechanical plans and specifications
- Complete Plumbing plans and specifications
- Complete Electrical plans and specifications

### **ACCESSIBILITY REVIEW**--two sets of the following unless requested with a review for another discipline, then two sets are required:

- Complete architectural/structural plans
- General specifications

### **ENERGY REVIEW**--an additional set of the following documents in addition to any documents required for disciplines listed above:

- Complete architectural plans, site plan and general specifications
- Design conditions (interior and exterior) consistent with local climate
- Envelope design method, including supporting calculations and documentation
- Complete mechanical plans, specifications and equipment schedules
- Complete plumbing plans and specifications
- Complete electrical plans and specifications
- Interior lighting design method, including supporting calculations and documentation
- Lighting fixture and control schedules (building interiors and exteriors)

*NOTE: Construction documents should be signed, sealed and dated by the registered design professional in accordance with the professional registration laws of the state in which the project is to be constructed.*



## PLAN REVIEW SERVICES

# BUILDING PLAN REVIEW REQUIREMENTS

Building Plan Reviews are based on the specified edition of the *International Building Code*® unless otherwise directed. In order to perform a thorough Building Plan Review, the following specifications, drawings and details should be submitted:

1. Complete signed and sealed (as required by applicable laws) 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 and any existing buildings or structures.
  - c. Established street grades and proposed finish grades.
3. Architectural plans and specifications to include:
  - a. Description of uses and the proposed occupancy 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. Fully dimensioned drawings to determine building areas and 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. Local design load criteria, including: frost depth; live loads; snow loads; wind loads; earthquake design data; other special loads.
  - d. Details of foundations and superstructure.
  - e. Provisions for required special inspections.
  - f. Applicable construction standards and material specifications (i.e., masonry, concrete, wood, steel, etc.).

## PLAN REVIEW SERVICES

# MECHANICAL PLAN REVIEW REQUIREMENTS

Mechanical Plan Reviews are based on the specified edition of the *International Mechanical Code*® (IMC®) and *International Fuel Gas Code*® (IFGC®) unless otherwise directed. In order to perform a thorough Mechanical Plan Review, the following specifications, drawings and details should be submitted:

1. Complete signed and sealed (as required by applicable laws) 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 referenced material 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 ft<sup>2</sup>, the floor area of the space and the amount of outdoor air supplied to each space. If 2009 IMC requirements are used, complete calculations clearly denoting equations and factors must be provided.
5. The location of all outdoor air intakes with respect to sources of contaminants.
6. Duct construction and installation methods, flame spread/smoke development ratings of materials, flexible air duct and connector listing, sealing of duct joints, seams and connections and duct support spacing.
7. Condensate disposal, routing of piping and auxiliary and secondary drainage systems.
8. Required exhaust systems, routing of ducts and termination to the exterior.
9. Complete details of all Type I and II kitchen hoods, grease duct construction and velocity, clearance to combustibles and fire suppression system.
10. Details of all duct penetrations through fire-resistance rated assemblies including locations for all fire dampers, smoke dampers and ceiling radiation dampers along with applicable fire protection ratings and labeling requirements.
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 the routing of the vent.
13. Boiler and water heater equipment and piping details including safety controls, gauges, valves and distribution piping layout.
14. Details on the type and quantity 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, the pressure drop and applicable gas pipe sizing Table(s) in the IFGC.)

## **PLAN REVIEW SERVICES**

# **ELECTRICAL PLAN REVIEW REQUIREMENTS**

Electrical Plan Reviews are based on the specified edition of the *National Electrical Code*® as referenced by the *International Building Code*® unless otherwise directed. In order to perform a thorough Electrical Plan Review, the following specifications, drawings and details should be submitted:

1. Complete signed and sealed (as required by applicable laws) plans and specifications of all electrical work.
2. Labeling criteria of all electrical equipment.
3. Lighting floor plan including fixture locations, electrical circuits, circuit numbers, and panel locations.
4. Power floor plans including electrical circuits, wiring sizes, panel locations, working clearances and electrical room egress, disconnect switches, receptacle locations including GFCI locations and required arc fault protected circuits.
5. Exit sign/means of egress lighting location and power supply.
6. Single line diagram and panelboard schedule including AIC rating and available fault current and the calculated service load with a load distribution schedule.
7. Lighting fixture schedule.
8. Symbol schedule and diagrams.
9. Details showing the grounding electrodes, bonding of the grounding electrode system and the size of all bonding and grounding electrode conductors for the service.
10. Specifications to include requirements for:
  - a. Wire, cable, raceway and conduit with fittings.
  - b. Electrical boxes, connections, fittings and installation.
  - c. Electrical wiring devices.
  - d. Circuit and motor disconnects, and motor control centers.
  - e. Hangers and supporting devices.
  - f. Electrical identification.
  - g. Service entrance and details.
  - h. Overcurrent protection and grounding.
  - i. Switchboard and panelboards.
  - j. Transformers.
  - k. Lighting fixtures.

## **PLAN REVIEW SERVICES**

# **PLUMBING PLAN REVIEW REQUIREMENTS**

Plumbing Plan Reviews are based on the specified edition of the ICC *International Plumbing Code*® unless otherwise directed. In order to perform a thorough Plumbing Plan Review, the following specifications, drawings and details should be submitted:

1. Complete signed and sealed (as required by applicable laws) plans and specifications of all plumbing work.
2. Plumbing fixture specifications including identification of the applicable referenced material 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 applicable occupancy group(s) and fixture rate(s).
4. Dimensions for bathrooms and plumbing fixture locations along with the wall and floor surface materials to be installed.
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, pipe size, the location of water hammer arrestors and the location of all valves.
8. The location of all backflow preventers, the type of backflow preventers provided for each piece of equipment or outlet and the specified material 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, direction 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.
12. Complete water heater details, temperature and pressure relief valve discharge, discharge piping and pan details along with the method of supplying tempered water to required fixtures.
13. Complete details of the method of draining storm water from the roof including calculations to verify pipe and/or gutter sizes, 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 referenced material standards for all sanitary, storm and potable water piping (e.g., ASTM B88 for copper pipe), the type of joints and connections for all piping, the pipe hanger support spacing and details of anchorage and bracing.

## PLAN REVIEW SERVICES

# ACCESSIBILITY PLAN REVIEW REQUIREMENTS

Accessibility Plan Reviews are based on the specified edition of the ICC/ANSI A117.1 standard as referenced by the applicable *International Building Code®* (IBC®) unless otherwise directed. 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 occupancy 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, ramps, handrails, 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, dining, listening systems, accessible fixtures, elevators, work surfaces, etc.
  - f. Accessible plumbing facilities and details.
  - g. Visual and tactile signage provided.
  - h. Details of required fire protection systems and user controls.

*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, Accessible and Usable Buildings and Facilities. Any local, state or federal provisions, laws or regulations are beyond the scope of the review.*



## ENERGY PLAN REVIEW REQUIREMENTS

Residential Energy Plan Reviews are based on the specified edition of the ICC *International Energy Conservation Code*® (IECC®). Commercial Energy Plan Reviews are based on Chapter 5 of the IECC or the referenced edition of ASHRAE 90.1 unless otherwise directed. In order to perform a thorough Energy Plan Review, the following specifications, drawings and details should be submitted:

1. Complete signed and sealed (as required by applicable laws) plans and specifications as indicated below.
2. Envelope—Architectural plans and specifications to include:
  - a. Description of uses and the proposed occupancy 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, and air sealing methods.
  - f. REScheck, COMcheck, or ENVSTD output (where applicable).
  - g. Design conditions (interior and exterior) consistent with local climate.
3. Electrical—Complete plans and specifications of all electrical power and lighting work including:
  - a. Riser diagram(s) of the distribution system indicating:
    - i. Check metering provisions for individual dwelling units.
    - ii. Subdivision of feeders by end use: 1) Lighting, 2) HVAC, 3) SWH and systems over 20 kW.
  - b. Lighting fixture schedule(s) depicting location, fixture lamps, ballasts, ballast specifications, fixture input watts, fixture wiring methods, power factor, etc.
  - c. Lighting plan(s) for building exteriors including total exterior Connected Lighting Power (CLP).
  - d. Lighting and power floor plans for building interiors including total interior CLP.
  - e. REScheck, COMcheck, or LTGSTD output (where applicable).
  - f. Interior and exterior means of lighting control.
  - g. Electric motor schedule including type, HP and efficiencies.
4. Mechanical—Complete 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.
  - e. Provisions for automatic setback/shutdown.
  - f. Indicate intentions or plans for systems commissioning.
  - g. Energy consumed by fans and pumps.
  - h. Economizers (air or water) including provisions for integrated control.
  - i. Duct construction and system static pressure(s), including provisions for sealing.





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- j. Duct and/or hydronic-piping lining and insulation materials.
  - k. Provisions for air and/or hydronic system balancing.
  - l. Boiler and water heater equipment and piping details, safety controls and distribution piping layout.
5. Service water heating (SWH)—Complete SWH specifications including:
- a. SWH equipment data including type, capacity and efficiency.
  - b. SWH pipe insulation, thickness, conductivity and vapor retarder (where appropriate).
  - c. Water conservation requirements.
  - d. Energy conservation measures for swimming pools (where applicable).