

Catawba County Building Services

Plan Submittal requirements for Commercial Projects

This list *does not* include requirements for Zoning, Fire Prevention, Environmental Health, Erosion Control, and Site Drainage & Detention from any jurisdiction within Catawba County. Contact the jurisdiction involved for any or all of the above regulations.

For City of Hickory Fire Prevention requirements go to:

<http://www.hickorygov.com/fire/fireprevention/BuildingConstructionPlanReviewSubmittalRequirements.pdf>

Each item in this list will not apply to every project.

All sheets in the set *shall be the same size with exception for metal building erection drawings. All sheets in the set shall be stapled together in the order below* to form a complete set.

COMMERCIAL CONSTRUCTION: Site Development

Plans shall be drawn to a standard engineering scale.

All drawings shall be sealed, signed, and dated, by the project designer.

- ___ a. Site plans shall be prepared to scale, with legend, north arrow, and vicinity map.
- ___ b. Provide the correct street address, parcel number, and zoning jurisdiction on the site plans.
- ___ c. Provide and identify all property lines and rights-of-way, with distance from property lines and adjacent buildings on site plans.
- ___ d. Provide handicapped parking spaces and signage on site plan per NCBC Vol. 1-C.
- ___ e. Provide handicapped curb cuts and access ways to the building.
- ___ f. Provide all existing and proposed driveway entrances.
- ___ g. Provide all easements and flood ways.
- ___ h. Provide existing and proposed utilities to serve the site.
- ___ i. Provide existing and proposed grades.
- ___ j. Provide details, sections, and elevations needed for construction.
- ___ k. Provide all required parking and loading spaces and calculations.
- ___ l. Provide locations of all new and existing storm drainage. Identify pipe type and size.

COMMERCIAL CONSTRUCTION: Architectural Plans

Plans shall be drawn to a standard architectural scale.

All drawings shall be sealed, signed, and dated, by the project designer.

- ___ a. Provide an Appendix "B" code summary reproduced on the first or second sheet in the set filled out in its entirety.
- ___ b. Provide floor plans of each floor including demolition where required. Show all fire-rated walls (both existing and new) with their ratings.
- ___ c. Provide the square footage of each floor on the corresponding floor plans.
- ___ d. Identify the names and uses of each room. Provide ages of children in educational occupancies.
- ___ e. Indicate door schedule(s) that defines the applicable rated doors, frames, and hardware.
- ___ f. Provide all glass schedules identifying glass types.
- ___ g. Provide elevations with dimensions defining overall building height, floor-to-floor heights, or heights to ridge and eave as applicable to the type of building construction proposed.
- ___ h. Provide basement percentage below grade calculations.
- ___ i. Indicate roof slopes, drainage system, and size of through wall scuppers.
- ___ j. Provide the number of fixed and loose seating for assembly occupancy to allow determination of occupancy posting.

- ___ k. Provide wall sections with proposed material sizes, construction and fire-rated assemblies.
- ___ l. Provide proposed plumbing fixtures and privacy screens on the plans.
- ___ m. If masonry construction is proposed, include the following information:
 - ___ Type of brick ties and spacing of weep holes
 - ___ Control joints
 - ___ Location of wall flashing and reinforcement per ACI 530.
- ___ n. Provide the extent of the hazardous locations and submit complete data on the type and amount of materials stored, processed, manufactured or used in the storage or manufacturing of products in this facility. Provide Material Safety Data Sheets.
- ___ o. Provide the floor slab vapor barrier.
- ___ p. Provide Foundation water proofing.
- ___ q. For pre-engineered metal buildings, submit the Metal Building Plans or the manufacturer's letter of engineering certification and a sealed foundation plan with complete architectural plans. The Metal Building Plans shall state model number, size, column reactions and design loads for the building. The foundation plans shall be designed by a registered architect or engineer and identify the anchor bolt layout and size of reinforcement in the footings or turndown slab.
- ___ r. Indicate and reproduce on the plans the approved tested hourly rating, number and location of all rated assemblies i.e. walls, columns, beams, floor and ceiling, and ceiling and roof fire-rated design assemblies. All penetrations of fire rated construction shall be reproduced on the plans exactly as tested by an approved testing laboratory or agency and shall include their system numbers. New penetrations of existing fire rated walls and assemblies shall be shown with appropriate designs.
- ___ s. All fabric awnings or canopies shall be accompanied by a letter of certification of fire resistance from the manufacturer. Fabric awnings and canopies shall meet ground snow loads of Figure 1204.1 and be constructed to support all live and dead loads according to Chapter 16 of Volume 1 North Carolina State Building Code.
- ___ t. Provide Penthouse drawings.
- ___ u. Provide the calculations for the means of egress widths for the entire floor occupancy load and the existing capacity of all exits including all stairs, doors, corridors and ramped exits.
- ___ v. Provide attic ventilation. Identify size of louvers and vents.
- ___ w. Provide attic access and size.

COMMERCIAL CONSTRUCTION: Structural Plans

Plans shall be drawn to a standard architectural scale.

All drawings shall be sealed, signed, and dated, by the project designer.

- ___ a. Provide foundation plans showing the proposed slab elevations, types of foundation (i.e. mat foundation, caissons, spread footings, retaining walls, etc.).
- ___ b. Provide preliminary soil analysis data done by a Registered Engineering Testing Company, if required.
- ___ c. Indicate dimensions of foundations.
- ___ d. Provide type, size and location of piling and pile caps for pile foundation.
- ___ e. Indicate grade beam sizes.
- ___ f. Indicate a footing schedule defining footing sizes and the required reinforcing.
- ___ g. Provide the established footing depth below grade.
- ___ h. Indicate the thickness of the floor slab, size of reinforcing, slab elevations, and type and details of foundations.
- ___ i. Indicate location, size and amount of reinforcing steel.
- ___ j. Provide foundation corner reinforcing bars and minimum overlapping (as applicable to project structure).
- ___ k. Provide strength of concrete according to design, soil reports.
- ___ l. Provide beams, joists, girders, rafters, and/or truss layouts and details of connections, structural steel stud gage, and gage size, connections.
- ___ m. Indicate the sizes and species of all wood members and their respective design strength.
- ___ n. Provide all columns, girders, joists, purlins, beams and base plates and for wood construction show all headers.
- ___ o. Provide a complete lintel schedule.
- ___ p. Indicate the type of anchoring for steel bearing directly on masonry.

___ q. Indicate design dead and live, wind, snow, seismic loads for floors areas, roofs, balconies, porches, breezeways, corridors, stairs, mezzanines and platforms. Show concentrated loads, i.e. file rooms, machinery and forklift areas, if greater than those shown on the Code Summary Sheet. Identify shear walls, bracing, strapping fastening, reinforcement and any special anchoring required.

___ r. Indicate on roof framing plan where concentrated loads (mechanical equipment, cranes, etc.) may be placed.

___ s. Indicate on foundation and framing plans the location and lateral load resisting system. (Show walls, braced frames, moment connections, etc.)

COMMERCIAL CONSTRUCTION: Plumbing Plans

Plans shall be drawn to a standard architectural scale.

All drawings shall be sealed, signed, and dated, by the project designer.

___ a. Provide a Site Utilities Plan if not provided with the Civil Drawings.

___ Provide the potable water, fire, and irrigation services.

___ Provide the location of the water meters, backflow protection type and location, and shutoff valves.

___ Provide the Sanitary Sewer service from the building to an approved system.

___ b. Provide interceptors when required. Provide size by flow rate. (ie. grease, oil, lint, acid, sand).

___ c. Provide plumbing plan layouts for each floor. These shall show the water distribution piping, drain-waste-vent piping, details, notes, legends, and schedules necessary to define the system being installed.

___ d. Provide the location of all major components required for a complete system.

___ e. Provide fixture and equipment schedule showing fixture number, detailed description; hot water, cold water, waste and vent connection sizes and other pertinent data.

___ f. Identify all fixtures on floor plans and in riser diagrams with the plumbing fixture schedule number.

___ g. Supply and Waste/Vent piping shall be shown on the floor plans. All pipe sizes shall be clearly shown. In congested areas isometrics shall be required (i.e. restaurants, grocery stores).

___ h. On buildings two stories and above, provide isometric diagrams and/or schematic riser diagrams for Supply and Waste/Vent piping and identify them by number (e.g. R1, R2, etc.). Show where all riser base terminations connect to the building drain, along with all interconnecting piping on each floor plan. All pipe sizes shall be clearly defined.

___ i. Provide the water, sanitary drain-waste-vent piping and storm leaders/drains. Indicate sizes and materials for above/below grade.

___ j. Provide slope of horizontal sanitary and storm drains > or = 3" diameter, if different than 1/8" per foot.

___ k. Indicate roof drains and emergency roof drains/scuppers. Provide calculations and sizes of drains and leaders.

___ l. Provide toilet room layouts at sufficient scale for dimensions and details to be ascertained.

___ m. Provide drinking fountain locations.

___ n. All penetrations of fire rated construction shall be reproduced on the plans exactly as tested by an approved testing laboratory or agency and shall include their system numbers. New penetrations of existing fire rated walls and assemblies shall be shown with appropriate designs.

___ o. Room names and numbers for each floor should be on a floor plan for each level.

___ p. Provide minimum facilities calculations on the plan sheet with the building information from the Code Summary Sheet. **Column line notation, if provided on the Architectural/Structural plans, shall be indicated on the plumbing plans.**

COMMERCIAL CONSTRUCTION: Mechanical Plans

Plans shall be drawn to a standard architectural scale.

All drawings shall be sealed, signed, and dated, by the project designer.

___ a. Provide code required wall louvers, penetrations & fans.

___ b. Indicate roof mounted equipment locations.

___ c. Provide all mechanical equipment, piping, ductwork (above/below slab) on the mechanical floor and/or roof plan.

- ___ d. Provide mechanical plans for each floor and the roof. These shall show the ductwork layouts, schedules, notes, legends, piping schematics, and details necessary to define the system being installed.
- ___ e. Indicate air distribution devices showing cfm for fresh air, supply, return and exhaust.
- ___ f. Indicate the location of all equipment components required for a complete system.
- ___ g. Provide the smoke ventilation of Atriums and pressurization of High Rise stairwells as defined in NCBC.
- ___ h. Provide condensation drains, primary and secondary, from the unit to the point of discharge.
- ___ i. Indicate toilet exhaust requirements.
- ___ j. Provide mechanical room layouts at sufficient scale for dimensions and details to be ascertained.
- ___ k. Provide the size of duct runs.
- ___ l. Indicate controls for fan shutdown: emergency manual and automatic smoke detection.
- ___ m. Provide the location of all UL 555 certified fire dampers, ceiling radiation dampers, smoke dampers, and fire doors.
- ___ n. Provide all fire-rated walls (both existing and new) with their ratings on the mechanical plans.
- ___ o. All penetrations of fire rated construction shall be reproduced on the plans exactly as tested by an approved testing laboratory or agency and shall include their system numbers. New penetrations of existing fire rated walls and assemblies shall be shown with appropriate designs.
- ___ p. Provide room names and numbers for each floor or level.
- ___ q. Provide outside air ventilation calculation per the NCMC.
- ___ r. Column line notations, if provided on the architectural/structural plans, shall be identified on the mechanical plans.
- ___ s. Provide gas piping layout. If multi-story, provide floor plans and risers for each story. Provide pipe sizes, system pressure in PSI, and material. Provide a schedule of connected equipment with total BTUH demand, total equivalent length, and most remote gas appliance in feet.
- ___ t. Provide permanent roof access for buildings more than 16 feet in height.

COMMERCIAL CONSTRUCTION: Electrical Plans

Plans shall be drawn to a standard architectural scale.

All drawings shall be sealed, signed, and dated, by the project designer.

- ___ a. Provide panel schedules with circuit and feeder loading, overcurrent protection, and (NEC 220) load summary(s) in KVA for all new and/or affected panels and services (loading has to be evaluated by highest phase); include fault current data, short circuit ratings and fault current protection co-ordination.
- ___ b. Provide a single line riser diagram showing all new and/or existing services, feeders, wire sizes, insulation types, and conduit sizes and types.
- ___ c. Provide the number of services and their physical locations; clearly indicate mains and characteristics. Verify multiple services are allowed per article 230 of the NEC.
- ___ d. Provide all grounding electrodes that are present at each building. Indicate the grounding electrode conductor size with new and/or affected services and transformers; where necessary provide details or notes on methods.
- ___ e. Provide physical locations of all new and/or affected panels and switchgear (indicate front).
- ___ f. Indicate receptacle plans with circuitry.
- ___ g. Indicate lighting plans with circuitry.
- ___ h. Provide electrical plans for each affected floor and roof.
- ___ i. Provide wiring method(s), conduit sizes and types, termination temperature (60°, 75°, 90°) requirements, conductor sizes and insulation types.
- ___ j. Indicate the design and or operation for any of the following applicable life safety systems: i.e. emergency generators, smoke evacuation, shaft pressurization and relief, smoke detection, egress and emergency lighting, and fire alarm.
- ___ k. Indicate how special needs such as classified (hazardous), corrosive and patient care are treated. Provide detailed plan of classified areas, the classifications and how complied with (i. e. hangers, waste treatment and collection (per NFPA 820), flammable dusts, gases or liquids, spray booths, vehicle servicing and parking, etc.).

___ l. Indicate all HVAC nameplate data including MCA/MOCP. Indicate all major appliance and/or equipment (any use besides cord and plug connected to general use receptacle) nameplate data (i. e. voltage, phasing, HP, KVA, FLA, RLA, etc.).

___ m. Indicate all motor horse power ratings if not supplied elsewhere.

___ n. All penetrations of fire rated construction shall be reproduced on the plans exactly as tested by an approved testing laboratory or agency and shall include their system numbers. New penetrations of existing fire rated walls and assemblies shall be shown with appropriate designs.

___ o. Provide all applicable NCBC, Energy Code compliance data on the Building Code Summary sheet or on the electrical plans.

___ p. **All electrical materials, devices, appliances and equipment not meeting the definition of industrial equipment shall be listed or labeled by an approved third party testing agency approved by the North Carolina Department Of Insurance.**