

City of Hickory

Commercial Plan Review Requirements

The City of Hickory has developed this document to guide developers and design professionals through the requirements for building plan submittal. For construction of new commercial and multi-family buildings seven (7) complete sets of construction plans are required. All applications and plans must be submitted to the Development Assistance Center on the first floor of City Hall. These plans must have appropriate seals and signatures of architects and engineers. If Health Department approval is needed, eight (8) complete sets of plans will be required.

This document is meant to give a general overview of the requirements for building plan submittal; however, since these requirements vary, the city encourages applicants to contact the city before submitting plans to discuss requirements and procedures. Some projects must obtain City Council or Planning Commission approval, a process that will involve public hearings. The following agencies review plans for commercial and multi-family projects. In some cases approvals from other agencies (county, state and federal) are required.

Planning and Development: This department reviews plans for compliance with the city's Land Development Code and other applicable regulations. The basic requirements are found in this document. For more information please call (828) 323-7422. A [Zoning Compliance Permit](#) is also required for all new construction and when existing buildings change occupancy classification. For details about the zoning compliance permit process, please contact the Planning Department at (828) 323-7410.

Fire & Life Safety: This division reviews plans for their compliance with the NC fire and building codes. The division also reviews applications for sprinkler and fire alarm systems. The basic requirements are found below. For more information contact the Hickory Fire Department Division of Fire & Life Safety at (828) 323-7522 or visit <http://www.hickorync.gov/content/fire-life-safety>.

Engineering: This division reviews plans to ensure compliance with the city's Manual of Practice street design, curb, gutter, and sidewalk requirements. The division also reviews for compliance with stormwater requirements. For more information you may contact the Engineering division at (828) 323-7416 or visit <http://www.hickorync.gov/content/engineering>.

Public Utilities: If your project involves new water or sewer services or additions to the existing systems, you should contact the Public Utilities division. There may be requirements for water and sewer service applications to be approved for new construction or additions to existing systems. The Public Services Department will request information from and inform you of any fees. Fees are required to be paid before taps are scheduled. Public Utilities may be reached at (828) 323-7427. Additional information may be found at <http://www.hickorync.gov/content/public-utilities>.

Catawba County Building Services: In 2003, Catawba County took over responsibility for building inspections in the City of Hickory. Catawba County reviews all construction plans to ensure compliance with the North Carolina State Building Code. For your convenience, Catawba County Building Services has a Skype portal at Hickory City Hall. They can be reached at (828) 465-8399 or by visiting <http://www.catawbacountync.gov/building/>.

A listing of each agency's requirements is included in this document. It is important to note that these lists are meant to make it easier for developers and designers to see the information that is required with plans. This information does not replace the Land Development Code, NC State Building Code, NC State Fire Code, Manual of Practice, or any other applicable document. Some items in the checklist will not apply to all projects. This checklist is not a required to be submitted, but should be reviewed and used as a guideline prior to plan submittal.

PLANNING AND DEVELOPMENT

Site Plan Requirements

This list is meant to serve as a guide for development in the City of Hickory. Depending on a property's zoning district or applicable overlay district, certain projects may require additional information. The Land Development Code can be downloaded at <http://www.hickorync.gov/content/land-use-planning>.

1.0 General Information

- 1.1 _____ Scale measurable using an architect's or engineer's scale
- 1.2 _____ North arrow
- 1.3 _____ Name and contact information of owner, designer, and developer
- 1.4 _____ Date of plan
- 1.5 _____ Lot dimensions and calculated acreage
- 1.6 _____ List all easements located on the property
- 1.7 _____ Indicate all special flood hazard areas on the site
- 1.8 _____ Total amount of land to be disturbed (Land disturbances less than one acre require a grading permit issued by the City of Hickory Engineering Division. Land disturbances greater than one acre require Erosion Control permit issued by Catawba County)
- 1.9 _____ Existing and proposed uses of subject property and adjacent properties
- 1.10 _____ Zoning district of site and adjacent properties
- 1.11 _____ Floor area ratio calculation (§7.3)
- 1.12 _____ Denote applicable overlay districts or watershed designations (§4.1)
- 1.13 _____ Denote if located within a Local Historic District (a Certificate of Appropriateness must be issued for all external changes to buildings) (§4.4)
- 1.14 _____ Indicate regulated watershed

2.0 Site Information

- 2.1 _____ Indicate required setbacks and actual setbacks for existing and proposed buildings (§7.3)
- 2.2 _____ Indicate natural areas, if existing (wooded areas, wetlands, etc.)
- 2.3 _____ Indicate driveways and pedestrian access points to site (new or modified driveway locations on NCDOT roadways require an NCDOT driveway permit)
- 2.4 _____ Imperviousness (The plan must show all existing and proposed impervious surfaces along with the percentage imperviousness for the existing and proposed conditions.)
- 2.5 _____ Indicate type, location, and height of all free standing and wall mounted light fixtures (§9.8)
- 2.6 _____ Indicate all existing and proposed sidewalks (§8.7)
- 2.7 _____ Other requirements as designated by zoning district or overlay

3.0 Parking, Loading, and Service Areas

- 3.1 _____ Indicate the number of off-street parking spaces required and proposed (§9.2)
- 3.2 _____ Indicate the locations and dimensions of all proposed parking spaces (on-street parking will also be reviewed by NCDOT and/or the City of Hickory Traffic) (§9.2.9)
- 3.3 _____ Show all loading and storage areas (§9.2.3)

4.0 Landscape and Buffering Information

- 4.1 _____ Indicate the location, type, size, and quantity of existing plant materials to be preserved and location of tree protection fencing (§9.14)
- 4.2 _____ Show the location of all overhead and underground utilities (existing and proposed)
- 4.3 _____ Indicate the location and a description of all landscape improvements, including all perimeter landscape areas and perimeter/interior parking lot landscaping (§9.14)
- 4.4 _____ Include a table of all plants used with botanical and common name, quantity, and size (at time of planting and full growth) of all proposed landscape material.

4.5 _____ Indicate the location of all other landscape improvements including berms, walls, fences, courtyards, lights, and paved areas.

4.6 _____ Show required open space, and all streams, wetlands, and associated setback buffers

5.0 Building Information

5.1 _____ Show locations and square footage of all existing and proposed buildings on the site

5.2 _____ Indicate all building heights (§7.3)

5.3 _____ Indicate all building entrances

5.4 _____ Indicate building construction materials (§3)

5.5 _____ Indicate building elevation drawings with required glass, recesses, transition lines, etc. (§3)

5.6 _____ Indicate all ground, roof, and wall mounted mechanical equipment. Illustrate all screening and label screening materials used. (§9.14.6)

5.7 _____ Indicate location of all solid waste storage areas. Illustrate screening and label screening materials used. Areas for roll-out containers, dumpsters, and compactors all require screening from public view. (§9.7)

5.8 _____ Indicate location of all open storage areas. Illustrate screening and label materials used (§9.14.6)

Notes to appear on all plans:

1. All new utility distribution and service lines for the development are to be placed underground (§9.17)
2. All signage will be approved through separate permits (§10.1.3)

HICKORY FIRE DEPARTMENT: DIVISION OF FIRE & LIFE SAFETY

Commercial Building Plan Review Submittal Requirements

The following information is required to be included with a commercial building's construction plans. Not every project will require the same amount and type of information, however, the more information that is provided with the plans, the less likelihood that additional information will be needed during the plan review process, which could cause a delay in the plan review process. If some of the information is not needed or unavailable, it is important that you call and discuss the circumstances before submitting your plans. If you have any questions or would like to schedule a pre-application meeting, please call (828) 323-7522. For projects including fire hydrants, underground water mains, or underground water line (run-in) for the sprinkler system it is important that you also contact the City of Hickory Public Utilities division for additional information they may require. They can be reached at (828) 323-7500.

1.0 Fire Hydrants and Underground Water Supply Lines

- 1.1 _____ Proposed location of on-site fire hydrants.
- 1.2 _____ Location of existing fire hydrants within 500 feet travel distance (as fire apparatus would lay hose) of the building.
- 1.3 _____ Location of the underground water line (run-in) for automatic sprinkler system. Include point of connection from the City's water main to where the sprinkler system riser will be located.

2.0 Automatic Sprinkler System

- 2.1 _____ Location of the fire department connection for the sprinkler or standpipe system.
- 2.2 _____ If the design professional is submitting information about the design of the automatic sprinkler system (other than Appendix B information) then a Sprinkler/Standpipe System Specification Sheet needs to be completed.

3.0 Hazardous Materials

- 3.1 _____ Provide a summary sheet of hazardous materials that will be handled, stored, or used in the building. Information on the summary sheet shall include the name, quantities, and hazard classification of the different materials. Must also include the Material Safety Data Sheet for each material.
- 3.2 _____ The location and square footage of the area(s) in the building where the hazardous materials will be located.

4.0 High-piled Combustible Storage

- 4.1 _____ All high-piled combustible storage areas must be identified. This includes the storage of combustible materials greater than 12 feet in height, or the storage of plastic, rubber, idle pallets, or similar products greater than 6 feet in height.
- 4.2 _____ The location and square footage of the high-piled storage area(s), classification of the commodities to be stored, storage height of the commodities, and method of storage must be shown on the plans.

5.0 Fire Alarm System

- 5.1 _____ If fire alarm plans are being submitted with the building's construction plans then at a minimum they shall include the system layout, device locations, wiring riser diagram, and system description. System description shall include a summary of the type of system to be installed, detailed operating sequence of the system, and a general detail of the different products to be installed.

6.0 Plans for Grading Permits

- 6.1 _____ The information that is needed to be included on plans being submitted for a grading permit is dependant upon several factors and therefore it is recommended that you contact the plans

reviewer for the Hickory Fire Department Division of Fire & Life Safety before submitting the plans. Some examples of the factors are if the submitted plans for the grading permit are for erosion control only. Another example is when a set of construction plans submitted for building permits have been disapproved and you then decide to switch over to a grading permit so you can begin the site work while revising the construction plans for a building permit.

PUBLIC SERVICES DEPARTMENT: DIVISION OF PUBLIC UTILITIES
Requirements for Extension and Addition to Hickory Water and Sewer Systems

The following checklist outlines the City of Hickory requirements for extension of and addition to Hickory Water and/or Sewer Systems. This checklist acts as an agreement between the developer and the City of Hickory to state that the developer understands and agrees with these requirements.

Please find the following listing detailing the requirements for each phase of the project from design to construction and finally acceptance. All phases of the project will require the involvement of a professional engineer retained by the developer. Before any application, the engineer shall review the requirements of the City of Hickory Manual of Practice. It is available online at <http://www.hickorync.gov/content/engineering>.

1.0 Planning and Design

- 1.1 _____ Verify water and sewer facilities exist and capable of serving project
- 1.2 _____ Engineer schedules meeting with Public Utilities Department to introduce project and obtain design criteria.
- 1.3 _____ Engineer responsible for explaining project size, development phases and project coordination
- 1.4 _____ Engineer produces detailed plans and specifications for review by Public Utilities Department
- 1.5 _____ Sewer plans must show:
 - 1.5.1 _____ Plan view established from official Benchmark tied to MSL.
 - 1.5.2 _____ Profile view established from official Benchmark tied to MSL.
 - 1.5.3 _____ Type and class of material
 - 1.5.4 _____ Size of line
 - 1.5.5 _____ Slope of line
 - 1.5.6 _____ Ground and surface elevation
 - 1.5.7 _____ Existing utilities
 - 1.5.8 _____ Service connection locations
 - 1.5.9 _____ Proposed easement widths, (25' minimum)
 - 1.5.10 _____ Creek crossing details
 - 1.5.11 _____ Scale
 - 1.5.12 _____ Trench type
 - 1.5.13 _____ Manholes to have minimum of 0.2-inch fall through invert
 - 1.5.14 _____ Rubber boot seals
 - 1.5.15 _____ Butyl seal for manhole pieces and ring and lid
 - 1.5.16 _____ Pump station details (if applicable)
 - 1.5.17 _____ Grease traps with calculations
 - 1.5.18 _____ Other requirements on case by case basis.
 - 1.5.19 _____
- 1.6 _____ Water Plans must show:
 - 1.6.1 _____ Plan view established from official Benchmark tied to MSL.
 - 1.6.2 _____ Profile view established from official Benchmark tied to MSL.
 - 1.6.3 _____ Beginning tap location
 - 1.6.4 _____ Type and class of material
 - 1.6.5 _____ Existing utilities
 - 1.6.6 _____ Valve locations
 - 1.6.7 _____ Fire hydrant locations
 - 1.6.8 _____ Service connection locations
 - 1.6.9 _____ Proposed easement widths, (25' minimum),
 - 1.6.10 _____ Scale

- 1.6.11 _____ City of Hickory Public Utilities Standard Details (Manual of Practice).
- 1.6.12 _____ Backflow assembly and enclosure
- 1.6.13 _____ Other requirements on case by case basis.
- 1.7 _____ Engineer responsible for correcting plans as requested by Public Utilities Department.
- 1.8 _____ Resubmittal of corrected plans and specifications for review.
- 1.9 _____ With approved plans, engineer requests flow acceptance letter and/or capacity availability letter.
- 1.10 _____ Engineer responsible for preparing appropriate local, state and federal permits, (NCDENR, PWS, NDPU, SEC, Army Corps, etc., Pretreatment, NC DOT, etc.) once completely filled out the engineer shall provide originals to Public Utilities Department for execution by appropriate city official.
- 1.11 _____ Once form is executed it will be returned to engineer for submittal to appropriate agency.
_____ Owner is responsible for paying all permit fees for submittal to appropriate authority having jurisdiction.
- 1.12 _____ Owner responsible for obtaining or surrendering any and all easements required to complete project.
- 1.13 _____ Engineer shall submit the required number of applications, plans, specifications and fees to permitting authority for approval.
- 1.14 _____ Engineer and/or Owner responsible for responding to all questions or requests for information required issuing permit.
- 1.15 _____ Hickory Public Utilities Department will receive permit when issued and will notify engineer and/or Owner or Engineer/Owner shall provide to Public Utilities Department.

2.0 Preconstruction

- 2.1 _____ Upon all permits being issued, engineer shall provide complete package to Hickory Public Utilities Department and Owner.
- 2.2 _____ Proposed Contractor shall be approved by Hickory Public Utilities Director prior to construction beginning.
- 2.3 _____ Proposed Utility Contractor shall provide Hickory Public Utilities with copy of current NC Utility License and Bond for project.
- 2.4 _____ Contractor and Engineer shall schedule pre-construction conference with Public Utilities Department prior to starting any construction.
- 2.5 _____ Engineer shall provide at pre-construction conference the Contractor and Public Utilities Department an identical set of approved plans and specifications.
- 2.6 _____ Engineer to provide Contractor with permits, encroachments and easements required to complete project at pre-construction conference.

3.0 Construction

- 3.1 _____ Contractor to call Engineer and Hickory Public Utilities Department prior to scheduling start date.
- 3.2 _____ Hickory Public Utilities Department shall be contacted for making taps onto the existing system. Tap fees shall be paid before taps will be made.
- 3.3 _____ Hickory Public Utilities Department shall be allowed to randomly inspect construction.
- 3.4 _____ No water fittings shall be buried without Hickory Public Utilities Department verifying installation and sufficient blocking.
- 3.5 _____ Concrete deadman restraints shall be installed in a manner and frequency as requested by Public Utilities Inspectors.
- 3.6 _____ Changes to the approved plans shall be approved by the Engineer and Hickory Public Utilities Department.

- 3.7 _____ Hickory Public Utilities Department shall be able to stop construction immediately upon noticing deficiencies. Construction shall not proceed until the Engineer notifies Hickory Public Utilities Department that deficiencies are corrected.
- 3.8 _____ All construction shall be to City of Hickory Public Utilities Department standards and specifications.
- 3.9 _____ A punch list/final inspection shall be performed by Hickory Public Utilities Department and Engineer prior to contractor demobilizing, and all items shall be corrected or resolved in a timely manner.

4.0 Approval and Acceptance

- 4.1 _____ All construction shall be complete, including landscaping and final inspection punch list items approved.
- 4.2 _____ Water pressure test and bacteria test shall be successfully completed with Engineer and Hickory Public Utilities Department present. Bacteria test shall be performed by a state approved laboratory and results provided to Hickory Public Utilities Department.
- 4.3 _____ Sanitary sewer air pressure test, mandrel test and leakage test for manholes shall be successfully completed with Engineer and Hickory Public Utilities Department present.
- 4.4 _____ Record drawings from the Engineer documenting actual installed conditions and locations shall be produced by the Engineer and reviewed by Hickory Public Utilities Department.
- 4.5 _____ With approved record drawings, the Engineer shall complete engineer's certification and applicant's certification and submit to the permitting authority that construction is complete and in compliance with approved plans and specifications. A copy of this certification shall be delivered to Hickory Public Utilities Department.
- 4.6 _____ Owner shall supply minimum of one (1) year warranty to Hickory Public Utilities Department, in writing, beginning at the completion of above step in this section.
- 4.7 _____ With completion of all previous points, the system shall be deemed approved.
- 4.8 _____ Payment of calculated tap fees to City of Hickory will activate any and all service connections paid for.
- 4.9 _____ Water and sewer taps for a respective structure must be paid at same time.

All the above points shall be followed and are agreed upon as requirements for connection to the City of Hickory water and/or sewer systems. If at any time, any item is not agreeable to the Owner/Engineer of this project then this agreement shall become null and void and this project shall not be accepted by City of Hickory Public Utilities Department for addition to the water or sewer systems for maintenance.

PUBLIC SERVICES DEPARTMENT: DIVISION OF ENGINEERING

For more information or to set up a pre-application meeting, please call (828) 323-7416. Before any application is submitted, the engineer shall review the requirements of the City of Hickory Manual of Practice. It is available online at <http://www.hickorync.gov/content/engineering>.

1.0 General

- 1.1 _____ Note referencing City of Hickory Manual of Practice with detail I.D. referenced
- 1.2 _____ Encroachment documents for irrigation systems, decorative pavers, landscaping, lighting, etc.
- 1.3 _____ Property boundaries
- 1.4 _____ Engineering seal

2.0 Site Grading and Erosion Control

- 2.1 _____ All disturbed areas shown
- 2.2 _____ All erosion / sedimentation control structures
- 2.3 _____ Erosion / sedimentation control approval letter from appropriate authority if disturbed area is 1.0 acre or more.
- 2.4 _____ Existing contours at 2' increments resolved with existing grades
- 2.5 _____ Off-site drainage delineated and conveyed through site
- 2.6 _____ Temporary construction entrance

3.0 Streets (Public Only)

- 3.1 _____ Plan
- 3.2 _____ Profile with horizontal centerline data
- 3.3 _____ Catch basin / junction box sizes
- 3.4 _____ Typical street cross section
- 3.5 _____ Details in accord with Manual of Practice
- 3.6 _____ 5' sidewalk width
- 3.7 _____ NCDOT driveway permit, if required
- 3.8 _____ Sight triangles

4.0 Curb and Gutter & Drainage (Public Only)

- 4.1 _____ Construction details
- 4.2 _____ Drainage calculations for valley curb
- 4.3 _____ Location, size, invert and rim/grate elevations and pipe material for existing and proposed storm drains on and immediately adjacent to the site.
- 4.4 _____ Accessible ramps at all street intersections
- 4.5 _____ Storm Pipes
- 4.6 _____ Stormwater collected minimum of 10' behind the property line
- 4.7 _____ 2500 ft² maximum drainage to street per stormwater inlet
- 4.8 _____ Storm pipes > 10' from buildings
- 4.9 _____ Manhole and inlet spacing $\leq 300'$ (< 60" pipes)
- 4.10 _____ Inlet drainage basins; plans and calculations agree
- 4.11 _____ Velocity ≤ 2.5 ft/s
- 4.12 _____ Cover meets DOT min depth of Class IV pipe (HDPE min cover 2')
- 4.13 _____ Inlets above 10-year flood level
- 4.14 _____ Inverts above normal pond level
- 4.15 _____ Energy dissipaters designed for 10-year storm
- 4.16 _____ Headwalls or flared end sections at inlets and outlets
- 4.17 _____ Easements shown for public drainage across private property
- 4.18 _____ Open Channels

- 4.19 _____ Property drains to channel
- 4.20 _____ Watershed; plans and calculations agree
- 4.21 _____ Channel dimensions: plans and calculations agree
- 4.22 _____ 10-year storm design
- 4.23 _____ 100-year storm analysis
- 4.24 _____ Side slopes \leq 1:3
- 4.25 _____ Lining installed in all open channels
- 4.26 _____ Lining specification meets or exceeds maximum velocity

Stormwater Requirements

1.0 Development Data Block

- 1.1 _____ Name of property owner (s)
- 1.2 _____ Name, address, and phone number of contact person
- 1.3 _____ PIN number(s) of property being developed
- 1.4 _____ Size of property in acres
- 1.5 _____ Amount of impervious area in acres (predevelopment)
- 1.6 _____ % of area that is impervious (predevelopment)
- 1.7 _____ Amount of impervious area in acres (post development)
- 1.8 _____ % of area that is impervious (post development)
- 1.9 _____ Are Phase II requirements applicable?
- 1.10 _____ Are WSWS IV requirements applicable?
- 1.11 _____ Are WSWS III requirements applicable?
- 1.12 _____ Are HRC-O District requirements applicable?

2.0 Stormwater Plan

- 2.1 _____ Provide North arrow
- 2.2 _____ Include a 4"X4" vicinity map at a maximum scale of 1"=1000'
- 2.3 _____ Include a graphic scale for the plan
- 2.4 _____ Show all existing and proposed boundaries with dimensions (show entire property)
- 2.5 _____ PIN number(s) of adjacent properties
- 2.6 _____ Show existing and proposed topographical contours (5ft. increments or less), elevation labels must be provided for contours at 25 ft. intervals (contour information must be developed from actual field topographic survey, A copy of the sealed topographic survey will be required.)
- 2.7 _____ Depict and label all existing and proposed retaining walls, if applicable.
- 2.8 _____ Depict and indicate all existing and proposed stormwater drainage structures, if applicable
 - 2.8.1 _____ The type of structure must be indicated
 - 2.8.2 _____ All structures must be labeled with a structure ID
 - 2.8.3 _____ Invert elevations must be indicated for all pipes, orifices, weirs, and openings in the structure
 - 2.8.4 _____ The elevation of the top of the structure must be indicated
 - 2.8.5 _____ The appropriate standard installation detail must be referenced
- 2.9 _____ Depict and indicate all existing and proposed stormwater drainage pipes, if applicable
 - 2.9.1 _____ The material type of pipe must be indicated
 - 2.9.2 _____ All pipes must be labeled with a pipe ID
 - 2.9.3 _____ The length, size and slope of all pipes must be indicated
 - 2.9.4 _____ The appropriate standard installation detail must be referenced
- 2.10 _____ Depict and label all existing and proposed **stormwater conveyance ditches**, if applicable
 - 2.10.1 _____ All ditch sections must be labeled with a ditch ID
 - 2.10.2 _____ Indicate the % slope of all ditch sections
 - 2.10.3 _____ Provide ditch cross-sections, indicating ditch depth, top and bottom widths and side slopes

- 2.10.4 _____ Indicate type and installation requirements for in ditch erosion protection, such as riprap, geo-blankets, etc.
- 2.11 _____ Depict and indicate all existing and proposed **detention/retention basins**, underground storage systems and all other BMP's, if applicable
 - 2.11.1 _____ All basins must be labeled with a basin ID
 - 2.11.2 _____ Dimension basins
 - 2.11.3 _____ Indicate basin volume
 - 2.11.4 _____ For above ground basins, show basin contours
 - 2.11.5 _____ Provide specific basin cross-sections and information, which indicates all pertinent design information
- 2.12 _____ Depict and indicate all existing and proposed stormwater control structures, if applicable
 - 2.12.1 _____ All structures must be labeled with a structure ID
 - 2.12.2 _____ Provide a specific control structure detail with dimensions, which indicates all pertinent design information
- 2.13 _____ Provide profiles for stormwater drainage system, if applicable profiles must include the following
 - 2.13.1 _____ Stormwater structures and pipes with all information as indicated above
 - 2.13.2 _____ All crossings with other existing and proposed underground utilities, with separation distances indicated
 - 2.13.3 _____ Proposed and finished grades
- 2.14 _____ Depict and label all stormwater dispersion devices
- 2.15 _____ Depict and Indicate all water courses and water bodies
- 2.16 _____ Show and label all existing and proposed structures and improved areas
- 2.17 _____ Show and label all flood zones, if applicable
- 2.18 _____ Depict and indicate all existing and proposed utilities
- 2.19 _____ Show existing and proposed easements; label and dimension
- 2.20 _____ Depict all adjacent streets and indicate name and width
- 2.21 _____ Show and dimension all rights-of-way
- 2.22 _____ Provide all pertinent stormwater notes and details

3.0 Additional Required Items:

- 3.1 _____ For pipes and ditches; capacity and velocity calculations must be submitted. Calculations must bear design professional seal and signature
- 3.2 _____ For basins and control structures; pre and post development runoff calculations must be submitted. Storage volumes, inflow and out flow calculations must be submitted. Calculations must bear design professional seal and signature.
- 3.3 _____ All stormwater BMP designs must be in accordance with the requirements of the Land Development Code, Phase II Stormwater Ordinance, NCDENR, DWQ's BMP Manual, and the State of North Carolina Administrative Code.
- 3.4 _____ For outlets, provide calculations for dispersion devices
- 3.5 _____ For inlets on public streets, provide stormwater spread calculations
- 3.6 _____ Copy of approval letter for erosion and sedimentation control plan must be provided.
- 3.7 _____ All provisions for permits, bonds, operation and maintenance agreements, and easements must be met in accordance with the requirements of the Land Development Code, Phase II Stormwater Ordinance, Phase II Administrative Manual, NCDENR, DWQ's BMP Manual and the State of North Carolina Administrative Code.

Notes to Appear on Plans

1. The owner shall schedule a pre-construction conference with the City of Hickory Engineering Division before any work begins. The owner shall notify the City of Hickory Engineering Division (828-323-7416) at least 7 calendar

days prior to commencing any work on the site. Failure to provide required notice shall result in the owner's responsibility to uncover any prior below-grade work for visual inspection by the Engineering Division. (Place on cover sheet in all CAPS)

2. Coordinate all curb and street grades in intersection with Inspector
3. All road improvements are to be coordinated with the City of Hickory Engineering Department prior to construction.
4. Developer shall provide street signs per CLDSM# 50.05 (9" signs only)
5. Sight triangles shown are the minimum required
6. In rolling and hilly terrains, sweeping of the stone base and/or application of a tack coat may be required near intersections. These requirements shall be established by the Inspector and based on field conditions
7. Approval of this plan is not an authorization to grade adjacent properties. When field conditions warrant off-site grading, permission must be obtained in writing from the affected property owners.
8. In order to ensure proper drainage, keep a minimum of 0.5% slope on the curb.
9. Subsurface drainage facilities may be required in the street right-of-way in deemed necessary by the inspector.
10. Curb and gutter shown on plans may be adjusted based upon field staking by City Engineering. Associated storm drainage may also require modification based upon field conditions.
11. The purpose of the storm drainage easement (SDE) is to provide storm water conveyance. Buildings are not permitted in the easement area. Any other objects which impede storm water flow or system maintenance are also prohibited.
12. High density polyethylene (HDPE) storm drainage pipe installed within existing or proposed public street Right-of-way must be approved by the City Inspector prior to any backfill being placed. Backfill material must be approved by the City Inspector prior to placement of the material within the public street right-of-way.
13. The developer shall maintain each stream, creek, or backwash channel in an unobstructed state and shall remove from the channel and banks of the stream all debris, logs, timber, junk, and other accumulations.
14. Any building within the 100+1 Stormwater Elevation Line is subject to the restrictions of the City of Hickory Subdivision Ordinance.
15. Any construction or use within the Future Conditions Flood Fringe Line is subject to the restrictions imposed by the Floodway Regulations of the City of Hickory and Catawba County.
16. PE sealed shop drawings for retaining wall must be submitted to Building Inspections prior to construction.
17. "As-built" drawings and plans for the storm drainage system, including designed ditches, must be submitted prior to subdivision final inspection to the City Engineering Department in accordance with the City Subdivision Ordinance.
18. Prior to installation, PE sealed shop drawings for underground detention systems must be furnished to City of Hickory Engineering Department for approval.
19. Prior to CO, PE sealed as-built drawings of underground detention systems must be provided along with a certification.
20. Non-standard items (i.e.: pavers, irrigation systems, etc.) in the right-of-way require a Right-of Way Encroachment Agreement with the North Carolina Department of Transportation before installation.
21. Prior to plat recordation, Offsite R/W and/or construction easements are required to be obtained according to the guidelines of the "Offsite R/W Acquisition Process". The required R/W and construction limits are clearly shown on the roadway improvements plan.

CATAWBA COUNTY BUILDING SERVICES

Plan Submittal requirements for Commercial Projects

This list *does not* include requirements for Environmental Health, Erosion Control, and Site Drainage & Detention from any jurisdiction within Catawba County. *All sheets* in the set *shall be stapled together in the order below* to form a complete set. Plans shall be drawn to a standard architectural scale. All drawings shall be sealed, signed, and dated, by the project designer.

1.0 Site Development

- 1.1 _____ Site plans shall be prepared to scale, with legend, north arrow, and vicinity map.
- 1.2 _____ Provide the correct street address, parcel number, and zoning jurisdiction on the site plans.
- 1.3 _____ Provide and identify all property lines and rights-of-way, with distance from property lines and adjacent buildings on site plans.
- 1.4 _____ Provide handicapped parking spaces and signage on site plan per NCBC Vol. 1-C.
- 1.5 _____ Provide handicapped curb cuts and access ways to the building.
- 1.6 _____ Provide all existing and proposed driveway entrances.
- 1.7 _____ Provide all easements and flood ways.
- 1.8 _____ Provide existing and proposed utilities to serve the site.
- 1.9 _____ Provide existing and proposed grades.
- 1.10 _____ Provide details, sections, and elevations needed for construction.
- 1.11 _____ Provide all required parking and loading spaces and calculations.
- 1.12 _____ Provide locations of all new and existing storm drainage. Identify pipe type and size.

2.0 Architectural Plans

- 2.1 _____ Provide an Appendix "B" code summary reproduced on the first or second sheet in the set filled out in its entirety.
- 2.2 _____ Provide floor plans of each floor including demolition where required. Show all fire-rated walls (both existing and new) with their ratings.
- 2.3 _____ Provide the square footage of each floor on the corresponding floor plans.
- 2.4 _____ Identify the names and uses of each room. Provide ages of children in educational occupancies.
- 2.5 _____ Indicate door schedule(s) that defines the applicable rated doors, frames, and hardware.
- 2.6 _____ Provide all glass schedules identifying glass types.
- 2.7 _____ 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.
- 2.8 _____ Provide basement percentage below grade calculations.
- 2.9 _____ Indicate roof slopes, drainage system, and size of through wall scuppers.
- 2.10 _____ Provide the number of fixed and loose seating for assembly occupancy to allow determination of occupancy posting.
- 2.11 _____ Provide wall sections with proposed material sizes, construction and fire-rated assemblies.
- 2.12 _____ Provide proposed plumbing fixtures and privacy screens on the plans.
- 2.13 _____ If masonry construction is proposed, include the following information:
 - 2.14 _____ Type of brick ties and spacing of weep holes
 - 2.15 _____ Control joints
 - 2.16 _____ Location of wall flashing and reinforcement per ACI 530.
- 2.17 _____ 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.
- 2.18 _____ Provide the floor slab vapor barrier.
- 2.19 _____ Provide Foundation water proofing.

- 2.20 _____ 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.
- 2.21 _____ 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.
- 2.22 _____ 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.
- 2.23 _____ 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.
- 2.24 _____ Provide Penthouse drawings.
- 2.25 _____ 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.
- 2.26 _____ Provide attic ventilation. Identify size of louvers and vents.
- 2.27 _____ Provide attic access and size.

3.0 Structural Plans

- 3.1 _____ Provide foundation plans showing the proposed slab elevations, types of foundation (i.e. mat foundation, caissons, spread footings, retaining walls, etc.).
- 3.2 _____ Provide preliminary soil analysis data done by a Registered Engineering Testing Company, if required.
- 3.3 _____ Indicate dimensions of foundations.
- 3.4 _____ Provide type, size and location of piling and pile caps for pile foundation.
- 3.5 _____ Indicate grade beam sizes.
- 3.6 _____ Indicate a footing schedule defining footing sizes and the required reinforcing.
- 3.7 _____ Provide the established footing depth below grade.
- 3.8 _____ Indicate the thickness of the floor slab, size of reinforcing, slab elevations, and type and details of foundations.
- 3.9 _____ Indicate location, size and amount of reinforcing steel.
- 3.10 _____ Provide foundation corner reinforcing bars and minimum overlapping (as applicable to project structure).
- 3.11 _____ Provide strength of concrete according to design, soil reports.
- 3.12 _____ Provide beams, joists, girders, rafters, and/or truss layouts and details of connections, structural steel stud gage, and gage size, connections.
- 3.13 _____ Indicate the sizes and species of all wood members and their respective design strength.
- 3.14 _____ Provide all columns, girders, joists, purlins, beams and base plates and for wood construction show all headers.
- 3.15 _____ Provide a complete lintel schedule.
- 3.16 _____ Indicate the type of anchoring for steel bearing directly on masonry. 3
- 3.17 _____ 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.
- 3.18 _____ Indicate on roof framing plan where concentrated loads (mechanical equipment, cranes, etc.) may be placed.

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

4.0 Plumbing Plans

- 4.1 _____ Provide a Site Utilities Plan if not provided with the Civil Drawings.
- 4.2 _____ Provide the potable water, fire, and irrigation services.
- 4.3 _____ Provide the location of the water meters, backflow protection type and location, and shutoff valves.
- 4.4 _____ Provide the Sanitary Sewer service from the building to an approved system.
- 4.5 _____ Provide interceptors when required. Provide size by flow rate. (ie. grease, oil, lint, acid, sand).
- 4.6 _____ 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.
- 4.7 _____ Provide the location of all major components required for a complete system.
- 4.8 _____ Provide fixture and equipment schedule showing fixture number, detailed description; hot water, cold water, waste and vent connection sizes and other pertinent data.
- 4.9 _____ Identify all fixtures on floor plans and in riser diagrams with the plumbing fixture schedule number.
- 4.10 _____ 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).
- 4.11 _____ 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.
- 4.12 _____ Provide the water, sanitary drain-waste-vent piping and storm leaders/drains. Indicate sizes and materials for above/below grade.
- 4.13 _____ Provide slope of horizontal sanitary and storm drains $> \text{ or } = 3"$ diameter, if different than $1/8"$ per foot.
- 4.14 _____ Indicate roof drains and emergency roof drains/scuppers. Provide calculations and sizes of drains and leaders.
- 4.15 _____ Provide toilet room layouts at sufficient scale for dimensions and details to be ascertained.
- 4.16 _____ Provide drinking fountain locations.
- 4.17 _____ 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.
- 4.18 _____ Room names and numbers for each floor should be on a floor plan for each level.
- 4.19 _____ 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.

5.0 Mechanical Plans

- 5.1 _____ Provide code required wall louvers, penetrations & fans.
- 5.2 _____ Indicate roof mounted equipment locations.
- 5.3 _____ Provide all mechanical equipment, piping, ductwork (above/below slab) on the mechanical floor and/or roof plan.
- 5.4 _____ 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.

- 5.5 _____ Indicate air distribution devices showing cfm for fresh air, supply, return and exhaust.
- 5.6 _____ Indicate the location of all equipment components required for a complete system.
- 5.7 _____ Provide the smoke ventilation of Atriums and pressurization of High Rise stairwells as defined in NCBC.
- 5.8 _____ Provide condensation drains, primary and secondary, from the unit to the point of discharge.
- 5.9 _____ Indicate toilet exhaust requirements.
- 5.10 _____ Provide mechanical room layouts at sufficient scale for dimensions and details to be ascertained.
- 5.11 _____ Provide the size of duct runs.
- 5.12 _____ Indicate controls for fan shutdown: emergency manual and automatic smoke detection.
- 5.13 _____ Provide the location of all UL 555 certified fire dampers, ceiling radiation dampers, smoke dampers, and fire doors.
- 5.14 _____ Provide all fire-rated walls (both existing and new) with their ratings on the mechanical plans.
- 5.15 _____ 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.
- 5.16 _____ Provide room names and numbers for each floor or level.
- 5.17 _____ Provide outside air ventilation calculation per the NCMC.
- 5.18 _____ Column line notations, if provided on the architectural/structural plans, shall be identified on the mechanical plans.
- 5.19 _____ 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.
- 5.20 _____ Provide permanent roof access for buildings more than 16 feet in height.

6.0 Electrical Plans

- 6.1 _____ 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.
- 6.2 _____ Provide a single line riser diagram showing all new and/or existing services, feeders, wire sizes, insulation types, and conduit sizes and types.
- 6.3 _____ 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.
- 6.4 _____ 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.
- 6.5 _____ Provide physical locations of all new and/or affected panels and switchgear (indicate front).
- 6.6 _____ Indicate receptacle plans with circuitry.
- 6.7 _____ Indicate lighting plans with circuitry.
- 6.8 _____ Provide electrical plans for each affected floor and roof.
- 6.9 _____ Provide wiring method(s), conduit sizes and types, termination temperature (60°, 75°, 90°) requirements, conductor sizes and insulation types.
- 6.10 _____ 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.
- 6.11 _____ 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.).

- 6.12 _____ 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.).
- 6.13 _____ Indicate all motor horse power ratings if not supplied elsewhere.
- 6.14 _____ 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.
- 6.15 _____ Provide all applicable NCBC, Energy Code compliance data on the Building Code Summary sheet or on the electrical plans.
- 6.16 _____ 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.

The above requirements represent the minimum requirements for the acceptance of plans for review by City of Hickory and Catawba County Building Services. If required information is not included in the plans submitted, they are subject to being returned without having a review conducted.