



**Muhlenberg Township
Engineering, Codes & Zoning**

**210 George Street
Reading Pennsylvania 19605
Phone: (610) 929-4727 Fax: (610) 685-0912**

Commercial Plan Submission For New Construction And/Or Renovations

Permit applicants shall submit three (3) COMPLETE SETS of plans and specifications with each application for a permit. Plans and specifications are typically required to be prepared by a qualified Architect or Engineer licensed by the State of Pennsylvania to practice as such. Contact the building department to verify if your construction project requires an Architect or Engineer. Plans prepared by an Architect or Engineer shall have the stamp or seal of the Architect or Engineer responsible for preparation of the plans, applied directly to:

1. Each sheet of the reproduced drawings
2. Addenda and revisions
3. The cover, title page and table of contents of specifications and
4. The title page of engineering reports.

Through the seal shall appear the signature of the Architect or Engineer and the date of signature. Stamps or seals shall not be placed on reproducible drawings used to make multiple copies.

Plans shall be drawn to scale and shall clearly indicate the location, nature and extent of the work proposed and show in detail that it will conform to the provisions of the adopted model codes and standards and all other relevant laws, ordinances, rules and regulations. Plans shall be submitted on a minimum of 18- x 24-inch sheets. (Plans or details may be submitted on smaller size sheets when approved by the building department.)

A complete set of plans suitable for review should include: (Some projects will not require all of the following information on the plans or details. Please examine the information listed below. Information not applicable to a given project need not be included in the plans. Please check with the Plans Examiner FIRST to determine what information will be required to be submitted.) Submittals for Building Permits will NOT be accepted when they do not contain all of the applicable information as required below.

Soils Report - Soils reports are required for all new construction.

Code Analysis – Please provide all calculations.

- Occupancy Classification
- Construction Type (Specify all elements required to be fire-resistive construction)
- Allowable Area (Include all area increases taken)
- Allowable Height and Number of Floors

- Occupant Load and Required Exiting (number of exits and required widths)
- Plumbing Fixture Requirements
- Parking Requirements

Structural Design Criteria – The following information regarding structural design shall be included on the plans:

- Soil bearing capacity, including minimum dead load requirements
- Lateral earth pressure for basement and retaining walls
- Roof design live load (65 psf) and dead load
- Floor design live and dead loads
- Wind design speed and exposure
 - Seismic zone

Site Plan – Include the following information:

- Site orientation (North arrow)
- Legal description and property address
- Lot lines and property size in square feet
- Adjacent road and street names
- Easements, right of ways, building setbacks and building envelopes
- Proposed and existing utility improvements (utility poles, transformers, culverts, and fire hydrants. Please note that fire hydrant flows must meet all fire code requirements based on the occupancy of the building(s) being proposed.)
- Proposed and existing structures
- Existing and finished topographical contour lines, at two-foot intervals, for all disturbed areas. A storm water management plan addressing how all onsite and offsite flows will be dealt with, including but not limited to detention ponds, retention ponds, culverts, landscaping, ditches and snow storage area. Plan is to include 100-year event predevelopment run-off calculations and 100-year event postdevelopment calculations.
- Existing waterways and drainages and related Base Flood Elevations, Flood Plain and Flood Way delineation.
- Access driveways and their grades, sidewalks, parking, paving, delineate parking spaces (include handicap spaces) and curb cut locations. Roadways and cul-de-sacs must conform to fire code standards and fire department requirements.
- Top of foundation wall elevation related to contours on site plan

Foundation Plan and Details – Foundation plans and details shall include the following information:

- Foundation material description and specifications
- The location and size of piles and drilled caissons
- The location and size of footings
- The depth of footings, piles and drilled caissons
- The location and size of all foundation walls and piers
- The location, size, grade and spacing of all reinforcing steel

- Material and fasteners specifications for wood foundation systems
- Anchor bolt size and spacing
- Framing anchors and connectors to be embedded in concrete or masonry
- Concrete and masonry beam pocket locations and sizes
- Concrete slab thickness and reinforcement

Structural Framing Plans and Details – The structural framing plans and details shall include the following information:

- The location of exterior and interior columns, beams and girders, headers and lintels
- Construction details and material specifications for columns, beams, girders, headers and lintels, grade and species of all wood components, all steel strengths and welding specifications
- The location of all exterior and interior bearing and shear walls
- Bearing and shear wall construction details and material specifications
- Floor construction details and material specifications
- Roof construction details and material specifications
- Exterior deck and porch construction details and material specifications
- Bearing and connection details for structural members and assemblies

Floor Plans – Floor plans shall be provided for each individual floor (including basements, lofts or mezzanines, decks and porches, etc.) The plans shall be dimensioned so as to clearly show the following:

- Exterior and interior walls and partitions
- Exterior and interior wall opening locations and sizes (windows, doors, etc.)
- The use of each room or space
- Exterior decks
- Exterior and interior stairs and landings
- Exterior and interior guardrails
- Plumbing fixtures (sinks, lavs, tubs, showers, toilets, clothes washer, water heaters, etc.)
- Mechanical appliances and equipment (furnaces, boilers, fireplaces, woodstoves, etc.)
- Permanent counters and cabinets
- Details of accessibility for the disabled (ramps, maneuvering clearances, fixture elevations, etc.)
- Square footage of each floor from exterior wall to exterior wall, including stairs, mechanical rooms, storage and unfinished areas
- Door (and hardware) and window schedule

Elevations – Exterior building elevations shall be provided for each individual elevation and shall show the following:

- Windows and doors
- Porches, decks and guardrails
- Finish grade, existing grade and the line of the foundation below finish grade for each elevation

- Roof pitches (rise and run)
- Chimneys or vents for fuel-burning devices and any other permanent equipment installed on the exterior of the building.

Building Sections and Details – Architectural building sections and details shall include the following information:

- Foundation drainage details – drain tiled
- Interior wall and ceiling framing and finishes (stud sizes and spacing, drywall, paneling, etc.)
- Exterior wall framing and finishes (stud sizes and spacing, siding, veneers, etc.)
- Roofing details (underlayments and roof-covering materials)
- Fireplace construction details
- Stairway construction details (material specifications, stair width, rise and run, handrails)
- Guardrail construction details (material specifications, guardrail height, spacing of intermediate rails)

Fire-Resistive Design Criteria – Plans and specifications for buildings requiring fire-resistive construction shall include the following information:

- Fire-resistive structural frame details (columns, beams and girders, girder trusses, etc.)
- Fire-resistive wall and partition details
- Fire-resistive floor-ceiling and roof-ceiling details
- Fire-resistive assemblies for protection of openings (fire doors, fire windows, fire dampers)
- Penetration fire stop details (electrical, plumbing, mechanical and communication conduits, cables, pipes and similar systems)

Mechanical Plans and Specifications – Mechanical plans and specifications shall include the following information:

- Heating and cooling system appliance specifications (type of fuel, input ratings, cfm, etc.)
- Ventilation and product-conveying exhaust equipment specifications
- Appliance venting details
- Combustion air details
- Duct and plenum system design, material specifications and installation details
- Fire, smoke and radiation damper locations and specifications
- Fuel-gas piping design, material specifications and installation details
- Refrigeration system design, material specifications and installation details
- Commercial hoods and kitchen ventilation design, material specifications and installation details
- The location and specifications for vented decorative appliances, floor furnaces, vented wall furnaces, unit heaters and room heaters
- Miscellaneous heat-producing appliance locations and specifications

Plumbing Plans and Specifications – Plumbing plans and specifications shall include the following information:

- Potable water distribution piping design, material specifications and installation details
- Drain, waste and vent (DWV) piping design, material specifications and installation details
- Plumbing fixture and appliance specifications and locations. All sand/oil interceptors and grease traps must also be shown and properly sized (provide calculations)
- Location and specifications for backflow prevention devices

Electrical Plans and Specifications – Electrical plans and specifications shall include the following information:

- Location of outlets, lights, switchers and appliances
- Location of other loads (HVAC equipment, machinery, electric baseboard heat, large computers, etc.)
- A complete one-line electric service diagram and all load calculations
- Electric service entrance location

Fire Suppression and Detection Plans – The fire suppression system plans, specifications and hydraulic calculations shall include the following:

- Signature and certification number of either a registered professional engineer or a NICET Level III or higher engineering technician
- Specifications must be extremely narrative (including cut sheets)
- Specification sheets shall provide information on component operation and primary panel configuration, along with all devices and their operation
- All fire suppression systems shall conform with the Uniform Fire Code

The fire detection system plans and specifications shall include the following:

- Specifications must be extremely narrative
- Listing of alarm devices on equipment legend shall be color coded and correlated with colored devices on plans for easy location of such devices
- It is recommended that the standard Fire Protection Symbols for Architectural & Engineering Drawing (NFPA 172) be used in all design work
- Specification sheets shall be extremely narrative, providing information on component operation, primary panel configuration, along with all devices and their operation
- All fire alarm systems shall conform with the Uniform Fire Code, the requirement of NFPA 70 Article 760, National Electric Code, NFPA 72