

DRAWING STANDARDS

All drawings shall be clear and legible.

All drawings shall be drawn to scale, typically 1/8” or 1/4” scale (1/100 or 1/50 metric) for the floor plans, building sections, and elevation drawings. Larger scale drawings are required for walls sections and building details.

All floor plan partitions and walls shall be shown at the appropriate width for the scale used. Single lines wall and partition drawings are not acceptable.

All drawings shall be printed on standard stock print or copy paper of a uniform size. Spliced drawings are not acceptable.

All drawings shall be collated and separately bound into three (3) complete sets for new construction and additions, and two (2) complete sets for interior alterations and renovations.

Each drawing “**Title Block**” shall provide,

- project location (address/legal description),
- designer (full name), and
- design date (including current revision dates),

Each drawing shall include a BCIN design activity review and responsibility statement that includes the designers full name, registration/qualification number, and signature (*or architect and/or engineer seal & signature, where needed*) Alternately, the BCIN statement may be provided on the front sheet only, where it includes a full drawing index (listing all applicable drawings)

A “**Building Code Analysis**” is required on the drawing front sheet. Requirements for this building code analysis can be found in the “Guide to Building Permits for Large/Complex Building”.

DESIGNER QUALIFICATIONS (excluding Architects/Engineers)

Under the Ontario Building Code (Div C/Part 3), designers of buildings and building systems (except architects/engineers) must be qualified and/or registered through the Ministry of Municipal Affairs and Housing (MMAH) to practice in specific design areas.

These requirements apply to all building classifications (assembly, institutional, residential, business, mercantile, and industrial) and include single-family dwellings. Designer qualifications are identified through a MMAH numbering system (BCIN listings). *Note: Further restrictions on design qualifications apply to some building classifications (as per the architects/engineers acts).*

Some exceptions do apply. *Example: A homeowner designing his/her own home construction, addition, or alteration is exempt from the qualification and/or registration requirements.*

ARCHITECT/ENGINEER DESIGN

Where an Architect and/or Engineer is required for the design and review of a building (*as identified in the Ontario Building Code and restated in our “Large/Complex Buildings” pamphlet*), an Architect and/or Engineer shall be responsible for the design and review of their respective design for the project (e.g. architectural, structural, plumbing, mechanical, fire suppression, and electrical).

DRAWING REQUIREMENTS

The following lists of drawing requirements indicate the typical information that would be provided within a complete set of construction drawings for **new construction and additions**.

Where **alterations, renovation, or a change of use** is proposed, the drawings may also require information on the existing building conditions and construction, along with information on alterations or modification to the existing building.

SITE PLAN DRAWING

A **Site Plan Drawing** identifies buildings and other features in relation to property boundaries. It must identify existing buildings, structures, and features on the property, and the changes to the property created by the proposed project.

Alterations, Renovations, or Change of Use to a building may determine the need for existing site features to be identified and/or altered (e.g. parking, loading spaces, & fire access routes). If site feature information is required, or if features are altered, the information must be shown on a **Site Plan Drawing**.

Some of the information for a **Site Plan Drawing** can be found on the property survey. If a survey is not available, accurate information must be obtained for the **Site Plan Drawing**.

Minimum information requirements for **Site Plan Drawings** include, but are not limited to, the following:

- Title, Scale, and North Arrow
- Street Name, Address, and Legal Description
- Abutting streets and lanes
- Property lines and dimensions
- Rights- of- way and easements
- All existing buildings and structures (indicating shape and dimensions)
- Proposed construction (indicating shape and dimensions)
- Setbacks to all property lines from existing and proposed building and structures
- Separation distances between all buildings and structures
- Any building structures to be removed
- New/existing driveway locations and size
- New/existing vehicle aisles and dimensions
- New/existing parking stalls and loading spaces (size, locations, and numbers)
- New/existing sidewalks and curbs
- Fire access routes and hydrant locations
- Barrier-free access (ramps, landings, and curb cuts)
- Site plan control agreement requirements (if applicable)
- Well and septic tank/field location (if applicable)
- Site grading elevations (existing and proposed)
- Building elevation (top of main floor slab)

FLOOR PLAN DRAWINGS

Floor Plan Drawings provide a "bird's-eye view" of the different floor levels of your project. They show scaled dimensions of the project, and include rooms, spaces, walls, partitions, doors, windows, fixtures and other features.

For **renovation and alteration** projects, the drawings must clearly distinguish between existing, new, and demolished or removed construction.

Walls and partitions must be shown at an appropriate width for the scale used. Single line wall and partition drawings are not acceptable.

Drawing requirements for **Floor Plans Drawings** include, but are not limited to, the following:

- Title and scale
- Exterior walls
- Exterior Dimensions
- Interior partition
- Interior dimensions
- Door sizes and locations
- Window sizes and locations
- Room use names
- Information on existing attached structures
- Minor structural members (e.g. - lintel size, material, and lengths)
- Seating plans for Assembly Occupancies (e.g. restaurants)
- Adjacent tenant uses (identify tenant uses in adjacent suites)
- Demising wall construction (e.g. - between tenants)
- Fixed furnishing
- Millwork
- Wall schedules
- Partition schedules
- Door and frame schedules
- Room finish schedules
- Cross-section symbol
- Plumbing Fixtures
- Energy efficiency design (see “Energy Efficiency”).

BUILDING SECTIONS

Building Section Drawings show a view at an imaginary line cut through the building vertically, indicating the buildings structural and construction elements. The **Building Section Drawings** expose and identify the construction elements of the roof, walls, partitions, floors, ceilings, and foundations.

For most **renovation or alteration** projects, **Building or Wall Sections** would not be required. If the project involves alterations to the roof, floor, walls, or foundations components of the building, appropriate **Building or Wall Sections** (showing the proposed alterations) will be required.

Drawing requirements for the **Building Section Drawings** include, but are not limited to, the following:

- Title and scale
- Top of finish grade elevation
- Top of floor elevation(s)
- Bottom of footing elevation
- Building components (walls, roof, floors, foundations, etc.)
- Attachment/Relationship to existing building (as applicable)
- Room use names
- Height dimensions
- Material size & type
- Roof slope/pitch

BUILDING ELEVATIONS

Building Elevation Drawings show the exterior views of the building, for each building face. The drawings show height relationships and exterior finish information. A **Building Elevation Drawing** is required for each building face.

For most **renovation or alteration** projects, **Building Elevations Drawings** would not be required. If the project involves substantial alterations to the building exterior, **Building Elevation Drawings** will be required.

Drawing requirements for **Building Elevation Drawings** include, but are not limited to, the following:

- Title and scale
- Window types
- Top of floor elevation(s)
- Top of finished grade (referenced to site plan)
- Exterior building features (walls, roof, doors, windows)
- Attachment/Relationship to existing building (as applicable)
- Roof slope/pitch
- Roof venting
- Flashings

REFLECTED CEILING PLAN DRAWINGS

Reflected Ceiling Plan Drawings show a reflected plan view of the ceiling systems for the building. The plan drawing is shown as a mirror image of the ceiling, as projected onto the floor plan.

For **renovation or alteration** projects involves substantial changes to the ceilings (e.g. drywall to suspended ceilings), a **Reflected Ceiling Plan** will be required.

Drawing requirements for the **Reflected Ceiling Plan** include, but are not limited to, the following:

- Ceiling finishes/layouts (e.g. drywall, acoustic tile, linear, etc.)
- Bulkheads, dropped ceiling, ceiling height changes, etc.
- Lighting layouts (e.g. fixture, emergency and exit lighting)
- Mechanical systems louvres and grills
- Sprinkler head layout

STRUCTURAL DRAWINGS

Structural Drawings show the structural support components and details of the project from the foundation to the roof.

Drawing requirements for **Structural Drawings** include, but are not limited to, the following:

- Design load information
- Foundation plans, details, sections, and schedules.
- Floor and roof framing plans, sections, and details
- Structural steel framing plans, sections, and details
- Pre-engineered steel building design certificates
- Loadbearing pads, columns, beams and joists
- Precast concrete plans, details, and sections
- Slab-on grade, and slab plans, sections, and details
- Shoring/underpinning information and details

DESIGNATED STRUCTURES DRAWINGS

Designated Structure Drawings show specific structures that may not be identified as buildings, but must meet the requirements of Part 4 (Structural Design) of the Ontario Building Code, and require the design services of a professional engineer. These **Designated Structures** are specifically identified in Part 2 (General Requirements) of the Ontario Building Code. Where these structures are stand-alone structures and/or are not associated with a building project, they will require separate building permits.

Designated Structures include, but are not limited to;

- Retaining walls (exceeding 1 m in height)
- Large antenna and building mounted dish antennas
- Large/Heavy/ and/or high signs
- Outdoor pools with water depths exceeding 3.5 m.
- Pedestrian bridges,
- Exterior storage tanks and crane runways,
- Large Tents

GEOTECHNICAL REPORT

Projects requiring deep foundations, piles, caissons or mat foundations will require an engineered **Geotechnical Report**. A **Geotechnical Report** may be required for other projects based on the project scope or site conditions. All project will require verification of the foundation base conditions.

MECHANICAL DRAWINGS

Mechanical (HVAC) Drawings show the building systems that provide the heating, ventilation, and air conditioning for the project. **Mechanical Drawings** for special systems (e.g. kitchen, vehicle storage and/or repair facilities, etc.) are also required.

For **renovation or alteration** projects involving mechanical changes or additions, **Mechanical Drawings** (detailing the extent of alterations for the heating, ventilation, and air conditioning systems for the project) will be required.

Mechanical Drawings for special systems (e.g. kitchen, vehicle storage, vehicle repair facilities, etc.) are also required

Drawing requirements for **Mechanical (HVAC) Drawings** include, but are not limited to, the following:

- Heating, ventilation, and air conditioning system plans, equipment, details, and schedules
- Roof plan showing roof mounted equipment
- Repair/Storage garage ventilation systems (eg. CO systems)
- Kitchen exhaust hoods and fire suppression systems
- Spray painting ventilation and fire suppression systems
- High hazard systems and other specialized equipment
- Energy efficiency confirmation (see “Energy Efficiency”).

MECHANICAL DRAWINGS PLUMBING & FIRE SUPPRESSION

Plumbing Drawings show piping plans, piping schematics, materials, and fixtures used in the installation of all piping, fixtures, and appliances associated with sanitary and storm drainage, venting and water supply.

For **renovation or alteration** projects involving plumbing changes or additions, **Plumbing Drawings** must include information on the existing system sizes and materials.

Additional drawings, showing the building fire protection systems used for the suppression of fires (e.g. sprinkler, and standpipe systems), are required (where applicable).

Drawing requirements for **Plumbing Drawings** (including fire suppression systems) include, but are not limited to, the following:

- Site Service Plans showing,
 - Sanitary Sewer to the building (size, location & material)
 - Storm sewer to the building (size, location, & material)
 - Water main to the building (size, location, & material)
 - Fire hydrant locations
- Plumbing plan drawing (showing piping, sizes, & fixtures)
- Isometric drawing (showing sizes, waste, vent, and stacks)
- Schedules (showing fixtures, loading, water supply demand)
- Drain and stack hydraulic calculations
- Fire Suppression Systems showing,
 - Sprinkler plan (sizes, layout and head location)
 - Sprinkler material, specification, & hydraulic calculation
 - Standpipe plan (sizes, layout, and cabinet location)
 - Standpipe riser drawing (including cabinet location)

● ENERGY EFFICIENCY ●

Most new buildings and building additions must conform to energy efficient design standards. This is verified through the completion and submission of the “ASHRAE 90.1 Energy Certification Form” (available through our office) by the appropriate design professional.

PERMIT GUIDES AND INFORMATION PAMPHLETS

Additional information pamphlets are available for:

- Large/Complex Buildings (Construction/Additions),
- Large/Complex Buildings (Renovations/Alterations),
- Single Family Detached Residential Dwellings,
- Residential Basement Development,
- Residential Accessory Buildings,
- Residential Solid Fuel Burning Appliances
- Residential Decks,
- Demolition Permits.
- Plumbing Permits
- Residential Building/Plumbing Inspections

ELECTRICAL DRAWINGS

Electrical Drawings show the materials, systems, and equipment necessary to provide for the lighting, electrical power, fire alarm, and electrical equipment needs for the project.

For **renovation or alteration** projects involving electrical changes or additions, **Electrical Drawings** (showing the power, lighting, and life safety systems alterations) are required.

Drawing requirements for the **Electrical Drawings** include, but are not limited to, the following:

- Lighting System Plans showing,
 - Fixtures, fixture locations, and fixture schedules
 - Exit and emergency lighting
- Power Systems Plans showing,
 - Switches, receptacles
 - Power supplies
 - Emergency back-up and power systems
 - Electrical equipment type, locations, and schedules
 - Electrical panel schedules
- Fire Alarm System Plans showing,
 - Pull stations, detectors, signal devices, annunciators
 - System schedule and line drawing (fire alarm riser)
- Energy efficiency confirmation (see “Energy Efficiency”)

MISCELLANEOUS DRAWINGS

Additional architectural drawings may include, but are not limited to;

- Plan details (large scale plan view construction details)
- Section details (large scale side view construction details)
- Stair plans and details
- Barrier-free washroom/access details
- Equipment, retail shelving, industrial shelving layouts
- Canopy details

● DRAWING INFORMATION ●

The drawing information in this pamphlet indicates the drawing information that may be required. Drawing requirements will vary according to the specific project.

● FOR MORE INFORMATION ● Development Services Department (Building Division)

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Thunder Bay, Ontario, P7C 5K4
Tel: (807) 625-2216 Fax: (807) 623-9344
Office Hours: 8:30am – 4:30pm (Mon.–Fri.)



Guide to: Building Permit

DRAWING REQUIREMENTS

for Large/Complex Buildings

- Assembly ● Institutional ●
- Residential* ● Business ●
- Mercantile ● Industrial ●

*except Single Detached Residential Dwellings and Associated Accessory Buildings

This pamphlet has no legal status and cannot be used as an official interpretation of the various codes and regulations currently in effect. Users are advised to contact the Development Services Department, and reference the Ontario Building Code and the City of Thunder Bay Zoning By-law, for assistance and information.

A Building Permit Is Required Prior to Construction and Inspection

Building Permit Information