



Factory Assembled Structures Program

Factory-Built Commercial Buildings – Plan Submittal Checklist

Modular building construction plans must include the following drawings and information. Use this checklist to be sure your plans are complete. Incomplete plans will be returned without review. Plan reviewers are not involved in designing or assisting the manufacture in completing their design plans and forms.

This checklist provides general guidance for manufacturers and design professionals about the typical drawings and other information that must be submitted for departmental review of factory-built commercial buildings. *As such, this list may not be all-inclusive and may contain items that are not applicable to your particular project.*

Note: If your building floor area exceeds 4000 square feet, a design professional in responsible charge per IBC 107.3.4 must provide coordination of the drawings, and a pre-submittal meeting must be scheduled with FAS, the local building department, factory, architect and engineer to review the proposed project to assign review and inspection responsibility. The department may waive either of these requirements based on the scope of the proposed project.

Documents and associated items:

At the front of your package, include the following:

- A completed “plan approval request” form. Completed form [F623-006-000](#) - see instructions.
- The plan fee and fee worksheet for design plans and insignia; (see [WAC 296-150F-3000](#)).
- Either a draft Notice to Local Enforcement Agency form or the final NLEA form with an insignia application form and fees (agency forms [F623-013-000](#) and [F623-014-000](#)).
- A completed [Wildland Urban Interface Code Checklist](#) (for 2021 code cycle plans only).
- A copy of this checklist marked to show what items are included.

Next, include each of these:

- A completed set of [Washington State Energy Code \(WSEC\) forms](#) including; prescriptive or UA component worksheets, glazing schedule and heat sizing worksheet. WSEC forms and resources are at <https://waenergycodes.com/wsec-documents.php>.
- [Engineering calculations](#). Gravity and lateral load calculations are required for all structural designs. A Washington State registered professional engineer (PE) or a Washington State registered Architect must stamp all engineering calculations in accordance with WAC 196-23. Please see the [Plan Stamping Guidelines](#).
- [“Statement of special inspection” and “statement of structural observation”](#): When required by the building code a “statement of special inspection” and “statement of

structural observation” in accordance with chapter 17 of the IBC and sealed by the design engineer must be included in the submitted plan sets.

- A list of special inspectors and structural observers: Include a completed “Manufacturers Information on Special Inspection and Structural Observation” statement indicating Yes/No whether special inspection and structural observation are required and list the names of persons being retained by the manufacturer to do this work. Provide documentation of their credentials as necessary.
- Truss drawings (if you are using trusses and/or girder trusses). Each type of roof or floor truss must include an engineered drawing stamped by a Washington PE.

Plan sheets and associated documents:

Following the documents above, include a set of design drawings.

Design drawings and structural calculations must be stamped and signed by a Washington state registered professional engineer or registered architect in accordance with current Washington State laws and rules. The engineer’s registration board also provides guidance on this subject. See also the [FAS Plan Stamping Guidelines](#).

- Plan drawings must be neat, legible, and drawn to a recognized architectural “scale”.
- Each page of the drawing set needs to have a
 - drawing name, for example; “floor plan”, “details”, “plumbing”, etc.,
 - drawing number and
 - the date prepared or last revision.
- Cover drawing with:
 - Information identifying the person or company submitting the plans with mailing address, phone and email contact information. Also, include the factory address. The “factory address” is the off-site location where you will be building your modular building.
 - A list of any design professionals, such as engineers and architects for the project.
 - A list of all pages in the drawing set by page title and drawing number. You can choose the drawing numbers as long as each page has a unique number.
 - A list of the codes used to design the plan. These must include the version year of each code. See the WA State Building Code Council website for current information: <https://apps.des.wa.gov/sbcc/page.aspx?nid=4>
 - The location where the building will be installed and a list of the design criteria used for the building, such as roof load, wind load, earthquake zone etc. Most building department publish the required minimum design criteria for their city or county on their web site.
 - An architectural analysis must be provided in the design drawings, which shows how the building meets all building code design requirements. The analysis needs to show a clear path to compliance. Typical information provided in the analysis is the occupancy group classification, type of construction, allowable area, area increases, maximum height, sprinkler allowances, occupant loads, exit loads, travel distances, fire wall/partition location.
 - Other pertinent information, such as general notes, may be included.
 - Leave a 2”x3” blank space for the L&I plan approval stamp.

- Floor Plan of the main floor, and plan of any other floor stories or levels in the building. The plan needs to show:
 - The location of each module or section of the building and the associated manufacturer's serial number.
 - The locations of the exterior and interior walls.
 - The overall dimensions of the building and the interior dimensions for rooms and width of hallways.
 - Label each room showing its use (e.g. office, conference etc...).
 - Locations and sizes of doors, windows and skylights.
 - Location of any safety glazing.
 - Attic accesses and crawl space accesses if located inside the building.
 - Cabinets, equipment, appliances and fixture locations.
 - Interior stairs, location, orientation and run.
 - Exterior porches, decks, stairs, awnings.
 - Locations of handrails and guardrails at stairs, porches, lofts etc...
- Outside Elevations showing:
 - Siding and roofing materials (call out types or products)
 - Window and door configurations and swings
 - Roof eaves and overhangs.
 - Exterior porches, decks, awnings, and guardrails.
 - Include information documenting compliance with the Wildland-Urban Interface Code (for 2021 code cycle plans only).
- Cross Section(s) – a major transverse section through the building showing:
 - The main material components of the floor, wall and roof assemblies including: framing materials, sheathing type exterior coverings, type of insulation in each assembly, location/type of vapor retarder, interior finish, etc.
 - Vertical and horizontal dimensions showing overall width and height and the finished floor to ceiling dimensions for all areas. Multiple sections may be required if there are areas of varying ceiling height, etc.
 - Roof eave and overhangs.
 - Locations of roof vents, baffles, etc. (including a calculation of the venting per square foot of floor area).
 - Show the complete structural load paths from the roof through the supporting structure and into the foundation or chassis support locations under the floor of the building.
 - Include Information documenting compliance with the Wildland-Urban Interface Code (for 2021 code cycle plans only).
 - Cross sections should be drawn at 1/2" scale or larger.
- Structural Plans and Framing Plans (as applicable).
 - Types, locations and lengths of engineered shear-walls.
 - Wall headers, beam sizes, locations, column sizes, locations, and section/detail reference tags.
 - Structural framing drawings for floors and roof where the spacing and layout of the structural members is not obvious from the structural floor plan and cross section. If you are using trusses in a roof or floor, then provide a truss plan showing the location of each type of truss in the assembly. These may be part of the engineered truss drawings from the truss manufacturer.

- Construction/Section Details (as needed).
 - Relevant structural details including connections of trusses/ rafters to the beams and walls.
 - General fastening schedule or code section references.
 - Diaphragm and shearwall construction and connection details and/or schedules.
 - Shearwall and beam uplift tie details and/or schedules.
 - Truss bracing details.
 - Ridge beam fabrications details.
 - Section details are normally drawn at $\frac{3}{4}$ " scale or larger.
- Stair Details (if applicable).
 - If the building has an interior stair, provide detailed dimensions showing overall length and the rise and run of the steps along with any landing dimensions.
 - Indicate guardrail, and handrail, locations either on a "stair plan" or on the main floor plan.
- Foundation Plan, Details and Site Plan – these can be two separate drawings. Note: L&I only reviews the foundation plan and the siting of the building to be sure it is suitable for the general building design. The local building department where your building is being installed must approve your foundation and site plans.
 - Location of the building on the building site and dimensions to nearest property lines (a site plan is not needed if you list the clearances from property lines on the "Plan Approval Request" form).
 - Foundation wall locations with dimensions.
 - Pier and blocking locations with spacing dimensions.
 - Point load locations corresponding with the framing plans
 - Hold down/strap connection points (if applicable) corresponding to framing (brace/shear wall) plans.
 - Tie-down or special connection locations.
 - Details on foundation footings, walls and pier construction
- Chassis (for Modular Buildings with a permanent transport frame under it), this drawing(s) will require an engineer's stamp and supporting calculations.
 - All frame components such as steel beams, axles, cross-members, outriggers headboard and towing hitch.
 - Welding callouts showing how each of the chassis components is welded together. The welding callouts need to show the location, type and length of each weld.
 - A detail or details showing the connection of the modular building to the chassis.
 - A detail or details showing how the chassis is connected to the foundation system.
- Draft-stopping or fire rated construction located in or on the building must be detailed on the plans showing:
 - The location of draft stopping.
 - The locations and hourly ratings of the various fire resistant assemblies, fire/smoke dampers and fire doors/windows.
 - List the testing references showing the ratings assigned to the fire assemblies.

- Door and equipment schedules listing fire door/window and fire damper ratings, manufacturers, model numbers and characteristics.
- Details showing how penetrations, joints and openings in fire resistant assemblies are protected.
- Welding (as applicable for any welded assemblies):
 - All welding must be detailed on the structural plans.
 - Coordinate welding details with engineering calculations.
 - All welding is required to have special inspection.
- Hazardous Materials Locations
 - Identify location and quantities for use and storage of listed hazardous items per IBC Section 415.
- Electrical Floor Plan Drawing identifying and showing locations of electrical equipment such as:
 - Electrical panels, switchgear, MCC, ATS, MTS, UPS, transformers, motors, pumps, Utility meter, CT cabinet
 - HVAC equipment and water heaters.
 - Disconnects for equipment such as HVAC, water heaters, batteries, motors (Indicate if fused or non-fused)
 - Alarms and detectors.
 - Receptacles, lights and switches. (GFCI receptacles shall be identified “GFCI”)
 - Appliances.
 - Emergency lighting.
 - Electrical floor plan drawing shall also:
 - Properly identify rooms and spaces
 - Identify all devices/equipment with a circuit number(s) consistent with a circuit(s) on the panel schedule drawing.
 - Contain symbol legend or shall be provided on an additional electrical plan drawing.
 - The electrical plan shall indicate the “wiring method(s)” utilized (interior and exterior). See Chapter 3 of the National Electrical Code for wiring method types Examples: EMT, RMC, LFMC, FMC, NM-B– do not use words such as “romex”
 - Required working space width and depth per NEC 110.26A or for over 1000 volts NEC 110.32 and 110.34A . Working space depth and width shall be identified with dash lines and in inches or feet.
 - Over 1000 volt system/equipment– indicate ampacity rating, nominal voltage, nominal voltage to ground, condition per NEC Table 110.34A, type of system (Wye or Delta), grounded or ungrounded.
 - Over 1000 volt system electrical plans and documents shall display compliance with NEC 490.48A (designed by WA State qualified licensed professional engineer)
 - Electrical cover drawing shall indicate the currently adopted NEC year and WAC 296-46B
- Electrical drawings and the Washington State Energy code
 - WSEC C405.2 electrical drawings shall include details of required lighting controls
 - WSEC C405.10 shall clearly show details of the installation of controlled receptacles (offices, classrooms, conference rooms, work rooms, printing/copy rooms, break rooms)

- WSEC 406: for buildings that utilize efficiency packages such as C406.3 Reduced Lighting Power and/or C406.4 Enhanced digital lighting controls, details and calculations shall be included on an electrical drawing or other plan set drawing.
- WSEC C411 Solar Readiness: Electrical drawing(s) including the required items described items in C411.8 Photovoltaic interconnection.
- Electrical Panel Schedules on Panel Schedule Drawing shall indicate:
 - Panel Identification
 - Panel board, switchgear, switchboard short circuit current rating
 - System Voltage, Phase, Bus Rating, bus AIC rating
 - Main CB Amp rating/setting and Main CB AIC rating, or Main Lug Only,
 - Each branch circuit number (shall be shown as actual installation (odd numbers on left and even numbers on the right)
 - Each branch circuit breaker rating/setting
 - Circuit identification/description (Clear, evident, specific purpose)
 - Connected VA or KVA on each circuit phase
 - Total connected KVA
 - Size of each branch circuit conductor
 - Identify each GFCI or GFPE circuit breaker
 - Circuit breakers that are lockable per NEC 110.25
- A “one line Service/Feeder” diagram shall indicate:
 - Distribution equipment identification
 - System Voltage and phase (single phase or three phase)
 - Bus ratings and AIC ratings
 - Clearly identified Service Point and Service Disconnect if building is supplied by service
 - Clearly identified Building main disconnect if building is supplied by feeders from a remote service.
 - Service and feeder conductor sizes, type of conductor, and counts (including grounding electrode conductors(GEC) and/or equipment grounding conductors(EGC)). Example (3) 3/0 XHHW-CU, (1) #4 XHHW-CU (EGC)
 - Service and feeder overcurrent protective device sizes/ratings
 - Service and feeder raceway sizes, types, and counts. (Examples of types: RMC, EMT, schedule 80 PVC) -
 - Type of wiring methods if other than raceway (examples cable tray, bus duct)
 - Panel boards, switchboards, switchgear, MCC bus rating and rating/setting of main circuit breaker or fuses.
 - A compliant grounding electrode system per NEC 250.50 including size of grounding electrode conductors and type of grounding electrodes as identified in NEC 250.52A. (All available grounding electrodes shall be used).
 - Locations of fault calculation values greater than 10,000 AIC shall be identified
 - Details indicating compliance with Ground Fault Protection of Equipment if required by NEC 230.95 Ground Fault Protection of Equipment or High –Impedance Grounded Neutral System per NEC 250.36 (Typically 1000A or more 277/480 volt systems)
 - 1200A or more - Details indicating compliance of Arc Energy Reduction required by NEC 240.87

- Electrical load calculation drawing shall include:
 - A total electrical building load calculation per NEC 220 or other applicable NEC section.
 - An electrical load calculation for each panel board or other distribution equipment per NEC 220

Electrical load calculations shall indicate:

- Panel or distribution equipment identification/name
 - Bus amp rating, System voltage
 - Connected load in VA or KVA for each load type category
 - Demand factor applied to each load category
 - Calculated load in VA or KVA for each load category
 - Total connected load in VA or KVA and total connected amp load
 - Total calculated load in VA or KVA and total calculated amp load
- Generators (electrical plan review)

Electrical or overall cover drawing shall indicate the type of system listed below:

- NEC 702 Optional Standby System
 - NEC 701 Legally Required Standby System
 - NEC 700 Emergency System
 - NEC 517
 - NEC 708 Critical Operations Power Systems (COPS)
- Generator (electrical plan review) continued:

Electrical or overall cover drawing shall indicate:

- If the generator is UL 2200 listed.
 - If the generator enclosure is in accordance with NFPA 110.
 - Generator Voltage rating, ampacity rating, KW rating, KVA rating
 - Generator model number
- Generator (electrical plan review) continued:

Electrical floor plan drawing and/or one line diagram as applicable shall indicate:

- Location of generator main circuit breaker
 - Rating/ setting of main circuit breaker
 - Required working space width and depth (working space shall be a flat level surface)
 - 800 amps or more or over 1000 volts -Identify personnel doors identified with listed panic hardware or listed fire exit hardware.
 - State if generator is a separately derived system or a non-separately derived system (NEC 250.35)
 - Generators over 15 KW rating – Additional emergency disconnecting means located outside the equipment room or generator enclosure.(NEC 445.18)
 - Emergency electrical system automatically illuminating generator/electrical room – (IBC 1008.3.3)
- Hazardous Classified locations

Floor plan/area classification drawing:

- Shall be stamped, signed, and dated by a Professional Engineer registered in Washington State whom uses appropriate NFPA standards as a basis for classification.
- All interior and exterior areas/spaces shall be documented indicating the Class, Division, and Group(s)
- The radius of the Class 1 Division 2 area adjacent to the Class 1 Division 1 area space shall be shown and dimension/measurement indicated.
- Additional electrical floor plan drawing or other drawing shall indicate locations of conduit seals
- Electrical floor plan drawing / legend shall clearly identify each piece of equipment is listed for the hazardous location: example: “explosion proof”, “Class 1 Division 1 Groups C, D”
- All electrical plans for educational facilities, hospitals, and nursing homes
 - Are not permitted to be plan reviewed and approved by a Licensed Professional plan reviewer.
 - Must be prepared by, or under the direction of, a consulting engineer registered under chapter 18.43 RCW, and chapters 246-320, 180-29, and 388-97 WAC and stamped with the engineers (Washington State) mark and signature
- Potable water line drawing in plan or isometric view. Indicate:
 - The type of piping material.
 - All fixture locations.
 - Pipe size and locations along with changes in direction.
 - Indicate where the water service and the water heater connect along with shut off valves required in these locations.
 - Indicate the size, and type, of the water heater
 - Note seismic strapping for tank-type water heaters.
 - The pressure relief valve (PRV) with the overflow pipe discharging to the exterior of the building.
 - A tee must be installed at each cold-water inlet to a water heater tank, so that an expansion tank can be added if required by the local building department.
- Drain/waste/vent (DWV) piping system shown in isometric view. Indicate:
 - Type of pipe material.
 - The sewer connection location
 - All fixture locations.
 - All pipe runs with the pipe size, changes in direction.
 - Locations of clean-outs, traps and vents through the roof.
- Gas System (if applicable) In plan or isometric view. Indicate:
 - List the type (propane or natural gas), and pressure of the gas piping system.
 - The type of pipe material.
 - Locations, length and size of each part of the gas piping system along with changes in direction.
 - Label the points where gas appliances connect to the system.
 - List the BTU input rating of each appliance connected to the system.
 - Indicate where the gas service connects to the system.

- Indicate where all shut off valves are located where required at the service and at each appliance.
- Fire Sprinkler (if applicable)
 - Plans showing location and types of sprinkler heads, locations and size of piping runs and the location of the sprinkler riser.
 - Hydraulic calculations
 - Sprinkler riser diagram.
 - Cut sheets for each sprinkler head type, the piping material and for the components of the sprinkler riser.
 - A WA registered sprinkler designer must stamp sprinkler plans and calculations.
- Mechanical drawing showing
 - The location of all equipment such as furnaces, heaters, heat pumps, mini-split HVAC system components. List the make, model and size of equipment.
 - Heat loss/gain calculations showing proper sizing of the HVAC system (may be included on the energy compliance forms).
 - Locations of controls such as thermostats and timers.
 - Locations, type and size of ductwork and registers that are part of a forced air heating system.
 - Hydronic systems must include a plan of the zoned piping layout and a diagram of the boiler set up.
 - Locations, make, model of spot ventilation fans, and the whole building fan. Show the method of control for the whole building fan –intermittent, or continuous.
 - Information on special equipment required for energy credits
 - The exterior termination locations of all exhausts and condensate drains.

Once you are ready to submit please email FAS1@lni.wa.gov for electronic submittal instructions. When your plans are received, they will be assigned a plan number. It will typically be several weeks before the review of your plan will start. Once we have reviewed your plans, we will send you an approved plan set or we will notify you via email of what else we need to finish our review.

This list may not be all-inclusive and may contain items that are not applicable to your particular project. Plans containing repetitive non-complying code issues that have been clearly identified in prior reviews may be returned to the applicant for revision prior to acceptance of the submittal.