

Submittal Requirements



City of Portland Oregon
Development Services Center
1900 SW Fourth Avenue
Portland, Oregon 97201
503-823-3018
www.portland.gov/bds

Bureau of Development Services
Bureau of Environmental Services
Bureau of Fire, Rescue, & Emergency Services
Bureau of Parks & Recreation
Bureau of Water Works
Bureau of Transportation

Radio Frequency Transmission Facilities

Radio Frequency Transmission Facilities include all devices, equipment, machinery, structures, or supporting elements necessary to produce nonionizing electromagnetic radiation within the range of frequencies from 100 KHz to 300 GHz and operating as a discrete unit to produce a signal or message. This handout describes information that is typically required when applying for a permit for the construction of:

- **New Radio Frequency Transmission Facilities** such as broadcast towers, communication towers, point to point microwave towers, rooftop structures, and ground, building and building-wall located structures, among others.
- **Alterations or additions to an existing Radio Frequency Transmission Facility**, including antenna and equipment replacements and additions, and replacement or addition to any supporting components or construction.

Application Materials

- Completed [Building Permit Application](#)
- Completed [Radio Frequency Transmission Facilities Registration Form](#)
- Soils Report for new or existing monopole, tower, or tree facilities or as otherwise required by state and local building codes.
- One (1) copy structural calculations from a registered Professional Engineer (see specific requirements below)
- Letter from a registered Professional Engineer (Radio Frequency specialty) on appropriate letterhead (see specific requirements below)
- Four (4) copies each of Site, Architectural, Civil, Structural, Electrical, and landscape (where applicable) plans for the area of proposed work and areas affected by such work. The structural plans must show and detail all existing and proposed RF devices, equipment, machinery, structures, and supporting elements affixed to the building or tower.
- Documents showing work included in all open permits

What permits will you need?

The Application Materials outlined on this sheet will help us to review and issue your building permit. For commercial alteration projects, you may also need separate [plumbing](#), [mechanical](#), and/or [electrical](#) permits for work done by contractors in each specialty, depending on your individual project.

Before Applying for a Permit

It is the responsibility of the applicant to research permit records to identify if there are any existing “open” wireless/ RF permits associated with the property. An “open” permit is defined as any permit whose status is either

1. Under Review
2. Approved to Issue
3. Issued
4. Under Inspection
5. Expired
6. System Expired

All previous “open” RF permits must be finalized before an application for a new permit can be submitted. The applicant may arrange to have the “open” permits finalized by arranging for final inspections of open work, or by arranging for an inspection to show that work in an open permit was not done, in which case the “open” permit will be cancelled.

Exception: Where the scope of work proposed under a new permit application does not overlap and does not affect or will not be affected by any work shown in an open permit, a new permit application may be taken in for review. It is the responsibility of the applicant to obtain copies of the drawings of all open permits and show that the work being applied for will not affect or be affected by any work shown in an open permit.

Permit technicians will review the submitted materials at intake. If it is determined that no overlap/interference exists, the new permit may be taken in for review.

Need Help?

We encourage you to visit the Development Services Center (DSC) to discuss your individual project needs. Please be aware that, since every project is unique, there may be some situations where you will be asked to provide additional information, or your alteration project may not require all the items on this list. Refer to contact information on the back page.

Plan Document Checklist

- Clearly distinguish between existing conditions and proposed work.
- Plans depicting structural work need to be stamped by an architect or engineer, registered in the State of Oregon.
- The plans must be legible (all notes must be a minimum of 10 point font size on the documents that are submitted), reproducible, black and white, with appropriate line weights and line types.
- Use an adequate paper size and a recognizable scale that will provide room to clearly show all details and allow for the addition of City review notes and stamps.

Site Plans

- Property lines with dimensions, adjacent street names, easement locations and types, vicinity map, north arrow drawing scale, and lot area in square feet.
- Property address, R number and legal description.
- All site related improvements including grading and erosion control (if ground disturbance is proposed).
- All existing and proposed structures on site with distances from property lines and other structures. (Clearly show that items installed as part of the permit do not extend beyond the boundary of the site).
- Utilities (If new tower or monopole) including gas lines, power poles, street lights, and all new and existing water meters and water piping with points of connection to the City water system.
- Location, dimensions, and area (in square feet) of all existing and proposed paving.
- Landscaping, proposed and existing as required by land use review or Zoning Code for project, and erosion control plan (if any ground disturbance).

Architectural Plans

- General Building Code Information** including scope of work proposed, building location, building owner, Building Code edition, Building Construction Type, Uses of building, Occupancy Classification(s), number of stories, overall building area (square feet), and any other applicable building code information.
- Floor Plans** (for work that will occur inside a building), fully dimensioned and labeled, including existing and proposed walls, walls to be removed, doors with swing direction, windows, stairs, plumbing fixtures, accessibility clearances, corridors, uses of rooms/areas, fire wall types and fire-rating, exit signs.

- ❑ **Building or tower exterior elevations** showing each side of the building, with exterior finish materials and height of the building or tower above grade. If rooftop antennas are proposed, please include the following dimensions:
 - Top of roof or parapet if applicable from grade.
 - Top of mounting device above roof or parapet as appropriate for each antenna or sector.
 - Top of last habitable space (ceiling height of the last habitable floor) above grade.
 - Distance from bottom of the antenna to habitable space for each antenna or sector.
 - Distance from top of the antenna to habitable space for each antenna or sector.
 - (The last three dimensions above do NOT need to be depicted if an engineer's letter, as described below, states that the proposed installation will meet the requirements of Table 274-2 in the Zoning Code).
- ❑ **Roof Plan** (for building installations) showing antenna and sector locations as well as indicating existing equipment and antennas from all other carriers if the proposal is a co-locate. Also depict drains, vents, access hatch and roof-mounted equipment, and skylights.
- ❑ **Building or tower** sections and details as necessary to clearly indicate all required construction information.

Structural Plans and Calculations

GENERAL

(These are minimum requirements. Further information may be required for specific installations)

The weights and geometry of all equipment must be shown on the drawings. If a design is based on the concept that you are replacing old equipment with new and therefore not adding any load, provide the weights and geometry of the equipment to be removed. If new equipment will be installed and then old equipment taken down after installation of the new, structural calculations must be provided for the interim load of both new and old equipment together.

Verify that all existing items that will be affected by work done in the permit have been previously permitted or provide calculations showing that all the affected work is structurally adequate.

Investigate all other current outstanding building permits on the site. Demonstrate that there are no conflicts, physical or structural, between your permit and all other outstanding permits.

TYPES OF ANTENNA

New Monopole or Tower

- Details, weights and geometry of pole and all appurtenances. Include height of pole and elevation of all appurtenances.
- Calculations that verify the adequacy of the pole to resist vertical, seismic and wind loads.
- Calculations that verify the adequacy of the foundation to resist seismic and wind loads, and details of foundation. Include the base connection detail.
- Calculations and details for connection of appurtenances to pole.
- Geotechnical investigation and soils report providing recommendations for the design and construction of the foundation. Reference Section 1803 of the 2010 OSSC.

Existing Monopole or Tower

- Plan and elevation views of existing monopole or tower.
- Details, weights and geometry of pole and all appurtenances. Include height of pole and elevation of all appurtenances.
- Calculations showing less than 10% seismic or wind load increase over original loading.

- If load increase exceeds 10%, check as a new monopole. Consider load increases applied to the pole, foundation and all connections to the foundation. See above.
- Calculations that verify the adequacy of the connections of the appurtenances to the pole and details defining the connection of appurtenances to pole.
- Drawings of existing monopole, including the existing foundation in plan and detail.
- A copy of the geotechnical investigation and soils report prepared for the existing monopole. Provide updated report to reflect current code requirements if load increase exceeds 10% as noted above.

Trees

- Details, weights and geometry of pole and all appurtenances. Include height of pole and elevation of all appurtenances.
- Calculations that verify the adequacy of the pole to resist vertical, seismic and wind loads.
- Calculations that verify the adequacy of the foundation to resist seismic and wind loads, and details of foundation.
- Calculations and details of branch support, branch geometry and construction.
- Geotechnical investigation and soils report providing recommendations for the design and construction of the foundation. Reference Section 1803 of the 2010 OSSC.
- For additions and alterations to existing trees, provide drawings showing the tree structure and the foundation, as well as documentation that the installation is compliant with all previous permit requirements (inspections, etc.).

Roof Top Mount

- Details, weights and geometry of all items being attached to the roof.
- Complete plans and details of existing structure being used to support the new items.
- Calculations showing the existing structure can support the new items. Address wind and seismic load conditions.
- Calculations showing that the connections details are adequate. Address wind and seismic load conditions.
- Details used to attach all items to roof structure (all equipment must be positively attached to structure).

Roof Top Screens

- Existing building structure framing plan.
- Plan and elevations of roof top screen. Include dimensions.
- Screen structural framing member sizes and connections.
- Calculations that verify the adequacy of the screen. Include lateral system.
- Calculations that verify the adequacy of the existing building structure.
- Calculations must address wind and seismic load conditions.
- Details showing attachment of the screen to the roof top, including calculations.
- For FRP screens, verify that the design meets FRP Guidelines contained in the City of Portland Code Guide IBC/26#1.

Miscellaneous Mounts (Parapets, Wood Poles, Water Tanks, Stacks, Towers, Light Poles)

- For installation on City of Portland water tanks, please obtain approval from the Portland Water Bureau's Property Management Group prior to applying for the building permit.
- Details, weights and geometry of all items being attached to the miscellaneous mount.
- Details showing the construction of the structure—wood stud parapet, concrete parapet, pole construction, etc.

- Framing plan of the structure being used to support the antenna.
- Calculations that verify the adequacy of the existing structure when supporting the new loads.
- Details defining the connection of the new items to the existing structure.
- Calculations showing that the connections details are adequate.
- Calculations must address wind and seismic load conditions.

Miscellaneous Equipment (racks, cabinets etc.)

- Details, weight, geometry of all miscellaneous equipment.
- Details and geometry of the structure that is supporting the miscellaneous equipment.
- Calculations that verify the adequacy of the structure that is supporting the miscellaneous equipment.
- Details showing the installation of the miscellaneous equipment, including seismic restraint.
- Calculations that verify the adequacy of the restraint details.

Electrical Plans

- Indicate location for wiring, generators, lights, fans, and show compliance with Building Code electrical requirements. A separate electrical permit must be obtained by the electrical contractor.

Civil Plans (when applicable)

For simple projects, this information can be incorporated into the site plan where details are clearly shown.

- Erosion Prevention and Control Plan, Utility and Stormwater Drainage Plan.
- Grading Plan, Excavation/shoring plan (shoring design by engineer).

Note: Additional information will be required for development within the floodplain. Please call Site Development at 503-823-6892 for floodplain development requirements.

Radio Frequency Engineer's Letter

The Zoning Code (Chapter 33.274) requires that each Radio Frequency Transmission Facility request meet Federal emission standards. Compliance with these requirements must be verified by a letter written by a qualified licensed engineer with a Federal Communications Commission First Class or General Radio-Telephone License or under the supervision of a registered professional electrical engineer, per 33.274.070.A. The letter must include the following elements:

- Description and location of the proposed work.
- The current professional stamp and signature of an engineer with the qualifications described above if a third party engineering firm is used, OR the signature of an employee of the carrier with a job title given indicating that the person works in the carrier's engineering department.

Request for Permit Extensions

In general, request for extensions for permit issuance or to complete the work under an issued permit will not be allowed. Exceptions to this may be appealed and considered on a case by case basis only if applications from other carriers are not impacted.

Canceling a RF Permit

If at any time, an applicant intends to cancel a permit, the applicant must request an inspection to validate that none of the work has been done. If work has been done, it must be legalized.

Helpful Information

City of Portland, Oregon
1900 SW 4th Avenue, Portland, OR 97201
www.portland.gov/bds

General Office Hours:

Monday through Friday, 8:00 am to 5:00 pm
BDS main number: 503-823-7300

Permit Information is available at the following location:

Development Services Center (First Floor)
For Hours Call 503-823-7310 | Select option 1

Permitting Services (Second Floor)
For Hours Call 503-823-7310 | Select option 4

For more detailed information regarding the bureau's hours of operation and available services;



Visit our website
www.portland.gov/bds

All information is subject to change.

Important telephone numbers

BDS main number	503-823-7300
DSC automated information line	503-823-7310
Building code information	503-823-1456
Zoning information	503-823-7526
Permit information for electrical, mechanical, plumbing, sewer and sign.....	503-823-7363
Development review process	503-823-7357
Permit resources and records.....	503-823-7660
System development charges information	
Bureau of Environmental Services	503-823-7761
Bureau of Parks & Recreation	503-823-5105
Bureau of Water Works	503-823-7368
Bureau of Transportation.....Select option 2	503-823-7002
BDS 24 hour inspection request line requires IVR number and three digit type of inspection code.....	503-823-7000
Portland License Bureau.....	503-823-5157
City of Portland TTY	503-823-6868