

# SUPPLEMENT TO THE TRI-COUNTY COMMERCIAL APPLICATION CHECKLIST

**Date:** \_\_\_\_\_

**Project Name:** \_\_\_\_\_

**Project Address:** \_\_\_\_\_

**Scope of Work:** \_\_\_\_\_

**Reference #:** \_\_\_\_\_

**Map & Tax Lot #:** \_\_\_\_\_

**Contact Person:** Name: \_\_\_\_\_

Phone: \_\_\_\_\_

Cellular: \_\_\_\_\_

Fax: \_\_\_\_\_

E-mail: \_\_\_\_\_

**Company:** \_\_\_\_\_

**Please Note:**

- This supplement is provided to give a brief explanation of the requirements associated with the checklist items that constitute the Tri-County Commercial Checklist. For more detailed information please refer to the jurisdiction where your project will be located, or refer to the applicable code section, rule, or statute as indicated.
- Section 106.3.3.1 of the Oregon Structural Specialty Code (OSSC) requires that plans be of sufficient clarity to indicate the location, nature and extent of the work proposed and show in detail that it will conform to the provisions of this code and all relevant laws, ordinances, rules and regulations.

**Pre-submittal Process**

An applicant may request a pre-submittal meeting with the jurisdiction in which the project will be built. The meeting can take place during the conceptual, schematic, or “in-progress” phases or when the applicant has completed plans.

# Index of Supplemental Checklist Sections

	Page
1.0 General Project Data.....	3
2.0 Civil Data.....	6
3.0 Architectural Data.....	10
4.0 Structural Data.....	15
5.0 Mechanical Data: New construction, tenant improvement, gas piping permits.....	22
6.0 Mechanical Data: Additional or replacement rooftop equipment installation permits.	27
7.0 Mechanical Data: Type I and II Kitchen Hood Permits.....	29
8.0 Plumbing Data.....	31
9.0 Electrical Data.....	34
10.0 Fire Suppression Data.....	38
11.0 Fire Detection and Alarm Data.....	42
12.0 Re-roof Installation Data.....	45
13.0 Jurisdictional Requirements.....	47

# Supplemental Section 1.0 General Project Data

---

## Construction Documents

No: \_\_\_\_\_ Item: \_\_\_\_\_

- 1.1  REQUIRED (Number) \_\_\_\_ Sets Of Plans

Consult the local jurisdiction for the exact number of plans required to review your project.

- 1.2  REQUIRED Cover sheet title block

The cover sheet typically has affixed on it a title block which includes the following information:

- Project name.
- Project address.
- Map and tax lot/state Tax I.D. number.
- Owners name, address and phone number.
- Designer/preparer (include address, phone number, fax number, and contact person).
- Date of preparation (or revision).

- 1.3  REQUIRED Cover sheet vicinity map

The cover sheet vicinity map typically includes the following information:

- North arrow.
- Location of the project relative to at least two major cross streets in urban areas and one cross-road in rural areas.

- 1.4  REQUIRED Cover sheet plan index

The cover sheet plan index indicates the location of specific types of information to be found within the plan set. Typically designers will give a prefix to each type of information (i.e. A for Architectural, S for Structural, P for Plumbing, etc.).

**Please Note:** Number all sheets to correspond with the plan index.

- 1.5  P  NA Code summary

The code summary typically contains a minimum amount of information which includes the following:

- Governing codes and standards used (The applicable editions of the State of Oregon Specialty Codes, Uniform Fire Code, National Fire Code, etc.).
- Occupancy group classification.
- Type of construction.
- Actual and allowable area calculations.
- Building height and number of stories.
- Location on the property (relative to the actual property lines or assumed property lines).
- Fire suppression and detection information.
- Out Side Air (OSA) occupancy ventilation requirements based on use.
- Minimum number of plumbing fixtures required by OSSC Section 2902.
- Method of Energy Conservation calculation per OSSC Chapter 11.
- Whether or not project is in a high hazard landslide zone.
- Seismic zone.
- Soil bearing pressure.
- Snow load.
- Wind speed.
- Exposure Factor

- 1.6  P  NA Deferred submittal summary

The architect or engineer of record must list the deferred submittal items on the plans and submit the deferred submittal documents for review, and approval by the Building Official (OSSC Section 106.3.4.2).

**Please Note:** Deferral of any submittal items must have prior approval of the Building Official. Please contact the local jurisdiction for pre-approval of deferred submittal items prior to submitting a deferred submittal list for your project.

1.7  P  NA Professional stamp and signature

Section 106.3.2 of the OSSC directs the Building Official to only accept plans, computations and specifications that are prepared and designed by an architect or engineer licensed by the State of Oregon to practice as such. Section 106.3.4.1 states that the architect or engineer of record be responsible for reviewing and coordinating all submittal items prepared by others, including deferred submittal items, for compatibility with the design of the building. Licensed architects and engineers must refer to the appropriate state statutes pertaining to their practice to insure compliance with these regulations.

1.8  P  NA Fire and life-safety plan

A fire and life-safety plan is typically required for most projects. The FLS plan consolidates essential FLS information into a single location in order to ensure that all FLS issues can be expeditiously addressed. The FLS Plan typically contains a minimum amount of information which includes, but is not limited to the following:

- Governing codes and standards used (The applicable editions of the State of Oregon Specialty Codes, Uniform Fire Code, National Fire Code, etc.).
- Location and rating of all vertical and horizontal occupancy separations.
- Location and rating of all area separation walls.
- Location and rating of all rated wall and floor, floor / ceiling, roof/ceiling, and roof assemblies.
- Fire/Smoke damper locations.
- Reference to sheet numbers where fire resistive construction detail(s) can be found.
- Use of each room or area (e.g. office, storage, sales, shop, etc.).
- Occupancy group classification for each room or area.
- Floor area of each room or area.
- Occupant load factor used for each room or area.
- Occupant load of each room or area.
- Exit analyses diagram that clearly indicates the following four exiting criteria.
  1. The number of exits required for each room or area.
  2. The number of exits provided for each room or area.
  3. The longest anticipated exit path in each room or area.
  4. The longest anticipated exit path on each floor.
- Exit signage and exit illumination details.
- Locations of all doors that require panic hardware.
- Locations of all doors that require special closures or gaskets.
- Locations of all areas that require fire suppression.
- Standpipe Class and location(s).
- Locations of all areas that require fire detection/alarms.
- Fire extinguisher types, sizes and locations.
- Hazardous Materials Matrix. Indicate if hazardous materials are present, list proposed quantities and containment/separation requirements. (Please provide Material Safety Data Sheets for all listed materials - Reference G1.7D)

1.9  P  NA Landscape plan

The landscape plan typically includes the following information:

- Earthen berms.
- Plant species and locations.
- Water features (streams, ponds, etc.).
- Irrigation plan.

**Please Note:** Contact the local jurisdictions planning department for specific landscape requirements.

1.10  P  NA Landscape specifications

Contact the local jurisdictions planning department for specific landscape requirements.

## Supporting Documents

No: \_\_\_\_\_ Item: \_\_\_\_\_

1.20  P  NA Land use or planning actions

Contact the local jurisdiction to determine if a copy of the conditions of approval from the local Land Use and Planning/Zoning department will need to be provided.

1.21  P  NA Required fire flow calculations

Contact the local jurisdiction for specific fire flow requirements.

1.22  P  NA Fire hydrant flow test report

The fire hydrant flow test report typically includes the following information:

- A site plan, including elevations, indicating which hydrants are being flowed.
- Static and residual pressure.
- Actual fire flow at 20 psi for the required hydrants.
- The method used to calculate the flow (tables, graphs, computer programs, etc.).
- Time and date of the test.
- Name and address of testing agency.

1.23  P  NA Fire department or fire district building survey report

Contact the fire district for a copy of the Building Survey Report form to use in their area.

1.24  P  NA Material safety data sheets (MSDS)

Provide an MSDS for each hazardous material listed in item 1.8 Fire And Life – Safety Plan. Provide a corresponding list stating approximate quantities of each material.

**Please Note:** After evaluation of submitted information, the local jurisdiction may require a Hazardous Materials Inventory Statement (Reference Section 3 – Architectural Date, item 3.22 - HMIS)

## Supplemental Section 2.0 Civil Data

---

### Construction Documents

No: \_\_\_\_\_ Item: \_\_\_\_\_

2.1  REQUIRED Site plan

See OSSC Section 106.3.3.1. The site plan typically includes the following information:

- North arrow.
- Actual property lines and assumed property lines.
- Location of building(s) for proposed and existing projected building footprint. This shall include canopies, awnings, covered walkways, decks, loading docks, etc.
- Location of adjacent streets with names.
- Site area in acres and square feet.
- Calculated area of impervious surfaces.
- Total number of standard parking stalls, accessible parking stalls, and compact stalls.
- Accessible route to public way and site accessibility.
- Curbs, driveways, sidewalks, retaining walls, other site structures and features.
- Easements.
- Flood-plain elevation information.
- Wetlands.
- Site specific geological hazards.

**Please Note:** Site utility, grading & erosion control information may be included on the Site Plan if of sufficiently large scale and detail to be clear and understandable. See the explanation of those specific items next.

2.2  REQUIRED Site utility plan

Reference the Oregon Plumbing Specialty Code (OSPC) for potable water, sanitary and storm drainage requirements. The site utility plan typically includes the following information:

- North arrow.
- Easements.
- Location and sizes of existing and proposed gas lines.
- Location and sizes of existing and proposed potable water, sanitary and storm drain lines.
- Location(s) of existing and proposed underground and overhead electrical lines.
- Transformer location and electrical service entrance location(s).
- Abandoned lines, septic tanks, cesspools.
- Abandoned oil or gas tanks.
- Catch basins, rain drains, footing drains, backwater valves, sanitary sewer lines, water lines including pipe locations and sizes, irrigation supply, storm water detention details including piping, filters, interceptors, etc.
- Drywells with calculations. (Calculations can be on separate sheets. Provide proof of compliance with environmental rules - Reference item 2.23 in this section.
- Existing and proposed water distribution system location with pipe sizes shown, and valve, hydrant, and meter locations indicated.
- Water service details.
- Backflow prevention assembly locations and details.
- Location of Post Indicator Valve (PIV), Fire Department Connection (FDC) fire hydrant locations and details.
- Fire suppression supply lines locations and sizes.
- Fire suppression water storage ponds and/or tanks.
- Manhole elevation and elevation of lowest floor with plumbing fixtures Reference Section 8 – Plumbing Data.
- Thrust blocking details.

2.2  REQUIRED Site utility plan - continued

- Location of all utility vaults with details. Reference items 2.21 and 2.23 in this section.
- Piping material schedule.

**Please Note:** It is the designer's responsibility to justify load, demand, and proper sizing of systems.

2.3  REQUIRED Grading plan

Reference OSSC Chapter 18 (or Section 3309, Appendix Chapter 33, when adopted by the local jurisdiction) or contact the local jurisdiction for additional grading requirements. The grading plan typically includes the following information:

- North arrow
- The preparation (and revision) dates of the drawings.
- Property limits and existing and proposed contours and area drainage features on the site and within 50 feet of the property or grading boundaries.
- Detailed plans of all surface and subsurface drainage devices, water quality systems, walls, cribbing, dams, and other protective devices to be constructed with, or as a part of, the proposed work, together with a map showing the drainage area and the estimated runoff of the area served by any drains.
- Location of all buildings or structures on the property where the work is to be performed and the location of all buildings or structures on land of adjacent owners that are within 15 feet (4572 mm) of the property or that may be affected by the proposed grading operations.
- Recommendations included in the soils engineering report and the engineering geology report shall be incorporated in the grading plans or specifications. When approved by the building official, specific recommendations contained in the soils engineering report and the engineering geology report, which are applicable to grading, may be included by reference.
- Preparation dates of the soils engineering and engineering geology reports together with names, addresses and telephone numbers of the firms or individuals who prepared the reports.
- A detail such as Figure A-33-1 (from the Oregon Structural Specialty Code) showing slope setback requirements from property lines and other permit area boundaries.
- Location(s) of site retaining walls, including footing and wall drainage.
- U.S. Army Corps of Engineers or FEMA designated 100-year flood plain with elevation information, wetland boundaries, jurisdiction required buffer lines, and flood plain boundaries, sensitive areas, creeks and other identified areas of concern.
- Existing utilities and easements.

2.4  REQUIRED Erosion control plan

The erosion control plan may be combined with the grading plan if the erosion control measures, and the grading and the site retaining wall features can be clearly shown. The erosion control plan typically includes the following information:

- The preparation (and revision) dates of the drawings.
- General vicinity of the proposed site.
- Property limits, topography, and existing and proposed contours 50 feet beyond the grading area.
- Existing drainage patterns and existing drainage systems on and immediately up and downstream of the site.
- U.S. Army Corps of Engineers or FEMA designated 100-year flood plain, with elevation information, wetland boundaries, jurisdiction required buffer lines and flood plain boundaries, sensitive areas, creeks and other identified areas of concern.
- Specific erosion control measures to be used, their locations, and construction details (gravel construction entrance, wheel wash details, silt fence details, straw bale sediment barrier details, sediment pond details, bio-filter bags inlet protection, etc.).
- Additional requirements for wet weather grading and erosion control measures control.

2.4  REQUIRED Erosion control plan continued

- A note indicating the standard or ordinance used to design the erosion control measures. (Consult the local jurisdiction for specific requirements).
- A note that specifies dust control measures to be taken during grading activities and building construction.

2.5  P  NA Utility vault location and details

Indicate the proposed locations of utility vaults and aboveground transformers on the plans. Coordinate with the local utilities in the project area for that information. Provide any necessary construction or installation details.

## Supporting Documents

No: \_\_\_\_\_ Item: \_\_\_\_\_

2.20  P  NA Geotechnical/soil engineer report

Reference Section 1804 of the OSSC for detailed requirements on the geotechnical / soil engineer's report. The report typically includes the following information:

- Preparations dates of the soils engineering and engineering geology reports together with names, addresses and phone numbers of the firms or individuals who prepared the reports.
- A plan of the property showing the location of identified geological conditions such as landslides, areas subject to liquefaction, or fault zones.
- A plan of the property showing the location of all test borings and / or excavations.
- Data regarding the nature, distribution and strength of existing soils.
- Descriptions and classifications of the material encountered.
- Elevation of the water table, if encountered.
- Recommendations for foundation type and design criteria, including bearing capacity, provisions to mitigate the effects of expansive soils, provisions to mitigate the effects of liquefaction and soil strength, and the effects of adjacent loads.
- Recommendation regarding the design of the proposed foundation type and the shoring, if any.
- Recommendations regarding road and driveway construction, building pad preparation, and temporary cut slopes.
- Expected total and differential settlement.
- If the investigation identifies a potential for liquefaction or expansive soils, comply with OSSC Sections 1804.4 and 1804.5. Conclusions and recommendations for grading procedures and design criteria for corrective measures, including buttress fills, when necessary.
- Conclusions and recommendations for grading procedures and design criteria for corrective measures, including buttress fills, when necessary.
- An opinion on the adequacy for the intended use of site to be developed by the proposed grading as affected by soil engineering factors, including the stability of slopes.

2.21  P  NA Storm water calculations

Consult the local jurisdiction's public works or development department standards for complete requirements. Storm water calculations typically include the following information:

- Narrative explaining rationale used in the calculations
- Drainage Submittal Summary
- List of soil types, hydrologic types, and Soil Conservation Service or other approved standard runoff curve numbers used along with rationale
- Name of the model used in the analysis with a brief explanation of its characteristics if not a commonly used model
- Time of concentration calculations or nomograph used and rationale if needed.
- Detention volume

2.21  P  NA Storm water calculations continued

- Calculations justifying catch basin spacing
- Culvert sizing
- Alignment and cover.



2.22  P  NA Site retaining wall structural calculations

Reference OSSC Chapter 16, Section 1611.6 for general requirements. Retaining walls with a top of wall to bottom of footing dimension that exceeds four (4) feet, or regardless of height, walls that resist a surcharge, (for example walls within the influence of a building footing or of a road or driveway), must be designed:

- To resist loads in accordance with accepted engineering practice due to lateral pressure of retained material and other forces such as those imposed by guardrails, fences, and surcharge loads.
- To resist sliding by at least 1.5 times the lateral force and overturning by at least 1.5 times the overturning moment, using allowable stress design loads.

Retaining wall structural calculations should include complete wall cross sections and pertinent construction details.

**Please Note:**

1. The retaining wall design calculations and details must be signed and stamped by an engineer.
2. All segmental and rock walls qualifying for a permit require special inspection.

2.23  P  NA "Assurance of Compliance" with environmental rules

Contact the local jurisdiction for further information. If required, provide copies of:

- NEPDES Permit #1200C
- Oregon Division of State Lands (DSL) requirements and/or approvals.
- US Army Corps of Engineers requirements and/or approvals.
- Oregon Department of Environmental Quality (DEQ) indirect air source permit.

## Supplemental Section 3.0 Architectural Data

---

### Construction Documents

No: \_\_\_\_\_ Item: \_\_\_\_\_

3.1  REQUIRED Floor plan(s)

The floor plan typically includes the following information:

- North arrow.
- Proposed use or occupancy of each room or area.
- Dimensions of each room or area.
- Location(s) of fire resistive walls.
- Door and window identification.
- Location(s) of all permanently attached items (plumbing fixtures, cabinets, counters, etc.)
- Location(s) of all required exits per OSSC Chapters 10 and 11.
- For Tenant Improvements (TI's), additions, or alterations show the location of work within the building.

3.2  REQUIRED Transverse and longitudinal cross sections

Typically, a sufficient number of cross sections are provided to indicate the following information:

- Foundation construction.
- Wall and floor framing.
- Roof construction.
- Insulation details.
- Exterior wall and roof sheathing.
- Interior and exterior finish materials.

3.3  REQUIRED OSSC Chapter 11 accessibility requirements

Typically, construction documents contain sufficient details and dimensions to show an accessible route throughout the building and conformance with Section 1109 "Accessible Design Standards". Accessible information on plans should include, but not be limited to, the following information:

- Reach ranges (forward and side approach).
- Ramps.
- Handrails.
- Doors.
- Aisles.
- Toilet and bathing facilities.
- Kitchens and sinks.
- Water fountains and water coolers.
- Telephones and ATM machines.
- Storage, shelving and display units.
- Environmental controls and hardware.
- Floor coverings and surface treatments.
- Protruding objects.
- Special hazards.
- Areas of rescue assistance.

**Please Note:** Alterations to existing buildings require the removal of architectural barriers up to a limit of 25% of the project budget. (Reference OSSC Section 1113.1.1).

3.4  P  NA Interior elevations

Interior elevations typically include the following information:

- Door, window locations and sizes.
- Interior floor, wall and ceiling finishes.
- Permanently attached items such as plumbing fixtures, cabinets, counters (casework) etc.
- Chapter 11 accessibility details, including signage.

3.5  P  NA Exterior elevations

Provide all exterior elevations. Exterior elevations typically include the following information:

- Compass direction of view.
- Door, window locations and sizes.
- Exterior finish materials.
- Building height, with dimensions to each floor, eaves, and ridge-line or parapet.
- Exterior grade adjacent to project.
- Accessibility signage as required.

3.6  P  NA Roof plan

The roof plan typically include the following information, with details as necessary:

- North arrow
- Roof slope.
- Crickets.
- Parapets.
- Location of rooftop mechanical equipment.
- Location of all rain drains, overflow drains, scuppers etc.
- Insulation details, if applicable.
- Roof covering material and classification.
- Rooftop screening for mechanical units.
- Roof access such as stairs, scuttles, or ladders.
- Personnel protection such as catwalks and/or guardrails.
- Location and details of attic access to meet the requirements of OSSC Section 1505.1.
- Location and cross sectional details for draft stops to meet the requirement of OSSC Section 1505.2.
- Cross sectional details for attic ventilation.
- Attic ventilation calculations to meet the requirements of OSSC Section 1505.3.

3.7  P  NA Wall type schedule and details

Wall type schedule and details typically include the following information:

- Wall construction method.
- Indication if wall type is fire rated or not.
- If wall type is fire rated, the listing agency name, listing number, fire resistance rating in hours and construction verbiage from listing.
- Insulation methods to meet building envelope requirements.
- Insulation methods to meet sound transference control, if required.

3.8  P  NA Reflected ceiling plan(s)

The reflected ceiling plan typically includes the following information:

- North arrow
- Location(s) of exit signs and egress lighting

3.8  P  NA Reflected ceiling plan(s) continued

- Location(s) of ceiling lights.
- Attic access location and size.
- Details showing seismic bracing requirements for suspended ceilings.

**Please Note:** For fire suppression requirements reference Section 10 - Fire Suppression Data and for smoke detection requirements reference Section 11 – Fire Detection / Alarm Data..

3.9  P  NA Fire-rated construction details

Construction documents must include complete information for the construction of all fire-rated assemblies and all penetrations of fire-rated assemblies.

- For site built assemblies, this information must include listing agency name, listing number, fire resistance rating in hours and construction verbiage from the listing.
- For pre-manufactured assemblies, this information must include listing information and the manufactures installation instructions.
- For fire-stopping materials to seal penetrations of fire-rated construction, this information must include listing information, installation details and instructions.

3.10  P  NA Energy code compliant construction details and specifications

Construction details and specifications for conditioned building envelope components typically include the following information:

Building Envelope:

- Detail(s) for each type of exterior wall assembly (including demising walls between conditioned and semi-heated spaces).
- Detail(s) for each type of window in exterior walls per OSSC Table 13-D (13-E for project above 3,000 feet in elevation) and 1312.1.3. Window U-factor requirement is for overall window (not glass only).
- Detail(s) for each type of skylight in exterior roof/ceilings per OSSC Table 13-D and 1312.1.3. Skylight U-factor requirement is for overall skylight in “overhead” position (not glass only).
- Detail(s) for each type of exterior, insulated roof/ceiling assembly.
- Detail(s) for each type of concrete slab-on grade floor assembly. Insulation requirements do not apply to concrete slab floors in basements.
- Detail(s) for each types of exterior floor assembly that is above unconditioned space. This includes floor assemblies above parking areas.
- Detail(s) for each type of doors in exterior walls. Note: for “prescriptive compliance” buildings, exit doors with a leaf width less than 4 feet and overhead coil doors are exempt. All doors shall be described whenever Simplified Trade-off or Whole Building Approaches are utilized. Sliding glass doors are classified as windows, not doors.

Mechanical:

Please refer to Section 5 - Mechanical Data - New Construction/Tenant Improvement/Gas Piping Permits, item 5.27 - Energy Code Compliance Forms for instructions.

Lighting:

Please refer to Section 9 - Electrical Data, item 9.21 - Energy code compliance forms and calculations for “lighting” for instructions.

3.11  P  NA Door schedule

The door schedule typically includes the following information:

- Door sizes (height and width).
- Door construction (material).

3.11  P  NA Door schedule continued

- Type of closures (if applicable).
- Hold opens (if applicable).
- Fire Rating (when required).
- Gaskets (when required).
- Size and type of glazing in the door.
- Size and type (tempered, fire rated, etc.) of relites.
- Exterior door U-Values (where applicable).
- Special features (such as louvers, grills, undercut, etc.).

3.12  P  NA Glazing schedule

The glazing schedule typically includes the following information:

- Size and location of all glazing.
- Size and location of fire-rated glazing.
- Size and location of tempered (or other safety type) glazing.
- Exterior window U-Values and shading coefficient.

3.13  P  NA Furniture plan

The furniture plan typically includes the following information:

- North arrow
- Furniture layout including fixed seating.
- Aisle widths and row spacing.
- Compliance with accessible seating and accessible route requirements.
- Flame spread rating (where required).
- Racks and shelving including seismic bracing (where required).

## Supporting Documents

No: \_\_\_\_\_ Item: \_\_\_\_\_

3.20  P  NA Energy code compliance forms/calculations

Per OSSC 1311.2, the following forms and software are available at the Oregon Office of Energy's web site:

<http://www.energy.state.or.us/code/cdpub.htm>

Please reference OSSC Sections 1302, 1311.1, 1311.2 and 1312.2.2.

- Form 2a must be submitted for all types of work.
- Forms 3a and 3b must be submitted when proposed project has new building envelope components or upgrades (use Form 3c in lieu of 3b if project is located at 3,000 or more feet in elevation).
- Form(s) 4a (and 4b if Complex System) and appropriate Worksheet(s) 4a-4j must be submitted for each new heating and cooling system.
- Forms 5a, 5b (5c may be used in lieu of 5b for tenant improvement only) and Worksheets 5a, 5b (and 5c if applicable) must be submitted for each new lighting system.
- If Simplified Trade-off Approach (STA) calculation approach is utilized submit all computer-generated reports and a floppy disk containing project files.
- If the Whole Building Approach (WBA) is used to demonstrate compliance submit a printout of "all" input and output data for baseline and proposed buildings. Submittal shall include a floppy disk containing all project files. The Oregon Office of Energy should be notified prior to WBA analysis (503) 378-4040. WBA analysis shall follow protocols specified in "Methodology for Compliance using the Whole Building Approach."

3.21  P  NA Material safety data sheets (MSDS)

MSDS for each hazardous material listed in item 1.8 Fire And Life – Safety Plan must be provided. Also, a corresponding list stating approximate quantities of each material must be provided.

**Please Note:** After evaluation of submitted information, the local jurisdiction may require a Hazardous Materials Inventory Statement. Reference item 3.22 – HMIS.

3.22  P  NA Hazardous materials inventory statement (HMIS)

Format the HMIS per the OSSC and the Fire Code. The HMIS must include the following information:

- Type of hazardous materials used or stored.
- How the hazardous materials are used or stored.
- Quantities of all hazardous materials and non-compatible materials on site.
- Requirements for handling, separation and containment of the materials.

3.23  P  NA Hazardous materials management plan (HMMP)

The HMMP must recommend methods of isolation, separation, containment or protection of hazardous materials or processes; including appropriate engineering controls to be applied; the extent of changes in the hazardous behavior to be anticipated under conditions of fire or from hazard control procedures; and the limitations or conditions necessary to achieve and maintain control of the hazardous materials or operations. Reference OSSC Section 307.1.6..

3.24  P  NA Written fire and life-safety evacuation plan for area of rescue assistance

Contact the local jurisdiction for specific requirements.

3.25  P  NA Active and passive smoke control information

Smoke control documentation must identify and locate each component of a smoke control system and describe the system's proper function per OSSC section 905. Information typically provided on the plans, and in other submittal documents include, but is not necessarily limited to the following information:

- Design method.
- A rational engineering analysis.
- Location of all equipment required for proper operation of the smoke control system.
- Location of smoke barriers where part of a smoke control system Sizes and locations of all ducts that are part of a smoke control system.
- Description of the fire-detection and control systems.
- Location of all fire, smoke and control dampers that are part of the smoke control system and a description of their activation.
- Description of power systems for smoke control system including backup power.

# Supplemental Section 4.0 Structural Data

---

## Construction Documents

No: \_\_\_\_\_ Item: \_\_\_\_\_

4.1  REQUIRED      Structural cover sheet

The following information is typically included on the first structural sheet.

- Name of engineering firm and engineer of record, postal service address, electronic mail address, telephone number, and fax number of firm.
- Preparation (or revision) date of sheet.
- Identify the codes used for design (specify edition dates).
- Identify all the design loads to include dead loads, live loads, ground snow load, snow exposure coefficient, all occupancy importance factors, wind speed, wind exposure, seismic design criteria including seismic zone, and special loads.
- Frost depth.
- General structural notes, including material specifications.
- Special inspection matrix indicating item to be inspected, firm responsible for inspection (soil engineer, special inspection agency, etc.), stage of construction when item will be inspected, and whether inspection will be continuous or periodic.
- Structural observation matrix indicating item to be observed, person responsibility for the observation, and stage(s) of construction when observation(s) will be performed.
- Deferred submittal matrix.
- Geotechnical report verification, with firm name, names of preparers, date of report, address and telephone number of preparers.
- Notes indicating soil classification (Unified Soil Classification), limiting bearing capacity, design lateral loading for retaining walls (active, at-rest, and passive), pile design and construction recommendations, and other design and construction requirements specified in the geotechnical report.

4.2  P     NA      Foundation plan

The foundation plan typically includes the following information:

- North arrow.
- Size and location of under-slab drainage piping and foundation wall drainage systems, the point of outfall or discharge for the drainage, and references to details.
- Under-slab drainage piping and foundation wall drainage system details to match references.
- Sizes and locations of slab and foundation wall penetrations for pipes and conduits, and references to penetration details.
- Slab and foundation wall penetration details to match references.
- Design soil bearing pressure, pile capacity and lengths, lateral design loads, backfill requirements, and footing embedment requirements (unless shown on Structural Cover Sheet).
- Footing and foundation wall layout location dimensions, grid lines, and references to cross-sections and construction details.
- Step foundation locations and references to details.
- Step foundation details to match references.
- Details for footings on or adjacent to slopes or alternative engineered setbacks and clearances to slopes.
- Top of slab and top of foundation elevations.
- Footing layout location and schedule.
- Column location and schedule.
- Locations of shearwalls, anchors and holdowns, braced frames, moment frames, and embedded base-plates, and references to details for each type.

- 4.2  P  NA Foundation plan continued
- Details for shearwalls, anchors and holdowns, braced frames, moment frames, and embedded base-plates to match references.
  - Control joint and expansion joint location and details.
  - Vapor barrier and ground cover details.
  - References to, and details for, elevator pits, fireplaces, special equipment and any other architectural and structural features.

- 4.3  P  NA Under-slab mechanical plan

The under slab mechanical plan typically includes the following information:

- North arrow.
- Duct or piping location(s) including depth, and distance to footings, piers, pilings or other structural – load bearing elements.
- Duct or piping size and material.
- Duct or piping insulation and/ or sleeve material.

- 4.4.  P  NA Under-slab electrical plan

The under slab electrical plan typically includes the following information:

- North arrow.
- Conduit location(s) including depth, and distance to footings, piers, pilings or other structural – load bearing elements.
- Conduit size and material.
- Conduit insulation and/ or sleeve material.
- Service UFER ground attachments that will be inaccessible for inspection after cover.

**Please Note:** The Foundation Plan should show the location, type, and sizes of all under-slab electrical conduit systems, and service UFER ground attachments Reference Supplemental Section 9 – Electrical Data, item 9.12 - Under Slab Electrical Plan for more information

- 4.5  P  NA Under-slab plumbing plan

The under slab plumbing plan typically includes the following information:

- North arrow.
- Piping location(s) including depth, and distance to footings, piers, pilings or other structural / load bearing elements.
- Piping size and material.
- Piping insulation and / or sleeve material.

- 4.6  P  NA Floor framing plan

The floor framing plan typically includes the following information:

- North arrow.
- Locations, sizes, spacing, material types for all structural members supporting a floor.
- Columns, shear walls, bearing wall, and braced and moment frame locations, with references to type and size. Provide references to details.
- Details of columns, shear walls, bearing walls, and braced and moment frames, to match references.
- Beam to column connections and references to details.
- Details of beam and column connections to match references.
- References to connection details for attachment of posts and columns to piers and bases.
- Details of connections for posts and columns, to piers and bases, to match references.



4.6  P  NA Floor framing plan continued

- References to cross section and details of decking (wood frame, metal, concrete).
- Cross sectional and construction details of decking (wood frame, metal, concrete) to match references.
- Fastener schedule and hold-down schedule.
- References to floor/shaft details (including elevator, dumbwaiters, mechanical, etc.).
- References to exterior balcony details.
- Details of floor/shaft details (including elevator, dumbwaiters, mechanical, etc.) to match references.
- Exterior balcony details to match references.
- Seismic and/or expansion joint locations and references to details.
- Details of seismic and/or expansion joints to match references.

4.7  P  NA Roof framing plan

The roof framing plan typically includes the following information:

- North arrow.
- Snow drift diagram.
- Columns, shear walls, bearing walls, and other framing member locations, with references to types and sizes, and references to roof connection details.
- Details for columns, shear walls, bearing walls, other framing members, and roof/wall connections, to match references.
- Diaphragm sheathing materials and details including a diaphragm nailing schedule.
- Roof framing members and support beam types, sizes, and locations and references to details.
- Details for roof framing members and support beams, to match references.
- Beam to column connections and details.
- Truss details.
- Rafter tie details.
- Sheathing details.
- Drag struts and strapping with locations shown and references to details.
- Drag strut and strapping details, to match references.
- Mansard details.
- Attic and roof access framing.
- Draft stop location and construction details.
- Parapet top elevations and references to details.
- Parapet construction details, to match references.
- Scupper and roof drain locations and references to details.
- Scupper and roof drain details, to match references.
- Elevator penthouse location and references to details.
- Elevator penthouse construction details, to match references.
- Mechanical well, equipment screen-walls, equipment locations and references to details.
- Mechanical well construction details, equipment screen-wall construction and attachment details, and equipment installation details, to match references.
- Seismic and expansion joint locations and references to details.
- Seismic and expansion joint details, to match references.

4.8  P  NA Structural elevations

Structural elevations typically include the following information:

- Compass direction of view.
- Building height, with dimensions to each floor, eaves, and ridge-line or parapet.
- Grade beam elevations.

4.8  P  NA Structural elevations continued

- Special wall framing elevations and references to details.
- Special wall framing details, to match references.
- Braced and moment frame elevations with references to connection details.
- Braced and moment frame connection details, to match references.
- Shaft framing and references to details (to include elevator).
- Shaft framing details, to match references.
- Elevation drawing and details of bearing walls, shearwalls, diaphragms, stairs, roof framing, etc.

4.9  P  NA Structural details and cross sections

Structural details and cross sections typically include the following information:

- Footing, foundation, and wall details showing reinforcement.
- Beam, slab, column, and girder details and schedules.
- Plinth details (spread footing).
- Pile details and schedule.
- Column and base plate connection details including anchors and hold downs.
- Column to beam, column to column, and other framing member connection details.
- Foundation, wall, floor, and roof construction and framing details.
- Details of bolted and welded connections.
- Structural details for stairs and stair connections to structure.
- Beam connections schedule.
- Beam to column schedule.
- Details of floor to wall and wall to roof connections.

4.10  P  NA Standpipe information

The construction documents typically include the following information:

- Location of standpipe riser(s) and lateral(s), including temporary standpipes, in buildings under construction.
- Classification of standpipe.
- Outlet connection locations.
- Fire-resistive protection for Class I risers and laterals not located within an enclosed stairway or pressurized enclosure.

4.11  P  NA Special inspector/structural observation matrix

Reference OSSC Chapter 17 for complete requirements. The Special Inspection Matrix (SIM) typically includes the minimum information:

- Type(s) of work requiring special inspection.
- Timeline for special inspections (continuous, periodic).
- Responsibility for each type of work (soils engineer, special inspection agency, etc.).
- Reference to the Special Inspection Agreement.
- Conformance with Oregon Building Officials Association (OBOA) or the local jurisdiction's Special Inspection Program.
- Requirement for special inspection at steel fabricators if unlisted.

Reference OSSC Section 1702. A Structural Observation Matrix (SOM) is required when the following applies:

- When designated on the approved plans by the architect or engineer of record.
- When type of work is of a nature that the building official requires structural observation.
- When structure is defined as Occupancy Category 1, 2, or 3.
- When structure is required to comply with OSSC Section 403.

4.11  P  NA Special inspector/structural observation matrix continued

If a Structural Observation Matrix is required, then provide the information in the matrix, on the plan cover sheet or the structural cover sheet.

- Type(s) of work requiring structural observation.
- Timeline for structural observation(s).
- Name(s) of individual(s) or Firm(s) who are to perform the structural observation.

## Supporting Documents

No: \_\_\_\_\_ Item: \_\_\_\_\_

4.20  P  NA Geotechnical/ Soil engineer report

Reference Section 1804 of the OSSC for detailed requirements on the Geotechnical/Soil Engineer's Report. The report should contain the following minimum information:

- Preparation dates of the soils engineering and engineering geology reports, together with names, addresses and telephone numbers of the firms or individuals who prepared the reports.
- A plan of the property showing the location of identified geological conditions such as landslides, areas subject to liquefaction, or fault zones.
- A plan of the property showing the location of all test borings and/or excavations.
- Data regarding the nature, distribution, and strength of existing soils.
- Descriptions and classifications of the material encountered.
- Elevation of the water table, if encountered.
- Recommendations for foundation type and design criteria, including bearing capacity, provisions to mitigate the effects of expansive soils, provisions to mitigate the effects of liquefaction and soil strength, and the effects of adjacent loads.
- Recommendation regarding the design of the proposed foundation type and shoring, if any.
- Recommendations regarding road and driveway construction, building pad preparation, and temporary cut slopes.
- Expected total and differential settlement.
- If the investigation identifies a potential for liquefaction or expansive soils, comply with OSSC Sections 1804.4 and 1804.5.
- Conclusions and recommendations for grading procedures, and design criteria for corrective measures, including buttress fills, when necessary.
- An opinion on the adequacy for the intended use of site to be developed by the proposed grading, as affected by soil engineering factors, including the stability of slopes.

4.21  P  NA Site specific seismic hazard report

Section 1804.3.2 in the OSSC indicates that a Site Specific Seismic Hazard Report is required where the proposed use, as defined by ORS 455.447, is an essential facility, hazardous facility (as further limited in OSSC Section 1801), major structure, or special occupancy. The report typically includes the following information:

- A plot showing the location of test boring or sample excavations.
- Descriptions and classifications of the materials encountered.
- Elevation of the water table either measured or estimated.
- A geologic profile of the site extending to bedrock either measured or estimated.
- An explanation of the regional geologic, tectonic, and seismic setting.
- A literature review of the regional seismic or earthquake history (i.e. potential seismic sources, maximum credible earthquakes, recurrence intervals, etc.).
- Selection criteria for seismic sources and recommendations for a design earthquake.
- Selection criteria and recommended ground response, including local amplification effects.
- An evaluation of the site-specific seismic hazards, including subsidence, fault ruptures, seiche, tsunami inundation, and other seismic hazard at the site, including the effects of local geography and topography.

4.21  P  NA Site specific seismic hazard report continued

- Recommendations for foundation type and design criteria, including expected total and differential settlement, bearing capacity, provisions to mitigate the effects of expansive soils, and the effects of adjacent loads
- Other criteria as required for structures not defined by ORS 455.447

**Please Note:** A copy of the Site Specific Seismic Hazard Report must be filed with the Oregon Department of Geology and Mineral Industries, 800 NE Oregon Street #28, Portland, OR 97232. Telephone (503) 731-4100 Fax (503) 731-4066.

Definitions from ORS 455.447(1) are reproduced here for your convenience. For the complete statute, reference ORS 455.447.

**455.447 Regulation of certain structures vulnerable to earthquakes and tsunamis.**

- (1) As used in this section, unless the context requires otherwise:
  - (a) "Essential facility" means:
    - (A) Hospitals and other medical facilities having surgery and emergency treatment areas;
    - (B) Fire and police stations;
    - (C) Tanks or other structures containing, housing or supporting water or fire-suppression materials or equipment required for the protection of essential or hazardous facilities or special occupancy structures;
    - (D) Emergency vehicle shelters and garages;
    - (E) Structures and equipment in emergency-preparedness centers;
    - (F) Standby power generating equipment for essential facilities; and
    - (G) Structures and equipment in government communication centers and other facilities required for emergency response.
  - (b) "Hazardous facility" means structures housing, supporting or containing sufficient quantities of toxic or explosive substances to be of danger to the safety of the public if released.
  - (c) "Major structure" means a building over six stories in height with an aggregate floor area of 60,000 square feet or more, every building over 10 stories in height and parking structures as determined by Department of Consumer and Business Services rule.
  - (d) "Seismic hazard" means a geologic condition that is a potential danger to life and property which includes but is not limited to earthquake, landslide, liquefaction, tsunami inundation, fault displacement, and subsidence.
  - (e) "Special occupancy structure" means:
    - (A) Covered structures whose primary occupancy is public assembly with a capacity greater than 300 persons;
    - (B) Buildings with a capacity greater than 250 individuals for every public, private or parochial school through secondary level or child care centers;
    - (C) Buildings for colleges or adult education schools with a capacity greater than 500 persons;
    - (D) Medical facilities with 50 or more resident, incapacitated patients not included in subparagraphs (A) to (C) of this paragraph;
    - (E) Jails and detention facilities; and
    - (F) All structures and occupancies with a capacity greater than 5,000 persons.
- (2) The Department of Consumer and Business Services shall consult with the Seismic Safety Policy Advisory Commission and the State Department of Geology and Mineral Industries prior to adopting rules. Thereafter, the Department of Consumer and Business Services may adopt rules as set forth in ORS 183.325 to 183.410 to amend the state building code to:
  - (a) Require new building sites for essential facilities, hazardous facilities, major structures and special occupancy structures to be evaluated on a site-specific basis for vulnerability to seismic geologic hazards.
  - (b) Require a program for the installation of strong motions accelerographs in or near selected major buildings.
  - (c) Provide for the review of geologic and engineering reports for seismic design of new buildings of large size, high occupancy or critical use.
  - (d) Provide for filing of non-interpretive seismic data from site evaluation in a manner accessible to the public.
- (3) For the purpose of defraying the cost of applying the regulations in subsection (2) of this section, there is hereby imposed a surcharge in the amount of one percent of the total fees collected under the structural and mechanical specialty codes for essential facilities, hazardous facilities, major structures and special occupancy structures, which fees shall be retained by the jurisdiction enforcing the particular specialty code as provided in ORS 455.150.

4.21  P  NA Site specific seismic hazard report continued

Definitions from ORS 455.447(1) continued

(4) Developers of new essential facilities, hazardous facilities and major structures described in subsection (1)(a)(E), (b) and (c) of this section and new special occupancy structures described in subsection (1)(e)(A), (D) and (F) of this section that are located in an identified tsunami inundation zone shall consult with the State Department of Geology and Mineral Industries for assistance in determining the impact of possible tsunamis on the proposed development and for assistance in preparing methods to mitigate risk at the site of a potential tsunami. Consultation shall take place prior to submittal of design plans to the building official for final approval. [1991 c.956 s.12; 1995 c.79 s.229; 1995 c.617 s.1]

**Please Note:** 455.447 was added to and made a part of 455.010 to 455.740 by legislative action but was not added to any smaller series therein. See Preface to Oregon Revised Statutes for further explanation.

4.22  P  NA Design narrative

The design narrative must be a written description of the structural design concept for each structure. The narrative includes a detailed description of the vertical and lateral load resisting systems. The narrative must also include a brief and concise description of the vertical and lateral load paths from the roof to the foundation.

4.23  P  NA Structural calculations

Structural calculations must include analysis for gravity, lateral, and special loads, and typically address the following:

- Identification and classification of the structure as it pertains to regularity and type in accordance with OSSC 1629.5.
- Provide a gridline diagram or other reference system.
- Compare load combinations in accordance with OSSC Section 1612 or Section 1909, as applicable.
- Determine permanent equipment loads.
- Provide an importance factor matrix in accordance with OSSC Table 16-K and Table A-16-B.
- Select a proper lateral force procedure (static or dynamic?)
- Distribute base shears to all levels in accordance with the selected design base shear calculation.
- Determine redundancy and comply with limitations.
- Verify story drift limitations.
- Provide a roof diaphragm analysis (flexible or rigid?)
- Provide a floor diaphragm analysis (flexible or rigid?)
- Show the distribution of loads to lateral load resisting elements (shearwalls, braced frames, moment frames, etc.)
- Determine horizontal torsional moment requirements per OSSC Section 1630.7.
- Provide an analysis of gravity and lateral load resisting elements.
- Provide a stability analysis, including hold down design requirements.
- Provide an analysis of any drag struts and their connections to lateral-load-resisting elements.
- Provide an analysis of out of plane wall anchorage to flexible diaphragms (masonry or concrete?)

# Supplemental Section 5.0 Mechanical Data

New construction, tenant improvement, gas piping permits

## Construction Documents

No: \_\_\_\_\_ Item: \_\_\_\_\_

5.1  REQUIRED Floor plan

The floor plan typically includes the following information:

- North arrow.
- Complete building layout with dimensions showing all shafts, rooms and areas, and their uses.
- Location and rating of all fire resistive construction such as walls, floors, shafts, smoke control walls, etc.
- Locations of all equipment related penetrations in fire resistive construction.
- Locations of all fire and smoke dampers.
- Location of all floor and wall mounted mechanical equipment.

5.2  REQUIRED Equipment schedule

The equipment schedule typically includes the following information:

- A complete list of all mechanical equipment, including the weight of each piece of equipment.
- A legend showing the symbol or identifier used on the plans to designate each piece of equipment.
- Equipment thermal performance rating. Reference Supplementary Section 5 - Mechanical Data - New Construction/Tenant Improvement/Gas Piping Permits under Supporting Documents, item 5.27 - Energy Code Compliance Forms for more information.
- BTU rating of each piece of equipment so rated.
- Equipment listing information.

5.3  P  NA Site plan

The site plan typically includes the following information:

- North arrow.
- Project address.
- Identify adjacent streets by name.
- All site related improvements affected by mechanical work with distances to all property lines.
- Location of all new and existing structures on the site with distances indicated between adjacent structures.

5.4  P  NA Under slab mechanical plan

The under slab mechanical plan typically includes the following information:

- North arrow.
- Duct or piping location(s) including depth, and distance to footings, piers, pilings or other structural – load bearing elements.
- Duct or piping size and material.
- Duct or piping insulation and/ or sleeve material.

5.5  P  NA Roof plan

The roof plan typically includes the following information:

- North arrow.
- Location of all roof mounted equipment.
- Location of roof access including scuttles, ladders, stairs, catwalks, and guardrails.

5.5  P  NA Roof plan continued

- Location of parapets and roof elevation changes that affect the mechanical design.
- Location of all roof penetrations for ducts, vents, intakes, roof access hatch(s) and exhausts.

5.6  P  NA Fuel gas piping plan

Fuel gas piping and layout information may be included on the floor plan if the plan is of sufficiently large scale and detail to be clear and understandable. Reference OMSC section 1302. Plans that indicate the configuration and layout of the fuel gas piping system typically provide the following information:

- Size and location of all fuel gas piping.
- Design pressure.
- Type and location of all shut-off/control valves and point of connection to all equipment/appliances.
- Location of regulators.
- Meter location.

5.7  P  NA HVAC equipment and duct plan(s)

This information may be included on the floor plan(s) and / or roof plan as appropriate if those plans are of sufficiently large scale and detail to be clear and understandable. Plans indicating the location of HVAC equipment and ductwork typically include the following information:

- Locations of all HVAC equipment including all suspended equipment, floor mounted equipment or roof mounted equipment.
- Ventilation air calculations to show compliance with code required quantities based on uses and occupant load.
- Size and location of all ductwork. Include fire, smoke and volume damper locations.
- Locations for all supply and return registers and indicate CFM requirement at each supply.

5.8  P  NA Roof access details

Plans must indicate the roof access location(s). If access is by a hatch, indicate hatch size and location, and ladder or stair access. If access is by a permanently affixed exterior ladder, indicate its location. Indicate the locations of all parapet ladders, and ladders serving adjacent roofs which are at different elevations. Detail guardrails, catwalks, personnel protection, etc. Check with OSHA safety requirements for permanently affixed ladder requirements. Reference OMSC Section 306.5.

5.9  P  NA Duct smoke detector locations

Indicate the locations of duct smoke detectors for equipment shut down on the HVAC equipment and duct plan. Reference item 5.7 above. All detectors shall be listed for their intended use. Reference OMSC Section 606.

5.10  P  NA Fire/smoke damper locations

Indicate the locations of all fire / smoke dampers. Indicate appropriate fire ratings for penetrations through fire resistive construction. This information is typically located on the HVAC equipment and duct plan. Reference item 5.7 above and OMSC Sections 606 and OSSC sections 713.10, 713.11.

5.11  P  NA Smoke control plan

Reference OSSC Section 905 for detailed information. Plans, charts, and other documentation typically identify and locate each component of a smoke control system, and describe their proper function. The information provided on the plans and documentation may include, but is not necessarily limited to the following information:

- Design method.
- A rational engineering analysis.
- Location of all equipment required for proper operation of the smoke control system.
- Location of smoke barriers where part of a smoke control system.

5.11  P  NA Smoke control plan continued

- Sizes and locations of all ducts that are part of a smoke control system.
- Description of the fire-detection and control systems.
- Location of all fire, smoke and control dampers that are part of the smoke control system and a description of their activation.
- Description of power systems for smoke control system including backup power.
- Location of and control capabilities of the firefighter's control station.

5.12  P  NA Outside air (OSA) table

The ventilation occupancy load and occupancy ventilation design methods and calculations must be identified in the plans and / or specifications. The ventilation occupant load and ventilation rates for each occupied space must be indicated on the plans. Typically this is accomplished by providing an outside air / occupancy ventilation table that indicates the occupancy classification and room use, area of room, existing occupant load factor, occupant load, required volume, in CFM, of outside air per person or square foot, total outside air required per room, and the amount of outside air provided per room. Reference OSSC Section 106.3.3.1 and Table 12A.

5.13  P  NA Refrigeration equipment and piping plan

This information may be included on the floor plan and / or roof plan as appropriate, if those plans are of sufficiently large scale and detail to be clear and understandable. Reference OMSC Chapter 11. Plans that indicate the location of refrigeration equipment and refrigerant piping typically include the following information:

- Refrigeration system classification.
- Refrigerant classification and allowable quantities.
- System enclosure requirements. Indicate locations of enclosures with details and specifications for construction and alarm requirements.
- Location of all refrigeration equipment and appliances.
- Location and routing of all refrigerant piping.
- Location of penetrations of all fire resistive construction.
- Material specifications and testing procedures for piping.

5.14  P  NA Kitchen equipment plan

This information may be included on the floor plan if that plan is of sufficiently large scale and detail to be clear and understandable. Plans that indicate the locations of all kitchen equipment and ductwork / vents typically include the following information:

- Locations of all kitchen equipment including ranges, cook tops, hot plates, steam tables, dishwashers, hoods, etc.
- Locations of all ducts/vents serving kitchen equipment or direct vent appliances and that provide make-up air.
- Location of penetrations of all fire resistive construction.
- Provide an equipment schedule listing all kitchen equipment.

5.15  P  NA Type I and / or II Kitchen Hood Plan

Reference Supplementary Section 7.0 - Mechanical Data-Type I and II Kitchen Hood Permits for detailed requirements.

5.16  P  NA Fume/vapor hood plan

This information may be included on the floor plan if that plan is of sufficiently large scale and detail to be clear and understandable. Plans indicating the location of all fume / vapor hoods and duct work / vents serving those hoods typically include the following information:

- Locations of all fume hoods.
- Locations and routing of all ducts / vents serving the fume hoods.

5.16  P  NA Fume/vapor hood plan continued

- Notes that provide information on materials/processes that will be served by the fume hoods.
- Indicate where fume hood vents terminate outside of the building.
- Indicate how make-up air is provided for fume hoods.



- 5.17  P  NA Process piping/product and/or exhaust conveying duct plan
- Process piping and layout information may be included on the floor plan if the plan is of sufficiently large scale and detail to be clear and understandable. Plans that indicate the configuration and location of process piping systems typically include the following information:
- Information and documentation of material transported by process piping.
  - Location, material composition, and size of all process piping.
  - Type and location of all shut-off / control valves and point of connection to all equipment / appliances or other building services.
  - Location and size of all duct access and cleanouts.
  - Duct fire suppression details.
  - Hazardous process piping shall comply with OSSC, OMSC, UFC Standards as well as ASME Standard B31.3

- 5.18  P  NA Fire-rated construction details
- Provide complete details and specifications for all penetrations of fire-rated construction. Include listing information, manufactures installation instructions, and construction details for all fire-stopping material(s) and fire/smoke dampers.

- 5.19  P  NA Equipment hanger / fastener details
- Provide details and specifications, including loading capacity, for all equipment hangers and / or fasteners.

## Supporting Documents

- | No:   | Item:  |
|---|--|
| 5.20 <input type="checkbox"/> REQUIRED                      | Structural calculations for vertical loads and lateral loads for equipment weighing over 400 lbs.  |
|   | Provide structural calculations for vertical and lateral loads prepared by a licensed engineer verifying adequacy / design of the support structure for additional or replacement equipment weighing more than 400 lbs. Calculations must include bracing, anchorage and fastener details for all equipment  |
| 5.21 <input type="checkbox"/> P <input type="checkbox"/> NA | Equipment manufacturer’s catalog “cut sheets” or specifications  |
|   | Provide equipment manufacturer’s catalogue “cut” sheets and installation instructions for all equipment.   |
| 5.22 <input type="checkbox"/> P <input type="checkbox"/> NA | Outside air (OSA) calculations   |
|   | The ventilation occupancy load, and occupancy ventilation design methods and calculations must be provided. Information determined by the calculations must be indicated on the plans. Reference item 5.12 - Outside air (OSA) table for additional information.   |
| 5.23 <input type="checkbox"/> P <input type="checkbox"/> NA | Smoke control calculations   |
|   | Provide calculations for the design of the smoke control system. Calculations include: <ul style="list-style-type: none"> <li>• Design method</li> <li>• A rational engineering analysis</li> </ul>  |
| 5.24 <input type="checkbox"/> P <input type="checkbox"/> NA | Combustion air calculations  |
|   | Provide calculations for combustion air volumes for all equipment requiring combustion air. Provide equipment specifications which indicate combustion air requirements for all fuel fire equipment installed on the interior of the structure.  |
| 5.25 <input type="checkbox"/> P <input type="checkbox"/> NA | Fuel gas piping sizing calculations  |
|   | Fuel gas piping sizing calculations clearly show that the piping is properly sized based on the ratings of all equipment served. Calculations typically indicate design pressure of system and the number of BTU’s per cubic foot of gas supplied by the local utility. Fuel gas piping sizing calculations may be included on plans if clearly labeled as such or may be a separate attachment. |

5.26  P  NA Make-up air calculations

Provide calculations for make-up air volumes for all equipment requiring make-up air. Provide equipment specifications which indicate the make-up air requirements for that equipment.

5.27  P  NA Energy code compliance forms

Energy Code Compliance Forms for all new Mechanical Equipment covered under OSSC 1313-1315 must be submitted per OSSC 1311.2. These forms are available at the Oregon Office of Energy's web site: <http://www.energy.state.or.us/code/cdpub.htm>

Form 2a must be submitted for all types of work. Others may complete this Form if other energy code compliance measures are required for project.

If a proposed project involves installation of new mechanical equipment, complete all applicable series 4 forms.

- Form 4a must be submitted for projects installing new mechanical equipment.
- Form 4b must be submitted for projects with Complex HVAC Systems per OSSC 1313.3.
- Submit each applicable Worksheet(s) 4a through 4j for each HVAC system, to include heating and cooling where applicable (electric furnaces & unit heaters, and electric and gas- & oil-fired radiant heaters are exempt).

5.28  P  NA Boiler information

Provide information that includes BTU input rating and fuel type for all boilers being installed. The local jurisdiction will require mechanical permits for combustion air, stack venting, supply and re-circulation piping, and lateral restrains of both boilers and service piping.

**Please Note:** An additional separate boiler permit is required from the Oregon State Boiler Division for any boiler installation.

# Supplemental Section 6.0 Mechanical Data

## Additional or replacement rooftop equipment installation permits

---

### Construction Documents

No: \_\_\_\_\_ Item: \_\_\_\_\_

---

6.1  REQUIRED    Roof plan

A roof plan typically includes the following information:

- North arrow.
- Location of all roof mounted equipment.
- Distance to Area separation wall parapets, adjacent buildings, and property lines.
- Location of roof access including scuttles, ladders, stairs, catwalks, and guardrails.
- Location of parapets and roof elevation changes that affect the mechanical design.
- Location of all roof penetrations for ducts, vents, intakes, roof access hatch and exhausts.

6.2  P     NA    Roof framing plan

Roof framing plans / details show all support structure for additional or replacement rooftop equipment. The roof framing plan must clearly indicate how mechanical gravity loads are being distributed over structural members, following down the load path to termination, if necessary, to grade.

6.3  P     NA    Fuel gas piping plan

Fuel gas piping and layout information may be included on the floor plan if the plan is of sufficiently large scale and detail to be clear and understandable. Reference OMSC section 1302. Plans that indicate the configuration and location of fuel gas piping systems typically include the following information:

- Size and location of all fuel gas piping.
- Design pressure.
- Type and location of all shut-off and/or control valves, and points of connection to all equipment/appliances.
- Location of regulators.
- Meter location.

6.4  P     NA    Roof access details

Plans must indicate the roof access location(s). If access is by a hatch, indicate hatch size and location, and ladder or stair access. If access is by a permanently affixed exterior ladder, indicate its location. Indicate the locations of all parapet ladders, and ladders serving adjacent roofs which are at different elevations. Detail guardrails, catwalks, personnel protection, etc. Check with OSHA safety requirements for permanently affixed ladder requirements. (Reference OMSC Section 306.5).

### Supporting Documents

No: \_\_\_\_\_ Item: \_\_\_\_\_

---

6.20  REQUIRED    Structural calculations for vertical loads and lateral loads for equipment weighing over 400 lbs.

Provide structural calculations for vertical and lateral loads prepared by a licensed engineer verifying adequacy / design of the support structure for additional or replacement equipment weighing more than 400 lbs. Calculations must include bracing, anchorage and fastener details for all equipment.

6.21  P     NA    Equipment manufacturer's catalog "cut sheets" or specifications

Provide equipment manufacturers catalogue "cut" sheets and installation instructions for all equipment.

6.22  P  NA Fuel gas piping sizing calculations

Fuel gas piping sizing calculations clearly show that the piping is properly sized based on the ratings of all equipment served. Calculations typically indicate design pressure of system and the number of BTU's per cubic foot of gas supplied by the local utility. Fuel gas piping sizing calculations may be included on plans if clearly labeled as such or may be a separate attachment.

6.23  P  NA Energy code compliance forms

Energy Code Compliance Forms for all new Mechanical Equipment covered under OSSC 1313-1315 must be submitted per OSSC 1311.2. These forms are available at the Oregon Office of Energy's web site:  
<http://www.energy.state.or.us/code/cdpub.htm>

Form 2a must be submitted for all types of work. Others may complete this Form if other energy code compliance measures are required for project.

If a proposed project involves installation of new mechanical equipment, complete all applicable series 4 forms.

- Form 4a must be submitted for projects installing new mechanical equipment.
- Form 4b must be submitted for projects with Complex HVAC Systems per OSSC 1313.3.

Submit each applicable Worksheet(s) 4a through 4j for each HVAC system, to include heating and cooling where applicable (electric furnaces & unit heaters, and electric and gas- & oil-fired radiant heaters are exempt).

## Supplemental Section 7.0 Mechanical Data-Type I and II Kitchen Hood Permits

---

### Construction Documents

No: \_\_\_\_\_ Item: \_\_\_\_\_

---

7.1  REQUIRED Site plan

The site plan typically includes the following information:

- North arrow.
- Project address.
- Identify adjacent streets by name.
- All site related improvements affected by mechanical work with distances to all property lines.
- Location of all new and existing structures on the site with distances indicated between adjacent structures.

7.2  REQUIRED Floor plan(s)

The floor plan typically includes the following information:

- North arrow
- Complete building layout with dimensions showing all shafts, rooms, and areas, and their uses.
- Location and rating of all fire resistive construction (walls, floors, shafts, smoke control walls, etc.)
- Location of manual activation device for fire suppression system.

7.3  REQUIRED Kitchen equipment plan

This information may be included on the floor plan if that plan is of sufficiently large scale and detail to be clear and understandable. Plans that indicate the location of all kitchen equipment and ductwork / vents typically include the following information:

- Locations of all kitchen equipment including ranges, cook tops, hot plates, steam tables, dishwashers, hoods, etc.
- Locations of all ducts / vents serving kitchen equipment or direct vent appliances and that provide make-up air.
- Location of penetrations of all fire resistive construction.
- Provide an equipment schedule listing all kitchen equipment.

7.4  REQUIRED Kitchen equipment and hood elevations

Provide elevation drawings showing all cooking equipment, steam tables, dishwashers and the hoods serving them.

7.5  P  NA Roof plan

The Roof Plan typically includes the following information:

- North arrow.
- Location of all roof mounted equipment.
- Location of roof access including scuttles, ladders, stairs, catwalks, and guardrails.
- Location of parapets and roof elevation changes that affect the mechanical design.
- Location of all roof penetrations for ducts, vents, intakes, roof access hatch(s) and exhausts.

7.6  P  NA Cross sections through hoods, ducts and shafts

Provide section drawings through hood(s), duct(s), and shaft(s) showing construction materials, fire ratings of materials, clearances, duct clean out doors, hood and duct supports, etc.

7.7  P  NA Fire-rated construction details

Provide complete details and specifications for all penetrations of fire-rated construction. Include listing information, manufactures installation instructions, and construction details for all fire-stopping material(s) and fire/smoke dampers.

7.8  P  NA Fire suppression details

Provide complete details and specifications for fire suppression system for the hood(s) and exhaust duct(s).

## Supporting Documents

- | No:  | Item:   |
|------|---|
| 7.20 | <input type="checkbox"/> REQUIRED Structural calculations for vertical loads and lateral loads for equipment weighing over 400 lbs.<br>Provide structural calculations for vertical and lateral loads prepared by a licensed engineer verifying adequacy / design of the support structure for additional or replacement equipment weighing more than 400 lbs. Calculations must include bracing, anchorage and fastener details for all equipment. |
| 7.21 | <input type="checkbox"/> REQUIRED Make-up air calculations<br>Provide calculations for make-up air volumes for all equipment requiring make-up air. Provide equipment specifications which indicate the make-up air requirements for that equipment.  |
| 7.22 | <input type="checkbox"/> P <input type="checkbox"/> NA Equipment manufacturer's catalog "cut sheets" or specifications<br>Provide equipment manufacturers catalogue "cut" sheets and installation instructions for all equipment.   |
| 7.23 | <input type="checkbox"/> P <input type="checkbox"/> NA Hood/grease extractor listing documentation<br>Provide manufactures literature and listing information for hood(s) and grease extractor(s).  |
| 7.24 | <input type="checkbox"/> P <input type="checkbox"/> NA Hood/grease duct sizing calculations<br>Provide calculations for sizing of hood(s) and grease duct(s).   |
| 7.25 | <input type="checkbox"/> P <input type="checkbox"/> NA Fire suppression information<br>Provide complete specifications and manufacturer's installation instructions for the fire suppression system for the hood(s) and duct(s).  |

## Supplemental Section 8.0 Plumbing Data

---

### Construction Documents

No: \_\_\_\_\_ Item: \_\_\_\_\_

---

8.1  REQUIRED Floor plan(s)

The floor plan typically includes the following information:

- The use of all rooms or areas.
- All equipment and fixture locations.
- All equipment and fixtures that require pretreatment.
- The locations of penetrations of fire-rated assemblies.
- The locations of all fixtures at, or below, the nearest upstream manhole and/or sewer invert.
- The locations of all equipment access openings.

8.2  REQUIRED Piping and material schedule

Identify the size and type of all interior and exterior plumbing systems.

8.3  REQUIRED Equipment layout plan

The equipment layout plan typically includes the following information:

- North arrow.
- A schedule of all equipment, which lists the manufacturer's name for each type of equipment.
- Location of equipment.
- Size of hot and cold supply piping required.
- The locations and types of all drainage systems proposed.
- Drain outlet size(s). Specify if the drain outlet is a direct or indirect connection.
- Supply and discharge GPM ratings, and/or water supply, and/or drainage fixture units for all fixtures.

8.4  REQUIRED Fixture schedule

The fixture schedule typically includes the following information:

- A fixture list and equipment manufacturer's names(s), fixture type(s), and model number(s) for all plumbing fixtures.
- Supply and discharge GPM ratings, and/or water supply, and/or drainage fixture units for all fixtures.
- Drain connection sizes.

8.5  P  NA Site utility plan

The site utility plan typically includes the following information:

- North arrow.
- Site property line locations.
- Location on site, invert elevation, and sizes of all existing and proposed potable water supplies, sanitary sewer lines, and storm water lines, on and adjacent to the site, including all public and private services.
- Show the location on site and depth of all manholes, catch basins, interceptors, backflow and backwater devices, cleanouts, vaults, and oil / water separators. Provide invert elevation for all lines serving these items.
- Indicate the proposed fixture unit demand for the potable water, fixture unit loading for the sanitary sewer and storm water piping. Indicate the area served by each storm water system.
- Show the rim and invert elevations of the nearest upstream manhole.

8.6  P  NA Building cross section

Provide a building cross section that indicates floor elevation(s).

8.7  P  NA Riser diagram

The riser diagram typically includes the following information:

- Piping layout.
- Pipe size.
- Length of pipe.
- Fixture units.
- Water pressure (psi), length of piping run (developed length), and elevation at the source (i.e. meter, pressure tank, etc.).

**Please Note:** An isometric drawing may be required for complex projects. Contact your local jurisdiction for complete information.

8.8  P  NA Roof plan

The roof plan typically includes the following information:

- North arrow.
- Roof slope.
- Size and location of all roof drains, overflow drains, scuppers, and related piping.
- Tributary roof area for each roof drain or scupper
- Pertinent information on any vertical walls, which will affect roof drains sizing calculations.
- Slope or grade of all interior roof drain piping.

8.9  P  NA Back flow prevention location

Indicate the following:

- Location and type of backflow device if one is provided.
- Degree of hazard.

8.10  P  NA Irrigation plan

The irrigation plan typically includes the following information:

- Sprinkler head layout with zones identified (or provide calculations for the zone with the maximum demand. Reference Section P6.4D).
- Location and type of all backflow devices.
- If chemical injection system is used, indicate the injector location and identify the type of chemicals used.

**Please Note:** A low voltage electrical permit is also required for all irrigation systems.

8.11  P  NA Fire-rated construction details

Provide complete details and specifications for all penetrations of fire-rated construction. Include listing information, manufactures installation instructions, and construction details for all fire-stopping material(s) and fire/smoke dampers.

8.12  P  NA Under slab plumbing plan

The under slab plumbing typically includes the following information:

- North arrow.
- Piping location(s) including depth, and distance to footings, piers, pilings or other structural or load bearing elements.
- Piping size and material.
- Piping insulation and/ or sleeve material.

Supplemental Section 8.0 Plumbing Data continued

Supporting Documents

No: \_\_\_\_\_ Item: \_\_\_\_\_

8.20  REQUIRED Structural calculations for vertical loads and lateral loads for equipment weighing over 400 lbs.

Provide structural calculations for vertical and lateral loads prepared by a licensed engineer verifying adequacy / design of the support structure for additional or replacement equipment weighing more than 400 lbs. Calculations must include bracing, anchorage and fastener details for all equipment.



- 8.21  P  NA      Equipment manufacturer's catalog "cut sheets" or specifications  
Provide equipment manufacturers catalogue "cut" sheets and installation instructions for all equipment.
- 8.22  P  NA      Utility maintenance agreements  
Provide copies of any utility easement and maintenance agreements affecting the potable water, sanitary sewer and storm water systems.
- 8.23  P  NA      Water supply calculations  
Provide water supply calculations in accordance with Chapter 6, and Tables 6-5 and 6-6 of the OPSC.
- 8.24  P  NA      Sanitary system calculations  
Provide sanitary system calculations in accordance with Chapter 7, and Tables 7-3 and 7-4 of the OPSC.
- 8.25  P  NA      Irrigation demand calculations  
Provide calculations for the zone with the greatest demand.
- 8.26  P  NA      Roof drain and storm water calculations  
Provide storm water calculations in accordance with Chapter 11, and Tables 11-1 and 11-2 of the OPSC. All areas in the Tri-County Service area must use three (3) inches of rainfall (per hour) in the calculation for the sizing of roof drains and rainwater piping.

# Supplemental Section 9.0 Electrical Data

---

## Construction Documents

No: \_\_\_\_\_ Item: \_\_\_\_\_

---

- 9.1  REQUIRED (Number) \_\_\_\_ sets of plans  
Provide a minimum of two sets of plans for electrical plan review. Contact the local jurisdiction for complete information.
- 9.2  REQUIRED Floor plan(s)  
The floor plan typically includes the following information:
- North arrow.
  - Fixture and equipment locations.
  - Nature and extent of the proposed work.
  - Use or occupancy of all rooms or areas.
  - Location(s) of classified (hazardous) areas.
  - Wiring method(s).
- 9.3  REQUIRED Electrical load calculations  
Provide electrical load calculations for feeders and for the total service, based on the current edition of the Oregon Electrical Specialty Code.
- 9.4  REQUIRED One line diagram  
The one line diagram typically includes the following information.
- Type(s) and sizes of service equipment, feeders, panels, transformers, etc.
  - Service grounding, bonding.
  - Conduit and wire insulation types and sizes.
  - Service capacity.
- 9.5  REQUIRED Feeder riser diagram  
Where feeders are added to an existing service, provide available Fault Current at the end of feeder. If the calculations indicates a current greater than 10 KAIC (thousand amps interrupting current), show that panel and breakers are fully rated, or provide series rated information. Reference E7.5D requiring available fault current at the line side of the series disconnect as the basis for the calculation..
- 9.6  REQUIRED Available fault current information  
For new or altered service, provide available fault current information with supporting documentation from the utility company.
- 9.7  REQUIRED Panel schedule(s)  
Provide on the plans, a panel schedule that lists all circuits and the load(s) installed.
- 9.8  P  NA Site electrical plan  
The site electrical plan typically includes the following information:
- North arrow.

9.8  P  NA Site electrical plan continued

- Site lighting and other exterior electrical installations.
- Location of the electrical service.
- Location of all above and below ground utilities.
- Location of the emergency power supply (generator, storage batteries, etc.) if provided.
- Distance (measured in feet) to the end of the furthest electrical lighting or sign circuit, including:
  1. Size and type of conduit.
  2. Size of conductors in AWG.
  3. Type of conductor insulation.

9.9  P  NA Fire-rated construction details

Provide complete details and specifications for all penetrations of fire-rated construction. Include listing information, manufactures installation instructions, and construction details for all fire-stopping material(s) and fire/smoke dampers.

9.10  P  NA Lighting plan

The lighting plan typically includes the following information:

- North arrow.
- Lighting Schedule that lists all proposed lighting.
- Reflected ceiling plan.
- Location and layout of all fixtures not indicated on the Reflected Ceiling Plan.
- Layout of all Means of Egress lighting as required by the OSSC Section 1003.2.9.1.

**Please Note:** Definitions and OSSC requirements are reproduced here for your convenience. For complete OSSC requirements, reference Sections 1001, 1002, 1003.2.9.1.

1001.1 Scope. Every building or portion thereof shall be provided with a means of egress as required by this chapter. A means of egress is an exit system that provides a continuous, unobstructed and undiminished path of exit travel from any occupied point in a building or structure to a public way. [The Means of Egress lighting is required regardless of occupant load. As stated in OSSC Section 1003.2.9.2, the MOE lighting is provided by the premises primary electrical supply. However, as required by OSSC Section 1003.2.9.1, with few exceptions, the MOE shall be illuminated at an intensity of not less than one (1) foot-candle (10.76 lx) at the floor level.]

9.11  P  NA Emergency power system and emergency lighting plan

An emergency power / back-up system must be provided in all Group I, Divisions 1.1 and 1.2 occupancies (regardless of occupant load) and in all other occupancies with an occupant load of 100 or more. An Emergency Power System and Emergency Lighting Plan must be provided whenever emergency lighting is required, or provided, and is powered by a secondary source of power, whether it be internal battery back-up, external battery stack, or emergency generator. Reference OSSC Section 1003.2.9.2. The plans must, at a minimum, indicate the following information:

- North arrow.
- Emergency power system egress lighting site plan, which indicates emergency lighting and its power source.
- Emergency power system egress lighting floor plan(s), which indicates emergency lighting and its power source.
- Exit sign locations and their power source.
- Locations and types of other emergency fixtures and/or equipment (call boxes, battery stacks, power converters, generators, et.).
- Equipment schedule which lists type and rating of emergency equipment.
- Full load rating of emergency power service.
- Calculated emergency load.

9.12  P  NA Under slab electrical plan

The under slab electrical plan typically includes the following information:

- North arrow.
- Conduit location(s) including depth, and distance to footings, piers, pilings or other structural – load bearing elements.
- Conduit size and material.
- Conduit insulation and/ or sleeve material.
- Service UFER ground attachments that will be inaccessible for inspection after cover.

**Please Note:** The Foundation Plan shall show the location, type, and sizes of all under-slab electrical conduit systems, and service UFER ground attachments

## Supporting Documents

No: \_\_\_\_\_ Item: \_\_\_\_\_

- 9.20  REQUIRED      Structural calculations for vertical loads and lateral loads for equipment weighing over 400 lbs.  
Provide structural calculations for vertical and lateral loads prepared by a licensed engineer verifying adequacy / design of the support structure for additional or replacement equipment weighing more than 400 lbs. Calculations must include bracing, anchorage and fastener details for all equipment.
- 9.21  P     NA      Energy code compliance forms and calculations for “lighting”  
Energy Code Compliance Forms for all new Lighting Systems covered under OSSC 1316 must be submitted per OSSC 1311.2. These forms are available at the Oregon Office of Energy’s web site:  
<http://www.energy.state.or.us/code/cdpub.htm>  
Whenever Lighting Energy Code Compliance Forms are required, a Lighting Plan(s) must be submitted, which includes a Lighting Schedule to validate type of lighting fixtures and location of fixtures.  
Form 2a must be submitted for all types of work. Others may complete this Form if other energy code compliance measures are required for project.  
For all projects involving lighting installations, complete all applicable series 5 forms.
  - Form 5a must be submitted for projects installing new lighting systems (includes interior and/or building exterior).
  - Form 5b must be submitted for projects (Form 3c may only be used for tenant improvement projects). Track lighting must be included per OSSC 1316.1.1(3). Note: Lighting requirements do not apply to Alterations if less than 50% of luminaries in “permitted” area are replaced.
  - Worksheets 5a, 5b and 5c must be submitted whenever applicable.
- 9.22  P     NA      Emergency power system specifications  
Submit Emergency Power System specifications as provided by the equipment manufacturer, or if designed, by the Electrical Engineer. Generators must be installed to meet the provisions on National Fire Protection Standard 110 “Standard for Emergency and Standby Power System.” Internal combustion engines and turbines must be installed to meet the requirements of NFPA 37 “Standard for the Installation and Use of Stationary Combustion Engines and Gas Turbines.”
- 9.23  P     NA      Feeder riser information  
Where feeders are added to an existing service, provide available fault current at service disconnect on the electrical utilities form (contact the local utility for that information) along with Fault Current calculation(s) at sub-feed equipment. If the calculations indicate a current of 10 KAIC (thousand amps interrupting current) or more, show that the panel and breakers are fully rated, or provide series rated information. Reference item 9.8 in this section.
- 9.24  P     NA      Lighting equipment catalog “cut sheets or specifications”  
Provide equipment manufacturers catalogue “cut” sheets and installation instructions for all lighting equipment.

# Supplemental Section 10.0 Fire Suppression Data

---

## Construction Documents

No: \_\_\_\_\_ Item: \_\_\_\_\_

---

10.1  REQUIRED Floor plan(s)

The floor plan must include the following information:

- North arrow.
- Location of partitions and fire walls.
- Occupancy class of each area or room.
- Location and size of concealed spaces, closets, attics, and bathrooms.
- Any small enclosures in which no sprinklers are to be installed.
- Kind and location of interior alarm bells (if an electrically actuated device is used, a separate electrical permit will be required).

10.2  REQUIRED Sprinkler piping plan(s)

The sprinkler piping plan must include the following information:

- North arrow.
- A graphic representation of the scale used on all plans.
- A note indicating whether system is hydraulically calculated or pipe schedule.
- Make, type, K-factor, nominal orifice size, and temperature rating of sprinklers.
- Temperature rating and location of high temperature sprinklers.
- Total area protected by each system on each floor.
- Number of sprinklers on each riser per floor
- Total number of sprinklers on each dry pipe system, preaction system, combined dry pipe-preaction system, or deluge system.
- Approximate capacity in gallons of each dry pipe system.
- Pipe type and schedule of wall thickness.
- Nominal pipe size and cutting lengths of pipe (or center to center dimensions).
- Details of sway bracing. (Provide structural calculations, Reference item 10.20 in this section.)
- Location and size of riser nipples.
- Type of fittings and joints and location of all welds and bends. The contractor shall specify on drawing any sections to be shop welded and the type of fittings or formations to be used.
- Type and locations of hangers, sleeves, braces and methods of securing sprinklers when applicable.
- All control valves, check valves, drain pipes and test connections.
- Make, type, model and size of alarm or dry pipe valve.
- Make, type, model and size of preaction or deluge valve.
- Size and location of hose outlets, hand hose and related equipment.
- Piping provisions for flushing.
- Where the equipment is to be installed as an addition to an existing system, enough of the existing system indicated on the plan to make all conditions clear.
- For hydraulically designed systems, the information on the hydraulic data nameplate.
- Hydraulic reference points shown on the plan shall correspond with comparable reference points on the hydraulic calculations sheets.
- The minimum rate of water application (density), the design area of water application, in-rack sprinkler demand, and the water required for hose streams both inside and outside.
- The total quantity of water and the pressure required noted at a common reference point for each system.

10.2  REQUIRED Sprinkler piping plan(s) continued

- Relative elevations of sprinklers, junction points, supply or reference points, and flow test elevation(s).
- If room design method is used, indicate all unprotected wall openings throughout the floor protected.
- The setting for pressure-reducing valves.
- Information about backflow preventer(s) (manufacturer, size, type).
- Information about antifreeze solution used (type and amount).
- Location of most remote area.
- Indicate on the plans if system was designed using the “Pipe Schedule” method.

**Please Note:** Where typical branch lines prevail, it will be necessary to size only one typical line.

10.3  P  NA Site plan

The site plan typically includes the following information:

- North arrow.
- Name of owner and occupant.
- Location, including street address.
- Name and address of contractor.
- Size of city main in street and whether dead-end or circulating; and, if dead-end, direction and distance to nearest circulating main. City main and test results and system elevation relative to test hydrant.
- Underground pipe size, length, location, weight, material, point of connection to city main; the type of valves, meters, and valve pits; and the depth that the top of the pipe is laid below grade.
- Other sources of water supply, with pressure or elevation.
- Location of double check-valve vault.
- Location of hydrants.
- Location of Fire Department Connection (FDC).
- Locations and types of exterior alarm bell(s).

10.4  P  NA Standpipe information

When standpipes are provided, the plans must include the following standpipe information:

- Location of standpipe riser(s) and lateral(s), including temporary standpipes, in buildings under construction.
- Classification of standpipe.
- Outlet connection locations.
- Fire-resistive protection for Class I risers and laterals not located within an enclosed stairway or pressurized enclosure.

10.5  P  NA Back flow prevention information

Indicate location and type of backflow device if one is provided.

10.6  P  NA Reflected ceiling plan(s)

The reflected ceiling plan typically includes the following information:

- Label indicating room or area use.
- Location of all sprinkler heads and risers.
- Location of all walls, partitions, headers, beams, soffits.
- Height of partitions and depth of all headers, beams, and soffits.

10.7  P  NA Transverse and longitudinal cross section(s)

Building cross sections typically consist of full height cross section(s) and specific cross sectional details, and / or schematic diagram(s), if required for clarity; including ceiling construction and method of protection for nonmetallic piping.

10.8  P  NA Fire-rated construction details

Provide complete details and specifications for all penetrations of fire-rated construction. Include listing information, manufactures installation instructions, and construction details for all fire-stopping material(s) and fire/smoke dampers.

10.9  P  NA Specialty fire suppression system plans and list of systems

Provide additional plans for:

- Clean agent fire suppression systems.
- Wet chemical systems.

## Supporting Documents

No: \_\_\_\_\_ Item: \_\_\_\_\_

10.20  REQUIRED Structural calculations for vertical loads and lateral loads for equipment weighing over 400 lbs.

Provide structural calculations for vertical and lateral loads prepared by a licensed engineer verifying adequacy / design of the support structure for additional or replacement equipment weighing more than 400 lbs. Calculations must include bracing, anchorage and fastener details for all equipment.

10.21  REQUIRED Equipment manufacture's catalog "cut sheets"

Provide equipment manufacturer's catalogue "cut" sheets and installation instructions for all equipment.

10.22  P  NA Hydraulic calculations

Hydraulic calculations must be provided on all hydraulically designed systems and shall include the following information.

- SUMMARY SHEET(S)
  - a) Date
  - b) Location.
  - c) Name of owner and occupant.
  - d) Building number or other identification.
  - e) Description of hazard.
  - f) Name and address of contractor or designer.
  - g) Name of approving agency.
  - h) System design requirements.
    1. Design area of water application, sq. ft.
    2. Minimum rate of water application (density), gpm per sq. ft.
    3. Area per sprinkler, sq. ft.
  - i) Total water requirements as calculated including allowance for inside hose, outside hydrants, and water curtain and exposure sprinklers.
  - j) Allowance for in-rack sprinklers, gpm.
  - k) Limitations (dimension, flow, and pressure) on extended coverage or other listed special sprinklers.
- WORK SHEETS
  - l) Sheet number.
  - m) Sprinkler description and discharge constant (K).
  - n) Hydraulic reference points.
  - o) Flow in gpm.
  - p) Pipe size.
  - q) Pipe lengths, center to center fittings.
  - r) Equivalent pipe lengths for fittings and devices.
  - s) Friction loss in psi per ft. of pipe.

10.22  P  NA Hydraulic calculations continued

- t) Total friction loss between reference points.
- u) In-rack sprinkler demand balanced to ceiling demand
- v) Elevation head in psi between reference points.
- w) Required pressure in psi at each reference point.
- x) Velocity pressure and normal pressure if included in calculations.
- y) Notes to indicate starting points, reference to other sheets, or to clarify data shown.
- z) Diagram to accompany gridded system calculations to indicate flow quantities and directions for lines with sprinklers operating in a remote area.
- aa) Combined K-factor calculations for sprinklers on drops, armovers, or sprigs where calculations do not begin at sprinkler.
  - GRAPHIC REPRESENTATION
- bb) Water supply curve.
- cc) Sprinkler system demand.
- dd) Hose demand (where applicable).
- ee) In-rack sprinkler demand (where applicable).
- ff) Friction loss curves for backflow prevention devices.
  - WATER SUPPLY INFORMATION
- gg) Location and elevation of static and residual test gauge with relation to the riser reference point.
- hh) Flow location.
- ii) Static pressure, psi.
- jj) Residual pressure, psi.
- kk) Flow, gpm.
- ll) Date.
- mm) Time.
- nn) Test conducted or information supplied by.
- oo) Other sources of water supply, with pressure or elevation.

10.23  P  NA Specialty fire suppression system information

Provide additional specifications for:

- Clean agent fire suppression systems.
- Wet chemical systems.



## Supplemental Section 11.0 Fire Detection and Alarm Data

---

### Construction Documents

No: \_\_\_\_\_ Item: \_\_\_\_\_

---

11.1  REQUIRED Floor plan(s)

The floor plan typically includes the following information:

- North arrow.
- Location of partitions and fire walls.
- Occupancy class or use of each room or area.
- Location and size of concealed spaces, closets, interstitial spaces, attics, and bathrooms.
- Location of all alarm initiating devices. All sprinkler systems required to have a water flow alarm shall have a manual pull located adjacent to the sprinkler system riser. Reference UFC Standard 10-2, Article 5-9.1.2 (c).
- Location of all alarm signaling devices. Provide candela/ decibel output at each device on plans.
- A note that indicates mounting heights of initiating devices, signaling devices, control-trouble signaling equipment / annunciation devices, and manual pulls.
- Make, manufacturer, and type of all initiating devices, signaling devices, control-trouble signaling equipment, and annunciation devices.
- Dedicated power connection.
- Classification of alarm system type as indicated in UFC Standard 10-2, Article 1-3.1.

**Please Note:** UFC definitions and requirements are reproduced here for your convenience. For complete 1997 UFC requirements, reference Standard 10-2 Article 1-3.

**Section 1-3.1** This code classifies fire alarm systems as follows:

- (a) Household fire warning systems.
- (b) Protected premises fire alarm systems.
  1. Local fire alarm systems.
- (c) Off-premises fire alarm systems.
  1. Auxiliary fire alarm systems.
    - (i) Local energy type.
    - (ii) Parallel telephone type.
    - (iii) Shunt type.
  2. Remote station fire alarm systems
  3. Proprietary fire alarm systems
  4. Central Station fire alarm systems
  5. Municipal fire alarm system

11.2  P  NA Site plan

The site plan typically includes the following information:

- North arrow.
- Name of owner and occupant.
- Location, including street address.
- Name, address, and telephone number of fire alarm system installation company.

11.3  P  NA Reflected ceiling plan(s)

The reflected ceiling plan typically includes the following information:

- North arrow.

- 11.3  P  NA Reflected ceiling plan(s) continued
- Label indicating room or area use/occupancy classification.
  - Location of all walls, partitions, headers, beams, soffits.
  - Height of partitions and depth of all headers, beams, and soffits.
  - The heights of the ceiling/roof of each room and a description of the ceiling surface (smooth flat, sloped with 8 inch deep beams at 4 ft OC, et) or provide a full height cross section of each room (or a typical) or area.
  - Location of all alarm initiating devices. All sprinkler systems required to have a water flow alarm shall have a manual pull located adjacent to the sprinkler system riser. Reference UFC Standard 10-2 Section 5-9.1.2 (c).
  - Location of all alarm signaling devices. Provide candela/decibel output at each device on plans.
  - A note that indicates mounting heights of initiating devices, signaling devices, control-trouble signaling equipment, and annunciation devices.
  - Make, manufacturer, and type of all initiating devices, signaling devices, control-trouble signaling equipment, and annunciation devices.
- 11.4  P  NA Transverse and longitudinal cross section(s)
- Building cross sections consist of:
- Full height cross section, or schematic diagram, if required for clarity; including ceiling/roof construction and method of protection for nonmetallic piping.
  - Show size (depth), spacing, and type (i.e. open web steel joists, solid-sawn beams, etc.) of all joists, rafters, and beams in each room or area.
- 11.5  P  NA Wiring schematic
- The wiring schematic consists of a one line drawing and indicates:
- Conductor type and sizes.
  - All devices by zone.
  - All panels and controllers.
- 11.6  P  NA Elevator recall information
- Elevator recall must address primary and secondary station location designations for elevator recall.
- 11.7  P  NA Operational matrix
- Provide an Operational Matrix which lists all fire detection and notification equipment and indicates how the equipment interacts.
- 11.8  P  NA Fire-rated construction details
- Provide complete details and specifications for all penetrations of fire-rated construction. Include listing information, manufactures installation instructions, and construction details for all fire-stopping material(s) and fire/smoke dampers.
- 11.9  P  NA Standard electrical notes
- Reference UFC Standard 10-2, Section 1-5.2.8 for complete information. Provide the following notes for all fire alarm system installations:
1. Connections to the light and power service shall be on a dedicated branch circuit.
  2. The circuit and connections shall be mechanically protected.
  3. The circuit disconnecting means shall have a red marking, be accessible only to authorized personnel, and be identified as "FIRE ALARM CIRCUIT CONTROL."
  4. The location of the circuit disconnecting means shall be permanently identified at the fire alarm control unit.

Supplemental Section 11.0 Fire Detection and Alarm Data continued  
Supporting Documents

No:	Item:	Notes:
11.20	<input type="checkbox"/> REQUIRED	Structural calculations for vertical loads and lateral loads for equipment weighing over 400 lbs. Provide structural calculations for vertical and lateral loads prepared by a licensed engineer verifying adequacy / design of the support structure for additional or replacement equipment weighing more than 400 lbs. Calculations must include bracing, anchorage and fastener details for all equipment.
11.21	<input type="checkbox"/> REQUIRED	Equipment manufacturer's catalog "cut sheets" Provide equipment manufacturer's catalogue "cut" sheets and installation instructions for all fire alarm panels, initiation devices, and notification devices.
11.22	<input type="checkbox"/> REQUIRED	Installer certification information Provide documentation to show that the installer is properly licensed and trained in the installation of fire alarm/detection systems.
11.23	<input type="checkbox"/> P <input type="checkbox"/> NA	Battery calculations Provide battery calculations which demonstrate that the battery backup is sized to provide operational voltage for the required operational time.
11.24	<input type="checkbox"/> P <input type="checkbox"/> NA	Sample fire alarm log book Provide a sample copy of Fire Alarm Log Book to be supplied with the system. Indicate where the log is to be stored.
11.25	<input type="checkbox"/> P <input type="checkbox"/> NA	Emergency power system specifications If an engine/turbine driven generator is used as the source of emergency power for fire & life-safety systems, specify the type of fuel used and fuel consumption rate. Also, show how the emergency power system meets the requirements of: <ul style="list-style-type: none"> <li>• NFPA 110 Standard for Emergency and Standby Power Systems</li> <li>• NFPA 37 Standard for the Installation and Use of Stationary Combustion Engines and Gas Turbines.</li> </ul> If storage batteries are used provide battery calculations which demonstrate that the battery backup is sized to provide operational voltage for the required operational time.
11.26	<input type="checkbox"/> P <input type="checkbox"/> NA	Monitoring station information Provide a copy of the contract with the monitoring company. Also, provide documentation that the monitoring company is listed with a nationally recognized listing agency.
11.27	<input type="checkbox"/> P <input type="checkbox"/> NA	Voltage drop calculations Voltage drop calculations must demonstrate that the wire type, gauge, and length will allow a minimum of 85% of required operational voltage.

**Please Note:** UFC definitions and requirements are reproduced here for your convenience. For complete 1997 UFC requirements, reference Standard 10-2 Section 1-5.5.

Section 1-5.5.1 Voltage, Temperature, and Humidity Variation. Unless otherwise listed, equipment shall be installed in locations where conditions do not exceed the following:

- (a) Eighty-five percent and at 110 percent of the nameplate primary (main) and secondary (standby) voltage(s).

## Supplemental Section 12.0 Re-roof Installation Data

---

### Construction Documents

No: \_\_\_\_\_ Item: \_\_\_\_\_

12.1  REQUIRED Roof Plan

The site plan typically includes the following information:

- North arrow.
- Provide a note that describes the scope of work to be performed. Tear off, repair overlya, etc.
- Provide a note that indicates the approximate number of squares of roofing to be applied.
- Show area of work to be performed.
- Location of roof access.

**Please Note:** The Building Official may waive the submission of plans. Contact your local jurisdiction for further information.

Supplemental Section 12.0 Re-roof Installation Data continued  
Supporting Documents

No: \_\_\_\_\_ Item: \_\_\_\_\_

12.20  REQUIRED Pre-re-roof inspection report

Section 1515.2.1 of the Oregon Structural Specialty Code (OSC) requires a pre-roofing inspection prior to the installation of new roofing. The Tri-County Pre-Inspection form shall be used to perform the inspections. The pre-inspection may be performed by the local jurisdiction, or the Building Official may accept the inspection report by an approved special inspector. The Building Official may allow existing roof coverings to remain when inspection or other evidence reveals all of the following:

- The roof structure is sufficient to sustain the weight of the additional dead load of the new roofing when allowed by OSSC Section 1516 Appendix Table A-15.A.
- The roof deck is structurally sound.
- Roof drains and drainage are sufficient to prevent extensive accumulation of water.
- The existing roofing is securely attached to the deck.
- Existing insulation is not water soaked.
- Fire-retardant requirements are maintained.

12.21  REQUIRED Roofing system listing information

Provide roofing systems listing information for each roofing system used.

12.22  P  NA Roofing manufacturer's catalog "cut sheets"

Provide the roofing material / system manufacturer's "cut" sheets for each system used.

12.23  REQUIRED Roofing manufacturer's installation instructions

Roof coverings must be applied in accordance with the manufacturer instructions at all times. Provide the roofing material / system manufacturer's installation instructions for each system used. Reference OSSC 1503 and 1507.

12.24  P  NA Structural engineer's report

When required by the Building Official

# Supplemental Section 13.0 Jurisdictional Specific Requirements

---

No: \_\_\_\_\_ Item: \_\_\_\_\_

13.1     Required    P     NA

13.2     Required    P     NA

13.3     Required    P     NA

13.4     Required    P     NA

13.5     Required    P     NA

13.6     Required    P     NA

13.7     Required    P     NA

13.8     Required    P     NA

---

13.9    Required    P    NA

---

---

---

---

---

---

---

---

---

---

---

---

---

13.10    Required    P    NA

---

---

---

---

---

---

---

---

---

---

---

---