



## Factory Assembled Structures Program

### **Commercial Coach Trailers – Plan Review Guidelines and Submittal Process for Licensed Professional Plan Approvals**

Plan reviews from approved Licensed Professionals (LP) can serve as the required plans that manufacturers or owners must have to obtain FAS inspections on Commercial Coach Trailers for Washington State. This document provides general guidance for licensed professionals and manufacturers about the typical drawings and other information that must be submitted in professionally approved plans for Commercial Coaches.

Each Commercial Coach model design plan must include the drawings and information necessary to evaluate conformance with the applicable codes and standards. Use the following checklist to be sure your plans submitted for LP review are complete. Plan reviewers, including approved licensed professionals are not involved in designing or assisting the manufacturer in completing their design plans and forms.

Plans must indicate compliance with the current version of the applicable codes. Plan drawings must be neat, legible, and drawn to a recognized architectural “scale”. Each page of the drawing set needs to have a drawing name, for example; “floor plan”, “details”, “plumbing”, etc., a drawing number and the date prepared or last revision (WAC 296-150C-0320).

Commercial Coaches must be designed, and the plans reviewed to the following requirements

- Current editions of the general codes referenced in WAC 296-150C-0800:
  - WAC 296-150C, Commercial Coaches. These rules contain general administrative and specific fire safety, structural, mechanical, electrical and plumbing requirements.
  - International Mechanical Code (IMC) for topics not covered in WAC 296-150C, for example commercial cooking hoods and fire suppression.
  - NFPA 70 National Electrical Code (NEC) for topics not covered in WAC 296-150C.
  - The Washington State Energy Code WAC 51-11C.
  - Uniform Plumbing Code (UPC) for topics not covered in WAC 296-150C.
  - International Building Code (IBC); chapter 3, only for determining the occupancy classification. Note that the specific occupancy requirements and limitations in the IBC do not apply – see WAC 296-150C for specific occupancy requirements (for example size and location of exits).
  - International Building Code (IBC); chapter 16, only for determining the minimum floor live load design based on the occupancy classification of the CC unit.
  - International Building Code (IBC); all of chapter 11 for accessibility. All Commercial Coach units must be fully accessible as required by the scoping requirements of IBC 1103. Note that the general exceptions in IBC 1103.2 apply; for example, construction site trailers are exempt structures and kitchens that are employee work areas are

partially exempt spaces. The occupancy group “U” may not be used in order to exempt a structure from being accessible.

- Referenced codes applicable to specific construction as indicated in the checklist below
  - Washington State Building Code Amendments (WAC Title 51; i.e. IBC, IMC, IFC, IFGC & UPC)
  - International Fire Code (IFC)
  - International Fuel Gas Code (IFGC)
  - ICC/ANSI A117.1, Accessibility Standards
  - NFPA 58, LP Gas Code
- Washington State Motor Vehicle Laws Title 46 RCW
  - Unit must be transportable over the highway with or without a basic oversize permit. Generally this is no larger than 14 feet wide, 66 feet long and 14’-8” high. Check with the Washington State Patrol for specific permitting requirements.
- FAS program limitations and clarifications
  - A Commercial Coach must meet the definition of a commercial coach in WAC 296-150C-0020.
  - A Commercial Coach may not be used as a dwelling, a manufactured home or for other uses included in occupancy group R-3 in the IBC.
  - A Commercial Coach may not be used for occupancies classified as group “H” in the IBC.
  - Commercial Coaches utilizing “alternate materials, alternate design and method of construction” must have the alternate materials, designs or methods approved in writing from FAS in accordance with WAC 296-150C-0140.

### **Checklist for Commercial Coach plans:**

#### **At the front of your Commercial Coach model package, include the following:**

- A copy of the authorization letter from us for each licensed professional.
- A completed “Plan Approval Request” form - [F623-006-000](#) – for factory built structures, see instructions.
- A completed “Application for Insignia” form (optional) - [F623-014-000](#) – for factory built structures - see instructions.
- A copy of this checklist marked to show what items were reviewed.

#### **Next, include each of these:**

- A completed set of Washington State Energy Code (WSEC) forms including; prescriptive or UA component worksheets, glazing schedule and heat sizing worksheet. WSEC forms and resources are at <https://waenergycodes.com/wsec-documents.php>.
- Engineering calculations. Gravity and lateral load calculations are required for all structural designs. See WAC 296-150C-0820 to 0920 for minimum structural requirements. A Washington State registered professional engineer (PE) or a Washington State registered Architect must stamp all engineering calculations in accordance with WAC 196-23. As an alternate, structural load tests can be performed in accordance with WAC 296-150C-0930 when witnessed and approved by the engineer or architect.
- Truss drawings (if you are using trusses and/or girder trusses). Each type of roof or floor truss must include an engineered drawing stamped by a Washington PE. See WAC 296-150C-0960.

### **Plan sheets and associated documents:**

Following the documents above, include a set of design drawings. Design drawings and structural calculations must be stamped and signed by a Washington state registered professional engineer or registered architect in accordance with current Washington State law WAC 196-23. The engineer's registration board also provides guidance on this subject.

Plan drawings must be neat, legible, and drawn to a recognized architectural "scale". Each page of the drawing set needs to have a drawing name, for example; "floor plan", "details", "plumbing", etc., a drawing number and the date prepared or last revision.

- Cover drawing with:
  - Information identifying the person or company submitting the plans with mailing address, phone and email contact information. Also, include the factory address. The "factory address" is the off-site location where you will be building your modular building.
  - A list of any design professionals, such as engineers and architects for the project.
  - A list of all pages in the drawing set by page title and drawing number. You can choose the drawing numbers as long as each page has a unique number.
  - A list of the codes used to design the plan. These must include the version year of each code.
  - A list of the design criteria used for the building, such as roof load, wind load and floor load etc.
  - Other pertinent information, such as general notes, may be included.
  - For small units, this cover drawing may be combined with the floor plan.
- Floor Plan:
  - See WAC 296-150C-1090 through 1210 for fire & life safety requirements.
  - Dimensions of the overall unit.
  - Indicate the front (hitch end) and rear of the unit.
  - The location of each module or section of the commercial coach structure and the associated manufacturer's serial number.
  - The locations of the exterior and interior walls.
  - The overall dimensions of the building and the interior dimensions for rooms and width of hallways.
  - Label each room showing its use (e.g. office, conference etc...).
  - Locations and sizes of doors, windows and skylights.
  - Location of any safety glazing.
  - Indicate locations of all counters, appliances, equipment, LP gas containers, generator compartment, battery compartment, plumbing fixtures (sinks, water heaters etc.), and all other fixtures and devices.
  - Provide the make & model of all major cooking appliances (i.e. grill, fryer, griddle, range etc.) including dimensions. (to be Commercial Listed Appliances including BBQ's & Smokers)

- Indicate & label the main egress door & all other doors (including height & width). The minimum required egress door is 36 inches wide by 80 inches tall. Units over 24' long must have two remote exits. See *WAC 296-150C-1180*.
- Indicate the window opening locations and sizes (height & width). See *WAC 296-150C-1170 & 1175*.
- Indicate any serving window materials and that it is safety glazed or equal.
- Indicate wall finish, floor finish and ceiling finish materials. See *WAC 296-150C-0950 through 1120*.
- Indicate that all appliances are installed per the manufacturer and secured against displacement per *WAC 296-150C & WAC 296-150C-1090*.
- Outside Elevations showing:
  - Siding and roofing materials (call out types or products)
  - Window and door configurations and swings
  - Roof eaves and overhangs.
  - Exterior porches, decks, awnings, and guardrails.
- Cross Section(s) – a major transverse section through the building showing:
  - The main material components of the floor, wall and roof assemblies including: framing materials, sheathing type exterior coverings, type of insulation in each assembly, location/type of vapor retarder, interior finish, etc.
  - Vertical and horizontal dimensions showing overall width and height and the finished floor to ceiling dimensions for all areas. Multiple sections may be required if there are areas of varying ceiling height, etc.
  - Roof eave and overhangs.
  - Locations of roof vents, baffles, etc. (including a calculation of the venting per square foot of floor area).
  - Show the complete structural load paths from the roof through the supporting structure and into the foundation or chassis support locations under the floor of the building.
  - Cross sections should be drawn at 1/2" scale or larger.
- Structural Plans and Framing Plans (as applicable).
  - Types, locations and lengths of engineered shear-walls.
  - Wall headers, beam sizes, locations, column sizes, locations, and section/detail reference tags.
  - Structural framing drawings for floors and roof where the spacing and layout of the structural members is not obvious from the structural floor plan and cross section. If you are using trusses in a roof or floor, then provide a truss plan showing the location of each type of truss in the assembly. These may be part of the engineered truss drawings from the truss manufacturer.
- Construction/Section Details (as needed).
  - Relevant structural details including connections of trusses/ rafters to the beams and walls.
  - General fastening schedule or code section references.
  - Diaphragm and shearwall construction and connection details and/or schedules.
  - Shearwall and beam uplift tie details and/or schedules.
  - Truss bracing details.

- Ridge beam fabrications details.
- Section details are normally drawn at 3/4" scale or larger.
- Stair Details (if applicable).
  - If the building has an interior stair, provide detailed dimensions showing overall length and the rise and run of the steps along with any landing dimensions.
  - Indicate guardrail, and handrail, locations either on a "stair plan" or on the main floor plan.
- Foundation Plan, Details
  - Pier and blocking locations with spacing dimensions.
  - Point load locations corresponding with the framing plans
  - Hold down/strap connection points (if applicable) corresponding to framing (brace/shear wall) plans.
  - Tie-down or special connection locations. See WAC 296-150C-0880
  - Details on foundation footing and pier construction
- Chassis (all Commercial Coaches must have a permanent transportation chassis).
  - See WAC 296-150C-1080 for specific requirements.
  - All frame components such as steel beams, axles, cross-members, outriggers headboard and towing hitch.
  - Welding callouts showing how each of the chassis components is welded together. The welding callouts need to show the location, type and length of each weld.
  - Additional documents showing welding procedures, welder certification and welding inspector certifications.
  - A detail or details showing the connection of the modular building to the chassis.
  - A detail or details showing how the chassis is connected to the foundation system.
  - The chassis may not be removed from the commercial coach.
- Electrical Floor Plan Drawing identifying and showing locations of electrical equipment such as:
  - Electrical panels, switchgear, MCC, ATS, MTS, UPS, transformers, motors, pumps, Utility meter, CT cabinet
  - HVAC equipment and water heaters.
  - Disconnects for equipment such as HVAC, water heaters, batteries, motors (Indicate if fused or non-fused)
  - Alarms and detectors.
  - Receptacles, lights and switches. (GFCI receptacles shall be identified "GFCI")
  - Appliances.
  - Emergency lighting.
  - Electrical floor plan drawing shall also:
    - Properly identify rooms and spaces
    - Identify all devices/equipment with a circuit number(s) consistent with a circuit(s) on the panel schedule drawing.
    - Contain symbol legend or shall be provided on an additional electrical plan drawing.

- The electrical plan shall indicate the “wiring method(s)” utilized (interior and exterior). See Chapter 3 of the National Electrical Code for wiring method types Examples: EMT, RMC, LFMC, FMC, NM-B– do not use words such as “romex”
- Required working space width and depth per NEC 110.26A or for over 1000 volts NEC 110.32 and 110.34A . Working space depth and width shall be identified with dash lines and in inches or feet.
- Over 1000 volt system/equipment– indicate ampacity rating, nominal voltage, nominal voltage to ground, condition per NEC Table 110.34A, type of system (Wye or Delta), grounded or ungrounded.
- Over 1000 volt system electrical plans and documents shall display compliance with NEC 490.48A (designed by WA State qualified licensed professional engineer)
- Electrical cover drawing shall indicate the currently adopted NEC year and WAC 296-46B
  
- Electrical drawings and the Washington State Energy code
  - WSEC C405.2 electrical drawings shall include details of required lighting controls
  - WSEC C405.10 shall clearly show details of the installation of controlled receptacles (offices, classrooms, conference rooms, work rooms, printing/copy rooms, break rooms)
  - WSEC 406: for buildings that utilize efficiency packages such as C406.3 Reduced Lighting Power and/or C406.4 Enhanced digital lighting controls, details and calculations shall be included on an electrical drawing or other plan set drawing.
- Electrical Panel Schedules on Panel Schedule Drawing shall indicate:
  - Panel Identification
  - Panel board, switchgear, switchboard short circuit current rating
  - System Voltage, Phase, Bus Rating, bus AIC rating
  - Main CB Amp rating/setting and Main CB AIC rating, or Main Lug Only,
  - Each branch circuit number (shall be shown as actual installation (odd numbers on left and even numbers on the right)
  - Each branch circuit breaker rating/setting
  - Circuit identification/description (Clear, evident, specific purpose)
  - Connected VA or KVA on each circuit phase
  - Total connected KVA
  - Size of each branch circuit conductor
  - Identify each GFCI or GFPE circuit breaker
  - Circuit breakers that are lockable per NEC 110.25
- A “one line Service/Feeder” diagram shall indicate:
  - Distribution equipment identification
  - System Voltage and phase (single phase or three phase)
  - Bus ratings and AIC ratings
  - Clearly identified Service Point and Service Disconnect if building is supplied by service
  - Clearly identified Building main disconnect if building is supplied by feeders from a remote service.
  - Service and feeder conductor sizes, type of conductor, and counts (including grounding electrode conductors(GEC) and/or equipment grounding conductors(EGC)). Example (3) 3/0 XHHW-CU, (1) #4 XHHW-CU (EGC)

- Service and feeder overcurrent protective device sizes/ratings
  - Service and feeder raceway sizes, types, and counts. (Examples of types: RMC, EMT, schedule 80 PVC) -
  - Type of wiring methods if other than raceway (examples cable tray, bus duct)
  - Panel boards, switchboards, switchgear, MCC bus rating and rating/setting of main circuit breaker or fuses.
  - A compliant grounding electrode system per NEC 250.50 including size of grounding electrode conductors and type of grounding electrodes as identified in NEC 250.52A. (All available grounding electrodes shall be used).
  - Locations of fault calculation values greater than 10,000 AIC shall be identified
  - Details indicating compliance with Ground Fault Protection of Equipment if required by NEC 230.95 Ground Fault Protection of Equipment or High –Impedance Grounded Neutral System per NEC 250.36 (Typically 1000A or more 277/480 volt systems)
  - 1200A or more - Details indicating compliance of Arc Energy Reduction required by NEC 240.87
- Electrical load calculation drawing shall include:
    - A total electrical building load calculation per NEC 220 or other applicable NEC section.
    - An electrical load calculation for each panel board or other distribution equipment per NEC 220

Electrical load calculations shall indicate:

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

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

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

Electrical or overall cover drawing shall indicate:

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

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

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

- Alternate Electrical System for mobile food units (50 AMP Plan Schematic & Panel Schematic):

*Note: 30 AMP system information is included in the following.*

- Indicate locations of all outlets, lights, switches and other electrical devices such as inverters, batteries, shore power inlet location and the main distribution panel box.
- Indicate that only (1) main power supply is installed per *NEC 551.44*.
- Provide a schedule showing what amperage of breakers are installed in the panel box.
  - Indicate the panel loads are distributed evenly for a 50 AMP service per *NEC 551.42[D]*.
  - Indicate each electrical device that is connected to the circuit.
- Indicate the panel box location.
  - Indicate the clear area of 24 inches wide by 30 inches deep in front of the panel (no tables, shelves, appliance or other obstructions) per *NEC 551.45[B]*.
  - Indicate that the center of the operating handle of the main breaker at its highest position is not more than 6 feet 7 inches above the floor per *NEC 404.8*.
- Indicate all outlets to be GFCI protected per *NEC 210.8(B)(2)*.
- Indicate the shore-power connection location per *NEC 551.46*, indicate the type and amperage as allowed per *NEC 551.42* for a 30 AMP or 50 AMP service. Note, a 15 AMP or 20 AMP power supply service is permitted see *NEC 551.42*.
- A 30 AMP plug is a 2-pole, 3-wire, grounding type for 125V up to 5 circuits per *NEC 551.46[C](3)*.
- A 50 AMP plug is a 3-pole, 4-wire, grounding type for 125/250V for more than (5) circuits up to the calculated amperage allowance per *NEC 551.46[C](4)*.
- Indicate the main breaker (1 for 30 AMP service) (2 for 50 AMP service). A main disconnecting means is required for all panel configurations per *NEC 551.45[C]*.
- Indicate the AWG (GA) of the conductors (wiring) for the main shore power to the panel (10 AWG for 30 AMP and 6 AWG for 50 AMP) per *NEC Table 310.15[B](16) & 400.5[A](1) column B*.
- The power supply cord ampacity shall be chosen from *NEC table 400.5[A](1) column B*. Ampacity shall indicate a minimum of the AMPS. Example: 10 AWG /30 AMP for 30 AMP power assemblies and 6 AWG / 50 AMP for 50 AMP assemblies.



- The power supply cord shall be listed as identified in *NEC table 400.4* with the following criteria; TRADE NAME: Hard Service Cord, USE: Damp and Wet Locations, Thermoplastic, and Extra Hard Usage. The supply cord ends shall be listed, molded and for use in wet locations.
- Indicate that the shore power cord is a listed molded type per *NEC 551.46*.
- Indicate the AWG of the grounding conductor for the panel (Typically 8 AWG copper or 6 AWG supplied with 50 AMP service cable) per *NEC Table 250.102[C](1) & 551.56 [B][C]*
- Indicate the AWG for the neutral conductor for the panel per *NEC Table 250.122/310.15[B](16)*.
- Indicate the amperage of the branch breakers (20 AMP, 15 AMP or 30 AMP).
- Indicate the AWG of the conductors (wiring) for the system 12 AWG or 14 AWG (12 AWG - 20 AMP, 14 AWG (or 12 AWG) - 15 AMP & 10 AWG - 30 AMP) per *NEC Table 310.15[B](16)*.
- Indicate that all exposed non-current carrying metal parts that may become energized are effectively bonded per *NEC 551.56*.
- Indicate the wiring method and type (i.e. raceway, conduit, etc.)(i.e. MC Cable, EMT, ENT etc.) as allowed per *NEC 551.47*.
- Ensure conduit supports for the wiring conduit method is installed per the respective criteria per *NEC Chapter 3*. (Example: See *NEC Article 330.30* Securing & Supporting for MC Type conduit)
- Indicate that the electrical panel is bonded to the chassis with an 8 AWG bonding wire per *NEC 551.56(A), (B) & (C)*.
- Indicate that exterior electrical panels that are accessed from the exterior are listed for outdoor use, 'Wet / Damp Locations' (NEMA 3 Rated) per *NEC 408.37* and installed per *NEC 312.2*.
- Indicate the hot water heater (LP or electric) and include the make & model number.
- If LP (gas) is used, indicate by specifications that it is a sealed combustion unit and that it is direct vented per *WAC 296-150C-1470*.
- Indicate any low voltage systems installed to conform to *ANSI/RVIA 12V -2018*.
- Indicate if there is a storage battery that it is installed per *WAC 296-150C-1303*.
- Generators:
  - Provide the make and model of the generator
  - Indicate where the generator is located in the truck or trailer
  - Indicate if it is permanently installed and that it is installed in a 26 MSG minimum galvanized steel or better compartment that it is vented properly per the manufacturer. *NFPA 1192 - 6.4.5 & NEC 551.30*.
  - That it is installed in a vapor resistant enclosure sealed from the interior of the truck or trailer
  - That it is not directly connected to the electrical system unless listed for the connection (RV listed) or installed through a listed system
  - Indicate if the generator is connected by use of the shore power cord when the electrical system is not connected to shore power service
  - Indicate that the generator is secure against displacement per the manufacturer's recommendations.
- Plumbing Fresh Water System:
  - A schematic is required to be included in the plans.

- Potable water systems shall conform to *WAC 296-150C-1530 to 1570* and the UPC.
  - Water piping and fittings shall be of an approved material (PEX, CPVC, Copper) per *UPC Table 604.1* and size of pipe as allowed per *UPC Table 610.3 & NFPA 1192 – Table 7.3.6.4* and installed per *UPC Table 313.3*.
  - The hot water tank shall be secured & installed per the manufacturer per *WAC 296-150C-1090*.
  - Within 18” of the water heater (hot & cold), the water lines shall be a flexible metal type per *UPC 604.13* (i.e. copper & stainless steel).
  - A 150-degree pressure relief valve shall be plumbed to the exterior with approved material (not to be PEX or PVC) & sized not less than the PRV per *UPC 608.4 & 608.5*.
  - Water storage tanks shall be listed for potable water (IAPMO, NSF, & UPC)
  - The water tank capacity if installed, shall be 15% less than the wastewater tank holding capacity.
  - The water service connection shall be a 3/4” connection per *WAC 296-150C-1570 and UPC chapter 6*.
  - Provide a backflow prevention device in the water supply piping adjacent to the water service connection per UPC.
  - Hangers and supports shall be installed per *UPC table 313.3*.
- Plumbing Waste Water System:
    - A schematic is required to be included in the plans.
    - The waste water systems shall conform to *WAC 296-150C-1530 to 1570* and the UPC.
    - Waste piping and fittings shall be of an approved type per the *UPC Table 701.2* (i.e. ABS, PVC).
    - The size of piping shall of an approved size (i.e. 1-1/4”, 1-1/2”, 2” etc.) per UPC
    - The 3-compartment sink & hand sink cannot share the same P-trap per *UPC 1001.2*
    - The 3-compartment sink shall have a P-trap located at the middle sink per *UPC 1001.2*.
    - The hand-washing sink is permitted to have an anti-siphon at the P-trap per *UPC 1002.1*.
    - On waste holding tanks – if installed:
      - The vent & drain location shall be at the top of the tank per *IAPMO TS 2-2015 section 4.4.2*.
      - The vent shall be through the roof per UPC.
      - The tank shall be listed for wastewater use per *WAC 296-150C*.
      - The capacity of the waste tank is to be 15% greater than the fresh water tank.
      - A full-way termination valve shall be installed per *WAC 296-150C-1590(f)*.
      - The tank shall be secured against displacement per *WAC 296-150C-1590 and NFPA 1192 - 7.5.1*.
    - The size of the main drain shall be 1-1/2 inch min. with the appropriate cap & chain per *WAC 296-150C-1550*.
    - Clearance at the main drain outlet shall be per *WAC 296-150C-1560*.
- LP/Gas (Propane/Natural Gas Plan Schematic):
    - Provide a schematic per *WAC 296-150C-1350 through 1460* in addition to the following information.
    - Indicate the type of pipe & size of pipe sized per *IFGC Table 402.4(28)*.
    - Indicate the type of gas being proposed per *WAC 296-150C-1360*. (LP or Commination LP & Natural Gas)

- Indicate the total length of the pipe from the tank location to the furthest appliance served.
  - Indicate & label on the plan all appliance locations that are being served.
  - Indicate the maximum BTU rating of each appliance that is being served.
  - Indicate the tank location as allowed per *WAC 296-150C-1350*. (Note: The rear of the Commercial Coach, the sides of the Commercial Coach and the roof of the Commercial Coach are not compliant locations).
  - Indicate the fire suppression auto shut-off location. (see 'Fire Suppression System' list)
  - Indicate the full-way shut off locations for the main system as well as each appliance or bank of appliances as allowed per *WAC 296-150C-1440*. Shut of locations shall be readily accessible.
  - Indicated where the drip leg is located per *IFGC 408.1 through 408.4*.
  - Indicate the gas piping securing interval per *WAC 296-150C-1360 through 1400*.
  - Indicate that the gas piping is bonded by a minimum 8 AWG copper or equal conductor to the chassis *WAC 296-150C-1410, NEC 551.56[C] & NEC 551.56[E]*.
  - The gas line is not to be used for an electrical ground per *WAC 296-150C-1410(1)*.
  - Indicate that the gas lines are not concealed per *WAC 296-150C-1380*.
  - Indicate LP cylinder locations to be a minimum of 5 feet from any source of ignition (i.e. shore power connections, generators, electrical panels, outlets, appliances that are direct vent (sealed combustion) intake/vent (i.e. gas water heater), etc. from the discharge of the pressure relief device per *NFPA 58 - 6.8.1.6 & Table 6.3.4.3*.
  - Ensure the LP cylinder locations are a min. of 3 feet horizontally from any opening that is below the level of the discharge of the pressure relief device per *NFPA 58 - 6.8.1.5 & Table 6.3.4.3*.
- Fire Suppression System (Plan Schematic):
    - Provide a design plan of the suppression system in relation to the hood and the appliances that are being served by the system per *IMC 509, IFC chapter 904 & IFC 904.12*.
    - Indicate the type of system by the manufacturer name. (i.e. ANSUL R-102, AMEREX etc.)
    - Indicate the type of chemical being proposed & installed (wet or dry) per *IFC 904.5* for a Wet system and *IFC 904.6* for a Dry system.
    - Indicate the pull station location (near main exit door) *IFC 904.12.1*.
    - Indicate the fusible link locations and temperature rating.
    - Indicate the size of the system suppression tank and the location of the suppression tank.
    - Indicate the locations (including duct, plenum & appliance coverage per the suppression manufactures installation by a certified installer) of the suppression heads (nozzles) and the type (model number or color band or identification number) per the manufacturer as rated for the appliance being served.
    - Indicate the location of the fire suppression automatic shut-off system interconnection to the gas system per *IFC 904.12.2*.
    - Systems shall be operated & maintained per *IFC 904.12.6*.
- Hood & Fan System (Type I or Type II Plan Schematic):
    - Provide detailed manufacturer drawings, shop fabrication drawings or detailed specifications of the hood & fan system to meet compliance with *IMC Chapter 5*.

- Indicate on the plan that for 18 inches beyond the hood & cooking appliances (including ceiling) in all directions that it is of non-combustible material per *IMC 506.3.6, 506.5.4, 507.2.6*.
- Indicate on the plan that for 6 inches beyond each extent of the cooking appliances and the complete rear wall behind the cooking appliances that it is non-combustible material with a flame spread no greater than 25 per *WAC 296-150C-1120 & IMC 507.4.1*
- Provide all dimensions and indicate the placement meets *IMC 507.4.1* for Canopy style hoods to extend a horizontal distance not less than 6 inches beyond the edge of the appliances (no overhang is required when closed to the appliance side by a non-combustible wall) and not greater than 48 inches above the cooking surface. (Note: For UL710 listed hood systems the distance above the appliance is exempt)
- Provide all dimensions and indicate the placement meets *IMC 507.4.2* for Non-Canopy style hoods to be no greater than 3 feet above the cooking surface and not more than 12 inches from the front edge of the cooking surface. (Note: For UL710 listed hood systems the distance above the appliance is exempt)
- Indicate the hood type (Type I or Type II) as required for the appliances being served per *IMC Chapter 507*. See definitions for appliance by type (Extra-Heavy Duty, Heavy Duty, Medium Duty or Light Duty) per *IMC Chapter 202*. Note the most restrictive appliance shall dictate the total hood design per the prescriptive path (not UL710 listed & labeled).
- Indicate the hood style (Wall-hung or Back-shelf/Low Proximity) per *IMC 507.5.1 – 507.5.4*.
- Indicate if the hood is a listed & labeled *UL710* hood system as allowed in per *IMC 507.1*. Documentation is required from the manufacturer with the listing information and proper labeling is to be in place upon inspection. If the hood is not a *UL710 listed* system the hood shall meet all requirements of *IMC Chapter 5* as indicated through a prescriptive path construction.
- Indicate the material gauge of system per *IMC 506.3.1.1* for the Grease Duct (18 GA stainless), *IMC 507.2.3* (20 GA stainless) for a Type I hood and *IMC 507.5* (24 GA stainless) for a Type II hood. (non-UL710 listed)
- Indicate the grease duct clearance is in accordance with *IMC 506.3.6* to be not less than 18 inch clear in all directions to combustible materials.
- Indicate the hood joints, seams and penetrations meet *IMC 506.3.2*. (i.e. welded) (non-UL710 listed)
- Indicate the duct for a Type I hood meets *IMC 506.3*.
  - Indicate the duct joint type per *IMC 506.3.2.1*.
  - Indicate the method used for the duct to hood joint per *IMC 506.3.2.2*.
  - Indicate the grease duct joints, seams and penetrations meet *IMC 506.3.2*.
  - Indicate that the proper flange and gasket material at the duct to exhaust fan connection to meet a minimum of 1500 degrees F (816 degrees C) continuous duty per *IMC 506.3.2.3*.
  - Indicate the hinge kit is installed for the hood exhaust housing per *IMC 506.5.3*.
- Indicate the duct for a Type II hood meets *IMC 507.3*.
  - Indicate the compliance with *IMC 507.3.1 through 507.3.3*.
- Indicate the hood exhaust outlet location meets *IMC 507.1.5* (1 outlet no more than 12 feet)
- Indicate the grease filters meet *IMC 507.2.8* (to be UL1046 listed) *through 507.2.9* including the clearances listed in *IMC Table 507.2.8*. (non-UL710)
- Indicate the grease gutters meet *IMC 507.2.9*. (non-UL710)
- Indicate the mounting angle of the grease filters per *IMC 507.8.8.2* (not less than 45 degrees).

- Indicate the CFM rate of the fan including the make, model and serial number (if available) for both a UL710 system and non-UL710 listed system.
  - The CFM required shall meet the appropriate capacity exhaust flow rate by appliance definition and style of hood per *IMC 507.5.1 through 507.5.4*. (non-UL710)
- Indicate the hood supports meet *IMC 507.2.4* (for Type I) or *IMC 507.3.2* (for Type II).

**Testing & Inspection Requirements:**

- Overall Commercial Coach Inspection: Per *WAC 296-150C-0500(2)(a)* A ‘cover’ inspection is required during construction of the unit before the electrical, plumbing, mechanical, and structural systems (if required) are covered. A ‘final’ inspection is required after vender unit is completed. Wiring installed in surface mount conduit may have the cover inspection waived for a final inspection upon approval from L&I Factory Assembled Structures (FAS) Plan Review or assigned FAS L&I Inspector. Please review all sections of *WAC 296-150C-0500*. A ‘final’ may be conducted to verify all systems in the event the ‘cover’ inspection has not been conducted and it has been approved by Washington State Labor & Industries FAS Plan Review.
- Electrical Testing: Per *NEC* each Commercial Coach designed with a 120v or 120/240v electrical system shall be tested for the following: (1) Continuity test; (2) Operational test; (3) Polarity test; (4) GFCI test.
- Plumbing Fresh Water Testing: Per *UPC 609.4* upon completion of a section or of the entire hot and cold water supply system, it shall be tested and proved tight under a water pressure not less than the working pressure under which it is to be used.
- Plumbing Waste Water Testing: Per *UPC 712.1* the piping of the plumbing, drainage and venting system shall be tested with water or air except that plastic pipe shall not be tested with air.
- Gas System Testing: Per *WAC 296-150C-1450 & WAC 296-150C-1460* the gas piping shall be tested and documentation of these tests shall be provided to the inspector upon inspection. See the code sections indicated for specific testing standards.
  - Acceptable documentation: A completed ‘*Affidavit of Testing*’ supplied by *Washington State Labor & Industries FAS Plan Review* OR a test report with the testing agent’s official letterhead and contact information. The test is to be performed by a third party agent and the testing information is to be supplied to the inspector upon inspection.
- Fire Suppression System Testing: A *Wet-Chemical* extinguishing system shall be installed, maintained, periodically inspected and tested in accordance with NFPA 17A and their listing. Testing and maintenance shall meet all provisions of *IFC 904.5.1 & 904.5.2*.
- Fire Suppression System Testing: A *Dry-chemical* extinguishing systems shall be installed, maintained, periodically inspected and tested in accordance with NFPA 17 and their listing. Testing and maintenance shall meet all provisions of *IFC 904.6.1 & 904.6.2*.
  - Provide to the inspector documentation of either the Wet or Dry Chemical system testing and the system shall be tagged & dated for inspection. The tag shall remain on the system for maintenance & verification.
  - Installation, testing and tagging of the fire suppression system is to be by a certified installer for the specific fire suppression system per the manufacture of the system and per the *IFC*.

**Labeling Required:**

- Provide a label at the exterior gas connection listing the type of system (LP or NATL), indicate the BTU Input Rating. Example: *Propane Gas System, 250,000 BTU* (less or more per specific BTU demand) per *WAC 296-150C-1420*. The label shall be easily identifiable with contrasting lettering & background.
- Provide a label at the LP shut off valve near the tank for the gas system “LP SHUT OFF”. The label shall be easily identifiable with contrasting lettering & background.
- Provide a label at the electrical service connection in accordance with *NEC 551.46[D]* for the amperage of the service. See the specific code section for the size of lettering & wording.
- Provide a label for a Type I hood designed prescriptively under the *IMC* indicating the CFM flow rate per linear foot of hood *IMC 507.2.1* as indicated by appliance definition & style of hood per *IMC 507.5.1* through *507.5.4*. (Note: UL710 systems are supplied with a label by the manufacturer).
- Provide a label at the potable water connection inlet per *NFPA 1192 section 7.3.7.7*. See the specific code section for the proper size of lettering & wording.

### **Submitting approved plans to FAS:**

The manufacturer, owner or their agent sends plans approved by the licensed professional to the FAS program electronically. The submittal for each VEN model must be a complete package with all of the necessary drawings, forms and other documents in a single PDF. Files with multiple models, partial submittals or submittals from multiple sources are not accepted.

### **Use the following instructions to send your approved LP reviewed plans to FAS:**

- 1.) Plans from approved Licensed Professionals must bear their review approval stamp and be a single flattened PDF file for each VEN model that contains the drawings, forms and other documents required by the plan checklist above. Insignia request forms must be in a separate file in order to be processed.
- 2.) Email [FAS1@lni.wa.gov](mailto:FAS1@lni.wa.gov) to inform us that you would like to submit a plan(s) reviewed by a licensed professional. The email must include:
  - a) The name of the applicant (owner or manufactures name) and manufacturer number if a number has previously been assigned to them (the same one you use for plan approval requests/insignia requests)
  - b) Email addresses for the contact that will be submitting plans to your account.
- 3.) You will receive an email from the BOX.com cloud system linking you to a document folder for plan uploads. If you do not have a BOX.com account, you will be prompted to create a free one for current and future submittals (see attachment). You will also be able to access approved plans through this box.
- 4.) Upload your documents to the BOX.com account. The upload should contain the following:
  - a) A single flattened PDF of the LP approved plan for each VEN model, and
  - b) If insignia need to be issued, a file containing the insignia request forms

- 5.) Once you upload plans, we will send you a unique permit number (FP number) and a link to pay your plan review fees and applicable insignia fees, online by credit card. When the fees are received the plan(s) will move to “in line” status for acceptance processing.
- 6.) Once your plans are accepted and an FAS plan approval number has been added you will be emailed a BOX link to access the plans. You will need to print/retain the copies of the approved plan at each location where inspections take place.
- 7.) You can use this plan number to request inspections and to order additional insignia.