



City of Huntington Beach
Department of Planning & Building
MECHANICAL PLAN CHECK CORRECTION LIST
Based on 2015 Uniform Mechanical Code
2016 California Mechanical Code

2000 Main Street, Huntington Beach, CA 92648
Office: (714) 536 - 5241 Fax: (714) 374 - 1647

ADDRESS _____ JOB DESCRIPTION _____
PLANCHECK # _____ PERMIT # _____
DATE _____ CONSTRUCTION TYPE _____
CONTACT NAME _____ OWNER _____
CONTACT NO. _____ PLAN CHECKER NAME: FRANK BIANGONE 714-536-5296

PART A. GENERAL

1. Provide a written response to corrections circled on this sheet and/or notes on plans made by plan checker. All plan corrections shall be clouded or otherwise noted to expedite re-submittal.
2. Note corrections and/or notes on submitted drawings – return red note marked set with two, new sets of revised drawings.
3. All plans and calculations are to be wet stamped and signed by a licensed engineer, architect or by the design installer. 2016 CMC sec. 104.3(5)
4. Note fire rated construction on plans to verify proper provisions for listed rated penetration protection. .
5. Provide mechanical equipment schedule identifying the equipment, manufacturer, capacities and model numbers. Equipment shall also be listed and labeled by an approved testing agency. 2016 CMC sec.301.2
6. Provide CF1R-NCB-01-E form pages that summarize the minimum energy performance specifications needed for compliance on plan. These forms are required to be on plans depicting Newly Constructed Buildings. These forms also will not be accepted unless they come completed and include a registration number designated/provided by the state approved HERS provider.
7. Provide Certificate of Compliance form NRCC-MCH-01-E (parts 1, 2 and 3). Forms must be on plans for all submittals. Form required to be used on all non residential submittals received after July 1, 2014.
8. Provide Required Acceptance Test Sheets form NRCC-MCH-04-E (parts 1, 2, and 3). Forms must be on plans for all submittals. Forms required to be used on all non residential submittals received after July1, 2014.
9. NRCC-MCH-01-E is required for all HVAC alterations. Additionally NRCC-MCH-03-E is required for duct, VAV and/or outdoor air alterations. NRCI-MCH-01-E (and all parts) are required to be on the submitted plans. Other forms may be required for acceptance testing and HERS verification.
10. There was no control wiring, ducting systems, etc. on the shell plans and no HVAC components were energized. All TI's must provide complete mechanical forms NRCC-MCH-01-E (all parts) Acceptance testing is done on complete systems which aren't depicted until the TI plans are approved and installed. At a minimum the MCH 02A (outside air) must be designated. Provide acceptance testing for all applicable components in the completed HVAC systems according to the Mech. Energy Standards.
11. All plans submitted to the Huntington Beach Building Dept. for plan check must be prepared on minimum ledger size paper. (11 x17)
12. Provide all K and/or FS (Kitchen/Food Service) plans to each set of mechanical plans to be submitted.
13. Provide NRCC-PRC-03-E form detailing the Commercial Kitchen Exhaust System(s). Form must be on plan per State of CA.
14. Provide NRCC-PRC-05-E form detailing the Commercial Refrigeration System(s). Form must be on plan per State of California.

PART B. HEATING, REFRIGERATION AND VENTILATION

1. Show location of hvac equipment on rooftop detail. Identify equipment on plans.
2. All rooftop equipment must be screened from view per Huntington Beach Zoning Code 230.76 :

230.76 Screening of Mechanical Equipment

A. General Requirement. Except as provided in subsection (B) below, all exterior mechanical equipment, except solar collectors and operating mechanical equipment in an I District located more than 100 feet from another zoning district boundary, shall be

screened from view on all sides. Equipment to be screened includes, but is not limited to, heating, air conditioning, refrigeration equipment, plumbing lines, ductwork, and transformers.

Screening of the top of equipment may be required by the Director, if necessary to protect views from an R or OS district. Rooftop mechanical equipment shall be setback 15 feet from the exterior edges of the building.

B. Utility Meters and Backflow Prevention Devices. Utility meters shall be screened from view from public rights-of-way. Electrical transformers in a required front or street side yard shall be enclosed in subsurface vaults. Backflow prevention devices shall not be located in the front yard setback and shall be screened from view.

3. Attic located HVAC equipment requires a permanent 120 volt receptacle outlet and a lighting fixture shall be installed near the appliance. The switch controlling the lighting fixture shall be located at the entrance to the passageway. 2016 CMC sec. 304.4.4
4. Requires MERV-8 (Minimum Efficiency Reporting Value) rated air filters in all mechanically ventilated buildings with reference to CA. Green Building Standards Code Ch. 5. Exception of existing mechanical equipment. 2016 CMC sec. 503.3.
5. Duct system must be constructed with metal in accordance with chapter 6 of the CA Mechanical Code. Factory made flexible air ducts and connectors shall be not more than 5' in length and shall not be used in lieu of rigid elbows and fittings. Exception: residential applications. 2016 CMC sec. 603.4.1.
6. Central heating furnaces and low-pressure boilers may be installed in a closet in a bathroom or bedroom provided the closet has a listed, gasketed door assembly, a listed self closing device and a threshold with a bottom door seal. All combustion air must be taken from outdoors. 2016 CMC sec. 904.1(1, 2)
7. Provide a Refrigerant Concentration Limit calculations form to comply with limits set in CMC. 2016 CMC sec.1104.2.
8. Provide a complete mechanical/plumbing plan denoting the entire Hydronic heating system in accordance with chapter 12 of the 2016 CMC.
9. Furnace/a-c/heat pump/ not shown on plans. Show location of equipment.
10. Buildings of more than 15 feet in height shall have an inside means of access to the roof mounted equipment. 2016 CMC sec. 304.3.1
11. A CF-1R form that summarizes the minimum energy performance specifications needed for compliance, including the results of the heating and cooling load calculations must be included on the submitted plans.
12. All rooms and occupied spaces listed in Table 402. 1 (Chap.4) of the California Mechanical Code shall be designed to have outdoor air for its occupants in accordance with Chapter 4 of the 2016 Ca. Mech. Code. Table. 402.1
13. All dwelling units shall meet the requirements of ANSI/ASHRAE Standard 62.2, Ventilation and Acceptable Indoor Air Quality in Low Rise Residential Buildings. Window operation is not a permissible method of providing the Whole Building Ventilation required in section 4 of that standard. 2016 CEC sec. 150 (o). Include all worksheets denoting duct size, length and fan selection.
14. ANSI/ASHRAE 62.2 requires that each kitchen and bathroom have a local ventilation exhaust system installed that exhausts indoor air to outside the building. ANSI/ASHRAE 62.2 sec. 5
15. Each bathroom containing a tub, shower or combination tub/shower must be served by a Energy Star rated ventilation fan with ducting terminating outside the building and controlled by the use of a Humidistat unless said fan is operating as a component of a whole house ventilation system. 2016 CA Green Building Codes Standard sec. 4.506.1
16. All enclosed spaces in a building that are normally used by humans shall be ventilated in accordance with the requirements of 2016 CA Energy Code Sec. 402.1. The outdoor air-ventilation rate and air-distribution assumptions made in the design of the ventilating system shall be clearly identified on the plans required by 10-103 of Title 24 Part 1(CA Administrative Code).. 2016 CEC sec.120.1 (2).
17. Exhaust airflow for enclosed parking garages shall be provided in accordance with the requirements in table 403.7 of the 2016 California Mechanical Code which is .75 cfm per sq. ft. of the parking garage. Alternate exhaust ventilation for enclosed parking garages is to take 2.5% of all parking spaces and provide 14,000 cfm per each of the 2.5% of spaces.
18. Interior spaces intended for human occupancy shall be provided with active or passive space heating systems capable of maintaining an indoor temperature of not less than 68* F at a point 3 feet above the floor when in operation. 2016 CBC sec.1204.1
19. Decorative shrouds shall not be installed atop gas vents and chimneys except where such shrouds are listed (UL 103, UL 959) for use with the specific vent/chimney system and installed in accordance with manufacturers' installation instructions. 2016 CMC sec. 802.5.1.1
20. Condensate disposal required to be collected and drained to an approved location. 2016 CMC secs. 310.1, 310.2
21. Air for combustion, ventilation and dilution of flue gases for appliances installed in buildings shall be obtained by application of one of the methods covered in section 701.4 through section 701.9.3. Where infiltration does not provide the necessary air, outdoor air shall be introduced in accordance with methods covered in section 701.6 through 701.9.3. 2016 CMC sec. 701.
22. Ductwork not shown or incomplete. Specify duct type, gage, material and insulation requirements. 2016 CMC ch. 6
23. Provide required information on the supporting of the HVAC duct system. 2016 CMC sec(s).603.3 through 603.6

24. Factory made ductwork is to be installed to UL 181 standards.
25. Air moving systems supplying air in excess of 2000 cfm required to be equipped with an automatic shut off interlocked with a smoke detector located in the supply ducting of the air moving system. 2016 CMC sec. 608.1
26. Return air may not be obtained from an area where it will pick-up objectionable odors, fumes or flammable vapors; a kitchen, closet, bathroom, toilet room or where it is less than 10 feet above the surface of any abutting public way or driveway. 2016 CMC sec.311.3 (1 thru 6)
27. Corridors shall not serve as supply, return, exhaust, relief or ventilation air ducts. 2016 CBC sec. 1020.5
28. Corridors shall not be used to convey air to or from rooms if the corridor is required to be of fire-resistive construction per the Building Code. 2016 CMC sec. 602.8
29. Unvented room heaters may not be installed in a bathroom or bedroom or be used as the primary source of heat. 2016 CMC sec. 916.2.1.1. Unvented fuel burning room heaters shall not be installed, used or maintained or permitted to exist in Group R occupancy. (HCD1, HCD 2)
30. All materials exposed in a return air plenum or ceiling shall be non-combustible or have flame spread index no greater than 25 and a smoke developed index no greater than 50. 2016 CMC sec. 602.2
31. All dampers require access that shall not require the use of tools, keys or special knowledge. All access points shall be permanently identified on the exterior by a label with letters not less than ½" in height reading: SMOKE DAMPER, FIRE DAMPER OR COMBINATION F/S DAMPER. 2016 CMC sec. 605.5
32. Compressor capacity requires refrigeration machinery room. Provide details of machinery room. 2016 CMC secs.1106 thru 1108.5
33. Walk-in/reach-in cooler location required to be shown on plans. 2016 CMC sec. 1101.1
34. Refrigerated rooms or spaces must be equipped with refrigerant vapor detection and alarm system that is in accordance with section 1106.4 of the 2016 CA Mechanical Code. Alarm system shall activate mechanical ventilation in accordance with 1107.6 and emergency shut off in accordance with 1108.3.
35. Please provide all components and details of the refrigeration systems on plans.
36. Steam and water piping that is a part of hydronic heating or cooling systems shall comply with Chapter 12 of the 2016 California Mech. Code.
37. Penetrations of the elevator lobby enclosure by ducts and air transfer openings shall be protected as required for corridors in accordance with section 716.5.4.1 of the 2016 CA Building Code. 2013 CBC sec. 713.14.1.
38. In addition to testing and adjusting, before a new space-conditioning system serving a building or space is operated for normal use, balance the system in accordance with the procedures defined by the Testing Adjusting and Balancing Bureau National Standards; the National Environmental Balancing Bureau Procedural Standards; Associated Air Balance Council National Standards or as approved by the enforcing agency. 2016 CA Green Building Code Standards sec. 5.410.4.3.1.
39. Heating, Ventilation and air conditioning Systems (including hydronic systems) shall be balanced in accordance with one of the following methods; AABC, ACCA manual B, ASHRAE 111, NEBB Procedural Standards or SMACNA Systems Testing. 2016 CMC sec. 314.1
40. Combustion and ventilation air for infrared heaters shall be provided in accordance with the following: 1) Where unvented infrared heaters are used, natural or mechanical means shall be provided to supply and exhaust not less than 4 cubic feet per minute per 1,000 btuh input of installed heaters, 2) Exhaust openings for removing flue products shall be above the level of the heaters. 2016 CMC sec. 927.4 (1), (2).
41. All air distribution ducts and plenums, including but not limited to building cavities, mechanical closets, air-handler boxes and support platforms used as ducts or plenums, shall be installed, sealed and insulated to meet the requirements of the CMC ch.6 and ANSI/SMACNA – 06-2006 HVAC Duct Construction Standards Metal and Flexible 3rd Edition incorporated herein by reference.
42. If the ducts are entirely new or the duct replacement consists of more than 40 feet new duct material the entire system has to be tested as if these were new ducts utilizing the procedures in Reference Nonresidential Appendix Section NA2.1.4.2.1.If the new ducts are an extension of an existing duct system the combined system (new and existing ducts) must meet:1. A leakage rate equal to or less than 15 percent of supply fan flow utilizing the procedures in Reference Nonresidential Appendix Section NA2.1.4.2.1(§141.0(b)2Diia),or 2. If it is not possible to comply with §141.0(b)2Diia, All accessible leaks shall be sealed and verified through a visual inspection by a certified HERS rater utilizing the procedures in Reference Nonresidential Appendix Section NA2.1.4.2.2. **PLEASE INCLUDE AND CHECK OFF IN THE ENERGY FORMS THE CORRECT REQUIRED ACCEPTANCE TESTS FOR THIS JOB SCOPE APPLICATION. These requirements also apply to cases where existing HVAC equipment is either repaired or replaced.** 2016 CMC sec. 150.2 (b) D.

PART C. PRODUCT CONVEYING SYSTEMS

1. The 2016 Uniform Mechanical Code Training Manual has classified sawdust and woodchips as flammable/explosive.
2. Specify classification of product conveying system. 2016 CMC sec.505.3
3. Specify size of ductwork and what gage thickness the ductwork system is to be constructed of. 2016 CMC tbls. 506.2(1), 506.2(2)
4. Fittings in class 2, 3 and 4 duct systems are to be two gages thicker than required for straight runs. 2016 CMC sec.506.3

5. Spacing for support of ducts shall not exceed 12 feet for 8 inch ducts nor exceed 20 feet intervals for ducts larger than 8 inch. 2016 CMC sec. 506.5
6. Dust collection bins must have outdoor location approval by Fire Dept. and indoor collection bins must be approved for their use. 2016 CMC 505.1
7. Cleanouts required at every ten feet and at changes in direction of a product conveying system being used to convey any particulate. 2016 CMC sec. 506.3
8. Ducts conveying explosive/flammable dusts require explosion vents protected by anti-flash swing valves or rupture diaphragms. Openings to relieve explosive forces through the explosion venting shall be outside the building. 2016 CMC sec. 506.4

PART D. ENVIROMENTAL EXHAUST

1. Identify the size and type of duct material for environmental air system. 2016 CMC sec. 504.1
2. All environmental air systems must be shown on plans. This includes clothes dryers, rest room exhaust, non-commercial kitchen exhaust, etc.
3. When a closet is designed for the installation of a clothes dryer, a minimum opening of 100 sq. in. for make-up air shall be provided in the door or by other approved means. 2016 CMC sec. 504.4.1(1) (2).
4. All environmental air outlets shall terminate 3 feet from openings into the building, 3 feet from property line and 10 feet from a forced air inlet. Environmental air ducts shall not discharge onto a public walkway. 2016 CMC sec. 502.2.1
5. Exhaust openings terminating to the outdoors shall be covered with corrosion resistant screen having not less than ¼" nor larger than ½" openings. Exception: Clothes Dryers

PART E. COMMERCIAL KITCHEN HOOD SYSTEMS

1. All commercial cooking equipment must have a commercial exhaust hood to serve the equipment. The only exceptions are if the commercial cooking equipment is certified EPA 202 or UL 710B listed. 2016 CMC sec. 508.1 (1), (2), (3) and (4).
2. Type of listed cooking equipment shall be identified and described on plans. 2016 CMC sec. 515.1(1), (2).
3. Construction of the hood and duct systems (Type I and Type II) must comply with the entire 2016 CMC secs. 508.2 thru 508.13 or be listed and approved for their use.
4. The wall construction behind where the Type I hood is to be hung must be a minimum of limited combustible construction to achieve the 3" clearance to limited construction required by the grease exhaust hood manufacturer. 2016 CMC secs. 507.3 thru 507.3.3.3. Limited construction is described as a steel stud wall with ½" drywall on both sides as per NFPA 96 tbl. A.3.3.38
5. Overlapping duct connections of either the telescoping or the bell type shall be used for welded field joints on grease duct construction, NO BUTT WELDED FIELD JOINTS ALLOWED. 2016 CMC sec. 510.5.3.2
6. A Type I hood shall be installed with clearance from combustible construction of at least 18 inches. This may be reduced to 3 inches provided the combustible material is protected with materials as specified for one-hour fire resistive construction on the hood side. 2016 CMC sec. 507.3
7. Type I hoods less than 12 inches from the ceiling or wall shall be flashed solidly with same materials required for hood construction.
8. Type I hoods or portions thereof penetrating a ceiling or wall shall be enclosed in the duct enclosure. 2016 CMC sec. 510.7.
9. FIELD applied grease duct enclosures shall continuously cover the duct on all sides from the point at which the duct enclosure penetrates a ceiling, wall or floor to the outlet terminal and shall be listed in accordance with ASTM E 2336 which requires TWO layers of duct wrap to achieve a one hour rating. 2016 CMC sec. 507.3.5.
10. A Type II hood shall be installed at or above all commercial dishwashers in a food processing establishment. 2016 CMC sec. 508.1
11. Clean out opening in a horizontal grease duct systems must be provided with access and platform when not accessible from a stepladder. 2016 CMC sec. 510.3.3.2
12. Provide calculations of hood and duct systems with formula from 2016 CMC secs. 508.10.1.2 thru 508.10.1.6.
13. **Type I hoods shall bear a label indicating the exhaust flow rate in cubic feet per minute per linear feet of the hood. 2016 CMC sec. 508.10.3. Please add this information to plan.**
14. Exhaust air volumes for hoods shall be of sufficient level to provide for capture and removal of grease laden cooking vapors. 2016 CMC sec. 511.2.2.
15. Replacement air quantity shall be adequate to prevent negative pressures in the commercial cooking area(s) from exceeding 0.02 inch water column. When its fire extinguishing equipment discharges, make up air supplied INTERNALLY to a hood shall shut down. 2016 CMC sec. 511.3
16. Roof detail required showing location of rooftop exhausting equipment termination according to 2016 CMC secs. 510.9.1 (1) thru (9) and 510.10.
17. A hinged upblast fan must be mounted atop at least 18" of grease duct above the roof surface with the fan terminating no less than 40" above the roof surface. 2016 CMC sec. 510.9.1 (8).

18. Grease duct discharge must be a minimum of 10 feet of clearance from outlet to adjacent buildings, property lines and air intakes. Where space limitations prevent a 10 foot horizontal separation from air intakes duct may be elevated to 3 feet above air intakes within 10 feet. 2016 CMC sec. 510.9.1(3)
19. **A Performance Test shall be conducted upon completion and before approval of a ventilation system serving commercial cooking appliances. The test shall verify the exhaust airflow rate in accordance with sections 508.10.1.2 thru 508.10.1.5 or the airflow rate stamped on listed hood. Please add note to plan. 2016 CMC sec. 511.2.2.1**
20. **The permit holder shall verify a capture and containment performance of the hood. A field test shall be performed with cooking equipment at normal operating temperature and capture and containment shall be verified through a visual observation of smoke or steam produced by smoke candles or puffers. Smoke bombs are prohibited from use on this test. Please add note to plan. 2016 CMC sec. 511.2.2.2.**
21. **Prior to use or concealment a grease duct leakage test shall be performed to verify the welded seams and joints are liquid tight. The test shall be a water test, a light test, or an approved equivalent test. The permit holder shall be responsible for providing the equipment AND for performing the test. 2016 CMC sec. 510.5.3.1. Please add note to plan.**
22. **On underground horizontal grease exhaust duct the cleanouts shall be provided at the top of the grease duct. 2016 CMC sec. 510.8.2.**
States gas operated equipment utilizing solid fuel for flavoring does not require a separate exhaust system if the following 11 conditions stated in this section are complied with. 2016 CMC Sec. 517.3.1.1.
23. Install a cleanout door opening into the grease duct as required by section 510.3 of the 2016 CMC.
24. Clearance from grease duct to combustible construction shall be no less than 18", clearance of grease duct to non-combustible or limited combustion enclosure (shaft) shall not be less than 6 inches. 2016 CMC sec. 510.7.3.
25. If personnel entry is not possible on a vertical grease duct, access shall be provided at each floor. 2016 CMC sec. 510.3.4.1.
26. Exhaust outlets within the hood may only serve a 12-foot section of an unlisted hood. **2016 CMC sec.508.13.**
27. Fire extinguishing equipment for the protection of grease removal devices, hood exhaust plenums and exhaust duct systems shall be provided. 2016 CMC sec. 513.1.

PART F. STEAM AND WATER BOILERS

1. Two exit access doorways are required in boiler, furnace and incinerator rooms where the area is over 500sq. feet and any fuel fired equipment exceeds 400,000 btuh. 2016 CBC sec. 1006.2.2.1.
2. Boilers rated at 10 horsepower and operate at 15 psi must be installed in a one hour fire rated room or provided with an automatic fire sprinkler system. 2016 CBC table 509.
3. Expansion tanks required to be installed in conjunction with boiler. 2016 CMC sec. 1004.0.
4. Boiler room/enclosure requires combustion air following guidelines of 2016 CMC sec. 701.1.1. 2016 CMC sec. 1001.3
5. Potable water supply connections to steam and/or water boilers shall be provided with a listed backflow protection assembly or device. 2016 CPC sec. 603.5.10
6. Provide an elevation plan of boiler vent system, shafts (if required), combustion air and blow-down tank (if required).
7. Trap primed floor drain required to be installed in a boiler room that serves boiler(s) providing hydronic heating and/or hot water supply. **2016 CMC sec.1001.4.**

PART G. GAS PIPING

1. Provide detail on gas piping; include size of piping and pipe materials. 2016 CMC 1308.1.
2. Provide lengths of all gas piping branches and the main line from meter to structure. Include all valve locations. 2016 CMC sec. 1308.1
3. Provide total btuh demand for each outlet on the gas piping system. Include both new and existing outlet btuh demand for proper sizing approval of gas system. 2016 CMC secs. 1308.1
4. Description of each appliance of the gas piping system is required. 2016 CMC 1315.3.
5. CSST (corrugated stainless steel tubing) gas pipe systems shall be bonded to the electrical service's grounding electrode system at the point where the CSST gas piping enters the building. The bond jumper shall be a minimum 6 awg. Copper. 2016 CMC sec. 1312.2.
6. Gas piping 5psi and above located inside a structure is prohibited unless one of the following conditions are met: 1. Pipe is located in a ventilated chase, 2. Pipe is located in buildings or separate area of building used exclusively for industrial heating or processing, research, warehousing or boiler or mechanical equipment room. 3. Pipe system is welded. 2016 CMC sec. 1311.5

PART H. MISC

1. Identify if the project is OSHPD.

PART I. ADDITIONAL CORRECTIONS

1. See additional attached notes and respond accordingly to corrections noted.