



CITY OF LONG BEACH
 Department of Development Services
 BUILDING AND SAFETY BUREAU
MECHANICAL
PLAN REVIEW CHECKLIST

INFORMATION	PROJECT NO.: BMEC	DATE:	STATUS:
	PROJECT ADDRESS:		
	WORK DESCRIPTION:		
	APPLICANT'S NAME:	TEL. NO.:	
E-MAIL:	FAX. NO.:		
INSTRUCTIONS	<p>Your application for a permit, together with plans and specifications, has been examined and you are advised that the issuance of a permit is withheld for the reasons hereinafter set forth. The approval of plans and specifications does not permit the violation of any sections of the Building Code or other local ordinances or state laws.</p> <p>In an effort to streamline the plan review process, please follow the steps outlined below to ensure that there is no delay in processing your application and reviewing your responses to these plan check comments.</p> <ul style="list-style-type: none"> • Comments with circled item numbers apply to this plan check. • Revised plans and calculations shall incorporate or address all comments marked on the original checked set of plans, calculations, and this plan review checklist. Provide a written response to each comment and show where and how it has been addressed. Identify the sheet number and detail or reference note on the revised plans where the corrections are made. Time spent searching for the corrected items on the revised plans or calculations will delay the review and approval process. Once all comments on the plans, calculations, and this checklist have been addressed, contact the plan check staff to SCHEDULE AN APPOINTMENT to review the changes made. <p>PLAN REVIEWER: _____ TEL. NO.: _____</p> <p>ADDRESS: 333 W. OCEAN BLVD., 4TH FLOOR, LONG BEACH, CA 90802</p> <p>EMAIL: _____ WEBSITE: www.lbds.info</p> <ul style="list-style-type: none"> • Should you have any questions or need clarification pertaining to the comments made on your project, you may contact the plan check staff by telephone from 7:30 AM (8:30 AM Wed.) to 4:30 PM (M T W TH F). • Bring the original checked set of plans and calculations along with this checklist, your written response to the appointment meeting. Do not schedule an appointment meeting with the plan check staff until all comments have been addressed. You may also resubmit the plans without a recheck meeting at the 4th floor Development Services Center • We will ensure that the appointment meeting or re-submittal of the plans for recheck will proceed as expeditiously as possible. If an impasse is reached during the appointment meeting, you may request that the plan check supervisor be summoned for a 2nd opinion or to attempt to resolve and/or clarify the matter. • Major revisions to the plans that necessitate additional review time may be subject to re-submittal and additional plan check fees as authorized by Section 18.05.040 of the Long Beach Municipal Code. • Reviewed plans and/or calculations not picked up within 60 days of notice will be discarded. 		
	NOTE	<p>Numbers within the parenthesis () refer to the section of the applicable code. 2013 California Building Code (CBC). Table (T). 2013 California Electrical Code (CEC). 2013 California Plumbing Code (CPC). 2013 California Mechanical Code (CMC). Long Beach Municipal Code (LBMC). Health and Safety Code (HSC).</p>	

PLAN SUBMITTAL

1. Each sheet of the construction documents must bear stamp, wet signature, registration number and expiration date of the Responsible Party. The Responsible Party is the Registered Mechanical Engineer, or Licensed Architect, or Licensed Mechanical Contractor (C-20).
2. The address of the project and the name/address of the owner are required on the first sheet of the construction documents. Include the name/address of the registered design professionals and/or consultants on the construction documents where applicable.
3. Provide the scope of work to be done on cover sheet.
4. Two final set(s) of construction documents will be required during permit issuance. Construction documents must be:
 - a. Quality blue or black line drawings with uniform and light background color
 - b. All required documents, wet signed by the Responsible Party, shall be included on the plans
 - c. All required documents, wet signed by the Responsible Party, in 8-1/2" x 11" format
 - d. Max. 36" x 48" size with min. 1/8" lettering size
 - e. Provide a complete and accurate Plumbing Permit application
5. Remove all plans, details or notes that do not pertain to the project from the final set of construction documents.

GENERAL REQUIREMENTS HVAC

1. Plans shall bear the wet stamp with license number and signature of an architect, mechanical engineer or C-20 licensed contractor (Chap. 7, Div. 3, Business and Professional Code, Art. 2, Sec. 6735.4)(Chap. 7, Div. 3, Business and Professional Code, Art. 2, Sec. 6735.4)
2. Show job address on plans.
3. Plans shall be clearly legible, and at a scale no smaller than 1/8 inch per foot.
4. Show equipment schedule on the plans.
5. Show roof access.

6. Show the occupancy of each area.
7. Show the intended use of each room.
8. Show 120 Volt electrical outlets on the plans within 25 Ft. of all outdoor Mech. Equip. (CMC 309)

FURNACES

1. Provide calculations for the combustion air. Show combustion air openings or ducts and sizes on the plans. (CMC 701.0)
2. Combustion-air duct shall be of galvanized steel. (CMC 701.11)
3. Dampers are not allowed in combustion-air ducts. (CMC 701.12)
4. Provide an elevation of the furnace: show draft hood, vent size and type (E.G. double wall type B vent, positive pressure vent etc.), clearances and vent termination. (CMC 802)
5. The vent shall be double wall type B. (CMC Table 802.4)
6. The vent shall be positive pressure type. (CMC Table 802.4).
7. The vent shall be sized in accordance with CMC 803.0 and venting tables 803.1.3(1) through 803.1.3(15). Show vent height offsets and diameter on the plans. (CMC 803)
8. The vent termination shall be at least 5 feet above the vent collar. (CMC 802.1 ~~GF~~)
9. Vents shall extend above the roof and shall terminate in a vent cap. Termination point shall be at least 3 feet above any forced air inlet into the building located within 10 feet. (CMC 311.3)
10. Provide manufacturer brochure showing venting criteria for condensing furnaces.
11. Vents shall not extend into or pass through ducts or plenums. (CMC 602.1)
12. Specify on the plans according to which table of CMC Table 803.1.3 (1) through 803.1.3(15) the venting system has been designed.

AIR CONDITIONING

1. Show primary condensate drain piping on the mechanical plans. Include piping material and sizes on the mechanical plans. Condensate piping shall be sized in accordance with CMC Table 312.3. (CMC 312.1)
2. Condensate waste shall connect indirectly to the drainage system through an air gap or air break to properly trapped and vented receptors, dry wells, or the tailpiece of a plumbing fixture. (CMC 312.6)
3. Show secondary condensate drain (watertight pan) for cooling coils installed above the ceiling or in furred spaces. The secondary drain shall terminate in a readily observable location such as outdoors above a door or window or indoors above a lav or shower. Show secondary condensate pans, condensate piping size and termination at a location where it can be readily observed. (CMC 312.2)
4. Where condensate waste from air conditioning coils discharges by direct connection to a lavatory tailpiece or to an approved accessible inlet on a bathtub overflow, the connection shall be located in an area controlled by the same person controlling the air-conditioned space. (CMC 213.5)
5. Show on plan duct materials and gauges. Materials and gauges shall be per ANSI SMACNA 006-2006 HVAC Duct Construction Standards. (CMC 602.1)
6. The Heating and cooling duct system should be sized in accordance with one of the recognized methods of ASHRAE, ACCA or other approved methods. Proof of utilizing an approved method should be submitted for review, or a statement should be indicated on the plans that one of the above methods has been used to size the ducts. The statement should be signed by the licensed professional. Section 601.2 of the CMC.
7. Provide duct type smoke detectors in the supply air ducts in every air conditioning system supplying in excess of 2,000 cfm. Multiple units serving the same room, or having a common return air plenum or a common outside air duct are considered to be one system for the determination of the cfm. In lieu of duct type smoke detectors, complete coverage area detectors may be installed. Show method of compliance on the plans and equipment schedule for automatic shutoff of all air moving systems. When duct smoke detectors are used to accomplish automatic shutoff, they must be located in the main supply air duct of each air moving system. (CMC 608.1)
8. When duct type smoke detectors are proposed show on the plans that the duct smoke detectors will be supervised by the building fire detection or alarm system when the building is equipped with such system. (CMC 608)Á
9. Show all fire and smoke rated walls and ceilings on plans. (CBC 705 through 711)
10. Verify with the Building Plan Check approved architectural plans all requirements for fire resistance-rated assemblies on this project. Please provide with the mechanical resubmittal, one copy of the Building Plan_Check approved architectural plans for or a copy of the architectural plans that include all corrections addressed that are required by the Building Plan Check Division.
11. Verify the resubmitted mechanical plans thoroughly address all required fire protection measures (if any) for mechanical duct penetrations and air transfer openings through fire-resistance rated construction as determined by the approved architectural plans. Where there will be any mechanical duct penetrations of, or air transfer openings through any fire resistance rated assemblies; including but not limited to, fire barriers, fire partitions, exterior walls, shafts, horizontal assemblies, corridors etc., indicate on the mechanical plans any required fire dampers, fire/smoke dampers, ceiling radiation dampers, shafts or other approved protection methods as applicable in accordance with the requirements of CBC 717 through 717.6.2.1. Show the specific locations for all protection methods on the plans.
12. Fire dampers shall be dynamic type. (CBC 717.3.1)
13. Remove all return air registers from the corridor. (CBC 1018.5)
14. Provide a copy of the manufacturer installation instructions for the mechanical equipment used.
15. Appliances including air conditioning units installed in areas where they will be subject to mechanical damage such as damage from vehicles in parking lots, garages warehouses or other areas shall be installed behind protective barriers or by being elevated or located out of the normal path of vehicles. Show on the mechanical plans how the mechanical equipment will be protected. (CMC 308.1.1)

16. Heating, Ventilating, and air conditioning systems (including hydronic systems) shall be balanced in accordance with one of the following methods. Please state the requirement on the plans:
- a. AABC National Standards for Total System Balance
 - b. ACCA Manual B
 - c. ASHRAE 111
 - d. NEBB Procedural Standards for Testing, Adjusting Balancing of Environmental Systems
 - e. SMACNA HVAC Testing, Adjusting, and Balancing
16. Outdoor air intakes shall be covered with screen having not less than ¼ inch openings and not more than ½ inch openings (CMC 402.4)

EQUIPMENT ON ROOFS AND OUTDOORS

1. Buildings more than 15 Ft. in height require an inside means of access to the roof complying with CMC Section 904.10.3.2. Indicate a permanent or foldaway ladder to a scuttle or trap door sized a minimum 22 x 24 inches on the plans. If the inside means of access is located within 10 Ft. of the edge of the roof, guards shall be provided in accordance with CBC Section 1013.6. Permanent lighting shall be provided at the roof access, with the switch for the lighting inside the building near the access means leading to the roof. Show all CMC requirements outlined in this comment on the mechanical plans. (CMC 304.1, 904.10.3 through 904.10.3.4 and CBC 1013)
2. The CBC requires guards to be provided when roof mounted appliances, equipment, fans or other components that require service are located within 10 feet of a roof edge or open side of a walking surface and such edge or open side is located more than 30 inches above the floor, roof or grade below. The guard shall be constructed so as to prevent the passage of a sphere 21 inches in diameter. The guards shall extend a minimum of 30 inches beyond each piece of equipment, appliance, fan or component. The guard should extend a minimum of 42 inches high above the surface of the roof. Show on the plans the minimum 10 feet of clearance from the new mechanical equipment to the roof edge or walking surface edge. Or, include thorough details on the mechanical plans indicating where guards are provided and how the guards are to be constructed. If parapets are provided, to demonstrate compliance with CBC requirements,

indicate the location and height of the parapets above the roof surface on the mechanical plans. (CBC 1013.5)

3. The refrigeration units (outdoor units) supported from the ground shall rest on a concrete or other approved base extending not less than 3 inches above the adjoining grade level. Show details for ground mounted heat pump outdoor sections on the mechanical plans. (CMC 1106.2)
4. Show 120 Volt electrical outlets on the plans within 25 Ft. of all outdoor Mech. Equip. (CMC 310.1)
5. The refrigeration equipment (outdoor section) refrigerant service ports located outdoors shall be fitted with locking type tamper resistant caps or shall be protected from unauthorized access by a means acceptable to the Enforcing Agency. Show requirements on the plans for tamper resistant locking caps on refrigerant service ports or indicate alternate proposed means of restricting access to the refrigerant service ports. (CMC 1106.3 #4)
6. Building Plan Check approval is required for structural plans, details and calculations for method of supporting and anchoring the new roof mounted heating and air conditioning equipment weighing in excess of 400 pounds. Submit a copy of the Building Plan Check approved structural details for supporting and anchoring the new equipment with the mechanical resubmittal. Or, at minimum, submit the details and calculations for Building Plan Check approval prior to resubmitting the mechanical plans and provide confirmation the structural calculations and details have been submitted for review.
7. Buildings more than 15 Ft. in height require an inside means of access to the roof complying with CMC Section 904.10.3.2. Indicate a permanent or foldaway ladder to a scuttle or trap door sized a minimum 22 x 24 inches on the plans. If the inside means of access is located within 10 Ft. of the edge of the roof, guards shall be provided in accordance with CBC Section 1013.6. Permanent lighting shall be provided at the roof access, with the switch for the lighting inside the building near the access means leading to the roof. Permanent ladders shall be constructed in accordance with the following:
- a. Have side railings which extend not

- less than 30 inches above the roof or parapet wall
- b. Landings shall not exceed 18 feet apart measured from the finished grade.
- c. Width shall be not less than 14 inches on center
- d. Toe space shall not be less than 6 inches.

Please address all applicable requirements on the mechanical plans. (CMC 304.2 – 304.2.2 and CBC 1013)

CA. TITLE 24

1. Provide outside air. (Title 24 Sect. 121)
2. Backdraft dampers shall be provided in outdoor air supply and exhaust systems. (Title 24 Sect. 150(m)7)
3. Provide economizer in every cooling unit exceeding 2,500 cfm. (Title 24 Sect. 144(e)).
4. Show thermostats. (Title 24 Sect. 122).
5. Show signed statement of compliance (form Mech-1A), Mech-2A, Mech-3A, and Mech-4A and Mandatory Measures addressed on the plans. (Title 24 Sect. 10-103(a)2.A)
6. Provide heating and cooling load calculations. Title 24 Sect. 144 (b)
7. Provide complete Title 24 documentation.
8. Show compliance with at least one of the exceptions of section 144(g) of title for the electrical resistance heating or provide energy budget. (Title 24 Sect. 144(g))

VENTILATION SYSTEM (GENERAL)

1. Exhaust ducts under positive pressure and venting systems shall not extend into or pass through ducts or plenums. (CMC 504.1)
2. Show location & sizes of all ventilation ducts & openings.
3. Environmental exhausts duct shall terminate outside the building and shall be equipped with a back draft damper. (CMC 504.1).

4. Exhaust outlets shall be 3 feet from property line; 3 feet from opening into the building. (CMC 504.5)
5. Exhaust outlets for product conveying systems shall be 10 feet from property line; 3 feet from exterior roof/wall; 10 feet from opening into the building; 10 feet above grade. (CMC 506.9.2)
6. Make-up air shall be provided for all rooms with exhaust. (CMC 505.3)

LAUNDRY ROOMS

1. Exhaust duct for domestic dryers shall be 4 inches and shall not exceed a total length of 14 feet including two 90 Deg. elbows. Two feet shall be deducted for each 90 Deg. elbow in excess of two. (CMC 504.3.1.2)
2. Dryer exhausts shall terminate at least 3 feet from property line and three feet from openings into any building. (CMC 504.5)
3. Dryer exhaust ducts shall be made out of metal and shall have smooth interior surfaces. (CMC 504.3.1)
4. Clothes dryer moisture exhaust duct shall not extend into or through ducts or plenums. (CMC 504.3)
5. No fire dampers are allowed in the dryer exhaust duct. (CMC 504.3)
6. When a closet is designed for the installation of a clothes dryer, a minimum opening of 100 square inches for make up air shall be provided in the door or by other approved means (CMC 504.3.1)
7. Laundry room make up air shall take into consideration the air exhausted by the dryers. (CMC 505.3)
8. Commercial clothes dryers shall be installed in accordance with the manufacturers listing. Show all manufacturers requirements on the plans. Provide a copy of manufacturers instructions with the resubmittal. (CMC 504.3.2)
9. Dryer moisture exhaust ducts shall include a backdraft damper and no screen. (CMC 504.3)

TOILET ROOMS

1. Provide the minimum exhaust rate required by CMC Table 403.7 for all toilet rooms based on the

- number of fixtures in the room (toilets and urinals).
2. Toilet exhausts shall terminate at least 3 feet from property line and 3 feet from openings into any building. (CMC 504.5)
 3. Show make up air for the toilet exhaust. (CMC 505.3)
 4. Remove return air grill from the bathroom. (CMC 314.3(5))
 5. Toilet exhaust ducts under positive pressure shall not extend into or pass through ducts or plenums. (CMC 504.1)

COMMERCIAL KITCHENS

1. Provide a mechanical roof plan as part of the plan set showing the Type 1 grease exhaust fan location, make up air unit location make, location and heating and cooling unit location. Show on the roof plans that a minimum of 10 feet of clearance from the Type 1 grease exhaust outlet to the outside air intakes (including the make up air unit and the outside air inlet on the existing roof top package heating and cooling unit) will be provided. Where space limitations absolutely prevent a 10-foot horizontal separation from an air intake, a vertical separation shall be permitted, with the exhaust outlet being a minimum of 3 feet above any air intake located within 10 feet horizontally. (CMC 510.8.1).
2. Provide kitchen layout plans showing location of hoods, walls, grease ducts, shafts, make-up air ducts, grills, volume of the kitchen and cooking equipment.
3. Include a schedule on the plans indicating the make up air unit manufacturer name model number, voltage, cubic feet per minute airflow rating, RPM etc. (CMC 511.3)
4. Show grease duct gauges and materials on the plans. Grease ducts shall be constructed of carbon steel not less than 16 MSG in thickness or stainless steel not less than 18 MSG in thickness. (CMC 510.5.1, 508.1.1, 602.1)
5. Show all make up air ductwork on the plans. Show duct dimensions, gauges and materials for all make up air ducts. Make up air ducts shall be sized in accordance with CMC 601.2 and constructed of materials complying with CMC section 602.1.
6. If a commercial dishwasher will be provided as part of this project, show a Type 2 exhaust hood/system on the plans complying with CMC Chapter 5, Part 2 for the dishwasher. If no dishwasher is proposed, please state so on the mechanical plans. (CMC 508.1)
7. Specify on the plans the model number, HP, CFM and static pressure of proposed grease exhaust fan. The grease exhaust fan must be a hinged upblast fan with flexible weatherproof cable, service hold open retainer and a 1-gallon maximum capacity grease collection container. Upblast fans must be UL762 listed for restaurant grease service and noted as such on the equipment schedule. Or, another type of approved fan may be used provided it meets the requirements of the CMC Sections 510.8.2 (3), 510.8.2 (G) and 511.1.3 (CMC 510.8.2)
8. Provide a complete schedule of all cooking equipment used in the kitchen and under the hoods on the mechanical plans. Include equipment type, manufacturer name, model number, Fuel source (electric gas or solid fuel) and Btu/Hr rating. All cooking equipment must be tested and listed by an approved testing laboratory. (CMC 515.1, 508.4.1.1)
9. Show the exact location of each piece of cooking equipment under the Type 1 hoods on the mechanical plans.
10. Horizontal grease ducts shall have a slope of not less than ¼ inch per foot toward the hood or an approved grease reservoir. (CMC 510.1.3)
11. Exhaust outlet within an unlisted hood shall serve not more than a 12-foot section of hood. (CMC 508.9)
12. Provide product literature with the resubmittal for the grease exhaust blower and the make up air fans. All upblast grease exhaust fans must be UL762 listed for restaurant grease applications. Fan housings for utility set type grease exhaust fans shall be minimum 16-gauge carbon steel or 18-gauge stainless steel. Grease exhaust fans shall be provided with a grease collection container that is non-combustible, closed, rainproof and structurally sound. (CMC 510.8.1 and 511.1.3)
13. Specify all grease exhaust filter information including quantity, sizes, manufacturer and UL 1046 listing on the plans. Provide product

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- literature with the resubmittal for the grease exhaust filters showing material, size, free area and friction loss and listing by an approved testing laboratory. Grease filters must be listed in accordance with UL 1046. (CMC 509.1 and 509.2.4)
14. Provide calculations for sizing the exhaust fans and make up air units with the resubmittal. Calculations shall show that the fans are capable of providing the minimum required volume of air. (CMC 508.4.1 and 511.3)
 15. Show grease duct dimensions on the plans. Show on the plans the calculated air velocity within the grease duct. The air velocity through any grease duct shall not be less than 500 feet per minute and not more than 2500 feet per minute. (CMC 511.2)
 16. Show on the plans that hoods less than 12 inches from the ceiling or wall shall be flashed solidly with metal or other material approved for the use intended.
 17. Show on the plans that the distance between the grease removal devices (grease filters) and the cooking surface shall be as great as possible but not less than 18 inches. (CMC 509.2)
 18. Show on the plans that the grease exhaust airflow will be directed up and away from the surface of the roof and a minimum of 40 inches above the roof surface. (CMC 510.8.1 (2))
 19. Show on the plans that the proposed upblast grease exhaust fan will be equipped with a flexible weatherproof electrical cable, service hold open retainer and that the grease exhaust duct will extend a minimum of 18 inches above the roof surface (CMC 510.8.1 (5))
 20. Show on the plans that the grease exhaust fan and make up air system will be connected by an electrical interlock switch. The make up air fan must operate whenever the grease exhaust fan is powered on. (CMC 511.3, 514.1)
 21. Include a schedule on the plans for the hoods indicating the hood type, length, width, height, weight, required exhaust rate, testing agency listing (if any), grease duct connection size, clearance reduction requirements when ordering the hoods (if any, for listed hoods) and lighting (if any). Listed exhaust hoods shall be installed in accordance with the terms of their listing and the manufacturer's installation instructions. When listed hoods are specified, include all the manufacturer's design criteria for the hoods and the required minimum exhaust rates complying with the manufacturer's listing for the hoods on the plans. (CMC 508.4.1.1)
 22. Canopy type commercial cooking hoods shall exhaust through the hood a minimum quantity of air based on the type of cooking equipment located under the hood as determined by application of the formulas contained in the CMC Section 508.4.4.1. Indicate the formula used and calculations indicating compliance with CMC airflow requirements on the plans. Exception, for listed hoods installed in accordance with the terms of their listing, show all applicable calculations and manufacturer's hood airflow requirements, e.g. CFM/Linear Ft. of hood required for the cooking temperature on the mechanical plans.
 23. Show cleanouts in the grease ducts on the plans as required per code. Cleanout openings shall be provided at duct changes of direction. On horizontal grease duct runs, cleanout openings shall be provided at 12 Ft. minimum intervals. On vertical ducts, access openings should be provided at the top of the duct riser. Cleanouts are not required for portions of the duct that are accessible from the duct entry or discharge. Show actual locations of cleanouts on the plans. General notes are not acceptable. (CMC 510.3.3, 510.3.3.1 (A) and 510.3.4.3)
 24. Show on the plans / sectional details that the access panels for grease duct cleanouts will be of the same material and thickness as the duct. The access panels shall have a gasket or sealant that is rated for 1500 Deg. F. and shall be grease tight. Exception; Listed grease duct access door assemblies (access doors shall be installed in accordance with the terms of their listings and the manufacturer's installation instructions). When field applied grease duct enclosure systems (duct wrap) is used, the access panels to be used, must comply with the duct wrap manufacturer's installation instructions. (CMC 507.2.6 and 510.3.4.4)
 25. Show on the plans / sectional details that grease duct cleanout openings will be located at the sides or top of the duct, whichever is more accessible. Also show that the edge of the cleanout openings in the ducts cannot be closer

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- then 1-1/2 inch from all outside edges of the duct or welded seams. (CMC 510.3.1 and 510.3.4.2)
26. Show on the plans minimum clearance of 16 inches between deep fat fryers and the surface flames of adjacent cooking equipment. Or, clearly note the exception to this requirement on the plans, which requires a steel or tempered glass baffle plate, installed at a minimum height of 8 inches in height between the fryer and the surface flames of the adjacent appliance. (CMC 515.1.1.3)
27. All grease duct seams, joints, penetrations and duct to hood collar connections shall have a liquid tight continuous external weld. (CMC 510.5.2)
28. Show on the plans that all seams, joints and penetrations of hood enclosures that directly capture grease-laden vapors and exhaust gases shall have a liquid tight continuous weld to the hoods lower outermost perimeter. Internal hood joints, seams, filter support frames and appendages attached inside the hood need not be welded but shall be sealed or otherwise made grease tight.
29. Indicate the weight of the new grease exhaust hood on the mechanical plans. If the new grease exhaust hood weighs in excess 400 pounds. Obtain structural calculations and details for method of suspending the hood from the building structure. Obtain Building Plan Check approval for the structural details and calculations for the hood hanging method prior to resubmitting the mechanical plans. Include a copy of the Building Plan Check approved structural details for hood hanging method with the mechanical resubmittal.
30. Show details on the plans for 1-Hour fire resistance rated shaft requirements for the grease duct complying with CMC 510.7.1. Show on the plans that the clearance from the grease duct to the interior surface of enclosures of combustible construction (wood framing construction with drywall) will not be less than 18 inches and the clearance from the grease duct to the interior surface of enclosures of non-combustible or limited combustible (metal framing with drywall) construction will not be less than 6 inches on all sides of the grease duct. (CMC 510.7.1.3)
30. Show on sectional details that the grease filters will be installed at an angle no less than 45 degrees from horizontal (CMC 509.2.3.3)
31. If you are using a field applied grease duct enclosure system (fire wrap) as shown on the plans, the system must be listed in accordance with ASTM E 2336. Include on the plans the manufacturer's specification sheets for the system indicating the manufacturer's name, model number and listing information and include the following note on the plans; NOTE - "The grease duct enclosure system specified on these plans shall be a 2-layer system installed in accordance with the manufacturer's listing and installation instructions. (CMC 507.2.5)
32. Provide replacement air/make up air for the air being exhausted by the exhaust hood. Replacement air quantity shall be sufficient to prevent negative pressures in the commercial cooking area from exceeding 0.02 inch water column. (CMC 511.3)
33. The CMC Section 507.2 requires a clearance from Type I hoods of 18 inches to combustibles, 3 inches to limited combustibles and 0 inches to non combustibles, or one of the code compliant methods of reducing the minimum clearance requirements per CMC section 507.2 will be required to be installed on this project. If the walls surrounding the hoods and ceiling above the hoods are to be of combustible (wood framed) construction with drywall covering, the hoods shall have a minimum of 18 inches to the combustible (wood framing) material. If the walls surrounding the hood and ceiling above the hood will be of limited combustible construction (metal framing with drywall covering) or fire rated ceiling tiles etc. the hoods shall have a minimum clearance of 3 inches to the limited combustible material (drywall). Hoods may have 0 inches clearance to non-combustible walls and ceilings such as concrete or brick. Show on the plans all construction types at the sides, rear and above the Type 1 hoods along the correct minimum clearances from the hoods for the construction type provided. Or, include details on the plans for clearance reduction systems to be provided as applicable.

Code compliant clearance reduction methods per CMC 507.2 are as follows:

- a. Where the grease hood is listed for lesser clearance. Verify availability of

factory installed clearance reduction systems with listed hood manufacturer.

- b. Reduced clearance to combustible material allowed if the combustible material is protected as follows:
 - 0.013 inch (no. 28 gauge) sheet metal spaced out one (1) inch on non-combustible spacers shall have nine (9) inch clearance to combustible material from grease exhaust hood/duct.
 - 0.027 inch (No. 22 gauge) sheet metal on one (1) inch mineral wool batts or ceramic fiber blanket reinforced with wire mesh or equivalent spaced out one (1) inch on non-combustible spacers shall have three (3) inch clearance to combustible material from the grease exhaust hood or duct.

If a listed hood with reduced clearance requirements will be used, a copy of the manufacturer's hood listing sheet /installation instructions showing the clearance reduction systems and their locations along with the reduced clearance requirements to combustibles and limited combustibles should be included in the plan set. Also, the hood schedule on the plans must note any clearance reduction option requirements for ordering the listed hood.

When code compliant clearance reduction field installed measures in accordance with CMC 507.2 will be used to comply with CMC requirements, the locations where the clearance reduction methods will be used and details of the selected clearance reduction methods must be shown on the plans. Note that detailed examples of these field installed clearance reduction methods are available in the NFPA 96 2008 Edition (Annex A). (2010 CMC 507.2)

Please also note that CMC 507.2.3.2 requires when field applied clearance reduction system details are specified the protection on the wall must be provided from the bottom of the hood to the floor or to the top of noncombustible material extending to the floor, to the same level as required by CMC 507.2. Please show all applicable requirements in your design on the plans. (CMC 507.2-507.2.2.2 and 507.2.3.2)

ADDITIONAL COMMENTS

1. Please include the following applicable ~~plans to ensure~~ code compliance with for project:

a. All mechanical equipment and systems installed, as part of project shall comply with all requirements of the 2013 California Mechanical Code and the 2013 California Building Code, 2013 California Green Building Standards Code and the 2008 California Building Energy Efficiency Standards.

b. The listed cooking appliances shall be installed in accordance with all requirements of the manufacturers listing and installation instructions (CMC 515.1.2)

c. Provide 120 Volt electrical outlets within 25 Ft. of all Mech. Equip. (CMC 309)

d. All ductwork for heating and cooling system or evaporative cooling system shall be conducted through duct systems constructed of metal as set fourth in the SMACNA HVAC Duct Construction Standard – Metal and Flexible. Factory made air ducts shall be approved for the use intended or shall comply with the 2013 CMC referenced standards Chapter 17. (CMC 602.1)

e. All duct smoke detectors installed, as part of this project shall be supervised by the building fire detection or alarm system when the building is equipped with such system. Long Beach Fire Department Fire Prevention Bureau Plan Check approval and permit are required for connection of the duct smoke detectors to the fire detection or alarm system.

f. The required service distance from mechanical equipment to screening, parapets, walls and other equipment shall be a minimum of 30" x 30" on the service side of the equipment, or as required by the manufacturer's installation instructions, if the instructions require a greater clearance. (CMC Section 305.0)

g. All appliances designed to be in a fixed position shall be securely fastened in place in accordance with the manufactures installation instructions. Supports for appliances shall be designed and constructed to resist horizontal

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and vertical loads within the stress limitations of the CBC. (CMC 303.5)

h. Sizing of the gas fired category 1 appliance venting systems shall be in accordance with the requirements of the CMC Section 803 and CMC Venting Tables 803.1.3 as applicable to the type installation.

i. The gas furnaces shall be installed in accordance with all requirements of the manufacturer's listing and installation instructions. Clearance requirements for the furnaces shall be as specified in the manufacturer's instructions or rating plate. Clearances for the vent pipe shall be as required by the listed vent pipe manufacturers installation instructions.

j. A copy of the furnace manufacturers installation instructions shall be provided at the furnace installed location.

j. Equipment and appliances shall be accessible for service, inspection repair and replacement without removing permanent construction. Sufficient clearance shall be maintained to permit cleaning, replacement of filters, blowers, motors controls and lubrication of moving parts. 30 inches of clearance in depth width and height shall be provided to service the appliance or equipment. (CMC 304.1)

k. Permanent lighting fixtures shall be installed for all equipment and appliances installed above permanently constructed ceiling or in an attic. Control of the light fixtures shall be provided at the access entrance. (CMC 1106.3)

l. Mechanical duct penetrations of a non-fire resistance rated floor assembly shall be protected with a shaft assembly in accordance with CBC Section 708. Or, when the duct connects not more than two stories, the annular space around the penetrating duct must be protected with an approved noncombustible

material that resists the free passage of flame and products of construction. (CBC 716.6.3)

m. Movement of appliances with casters shall be limited by a restraining device installed in accordance with connector and appliance manufacturer's instructions. (CMC 303.6)

n. Type I hoods grease exhaust hoods shall be installed with a minimum of 18 inches to combustibles and 3 inches clearance to limited combustibles. Unless the hood is listed for less clearance or clearance reduction system is installed complying with CMC 507.2.3 (CMC 507.2)

o. Outside air for a heating or cooling system shall not be taken from closer than 10 feet from an appliance vent outlet, vent opening of a plumbing system, or the discharge outlet of exhaust fan, unless the outlet is 3 ft. above the outside air inlet. (CMC 314.3) Openings on horizontal grease duct systems shall be provided with safe access and work platform when not easily accessible from a 10 Ft. stepladder (CMC 510.3.4.1.2)

p. A performance report for the Type 1 grease exhaust systems specified on these plans will be required by the City of Long Beach Mechanical Inspector prior to project final. The report is to include the following:

- Exhaust airflow / CFM and velocity passing through each grease filter
- Total exhaust airflow / CFM for the grease hood
- The velocity / Ft. Per. Min. airspeed within each section of the grease duct systems.
- At Project final, the negative pressure within the cooking area shall not be greater than .02 inches negative water column.
- Installing contractors name, address, phone number and technicians name who took the readings.

No.	Comment	Code Sec. No.