



Mechanical Plan Review Checklist

INFORMATION	PROJECT NO.: BMEC	EXPIRATION 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 Plumbing 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 under subtitle "A" apply to this plan check. <u>All Plan Check Comments under subtitle "B", "C", & "D" apply to this plan check.</u> 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. 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. 		
	PLAN REVIEWER:	TEL. NO.:	
	ADDRESS: 411 W. OCEAN BLVD., 2 ND FLOOR, LONG BEACH, CA 90802		
	EMAIL:	WEBSITE: longbeach.gov/lbds	
	<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. 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. An application for which no permit is issued within one year following the date of submittal shall expire by limitation pursuant to Section 18.12.140 of the Long Beach Municipal Code. 		
NOTE	<p>Numbers within the parenthesis () refer to the sections of the applicable code. 2022 California Plumbing Code (CPC). 2022 California Building Code (CBC). 2022 California Green Building Standard Code (CalGreen). 2022 California Energy Code (CEC). Long Beach Municipal Code (LBMC). Health and Safety Code (HSC). Table (T). Long Beach Water Department (LBWD). National Fire Protection Association (NFPA).</p>		

A. PERMIT APPLICATION

1. When all required approvals are obtained, the permit application must be signed by the property owner, licensed contractor, or authorized agent at the time the permit is to be issued:
 - a. For owner-builder permits: Owner's signature can be verified with owner's driver license. Owner's representatives must present owner's approval with a notarized letter from the owner.
 - b. For contractor building permits: Prior to the issuance of a building permit, the contractor shall have the following:
 - 1) Certificate of workers Compensation Insurance made out to the Contractors State License Board.
 - 2) Copy of Contractors State License or pocket ID.
 - 3) Copy of city business tax registration certificate or a newly paid receipt for one.
 - 4) Notarized letter of authorization for agents.

B. ADMINISTRATION

2. Obtain all approvals/clearances from the following department/bureau/agency noted below. It is necessary to apply immediately for the signoff or approval as it can take weeks or months for some departments/bureaus/agencies to review and approve the project. All required approvals or clearances must be secured prior to permit issuance.
 - a. Building Plan Check Review
 - b. Planning Division

C. PLAN SUBMITTAL

3. 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 Plumbing Contractor (C-36).
4. 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.
5. Provide the scope of work to be done on the cover sheet.
6. 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. Max. 36" x 48" size with min. 1/8" lettering size
 - d. Provide a complete and accurate Mechanical Permit application.
7. Remove all plans, details or notes that do not pertain to the project from the final set of construction documents.
8. When/Where a Mechanical plan check project number is associated with a Building review, the Building review must be approved prior to obtaining sub-trade permits. Please refer to the Permit Center at 562.570.5237 for any information needed in regard to obtaining a permit.

D. GENERAL REQUIREMENTS HVAC

9. Show roof access.
10. Show the occupancy of each area.

11. Show the intended use (name) of each room.

CALGREEN

12. After completion of testing, adjusting and balancing, provide a final report of testing signed by the individual responsible for performing these services.
Include a note on the plans to specify compliance is acceptable for this item. (Cal Green 5.410.4.4)
13. At the time of rough installation and during storage on the construction site until final startup of the heating and cooling and ventilation equipment, all duct and other related air distribution component openings shall be covered with tape, plastic, sheet metal or other methods acceptable to the enforcing agency to reduce the amount of dust, water or debris which may enter the system.
Include a note on the plans to specify compliance is acceptable for this item. (Cal Green 5.504.3)
14. In mechanically ventilated buildings, provide regularly occupied areas of the building with air filtration media for outside and return air that provides at least a Minimum Efficiency Reporting Value (MERV) of 13. MERV 13 filters shall be installed prior to occupancy, and recommendations for maintenance with filters of the same value shall be included in the operation and maintenance manual.
Specify compliant filters on the plans. (Cal Green 5.504.5.3)

CA. TITLE 24

15. Energy compliance forms are required to be signed by the responsible designer eligible under Division 3 of the Business and Professions Code (CBEES §10-103 (a)1)
16. The Energy compliance forms are required to be incorporated into the Mechanical construction documents prior to obtaining a Mechanical permit. Please be aware that a note indicating that said documents can be found elsewhere will not be deemed as complying with the Energy commissions standards nor will it be accepted by the Long Beach Development Services Department (CBEES § 10-103(a)2.A)
17. For all projects with new mechanical heating and cooling equipment or ductwork documentation indicating compliance with the 2022 California Building Energy Efficiency Standards based on a performance or prescriptive approach in accordance with the Standards Sections 140 and 141. Additionally, the documentation and plans must address all mandatory requirements for the components being installed. Provide the following required Ca. Building Energy Efficiency Standards compliance documentation on the plans for this project:
- NRCC-MCH-01-E** (Certificate of Compliance) (Pages 1-4) All parts must be completed where applicable to the project. The Responsible Person must indicate all the acceptance tests (MCH-02A through MCH-18A) required to be completed for this project prior to project final approval. The NRCC-MCH-01-E document must be wet signed by the “Documentation Author” and “Principal Mechanical Designer”.
 - NRCC-MCH-02-E** (HVAC System Requirements) (Pages 1-3) All applicable portions must be completed in their entirety. The NRCC-MCH-02-E document must be wet signed by the “Documentation Author” and “Responsible Person”.
 - NRCC-MCH-03-E** (Mechanical Ventilation and Reheat) (Pages 1-2) ventilation rate calculations must be completed based on both area (Sq. Ft. of conditioned space) and occupancy (number of occupants). The NRCC-MCH-03-E document must be wet signed by the “Documentation Author” and “Responsible Person”.
 - NRCC-MCH-04-E** (Required Acceptance Tests) (Pages 1-3) All parts must be completed where applicable to the project. The Responsible Person must indicate all the acceptance tests (MCH-02A through MCH-18A) The NRCC-MCH-04-E document must be wet signed by the “Documentation Author” and “Responsible Person”.
 - NRCC-MCH-05-E** (Requirements for Packaged Single Zone Units) (Pages 1-2) All parts must be completed where applicable to the project. The NRCC-MCH-05-E document must be wet signed by the “Documentation Author” and “Responsible Person”.
 - When a performance-based approach is used to demonstrate compliance with the Ca. Energy Standards, provide all Ca. State required energy documents on plans with required signatures.

18. The outdoor ventilation rate and air distribution assumptions made in the design of the ventilation system shall be clearly identified on the construction documents (CBEES §120.1(a)2)
19. HVAC System Heating and Cooling Loads Summary with the resubmittal. Load calculations shall comply with all requirements/rules listed in the Ca. Building Energy Efficiency Standards Section 140.4 (b). (CBEES 140.4 (b))
20. Mechanical heating and mechanical cooling equipment shall be the smallest size, within the available options of the desired equipment line, necessary to meet the design heating and cooling loads of the building, as calculated according to Subsection (b) Of Ca. Building Energy Efficiency Standards Section 120.4, unless compliance is shown on the plans with one of the exceptions to the referenced code section. (CBEES 140.4 (a))
21. For interstitial spaces where ducts are located, identify if the space is unconditioned or indirectly conditioned. Ducts located in unconditioned spaces shall be insulated with R-8

ASHRAE's space conditioning types include: conditioned space, unconditioned or semi-heated space. ASHRAE's definitions for these types:

space: an enclosed space within a building. The classifications of spaces are as follows for the purpose of determining building envelope requirements.

conditioned space: a cooled space, heated space, or indirectly conditioned space defined as follows.

- a. cooled space: an enclosed space within a building that is cooled by a cooling system whose sensible output capacity exceeds 5 Btu/h*ft² of floor area.
- b. heated space: an enclosed space within a building that is heated by a heating system whose output capacity relative to the floor area is greater than or equal to the criteria in Table 3.1.
- c. indirectly conditioned space: an enclosed space within a building that is not a heated space or a cooled space, which is heated or cooled indirectly by being connected to adjacent space(s) provided:
 - 1) the product of the U-factor(s) and surface area(s) of the space adjacent to connected space(s) exceeds the combined sum of the product of the U-factor(s) and surface area(s) of the space adjoining the outdoors, unconditioned spaces, and to or from semi-heated spaces (e.g., corridors)
 - 2) that air from heated or cooled spaces is intentionally transferred (naturally or mechanically) into the space at a rate exceeding 3 air changes per hour (ACH) (e.g., atria).
 - 3) semi heated space: an enclosed space within a building that is heated by a heating system whose output capacity is greater than or equal to 3.4 Btu/h*ft² of floor area but is not a conditioned space.
 - 4) unconditioned space: an enclosed space within a building that is not a conditioned space or a semi heated space.

22. Backdraft dampers shall be provided in outdoor air supply and exhaust systems.

AIR CONDITIONING

23. 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 310.3. (CMC 310.3)
24. 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 310.5)
25. 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 lavatory or shower. Show secondary condensate pans, condensate piping size and termination at a location where it can be readily observed. (CMC 310.2)
26. 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 310.6)

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27. Show on plan duct materials and gauges. Materials and gauges shall be per ANSI SMACNA 006-2006 HVAC Duct Construction Standards. (CMC 602.1)
28. 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 included on the plans that one of the above methods has been used to size the duct system. The statement should be signed by the licensed professional. Section 601.2 of the CMC.
29. 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)
30. When duct type smoke detectors are proposed show on the plans that duct smoke detectors will be supervised by the building fire detection or alarm system when the building is equipped with such system. (CMC 608.1)
31. It should be noted on the plans that each HVAC equipment shall be labeled as to the area served as required by Section 303.6 of the CMC. (Please note that this note is to alert the contractor that the equipment would need to be labeled or identified after they are installed.)
32. Show all fire and smoke rated walls and ceilings on plans. (CBC 705 through 711)
33. 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.
34. 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 717.7. Show the specific locations for all protection methods on the plans.
35. Show all fire rated corridors on the mechanical plans.
36. Provide return air directly from the corridor for all air being supplied to corridor. The CBC 1020.5 prohibits corridors from serving as supply, return, relief or ventilation air ducts. Air cannot transfer to or from the corridor. (CBC 1020.5)
37. If fire or smoke dampers are required as part of this project, please include the following notes on the plans to assure CBC compliance:
 - a. All fire and smoke dampers are to be installed in accordance with the manufacturer's listing and installation instructions. Fire dampers shall be dynamic type. (CBC 717.3.1, 717.2)
 - b. When the automatic activation of a smoke damper occurs, the HVAC system serving such dampers shall immediately shutdown. (CMC 606.8)
 - c. Fire and smoke damper shall be listed and bear the label of an approved testing agency.
 - d. Fire dampers shall comply with the requirements of UL 555. Only fire dampers labeled for use in dynamic systems shall be installed in heating, ventilation and air-conditioning systems designed to operate with fans on during a fire. Smoke dampers shall comply with the requirements of UL 555S. Combination fire and smoke dampers shall comply with both UL 555 and UL 555S. Ceiling radiation dampers shall comply with the requirements of UL 555C. (CBC 717.3.1)

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- e. Fire dampers shall have a minimum damper rating of 1.5 hours when installed in less than 3-hour fire-resistance rated assemblies. Ratings for dampers installed in walls rated at 3 hours or more shall have a minimum fire rating of 3 hours. (CBC 717.3.2)
 - f. Fire and smoke dampers shall be provided with an approved means of access, which is large enough to permit inspection and maintenance of the damper and its operating parts. The access opening shall not reduce the fire resistance rating of the assembly. Fire and smoke damper access points shall be permanently identified on the exterior having letters not less than ½ inch high reading “FIRE DAMPER” or “FIRE/SMOKE DAMPER.” (CBC 717.4)
38. If fire/smoke dampers are being installed as part of this project, please include notes on the mechanical plan cover sheet /title sheet indicating the selected method(s) of controlling the smoke dampers in accordance with the CBC Section 717.3.3.2 requirements. The mechanical plans must specifically identify the method of controlling the each of the smoke dampers specific to its installed location. The Long Beach Fire Department Plan Check Division requests this information be addressed on the mechanical plans. A copy of the mechanical plans will be required to be submitted with the fire protection plans for Fire Plan Check approval. The following is a list of smoke damper actuation methods permitted by the CBC Section 717.3.3.2 for the Project Engineers reference, to choose the selected method(s) of controlling the specified dampers. This list is not intended to be used as a list of notes to include on the plans. Only the selected method(s) of controlling each of the smoke damper(s) specific to its installed location should be noted on the plans.
- a. Where a smoke damper is installed within an within an air transfer opening in a wall, a spot type detector listed for releasing service shall be installed within 5 feet horizontally of the damper.
 - b. Where a smoke damper is installed in a corridor wall or ceiling, the damper shall be permitted to be controlled by a smoke detector system installed in the corridor.
 - c. Where a total-coverage smoke detector system is installed within areas served by a heating, ventilation and air-conditioning (HVAC) system, smoke dampers shall be permitted to be controlled by the smoke detection system.
 - d. Where a damper is installed above smoke barrier doors in a smoke barrier, a spot type detector listed for releasing service shall be installed on either side of the smoke barrier door opening.
 - e. Where a smoke damper is installed within a duct, a smoke detector shall be installed in the duct within 5 feet of the damper with no air inlets or outlets between the detector and the damper. The detector shall be listed for the air velocity, temperature and humidity anticipated at the point where it is installed. Other than in mechanical smoke control systems, dampers shall be closed upon fan shutdown where the local smoke detector requires a minimum velocity to operate.
39. Please include the following note on the plans relating to fire stopping of mechanical piping penetrations of fire rated assemblies:
- NOTE:** Mechanical piping penetrations of fire resistance rated floor assemblies and wall assemblies shall be protected in accordance with CBC Section 714 through 714.5. When an approved through penetration fire stop system is required, the fire stop system installed and tested in accordance with ASTM E 814 or UL 1479, with a minimum positive pressure differential of .01 inch of water and shall have an F rating of not less than the required fire resistance rating of the wall being penetrated. Fire stop systems used to protect penetrations of a fire rated floor assembly shall have an F rating and T rating not less than 1 hour but not less than the floor being penetrated.
40. 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)
41. Please show outside air duct for heating and cooling unit(s) on the plans and include duct location, air inlet location, and duct size.
42. Outside air shall not be taken from less than 10 feet away from an appliance vent, sewer system vent or exhaust outlet unless the outlet is a minimum of 3 feet above the OSA inlet. (CMC 314.3)

43. 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)
44. Specify on plans what accommodations/demand controls will be made/provided to bring in outside air when the fan coils are shut off. (Title 24; 120.1(c)1)

EQUIPMENT ON ROOFS AND OUTDOORS

45. Show 120-Volt electrical outlets on the plans within 25 Ft. of all outdoor mechanical equipment. (CMC 310.1)
46. 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 1015.7)
47. Equipment screening may be required for the new mechanical equipment located on the roof for this project in accordance with Long Beach Municipal Code requirements. Verify screening requirements with the Planning Division. For more information and appointment for review contact the Planning Division at 562.570.6571. When screening is required, show the screening on the mechanical roof plan. Verify that required minimum 30 inches clearance is shown on the plans between the screening and the mechanical equipment for proper service access. When screening is required, architectural plans, including a plan view and details of the screening construction method must be submitted for Building Plan Check Division for review. Obtain Planning Division stamp and approval on the mechanical roof plans prior to resubmitting the mechanical plans. Planning will stamp the roof plan indicating if equipment screening is or is not required.
48. 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 1106.14)
49. 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.
50. Buildings more than 15 Ft. in height require an inside means of access to the roof complying with CMC Section 304.3.1.1. 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 1013.7. 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.
51. Please address all applicable requirements on the mechanical plans. (CMC 304.2 – 304.2.2 and CBC 1013)

52. 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)

VENTILATION SYSTEM (GENERAL)

53. Exhaust ducts under positive pressure and venting systems shall not extend into or pass through ducts or plenums. (CMC 504.1)
54. Show location & sizes of all ventilation ducts & openings.
55. Environmental exhausts duct shall terminate outside the building and shall be equipped with a backdraft damper. (CMC 504.1).
56. Environmental exhaust outlets shall be 3 feet from property line and 3 feet from opening into the building including operable doors and windows. (CMC 504.5)
57. Make-up air shall be provided for all rooms with exhaust. (CMC 403.7)

LAUNDRY ROOMS

58. Any use of dryer duct booster fans or dryer moisture exhaust ducts greater than 4 inches in diameter requires a Code Modification Request approved by the building Official. If you wish to apply for a Code Modification Request, please contact the mechanical A.S.A.P. for all requirements and instructions. Note that approval or denial of a request may take several weeks of months.
59. The dryer duct lengths shown on the plans must comply with CMC Section 504.4.2.1 maximum duct length requirements. The following methods permitted by the CMC Section 504.4.2.1 must be addressed on the plans for each dryer exhaust duct:
- a. Show a dryer moisture exhaust duct with a maximum length of 14' and 2 - 90 Degree Elbows. Two (2) feet shall be deducted for each additional elbow in excess of Two (2) (CMC 504.4.2.1) Or;
 - b. You may specify/show dryer ducts longer than 14 Ft. with two 90 Degree elbows on the plans only if you provide the following in accordance with CMC 504.4.2.1, 504.4.3:
 - 1) Provide dryers listed in the manufacturer's installation instructions as being capable of venting the longer lengths shown on the plans. Include unless the dryer manufacturers name and model number on the plans and provide a copy of the specified dryer manufacturers installation instructions with the resubmittal showing the maximum length and number of duct offsets allowed for that dryer model. Dryer duct lengths shown on the plans must comply with the maximum length allowed by the manufacturer's instructions.
 - 2) Include the following note and information on the plans:
NOTE: A plaque shall be affixed to the wall next to each dryer duct stating "Any dryer connected to this exhaust duct shall be capable of venting these lengths and number of offsets" The total length of each duct and number of 90 degree offsets shall also be listed on each plaque specifically for its installed conditions.
60. 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 504.4.2.1)
61. Dryer exhausts shall terminate at least 3 feet from property line and three feet from openings into any building. (CMC 502.2.1)
62. Dryer exhaust ducts shall be made out of metal and shall have smooth interior surfaces. (CMC 504.4)
63. Clothes dryer moisture exhaust duct shall not extend into or through ducts or plenums. (CMC 504.4)

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64. Where a closet is designed for the installation of a clothes dryer not less than 100 Sq. inches for makeup air shall be provided through the closet door or any other approved means. (CMC504.4.1)
65. No fire dampers are allowed in the dryer exhaust duct. (CMC 504.4)
66. Laundry room make up air shall take into consideration the air exhausted by the dryers. (CMC 505.5)
67. Commercial clothes dryers shall be installed in accordance with the manufacturers listing. Show all manufacturers requirements on the plans. Provide a copy of manufacturer's instructions with the resubmittal. (CMC 504.4.3)
68. Dryer moisture exhaust ducts shall include a backdraft damper and no screen. (CMC 504.4)

DRYER BOOSTER FAN

69. Any use of dryer duct booster fans or dryer moisture exhaust ducts greater than 4 inches in diameter requires a Code Modification Request approved by the building Official. If you wish to apply for a Code Modification Request, please contact the Mechanical Department for all requirements and instructions. Note that approval or denial of a request may take several weeks to a month. Coordinate with your team accordingly prior to re-submittal of plans.
70. Provide calculations for sizing of the booster fan.
71. Indicate make and model of the booster fan.
72. Provide an elevation detail of the complete dryer system. Detail shall show the proposed dryer, proposed vent system, length and size of proposed vent system, location of lint traps and booster fan on proposed vent system, and termination point of the system.

TOILET ROOMS

73. 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.)
74. Toilet exhausts shall terminate at least 3 feet from property line and 3 feet from openings into any building. (CMC 502.2.1)
75. Show make up air for the toilet exhaust. (CMC 403.7)
76. Remove return air grill from the bathroom. (CMC 311.3(5))
77. Toilet exhaust ducts under positive pressure shall not extend into or pass through ducts or plenums. (CMC 504.1, CMC 603.11)
78. Exhaust systems shall be provided with backdraft protection (CMC 504.1.1)

HOODS

79. Provide an elevation detail of the building showing that side wall termination of hood system complies with required clearance relative to any openings into the building.
 "The closest point of an air intake or operable door or window above the plane of the exhaust termination shall be not less than 10ft in distance, plus 3 inches for each 1 degree from horizontal..." (CMC 510.8.2, Fig. 510.8.2)
80. Provide kitchen lay out plans showing location of hoods, ducts, shafts, make-up air. (CMC 112.3)
81. Provide roof plans showing the location of the kitchen exhaust blower, property line and any openings into the building. (CMC 510.8.1)
82. Provide elevations showing finished floor, cooking equipment, grease exhaust hood, distance between cooking equipment and grease filters, overhang, finished ceiling, flushing, fire-rated shaft, clearance between duct and shaft,

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- cleanouts, slope of horizontal ducts, roof, blower, diverter, distance of outlet termination above roof. In compensating hoods, show also make-up air duct and factory built-in fire damper. (CMC 112.3; 507.2; 508.1; 508.2; 508.5; 508.5.4; 509.2; 510.1.4; 510.2; 510.3; 510.7.1; 510.7.2; 510.7.3; 510.8.2)
83. Explicitly state construction type of wall where hood is to be installed. The designer of the Mechanical plans shall coordinate with the Architect of record to identify the wall assembly combustibility classification: Combustible, Limited-Combustible, or Non-combustible construction. Combustible classification shall be referenced as outlined in NFPA 96: Table A3.3.37
84. If wall assembly is classified as “combustible” construction where cooking appliance/hood is to be installed, please indicate on plans method of protecting the wall to reduce required clearances (if less than 18”). Provide detail for clearance reduction method, a note will not be accepted as it does not provide sufficient instructions to field contractor. Method(s) of constructing wall protector are outlined in CMC 506.7.1-506.7.7.
- a. Air circulation shall be provided between wall and wall protector, min 1” unless table 507.3 states otherwise. (CMC 507.3)
 - b. Spacers and ties shall be non-combustible. (CMC 507.3)
 - c. When using wool batts insulation as wall protector, it shall have density not less than 8lb/ft³ and have melting point not less than 150 deg. F. (CMC 507.3.2)
85. When using Insulation board, it shall have a thermal conductivity of not less than 1 (Btu*in)/(h*ft²*F), (CMC 507.3.2)
- a. Exhaust outlets serving grease duct systems shall terminate above the roof surface, 10 feet from property line, 10 feet from air intake openings and 10 feet above adjoining grade. Base of fan shall be 40 inches above roof surface. (CMC 510.8.1)
86. Each exhaust outlet within a hood shall serve not more than a 12-foot section of unlisted hood. (CMC 508.9)
87. Specify on plan make, model, HP, cfm and static pressure rating of fans used. (CMC 112.3; CMC 511.0)
88. Provide product literature for the filters showing the size, free area and friction loss, and listing. (CMC 112.2; CMC 509.1)
89. Duct system shall have a slope not less than 1/4 inch per linear foot toward the hood or toward an approved grease reservoir. When horizontal ducts exceed 75 feet in length, the slope shall not be less than 1 inch per linear foot. (CMC 510.1.3)
90. Duct enclosures from the point of ceiling, wall or floor penetration shall be at least 1 hr. fire-rated, except it shall be 2 hr. fire-rated in buildings four stories or more. (CMC 510.7; 510.7.1; 510.7.1.2)
91. The duct enclosure shall be sealed around the duct at the point of penetration. (CMC 510.7)
92. A clearance of at least 6 inches and not more than 18 inches shall be maintained between duct and enclosure. (CMC 507.1.3)
93. Exposed grease duct/hood systems serving a Type I hood shall have a clearance from unprotected combustible construction of at least 18 inches. Clearance may be reduced to not less than 3 inches when the combustible construction is protected with material required for one-hour fire-resistive construction. (CMC 507.2)
94. 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.
95. Show sizes, gauges, and materials of all ducts and hoods. (CMC 508.1.1; 510.5.1)
96. The installation of a precipitator shall not be used to diminish the requirements of the exhaust system. (CMC 512.3)

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97. Provide calculations for sizing exhaust fans and make-up air units. Calculations shall show that the fan can provide the minimum required volume of air. (CMC 508.4)
98. Indicate air velocity within each duct section. Air velocity within the duct system shall be not less than 500 feet per minute and shall not exceed 2,500 ft/min. (CMC 511.2)
99. Provide product literature of in-line fan showing that it is listed for grease. Motor shall be outside of air-stream, belts and pulleys shall be within a grease tight housing. (CMC 511.1.2)
 - a. Please note that flexible connectors for in line fans shall be prohibited.
 - b. Housing of in-line fan shall be constructed carbon-steel no less than 16gage, or stainless steel no less than 18 gage.

GARAGE

100. Note on plans that Garage exhaust fan shall operate continuously during normal operating conditions and shall be capable of modulating to 50% or less of design cfm but never less than 0.15cfm / sq.ft. (Title 24; 120.6(c)1-8)
101. Ducts intended for the exhaust of product conveying systems shall be independent of other systems. (CMC 506.2)
102. Obtain verification from the Building Department to verify that the garage qualifies as a 'naturally ventilated' space as outlined in CBC 406.5.2.

WATER HEATER/ BOILERS

103. Provide product literature of water heater showing venting requirements and minimum required combustion air. Indicate on plans minimum required combustion air quantity for each water heater installation. (CMC 113)
104. Provide an elevation of the water heaters. Show the draft hood, vent size and type (e.g. double wall type B vent, positive-pressure vent, etc.), clearances and vent termination. (CMC; 802.12; 802.4; 802.8; 802.6; 802.6.2)
105. Indicate minimum required combustion air quantity for each water heater.
106. Clearly identify water heater flue vents and combustion air supply. Provide calculations for the combustion air. (CMC 701.1, CMC701.11)
107. Combustion air duct shall be of galvanized steel. (CMC 701.11(1))
108. Vent termination point shall be at least 3 feet above any forced air inlet into the building located within 10 feet; and shall be 4 feet away from the property line. (CMC 802.6.2.5, 802.7.2(2))
109. The mechanical draft venting system shall terminate at least 4 feet below or horizontally from, and 1 foot above any opening into the building. (CMC 802.8.2)
110. The total horizontal run of a vent plus the length of horizontal vent connector shall not exceed 75% of the vertical height of the vent. (CMC 802.6.3.2)
111. Indicate method of exhausting products of combustion of heaters. Specify on plans manufacturer of exhaust flue vent, material, size.
 - a. Type of flue vent shall be pursuant to table 802.4 of the CMC and the category designation of the heater.
 - b. Size of the vent shall be in accordance with the appliance manufactures instructions. (CMC 802.6.3)
 - c. Termination of vent shall be minimum 10ft from any openings into the building and any air in-takes (including doors, windows). Additionally, the boiler vent shall terminate a minimum of 3 feet above any forced air inlet within 10 feet. Please show on the plans that the boiler vent will terminate a minimum of 10 feet away from the adjacent building structure and (2) feet above the adjacent wall.

112. Identify category designation of heaters as defined in the CMC for purposes of venting type selection. (Table 802.4)

FURNACES AND FIREPLACES

113. Provide calculations for the combustion air based on the total Btu/hr input rating of all the appliances within the enclosure. Show combustion air openings or ducts and sizes on the plans. (CMC 701.0)
114. Combustion air duct shall be of galvanized steel. (CMC 701.11)
115. Dampers are not allowed in combustion-air ducts. (CMC 701.12)
116. 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)
117. The vent shall be double wall type B. (CMC Table 802.4)
118. The vent shall be positive pressure type. (CMC Table 802.4).
119. 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)
120. Vents shall extend above the roof and shall terminate in a vent cap. Termination point shall be at least 3 feet above any outside air inlet into the building located within 10 feet. (CMC 311.3)
121. Provide manufacturer brochure showing venting criteria for condensing furnaces.
122. Vents shall not extend into or pass through ducts or plenums. (CMC 602.1)
123. 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.
124. The plans indicate fireplaces will be installed. Please show complete details for the fireplaces on the plans. All of the following code requirements must be addressed on the plans for any gas fired fireplace:
 - a. Any installed gas fireplace shall be a direct-vent sealed-combustion type. (CalGreen 4.503.1)
 - b. Include a schedule indicating the manufacturer name, model number, fuel source and Btu/hr rating for each fireplace.
 - c. Provide a complete copy of the manufacturer's installation instructions with the resubmittal for any fireplaces specified on the plans for installation as part of this project.
 - d. Show the fireplace venting material type (manufacturer and model number) plans and the vent runs and terminations on the plans.
 - e. The horizontal floor/ceiling assemblies separating the residential units and roof/ceiling assembly for this project may be 1-Hour fire resistance rated assemblies. Show protection method for the fire place vent pipes penetrating fire resistance floor/ceiling assemblies on the plans complying with CBC Section 7712 and 713 requirements. Shafts connecting four or more floors must be 2-Hour rated shafts. Shaft enclosures shall have a fire resistance rating not less than the floor being penetrated but need not exceed 2-Hours. Show shafts for fireplace vents and shaft ratings on mechanical plans when applicable. (CBC 707)
125. Verify with Fire Life Safety Department for any additional requirements and approvals/permits when utilizing propane as fuel source.
126. Verify with the Plumbing department for any additional requirements and approvals/permits when utilizing natural gas as the fuel source.

COOLING TOWERS

127. Indicate on plan what provision will be implemented for water efficiency as outlined in Title 24 for cooling towers with rated capacities over 150 tons. Show compliance with CEEBS §110.2(e):
- a. Towers and coolers must be provided with conductivity OR flow based controls to maximize cycles of concentration.
 - b. Flow meter shall be equipped on the makeup water line.
 - c. Be equipped with an overflow alarm in case of valve failure on makeup water line.
 - d. Indicate on plans what provisions will be made to reduce drift in Cooling Tower. Please note that Counter flow Cooling Towers shall be equipped with Efficient Drift Eliminators that achieve drift reduction to 0.002 percent of the circulated water volume.
128. Include and incorporate NRCC-MCH-06-E with the resubmittal of the construction documents.
129. For all accessories being installed to meet Title 24 compliance, please document make and model of all accessories on plan.
130. Where and if chemicals used present a contact hazard to personnel, emergency eye wash and shower facilities shall be provided. Show on mechanical plans location of such facilities. (Plumbing Department approval will be required.) (CMC 1106.3)
131. Note on plan that a minimum 36" passageway shall be provided for any components of the cooling tower requiring routine maintenance. (CMC 1106.3)
132. Note on plans that the cooling tower shall be located such that their plumes cannot enter occupied spaces. Plume discharges shall be located at least 25 feet away from any ventilation inlet to the building, including openings into the adjacent parking decks providing natural ventilation to the parking decks. Show compliance with CMC requirements on the plans. (CMC 1131.0)

COMPUTER ROOMS

133. The State Energy Commission defines 'computer rooms' as a room whose primary function is to house electronic equipment and that has a design equipment power density exceeding 20 watts/ft² (215 watts/m²) of conditioned floor area (§100.1(b))
134. Indicate the equipment power density of the 'computer rooms/data center' on plans.
- a. **If over** 20watts/ft² of conditioned floor area, include appropriate compliance forms outlined in later comments.
 - b. **If less**, note the following on plans:
Data center/computer room has a design equipment power density of 20watts/ft² or less therefore compliance of 140.9(a) and subsections are not applicable to this project.
135. Include NRCC-PRC-04-E in compliance forms if power density is over 20watts/ft². If any requirement (NRCC-PRC-04-E) is not applicable to the system(s) proposed in the 'computer room', explicitly list any exceptions used to avoid a requirement, do not simply state "not applicable" or any variation thereof.
136. In reference to the application to additions and alternations of computer rooms, exemptions are covered under each measure:
- a. Air or water side economizer §140.9(a)1
 - b. Restriction on reheat or recool §140.9(a)2
 - c. Limitations on the type of humidification §140.9(a)3
 - d. Fan power limitations §140.9(a)4
 - e. Variable speed fan control §140.9(a)5, and
 - f. Containment §140.9(a)6

REFRIGERATION ROOMS

137. The refrigeration machinery room is required to have a dedicated exhaust system to limit temperature rise to a maximum of 104degF, and to provide emergency purge (CMC 1108.2)
- Provide calculations in accordance with CMC 1108.2 to demonstrate compliance with required exhaust system.
138. Central control of mechanical ventilation system must be in accordance with CMC 1108.6. Mechanical ventilation systems shall have switches to control power to each fan. The switches shall be key operated or within a locked, glass covered enclosure at an approved location adjacent to and outside of the principal entrance to the machinery room. Please show all switches, switch type, indicator lights and differential pressure switch (at fan) on the plans.
- Switches controlling fans providing continuous ventilation shall be of the two position, on-off type.
 - Switches controlling fans providing intermittent or emergency ventilation shall be of the three-position,
 - automatic, on-off type. Switches shall be labeled identifying the function and the specific fan controlled.
 - Two colored and labeled indicator lamps responding to the differential pressure caused by airflow shall be provided for each switch. One lamp shall indicate flow; the other shall indicate no flow.
139. Refrigeration machinery room ventilation discharge must discharge a minimum of 20 feet from the property line and openings to the building, including openings into the parking deck and louvered openings of the refrigeration machinery room. Please clearly note compliance with these CMC requirements on the plans (CMC 1108.7)
140. Please provide calculations on the plans to demonstrate chiller relief piping area and maximum length complies with CMC 1118.0 requirements (CMC 1118.1)
141. Show/Note on the plans that the chiller relief piping will terminate at a location at least 15 feet above the adjoining grade level and at least 20 feet from an opening to the building, including openings into any parking deck and doors and louvered openings into the refrigeration machinery room (CMC 1117.8)
142. Specify the manufacturer and model number of the refrigerant leak detection and alarm system on the mechanical plans (CMC 1107.4)
143. Indicate on the mechanical plans the quantity of refrigerant in each independent refrigeration circuit being proposed on this project and provide documentation from the R134a manufacturer with the resubmittal indicating the refrigerant classification, IDLH, PEL, OEL and LFL for the refrigerant. (CMC 1103, 1107.4, 1108.2.4 and 1121.1)
144. Please include a complete sequence of operation on the mechanical plans for the refrigerant leak detection and alarm system. Indicate all of the following on the plans. Please include exact set points in the sequence of operation:
- Alarms shall be activated within the space at a value not greater than one-half the immediately dangerous to life and health (IDLH) or measurement consistent therewith or the permissible exposure limit (PEL) or measurement consistent there with whichever is less. (CMC 1107.4)
 - The emergency purge shall be activated in the machinery room at no more than 50 percent of the IDLH or measurement consistent there with.
145. Show locations of the alarm(s) signaling devices (horns and strobes) inside the refrigeration machinery room. (CMC 1107.4 and 1121.0)
146. Please note that the detection and alarm systems shall be powered and supervised as required for fire alarm systems in the fire code (CMC 1121.2)
- Alarm system to be approved by the Fire Life Safety Department
147. Obtain Building Department approval for required number of exits. All portions of machinery rooms shall be within 150ft of an exit or exit access doorway, and doors shall swing in the direction of egress travel (CBC 1015.4)

REFRIGERATION/STORAGE

148. The mechanical plan review application indicates that a refrigeration compressor is to be installed for this project. Included with the resubmittal the following (CMC 1105.5):
- a. Quantity of compressors, horsepower and KW of each compressor connected to each independent refrigerant circuit. (This is required for permit fee calculation and in determining any requirement for a refrigeration machinery room)
 - b. Accurate quantity of independent refrigerant circuits proposed. Include a description for each rack/protocol indicating which circuits connected to each system are independent or common to each other through the system and receiver.
 - c. Type of refrigerant used in each independent refrigerant circuit and classification e.g. A1.
 - d. Quantity of refrigerant in each single independent refrigeration circuit (total charge).
149. If the condensing unit(s) are located within the interior of the building AND the volume of the room is less than 1000 ft³ per Horsepower of the unit(s), one of the following shall be provided:
- a. Permanent gravity ventilation openings of not less than 2ft²
 - b. Mechanical exhaust capable of providing 3 air changes within the area where condensing unit(s) are to be located.
150. If comment above does not apply, simply indicate total horsepower of all condensing units and total volume of room/space where the units are installed (shall be greater than 1000 ft³ per horsepower).
151. Condensate from the cooling coils shall be collected and drained through an approved receptor. Indicate on the Mechanical construction documents that associated drainage system shall be done by others and submitted to the Department for Plumbing review.

VRF

152. The CMC prohibits the quantity of refrigerant in a single, independent circuit of a high probability refrigeration system from exceeding the amounts shown in CMC Table 1102.2. The volume of the smallest enclosed, occupied space shall be used to determine the permissible quantity of refrigerant in a system that is located in, serves or passes through such space. Occupied space shall include those rooms that are occupied occasionally for short periods of time such as storage rooms, equipment rooms, or any room which can be entered with a door that can be closed after entry. Exception: Where the airflow to an enclosed space served by a portion of an air duct system cannot be shut off or reduced below one-quarter of its maximum, the cubical contents of the entire space served by that portion of the air duct system shall be used to determine the permissible quantity of refrigerant in the system. (CMC 1105.2, Table 1102.2)
153. Show on the plans that the systems will not contain a refrigerant quantity in excess of allowable amounts based on the size of the rooms the systems will be located in, serve or the piping will pass through. (CMC 1105.2, Table 1102.2)
154. Indicate on plans the refrigerant type and total quantity of refrigerant in each independent refrigeration system. Include factory charge plus additional field charge in line set and fan coil.
155. Provide calculations on the plans to demonstrate the quantity of refrigerant will not exceed CMC Table 1102.2 allowable quantities based on the type of refrigerant used and the cubic Ft. area, within the smallest room or space containing refrigerant piping, fan coils or being served by the fan coils for each independent refrigeration circuit. Volume calculation shall adhere to CMC 1104.2.1.
156. Indicate on plans pipe material of refrigerant lines, and all provisions made for pipe protection as required. (CMC 1111.3)

ADDITIONAL COMMENTS

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157. Please include the following notes on the plans to assure code compliance with for project:

- a. All mechanical equipment and systems installed as part of project shall comply with all requirements of the 2022 California Mechanical Code and the 2022 California Building Code, 2022 California Green Building Standards Code and the 2022 California Building Energy Efficiency Standards.
- b. Provide 120 Volt electrical outlets within 25 Ft. of all roof mounted and outdoor mechanical equipment. (CMC 301.4) all Mech. Equip. (CMC 301.4)
- c. All ductwork for heating and cooling system or evaporative cooling system shall be conducted through duct systems constructed of metal as set forth 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 2022 CMC referenced standards Chapter 17. (CMC 602.1)
- d. 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.
- e. 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 304.1)
- f. All appliances designed to be in a fixed position shall be securely fastened in place in accordance with the manufacture's installation instructions. Supports for appliances shall be designed and constructed to resist horizontal and vertical loads within the stress limitations of the CBC. (CMC 303.5)
- g. 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.
- h. A copy of the furnace manufacturers installation instructions shall be provided at the furnace installed location.
- 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 manufacturer's installation instructions.
- 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. 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)
- l. 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)
- m. All materials exposed within ducts and plenums including any above ceiling return air plenum shall be noncombustible or shall have a flame spread index not to exceed twenty-five (25) and a smoke developed index not to exceed then fifty (50) when tested as a composite product in accordance with ASTM E 84 OR UL 723 and shall comply with all requirements of the 2013 CMC Section 602.2.
- n. Refrigerant containing portions of a system that are field erected shall be tested and proved tight to the Authority Having Jurisdiction after complete installation and before operation. The high and low sides of each system shall be tested and proved tight at not less than the lower of the pressure in CMC Table 1124.2 or the setting the pressure relief device. (CMC 1124.2)

CLEARANCE

158. The mechanical plans must indicate the minimum clearance required under heat pump outdoor sections mounted in the parking garage. A minimum clearance of 7 feet under the units is required in accordance with CBC 406.2.2. Additional clearance in the amount of a minimum of 8 feet 6 inches is required for areas that are required to be accessible per CBC Section 1109A.8.1:

Please verify the units in the garage can be installed with the required clearance below them and include the following note on the plans to assure compliance with the CBC for this project:

NOTE- Clearance under the heat pump outdoor units in the parking garage shall be a minimum of 7 feet throughout. Where required to be accessible, all entrances, exits and vehicular passageways to and from required accessible parking spaces within parking facilities, shall have a minimum vertical clearance of 8 feet 2 inches from the floor to the lowest projection of the ceiling including mechanical equipment. (CBC 406.4.2 and 1109A8.1)

MEDICAL MARIJUANA (MMJ)

159. Show the intended use of each room within the MMJ establishment/tenant space. (CMC 112)

160. Indicate all toxic, flammable, or other material(s) regulated by a federal, state, or local government that would have authority over the business if it was not a marijuana business that will be used or kept at the medical marijuana business (Long Beach Municipal Code 5.90.0230)

- a. Identify all areas where such material is to be stored.
- b. Verify with the Fire Department for any required approvals regarding quantity, storage methods, alarm systems, and exhaust rates.
- c. Provide material data sheets for all chemical used indicating LFL, UFL, flash point when applicable.

161. All exhaust systems intended for an MMJ facility within a multi-tenant building (environmental and product conveying), shall be independent of any other tenant/shell systems. (Long Beach Municipal Code 5.90.0230)

162. Clarify if any volatile substances will be used within the room designated as C1D1 Flex Mod enclosure. Indicate all toxic, flammable, or other material(s) regulated by a federal, state, or local government that would have authority over the business if it was not a marijuana business that will be used or kept at the medical marijuana business. (Long Beach Municipal Code 5.90.0230)

- a. What alarm (leak detection, if any) will be provided for emergency purge. Detectors, if required need to be clearly identified on plans along with any purge fans.
- b. Show specialized equipment that will be used at the establishment:
 - i. Provide manufacturers information sheet and listing information for specialized equipment on the plans with the resubmittal.
 - ii. Indicate all ventilation criteria for the extraction room that may be handling volatile substances, or where specialized equipment is present (e.g. closed loop extraction systems, etc.).
 - iii. Note manufacturer's ventilation criteria for all specialized equipment being installed within the extraction room.
- c. Verify with the Fire Department for any required approvals regarding quantity, storage methods, alarm systems, and exhaust rates.

163. Provide a narrative of the process taking place within the room designated as C1D1 Flex Mod enclosure. Clearly identify all ventilation criteria and exhaust criteria for these rooms.

- a. Explicitly state minimum required termination clearances to property line, adjacent buildings, openings into the building (CMC 502.2.2).
- b. Clearly identify all systems venting explosive and/or flammable vapors/fumes (if any). Exhaust termination of such systems shall have termination clearance as outlined in CMC 502.2.2.
 - i. Ventilation criteria shall be designed, maintained, and operated to prevent the vapor concentration from exceeding 25 percent of the lower flammability limit. (CMC 505.1).

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- c. Provide a sequence of operation of how the exhaust and makeup air systems may interact with any associated alarm systems within the C1D1 Flex Mod enclosure.
164. The responsible designer shall provide a narrative identifying all provisions to be taken to mitigate any odors from being exhausted or transferred to adjacent tenant spaces and to the outdoors. (Long Beach Municipal Code 5.90.0230)
- a. Marijuana establishments in Long Beach shall prevent odor from migrating off premises.
 - b. Show location of all filtration systems to be installed under this permit.
165. Environmental exhaust outlets shall be 3 feet from property line and 3 feet from opening into the building including operable doors and windows. (CMC 504.5)
166. Occupancy for cultivation, provide ventilation system for the enclosed planting room, provide make-up air, show method of treating contaminants.
167. Dedicated exhaust fan system for emergency purge system with make-up air. Min. rate is 1 cfm/sq ft.
168. Rooms or indoor areas in which CO₂ enrichment is provided shall be maintained at a negative pressure in relation to the surrounding areas in the building. (CFC5307.4.4)
169. Provide an exhaust system within the cultivation rooms that is capable of exhausting 1cfm/sq ft when activated by the future detections system and is located 12” above the finished floor. (CFC 5307.4.4)
170. Please note that the CO₂ detection system within the cultivation rooms are a differed submittal per the Fire Department.
171. Provide Makeup air for exhaust systems in the cultivation, clone room, manufacturing room and extraction room.

ADDITIONAL WRITTEN COMMENTS

No.	Comment	Code Sec. No.

To request this information in an alternative format or to request a reasonable accommodation, please contact the Development Services Department at longbeach.gov/lbds and 562.570.3807. A minimum of three business days is requested to ensure availability; attempts will be made to accommodate requests with shorter notice.