# Mechanical Systems



| **CERTIFICATE OF COMPLIANCE** | | **NRCC-MCH-E** |
|---|---|---|
| *This document is used to demonstrate compliance for mechanical systems that are within the scope of the permit application and are demonstrating compliance using the prescriptive path outlined in 140.4, or 141.0(b)2 for alterations.* | | |
| **Project Name:** Nonresidential Sample Building | **Report Page:** | **(Page 1 of 18)** |
| **Project Address:** 1234 Main St. | **Date Prepared:** | 10/31/2023 |

## A. GENERAL INFORMATION

| | | | | | |
|---|---|---|---|---|---|
| 01 | Project Location (city) | Sacramento | 04 | Total Conditioned Floor Area | 4480 |
| 02 | Climate Zone | 12 | 05 | Total Unconditioned Floor Area | 1200 |
| 03 | Occupancy Types Within Project: | | 06 | # of Stories (Habitable Above Grade) | 2 |

● Office ● Parking Garage ● Restaurant ● Retail

## B. PROJECT SCOPE

*This table Includes mechanical systems or components that are within the scope of the permit application and are demonstrating compliance using the prescriptive path outlined in 140.4, 170.2(b) or 141.0(b)2 and 180.2(b)2 for alterations.*

| 01 | | 02 | | 03 | |
|---|---|---|---|---|---|
| Air System(s) | | Wet System Components | | Dry System Components | |
| ☒ | Heating Air System | ☐ | Water Economizer | ☒ | Air Economizer |
| ☒ | Cooling Air System | ☐ | Pumps | ☐ | Electric Resistance Heat |
| Mechanical Controls | | ☐ | System Piping | ☒ | Fan Systems |
| ☒ | Mechanical Controls (existing to remain, altered or new) | ☐ | Cooling Towers | ☒ | Ductwork (existing to remain, altered or new) |
| | | ☐ | Chillers | ☒ | Ventilation |
| | | ☐ | Boilers | ☐ | Zonal Systems/ Terminal Boxes |

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## C. COMPLIANCE RESULTS

*Table C will indicate if the project data input into the compliance document is compliant with mechanical requirements. This table is not editable by the user. If this table says "DOES NOT COMPLY" or "COMPLIES with Exceptional Conditions" refer to Table D., or the table indicated as not compliant for guidance.*

| 01 | | 02 | | 03 | | 04 | | 05 | | 06 | | 07 | | 08 | 09 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| System Summary 110.1, 110.2, 140.4, 170.2(c) | AND | Pumps 140.4(k), 170.2(c)4I | AND | Fans/ Economizers 140.4(c), 140.4(e), 170.2(c) | AND | System Controls 110.2, 120.2, 140.4(f), 170.2(c) | AND | Ventilation 120.1, 160.2 | AND | Terminal Box Controls 140.4(d), 170.2(c)4B | AND | Distribution 120.3, 140.4(l), 160.2, 160.3 | AND | Cooling Towers 110.2(e)2 | Compliance Results |
| (See Table F) | | (See Table G) | | (See Table H) | | (See Table I) | | (See Table J) | | (See Table K) | | (See Table L) | | (See Table M) | |
| No | AND | | AND | Yes | AND | Yes | AND | Yes | AND | | AND | Yes | AND | | DOES NOT COMPLY |
| **Mandatory Measures Compliance (See Table Q for Details)** | | | | | | | | | | COMPLIES | | | | | |

## D. EXCEPTIONAL CONDITIONS

*This table is auto-filled with uneditable comments because of selections made or data entered in tables throughout the form.*

## E. ADDITIONAL REMARKS

*This table includes remarks made by the permit applicant to the Authority Having Jurisdiction.*

## F. HVAC SYSTEM SUMMARY (DRY & WET SYSTEMS)

**Space Conditioning System Information**

| 01 | 02 | 03 | 04 | 05 | 06 |
|---|---|---|---|---|---|
| System Name | Quantity | System Serving | System Status | Space Type | Utilizing Recovered Heat |
| Retail Mech. System | 1 | Single zone | New/ Addition | | ☐ |
| Office Mech System | 1 | Single zone | New/ Addition | | ☐ |
| Restaurant Mech Sys. | 1 | Single zone | New/ Addition | | ☐ |

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## F. HVAC SYSTEM SUMMARY (DRY & WET SYSTEMS)

**Dry System Equipment Sizing (includes air conditioners, condensers, heat pumps, VRF, furnaces and unit heaters and DOAS systems)**

| 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 |
|---|---|---|---|---|---|---|---|---|---|---|
| Name or Item Tag | Equipment Category per Tables 110.2, 140.4(a)2 and 170.2(c)3aii | Equipment Type per Tables 110.2 and Title 20 | Smallest Size Available[1] 140.4(a) and 170.2(c)1 | Equipment Sizing per Mechanical Schedule (kBtu/h) 140.4(a&b), 170.2(c)1 & 170.2(c)2 | | | | | | |
| | | | | Heating Output[2,3] | | | Cooling Output[2,3] | | Load Calculations[3,4] | |
| | | | | Per Design (kBtu/h) | Rated (kBtu/h) | Supp. Heating Output (kBtu/h) | Sensible Per Design (kBtu/h) | Rated (kBtu/h) | Total Heating Load (kBtu/h) | Total Sensible Cooling Load (kBtu/h) |
| Retail Mech. System | Unitary Heat Pumps | Air-cooled, pkg (3 phase) | NA: Load Controls | 63.5 | 91.5 | 0 | 65.3 | 55.5 | 55.74 | 60.79 |
| Office Mech System | Unitary Heat Pumps | Air-cooled, pkg (3 phase) | NA: Load Controls | 42.19 | 60.8 | 0 | 65.14 | 55.5 | 60.99 | 83.08 |
| Restaurant Mech Sys. | Unitary Heat Pumps | Air-cooled, pkg (3 phase) | NA: Load Controls | 102.98 | 148.4 | 0 | 129.58 | 116.1 | 64.56 | 114.97 |

*[1]FOOTNOTES: 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 per 140.4(a) and 170.2(c)1. Healthcare facilities are excepted.*

*[2]It is common practice to show rated output capacity on the equipment schedule. Sensible cooling output comes from specification sheet tables.*

*[3] If equipment is heating only, leave cooling output and load blank. If equipment is cooling only, leave heating output and load blank.*

*[4] Authority Having Jurisdiction may ask for load calculations used for compliance per 140.4(b) and 170.2(c).*

**Dry System Equipment Efficiency (other than Package Terminal Air Conditioners (PTAC) and Package Terminal Heat Pumps (PTHP), DX-DOAS and Dual Fuel Heat Pumps)**

| 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 |
|---|---|---|---|---|---|---|---|---|
| Name or Item Tag | Size Category (Btu/h) | Heating Mode | | | | Cooling Mode | | |
| | | Rating Condition ( °F) | Efficiency Unit | Minimum Efficiency Required per Tables 110.2 / Title 20 | Design Efficiency | Efficiency Unit | Minimum Efficiency Required per Tables 110.2 / Title 20 | Design Efficiency |
| Retail Mech. System | >=65,000 and <135,000 | | COP | 3.4 | 3.4 | EER<br>IEER | 11<br>14.1 | 13<br>14.1 |

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## F. HVAC SYSTEM SUMMARY (DRY & WET SYSTEMS)

**Dry System Equipment Efficiency (other than Package Terminal Air Conditioners (PTAC) and Package Terminal Heat Pumps (PTHP), DX-DOAS and Dual Fuel Heat Pumps)**

| 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 |
|---|---|---|---|---|---|---|---|---|
| Name or Item Tag | Size Category (Btu/h) | Heating Mode | | | | Cooling Mode | | |
| | | Rating Condition ( °F) | Efficiency Unit | Minimum Efficiency Required per Tables 110.2 / Title 20 | Design Efficiency | Efficiency Unit | Minimum Efficiency Required per Tables 110.2 / Title 20 | Design Efficiency |
| Office Mech System | >=65,000 and <135,000 | | COP | 3.4 | 3.4 | EER<br>IEER | 11<br>14.1 | 13<br>14.1 |
| Restaurant Mech Sys. | >=135,000 and <240,000 | | COP | 3.2 | 3.4 | EER<br>IEER | 10.6<br>13.5 | 13<br>14.1 |

## G. PUMPS

*This section does not apply to this project.*

## H. FAN SYSTEMS & AIR ECONOMIZERS

*This table is used to demonstrate compliance with prescriptive requirements found in 140.4(c), 140.4(e), 140.4(m), 170.2(c)3, and 170.2(c)4A for fan systems. Fan systems serving only process loads are exempt from these requirements and do not need to be included in Table H.*

| System Name | Retail Mech. System | Quantity | 1 | Fan System Status | New | System Zoning | all other systems | Serving Dwelling Units | Not Serving Dwelling Units | Fan System Airflow (cfm) | 2,400 | Site Elevation | 84 | Economizer | Differential Temperature |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 01 | 02 | 03 | 04 | | | 05 | | 06 | 07 | 08 | 09 | | | 10 | 11 |

| Fan Name or Item Tag | Fan Type | Qty | Component | Airflow through Component (%) | Water Gauge (w.g) | Allowance | | Design | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Component Allowance | Fan Allowance (watt/cfm)[3] | Design Electrical Input Power Method | Motor Nameplate Horsepower | Design Electrical Input Power (kW) |
| SF | Supply | 1 | Base Allowance for system serving spaces <=6 floors away | 2,400 | | 557 | | Manufacturer provided | | 1.07 |
| | | | MERV 13-16 Filter upstream of thermal conditioning equipment | 2,400 | | 334 | | | | |
| | | | Hydronic/DX cooling coil or heat pump coil | 2,400 | | 334 | | | | |
| | | | Economizer Return Damper | 2,400 | | 110 | | | | |

| Supply Fan Base Allowance (kW) | | Exhaust/Return/Relief/Transfer Fan Base Allowance(kW) | | Fan System Allowance (kW)[3] | 1.33 | Fan System Electrical Output (kW) | 1.07 |
|---|---|---|---|---|---|---|---|

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## H. FAN SYSTEMS & AIR ECONOMIZERS

| System Name | Office Mech System | Quantity | 1 | Fan System Status | New | System Zoning | all other systems | Serving Dwelling Units | Not Serving Dwelling Units | Fan System Airflow (cfm) | 2,400 | Site Elevation | 84 | Economizer | Differential Temperature |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 01 | 02 | 03 | 04 | | | 05 | | 06 | 07 | 08 | 09 | | | 10 | 11 |

| Fan Name or Item Tag | Fan Type | Qty | Component | Airflow through Component (%) | Water Gauge (w.g) | Allowance: Component Allowance | Allowance: Fan Allowance (watt/cfm)[3] | Design: Design Electrical Input Power Method | Design: Motor Nameplate Horsepower | Design: Design Electrical Input Power (kW) |
|---|---|---|---|---|---|---|---|---|---|---|
| SF | Supply | 1 | Base Allowance for system serving spaces <=6 floors away | 2,400 | | 557 | | Manufacturer provided | | 1.01 |
| | | | MERV 13-16 Filter upstream of thermal conditioning equipment | 2,400 | | 334 | | | | |
| | | | Hydronic/DX cooling coil or heat pump coil | 2,400 | | 334 | | | | |
| | | | Economizer Return Damper | 2,400 | | 110 | | | | |

| Supply Fan Base Allowance (kW) | | Exhuast/Return/Relief/Transfer Fan Base Allowance(kW) | | Fan System Allowance (kW)[3] | 1.33 | Fan System Electrical Output (kW) | 1.01 |
|---|---|---|---|---|---|---|---|

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## H. FAN SYSTEMS & AIR ECONOMIZERS

| System Name | Restaurant Mech Sys. | Quantity | 1 | Fan System Status | New | System Zoning | all other systems | Serving Dwelling Units | Not Serving Dwelling Units | Fan System Airflow (cfm) | 5,000 | Site Elevation | 84 | Economizer | Differential Temperature |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 01 | 02 | 03 | 04 | | | 05 | | 06 | 07 | 08 | 09 | | | 10 | 11 |

| Fan Name or Item Tag | Fan Type | Qty | Component | Airflow through Component (%) | Water Gauge (w.g) | Allowance: Component Allowance | Allowance: Fan Allowance (watt/cfm)[3] | Design: Design Electrical Input Power Method | Design: Motor Nameplate Horsepower | Design: Design Electrical Input Power (kW) |
|---|---|---|---|---|---|---|---|---|---|---|
| SF | Supply | 1 | Base Allowance for system serving spaces <=6 floors away | 5,000 | | 1160 | | Manufacturer provided | | 2.61 |
| | | | MERV 13-16 Filter upstream of thermal conditioning equipment | 5,000 | | 695 | | | | |
| | | | Hydronic/DX cooling coil or heat pump coil | 5,000 | | 695 | | | | |
| | | | Economizer Return Damper | 5,000 | | 230 | | | | |
| Supply Fan Base Allowance (kW) | | | Exhuast/Return/Relief/Transfer Fan Base Allowance(kW) | | | Fan System Allowance (kW)[3] | | 2.78 | Fan System Electrical Output (kW) | 2.61 |

*[1] FOOTNOTES: Fans serving spaces with design background noise goals below NC35*

*[2] Low-turndown single-zone VAV fan system must be capable of and configured to reduce airflow to 50 percent of design airflow and use no more than 30 percent of the design wattage at that airflow. No more than 10 percent of the design load served by the equipment shall have fixed loads.*

*[3] Fan system allowance includes fan system base allowance.*

*[4] Filter pressure loss can only be counted once per fan system.*

*[5] Complex Fan System means a fan system that combines a single cabinet fan system with other supply fans, exhaust fans, or both.*

*[6] Computer room economizers must meet requirements of 140.9(a) and will be documented on the NRCC-PRC-E document..*

## H. EXHAUST AIR HEAT RECOVERY 140.4(q), 170.2(c)4O

| 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | |

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## H. EXHAUST AIR HEAT RECOVERY 140.4(q), 170.2(c)4O

| Fan System Name | Qty | Hours of Operation per Year | Design Supply Airflow Rate | Outdoor Airflow | % Outdoor Air at Full Design Airflow | Exemptions to Exhaust Air Heat Recovery Requirement per 140.4(q) & 170.2(c)4O | Exhaust Air Heat Recovery 140.4(q) & 170.2(c)4O | Type Of Heat Recovery Rating | Required Recovery Ratio | Energy Recovery Bypass |
|---|---|---|---|---|---|---|---|---|---|---|

### Fan Energy Index (FEI)

| 01 | 02 | 03 |
|---|---|---|
| Name or Item Tag | FEI Exception | FEI |
| Retail Mech. System | Altered Fan System | |
| Office Mech System | Altered Fan System | |
| Restaurant Mech Sys. | Altered Fan System | |

## I. SYSTEM CONTROLS

*This table is used to demonstrate compliance with mandatory controls in 110.2 and 120.2 and prescriptive controls in 140.4(f) and (n), 170.2(c)4D 170.2(c)4L or requirements in 141.0(b)2E 180.2(b)2 for altered space conditioning systems.*

| 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 |
|---|---|---|---|---|---|---|---|---|
| System Name | System Zoning | Conditioned Floor Area Being Served ($ft^2$) | Thermostats 110.2(b) & (c)[1], 120.2(a) 160.3(a)2A or 141.0(b)2E & 180.2(b)2 | Shut-Off Controls 120.2(e) & 160.3(a)2D | Isolation Zone Controls 120.2(g) & 160.3(a)2F | Demand Response 110.12 120.2(b) & 160.3(a)2B | Supply Air Temp. Reset 140.4(f) & 170.2(c)4D | Window Interlocks per 140.4(n) & 170.2(c)4D |
| Retail Mech. System | Single zone | <= 25,000 $ft^2$ | EMCS | NA: 7 day per 120.2(e)1 | 4 Hour Timer | EMCS | NA: Single Zone | Provided |
| Office Mech System | Single zone | <= 25,000 $ft^2$ | EMCS | NA: 7 day per 120.2(e)1 | 4 Hour Timer | EMCS | NA: Single Zone | Provided |
| Restaurant Mech Sys. | Single zone | <= 25,000 $ft^2$ | EMCS | NA: 7 day per 120.2(e)1 | 4 Hour Timer | EMCS | NA: Single Zone | NA: Auto-closing doors |

## I. SYSTEM CONTROLS

*[1]FOOTNOTES: Gravity gas wall heaters, gravity floor heaters, gravity room heaters, non-central electric heaters, fireplaces or decorative gas appliances, wood stoves are not required to have setback thermostats.*

## J. VENTILATION AND INDOOR AIR QUALITY

*This table is used to demonstrate compliance with mandatory ventilation requirements in 120.1 120.2(e)3B 140.4(p) and 140.4(q) for all nonresidential and hotel/motel and d:t24refnolink/]160.2, 160.3(a)3D, 170.2(a)4N, 170.2(a)4O for high-rise residential occupancies. For alterations, only ventilation systems being altered within the scope of the permit application need to be documented in this table. In lieu of this table, the required outdoor ventilation rates and airflows may be shown on the plans or the calculations can be presented in a spreadsheet.*

| | | |
|---|---|---|
| 01 | ☐ | Check the box if the project is showing ventilation calculations on the plans, or attaching the calculations instead of completing this table. |
| 02 | ☒ | Check this box if the project included Nonresidential, Hotel/Motel Spaces or Multifamily Common Use Spaces |
| | ☐ | |
| 03 | ☐ | Check the box if the project is using natural ventilation in any nonresidential or hotel/motel spaces to meet required ventilation rates per 120.1(c)2. |

**Nonresidential and Hotel/ Motel Multifamily Common Use Ventilation Systems**

| 04 | | 05 | | | 06 | | | 07 | |
|---|---|---|---|---|---|---|---|---|---|
| System Name | Retail Mech. System | System Design OA CFM Airflow[1] | | 640 | System Design Transfer Air CFM | | 0 | Air Filtration per 120.1(c) 141.0(b)2 and 160.2(c)21[2] | |
| | | | | | | | | Provided | |
| 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | |
| Space Name or Item Tag | Mechanical Ventilation Required per 120.1(c)3[3] & 160.2(c)3 | | | | | Exh. Vent per 120.1(c)4 & 160.2(c)4 | | DCV or Sensor Controls per 120.1(d)3, 120.1(d)5, and 120.1(e)3[6] 160.2(c)5D 160.2(c)5E 160.2(c)5D | |
| | Occupancy Type[4] | Conditioned Floor Area ($ft^2$) | # of Shower heads/ toilets | # of people[5] | Required Min OA CFM | Required Min CFM | Provided per Design CFM | | |
| Retail Zone | Retail sales | 1280 | 2 | | 320 | 100 | 100 | DCV | Provided per §120.1(d)4 |
| | | | | | | | | Occ Sensor | NA: Not required space type |
| 17 | Total System Required Min OA CFM | | | | 320 | 18 | Ventilation for this System Complies? | | Yes |

## J. VENTILATION AND INDOOR AIR QUALITY

| 04 | | 05 | | | 06 | | | 07 | |
|---|---|---|---|---|---|---|---|---|---|
| System Name | Office Mech System | System Design OA CFM Airflow[1] | | 576 | System Design Transfer Air CFM | | 0 | Air Filtration per 120.1(c) 141.0(b)2 and 160.2(c)21[2] | |
| | | | | | | | | Provided | |
| 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | |
| Space Name or Item Tag | Mechanical Ventilation Required per 120.1(c)3[3] & 160.2(c)3 | | | | | Exh. Vent per 120.1(c)4 & 160.2(c)4 | | DCV or Sensor Controls per 120.1(d)3, 120.1(d)5, and 120.1(e)3[6] 160.2(c)5D 160.2(c)5E 160.2(c)5D | |
| | Occupancy Type[4] | Conditioned Floor Area ($ft^2$) | # of Shower heads/ toilets | # of people[5] | Required Min OA CFM | Required Min CFM | Provided per Design CFM | | |
| Office Zone | Office space | 1920 | 2 | | 288 | 140 | 150 | DCV | NA: Not required per §120.1(d)3 |
| | | | | | | | | Occ Sensor | NA: Not required space type |
| 17 | Total System Required Min OA CFM | | | | 288 | 18 | Ventilation for this System Complies? | | Yes |

| 04 | | 05 | | | 06 | | | 07 | |
|---|---|---|---|---|---|---|---|---|---|
| System Name | Restaurant Mech Sys. | System Design OA CFM Airflow[1] | | 750 | System Design Transfer Air CFM | | 0 | Air Filtration per 120.1(c) 141.0(b)2 and 160.2(c)21[2] | |
| | | | | | | | | Provided | |
| 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | |
| Space Name or Item Tag | Mechanical Ventilation Required per 120.1(c)3[3] & 160.2(c)3 | | | | | Exh. Vent per 120.1(c)4 & 160.2(c)4 | | DCV or Sensor Controls per 120.1(d)3, 120.1(d)5, and 120.1(e)3[6] 160.2(c)5D 160.2(c)5E 160.2(c)5D | |
| | Occupancy Type[4] | Conditioned Floor Area ($ft^2$) | # of Shower heads/ toilets | # of people[5] | Required Min OA CFM | Required Min CFM | Provided per Design CFM | | |
| Restaurant Zone | Bar/ cocktail lounge | 1280 | 2 | 50 | 750 | 140 | 140 | DCV | Provided per §120.1(d)4 |
| | | | | | | | | Occ Sensor | NA: Not required space type |
| 17 | Total System Required Min OA CFM | | | | 750 | 18 | Ventilation for this System Complies? | | Yes |

## J. VENTILATION AND INDOOR AIR QUALITY

*[1] FOOTNOTES: System CFM should include both mechanical and natural ventilation for the zone/system*

*[2] Air filtration requirements apply to the following three system types per 120.1(c)1A: space conditioning systems utilizing ducts to supply air to occupiable space; supply-only ventilation systems providing outside air to occupiable space; supply side of balanced ventilation systems including heat recovery and energy recovery ventilation systems providing outside air to occupiable space.*

*[3] Uniform Mechanical Code may have more stringent ventilation requirements; the most stringent code requirement takes precedence.*

*[4] See Standards Tables 120.1-A and 120.1-B.*

*[5] For lecture halls with fixed seating, the expected number of occupants shall be determined in accordance with the California Building Code.*

*[6] 120.2(e)3 requires systems serving rooms that are required by 130.1(c) to have lighting occupancy sensing controls to also have occupancy sensing zone controls for ventilation. Examples of spaces which require lighting occupancy sensors include offices 250ft$^2$ or smaller, multipurpose rooms less than 1,000 ft$^2$, classrooms, conference rooms, restrooms, aisles and open areas in warehouses, library book stack aisles, corridors, stairwells, parking garages, and loading and unloading zones, unless excepted by 130.1(c).*

## K. TERMINAL BOX CONTROLS

*This section does not apply to this project.*

## L. DISTRIBUTION (DUCTWORK and PIPING)

*This table is used to show compliance with mandatory pipe insulation requirements found in 120.3 and mandatory requirements found in 120.4(g) for duct sealing.*

| | | |
|---|---|---|
| 01 | ☐ | Insulation shall be protected from damage, including that due to sunlight, moisture, equipment maintenance, and wind. Insulation exposed to weather shall be installed with a cover suitable for outdoor service. Insulation covering chilled water piping and refrigerant suction piping located outside the conditioned space shall have a Class I or Class II vapor retarder. All penetrations and joints of which shall be sealed. |

**Duct Leakage Testing**

| | | | |
|---|---|---|---|
| The answers to the questions below apply to the following duct systems: | Retail Mech. System | **NR/ Common Use:** Duct leakage testing shall not exceed 6% per NA7.5.3 required for these systems? | No |

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## L. DISTRIBUTION (DUCTWORK and PIPING)

| | | | | |
|---|---|---|---|---|
| | | | **Dwelling Units:** Total duct leakage of duct system shall not exceed 12% or duct system to outside shall not exceed 6% per RA3.1.4 required for systems? | No |
| | | | Duct leakage testing per CMC Section 603.10.1 required for these systems? | Yes |
| 11 | No | The scope of the project includes only duct systems serving healthcare facilities | | |
| 12 | Yes | Duct system provides conditioned air to an occupiable space for a constant volume, single zone, space-conditioning system. | | |
| 13 | Yes | The space conditioning system serves less than 5,000 $ft^2$ of conditioned floor area. | | |
| 14 | No | The combined surface area of the ducts is more than 25% of the total surface area of the entire duct system: | | |
| 15 | | The scope of the project includes extending an existing duct system, which is constructed, insulated or sealed with asbestos. | | |
| 16 | No | The scope of the project includes an existing duct system that is documented to have been previously sealed as confirmed through field verification and diagnostic testing in accordance with procedures in the Reference Nonresidential Appendix NA2. | | |
| 17 | | All Ductwork and plenums with pressure class ratings shall be constructed to Seal Class A | | |
| 18 | | All ductwork is an extension of an existing duct system | | |
| 19 | | Ductwork serving individual dwelling unit | | |
| 20 | | < 25 ft of new or replacement space conditioning ducts installed | | |
| 21 | R-8 | Duct Insulation R-value | | |
| 22 | | | | |
| 23 | | | | |
| The answers to the questions below apply to the following duct systems: | | Office Mech System | **NR/ Common Use:** Duct leakage testing shall not exceed 6% per NA7.5.3 required for these systems? | No |

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## L. DISTRIBUTION (DUCTWORK and PIPING)

| | | | | | |
|---|---|---|---|---|---|
| | | | | **Dwelling Units:** Total duct leakage of duct system shall not exceed 12% or duct system to outside shall not exceed 6% per RA3.1.4 required for systems? | No |
| | | | | Duct leakage testing per CMC Section 603.10.1 required for these systems? | Yes |
| 11 | No | The scope of the project includes only duct systems serving healthcare facilities | | | |
| 12 | Yes | Duct system provides conditioned air to an occupiable space for a constant volume, single zone, space-conditioning system. | | | |
| 13 | Yes | The space conditioning system serves less than 5,000 $ft^2$ of conditioned floor area. | | | |
| 14 | No | The combined surface area of the ducts is more than 25% of the total surface area of the entire duct system: | | | |
| 15 | | The scope of the project includes extending an existing duct system, which is constructed, insulated or sealed with asbestos. | | | |
| 16 | No | The scope of the project includes an existing duct system that is documented to have been previously sealed as confirmed through field verification and diagnostic testing in accordance with procedures in the Reference Nonresidential Appendix NA2. | | | |
| 17 | | All Ductwork and plenums with pressure class ratings shall be constructed to Seal Class A | | | |
| 18 | | All ductwork is an extension of an existing duct system | | | |
| 19 | | Ductwork serving individual dwelling unit | | | |
| 20 | | < 25 ft of new or replacement space conditioning ducts installed | | | |
| 21 | R-8 | Duct Insulation R-value | | | |
| 22 | | | | | |
| 23 | | | | | |
| The answers to the questions below apply to the following duct systems: | | | Restaurant Mech Sys. | **NR/ Common Use:** Duct leakage testing shall not exceed 6% per NA7.5.3 required for these systems? | No |

| **CERTIFICATE OF COMPLIANCE** | | **NRCC-MCH-E** |
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## L. DISTRIBUTION (DUCTWORK and PIPING)

| | | | | |
|---|---|---|---|---|
| | | | **Dwelling Units:** Total duct leakage of duct system shall not exceed 12% or duct system to outside shall not exceed 6% per RA3.1.4 required for systems? | No |
| | | | Duct leakage testing per CMC Section 603.10.1 required for these systems? | Yes |
| 11 | No | The scope of the project includes only duct systems serving healthcare facilities | | |
| 12 | Yes | Duct system provides conditioned air to an occupiable space for a constant volume, single zone, space-conditioning system. | | |
| 13 | Yes | The space conditioning system serves less than 5,000 $ft^2$ of conditioned floor area. | | |
| 14 | No | The combined surface area of the ducts is more than 25% of the total surface area of the entire duct system: | | |
| 15 | | The scope of the project includes extending an existing duct system, which is constructed, insulated or sealed with asbestos. | | |
| 16 | No | The scope of the project includes an existing duct system that is documented to have been previously sealed as confirmed through field verification and diagnostic testing in accordance with procedures in the Reference Nonresidential Appendix NA2. | | |
| 17 | | All Ductwork and plenums with pressure class ratings shall be constructed to Seal Class A | | |
| 18 | | All ductwork is an extension of an existing duct system | | |
| 19 | | Ductwork serving individual dwelling unit | | |
| 20 | | < 25 ft of new or replacement space conditioning ducts installed | | |
| 21 | R-8 | Duct Insulation R-value | | |
| 22 | | | | |
| 23 | | | | |

## M. COOLING TOWERS

*This section does not apply to this project.*

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## N. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION

*Selections have been made based on information provided in previous tables of this document. If any selection needs to be changed, please explain why in Table E Additional Remarks. These documents must be provided to the building inspector during construction and can be found online at https://www.energy.ca.gov/title24/2019standards/2019_compliance_documents/Nonresidential_Documents/NRCI/*

| Form/Title |
|---|
| NRCI-MCH-01-E - Must be submitted for all buildings |

| **CERTIFICATE OF COMPLIANCE** | | **NRCC-MCH-E** |
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## O. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE

*Selections have been made based on information provided in previous tables of this document. If any selection needs to be changed, please explain why in Table E Additional Remarks. These documents must be provided to the building inspector during construction and can be found online at https://www.energy.ca.gov/title24/2019standards/2019_compliance_documents/Nonresidential_Documents/NRCA/*

| Form/Title | Systems/Spaces To Be Field Verified |
|---|---|
| NRCA-MCH-02-A - Outdoor Air must be submitted for all newly installed HVAC units. Note: MCH-02-A can be performed in conjunction with MCH-07-A Supply Fan VFD Acceptance (if applicable) since testing activities overlap. | Carrier 48PGM-07---5/6;<br>Carrier 48PGL-07---5/6;<br>Carrier 48PGL-14---5/6; |
| NRCA-MCH-05-A - Air Economizer Controls | Carrier 48PGM-07---5/6;<br>Carrier 48PGL-07---5/6;<br>Carrier 48PGL-14---5/6; |
| NRCA-MCH-06-A Demand Control Ventilation Systems must be submitted for all systems required to employ demand controlled ventilation (refer to 120.1(c)3) can vary outside ventilation flow rates based on maintaining interior carbon dioxide ($CO_2$) concentration setpoints. | Carrier 48PGM-07---5/6;<br>Carrier 48PGL-14---5/6; |
| NRCA-MCH-07-A Supply Fan Variable Flow Controls | Carrier 48PGM-07---5/6;<br>Carrier 48PGL-07---5/6;<br>Carrier 48PGL-14---5/6; |
| NRCA-MCH-11-A Automatic Demand Shed Controls | Carrier 48PGM-07---5/6;<br>Carrier 48PGL-07---5/6;<br>Carrier 48PGL-14---5/6; |
| NRCA-MCH-12-A FDD for Packaged Direct Expansion Units | Carrier 48PGM-07---5/6;<br>Carrier 48PGL-07---5/6;<br>Carrier 48PGL-14---5/6; |
| NRCA-MCH-18-A Energy Management Control Systems | Carrier 48PGM-07---5/6;<br>Carrier 48PGL-07---5/6;<br>Carrier 48PGL-14---5/6; |

## P. DECLARATION OF REQUIRED CERTIFICATES OF VERIFICATION

*There are no NRCV forms required for this project.*

| **CERTIFICATE OF COMPLIANCE** | | **NRCC-MCH-E** |
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## Q. MANDATORY MEASURES DOCUMENTATION LOCATION

*This table is used to indicate where mandatory measures are documented in the plan set or construction documentation.*

| 01 | | 02 |
|---|---|---|
| Compliance with Mandatory Measures documented through MCH Mandatory Measures Note Block | Yes | Plan sheet or construction document location: M-Sheets |

| **CERTIFICATE OF COMPLIANCE** | | | **NRCC-MCH-E** |
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| **Project Address:** | 1234 Main St. | **Date Prepared:** | 10/31/2023 |

## DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

**I certify that this Certificate of Compliance documentation is accurate and complete.**

| Documentation Author Name: | Documentation Author Signature: |
|---|---|
| Company:<br>DEBUG | Signature Date: |
| Address: | CEA/ HERS Certification Identification (if applicable): |
| City/State/Zip: | Phone: |

## RESPONSIBLE PERSON'S DECLARATION STATEMENT

I certify the following under penalty of perjury, under the laws of the State of California:

1. The information provided on this Certificate of Compliance is true and correct.
2. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer)
3. The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.
4. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.
5. I will ensure that a completed signed copy of this Certificate of Compliance shall be made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a completed signed copy of this Certificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy.

| Responsible Designer Name:<br>Robert Harper, P.E | Responsible Designer Signature: |
|---|---|
| Company:<br>Harper Associates | Date Signed:<br>2023-10-31 |
| Address:<br>4519 E. Hwy 20 | License:<br>ML-2039 |
| City/State/Zip:<br>Sacramento CA 98776 | Phone:<br>(916) 555-9245 |