

CITY OF MILPITAS

Building & Safety Department
455 E. Calaveras Blvd.
Milpitas, CA 95035
408-586-3240
www.ci.milpitas.ca.gov



RESIDENTIAL AIR CONDITIONING, REPLACEMENT

1. PERMIT INFORMATION:

- The replacement of existing air conditioning equipment requires a mechanical permit. If the work is for installation of new equipment and not replacement of existing, a separate electrical permit must be obtained. Refer to the handout "*Air Conditioning, New*".
- This permit does not include replacement or upgrading of the existing electrical panel or service (a separate electrical permit must be obtained).
- Homeowners Association:** If the property is regulated by a Home Owners Association, any exterior work must have written approval of the Association and the written approval must be attached to the permit.
- A Building Permit may be issued only to a State of California Licensed Contractor or the Homeowner.
- If the work is performed by the Homeowner personally or by his/her workers, and an inspection indicates the work cannot be completed satisfactorily, then a licensed contractor must perform the work.
- If the Homeowner hires workers, State Law requires the Homeowner to obtain Worker's Compensation Insurance. Proof of this insurance is required prior to inspection.

2. INSTALLATION REQUIREMENTS:

- Building Codes:** All work must comply with the 2010 California Building Code (CBC), 2010 California Residential Code (CRC), 2010 California Mechanical Code (CMC), 2010 California Electrical Code (CEC), 2010 California Energy Code based upon 2008 Building Energy Efficiency Standards (CEnc) and 2011 Milpitas Municipal Code (MMC).
- Equipment must be installed in accordance with the manufacturer's requirements.
- Air conditioning condenser units must be installed a minimum 3 feet from the property line.
- Provide a minimum 3" slab underneath condenser and attach unit to the slab.
- Condensate drain shall be discharged into an approved plumbing fixture via an indirect waste connection, or onto soil on the exterior of the building (soil must be sloped to drain away from the building), per CMC 309.1.
- Coils installed in attics or furred spaces shall have an additional watertight pan installed with min. 3/4" secondary drain to a location that can be readily observed (like above a door or window) per CMC 309.2.
- Attic installations must comply with the code requirements for access, walkway, working platform, headroom, lighting and electrical outlet. Refer to the separate handout "*Furnace Attic Installation*" for additional information.
- The existing electrical service must be adequate for the new air conditioning load.

- New circuit breakers must be listed and approved for installation in the panel.
- The panel must be labeled (CEC 408.4).
- A readily accessible approved disconnect must be installed on the electric supply adjacent to and in sight from the equipment (CMC 308.0). A clear working space 30" wide x 36" deep must be provided in front of the disconnect (CEC 110.26(A)).
- A 15 or 20 amp receptacle outlet must be installed at an accessible location for the servicing of the heating and air-conditioning equipment. The receptacle shall be located on the same level and within 25 feet of the equipment. The receptacle outlet shall not be connected to the load side of the equipment disconnecting means. (CMC 308.0) (CEC 210.63)

3. **ENERGY REQUIREMENTS:**

- Low-rise residential buildings must comply with all applicable mandatory measures of the California Energy Code. Refer to the attached form MF-1R for a list of the mandatory requirements.
- Equipment must comply with the minimum equipment efficiencies listed on the attached CF-1R-ALT-HVAC form.
 - Minimum cooling efficiencies for central air conditioners and heat pumps less than 65,000 Btu/Hr shall be a minimum of 13.0 SEER (Seasonal Energy Efficiency Ratio).
 - Central forced air system fans shall have airflow greater than 350 CFM/ton of nominal cooling capacity and a fan watt draw less than 0.58 W/CFM per Residential Appendix RA3.
- Title 24 Energy Compliance Reports:** The following forms must be filled out and submitted with the permit application, or for online permits, attached to the permit:
 - Mandatory Measures form MF-1R.
 - Certificate of Compliance form CF-1R ALT-HVAC.
 - Installation Certificate CF-6R-MECH-04.

4. **INSPECTION PROCEDURES:**

- A rough inspection shall be scheduled if any work is inside walls or ceilings and will be covered with finish materials. A final inspection should be scheduled after all work is complete. For each inspection, the Permit Card with the Energy Compliance Report forms completely filled out and attached, and the Approved Job Copy of the Drawings (if any) must be presented to the inspector. Permits expire 180 days after issuance or last inspection passed, whichever is the latest.

5. **QUESTIONS:**

- If you have any questions regarding your project contact the Building & Safety Department at (408) 586-3240.



CITY OF MILPITAS

BUILDING AND SAFETY DEPARTMENT

455 East Calaveras Boulevard, Milpitas, CA 95035-5479 – Tel. 408.586.3240, Fax 408.586.3285

www.ci.milpitas.ca.gov

2008 Building Energy Efficiency Standards Residential HVAC Alterations Climate Zone 4

BUSINESS AND PROFESSIONS CODE, SECTION 7110

Willful or deliberate disregard and violation of the building laws, including the California Building Code, and local permit requirements constitutes a cause for disciplinary action from the Contractors State License Board working in conjunction with the local building department. This action may consist of fines up to \$5,000 per violation or suspension/revocation of a contractor's license.

WHEN IS A PERMIT REQUIRED?

A written construction permit shall be obtained from the enforcement agency prior to the erection, construction, reconstruction, installation, relocation, or alteration of any mechanical system, except as permitted in Appendix Chapter 1, Section 112.2 of the 2007 California Mechanical Code. Projects requiring permits include, but are not limited to:

- New HVAC installation
- HVAC Changeout
- Replacement of furnace, coil, FAU, or condenser
- Relocation of an existing HVAC unit
- Adding or replacing more than 40 ft. ducting in unconditioned space

2008 BUILDING ENERGY EFFICIENCY STANDARDS (Tile 24, Part 6) REQUIREMENTS INCLUDE:

1. Heating equipment must have a minimum 78% AFUE (Exception: Wall & floor furnaces; room heaters).
2. Central air conditioners & heat pumps less than 65,000 Btu/hr must have a minimum 13 SEER.
3. Newly installed or replaced ducts must have a minimum insulation value of R-4.2.
4. A setback type thermostat (24 hr clock with four set points) is required for all alterations.
5. New or replacement ducts must meet the mandatory requirements of Section 150(m):
 - All joints and openings in the HVAC system must be sealed.
 - Only UL 181, UL 181A or UL181B approved types or mastic shall be used to seal duct openings.
 - Connections of metal ducts and the inner core of flex ducts shall be mechanically fastened. Flex ducts must be connected using a metal sleeve/coupling.
 - Flex ducts that are suspended must be supported every 4 ft. max for horizontal runs with no more than 2" of sag between supports and 6 ft. max for vertical runs.
6. The **CF-6R-MECH-04** must be completed and signed by the installing contractor. The Inspector will collect this form and verify that the model numbers are the same as the installed equipment.

Mandatory Measures Summary

MF-1R

Residential

Site Address:

Enforcement Agency:

City of Milpitas

Date:

NOTE: Low-rise residential buildings subject to the Standards must comply with all applicable mandatory measures listed, regardless of the compliance approach used. More stringent energy measures listed on the Certificate of Compliance (CF-1R, CF-1R-ADD, or CF-1R-ALT Form) shall supersede the items marked with an asterisk () below. This Mandatory Measures Summary shall be incorporated into the permit documents and the applicable features shall be considered by all parties as minimum component performance specifications whether they are shown elsewhere in the documents or in this summary. Submit all applicable sections of the MF-1R Form with plans.*

DESCRIPTION

Space Conditioning, Water Heating and Plumbing System Measures:

§110-§113: HVAC equipment, water heaters, showerheads, faucets and all other regulated appliances are certified by the Energy Commission.

§113(c)5: Water heating recirculation loops serving multiple dwelling units and High-Rise residential occupancies meet the air release valve, backflow prevention, pump isolation valve, and recirculation loop connection requirements of §113(c)5.

§115: Continuously burning pilot lights are prohibited for natural gas: fan-type central furnaces, household cooking appliances (appliances with an electrical supply voltage connection with pilot lights that consume less than 150 Btu/hr are exempt), and pool and spa heaters.

§150(h): Heating and/or cooling loads are calculated in accordance with ASHRAE, SMACNA or ACCA.

§150(i): Heating systems are equipped with thermostats that meet the setback requirements of Section 112(c).

§150(j)1A: Storage gas water heaters rated with an Energy Factor no greater than the federal minimal standard are externally wrapped with insulation having an installed thermal resistance of R-12 or greater.

§150(j)1B: Unfired storage tanks, such as storage tanks or backup tanks for solar water-heating system, or other indirect hot water tanks have R-12 external insulation or R-16 internal insulation where the internal insulation R-value is indicated on the exterior of the tank.

§150(j)2: First 5 feet of hot and cold water pipes closest to water heater tank, non-recirculating systems, and entire length of recirculating sections of hot water pipes are insulated per Standards Table 150-B.

§150(j)2: Cooling system piping (suction, chilled water, or brine lines), and piping insulated between heating source and indirect hot water tank shall be insulated to Table 150-B and Equation 150-A.

§150(j)2: Pipe insulation for steam hydronic heating systems or hot water systems >15 psi, meets the requirements of Standards Table 123-A.

§150(j)3A: Insulation is protected from damage, including that due to sunlight, moisture, equipment maintenance, and wind.

§150(j)3A: Insulation for chilled water piping and refrigerant suction lines includes a vapor retardant or is enclosed entirely in conditioned space.

§150(j)4: Solar water-heating systems and/or collectors are certified by the Solar Rating and Certification Corporation.

Ducts and Fans Measures:

§150(m)1: All air-distribution system ducts and plenums installed, are sealed and insulated to meet the requirements of CMC Sections 601, 602, 603, 604, 605 and Standard 6-5; supply-air and return-air ducts and plenums are insulated to a minimum installed level of R-4.2 or enclosed entirely in conditioned space. Openings shall be sealed with mastic, tape or other duct-closure system that meets the applicable requirements of UL 181, UL 181A, or UL 181B or aerosol sealant that meets the requirements of UL 723. If mastic or tape is used to seal openings greater than 1/4 inch, the combination of mastic and either mesh or tape shall be used.

§150(m)1: Building cavities, support platforms for air handlers, and plenums defined or constructed with materials other than sealed sheet metal, duct board or flexible duct shall not be used for conveying conditioned air. Building cavities and support platforms may contain ducts. Ducts installed in cavities and support platforms shall not be compressed to cause reductions in the cross-sectional area of the ducts.

§150(m)2D: Joints and seams of duct systems and their components shall not be sealed with cloth back rubber adhesive duct tapes unless such tape is used in combination with mastic and draw bands.

§150(m)7: Exhaust fan systems have back draft or automatic dampers.

§150(m)8: Gravity ventilating systems serving conditioned space have either automatic or readily accessible, manually operated dampers.

§150(m)9: Insulation shall be protected from damage, including that due to sunlight, moisture, equipment maintenance, and wind. Cellular foam insulation shall be protected as above or painted with a coating that is water retardant and provides shielding from solar radiation that can cause degradation of the material.

§150(m)10: Flexible ducts cannot have porous inner cores.

§150(o): All dwelling units shall meet the requirements of ANSI/ASHRAE Standard 62.2-2007 Ventilation and Acceptable Indoor Air Quality in Low-Rise Residential Buildings. Window operation is not a permissible method of providing the Whole Building Ventilation required in Section 4 of that Standard.

Simplified Prescriptive Certificate of Compliance: 2008 Residential HVAC Alterations CF-1R-ALT-HVAC

Climate Zones 1 and 3 - 7

Site Address:		Enforcement Agency:		Date:	Permit #:
Equipment Type¹	List Minimum Efficiency²		Conditioned Floor Area	Duct insulation requirement	Thermostat
<input type="checkbox"/> Packaged Unit <input type="checkbox"/> Furnace <input type="checkbox"/> Indoor Coil <input type="checkbox"/> Condensing Unit <input type="checkbox"/> Other _____	<input type="checkbox"/> AFUE _____ <input type="checkbox"/> SEER _____ <input type="checkbox"/> EER _____	<input type="checkbox"/> COP _____ <input type="checkbox"/> HSPF _____ <input type="checkbox"/> Resistance _____	Served by system _____ sf	Over 40 ft of ducts added or replaced in unconditioned space <input type="checkbox"/> R 6 (CZ 1, 3-5)	<input type="checkbox"/> Setback <i>(If not already present, must be installed)</i>
1. Equipment Type: Choose the equipment being installed; if more than one system, use another CF-1R-ALT-HVAC for each system. 2. Minimum Equipment Efficiencies: 13 SEER, 78% AFUE, 7.7HSPF for typical residential systems.					
Contractor (Documentation Author's /Responsible Designer's Declaration Statement) <ul style="list-style-type: none"> I certify that this Certificate of Compliance documentation is accurate and complete. I am eligible under Division 3 of the California Business and Professions Code to accept responsibility for the design identified on this Certificate of Compliance. I certify that the energy features and performance specifications for the design identified on this Certificate of Compliance conform to the requirements of Title 24, Parts 1 and 6 of the California Code of Regulations. The design features identified on this Certificate of Compliance are consistent with the information documented on other applicable compliance forms, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with the permit application. 					
Name:			Signature:		
Company:				Date:	
Address:				License:	
City/State/Zip:				Phone:	

Site Address:	Enforcement Agency:	Permit Number:
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Space Conditioning Systems

Heating Equipment

Equip Type (package-heat pump)	CEC Certified Mfr. Name and Model Number	ARI Reference Number ²	# of Identical Systems	Efficiency (AFUE, etc.) ^{1,3} (≥CF-1R value) ⁴	Duct Location (attic, crawl-space, etc.)	Duct R-value	Heating Load (Btu/hr)	Heating Capacity (Btu/hr)

Cooling Equipment

Equip Type (package heat pump)	CEC Certified Mfr. Name and Model Number	ARI Reference Number ²	# of Identical Systems	Efficiency (SEER and EER) ^{1,3} (≥CF-1R value) ⁴	Duct Location (attic, crawl-space, etc.)	Duct R-value	Cooling Load (Btu/hr)	Cooling Capacity (Btu/hr)

1. If project is new construction, see Footnotes to Standards Table 151-B and Table 151-C for duct ceiling alternative compliance.
2. ARI Reference Number can be found by entering the equipment model number at <http://www.aridirectory.org/ari/ac.php#>
3. Listed efficiency on this page must be greater than or equal (≥) to the value shown on the CF-1R form.
4. When CF-1R is reference it is also applicable to the CF-1R, CF-1R-AA or CF-1R-ALT

ALL BOXES MUST BE CHECKED TO BE A VALID FORM

- §110-§113: HVAC equipment is certified by the California Energy Commission.
- §150(h): Heating and/or cooling loads calculated in accordance with ASHRAE, SMACNA, or ACCA.
- §150(i): Setback Thermostat on all applicable heating and/or cooling systems meet the requirements of §112(c).
- §150(j)2: Pipe insulation for cooling system refrigerant suction, chilled water and brine lines meets minimum requirements of Table 150-B and includes a vapor retardant or is enclosed entirely in conditioned space.

INSTALLATION CERTIFICATE		CF-6R-MECH-04
Space Conditioning Systems, Ducts and Fans		(Page 2 of 2)
Site Address:	Enforcement Agency:	Permit Number:

Ducts and Fans

§150(m): Duct and Fans

- 1. All air-distribution system ducts and plenums installed, sealed and insulated to meet the requirements of CMC Sections 601, 602, 603, 604, 605 and Standard 6-5; supply-air and return-air ducts and plenums are insulated to a minimum installed level of R-4.2 or enclosed entirely in conditioned space. Openings shall be sealed with mastic, tape or other duct-closure system that meets the applicable requirements of UL 181, UL 181A, or UL 181B or aerosol sealant that meets the requirements of UL 723. If mastic or tape is used to seal openings greater than 1/4 inch, the combination of mastic and either mesh or tape shall be used; and
- 1. Building cavities, support platforms for air handlers, and plenums defined or constructed with materials other than sealed sheet metal, duct board or flexible duct shall not be used for conveying conditioned air. Building cavities and support platforms may contain ducts. Ducts installed in cavities and support platforms shall not be compressed to cause reductions in the cross-sectional area of the ducts.
- 2D. Joints and seams of duct systems and their components shall not be sealed with cloth back rubber adhesive duct tapes unless such tape is used in combination with mastic and draw bands.
- 7. Exhaust fan systems have back draft or automatic dampers.
- 8. Gravity ventilating systems serving conditioned space have either automatic or readily accessible, manually operated dampers.
- 9. Protection of Insulation. Insulation shall be protected from damage, including that due to sunlight, moisture, equipment maintenance, and wind. Cellular foam insulation shall be protected as above or painted with a coating that is water retardant and provides shielding from solar radiation that can cause degradation of the material.
- 10. Flexible ducts cannot have porous inner cores.

DECLARATION STATEMENT

- I certify under penalty of perjury, under the laws of the State of California, the information provided on this form is true and correct.
- I am eligible under Division 3 of the Business and Professions Code to accept responsibility for construction, or an authorized representative of the person responsible for construction (responsible person).
- I certify that the installed features, materials, components, or manufactured devices identified on this certificate (the installation) conforms to all applicable codes and regulations, and the installation is consistent with the plans and specifications approved by the enforcement agency.
- I reviewed a copy of the Certificate of Compliance (CF-1R) form approved by the enforcement agency that identifies the specific requirements for the installation. I certify that the requirements detailed on the CF-1R that apply to the installation have been met.
- **I will ensure that a completed, signed copy of this Installation Certificate shall be posted, or 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 signed copy of this Installation Certificate is required to be included with the documentation the builder provides to the building owner at occupancy.**

Company Name: (Installing Subcontractor or General Contractor or Builder/Owner)		
Responsible Person's Name:		Responsible Person's Signature:
CSLB License:	Date Signed:	Position With Company (Title):