

Alterations to existing buildings

Residential forms

CF-1R-ALT = The form that tells what you are going to do to the building.

CF-6R-ALT = The installer/contractor form that you use to document what you did install and lists the results of any self-testing by the contractor.

Nonresidential forms

MECH-1-C and MECH-2-C = The forms that tell what you are going to do to the building.

MECH-5-A Parts 1 and 2 = The installer/contractor form that you use to document what you did install and lists the results of any self-testing by the contractor.

MECH-5-A Part 3 = The Raters form that documents the results of third party verification.

MECH-1-A = Summary of all required tests. Needs to be signed by the “Testing Authority”, which is the person with overall responsibility for compiling the results from all tests.

Equivalent Forms
Residential vs. Non-Residential

Residential Form	Purpose	Non-Res. Form
	Alterations to Existing Buildings (Change Outs)	
CF-1R-ALT	Primary compliance document. Lists required energy features for project. Shows “what you’re supposed to do to the building”.	MECH-1-C MECH-2-C
CF-6R-ALT	Installer’s/Contractor’s form. Lists the installed features and the results of any self-testing by the contractor.	MECH-5-A Parts 1 and 2
CF-4R-ALT	The rater’s form. Documents the results of third party verification.	MECH-5-A Part 3
(none)	Summary of all required tests. Needs to be signed by the “Testing Authority*”, which is the person with overall responsibility for compiling the results from all tests.	MECH-1-A (mis-labeled LTG-1-A)
	New Construction – Prescriptive Approach	
CF-1R (handwritten)	Primary compliance document. Lists required energy features for project. Shows “what you’re supposed to do to the building”.	MECH-1-C MECH-2-C
CF-6R	Installer’s/Contractor’s form. Lists the installed features and the results of any self-testing by the contractor.	MECH-5-A Parts 1 and 2
CF-4R	The rater’s form. Documents the results of third party verification.	MECH-5-A Part 3
(none)	Summary of all required tests. Needs to be signed by the “Testing Authority”, which is the person with overall responsibility for compiling the results from all tests.	MECH-1-A (mis-labeled LTG-1-A)
	New Construction – Performance Method	
CF-1R (Computer Generated)	Primary compliance document. Lists required energy features for project. Shows “what you’re supposed to do to the building”.	PERF-1, MECH-1-C, MECH-2-C
CF-6R	Installer’s/Contractor’s form. Lists the installed features and the results of any self-testing by the contractor.	MECH-5-A Parts 1 and 2
CF-4R	The rater’s form. Documents the results of third party verification.	MECH-5-A Part 3
(none)	Summary of all required tests. Needs to be signed by the “Testing Authority”, which is the person with overall responsibility for compiling the results from all tests.	MECH-1-A (mis-labeled LTG-1-A)

* The “Testing Authority” could be the building owner, general contractor, architect, etc. It could be the mechanical contractor only if the required tests are only related to HVAC.

CERTIFICATE OF COMPLIANCE (Part 1 of 3) MECH-1-C

PROJECT NAME		DATE
PROJECT ADDRESS		_____ Building Permit
PRINCIPAL DESIGNER-MECHANICAL	TELEPHONE	
DOCUMENTATION AUTHOR	TELEPHONE	_____ Checked by/Date Enforcement Agency Use

GENERAL INFORMATION

DATE OF PLANS	BUILDING CONDITIONED FLOOR AREA	CLIMATE ZONE
BUILDING TYPE	<input type="checkbox"/> NONRESIDENTIAL <input type="checkbox"/> HIGH RISE RESIDENTIAL	<input type="checkbox"/> HOTEL/MOTEL GUEST ROOM
PHASE OF CONSTRUCTION	<input type="checkbox"/> NEW CONSTRUCTION <input type="checkbox"/> ADDITION <input type="checkbox"/> ALTERATION	<input type="checkbox"/> UNCONDITIONED (file affidavit)
PROOF OF ENVELOPE COMPLIANCE	<input type="checkbox"/> PREVIOUS ENVELOPE PERMIT <input type="checkbox"/> ENVELOPE COMPLIANCE ATTACHED	

STATEMENT OF COMPLIANCE

This Certificate of Compliance lists the building features and performance specifications needed to comply with Title 24, Parts 1 and 6 of the California Code of Regulations. This certificate applies only to building mechanical requirements.

The documentation preparer hereby certifies that the documentation is accurate and complete.

DOCUMENTATION AUTHOR	SIGNATURE	DATE
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The Principal Mechanical Designer hereby certifies that the proposed building design represented in this set of construction documents is consistent with the other compliance forms and worksheets, with the specifications, and with any other calculations submitted with this permit application. The proposed building has been designed to meet the mechanical requirements contained in the applicable parts of Sections 100, 101, 102, 110 through 115, 120 through 125, 142, 144 and 145.

- ✓
- The plans & specifications meet the requirements of Part 6 (Sections 10-103a).
 - The installation certificates meet the requirements of Part 6 (10-103a 3).
 - The operation & maintenance information meets the requirements of Part 6 (10-103c).

Please check one: (These sections of the Business and Professions Code are printed in full in the Nonresidential Manual.)

- I hereby affirm that I am eligible under the provisions of Division 3 of the Business and Professions Code to sign this document as the person responsible for its preparation; and that I am licensed in the State of California as a civil engineer or mechanical engineer, or I am a licensed architect.
- I affirm that I am eligible under the exemption to Division 3 of the Business and Professions Code by Section 5537.2 or 6737.3 to sign this document as the person responsible for its preparation; and that I am a licensed contractor performing this work.
- I affirm that I am eligible under the exemption to Division 3 of the Business and Professions Code to sign this document because it pertains to a structure or type of work described pursuant to Business and Professions Code sections 5537, 5538, and 6737.1.

PRINCIPAL MECHANICAL DESIGNER-NAME	SIGNATURE	DATE	LIC. #
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INSTRUCTIONS TO APPLICANT MECHANICAL COMPLIANCE & WORKSHEETS (check box if worksheet is included)

<input type="checkbox"/> MECH-1-C	Certificate of Compliance. Part 1 of 3, 2 of 3, 3 of 3 are required on plans for all submittals
<input type="checkbox"/> MECH-2-C	Certificate of Compliance. Part 1 of 3, 2 of 3, 3 of 3 are required for all submittals, but may be on plans.
<input type="checkbox"/> MECH-3-C	Certificate of Compliance are required for all submittals with mechanical ventilation, but may be on plans.
<input type="checkbox"/> MECH-4-C	Certificate of Compliance are required for all prescriptive submittals, but may be on plans.

CERTIFICATE OF COMPLIANCE

(Part 2 of 3)

MECH-1-C

PROJECT NAME

DATE

Designer:

This form is to be used by the designer and attached to the plans. Listed below are all the acceptance tests for mechanical systems. The designer is required to check the boxes by all acceptance tests that apply and list all equipment that requires an acceptance test. If all equipment of a certain type requires a test, list the equipment description and the number of systems to be tested in parentheses. The NJ number designates the Section in the Appendix of the Nonresidential ACM Manual that describes the test. Also indicate the person responsible for performing the tests (i.e. the installing contractor, design professional or an agent selected by the owner). Since this form will be part of the plans, completion of this section will allow the responsible party to budget for the scope of work appropriately.

Building Departments:

Systems Acceptance. Before occupancy permit is granted for a newly constructed building or space, or a new space-conditioning system serving a building or space is operated for normal use, all control devices serving the building or space shall be certified as meeting the Acceptance Requirements for Code Compliance.

In addition a Certificate of Acceptance, MECH-1-A, Form shall be submitted to the building department that certifies plans, specifications, installation certificates, and operating and maintenance information meet the requirements of §10-103(b) and Title 24 Part 6.

Test Description

Test Performed By:

✓ MECH-2-A: Ventilation System Acceptance Document

- Variable Air Volume Systems Outdoor Air Acceptance
- Constant Air Volume Systems Outdoor Air Acceptance

Test required on all New systems both New Construction and Retrofit.

Equipment requiring acceptance testing _____

✓ MECH-3-A: Packaged HVAC Systems Acceptance Document

Test required on all New packaged systems both New Construction and Retrofit.

Equipment requiring acceptance testing _____

✓ MECH-4-A: Air-Side Economizer Acceptance Document

Test required on all new air-side economizers for both New Construction and Retrofit. Units with economizers that are installed at the factory and certified with the Commission do not require equipment testing but do require construction inspection.

Equipment requiring acceptance testing _____

CERTIFICATE OF COMPLIANCE

(Part 3 of 3)

MECH-1-C

PROJECT NAME	DATE
Test Description	Test Performed By:
<p>✓ <input type="checkbox"/> MECH-5-A: Air Distribution Acceptance Document <i>This test required If the unit serves 5,000 ft² of space or less and 25% or more of the ducts are in nonconditioned or semiconditioned space like an attic. <u>New</u> systems that meet the above requirements. <u>Retrofit</u> systems that meet the above requirements and either extend ducts, replace ducts or replace the packaged unit.</i></p> <p>Equipment requiring acceptance testing _____</p> <p>_____</p>	
<p>✓ <input type="checkbox"/> MECH-6-A : Demand Control Ventilation Acceptance Document <i>All new DCV controls installed on new or existing packaged systems must be tested.</i></p> <p>Equipment requiring acceptance testing _____</p> <p>_____</p>	
<p>✓ <input type="checkbox"/> MECH-7-A: Supply Fan Variable Flow Control Acceptance Document <i>All new VAV fan volume controls installed on new or existing systems must be tested.</i></p> <p>Equipment requiring acceptance testing _____</p> <p>_____</p>	
<p>✓ <input type="checkbox"/> MECH-8-A: •Hydronic System Control Acceptance Document</p> <ul style="list-style-type: none">• Variable Flow Controls, <i>Applies to chilled and hot water systems.</i>• Automatic Isolation Controls, <i>Applies to new boilers and chillers and the primary pumps are connected to a common header.</i>• Supply Water Temperature Reset Controls, <i>Applies to new constant flow chilled and hot water systems that have a design capacity greater than or equal to 500,000 Btu/hr.</i>• Water-loop Heat Pump Controls, <i>Applies to all new waterloop heat pump systems where the combined loop pumps are greater than 5 hp.</i>• Variable Frequency Control, <i>Applies to all new distribution pumps on new variable flow chilled, hydronic heat pump or condenser water systems where the pumps motors are greater than 5 hp.</i> <p>Equipment requiring acceptance testing _____</p> <p>_____</p>	

AIR SYSTEM REQUIREMENTS

(Part 1 of 3)

MECH-2-C

PROJECT NAME:

DATE:

ITEM or SYSTEM TAG(S)		AIR SYSTEMS, Central or Single Zone	
MANDATORY MEASURES		Reference on Plans or Specification ¹	
T-24 Section			
Heating Equipment Efficiency	112(a)		
Cooling Equipment Efficiency	112(a)		
Heat Pump Thermostat	112(b)		
Furnace Controls	112(c), 115(a)		
Natural Ventilation	121(b)		
Minimum Ventilation	121(b)		
VAV Minimum Position Control	121(c)		
Demand Control Ventilation	121(c)		
Time Control	121(c), 122(e)		
Setback and Setup Control	122(e)		
Outdoor Damper Control	122(f)		
Isolation Zones	122(g)		
Pipe Insulation	123		
Duct Insulation	124		
PRESCRIPTIVE MEASURES			
Calculated Heating Capacity ²	144(a & b)		
Proposed Heating Capacity ²	144(a & b)		
Calculated Cooling Capacity ²	144(a & b)		
Proposed Cooling Capacity ²	144(a & b)		
Fan Control	144(c)		
DP Sensor Location	144(c)		
Supply Pressure Reset (DDC only)	144(c)		
Simultaneous Heat/Cool	144(d)		
Economizer	144(e)		
Heat and Cool Air Supply Reset	144(f)		
Duct Sealing	144(k)		

1: For each central and single zone air systems (or group of similar units) fill in the reference to sheet number and/or specification section and paragraph number where the required features are documented. If a requirement is not applicable, put "N/A" in the column.

2: Not required for hydronic heating or cooling. Either enter value here or put in reference to plans and specifications per footnote 1.

WATER SIDE SYSTEM REQUIREMENTS

(Part 2 of 3)

MECH-2-C

PROJECT NAME:

DATE:

	WATER ² SIDE SYSTEMS: Chillers, Towers, Boilers, Hydronic Loops		
ITEM or SYSTEM TAG(S)			
MANDATORY MEASURES	Reference on Plans or Specification ¹		
Equipment Efficiency	112(a)		
Pipe Insulation	123		
PRESCRIPTIVE MEASURES			
Calculated Capacity	144(a & b)		
Proposed Capacity	144(a & b)		
Tower Fan Controls	144(h)		
Tower Flow Controls	144(h)		
Variable Flow System Design	144(j)		
Chiller and Boiler Isolation	144(j)		
CHW and HHW Reset Controls	144(j)		
WLHP Isolation Valves	144(j)		
VSD on CHW, CW & WLHP Pumps >5HP	144(j)		
DP Sensor Location	144(j)		

1: For each chiller, cooling tower, boiler, and hydronic loop (or groups of similar equipment) fill in the reference to sheet number and/or specification section and paragraph number where the required features are documented. If a requirement is not applicable, put "N/A" in the column.

2. Water side systems include wet side systems using other liquids such as glycol or brine.

SERVICE HOT WATER & POOL REQUIREMENTS (Part 3 of 3) MECH-2-C

PROJECT NAME:	DATE:		
ITEM or SYSTEM TAG(S)	Service Hot Water, Pool Heating		
T-24 Section	Reference on Plans or Specification¹		
Water Heater Certification	§113 (a)		
Water Heater Efficiency	§113 (b)		
Service Water Heating Installation	§113 (c)		
Pool and Spa Efficiency and Control	§114 (a)		
Pool and Spa Installation	§114 (b)		
Pool Heater – No Pilot Light	§115 (c)		
Spa Heater – No Pilot Light	§115 (d)		
<p>1: For each water heater, pool heat and domestic water loop (or groups of similar equipment) fill in the reference to sheet number and/or specification section and paragraph number where the required features are documented. If a requirement is not applicable, put "N/A" in the column.</p>			

2005 ACCEPTANCE REQUIREMENTS FOR CODE COMPLIANCE

MECH-5-A

NJ.5.1 Air Distribution Acceptance Document

Part 1 of 3

PROJECT NAME	DATE	TELEPHONE
PROJECT ADDRESS		_____ Checked by/Date Enforcement Agency Use
TESTING AUTHORITY		
AIR DISTRIBUTOR NAME / DESIGNATION	PERMIT NUMBER	

Intent: New single zone supply ductwork shall not exceed a 6% leakage rate per §144(k) or §149D i, existing single zone ductwork shall not exceed 15% leakage or other compliance path per §149D ii or §149E.

Construction Inspection

1 Scope of test – New Buildings – this test required on New Buildings only if all checkboxes 1(a) through 1(c) are checked

Existing Buildings – this test required if 1(a) through 1(d) are checked	
Ductwork conforms to the following (note if any of these are not checked, then this test is not required):	
<input type="checkbox"/>	1a) Connected to a constant volume, single zone air conditioners, heat pumps, or furnaces
<input type="checkbox"/>	1b) Serves less than 5000 square feet of floor area
<input type="checkbox"/>	1c) Has more than 25% duct surface area located in one or more of the following spaces
	- Outdoors
	- A space directly under a roof where the U-factor of the roof is greater than U-factor of the ceiling
	- A space directly under a roof with fixed vents or openings to the outside or unconditioned spaces
	- An unconditioned crawlspace
<input type="checkbox"/>	1d) A duct is extended or any of the following replaced: air handler, outdoor condensing unit of a split system, cooling or heating coil, or the furnace heat exchanger.

2 Instrumentation to perform test includes:

- a. Duct Blaster

3 Material and Installation. Complying new duct systems shall have a checked box for all of the following categories a through f.

a. Choice of drawbands (check one of the following)	
<input type="checkbox"/>	Stainless steel worm-drive hose clamps
<input type="checkbox"/>	UV-resistant nylon duct ties
<input type="checkbox"/>	b. Flexible ducts are not constricted in any way
<input type="checkbox"/>	c. Duct leakage tests performed before access to ductwork and connections are blocked
<input type="checkbox"/>	d. Joints and seams are not sealed with cloth back rubber adhesive tape unless used in combination with Mastic and drawbands
<input type="checkbox"/>	e. Duct R-values are verified R-8 per 124(a)
<input type="checkbox"/>	f. Ductwork located outdoors has insulation that is protected from damage and suitable for outdoor service

Certification Statement

I certify that all statements are true on this MECH-5-A form including the PASS/FAIL Evaluation. I affirm I am eligible to sign this form under the provisions described in the Statement of Acceptance on form MECH-1-A

Name:		
Company:		
Signature:		Date:

INSTALLER CERTIFICATION

Part 2 of 3 **MECH-5-A**

PROJECT NAME	DATE
SITE ADDRESS	PERMIT NUMBER

COPY TO: Building Department, Builder, Building Owner at Occupancy, HERS Provider

VERIFIED DUCT TIGHTNESS BY INSTALLER

The installing contractor must pressure test every new HVAC systems that meet the requirements of Section 144(k) and every retrofit to existing HVAC systems that meet the requirements of section 149 D or E (see Scope of Test under Construction Inspection)

RATED FAN FLOW (applies to all systems)		Measured Values	
1	Cooling capacity or for heating only units heating capacity		
	a) Cooling capacity (for all units but heating only units) in tons		
	b) Heating capacity (for heating only units) kBtu/h		
2	Fan flow calculation		
	a) Cooling capacity in tons [_____ (Line # 1a) x 400 cfm/ton]		
	b) Heating only cap. kBtu/h [_____ (Line # 1b) x (21.7 cfm/kBtu/h)]		
3	Total calculated supply fan flow 2(a) or 2(b) cfm		

NEW CONSTRUCTION OR ENTIRE NEW DUCT SYSTEM ALTERATION:

Duct Pressurization Test Results (CFM @ 25 Pa)			
4	Enter Tested Leakage Flow in CFM:		✓ ✓
5	Pass if Leakage Percentage <input type="checkbox"/> 6%: [_____ (Line # 4) / _____ (Line # 3)] x 100	%	<input type="checkbox"/> Pass <input type="checkbox"/> Fail

ALTERATIONS: Pre-existing Duct System with Duct Alteration and/or HVAC Equipment Change-Out

6	Enter Tested Leakage Flow in CFM: Pre-Test of Existing Duct System Prior to Duct System Alteration and/or Equipment Change-Out.		
7	Enter Tested Leakage Flow in CFM: Final Test of New Duct System or Altered Duct System for Duct System Alteration and/or Equipment Change-Out.		

TEST OR VERIFICATION STANDARDS: For Altered Duct System and/or HVAC Equipment Change-Out Use one of the following Three Tests or Verification Standards for compliance:

			✓ ✓
8	Pass if Leakage Percentage <input type="checkbox"/> 15% [_____ (Line # 7) / _____ (Line # 3)] x 100	%	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
9	Pass if Leakage Reduction Percentage <input type="checkbox"/> 60% Leakage reduction = [1 - [_____ (Line#7) / _____ (Line#6)]] x 100	%	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
10	Pass if all Accessible Leaks are sealed as confirmed by Visual Inspection and Verification by HERS rater (sampling rate 100%)		<input type="checkbox"/> Pass <input type="checkbox"/> Fail
	Pass if One of Lines #8 through # 10 pass		<input type="checkbox"/> Pass <input type="checkbox"/> Fail

INSTALLER COMPLIANCE STATEMENT

The building was: Tested at Final Tested at Rough-in

I, the undersigned, verify that the above diagnostic test results and the work I performed associated with the test(s) is in conformance with the requirements for compliance credit. I, the undersigned, also certify that the newly installed or retrofit Air-Distribution System Ducts, Plenums and Fans comply with Mandatory requirements specified in Section 124 of the 2005 Building Energy Efficiency Standards.

Name:			
Company:			
Signature:		Date:	

2005 CERTIFICATE OF ACCEPTANCE (Part 1 of 2) MECH-1-A

PROJECT NAME		DATE
PROJECT ADDRESS		_____ Checked by/Date Enforcement Agency Use
TESTING AUTHORITY	TELEPHONE	

GENERAL INFORMATION

DATE OF BLDG. PERMIT	PERMIT #	BLDG. CONDITIONED FLOOR AREA	CLIMATE ZONE
BUILDING TYPE	<input type="checkbox"/> NONRESIDENTIAL	<input type="checkbox"/> HIGH RISE RESIDENTIAL	<input type="checkbox"/> HOTEL/MOTEL GUEST ROOM
PHASE OF CONSTRUCTION	<input type="checkbox"/> NEW CONSTRUCTION	<input type="checkbox"/> ADDITION	<input type="checkbox"/> ALTERATION <input type="checkbox"/> UNCONDITIONED

STATEMENT OF ACCEPTANCE

This Certificate of Acceptance summarizes the results of the acceptance tests related to building mechanical requirements per Title 24, Part 6. (Sections 10-103.b, 121.f, 122.h, 125.a, 125.b, 125.c, 125.c.5, 125.d)

Please check one:

- I hereby affirm that I am eligible under the provisions of Division 3 of the Business and Professions Code to sign this document as the person responsible for it's preparation; and that I am licensed in the State of California as a civil engineer or mechanical engineer, or I am a licensed architect.
- I affirm that I am eligible under the exemption to Division 3 of the Business and Professions Code by Section 5537.2 or 6737.3 to sign this document as the person responsible for its preparation; and that I am a licensed contractor performing this work.
- I affirm that I am eligible under the exemption to Division 3 of the business and Professions Code to sign this document because it pertains to a structure or type of work described pursuant to Business and Professions Code sections 5537, 5538, and 6737.1.

(These sections of the Business and Professions Code are printed in full in the Nonresidential Manual.)

TESTING AUTHORITY - NAME	SIGNATURE	DATE	LIC.#

INSTRUCTIONS TO APPLICANT

For Detailed instructions on the use of this and all Energy efficiency Standards acceptance forms, please refer to the Nonresidential Manual published by the California Energy Commission.
 Part 1 of 2 - Statement of Acceptance
 Part 2 of 2 - Summary of Acceptance Tests

