Appendix A
Compliance & Acceptance Forms

	Certificate of Compliance Forms and Worksheets		
Envelope	**Mechanical**	**Lighting**	**Outdoor Lighting**
ENV-1-C Certificate of Compliance **ENV-2-C** Envelope Component Method **ENV-3-C** Overall Envelope **Method** **ENV-4-C** Skylight Area Support Worksheet	**MECH-1-C** Certificate of Compliance **MECH-2-C** Air System, Water Side System, Service Hot Water & Pool Requirements **MECH-3-C** Mechanical Ventilation **MECH-4-C** HVAC Misc. Prescriptive Requirements	**LTG-1-C** Certificate of Compliance **LTG-2-C** Indoor Lighting Schedule LTG-3-C Portable Lighting Worksheet **LTG-4-C** Lighting Controls Credit Worksheet **LTG-5-C** Indoor Lighting Power Allowance **LTG-6-C** Tailored Method Worksheet **LTG-7-C** Room Cavity Ratio Worksheet **LTG-8-C** Common Lighting Systems Method **LTG-9-C** Line Voltage Track Lighting Worksheet	**OLTG-1-C** Certificate of Compliance **OLTG-2-C** Lighting Compliance Summary **OLTG-3-C** Illuminated Area Calculation Worksheet **OLTG-4-C** Sign Lighting Compliance
	Certificate of Acceptance Forms and Worksheets		
	Mechanical	**Lighting**	
No Acceptance Requirements Available	**MECH-1-A** Certificate of Acceptance **MECH-2-A** Ventilation Systems – Variable and Constant Volume **MECH-3-**A Packaged HVAC Systems **MECH-4-A** Economizer **MECH-5-A** Air Distribution **MECH-6-A** Demand Control Ventilation **MECH-7-A** Supply Fan VFD **MECH-8-A** Hydronic Systems Control	**LTG-1-A** Certificate of Acceptance **LTG-2-A** Lighting Controls **LTG-3-A** Automatic Daylighting	*No Acceptance Requirements Available*

2005 Compliance Forms

Envelope Forms - Compliance

CERTIFICATE OF COMPLIANCE (Part 1 of 2) ENV-1-C

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

GENERAL INFORMATION

DATE OF PLANS	BUILDING CONDITIONED FLOOR AREA	CLIMATE ZONE

BUILDING TYPE	☐ NONRESIDENTIAL	☐ HIGH-RISE RESIDENTIAL		☐ HOTEL/MOTEL GUEST
	☐ RELOCATABLE – Indicate: ☐ specific climate – list _____ , or ☐ all climates			
PHASE OF CONSTRUCTION	☐ NEW CONSTRUCTION	☐ ADDITION	☐ ALTERATION	☐ UNCONDITIONED (file
METHOD OF ENVELOPE COMPLIANCE	☐ COMPONENT	☐ OVERALL ENVELOPE		
SUPPORTING FORMS SUBMITTED	☐ ENV-2-C (Component)	☐ ENV-3-C (Overall Envelope)		☐ ENV-4-C (Skylight Worksheet)

STATEMENT OF COMPLIANCE

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

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

DOCUMENTATION AUTHOR	SIGNATURE	DATE

The Principal Envelope 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 envelope requirements contained in sections 110, 116 through 118, and 140, 142, 143 or 149 of Title 24, Part 6. **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 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 provisions of 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 Division 3 of the Business and Professions Code to sign this document because it pertains to a structure or type of work described as exempt 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.)

PRINCIPAL ENVELOPE DESIGNER-NAME	SIGNATURE	DATE	LIC. #

ENVELOPE MANDATORY MEASURES

Indicate location on plans of Note Block for Mandatory Measures _____

INSTRUCTIONS TO APPLICANT ENVELOPE COMPLIANCE & WORKSHEETS (check box if worksheet is included)

For detailed instructions on the use of this and all Energy Efficiency Standards compliance forms, please refer to the Nonresidential Manual published by the California Energy Commission.

☐ *ENV-1-C*	Certificate of Compliance. Required on plans for all submittals. Part 2 may be incorporated in schedules on plans.
☐ *ENV-2-C*	Use with the Envelope Component compliance method.
☐ *ENV-3-C*	Use with the Overall Envelope compliance method.
☐ *ENV-4-C*	Optional. Use for the minimum skylight requirements for large enclosed spaces.

CERTIFICATE OF COMPLIANCE (Part 2 of 2) ENV-1-C

Project Name	DATE

OPAQUE SURFACES

A	B	C	D	E		F	G	H	I	J	K
Surface Type	Construction Type	Area	U-factor	Insulation Cavity	Insulation Continuous	Actual Azimuth	Tilt	Condition Status*	Joint Appendix IV Reference	Location/Comments (e.g., Suspended Ceiling, Demising, etc.)	NOTES TO FIELD - For Building Dept. Use Only

* N, E, A, (New, Existing, Altered)

FENESTRATION SURFACES

✓ ☐ More than or equal to10,000 ft² of site-built fenestration area must include a label certificate issued by NFRC or provide a CEC Default Label Certificate using the default U-factors from Standards Tables 116-A and B. Certificate shall be filed in the contractor's project office during construction and in the building manager's office after construction.

A	B	C	D	E	F	G	H	I	J	K
Fenestration Name	Fenestration Type	Area	Azimuth	U-factor	U-factor Type[1] D A N	Fenestration SHGC	SHGC Type[2] D C N	Condition Status[3]	Location / Comments	NOTES TO FIELD – For Bldg. Dept. Use Only
	Window				☐☐☐		☐☐☐			
	Window				☐☐☐		☐☐☐			
	Window				☐☐☐		☐☐☐			
	Window				☐☐☐		☐☐☐			
	Window				☐☐☐		☐☐☐			
	Skylight				☐☐☐		☐☐☐			
	Skylight				☐☐☐		☐☐☐			
	Skylight				☐☐☐		☐☐☐			
	Skylight				☐☐☐		☐☐☐			
	Skylight				☐☐☐		☐☐☐			

[1] U-factor Type: D, A or N (D for Default Table from Section 116, A for ACM Manual Appendix Default Table, or N for NFRC Labeled)

[2] SHGC Type: D, C or N (D for Default Table from Section 116, C for Center of Glass, or N for NFRC).

[3] Condition Status: N, E, or A (New, Existing, or Altered)..

EXTERIOR SHADING

Fenestration Name	Exterior Shade Type	SHGC	Window Height	Window Width	Overhang Length	Overhang Height	Overhang LExt.	Overhang RExt.

MINIMUM SKYLIGHT AREA FOR LARGE ENCLOSED SPACES

✓ ☐ The proposed building is in *climate zones 2 through 15* and contains an enclosed space with floor area greater than 25,000 ft^2, a ceiling height greater than 15 feet, and an LPD for general lighting of at least 0.5 W/ft^2. See Section 143(c). **If this box is checked, ENV-4-C must be filled out.**

NOTES TO FIELD - For Building Department Use Only

ENVELOPE COMPONENT METHOD (Part 1 of 2) ENV-2-C

PROJECT NAME	DATE

WINDOW AREA CALCULATION

A. DISPLAY PERIMETER		FT × 6 FT =	SF	DISPLAY AREA
B. GROSS EXTERIOR WALL AREA		SF × 0.40 =	SF	40% of GROSS EXTERIOR WALL AREA
C. ENTER LARGER OF A OR B			SF	MAXIMUM STANDARD AREA
D. ENTER PROPOSED WINDOW AREA			SF	PROPOSED WINDOW AREA

If the PROPOSED WINDOW AREA is greater than the MAXIMUM STANDARD AREA then the envelope component method may not be used.

E. WINDOW WALL RATIO = Proposed Window Area Divided by Gross Exterior Wall Area = _____

F. WEST DISPLAY PERIMETER		FT × 6 FT =	SF	WEST DISPLAY AREA
G. WEST EXTERIOR WALL AREA		SF × 0.40 =	SF	40% of WEST EXTERIOR WALL AREA
H. ENTER THE LARGER OF F AND G			SF	MAXIMUM STANDARD WEST AREA
I. ENTER PROPOSED WEST WINDOW AREA			SF	PROPOSED WEST WINDOW AREA

If the PROPOSED WEST WINDOW AREA is greater than the MAXIMUM STANDARD WEST AREA then the envelope component method may not be used.

J. WEST WINDOW WALL RATIO = Proposed West Window Area Divided by West Exterior Wall Area = _____

SKYLIGHT AREA CALCULATION

A. ATRIUM or SKYLIGHT HEIGHT	FT		
	GROSS ROOF AREA		STANDARD ALLOWED SKYLIGHT AREA
B. IF Atrium/Skylight Height in A ≤ 55 FT		SF × 0.05 =	SF
C. IF Height in A > 55 FT		SF × 0.10 =	SF
D. PROPOSED SKYLIGHT AREA			SF

If the PROPOSD SKYLIGHT AREA is greater than the STANDARD ALLOWED SKYLIGHT AREA then the envelope component method may not be used.

SKYLIGHTS

SKYLIGHT NAME	SKYLIGHT GLAZING				U-FACTOR		SOLAR HEAT GAIN COEFFICIENT	
(e.g., Sky-1, Sky-2)	✓ With Curb	✓ With No Curb	✓ Plastic	# OF PANES	PROPOSED	ALLOWED	PROPOSED	ALLOWED
	☐	☐	☐					
	☐	☐	☐					
	☐	☐	☐					
	☐	☐	☐					
	☐	☐	☐					
	☐	☐	☐					
	☐	☐	☐					

RELOCATABLE PUBLIC SCHOOL BUILDINGS - See §143(a)8 in the Energy Standards

☐ For Specific Climate Zone, use Table 143-A - Prescriptive Envelope Criteria.	☐ Specific Climate Zone Metal Identification Label – Place two labels on each relocatable building and indicate on the building plans.
☐ For Any (All) Climate Zone, use Table 143-C - Prescriptive Envelope Criteria.	☐ Any (All) Climate Zone Metal Identification Label - Place two labels on each relocatable building and indicate on the building plans.

ENVELOPE COMPONENT METHOD (Part 2 of 2) ENV-2-C

PROJECT NAME	DATE

COOL ROOFS - LOW-SLOPED - See Section 3.4 in the NRM and §118(i)3 and §143(a)1 in the Energy Standards for further description about exterior roofs and mandatory requirements for Cool Roofs.

✓ **CHECK APPLICABLE BOXES**

☐ **Option 1- Tested - Initial Thermal Emittance ≥ 0.75 and Intial Solar Reflectance ≥ 0.70**

Proposed emittance and reflectance must be ≥ the standard when tested with CRRC-1.	**Proposed**	**Standard**	
1. Enter proposed initial thermal emittance, $\varepsilon_{initial}$		≥ 0.75	If proposed ≥ to the Standard then it complies.
2. Enter the proposed initial solar reflectance, $\rho_{initial}$		≥ 0.70	If proposed ≥ to the Standard then it complies.

3. When applying **Liquid Field Applied Coatings,** the coating must be applied with a minimum dry mil thickness of 20 mils across the entire roof surface and meet minimum performance requirements listed in §118(i)3 and Table 118-C. Select the applicable coating:

☐ Aluminum-Pigmented Asphalt Roof Coating	☐ Cement-Based Roof Coating	☐ Other _____

☐ **Option 2 - CRRC-1 Tested - Initial Thermal Emittance < 0.75**

Proposed initial thermal emittance < 0.75 when tested with CRRC-1.	**Proposed**	**Standard**	
1. Enter proposed initial thermal emittance, $\varepsilon_{initial}$		< 0.75	Go to line 2. Insert $\varepsilon_{initial}$ value in calculation.
2. Enter the initial solar reflectance, $\rho_{initial}$		0.70 + [0.34 X (0.75 - $\varepsilon_{initial}$)]	**Standard** $\rho_{initial}$ =

3. To apply **Liquid Field Applied Coatings,** the coating must be applied with a minimum dry mil thickness of 20 mils across the entire roof surface and meet minimum performance requirements listed in §118(i)3 and Table 118-C. Select the applicable coating:

☐ Aluminum-Pigmented Asphalt Roof Coating	☐ Cement-Based Roof Coating	☐ Other _____

✓ ☐ **CRRC-1 Label Attached to Submittal**
(Note if no CRRC-1 label is available, this compliance method can not be used).

OPAQUE SURFACES

ASSEMBLY NAME (e.g. Roof-1, Wall-1, Floor-, Soffits, etc…)	**TYPE** (e.g. Roof, Wall, Floor, demising, etc…)	HEAT CAPACITY	**INSULATION R-VALUE*** PROPOSED	MINIMUM ALLOWED	**ASSEMBLY U-FACTOR*** PROPOSED	Joint Appendix IV REF	MAXIMUM ALLOWED

* For each assembly type, meet the minimum insulation R-value or the maximum assembly U-factor.

WINDOWS

	ORIENTATION				**Fenestration**									
WINDOW NAME	✓	✓	✓	✓	U-FACTOR		# OF	Fen.	**PROPOSED RSHG**				PROP.	ALLOWED
(e.g., Window-1, Window-2)	N	E	S	W	PROP.	ALLOW.	PANES	SHGC*	H	V	H/V	OHF	RSHG	RSHG
	☐	☐	☐	☐										
	☐	☐	☐	☐										
	☐	☐	☐	☐										
	☐	☐	☐	☐										
	☐	☐	☐	☐										

* From Fenestration Surfaces ENV-1-C, Part 2, Column G, or when Column H has a "C" identifier, calculate using the center of glass value SHGCc in $SHGC_{FEN}$ = .08 + (.86 x SHGCc) and enter value.

OVERALL ENVELOPE METHOD (Part 1 of 7) ENV-3-C

Project Name	DATE

WINDOW AREA CALCULATION

A. DISPLAY PERIMETER		FT × 6 FT =	SF	DISPLAY AREA
B. GROSS EXTERIOR WALL AREA		SF × 0.40 =	SF	40% of GROSS EXTERIOR WALL AREA
C. ENTER LARGER OF A OR B			SF	MAXIMUM STANDARD AREA
D. ENTER PROPOSED WINDOW AREA			SF	PROPOSED AREA

E. WINDOW WALL RATIO = Proposed Window Area Divided by Gross Exterior Wall Area =

F. WEST DISPLAY PERIMETER		FT × 6 FT =	SF	WEST DISPLAY AREA
G. WEST EXTERIOR WALL AREA		SF × 0.40 =	SF	40% of WEST EXTERIOR WALL AREA
H. ENTER THE LARGER OF F AND G			SF	MAXIMUM STANDARD WEST AREA
I. ENTER PROPOSED WEST WINDOW AREA			SF	PROPOSED WEST WINDOW AREA

J. WEST WINDOW WALL RATIO = Proposed West Window Area Divided by West Exterior Wall Area =

Combined Values for North, East and South Walls

K. N/E/S DISPLAY PERIMETER (A - F)		FT × 6 FT =	SF	N/E/S DISPLAY AREA
L. N/E/S EXTERIOR WALL AREA (B - G)		SF × 0.40 =	SF	40% N/E/S AREA
M. ENTER LARGER OF K OR L			SF	MAXIMUM STANDARD N/E/S AREA
N. PROPOSED N/E/S WINDOW AREA (D - I)			SF	PROPOSED N/E/S AREA

Window adjustment

O. IF D>C and/or if I>H, PROCEED TO THE CALCULATION STEPS 1 OR 2 BELOW, AS APPROPRIATE, FOR WINDOW AREA ADJUSTMENT. IF NOT, GO TO THE SKYLIGHT AREA TEST IN PART (7 of 7).

1. IF I<H: Use the calculated Window Adjustment Factor (WAF) for all walls.

MAX. STANDARD AREA (from C)		PROPOSED WINDOW AREA (from D)		WINDOW ADJUSTMENT FACTOR
	÷		=	

GO TO PART 7 TO CALCULATE ADJUSTED AREAS

2. IF I>H: Calculate one Window Adjustment Factor (WAF) for the West wall, and a second WAF for all other orientations.

a. Calculate the WAF for the West wall.

MAX. STANDARD WEST AREA (from H)		PROPOSED WEST AREA (from I)		WEST WINDOW ADJUSTMENT FACTOR
	÷		=	

b. Calculate the WAF for the North, East and South walls.

MAX. STANDARD N/E/S AREA (from M)		PROPOSED N/E/S AREA (from N)		N/E/S WINDOW ADJUSTMENT FACTOR
	÷		=	

GO TO PART 7 TO CALCULATE ADJUSTED AREAS

OVERALL ENVELOPE METHOD (Part 2 of 7) ENV-3-C

PROJECT NAME	DATE

SKYLIGHT AREA CALCULATION

A. ATRIUM or SKYLIGHT HEIGHT	**FT**			
	GROSS ROOF AREA		**STANDARD ALLOWED SKYLIGHT AREA**	
B. IF Height in A ≤ 55 FT		**SF × 0.05 =**	**SF**	
C. IF Height in A > 55 FT		**SF × 0.10 =**	**SF**	
D. PROPOSED SKYLIGHT AREA				**SF**

IF THE PROPOSED SKYLIGHT AREA IS GREATER THAN THE STANDARD SKYLIGHT AREA PROCEED TO THE NEXT CALCULATION FOR THE SKYLIGHT AREA ADJUSTMENT. IF NOT GO TO PART 3 OF 7.

1. IF PROPOSED SKYLIGHT AREA ≥ STANDARD SKYLIGHT AREA:

STANDARD SKYLIGHT AREA		PROPOSED SKYLIGHT AREA (IF E = 0 ENTER 1)		SKYLIGHT ADJUSTMENT FACTOR
	÷		=	

GO TO PART 3, 4, 6 TO CALCULATE ADJUSTED AREAS

OVERALL ENVELOPE METHOD (Part 3 of 7) ENV-3-C

PROJECT NAME	DATE

OVERALL HEAT LOSS

	A		B	C	D		E	F	G	H
			PROPOSED					STANDARD		
	ASSEMBLY NAME (e.g. Wall-1, Floor-1)		AREA	HEAT CAPACITY	U-FACTOR[1]	Joint Appendix IV REF.	UA (B × D)	AREA[2] (Adjusted)	U-FACTOR	UA (F × G)
WALLS										
ROOFS/CEILINGS										
FLOORS/SOFFITS										
WINDOWS				N/A						
				N/A						
		# OF PANES		N/A						
				N/A						
				N/A						
				N/A						
SKYLIGHTS				N/A						
		# OF PANES		N/A						
				N/A						
				N/A						
				N/A						
							TOTAL			TOTAL

[1] In climate zones 1 and 16 the insulating R-value of continuous insulation materials installed above the roof waterproof membrane must be multiplied by 0.8 before choosing the table column for determining assembly U-factor. See footnotes for Tables IV.1 through IV.7 in the Joint Appendices.

[2] If Window and/or Skylight Area Adjustment is required, use adjusted areas from Part 7of 7.

OVERALL ENVELOPE METHOD (Part 4 of 7) ENV-3-C

PROJECT NAME	DATE

OVERALL HEAT GAIN FROM CONDUCTION

	A		B	C	D	E		F	G	H	I	J
			PROPOSED						STANDARD			
	ASSEMBLY NAME (e.g. Wall-1, Floor-1)		AREA	TEMP FACTOR	HEAT CAPACITY	U - FACTOR[1]	Joint App. IV REF.	HEAT GAIN (B ×C ×E)	AREA[2] (Adjusted)	U - FACTOR	TEMP FACTOR	HEAT GAIN (G ×H ×I)
WALLS												
ROOFS/CEILINGS												
FLOORS/SOFFITS												
WINDOWS					N/A							
					N/A							
					N/A							
					N/A							
SKYLIGHTS					N/A							
					N/A							
		# OF PANES			N/A							
					N/A							
					N/A							
					N/A							
					N/A							
								SUBTOTAL				SUBTOTAL

[1] In climate zones 1 and 16 the insulating R-value of continuous insulation materials installed above the roof waterproof membrane must be multiplied by 0.8 before choosing the table column for determining assembly U-factor. See footnotes for Tables IV.1 through IV.7 in the Joint Appendices.

[2] If Window and/or Skylight Area Adjustment is required, use adjusted areas from Part 7 of 7.

Subtotals are entered under "Subtotal" in COLUMNS I and M of ENV-3-C, Part 6 of 7.

OVERALL ENVELOPE METHOD (Part 5 of 7) ENV-3-C

Project Name	DATE

ROOF ABSORPTANCE CALCULATION: Use this table to determine the value of the absorptance for the proposed design, α_{prop}

See Section 3.7.3 Roof Absorptance Calculation

✓ CHECK APPLICABLE BOXES	YES		NO	
1. CRRC-1 Certified?	☐	Go to 2.	☐	Go to 3.
2. Is the thermal emittance ≥ 0.75?	☐	Go to 4.	☐	Go to 6.
3. Is the roof a nonresidential low sloped roof? (2:12 of less)	☐	Go to 9.	☐	Go to 10.
4. Enter the initial reflectance $\rho_{Ri,prop}$ value	$\rho_{Ri,prop}$ =		Go to 5. Insert value in calculation	
5. Calculate $\alpha_{prop} = 0.94-0.7\rho_{Ri,prop}$	α_{prop} =		Is the roof a nonresidential low sloped roof? (2:12 of less)	Y ☐ N ☐

Case 2 - CRRC-1 Tested			
6.Enter initial reflectance & emittance values from CRRC-1	ρ_{init} =	ε_{init} =	Go to 7. Insert values in calculation
7. Calculate $\rho_{Ri,prop} = -0.448 + 1.121\ \rho_{init} + 0.524\ \varepsilon_{init}$	$\rho_{Ri,prop}$ =		
8. Calculate $\alpha_{prop} = 0.94-0.7\rho_{Ri,prop}$	α_{prop} =		Is the roof a nonresidential low sloped roof? (2:12 of less) Y ☐ N ☐

Case 3 - Not CRRC-1 Tested		
9. Use the default values for absorptance, α_{prop}	α_{prop} = 0.87	Enter default value in Column F below.
10. Use the default values for absorptance, α_{prop}	α_{prop} = 0.73	Enter default value in Column F below.

Standard absorptance values α_{std}, for Column J are either		
For nonresidential low-sloped roofs	α_{std} = 0.45	Enter standard value in Column J below.
For nonresidential high-sloped roofs	α_{std} = 0.73	Enter standard value in Column J below.

OVERALL HEAT GAIN FROM RADIATION OPAQUE SURFACES

A	B	C	D	E	F	G	H	I	J	K
ASSEMBLY NAME	PROPOSED						STANDARD			
(e.g. Roof-1)	AREA	SOLAR FACTOR	WEIGHT FACTOR	U - FACTOR	Absorp α	HEAT GAIN (BxCxDxExF)	AREA (Adjusted)	U-FACTOR	Absorp α	HEAT GAIN (C×DxH×IxJ)

SUBTOTAL

Subtotals are entered under "Subtotal" in COLUMNS I and M of ENV-3-C, Part 6 of 7.

SUBTOTAL

OVERALL ENVELOPE METHOD (Part 6 of 7) ENV-3-C

PROJECT NAME	DATE

OVERALL HEAT GAIN FROM RADIATION **FENESTRATION SURFACES**

	A	B	C	D	E	F	G	H	I	J	K	L	M
			PROPOSED							STANDARD			
	WINDOW/SKYLIGHT NAME	WEIGHTING		SOLAR FACTOR		OVERHANG			HEAT GAIN[2] (BxCx	AREA	RSHG or	SOLAR FACTOR	HEAT GAIN
	(e.g Window-1, Sky-1)	FACTOR	AREA		SHGC[1]	H	V	H/V	OHF DxExH)	(Adjusted)[3]	SHGC4		(B×J×K ×L)
NORTH													
EAST													
SOUTH													
WEST													
SKYLIGHTS						N/A	N/A	N/A	N/A				
						N/A	N/A	N/A	N/A				
						N/A	N/A	N/A	N/A				
						N/A	N/A	N/A	N/A				
						N/A	N/A	N/A	N/A				
						Part 4 Subtotal					Part 4 Subtotal		
						Part 5 Subtotal					Part 5 Subtotal		
						Part 6 Subtotal					Part 6 Subtotal		
						TOTAL					TOTAL		

[1] From Fenestration Surfaces ENV-1-C, Part 2, column G, or when Column H has a "C" identifier, calculate using the center of glass value SHGCc in SHGCfen = .08 + (0.86XSHGCc) and enter value.
[2] **Proposed Heat Gain, Column I may be no greater than Standard Heat Gain Column M.**
[3] If Window and/or Skylight Area Adjustment is required, use adjusted areas from Part 7 of 7.
[4] Only SHGC is used for Skylights

OVERALL ENVELOPE METHOD (Part 7 of 7) ENV-3-C

PROJECT NAME	DATE

WINDOW AREA ADJUSTMENT CALCULATIONS

Note: Putting the letters at the top of the columns in boxes is completely inconsistent with all the other pages

✓☐ CHECK IF NOT APPLICABLE (see Part 1 of 7)

A					B	C	D	E	F	G
WALL NAME (e.g. Wall-1, Wall-2)	**ORIENTATION**				**GROSS AREA**	**DOOR AREA**	**WINDOW AREA**	**WINDOW ADJUSTMENT FACTOR** (From Part 1)	**ADJUSTED WINDOW AREA** (D×E)	**ADJUSTED WALL AREA** B-(F+C)
	N	**E**	**S**	**W**						
	☐	☐	☐	☐						
	☐	☐	☐	☐						
	☐	☐	☐	☐						
	☐	☐	☐	☐						
	☐	☐	☐	☐						
	☐	☐	☐	☐						
	☐	☐	☐	☐						
	☐	☐	☐	☐						
	☐	☐	☐	☐						
	☐	☐	☐	☐						
	☐	☐	☐	☐						
	☐	☐	☐	☐						
	☐	☐	☐	☐						
	☐	☐	☐	☐						
	☐	☐	☐	☐						
	☐	☐	☐	☐						
TOTALS:										

SKYLIGHT AREA ADJUSTMENT CALCULATIONS

✓☐ CHECK IF NOT APPLICABLE (see Part 2 of 7)

A	B	C	D	E	F
ROOF NAME (e.g. Roof-1, Roof-2)	**GROSS AREA**	**SKYLIGHT AREA**	**SKYLIGHT ADJUSTMENT FACTOR** (From Part 1)	**ADJUSTED SKYLIGHT AREA** (C×D)	**ADJUSTED ROOF AREA** (B - E)
TOTALS:					

Skylight Area Support Worksheet - *Minimum Fraction of Daylit Area Method*

SKYLIGHT AREA FOR LARGE ENCLOSED SPACES

✓☐ This worksheet applies to buildings with an enclosed space > 25,000ft^2 with a ceiling height > 15 ft and an LPD for the space for general lighting ≥ 0.5 W/ft^2.

Name or designation of large enclosed space on plans _____

A. Enter proposed daylit area as indicated on plans [ ] Proposed Daylit Area

Proposed daylit area is indicated on page _____ of the plans

B. Floor Area: [ ] x 0.50 = [ ] Minimum Daylit Area

✓☐ **Criterion 1: Proposed Daylit Area is equal to or greater than Minimum Daylit Area**

C. Select the appropriate box based on the LPD in W/ft^2:

☐ LPD>1.4	☐ 1.0<LPD<1.4	☐ 0.5< LPD<1.0	
Enter 3.6% →	Enter 3.3% →	Enter 3.0% →	[ ] Skylight-Daylit Fraction

D. Minimum skylight area: Enter the product B x C then divide by 100 [ ] Minimum Skylight Area

E. Enter the proposed total skylight area in the large enclosed space [ ] Proposed Skylight area

✓☐ **Criterion 2: Proposed skylight area is equal to or greater than minimum skylight area**

✓☐ **Criterion 3: Haze rating of skylight glazing or skylight diffuser is greater than 90%.**

Document and page number with haze specification of skylights _____

✓☐ **Large enclosed space complies with Criteria 1, 2, and 3 above [Sections 143(c) 1, 2, and-3].**

Skylight Area Support Worksheet - *Minimum Effective Aperture Method*

This worksheet applies to buildings with an enclosed space > 25,000ft^2 with a ceiling height > 15ft and an LPD for the space for general lighting ≥ 0.5 W/ft^2.

Name or designation of large enclosed space on plans _____

F. Enter proposed daylit area as indicated on plans [SF] Proposed Daylit Area

Proposed daylit area is indicated on page _____ of the plans

G. Floor Area: [SF] x 0.50 = [SF] Minimum Daylit Area

✓☐ **Criterion 1: Proposed Daylit Area is equal to or greater than Minimum Daylit Area**

H. Select the appropriate box for LPD:

☐ LPD>1.4	☐ 1.0<LPD<1.4	☐ 0.5< LPD<1.0		
Enter 1.2% →	Enter 1.1% →	Enter 1.0% →	[ ]	Min Effective Aperture

I. Skylight Visible Light Transmittance (VLT_S) VLT_s is from manufacturers specifications. [ ] VLT_s

J. Well Cavity Ratio. *Select one of the well types, fill in columns A, B, and C and calculate the WCR with the appropriate equation below.*

		A	B	C	
		Well Height	Well Length	Well Width	
Rectangular. Wells:	☐			note	

$$WCR = \left(\frac{5 \times \text{well height}\left(\text{well length} + \text{well width}\right)}{\text{well length} \times \text{well width}}\right)$$

[ ] WCR

		Well Height	Well Perimeter	Well Area	
Non-Rectangular Wells:	☐				

$$WCR = \left(\frac{2.5 \times \text{well height} \times \text{well perimeter}}{\text{well area}}\right)$$

[ ] WCR

K. Average Well Wall Reflectance (%),ρ [ ] Wall ρ

L. Well Efficiency (from equation in Section 5.6 of the Nonresidential Manual or from nomograph, Figure 146-A) [ ] Well Efficiency

M. Calculate Minimum Skylight Area:

A_S = Effective Aperture (H) x Daylit Area (F)

$$0.85 \times VLT(I) \times WellEfficiency(L)$$

[ ] **Minimum Skylight Area**

N. Enter the Proposed Skylight Area. [ ] **Proposed Skylight Area**

✓☐ **Criterion 2: Proposed skylight area is equal to or greater than minimum skylight area**

✓☐ **Criterion 3: Haze rating of skylight glazing or skylight diffuser is greater than 90%.**

Document and page number with haze specification of skylights _____

✓☐ **Large enclosed space complies with Criteria 1, 2, and 3 above [Sections 143(c) 1, 2, and-3].**

CEC DEFAULT U-FACTOR AND SHGC LABEL CERTIFICATE FORM	FC-1

PROJECT INFORMATION

PROJECT NAME:	DATE:
PROJECT ADDRESS:	

CEC DEFAULT U-FACTOR AND SHGC LABEL CERTIFICATE **(Use only for Site-Built Fenestration Product Lines)** Method 1- CEC Default Certificate may be used for site-built glazing installed in all non-residential buildings.	U-factors and SHGC are derived from the California Energy Commission Fenestration Default U-factors and SHGC Default Table based on data reported below. **U-factor = ___** **SHGC = ___** This Fenestration Product Line meets the air infiltration requirements of Section 116(a) 1, 2005 California Energy Efficiency Standards for Residential and Nonresidential Buildings.

PRODUCT LINE INFORMATION (Complete a separate Default Label Certificate for each fenestration product line)

Total Number of units for this product line:		Total square footage of this product line:	
Elevation drawing page:		Fenestration (window & door) schedule page:	
Location(s) on building: S, N, E, W (Enter appropriate orientation(s))		Total Fenestration Area (ft^2) on project:	

✓ ❑ Method 1 - DEFAULT FENESTRATION U-FACTOR AND SHGC FROM STANDARD TABLES 116-A AND 116-B of the 2005 *California Energy Efficiency Standards for Residential and Nonresidential Buildings.*

Frame Type	❑ Metal	❑ Metal Thermal Break (or Structural Glazing)			❑ Nonmetal
U-factor Table 116-A Product Type	❑ Operable	❑ Fixed	❑ Greenhouse, Garden Window	❑ Door	❑ Skylight
Glazing Type	❑ Single Pane	❑ Double Pane	Default U-factor =		Calculate **U-factor adjustment. See U-factor Adjustment below.**
SHGC Table 116-B Product Type	❑ Operable	❑ Fixed			
SHGC Table 116-B Glazing Tint	❑ Clear	❑ Tint	Default SHGC =		(Insert default value here and in above gray box next to SHGC)

U-Factor Adjustment (See Table 116-A, Footnote 1 and 2)

- ❑ Nonmetal-framed manufactured fenestration products with metal cladding must add 0.04 to the listed U-factor.
- ❑ Subtract 0.05 for spacers of 7/16 inch or wider
- ❑ Subtract 0.05 for products certified by the manufacturer as low-E glazing.
- ❑ Add 0.05 for products with dividers between panes if spacer is less than 7/16 inch wide.
- ❑ Add 0.05 for products with true divided lite (dividers through the panes).

U-Factor Adjustment =		(If applicable insert adjustment result in above gray box next to U-factor)

PERSON TAKING RESPONSIBILITY FOR FENESTRATION COMPLIANCE CONTACT PERSON:

Contact Person:		
Company name and address:		
Phone:	Fax:	Signature:

CEC ALTERNATIVE DEFAULT U-FACTOR AND SHGC LABEL CERTIFICATE	FC-2

PROJECT INFORMATION	
PROJECT NAME:	DATE:
PROJECT ADDRESS:	

CEC ALTERNATIVE **DDEFAULT** **U-FACTOR AND SHGC** **LABEL CERTIFICATE** (Use only for Site-Built Fenestration Product Lines) Method 2 - Alternative Default Certificate shall not be used for site-built fenestration in buildings with 10,000ft^2 or more of site-built fenestration area.	U-factors and SHGC are derived from the California Energy Commission Fenestration Default U-factors and SHGC Default Table based on data reported below. **U-factor = ___** **SHGC = ___** This Fenestration Product Line meets the air infiltration requirements of Section 116(a) 1, 2005 *California Energy Efficiency Standards for Residential and Nonresidential Buildings.*

PRODUCT LINE INFORMATION (Complete a separate Default Label Certificate for each fenestration product line)

Total Number of units for this product line:		Total square footage of this product line:	
Elevation drawing page:		Fenestration (window & door) schedule page:	
Location(s) on building: S, N, E, W (Enter appropriate orientation(s))		Total Fenestration Area (ft^2) on project:	

✓ ❑ Method 2 DEFAULT FENESTRATION U-FACTOR FROM ACM APPENDIX NI-2005 Table NI-1 and MANUFACTURER'S DOCUMENTATION FOR SHGCc.

Product Type Systems	❑ Glazed Wall	❑ Skylight with Curb	❑ Skylight without Curb			
Frame Type	❑ Aluminum	❑ Aluminum Metal Thermal Break	❑ Wood/Vinyl	❑ Reinforced Vinyl/ Aluminum Clad Wood	❑ Structural Glazing	
Glazing Type and thickness	❑ Single ⅛" Glass	❑ Single ⅛" Acrylic/polycarb	❑ Single ¼ " Acrylic/polycarb	❑ Double Glazing	❑ Triple- Glazing	❑ Quadruple-Glazing
Coating Emissivity	❑ 0.05	❑ 0.10	❑ 0.20	❑ 0.40	❑ 0.60	
Coated Surfaces	❑ 2 or 3	❑ 2, 3, 4, or 5	❑ 2 or 3 and 4 or 5			
Glazing Spacing	❑ 1/4" Airspace	❑ 1/2" Airspace				
Gas Fill Between Panes	❑ Air	❑ Argon	❑ Krypton			

CEC ALTERNATIVE DEFAULT FENESTRATION U-FACTOR =		From Assembly U-Factors – ACM Appendix NI-2005 Table NI-1 (Insert value in above gray box next to U-factor)

DEFAULT SOLAR HEAT GAIN COEFFICIENT

SHGC for Center of Glass	**SHGCc** =		From Manufacturer's Documentation (Insert value "**SHGCc** " in equation below)
Calculate SHGC Fenestration Equation from 2005 Appendix NI-2005 (NI.1 Solar Heat Gain Coefficient)	$SHGC_{fen}$ = 0.08 + (0.86 x SHGCc) =		(Insert calculated result value in above gray box next to SHGC)

ATTACHED MANUFACTURED DOCUMENTATION

Manufacturer's documentation must be attached showing the Product Type, Frame Type, Glazing Type, and SHGCc information needed to determine the Default U-factor and SHGC from the Applicable Table or equation.

PERSON TAKING RESPONSIBILITY FOR FENESTRATION COMPLIANCE CONTACT PERSON:		
Contact Person:		
Company name and address:		
Phone:	Fax:	Signature:

Mechanical Forms - Compliance

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

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

GENERAL INFORMATION

DATE OF PLANS	BUILDING CONDITIONED FLOOR AREA	CLIMATE ZONE

BUILDING TYPE	☐ NONRESIDENTIAL	☐ HIGH RISE RESIDENTIAL	☐ HOTEL/MOTEL GUEST ROOM
PHASE OF CONSTRUCTION	☐ NEW CONSTRUCTION	☐ ADDITION ☐ ALTERATION	☐ UNCONDITIONED (FILE AFFIDAVIT)
PROOF OF ENVELOPE COMPLIANCE	☐ PREVIOUS ENVELOPE PERMIT		☐ 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

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 1 (Sections 10-103a).

☐ The installation certificates meet the requirements of Part 1 (10-103a 3).

☐ The operation & maintenance information meets the requirements of Part 1 (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	DATE	LIC. #

INSTRUCTIONS TO APPLICANT MECHANICAL COMPLIANCE & WORKSHEETS (check box if worksheet is included)	
☐ MECH-1-C	Certificate of Compliance. Part 1 of 3, 2 of 3, 3 of 3 are required on plans for all submittals
☐ MECH-2-C	Air/Water/Service/Water Pools Requirements. Part 1 of 3, 2 of 3, 3 of 3 are required for all submittals, but may be on plans.
☐ MECH-3-C	Mechanical Ventilation and Reheat is required for all submittals with mechanical ventilation, but may be on plans.
☐ MECH-4-C	HVAC Miscellaneous Prescriptive Requirements is 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:**
✓ ☐ MECH-5-A: Air Distribution Acceptance Document *This test required If the unit serves 5,000 ft^2 of space or less and 25% or more of the ducts are in nonconditioned or semiconditioned space like an attic. New systems that meet the above requirements. Retrofit systems that meet the above requirements and either extend ducts, replace ducts or replace the packaged unit.* Equipment requiring acceptance testing _____ _____	
✓ ☐ MECH-6-A : Demand Control Ventilation Acceptance Document *All new DCV controls installed on new or existing packaged systems must be tested.* Equipment requiring acceptance testing _____ _____	
✓ ☐ MECH-7-A: Supply Fan Variable Flow Control Acceptance Document *All new VAV fan volume controls installed on new or existing systems must be tested*. Equipment requiring acceptance testing _____ _____	
✓ ☐ MECH-8-A: • Hydronic System Control Acceptance Document • Variable Flow Controls, *Applies to chilled and hot water systems.* • Automatic Isolation Controls, *Applies to new boilers and chillers and the primary pumps are connected to a common header.* • Supply Water Temperature Reset Controls, Applies *to new constant flow chilled and hot water systems that have a design capacity greater than or equal to 500,000 Btu/hr.* • Water-loop Heat Pump Controls, *Applies to all new waterloop heat pump systems where the combined loop pumps are greater than 5 hp.* • Variable Frequency Control, *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.* Equipment requiring acceptance testing _____ _____	

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	***T-24 Section***	***Reference on Plans or Specification[1]***				
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:

ITEM or SYSTEM TAG(S)		***WATER[2] SIDE SYSTEMS: Chillers, Towers, Boilers, Hydronic Loops***					
MANDATORY MEASURES	***T-24 Section***	***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***				
MANDATORY MEASURES	***T-24 Section***	***Reference on Plans or Specification[1]***				
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)					

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.

MECHANICAL VENTILATION AND REHEAT

MECH-3-C

Project Name:

DATE:

MECHANICAL VENTILATION (§121(b)2)									REHEAT LIMITATION (§144(d))				
AREA BASIS				OCCUPANCY BASIS					VAV Minimum				
A	B	C	D	E	F	G	H	I	J	K	L	M	N
Zone / System	Condition Area (ft sq)	CFM per (ft sq)	Min CFM by Area (B x C)	Num of People	CFM per Person	Min CRM by Occupant (E x F)	REQ'D V.A. Max of E or G	Design Ventilation Air cfm	30% of Design Zone Supply cfm	B x 0.4 cfm/ft²	Max of Columns H, J, K, or 300 cfm	Design minimum Air setpoint	Transfer Air
					15								
					15								
					15								
					15								
					15								
					15								
					15								
					15								
					15								
					15								
					15								
					15								
			Totals								Column I Total Design Ventilation Air		

C	Minimum ventilation rate per Section §121, Table 121-A.
E	Based on fixed seat or the greater of the expected number of occupants and 50% of the CBC occupant load for egress purposes for spaces without fixed seating.
H	Required Ventilation Air (REQ'D V.A.) is the larger of the ventilation rates calculated on an AREA BASIS or OCCUPANCY BASIS (Column D or G).
I	Must be greater than or equal to H, or use Transfer Air (column N) to make up the difference.
J	Design fan supply cfm (Fan CFM) x 30%; or
K	Condition area (ft²) x 0.4 cfm/ft²; or
L	Maximum of Columns H, J, K, or 300 cfm
M	This must be less than or equal to Column L and greater than or equal to the sum of Columns H plus N.
N	Transfer Air must be provided where the Required Ventilation Air (Column I) is greater than the Design Minimum Air (Column M). Where required, transfer air must be greater than or equal to the difference between the Required Ventilation Air (Column H) and the Design Minimum Air (Column I), Column H minus M.

HVAC MISC. PRESCRIPTIVE REQUIREMENTS: MECH-4-C

PROJECT NAME		DATE	

FAN POWER CONSUMPTION §144(c)

NOTE: Provide one copy of this worksheet for each fan system with a total fan system horsepower greater than 25 hp for Constant Volume Fan Systems or Variable Air Volume (VAV) Systems when using the Prescriptive Approach.

A	B	C	D	E	F
		EFFICIENCY			PEAK WATTS
FAN DESCRIPTION	**DESIGN BRAKE HP**	**MOTOR**	**DRIVE**	**NUMBER OF FANS**	**B x E x 746 / (C x D)**

	Total Adjustments		
FILTER PRESSURE ADJUSTMENT Equation. 144-A	1) Total Fan System Power (Peak Watts, Sum of Column F)		
A) If filter pressure drop is greater than 1 inch W. C. enter filter pressure drop. SP_a on line 4 and Total Fan pressure SP_f on Line 5.	2) Supply Design Airflow (CFM)		
	3) Total Fan System Power Index (Row1/Row2)[1] W/cfm		
B) Calculate Fan Adjustment and enter on line 6.	4) SP_a		
	5) SP_f		
C) Calculate Adjusted Fan Power Index and enter on Row 7	6) Fan Adjustment = $1-(SP_a - 1)/SP_f$		
	7) Adjusted Fan Power Index (Line 3 x Line 6)[1] W/cfm		

1. TOTAL FAN SYSTEM POWER INDEX or ADJUSTED FAN POWER INDEX must not exceed 0.8 w/cfm, for Constant Volume systems or 1.25 w/cfm for VAV systems

ITEM or SYSTEM TAG(S)				
PRESCRIPTIVE MEASURES	***T-24 Section***	**Capacity**	**Exception**	***Notes***
Electric Resistance Heating[1]	§144 (g)			
Heat Rejection System[2]	§144 (h)			
Air Cooled Chiller Limitation[3]	§144 (i)			

1. Total installed capacity (MBtu/hr) of all electric heat on this project exclusive of electric auxiliary heat for heat pumps. If electric heat is used explain which exception(s) to §144(g) apply.

2. Are centrifugal fan cooling towers used on this project? (Enter “Yes” or “No”) If centrifugal fan cooling towers are used explain which exception(s) to §144(h) apply.

3. Total installed capacity (tons) of all chillers and air cooled chillers under this permit, If there are more than 100 tons of air-cooled chiller capacity being installed explain which exception(s) to §144(i) apply.

Indoor Lighting Forms - Compliance

CERTIFICATE OF COMPLIANCE (Part 1 of 4) LTG-1-C

PROJECT NAME		DATE
PROJECT ADDRESS		Building Permit
PRINCIPAL DESIGNER-LIGHTING	TELEPHONE	
DOCUMENTATION AUTHOR **METHOD OF COMPLIANCE**	TELEPHONE	Checked by/Date Enforcement Agency Use

GENERAL INFORMATION

DATE OF PLANS		BUILDING CONDITIONED FLOOR AREA		CLIMATE ZONE	

BUILDING TYPE	☐ NONRESIDENTIAL	☐ HIGH RISE RESIDENTIAL	☐ HOTEL/MOTEL GUEST
☐ CONDITIONED SPACES	☐ UNCONDITIONED SPACES	☐ INDOOR / OUTDOOR SIGNS	
PHASE OF CONSTRUCTION	☐ NEW	☐ ADDITION	☐ ALTERATION

METHOD OF COMPLIANCE

☐ PERFORMANCE ☐ COMPLETE BUILDING ☐ AREA CATEGORY ☐ TAILORED ☐ COMMON LIGHTING

STATEMENT OF COMPLIANCE

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

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

DOCUMENTATION AUTHOR	SIGNATURE	DATE

The Principal Lighting 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 lighting requirements contained in applicable parts of Sections 110, 119,130–132, 146, 148, & 149 of Title 24, Part 6.

☐ 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 meet 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 electrical engineer, or I am a licensed architect.

☐ I affirm that I am eligible under the provisions of 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 Division 3 of the Business and Professions Code to sign this document because it pertains to a structure or type of work described as exempt pursuant to Business and Professions Code Sections 5537, 5538 and 6737.1.

PRINCIPAL LIGHTING DESIGNER-NAME	SIGNATURE	DATE	LIC. #

LIGHTING MANDATORY MEASURES

✓ ☐ Indicate location on plans of Note Block for Mandatory Measure _____

LIGHTING COMPLAINCE FORMS & WORKSHEETS (check box if worksheet is included)

☐ LTG-1-C, Parts 1 of 4 and 2 of 4	Certificate of Compliance. Part 1 of 4 and 2 of 4 are required for all submittals
☐ LTG-1-C, Part 3 of 4	Certificate of Compliance. Part 3 of 4 submittal is required only if Control Credits are claimed
☐ LTG-1-C, Part 4 of 4	Certificate of Compliance. Part 4 of 4 submittal is required when lighting controls are installed
☐ LTG-2-C	Indoor Lighting Schedule
☐ LTG-3-C	Portable Lighting Worksheet
☐ LTG-4-C	Lighting Controls Credit Worksheet
☐ LTG-5-C	Indoor Lighting Power Allowance
☐ LTG-6-C	Tailored Method Worksheet
☐ LTG-7-C	Room Cavity Ratio Worksheet
☐ LTG-8-C	Common Lighting Systems Method Worksheet
☐ LTG-9-C	Line Voltage Track Lighting Worksheet
☐ OLTG-4-C	Signs (See OLTG-4-C Sign Worksheet in Chapter 6, Outdoor Lighting and Signs Chapter)

CERTIFICATE OF COMPLIANCE (Part 2 of 4) LTG-1-C

PROJECT NAME DATE

INSTALLED INDOOR LIGHTING POWER FOR CONDITIONED AND UNCONDITIONED SPACES

	INSTALLED WATTS
INSTALLED LIGHTING, CONDITIONED SPACES (From LTG-2-C)	
PORTABLE LIGHTING (From LTG-3-C)	+
LIGHITNG CONTROL CREDIT, CONDITIONED SPACES (From LTG-4-C)	-
CONDITIONED SPACE ADJUSTED INSTALLED LIGHTING POWER	=
INSTALLED LIGHTING, UNCONDITIONED SPACES (From LTG-2-C)	
LIGHITNG CONTROL CREDIT, UNCONDITIONED SPACES (From LTG-4-C)	-
UNCONDITIONED SPACE ADJUSTED INSTALLED LIGHTING POWER	=

ALLOWED INDOOR LIGHTING POWER FOR CONDITIONED SPACES

✓

☐ **COMPLETE BUILDING METHOD (from LTG-5-C)**

☐ **AREA CATEGORY METHOD (from LTG-5-C)**

☐ **TAILORED METHOD (from LTG-5-C)**

	ALLOWED WATTS
ALLOWED LIGHTING POWER	

ALTERNATE COMPLIANCE

✓

☐ **PERFORMANCE METHOD**

☐ **COMMON LIGHTING SYSTEM (from LTG-8-C)**

ALLOWED INDOOR LIGHTING POWER FOR UNCONDITIONED SPACES (From LTG-5-C) _____ Watts

MANDATORY LIGHTING MEASURES FOR INDOOR LIGHTING AND DAYLIT AREAS

MANDATORY INDOOR AND DAYLIGHTING AUTOMATIC CONTROLS

CONTROL LOCATION (Room #, Area #, or Description)	CONTROL IDENTIFICATION	CONTROL TYPE (Auto Time Switch, Dimmimg, Photosensor, etc.)	SPACE CONTROLLED Lists the location of controlled lights	✓ If Control is for Daylighting	NOTE TO FIELD

CERTIFICATE OF COMPLIANCE (Part 3 of 4) LTG-1-C

PROJECT NAME	DATE

CONTROLS FOR CREDIT IN CONDITIONED AND UNCONDITIONED SPACES

CONTROL LOCATION (Room # or Dwa #)	CONTROL IDENTIFICATION	CONTROL TYPE (Occ Sensor, Daylight, Dimming, etc	LUMINAIRES CONTROLLED		NOTE TO FIELD
			TYPE	# OF LUMINAIRES	

CERTIFICATE OF COMPLIANCE (Part 4 of 4) LTG-1-C

PROJECT NAME	Please input name on LTG1 page 1	DATE	

Designer:

This form is to be used by the designer and attached to the plans. Listed below are all the acceptance tests for lighting systems. The designer is required to check the boxes by all acceptance tests that apply and list all equipment that require 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 an 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, LTG-1-A, Forms shall be submitted to the building department that:

A. 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:
☐ LTG-2-A: Lighting Control Acceptance Document • Occupancy Sensor Acceptance • Manual Daylight Controls Acceptance • Automatic Time Switch Control Acceptance **Equipment requiring acceptance testing:**	
☐ LTG-3-A: Automatic Daylighting Controls Acceptance Document **Equipment requiring acceptance testing:**	
☐	
☐	
☐	
☐	

INDOOR LIGHTING SCHEDULE (Part 1 of 2) LTG-2-C

PROJECT NAME	DATE

INSTALLED LIGHTING POWER FOR CONDITIONED SPACES

Luminaire		Lamps/Ballasts				Installed Watts			
A	B	C	D	E	F	G	H	I	J
Name		Lamp Type	Number of Lamps per Luminaire	Watts Per Lamp	Number of Ballast per Luminaire	Watts per Luminaire	✓ If CEC Default	Number of Luminaires	Installed Watts (G x I)
	Type Description								

PAGE TOTAL	
BUILDING TOTAL (sum of all pages)	+
PORTABLE LIGHTING (From LTG-3-C)	+
CONTROL CREDIT (from LTG-4-C)	-
ADJUSTED ACTUAL WATTS	=

INDOOR LIGHTING SCHEDULE (Part 2 of 2) LTG-2-C

PROJECT NAME Please input name on LTG1 page 1 | DATE

INSTALLED LIGHTING POWER FOR UNCONDITIONED SPACES

Luminaire		Lamps/Ballasts				Installed Watts			
A	B	C	D	E	F	G	H	I	J
Name	Type Description	Lamp Type	Number of Lamps per Luminaire	Watts per Lamp	Number of Ballast per Luminaire	Watts per Luminaire	✓ if CEC Default	Number of Luminaires	Installed Watts (G x I)
							☐		
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PAGE TOTAL

BUILDING TOTAL (sum of all pages)

CONTROL CREDIT (from LTG-4-C —

ADJUSTED ACTUAL WATTS =

PORTABLE LIGHTING WORKSHEET LTG-3-C

PROJECT NAME	DATE

TABLE 1 – PORTABLE LIGHTING NOT SHOWN ON PLANS
FOR OFFICE AREA > 250 SQUARE FEET

A	B	C	D
ROOM # OR ZONE ID	DEFAULT	AREA (ft^2)	TOTAL WATTS (B X C)
	0.2		
	0.2		
	0.2		
	0.2		
	0.2		
	0.2		
	TOTAL		

TABLE 2 – PORTABLE LIGHTING SHOWN ON PLANS
FOR OFFICE AREA > 250 SQUARE FEET

A	B	C	D	E	F	G
ROOM # OR ZONE ID	PORTABLE LIGHTING DESCRIPTION(S) PER TASK AREA	LUMINAIRE(S) WATTS PER TASK AREA	TASK AREA (ft^2)	NUMBER OF TASK AREAS	TOTAL AREA (ft^2) (D X E)	TOTAL WATTS (C X E)
				TOTAL		

TABLE 3 – PLANS SHOW PORTABLE LIGHTING IS NOT REQUIRED
FOR OFFICE AREAS > 250 SQUARE FEET

ROOM # OR ZONE ID	**TOTAL AREA (ft^2)**	Designer needs to provide detailed documentation that the lighting level provided by the overhead lighting meets the needs of the space. The details include luminaire types and mounting locations relative to work areas.
TOTAL AREA		

BUILDING SUMMARY

BUILDING SUMMARY	TOTAL AREA (ft^2)	TOTAL WATTS
BUILDING TOTAL (SUM OF TABLES 1, 2 ,3)		

Enter in LTG-2-C: Portable Lighting

LIGHTING CONTROLS CREDIT WORKSHEET (Part 1 of 2) LTG-4-C

CONTROL CREDITS FOR CONDITIONED SPACES

PROJECT NAME	DATE

A	B	C	D	E	F	G	H	I	J
				DAYLIGHTING					
ROOM #, ZONE ID CONDITIONED AREAS	LIGHTING CONTROL DESCRIPTION	PLAN REFEFERENCE	ROOM AREA (ft^2)	WINDOW WALL RATIO	GLAZING VLT	SKYLIGHT EFFECTIVE APERTURE[1]	WATTS OF CONTROL LIGHTING	LIGHTING ADJUSTMENT FACTOR[2]	CONTROL CREDIT WATTS (H X I)

LIGHTING CONTROLS CREDIT WORKSHEET (Part 2 of 2) LTG-4-C

CONTROL CREDITS FOR UNCONDITIONED SPACES

PROJECT NAME	DATE

A	B	C	D	E	F	G	H	I	J
				DAYLIGHTING					
ROOM # ZONE ID UNCONDITIONED AREAS	LIGHTING CONTROL DESCRIPTION	PLANS REFERENCE	ROOM AREA (ft^2)	WINDOW WALL RATIO	GLAZING VLT	SKYLIGHT EFFECT. APERTURE[1]	WATTS OF CONTROL LIGHTING	LIGHTING ADJUSTMENT FACTOR[2]	CONTROL CREDIT WATTS (H X I)

INDOOR LIGHTING POWER ALLOWANCE LTG-5-C

PROJECT NAME	DATE

ALLOWED LIGHTING POWER (Choose One Method)

COMPLETE BUILDING METHOD– CONDITIONED SPACES

BUILDING CATEGORY (From § 146 Table 146-B)	**WATTS PER** (ft^2)	**COMPLETE BLDG. AREA**	**ALLOWED WATTS**

AREA CATEGORY METHOD – CONDITIONED SPACES

A	B	C	D
AREA CATEGORY (From § 146 Table 146-C)	**WATTS PER** (ft^2)	**AREA** (ft^2)	**ALLOWED WATTS**
	TOTALS	AREA	WATTS

TAILORED METHOD– CONDITIONED SPACES

TOTAL ALLOWED WATTS (From **LTG-6-C**)

UNCONDITIONED SPACES

A	B	C	D
Complete Building and Area Category Methods CATEGORY (From § 146 Table 146-B & C)	**WATTS PER** (ft^2)	**AREA** (ft^2)	**ALLOWED WATTS**
	TOTALS	AREA	WATTS

TAILORED METHOD– UNCONDITIONED SPACES

TOTAL **UNCONDITIONED SPACES** ALLOWED WATTS (From LTG-5-C and LTG-6-C)

TAILORED METHOD WORKSHEET (Part 1 of 3) LTG-6-C

PROJECT NAME	DATE

TAILORED METHOD SUMMARY-Separate Tailored Method Worksheets Must Be Filled Out For Conditioned And Unconditioned Spaces

1. Watts for Illuminance Categories (from Tailored LPD Total below) → _____ WATTS

2. Watts for Display Lighting

Wall Display	+	Floor Display	+	Ornamental/ Special Effects Display	+	Very Valuable Display	=		WATTS

3. Total Allowed Watts (lines 1+2) → _____ WATTS

TAILORED LPD - Illuminance Categories from Table 146-D

A	B	C	D			E	F	G
ROOM NUMBER	TASK/ACTIVITY OR NON-TASK AREA[1]	ILLUMINANCE CATEGORY[2]	ROOM CAVITY RATIO	RCR FROM **LTG-7-C**? Y	N	FLOOR AREA	ALLOWED LPD	ALLOWED WATTS (E X F)
				☐	☐			
				☐	☐			
				☐	☐			
				☐	☐			
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		PAGE TOTAL →					ft^2	
		BUILDING TOTAL →					ft^2	WATTS

1) Include non-task area as a separate line.
2) From Table 146-D Column 2 or *IESNA Handbook*.

TAILORED METHOD WORKSHEET (Part 2 of 3) LTG-6-C

PROJECT NAME	DATE

DISPLAY LIGHTING: WALLS

✓ ☐ Qualifying wall display lighting systems shall be mounted within 6 ft to a wall, See §146(b)3B.

A	B	C	D	E	F	G	H	I	J	K
			ALLOTTED WATTS			DESIGN WATTS				
TASK / ACTIVITY	MOUNTING HEIGHT	MOUNT HEIGHT FACTOR[1]	WALL DISPLAY Length in Linear Feet	WALL Display[2,3] Power in Watts per Linear Feet	ALLOTED WATTS (C X D X E)	LUMIN. CODE	LUMIN QTY.	WATTS/ LUMIN.	DESIGN WATTS (H X I)	ALLOWED WATTS (Min. F or J)

TOTAL LENGTH OF DISPLAY WALLS ____ ft^2 TOTAL ____ WATTS

Enter on Line 2, Part 1 of LTG-6-C

1) From Table 146-E.
2) From table 146-D Column 3.
3) Qualifying wall display lighting systems shall be mounted within 6 ft to a wall.

DISPLAY LIGHTING: FLOORS

✓ ☐ Qualifying floor display lighting systems shall be mounted no closer than 6 ft to a wall, See §146(b)3B.

A	B	C	D	E	F	G	H	I	J	K
			ALLOTTED WATTS			DESIGN WATTS				
				ALLOTTED						
LIGHTING DESCRIPTION	MOUNTING HEIGHT	MOUNT HEIGHT FACTOR[4]	FLOOR DISPLAY AREA (ft^2)	FLOOR DISPLAY[5,6] Power in W/ft^2	ALLOTED WATTS (C X D X E)	LUMIN. CODE	LUMIN QTY.	WATTS/ LUMIN.	DESIGN WATTS (H X I)	ALLOWED WATTS (Min. F or J)

TOTAL AREA FLOOR DISPLAYS ____ ft^2 TOTAL WATTS ____

4) From table 146-E.
5) From table 146-D Column 4.
6) Qualifying floor display lighting systems shall be mounted no closer than 6 ft to a wall.

TAILORED METHOD WORKSHEET (Part 3 of 3) LTG-6-C

PROJECT NAME	DATE

DISPLAY LIGHTING: ORNAMENTAL/SPECIAL EFFECTS

A	B	C	D	E	F	G	H	I
	ALLOTTED WATTS			DESIGN WATTS				
LIGHTING DESCRIPTION	DISPLAY AREA (ft^2)	Ornamental/ Special Effects Lighting[1] W/ft^2	ALLOTTED WATTS (B XC)	LUMINAIRE CODE	QUANTITY	WATTS/ LUMIN.	DESIGN WATTS (F X G)	**ALLOWED WATTS** (Minimum of D or H)

TOTAL DISPLAY AREA _____ ft^2 TOTAL WATTS _____

1) See table 146-D Column 5.

DISPLAY LIGHTING: VERY VALUABLE DISPLAY

A	B	C	D	E	F	G	H	I	J	K	L
	ALLOTTED WATTS						DESIGN WATTS				
LUMINAIRE NAME OR LOCATION	VALUABLE DISPLAY AREA (ft^2)	VALUABLE DISPLAY POWER[2] W/ft^2	SPACE AREA WATTS (B X C)	VALUABLE DISPLAY AREA (ft^2)	20 WATTS PER (ft^2)	DISPLAY AREA WATTS (E X F)	LUMINAIRE CODE	QUANTITY	WATTS / LUMINAIRE	DESIGN WATTS (I X J)	**ALLOWED WATTS** (Minimum of D, G or K)
					20						
					20						
					20						
					20						
					20						
					20						
					20						
					20						

TOTAL AREA _____ ft^2 TOTAL AREA _____ ft^2 TOTAL WATTS _____

2) See table 146-D Column 6.

ROOM CAVITY RATIO WORKSHEET (RCR ≥ 3.5) LTG-7-C

PROJECT NAME		FOR ENFORCEMENT AGENCY USE ONLY	
DOCUMENTATION AUTHOR	DATE	PLAN CHECKED BY	DATE

RECTANGULAR SPACES

A	B	C	D	E	F
Room Number	Task/Activity Description	Room Length (L) (ft)	Room Width (W) (ft)	Room Cavity Height (H) (ft)	Room Cavity Ratio 5 x H x (L+W) / (L x W)

NON-RECTANGULAR SPACES

A	B	C	D	E	F
Room Number	Task/Activity Description	Room Area (A) (ft^2)	Room Perimeter (P) (ft)	Room Cavity Height (H) (ft)	Room Cavity Ratio 2.5 x H x P / A

COMMON LIGHTING SYSTEMS METHOD LTG-8-C

PROJECT NAME	DATE

The Common Lighting Systems method is only appropriate for Building Types listed in Table 146-B (Area Catagory Method Lighting Power Density Values) where the lighting power density is 1.0 Watts per square foot or greater.

SPACE NAME	SPACE AREA	LUMINAIRE TYPE OR CODE	LUMINAIRE POWER	CEC DEFAULT[1]? Y	N	LUMINAIRE SPACING OR LAYOUT
				☐	☐	
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1) CEC default value from Nonresidential ACM Manual Appendix NB.

LINE VOLTAGE TRACK LIGHTING WORKSHEET LTG-9-C

PROJECT NAME	DATE

✓ ☐ METHOD 1 – VOLT-AMPERE (VA) RATING OF THE BRANCH CIRCUIT OR WATTAGE OF THE CURRENT LIMITERS - ONLY CURRENT LIMITERS CERTIFIED TO THE COMMISSION CAN BE USED WITH THIS METHOD

A	B		C	D	E	F	G
Branch Circuit Option			Current Limiter Option				
BRANCH CIRCUIT NAME OR ID	VOLT-AMPERE (VA) RATING OF THE BRANCH CIRCUIT (Fill this column only if branch circuit option is used for compliance)		TRACK EQUIPPED WITH CURRENT LIMITER (CL)? (Columns C thru G may be left blank if the branch circuit option is used for compliance) ✓ IF YES	IF COLUMN (C) IS YES, LIST CURRENT LIMITER WATTAGE (W)	TRACK LENGTH (FT)	MULTIPLY TRACK LENGTH (E) BY 15 W/LF IF THERE IS CL, OR 45 W/LF IF THERE IS NO CL (W)	TRACK WATTAGE – HIGHER OF COLUMNS (D) OR (F) (W)
			☐				
			☐				
			☐				
			☐				
			☐				
SUB-TOTAL WATTS FOR TRACKS ON BRACH CIRCUIT – USE COLUMN (B) VA IF BRANCH CIRCUIT METHOD IS USED, OR TOTAL OF TRACK WATTS IN COLUMN (G) IF THE CL METHOD IS USED							
			☐				
			☐				
			☐				
			☐				
			☐				
SUB-TOTAL WATTS FOR TRACKS ON BRACH CIRCUIT – USE COLUMN (B) VA IF BRANCH CIRCUIT METHOD IS USED, OR TOTAL OF TRACK WATTS IN COLUMN (G) IF THE CL METHOD IS USED							
			☐				
			☐				
			☐				
			☐				
			☐				
SUB-TOTAL WATTS FOR TRACKS ON BRACH CIRCUIT – USE COLUMN (B) VA IF BRANCH CIRCUIT METHOD IS USED, OR TOTAL OF TRACK WATTS IN COLUMN (G) IF THE CL METHOD IS USED							
						TOTAL WATTS – ADD ALL SUBTOTALS	

✓ ☐ METHOD 2 – USE THE HIGHER OF: 45 WATTS / LINEAR FOOT OF TRACK – OR TOTAL RATED WATTAGE OF ALL LUMINAIRES

A	B	C	D	E	F
TRACK # OR NAME	LINEAR FEET OF TRACK	(W/LF)	B x C (W)	TOTAL RATED WATTAGE OF ALL LUMINAIRES	LARGER OF (D or E)
		45			
		45			
		45			
		45			
		45			
		45			
				TOTAL	

Outdoor Lighting Forms - Compliance

CERTIFICATE OF COMPLIANCE (Part 1 of 2) OLTG-1-C

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

GENERAL INFORMATION

DATE OF PLANS	OUTDOOR LIGHTING ZONE (✓ One) ☐ LZ1 ☐ LZ2 ☐ LZ3 ☐ LZ4		
FUNCTION TYPE	☐ OUTDOOR LIGHTING	☐ OUTDOOR SIGNS	☐ INDOOR SIGNS
PHASE OF CONSTRUCTION	☐ NEW CONSTRUCTION	☐ ADDITIONS	☐ ALTERATIONS

STATEMENT OF COMPLIANCE

This Certificate of Compliance lists outdoor lighting system specifications need to comply with Title 24, Parts 1 and 6 of the California Code of Regulations. This certificate applies only to building lighting requirements.

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

DOCUMENTATION AUTHOR	SIGNATURE	DATE

The Principal Lighting Designer hereby certifies that the proposed outdoor lighting and signs 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 lighting requirements contained in the applicable parts of Sections 110, 119,130 through 132, 146, and 149 of Title 24, Part 6. **Please ✓ 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 its preparation; and that I am licensed in the State of California as a civil engineer or electrical engineer, or I am a licensed architect.

☐ I affirm that I am eligible under the provisions of 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 provisions of Division 3 of the Business and Professions Code to sign this document because it pertains to a structure or type of work described as exempt 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.)

PRINCIPAL LIGHTING DESIGNER-NAME	SIGNATURE	DATE	LIC. #

INSTRUCTIONS TO APPLICANT OUTDOOR LIGHTING COMPLIANCE & WORKSHEETS (✓ box if worksheet is included)

For detailed instructions on the use of this and all Energy Efficiency Standards compliance forms, please refer to the Nonresidential Manual published by the California Energy Commission.

☐ OLTG-1-C	Certificate of Compliance. Required on plans for all submittals for outdoor lighting. Part 2 of 2 may be incorporated in schedules on the plans.
	Either LTG-1-C or OLTG-1-C may be used for signs as follows: 1. Use LTG-1-C if the project consists solely of indoor signs 2. Use LTG-1-C if the project consists of indoor lighting, and outdoor or indoor signs, but no other outdoor lighting. 3. Use OLTG-1-C if the project consists solely of outdoor signs 4. Use OLTG-1-C if the project consists of outdoor lighting, and indoor or outdoor signs, but no other indoor lighting
☐ OLTG-2-C	LIGHTING COMPLIANCE SUMMARY. Applicable Parts required for ALL outdoor lighting allowances (Except for Signs)
☐ OLTG-3-C	AREA CALCULATIONS WORKSHEETS. Applicable parts required for all outdoor area calculations.
☐ OLTG-4-C	SIGN LIGHTING COMPLIANCE. Required for all internally and externally illuminated signs, for both indoor and outdoor signs.

CERTIFICATE OF COMPLIANCE (Part 2 of 2) OLTG-1-C

PROJECT NAME

Lighting Schedules on Plans Show that Outdoor Lighting Meets Allowed Lighting Power

✓

☐ Lighting power allowances for general site illumination on OLTG-2-C Part 1 of 4

☐ Not Applicable

☐ Lighting power allowances for local ordinances or for security multipliers on OLTG-2-C Part 2 of 4

☐ Not Applicable

☐ Lighting power allowances for specific applications, other than vehicle service stations with canopies on OLTG-2-C Part 3 of 4

☐ Not Applicable

☐ Lighting power allowances for vehicle service station canopies on OLTG-2-C Part 4 of 4

☐ Not Applicable

☐ Sign lighting compliance on OLTG-4-C

☐ Not Applicable

Mandatory Measures on Plans Show that Outdoor Lighting Meets Outdoor Lighting Controls and Equipment

Indicate location on plans of Note Block for Mandatory Measure

✓

☐ Installed lighting power has been determined in accordance with § 130(c)1

☐ Not Applicable

☐ All permanently installed luminaires with lamps rated over 100 watts either have a lamp efficacy of at least 60 lumens per watt or are controlled by a motion sensor § 132(a)

☐ Not Applicable

☐ All Luminaires with lamps rated greater than 175 watts in hardscape areas, including parking lots, building entrances, canopies, and all outdoor sales areas meet the Cutoff Requirements of § 132(b)

☐ Not Applicable

☐ All permanently installed outdoor lighting meets the Control Requirements of § 132(c)1

☐ Not Applicable

☐ Building facades, parking lots, garages, canopies, and outdoor sales areas meet the Multi-Level Lighting Requirements of § 132(c)2

☐ Not Applicable

MANDATORY AUTOMATIC CONTROLS

CONTROL LOCATION	CONTROL IDENTIFICATION	CONTROL TYPE Auto Time Switch/Photosensor, etc	AREA CONTROLLED	NOTE TO FIELD

LIGHTING COMPLIANCE SUMMARY (Part 1 of 4) OLTG-2-C

PROJECT NAME

DATE

LIGHTING POWER ALLOWANCES – GENERAL SITE ILLUMINATION – (Table 147-A)

	Allotted Watts			Luminaire			Lamps/Ballasts				Installed Watts			
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Lighting Applications Category (Table 147-A)	Area (ft^2) or Length (LF)	Allotted LPD W/ft^2 or W/LF	Allotted Watts (B x C)	Code for Luminaire Type	Description	Cutoff Designation	Lamp Type	Number of Lamps per Luminaire	Watts per Lamp	Number of Ballast per Luminaire	Watts per Luminaire	✓ If CEC Default	Number of Luminaires	Installed Watts (L x N)
Total Allotted Watts											Total Installed Watts			

LIGHTING COMPLIANCE SUMMARY (Part 2 of 4) OLTG-2-C

PROJECT NAME	DATE

LIGHTING POWER ALLOWANCES – LOCAL ORDINANCE (TABLE 147-C) OR SECURITY MULTIPLIERS (TABLE 147-D)

	Allotted Watts				Luminaire			Lamps/Ballasts				Installed Watts			
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Lighting applications Category	Area (ft^2) or Length (LF)	Allotted LPD W/ft^2 or W/LF	Security Multiplier If Applicable or "147-C"	Allotted Watts (B x C x D) or (B x C)	Code for Luminaire Type	Description	Cutoff Designation	Lamp Type	Number of Lamps per Luminaire	Watts per Lamp	Number of Ballast per Luminaire	Watts per Luminaire	✓ If CEC Default	Number of Luminaires	Installed Watts (M x O)

Checklist

☐ EXCEPTION 1 TO § 147(c)1 B – There is a law through a local ordinance requiring specific light levels, and therefore, the power allowances in Table 147-C were used.

LIGHTING COMPLIANCE SUMMARY (Part 3 of 4) OLTG-2-C

PROJECT NAME

DATE

Lighting Power Allowance for Specific Applications (TABLE 147-B) – Other Than Vehicle Service Station without Canopies

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
	Allotted Watts			Luminaire Description			Lamps/Ballasts				Design Watts				
Lighting Application (Table 147-B)	Area (ft^2) or Length (LF)	Allotted LPD W/ft^2 or W/LF	Allotted Watts (B X C)	Code for Luminaire Type	Description	Cutoff Designation	Lamp Type	Number of Lamps per Luminaire	Watts per Lamp	Number of Ballast per Luminaire	Watts per Luminaire	✓ If CEC Default	Number of Luminaires	Design Watts (L x N)	Allowed Watts Minimum of (D or O)

LIGHTING COMPLIANCE SUMMARY (Part 4 of 4) OLTG-2-C

PROJECT NAME	DATE

Lighting Power Allowance for Vehicle Service Station without Canopies

Allotted Watts				Luminaire			Lamps / Ballasts				Design Watts				
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Number Single or Double Sided Fuel Dispensers	Area Single = 250 ft^2 Double = 500 ft^2	Allotted LPD W/ft^2	Allotted Watts (A x B x C)	Code for Luminaire Type	Description	Cutoff Designation	Lamp Type	Number of Lamps per Luminaire	Watts per Lamp	Number of Ballast per Luminaire	Watts per Luminaire	✓ If CEC Default	Number or Luminaires	Design Watts (L x N)	Allowed Watts Minimum of (D or O)

ILLUMINATED AREA CALCULATION WORKSHEET (Part 1 of 5) OLTG-3-C

PROJECT NAME	DATE

Hardscape - Method (i)

A. Hardscape for automotive vehicular use, including parking lots, driveways and site roads

A	B	C	D	E	F	G	H
		Areas (ft^2) to Subtract from within Illuminated Area					
List Specific Application (Table 147-A)	Actual Paved Area plus 5' perimeter of adjacent unpaved land. Includes planters and landscaped areas less than 10' wide that are enclosed by hardscape on at least 3 sides	Areas between poles or luminaires that are greater than 6 mounting height distance (If Applicable)	Overlapping Areas of Another Application or Luminaire	Building Areas	Areas Obstructed By Sign or Other Structure	Sub Total of areas to Subtract (C +D + E + F)	Illuminated Area (B – G)

B. Hardscape for pedestrian use, including plazas, sidewalks, walkways and bikeways

A	B	C	D	E	F	G	H
		Areas (ft^2) to Subtract from within Illuminated Area					
List Specific Application (Table 147-A)	Actual Paved Area plus 5' of unpaved land on either side of path of travel. Shall include all contiguous paved area before including adjacent grounds.	Areas between poles or luminaires that are greater than 6 mounting height distance (If Applicable)	Overlapping Areas of Another Application or Luminaire	Building Areas	Areas Obstructed By Sign or Other Structure	Sub Total of areas to Subtract (C +D + E + F)	Illuminated Area (B – G)

Checklist

☐ § 147(c)1 B – Each portion of all illuminated areas has been assigned only one lighting application, and the applications are consistent with the actual use of the areas.

☐ § 147(c)1 A - General illumination areas includes only those illuminated areas that are in the bounds of the Application and are within a square pattern around a luminaire that is six times the luminaire mounting height, with the luminaire in the middle of the pattern, less any areas that are within buildings, under canopies, beyond property lines, or obstructed by a signs or other structures.

ILLUMINATED AREA CALCULATION WORKSHEET (Part 2 of 5) OLTG-3-C

PROJECT NAME	DATE

A. Hardscape Method ii

Hardscape for driveways, site roads, sidewalks, walkways and bikeways -

A	B
List Specific Application (Table 147-A)	Length of 25' wide path incorporating as much of the paved area as possible.

Checklist

☐ § 147(c)1 B – Each portion of all illuminated areas has been assigned only one lighting application, and the applications are consistent with the actual use of the areas.

☐ § 147(c)1 B Method ii – General illumination areas for site roadway, driveway, sidewalk, walkway, or bikeway includes only those illuminated areas that are in the bounds of the Application and includes a 25 foot wide area running along the axis of the path of travel and includes as much of the paved area as possible

B. Building Entrances without Canopies

A	B	C
Width of Door plus 3 feet	Smaller of 18 feet or distance to the edge of the property line	Area (A x B) (ft^2)

Checklist

☐ § 147(c)1 B – Each portion of all illuminated areas has been assigned only one lighting application, and the applications are consistent with the actual use of the areas.

☐ § 147(c)1 A - General illumination areas includes only those illuminated areas that are in the bounds of the Application and are within a square pattern around a luminaire that is six times the luminaire mounting height, with the luminaire in the middle of the pattern, less any areas that are within buildings, under canopies, beyond property lines, or obstructed by a signs or other structures.

ILLUMINATED AREA CALCULATION WORKSHEET (Part 3 of 5) OLTG-3-C

PROJECT NAME	DATE

A. Outdoor Sales Lot Frontage and Sales Lot Area

A	B	C	D	E	F	G	H
	If an Outdoor Sales Frontage allotment was used, subtract that area from the Gross Illuminated Area						
Gross Illuminated Area (ft^2)	Mounting height of Sales Frontage Luminaires (feet)	3 X B	Distance (In plan view) from frontage luminaire to front edge of Sales Lot	**Sales Lot Frontage** Length (feet)	Sales Frontage Area (C – D) x E (ft^2)	Overlap-ping Areas of Another Application	**Sales Lot Area** A - F - G

Checklist

☐ § 147(c)1 B – Each portion of all illuminated areas has been assigned only one lighting application, and the applications are consistent with the actual use of the areas.

☐ § 147(c) 2 B - Measured in plan view, only illuminated sections of outdoor sales frontage areas that are immediately adjacent to the principal viewing location and unobstructed viewing length, and are within a 3 mounting heights of the frontage have been used. Luminaires qualifying for this allowance are located in plan view between the principal viewing location and the frontage outdoor sales.

B. Building Façade Area

A	B	C	D	E	F	G	H
				Areas (ft^2) to Subtract from the Gross Illuminated Area Do not double count any areas			
Designated Name and Orientation	Length	Height	Gross Area (B x C)	Areas covered by signs	Area for which Illumination is Obstructed by Other Objects and Area Not Illuminated	Sub Total (E+F)	Net Area Available for Façade Lighting (D-G)

Checklist

☐ § 147(c)1 B – Each portion of all illuminated areas has been assigned only one lighting application, and the applications are consistent with the actual use of the areas.

☐ § 147(c) 2 A – Only facades areas that are illuminated without obstruction or interference, by one or more luminaires, have been used.

ILLUMINATED AREA CALCULATION WORKSHEET (Part 4 of 5) OLTG-3-C

PROJECT NAME	DATE

Ornamental Lighting, Canopies, Vehicle Service Station Hardscape, and Outdoor Dining

A	B	C	D	E	F	G
		Areas (ft^2) to Subtract from within Illuminated Area				
Lighting Application (Table 147-B)	Gross Illuminated Area of Application (ft^2)	Areas between poles or luminaires that are greater than 6 mounting height distance (If Applicable)	Overlapping Areas of Another Application or Luminaire	Areas Obstructed By Sign or Other Structure	Sub Total of areas to Subtract (C + D + E)	Illuminated Area (B – F)

Checklist

- ☐ § 147(c)1 B – Each portion of all illuminated areas has been assigned only one lighting application, and the applications are consistent with the actual use of the areas.
- ☐ § 147(c) 2 C - The area of ornamental lighting includes no more than the total area of the site external to buildings. Luminaires used for ornamental lighting employ lamps rated 100 watts or less, and are not used to determine LPD for general illumination.
- ☐ § 147(c) 2 D – Measured in plan view, the areas of illuminated canopies include the horizontal projection of the canopies.
- ☐ § 147(c) 2 F – The area of vehicle service station hardscape includes only illuminated hardscape areas beyond the horizontal projection of the canopy in plan view.
- ☐ § 147(c) 2 I – The area of outdoor dining area includes only illuminated hardscape areas used to serve and consume food and beverages.

ILLUMINATED AREA CALCULATION WORKSHEET (Part 5 of 5) OLTG-3-C

PROJECT NAME	DATE

A. Drive Up Windows

A	B	C
Width of Window plus 6 feet (LF)	Smaller of 30 feet or distance to the edge of the property line (LF)	Area (A x B) (ft^2)
Checklist		Enter each Area in OLTG-2-C (Part 3 of 4) in Column B to calculate allotted watts.

☐ § 147(c) 1 B – Each portion of all illuminated areas has been assigned only one lighting application, and the applications are consistent with the actual use of the areas.

☐ § 147(c) 2 G – Drive up window area includes only illuminated area that is the product of the width of the window plus six feet, and a distance of up to 30 feet outward from the window (not going beyond property lines).

B. Guarded Facility

A	B	C	D
Area of Guardhouse Indoor (ft^2)	Smaller of 80 feet or distance to the edge of the property line (LF)	Entrance Area (B x 25ft) (ft^2)	Area (A + C) (ft^2)
Checklist			Enter each Area in OLTG-2-C (Part 3 of 4) in Column B to calculate allotted watts.

☐ § 147(c) 1 B – Each portion of all illuminated areas has been assigned only one lighting application, and the applications are consistent with the actual use of the areas.

☐ § 147(c) 2 H – The area of guarded facilities includes illuminated areas that include the guardhouse indoor area plus the product of the entrance width of 25 feet and length of up to 80 feet (not going beyond the property line).

SIGN LIGHTING COMPLIANCE — OLTG-4-C

Project Name	Please input Project Name on page one of OLTG-1-C	DATE	

			Alternative 1 – Lighting Power Allowances									Alternative 2 – For Signs that ONLY use one or more of the technologies listed in M through S (Check all that apply)						
A	B	C	D	E	F[1]	G	H	I	J	K	L	M	N	O	P	Q	R	S
			Allotted Watts				Lamp / Ballast			Design Watts								
Sign Symbol or Code	Quantity of Signs	Description or Location	Sign Area (ft^2)	Internally (I) OR Externally (E) Illuminated	Allotted LPD (12 or 2.3) (W / ft2)	Allotted Watts (D X F)	Lamp Type	Number of OR Lineal Feet of Lamps	Number of Ballasts In Signs	Total Designed Sign Input watts	Is K ≤ G? Y / N	High Pressure Sodium	Pulse Start or Ceramic Metal Halide	Neon and Cold Cathode	Light Emitting Diode (LED)	Barrier Coat Fluorescent Lamps (includes most T5 and T8 lamps)	CFLs not containing Medium Screw Base Sockets	Electronic Ballasts with Output Frequency of 20kHz or more
												☐	☐	☐	☐	☐	☐	☐
												☐	☐	☐	☐	☐	☐	☐
												☐	☐	☐	☐	☐	☐	☐
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												☐	☐	☐	☐	☐	☐	☐
												☐	☐	☐	☐	☐	☐	☐

F[1] For Allotted LPD use 12 watts/square foot for Internally Illuminated Signs, and use 2.3 watts/ft^2 for Externally Illuminated Signs.

Note: If an Internally Illuminated or Externally Illuminated sign contains light sources and ballasts other than those included in columns (M) through (S), such as incandescent lamps, medium base sockets, magnetic ballasts, etc, then the sign must comply under Alternative 1. However, unfiltered signs, and unfiltered portions of Internally and Externally illuminated signs, are not required to meet these Standards.

Lighting Forms - Acceptance

2005 CERTIFICATE OF ACCEPTANCE (Part 1 of 2) LTG-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	☐ NONRESIDENTIAL	☐ HIGH RISE RESIDENTIAL	☐ HOTEL/MOTEL GUEST ROOM
PHASE OF CONSTRUCTION	☐ NEW CONSTRUCTION	☐ ADDITION ☐ ALTERATION	☐ UNCONDITIONED

STATEMENT OF ACCEPTANCE

This Certificate of Acceptance summarizes the results of the acceptance tests related to building lighting requirements per Title 24, Part 1 (10-103(b)) and Part 6. (Sections 119(d), 119(e), 131(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 electrical 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

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

PROJECT NAME	DATE

SUMMARY OF ACCEPTANCE TESTS

SYSTEM ACCEPTANCE DOCUMENT Form____of ____)	TESTING AUTHORITY	DATE OF TEST	PASS / FAIL	NOTES Bldg. Dept. Use

NOTE: Use additional sheets as necessary

2005 ACCEPTANCE REQUIREMENTS FOR CODE COMPLIANCE

Lighting Control Acceptance Document LTG-2-A

Form __ of __

PROJECT NAME		DATE
PROJECT ADDRESS		
TESTING AUTHORITY	TELEPHONE	
LIGHTING CONTROL SYSTEM NAME / DESIGNATION		_____ Checked by/Date Enforcement Agency Use

Intent: Lights are turned off when not needed per 119(d) & 131(d).

Construction Inspection

1 Instrumentation to perform test includes, but not limited to:
   a. Light meter
   b. Hand-held amperage and voltage meter
   c. Power meter

2 Occupancy Sensor Construction Inspection
   ☐ Occupancy sensor has been located to minimize false signals
   ☐ Occupancy sensors do not encounter any obstructions that could adversely effect desired performance
   ☐ Ultrasonic occupancy sensors do not emit audible sound (119a) 5 feet from source

3 Manual Daylighting Controls Construction Inspection
   ☐ If dimming ballasts are specified for light fixtures within the daylit area, make sure they meet all the Standards requirements, including "reduced flicker operation" for manual dimming control systems

4 Automatic Time Switch Controls Construction Inspection
   a. Automatic time switch control is programmed for (check all):
      ☐ Weekdays
      ☐ Weekend
      ☐ Holidays
   b. Document for the owner automatic time switch programming (check all):
      ☐ Weekdays settings
      ☐ Weekend settings
      ☐ Holidays settings
      ☐ Set-up settings
      ☐ Preference program setting
   ☐ Verify the correct time and date is properly set in the time switch
   ☐ Verify the battery is installed and energized
   ☐ Override time limit is no more than 2 hours

Certification Statement: I certify that all statements are true on this LTG-2-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 LTG-1-A

Name: _____

Company: _____

Signature: _____ Date: _____

:

2005 ACCEPTANCE REQUIREMENTS FOR CODE COMPLIANCE

Lighting Control Acceptance Document — LTG-2-A

Form __ of __

PROJECT NAME	DATE

A.		Select Acceptance Test (Indicate lighting control systems Names/Designations by the applicable tests below)
☐	1	Occupancy Sensor
☐	2	Manual Daylighting Controls
☐	3	Automatic Time Switch Controls

B.	Equipment Testing Requirements	Applicable Lighting Control Systems		
	Check and verify those items applicable to selected system:	1	2	3
	Occupancy Sensor - Step 1: Simulate an unoccupied condition			
a.	Lights controlled by occupancy sensors turn off within a maximum of 30 minutes from start of an unoccupied condition per Standard Section 119(d)	Y / N		
b.	The occupant sensor does not trigger a false "on" from movement in an area adjacent to the controlled space or from HVAC operation	Y / N		
c.	Signal sensitivity is adequate to achieve desired control	Y / N		
	Step 2: Simulate an occupied condition			
a.	Status indicator or annunciator operates correctly	Y / N		
b.	Lights controlled by occupancy sensors turn on when Immediately upon an occupied condition *OR* (this requirement is mutually exclusive with Step 2.c.)	Y / N		
c.	Sensor indicates space is "occupied" and lights turn on manually	Y / N		
	Step 3: System returned to initial operating conditions	Y / N		
	Manual Daylighting Controls - Step 1: Manual switching control			
a.	At least 50% of lighting power in daylit areas is separately controlled from other lights		Y / N	
b.	The amount of light delivered to the space is uniformly reduced		Y / N	
	Step 2: System returned to initial operating conditions		Y / N	
	Automatic Time Switch Controls - Step 1: Simulate occupied condition			
a.	All lights can be turned on and off by their respective area control switch			Y / N
b.	Verify the switch only operates lighting in the ceiling-height partitioned area in which the switch is located			Y / N
	Step 2: Simulate unoccupied condition			
a.	All non-exempt lighting turn off per Section 131(d)1			Y / N
b.	Manual override switch allows only the lights in the selected ceiling height partitioned space where the override switch is located, to turn on or remain on until the next scheduled shut off occurs			Y / N
c.	All non-exempt lighting turns off			Y / N
	Step 3: System returned to initial operating conditions			Y / N

Note: Shaded areas do not apply for particular test procedure

C.	PASS / FAIL Evaluation (check one):
☐	PASS: All applicable **Construction Inspection** responses are complete and all applicable **Equipment Testing Requirements** responses are positive (Y - yes)
☐	FAIL: Any applicable **Construction Inspection** responses are incomplete *OR* there is one or more negative (N - no) responses in any applicable **Equipment Testing Requirements** section. Provide explanation below. Use and attach additional pages if necessary.

2005 ACCEPTANCE REQUIREMENTS FOR CODE COMPLIANCE

Automatic Daylighting Controls Acceptance Document — LTG-3-A

Form __ of __

PROJECT NAME		DATE
PROJECT ADDRESS		_____ Checked by/Date Enforcement Agency Use
TESTING AUTHORITY	TELEPHONE	
AUTOMATIC DAYLIGHTING CONTROL NAME / DESIGNATION		

Intent: Verify operation of daylighting systems meet 119(e)2.

Construction Inspection

1 Instrumentation to perform test includes, but not limited to:
   a. Light meter
   b. Hand-held amperage and voltage meter
   c. Power meter

2 Documentation of all control devices (photocells) have been properly located including:
   a. Factory-calibrated (proof required)
      ☐ Factory-calibration certificate attached
   b. Field-calibrated
      ☐ Setpoint properly set
      ☐ Lighting threshold

3 Documentation has been provided by the installer for:
   ☐ Setpoints for each device
   ☐ Settings for each device
   ☐ Programming for each device

4 Luminaires controlled by automatic daylighting controls are only in daylit areas; and
   ☐ Separately circuited for daylit areas by windows and daylit areas under skylights

Certification Statement: I certify that all statements are true on this LTG-3-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 LTG-1-A

Name: _____

Company: _____

Signature: Date: _____

:

2005 ACCEPTANCE REQUIREMENTS FOR CODE COMPLIANCE

Automatic Daylighting Controls Acceptance Document — LTG-3-A

Form __ of __

PROJECT NAME	DATE

A.		Control System (check all applicable systems and list lighting control systems Names/Designations)
☐	1	Continuous Dimming Control Systems
☐	2	Stepped Dimming Control Systems
☐	3	Stepped Switching Control Systems

B.	Equipment Testing Requirements	Applicable Control System		
	Check and verify those applicable to specific simulation mode:	1	2	3
	Step 1: Simulate bright conditions			
a.	Measured lighting power at fully dimmed condition kW =			
b.	Rated lighting power at full light output kW =			
c.	Lighting power reduced by at least 50% in daylit area by windows and at least 65% in daylit areas under skylights.	Y / N		
d.	Only luminaries in daylit zone are affected by daylight control	Y / N	Y / N	Y / N
e.	Automatic daylight control system reduces the amount of light delivered to the space uniformly	Y / N		
f.	Dimming control system provides reduced flicker operation over the entire operating range per Standards Section 119(e)2.	Y / N		
g.	Lumen measurements in the space, location of measurements and specific device settings, program setting and other measurements are documented	Y / N	Y / N	Y / N
h.	Automatic daylight control system reduces the amount of light delivered to the space relatively uniformly as per Section 131(b)		Y / N	
I.	Lighting power reduced by at least 50% in daylit area by windows and at least 65% in daylit areas under skylights.		Y / N	Y / N
j.	Automatic daylight control system reduces the amount of light delivered to the space per manufacturer's specifications for power level versus light level		Y / N	Y / N
k.	Minimum time delay between step changes is 3 minutes to prevent short cycling		Y / N	
l.	Lighting power reduction is at least 50% under fully switched conditions per Standards Section 119(e)1			Y / N
m.	Single- or multiple-stepped switching controls provide a dead band of at least three minutes between switching threshold to prevent short cycling			Y / N
	Step 2: Simulate dark conditions			
a.	Dimming control system provides reduced flicker operation over the entire operating range per Standards Section 119(e)2.	Y / N	Y / N	
b.	Lumen measurements in the space, location of measurements and specific device settings, program setting and other measurements are documented	Y / N	Y / N	Y / N
c.	Automatic daylight control system increases the amount of light delivered to the space uniformly	Y / N	Y / N	Y / N
d.	Minimum time delay between step changes is 3 minutes to prevent short cycling		Y / N	
e.	Single- or multiple-stepped switching controls provide a dead band of at least three minutes between switching threshold to prevent short cycling			Y / N
	Step 3: System returned to initial operating conditions	Y / N	Y / N	Y / N

C.	PASS / FAIL Evaluation (check one):
☐	PASS: All applicable **Construction Inspection** responses are complete and all applicable **Equipment Testing Requirements** responses are positive (Y - yes)
☐	FAIL: Any applicable **Construction Inspection** responses are incomplete *OR* there is one or more negative (N - no) responses in any applicable **Equipment Testing Requirements** section. Attach additional pages with explanation.

Mechanical Forms - Acceptance

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	☐ NONRESIDENTIAL	☐ HIGH RISE RESIDENTIAL	☐ HOTEL/MOTEL GUEST ROOM
PHASE OF CONSTRUCTION	☐ NEW CONSTRUCTION	☐ ADDITION ☐ ALTERATION	☐ 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

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

PROJECT NAME	DATE

SUMMARY OF ACCEPTANCE TESTS

SYSTEM ACCEPTANCE DOCUMENT (Form ____ of _____)	TESTING AUTHORITY	DATE OF TEST	PASS / FAIL	NOTES Bldg. Dept. Use

NOTE: Use additional sheets as necessary

Ventilation System Acceptance Document

NJ.3.1, NJ.3.2

Form __of __

PROJECT NAME		DATE
PROJECT ADDRESS		Checked by/Date Enforcement Agency Use
TESTING AUTHORITY	TELEPHONE	
VENTILATION SYSTEM NAME / DESIGNATION		

Intent: Verify measured outside airflow CFM within ± 10% of the total required outside airflow value found in the Standards Mechanical Plan (MECH-3-C, Column H or Column I), per 121(f).

Construction Inspection

1 Instrumentation to perform test includes, but not limited to:
   a. Watch
   b. Means to measure airflow (hot wire anemometer or pitot tube)

2 Check one of the following:
   ☐ Variable Air Volume (VAV) - Check as appropriate:
      a. Sensor used to control outdoor air flow must have calibration certificate or be field calibrated
         ☐ Calibration certificate (attach calibration certification)
         ☐ Field calibration (attach results)
   ☐ Constant Air Volume (CAV) - Check as appropriate:
      ☐ System is designed to provide a fixed minimum OSA when the unit is on

Certification Statement: I certify that all statements are true on this MECH-2-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: _____

Ventilation System Acceptance Document

NJ.3.1, NJ.3.2

Form __of __

PROJECT NAME	DATE

A.	Equipment Testing (Check appropriate column)	CAV	VAV
a.	Verify unit is not in economizer mode during test - check appropriate column		
Step 1: CAV and VAV testing at full supply airflow			
1	Drive boxes open (check)		
2	Measured outdoor airflow (cfm)		
3	Required outdoor airflow (cfm) *(from MECH-3-C, Column I)*		
4	Time for outside air damper to stabilize after VAV boxes open (minutes)		
5	Return to initial conditions (check)		
Step 2: VAV testing at reduced supply airflow			
1	Drive boxes to minimum (check)		
2	Measured outdoor airflow (cfm)		
3	Required outdoor airflow (cfm) *(from MECH-3-C, Column I)*		
4	Time for outside air damper to stabilize after VAV boxes open (minutes)		
5	Return to initial conditions (check)		

B.	Testing Calculations & Results	CAV	VAV
Step 1:	% Outdoor Air = Measured outside air /Required outside air (Step1:2/Step1:3)	%	%
	90% > %Outdoor Air < 110%	Y / N	Y / N
	Outside air damper position stabilizes within 15 minutes (Step 1:4 < 15 minutes)	Y / N	Y / N
Step 2:	% Outdoor Air = Measured outside air /Required outside air (Step2:2/Step2:3)		
	90% > %Outdoor Air < 110%		Y / N
	Outside air damper position stabilizes within 15 minutes (Step 2:4 < 15 minutes)		Y / N

Note: Shaded boxes do not apply for that particular test procedure

C.	PASS / FAIL Evaluation (check one):
☐	PASS: All **Construction Inspection** responses are complete and **Testing Calculations & Results** responses are positive (Y - yes)
☐	FAIL: Any **Construction Inspection** responses are incomplete *OR* there is one or more negative (N - no) responses in **Testing Calculations & Results** section. Provide explanation below. Use and attach additional pages if necessary.

2005 ACCEPTANCE REQUIREMENTS FOR CODE COMPLIANCE MECH-3-A

Packaged/Split HVAC Systems Acceptance Document

NJ.4.1 **Form _____ of _____**

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

Intent: Verify that under a specific load whether in occupied or unoccupied condition, the system meets a specific sequence of operation.

Construction Inspection

1 Instrumentation to perform test includes, but not limited to:
   a. None required

2 Installation
   ☐ Thermostat or zone temperature sensor is located within the zone that the HVAC system serves
   ☐ Thermostat or sensor is wired to the HVAC system correctly

3 Programming (check **all** of the following)
   ☐ Heating and cooling thermostats are capable of a 5°F deadband where cooling and heating are at a minimum (§122(b)3)
   ☐ Occupied, unoccupied, and holiday schedule have been programmed.
   ☐ Pre-occupancy purge (at least lesser of minimum outside air or 3 ACH for one hour prior to occupancy) programmed (§121(c)2)
   ☐ Set up and set back setpoints have been programmed as required

Certification Statement: I certify that all statements are true on this MECH-3-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: _____

2005 ACCEPTANCE REQUIREMENTS FOR CODE COMPLIANCE — MECH-3-A

Packaged/Split HVAC Systems Acceptance Document

NJ.4.1 — **Form _____ of _____**

PROJECT NAME	DATE

B. Equipment Testing Requirements — **Operating Modes**

		Check and verify the following for each simulation mode required	A: Heating load during occupied condition	B: No-load during occupied condition	C: Heating load during unoccupied condition	D: No-load during unoccupied condition	E: Manual override	F: Cooling load during occupied condition	G: Cooling load during unoccupied condition
	1	Supply fan operates continually	☐	☐			☐	☐	
	2	Supply fan turns off				☐			
	3	Supply fan cycles on and off			☐				☐
	4	System reverts to "occupied" mode to satisfy any condition					☐		
	5	System turns off when manual override time period expires					☐		
	6	Gas-fired furnace, heat pump, or electric heater stages on	☐		☐				
	7	Neither heating or cooling is provided by the unit		☐		☐			
	8	No heating is provided by the unit		☐		☐		☐	☐
	9	No cooling is provided by the unit	☐	☐	☐	☐			
	10	Compressor stages on						☐	☐
	11	Outside air damper is open to minimum position	☐	☐			☐	☐	
	12	Outside air damper closes completely				☐			
	13	System returned to initial operating conditions after all tests have been completed: Y/N							

C. Testing Results	A	B	C	D	E	F	G
Indicate if Passed (P), Failed (F), or N/A (X), fill in appropriate letter							

Note: Shaded areas do not apply for particular test procedure

D. PASS / FAIL Evaluation (check one):

☐ PASS: All **Construction Inspection** responses are complete and all applicable **Testing Results** responses are "Passed" (P)

☐ FAIL: Any **Construction Inspection** responses are incomplete *OR* there is one or more "Failed" (F) responses in **Testing Results** section. Provide explanation below. Use and attach additional pages if necessary.

2005 ACCEPTANCE REQUIREMENTS FOR CODE COMPLIANCE

Economizer Acceptance Document	MECH-4-A
NJ.7.1	Form __ of __

PROJECT NAME		DATE
PROJECT ADDRESS		Checked by/Date Enforcement Agency Use
TESTING AUTHORITY	TELEPHONE	
AIR ECONOMIZER NAME / DESIGNATION		

Intent: Verify that an HVAC system uses outside air to satisfy space cooling loads when outside air conditions are acceptable.

Construction Inspection

1 Instrumentation to perform test includes, but not limited to:
   a. Hand-held temperature probes
   b. Multi-meter capable of measuring ohms and milliamps

2 Test method (check one of the following):

☐ Economizer comes from HVAC system manufacturer installed by and has been factory calibrated and tested. **Attach documentation and complete certification statement. No equipment testing required.**

☐ Economizer field installed and field tested.

3 Installation (check **all** of the following first level boxes)

☐ Economizer high limit setpoint complies with Table 144-C per Standards Section 144(e)3

☐ System controls are wired correctly to ensure economizer is fully integrated (i.e. economizer will operate when mechanical cooling is enabled), if all boxes are checked for Standalone Control or EMS Control

Stand-alone Control Systems:

☐ HVAC unit has two-stage thermostat and the economizer is wired to be the first stage of control

☐ First stage of cooling (Y1) from thermostat is separately wired to Y1 at HVAC unit

☐ Second stage of cooling (Y2) from thermostat is separately wired to Y2 at HVAC unit

☐ Two stages of cooling are not jumpered or wired together

EMS Controlled Systems:

☐ Control sequence of operations will allow economizer to be integrated with cooling coil

☐ Economizer high limit control sensor(s) are properly installed

☐ System is provided with either barometric relief or powered relief (a relief fan or a return fan)

☐ Sensor(s) used for economizer high limit control has factory calibration certificate or is field calibrated. Sensors include: outside air sensor only if single-point changeover; both outside and return air sensors if differential changeover control. Field calibration is not necessary if economizer is factory installed.

Certification Statement: I certify that all statements are true on this MECH-4-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 _____

: _ _

2005 ACCEPTANCE REQUIREMENTS FOR CODE COMPLIANCE

Economizer Acceptance Document	MECH-4-A
NJ.7.1	Form __ of __

PROJECT NAME	DATE

A. Equipment Testing	
Step 1: Simulate a cooling load and enable the economizer (check and verify the following)	
☐	Economizer damper modulates open to maximum position to provide 100% of design supply air quantity as outside air
☐	Return air damper modulates closed and is completely closed when economizer damper is 100% open
☐	Economizer damper is 100% open before mechanical cooling is enabled
☐	Relief is provided through barometric damper or powered relief (relief or return fan and exhaust damper)
☐	Mechanical cooling is only enabled if cooling space temperature setpoint is not met with economizer at 100% open
☐	There are no signs of building overpressurization
Step 2: Simulate a cooling load and disable the economizer (check and verify the following)	
☐	Economizer damper closes to minimum position
☐	Return air damper opens to normal operating position
☐	Relief fan (if applicable) shuts off or barometric relief dampers close. If system uses a return fan, the exhaust damper is shut.
☐	Mechanical cooling remains enabled until cooling space temperature setpoint is met
Step 3: System returned to initial operating conditions	Y / N

B. Testing Results	PASS / FAIL
Step 1: Simulate cooling load and enable the economizer (all check boxes are complete)	
Step 2: Simulate cooling load and disable the economizer (all check boxes are complete)	

C. PASS / FAIL Evaluation (check one):	
☐	PASS: All **Construction Inspection** responses are complete and all **Testing Results** responses are "Pass"
☐	FAIL: Any **Construction Inspection** responses are incomplete *OR* there is one or more "Fail" responses in **Testing Results** section. Provide explanation below. Use and attach additional pages if necessary.

2005 ACCEPTANCE REQUIREMENTS FOR CODE COMPLIANCE MECH-5-A

NJ.5.1Air 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 must be less than 6% leakage rate per §144(k) or §149(b)Di, existing single zone ductwork must be less than 15% leakage or other compliance path per §149(b)Dii or §149(b)E.

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):	
	☐	1a) Connected to a constant volume, single zone air conditioners, heat pumps, or furnaces
	☐	1b) Serves less than 5000 square feet of floor area
	☐	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
	☐	- Other unconditioned spaces 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)	
	☐	Stainless steel worm-drive hose clamps
	☐	UV-resistant nylon duct ties
☐	b. Flexible ducts are not constricted in any way	
☐	c. Duct leakage tests performed before access to ductwork and connections are blocked	
☐	d. Joints and seams are not sealed with cloth back rubber adhesive tape unless used in combination with Mastic and drawbands	
☐	e. Duct R-values are verified R-8 per 124(a)	
☐	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(b)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 <6%: [_____(**Line # 4**) /_____(**Line # 3**)] x 100	%	☐ Pass ☐ 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 <15% [_____(**Line # 7**) / _____(**Line # 3**)] x 100	%	☐ Pass ☐ Fail
9	Pass if Leakage Reduction Percentage >60% Leakage reduction = [1 - [_____(**Line#7**) / _____(**Line#6**)]} x 100	%	☐ Pass ☐ Fail
10	Pass if all Accessible Leaks are sealed as confirmed by Visual Inspection and Verification by HERS rater (sampling rate 100%)		☐ Pass ☐ Fail
	Pass if One of Lines #8 through # 10 pass		☐ Pass ☐ 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:
License:		Expires:

INSTALLER CERTIFICATION (Part 3 of 3) MECH-5-A

HERS Rater: Telephone:	Sample Group Number:
Certifying Signature:	Sample building Number:
Firm:	HERS Provider:
Copies to: Builder, Building Owner at Occupancy, Building Department (wet signature), HERS Provider	

For new buildings the HERS rater must test and field verify the first individual single zone package space conditioning equipment unit of each building. After the first unit passes the builder shall identify a group of up to seven package units in the building from which one sample will be selected for testing. If this first sampled unit fails the HERS rater must pick another package unit from the group for testing. If the second unit in the group does not pass the HERS rater must test all package units in the group.

For existing buildings the HERS rater must pressure test one out of every seven units a contractor changes. Same rules apply for sampling above.

This page must be filled out by the HERS rater for all tested and sampled buildings. If the installer has not tested every system and provided a MECH-5-A to the HERS rater sampling must not occur.

The unit was: ✓ ☐ Tested ✓ ☐ Approved as part of sample testing but was not tested

As the HERS rater providing diagnostic testing and field verification, I certify that the building identified on this form complies with the diagnostic tested compliance requirements as checked ✓ on this form. The HERS rater must verify the distribution system on every new TESTED system to make sure that it is fully ducted and correct tape is used before a MECH-5-A may be released.

☐ The installer has provided a completed MECH-5-A for every system in the group

☐ In new duct systems, where cloth backed, rubber adhesive duct tape is installed, mastic and draw bands are used in combination with cloth backed, rubber adhesive duct tape to seal leaks at duct connections.

	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) [_____ tons x 400 cfm/ton]		
	b) Heating capacity (for heating only units) [_____ kBtuh x 21.7 cfm/kBtuh]		
2	**Total calculated supply fan flow 1(a) or 1(b) cfm**		
	NEW CONSTRUCTION OR ENTIRE NEW DUCT SYSTEM ALTERATION:		
3	Duct Pressurization Test Results (CFM @ 25 Pa) Enter Tested Leakage Flow in CFM:		✓ ✓
4	Pass if Leakage Percentage <6%: [_____(**Line # 3**) / _____(**Line # 2**)] x 100	%	☐ Pass ☐ Fail
	ALTERATIONS: Pre-existing Duct System with Duct Alteration and/or HVAC Equipment Change-Out		
5	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:		
6	Pass if Leakage Percentage <15% [_____**(Line # 5)** / _____**(Line # 2)**] x 100	%	☐ Pass ☐ Fail
7	For systems certified by the installer as reducing leakage, pass if Leakage Reduction >60%. $\text{LeakageReduction} = 1 - \frac{_____(\text{Line\#5 HERS Tested Leakage})}{_____(\text{Line\#6 Installer's Certified Pre-Test Leakage})}$] x 100	%	☐ Pass ☐ Fail
8	Pass if all Accessible Leaks are sealed as confirmed by Visual Inspection and Verification by HERS rater (sampling rate 100%)		☐ Pass ☐ Fail
	Pass if One of Lines # 6 through # 8 pass		☐ Pass ☐ Fail

2005 ACCEPTANCE REQUIREMENTS FOR CODE COMPLIANCE

Demand Control Ventilation Acceptance Document — MECH-6-A

NJ.8.1 — **Form __ of __**

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

Intent: Verify outside air ventilation flow rate can be modulated automatically based on maintaining interior carbon dioxide concentration setpoint.

Construction Inspection

1 Instrumentation to perform test may include, but not limited to:
   a. Calibrated hand-held CO2 analyzer
   b. Manufacturer's calibration kit
   c. Calibrated CO2/air mixtures

2 Installation
   ☐ The sensor is located in the room between 1 ft and 6 ft above the floor
   ☐ System controls are wired correctly to ensure proper control of outdoor air damper system

3 Documentation of all carbon dioxide control sensors includes (check one of the following):
   a. Calibration method
      ☐ Factory-calibration certificate
      ☐ Field calibrated
   b. Sensor accuracy
      ☐ Certified by manufacturer to be no more than +/- 75 ppm

Certification Statement: I certify that all statements are true on this MECH-6-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: _____

-:

2005 ACCEPTANCE REQUIREMENTS FOR CODE COMPLIANCE

Demand Control Ventilation Acceptance Document	MECH-6-A
NJ.8.1	Form __ of __

PROJECT NAME	DATE

A. Equipment Testing	
a. Verify economizer controls disabled	
b. Outside air CO2 concentration (select one of the following)	
☐ Assumed to be 400 ppm	_____ ppm
☐ Measured dynamically using CO2 sensor	_____ ppm
c. Interior CO2 concentration setpoint (Outside CO2 concentration + 600 ppm)	_____ ppm
Step 1: Simulate a high CO2 load	
☐ Outdoor air damper modulates opens per Standards toward maximum position to satisfy outdoor air requirements specified in Section 121(c)4, Table 121-A.	
Step 2: Simulate a low CO2 load, or increase CO2 setpoint	
☐ Outdoor air damper closes to minimum position during occupancy	
Step 3: System returned to initial operating conditions	Y / N

B. Testing Results	PASS / FAIL
Step 1: Simulate a high CO2 load (check box complete)	
Step 2: Simulate a low CO2 load (check box complete)	

C. PASS / FAIL Evaluation (check one):	
☐	PASS: All **Construction Inspection** responses are complete and all **Testing Results** responses are "Pass"
☐	FAIL: Any **Construction Inspection** responses are incomplete *OR* there is one or more "Fail" responses in **Testing Results** section. Provide explanation below. Use and attach additional pages if necessary.

2005 ACCEPTANCE REQUIREMENTS FOR CODE COMPLIANCE

Supply Fan VFD Acceptance Document — MECH-7-A

NJ.9.1 — **Form __ of __**

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

Intent: Verify that the supply fan in a variable air volume application modulates to meet air flow demand and operating parameters are within +/-10% of design value and/or setpoint.

Construction Inspection

1 Instrumentation to perform test includes, but not limited to:
   a. Differential pressure gauge

2 Test preparation
   ☐ Disable discharge air temperature reset sequences to prevent unwanted interaction while performing tests

3 Documentation of all discharge static pressure sensors including (check one of the following):
   a. Factory-calibrated (proof required)
      ☐ Factory-calibration certificate
   b. Field-calibrated
      ☐ Calibration complete, all pressure sensors within 10% of calibrated reference sensor

Certification Statement: I certify that all statements are true on this MECH-7-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: _____

::

2005 ACCEPTANCE REQUIREMENTS FOR CODE COMPLIANCE

Supply Fan VFD Acceptance Document	MECH-7-A
NJ.9.1	Form __ of __

PROJECT NAME	DATE

A. Equipment Testing		Results
Step 1: Drive all VAV boxes to achieve design airflow		
2.	Witness proper response from supply fan (e.g. VFD near 100%; variable pitch blades loaded)	Y / N
3.	Controller supply air static pressure setpoint at full flow	
4.	Measured supply fan discharge static pressure In. WC=	
5.	Time for system to stabilize to full flow Minutes =	
Step 2: Drive all VAV boxes to minimum flow		
6.	Witness proper response from supply fan (e.g. VFD slows fan speed; variable pitch blades unloaded)	Y / N
7.	Controller supply air static pressure setpoint at minimum flow	
8.	Measured supply fan discharge static pressure In. WC=	
9.	Time for system to stabilize to minimum flow Minutes =	
Step 3: System returned to initial operating conditions		Y / N

B. Test Calculations and Results		
Compare design static pressure with controller setpoint and measured pressure at full flow		
1.	Ratio Measured static pressure / controller pressure setpoint at full flow **(A.4./A.3.)** %=	
2.	90% < Measured static pressure / Controller pressure setpoint, at full flow **(B.2.)** < 110%	Y / N
3.	System stabilizes to full flow within 15 minutes (no hunting): **A.5. < 15 minutes**	Y / N
Compare controller setpoint to measured pressure at minimum flow and setpoint at full flow		
4.	Controller pressure setpoint at min flow ≤ controller pressure setpoint at full flow **(A.7. ≤ A.3.)**	Y / N
5.	Ratio Measured static pressure / Controller pressure setpoint at min flow **(A.8./A.7.)** %=	
6.	90% < Measured static pressure / Controller pressure setpoint, at min flow **(B.5.)** < 110%	Y / N
7.	System stabilizes to minimum flow within 15 minutes (no hunting): **A.9. < 15 minutes**	Y / N

C. PASS / FAIL Evaluation (check one)	
☐	PASS: All **Construction Inspection** responses are complete and **Testing Results** responses are positive (Y - yes)
☐	FAIL: Any **Construction Inspection** responses are incomplete *OR* there is one or more negative (N - no) responses in **Testing Results** section. Provide explanation below. Use and attach additional pages if necessary.

2005 ACCEPTANCE REQUIREMENTS FOR CODE COMPLIANCE

Hydronic System Control Acceptance Document — MECH-8-A

NJ.10.1 - NJ.10.5 — **Form 1 of 4**

PROJECT NAME	DATE
PROJECT ADDRESS	Checked by/Date — Enforcement Agency Use
TESTING AUTHORITY / TELEPHONE	
HYDRONIC SYSTEM NAME / DESIGNATION	

Intent: Satisfy HVAC water pumping requirements per Section 144(j).

Construction Inspection

1 Instrumentation to perform tests include, but not limited to:
   a. Differential pressure gauge
   b. Portable temperature probe

2 Variable Flow Controls (VFC) and Automatic Isolation Controls (AIC) Inspection

VFC AIC
☐ ☐ Valve and piping arrangements were installed per the design drawings to achieve the desired control

3 Supply Water Temperature Reset Controls Inspection
   ☐ Supply temperature sensors have been calibrated
      ☐ Manufacturer's calibration certificates (attached)
      ☐ Site calibration within 2° F of temperature measurement with reference meter
   ☐ Sensor locations are adequate to achieve accurate measurements
   ☐ Installed sensors comply with specifications

4 Water-loop Heat Pump Controls Inspection
   ☐ Valves were installed per the design drawings to achieve equipment isolation requirements
   ☐ All sensor locations comply with design drawings

5 Variable Frequency Drive Controls Inspection
   ☐ All valves, sensors, and equipment were installed per the design drawings
   ☐ Pressure sensors are calibrated
      ☐ Manufacturer's calibration certificates (attached)
      ☐ Site calibration within 10% of pressure measurement with reference meter

Certification Statement: I certify that all statements are true on this MECH-8-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: _____

2005 ACCEPTANCE REQUIREMENTS FOR CODE COMPLIANCE

Hydronic System Control Acceptance Document — MECH-8-A

NJ.10.1 - NJ.10.5 — **Form 2 of 4**

PROJECT NAME	DATE

		System ID				
A.	**System Type**	**1**	**2**	**3**	**4**	**5**
1	Chilled water					
2	Heating hot water					
3	Water-loop heat pump loop					
4	Other (fill in blank):					
5	Other (fill in blank):					
B.	**Select Acceptance Test (check all tests completed)**	**1**	**2**	**3**	**4**	**5**
☐	Variable Flow Control - Alternate 1 (Flow measurement)					
☐	Variable Flow Control - Alternate 2 (No flow measurement)					
☐	Automatic Isolation Controls					
☐	Supply Water Temperature Reset Controls					
☐	Water-loop Heat Pump Controls - Alternate 1 (With Flow Meter)					
☐	Water-loop Heat Pump Controls - Alternate 2 (Without Flow Meter)					
☐	(Pump) Variable Frequency Drive Controls - Alternate 1(With Flow Meter)					
☐	(Pump) Variable Frequency Drive Controls - Alternate 2(Without Flow Meter)					

	C. Equipment Testing Requirements	System ID				
	Verify and document the following (check applicable tests)	**1**	**2**	**3**	**4**	**5**
	NJ 10.1 Variable Flow Control - Alternate 1					
	Step 1: Open all control valves.					
a.	Measured system flow (gpm) GPM =					
b.	Design system flow (gpm) GPM =					
c.	System operation achieves design conditions	☐	☐	☐	☐	☐
	Step 2: Initiate closure of control valves					
a.	Measured system flow (gpm) GPM =					
b.	Design system flow (gpm) GPM =					
c.	Design pump flow control strategy achieves flow reduction requirements	☐	☐	☐	☐	☐
d.	Ensure all valves operate correctly against the system pressure	☐	☐	☐	☐	☐
	Step 3: System returned to initial operating conditions	Y / N	Y / N	Y / N	Y / N	Y / N
	NJ.10.1 Variable Flow Control- Alternate 2					
	Step 1:Drive all valves shut and dead head pump against manual isolation valve					
a.	Measured pressure across the pump (ft. H20) ΔP=					
	Step 2: Open manual isolation valve and measure pump DP with control valves closed					
a.	Measured pressure across the pump (ft. H20) ΔP=					
b.	Both shutoff pressures are within +/- 5% of each other	☐	☐	☐	☐	☐
	Step 3: System returned to initial operating conditions	Y / N	Y / N	Y / N	Y / N	Y / N
	NJ.10.2 Automatic Isolation Controls					
	Step 1:Drive all valves shut and dead head pump against manual isolation valve					
a.	Measured pressure across the pump (ft. H20) ΔP=					
	Step 2: Open manual isolation valve and start/stop each chiller or boiler one at a time					
a.	Verify automatic isolation valve opens fully when respective unit is ON	☐	☐	☐	☐	☐
b.	Verify automatic isolation valve closes fully when respective unit is OFF	☐	☐	☐	☐	☐
	Step 3: Stop all chillers and boilers on the hydronic loop					
a.	Measured pressure across the pump (ft. H20) ΔP=					
b.	Both shutoff pressures (1a and 3a) are within +/- 5% of each other	☐	☐	☐	☐	☐
	Step 4: System returned to initial operating conditions	Y / N	Y / N	Y / N	Y / N	Y / N

2005 ACCEPTANCE REQUIREMENTS FOR CODE COMPLIANCE

Hydronic System Control Acceptance Document — MECH-8-A

NJ.10.1 - NJ.10.5 — Form 3 of 4

PROJECT NAME		DATE				
NJ.10.3 Supply Water Temperature Reset Controls						
Step 1: Manually change design control variable to maximum setpoint						
a.	Reset temperature setpoint °F =					
b.	Measured water temperature °F =					
c.	Water temperature setpoint is reset to appropriate value	☐	☐	☐	☐	☐
d.	Actual water supply temperature meets setpoint	☐	☐	☐	☐	☐
Step 2: Manually change design control variable to minimum setpoint						
a.	Reset temperature setpoint °F =					
b.	Measured water temperature °F =					
c.	Water temperature setpoint is reset to appropriate value	☐	☐	☐	☐	☐
d.	Actual water supply temperature meets setpoint	☐	☐	☐	☐	☐
Step 3: System returned to initial operating conditions		Y / N	Y / N	Y / N	Y / N	Y / N
NJ 10.4 Water-loop Heat Pump Controls (for circulation pumps > 5 hp) - Alternate 1						
Step 1: Open all control valves						
a.	Measured system flow (gpm) GPM =					
b.	Design system flow (gpm) GPM =					
c.	System operation achieves design conditions +/- 5% (Step 1.a./Step 1.b.)	☐	☐	☐	☐	☐
Step 2: Initiate shut-down sequence on each individual heat pumps						
a.	Isolation valves close automatically upon unit shut-down	☐	☐	☐	☐	☐
b.	Ensure all valves operate correctly at shut-off system pressure conditions	☐	☐	☐	☐	☐
c.	System flow reduced for each individual heat pump shut down	☐	☐	☐	☐	☐
Step 3: System returned to initial operating conditions		Y / N	Y / N	Y / N	Y / N	Y / N
NJ.10.4 Water-loop Heat Pump Controls (for circulation pumps > 5 hp) - Alternate 2						
Step 1:Drive all valves shut and dead head pump against manual isolation valve						
a.	Measured pressure across the pump (ft. H20) ΔP=					
Step 2: Open manual isolation valve and measure pump DP with automatic isolation valves closed						
a.	Measured pressure across the pump (ft. H20) ΔP=					
b.	Both shutoff pressures are within +/- 5% of each other	☐	☐	☐	☐	☐
Step 3: System returned to initial operating conditions		Y / N	Y / N	Y / N	Y / N	Y / N
NJ.10.5 (Pump) Variable Frequency Drive Controls - Alternate 1 (With Flow Meters)						
Step 1: Open all control valves						
a.	Measured system flow (gpm) GPM =					
b.	Design system flow (gpm) GPM =					
c.	Design pump power (estimated by motor HP/ motor efficiency x 0.746 kW/HP) kW =					
d.	System operation achieves design conditions +/- 5% (Step 1.a./Step 1.b.)	☐	☐	☐	☐	☐
e.	VFD operates near 100% speed at full flow	☐	☐	☐	☐	☐
Step 2: Modulate control valves closed						
a.	Ensure all valves operate correctly at system pressure conditions	☐	☐	☐	☐	☐
b.	Witness proper response from VFD (speed decreases as valves close)	☐	☐	☐	☐	☐
c.	Time for system to stabilize Min =					
d.	System operation stabilizes within 5 min. after test procedures are initiated	☐	☐	☐	☐	☐
Step 3: Adjust system operation to achieve 50% flow						
a.	Measured system flow (gpm) GPM =					
b.	Measured pump power at full flow kW =					
c.	%Power = part load kW/full load design kW (Step 3.b. / Step 1.c.) % =					
d.	VFD input power less than 30% of design	☐	☐	☐	☐	☐
Step 4: Adjust to achieve flow rate where VFD is below min speed setpoint						
a.	VFD minimum setpoint Hz =					
b.	Ensure VFD maintains minimum speed setpoint	☐	☐	☐	☐	☐
Step 5: System returned to initial operating conditions		Y / N	Y / N	Y / N	Y / N	Y / N

2005 ACCEPTANCE REQUIREMENTS FOR CODE COMPLIANCE

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PROJECT NAME	DATE

NJ.10.5 (Pump) Variable Frequency Drive Controls - Alternate 2 (Without Flow Meters)						
Step 1: Open all control valves						
a.	Visually inspect a few valves to verify that they open					
b.	Time for system to stabilize Min =					
c.	System operation stabilizes within 5 min. after test procedures are initiated	☐	☐	☐	☐	☐
d.	VFD operates near 100% speed at full flow	☐	☐	☐	☐	☐
e.	Measured pressure at loop pressure sensor control point *(psi or ft WC)*					
Step 2: Modulate control valves closed						
a.	Visually inspect a few valves to verify that they close	☐	☐	☐	☐	☐
b.	Witness proper response from VFD (speed decreases as valves close)	☐	☐	☐	☐	☐
c.	Time for system to stabilize Min =					
d.	System operation stabilizes within 5 min. after test procedures are initiated	☐	☐	☐	☐	☐
e.	Measured pressure at loop pressure sensor control point *(psi or ft WC)*					
f.	Measured pressure with valves closed ≤ pressure with valves open	☐	☐	☐	☐	☐
Step 3: System returned to initial operating conditions		Y / N	Y / N	Y / N	Y / N	Y / N

D.	PASS / FAIL Evaluation (check one):
☐	PASS: All applicable **Construction Inspection** responses and applicable **Equipment Testing Requirements** are compete.
☐	FAIL: Any applicable **Construction Inspection** responses are incomplete *OR* there is one or more unchecked box for an applicable test in the **Equipment Testing Requirements** section. Provide explanation below. Use and attach additional pages if necessary.