PERFORMANCE CERTIFICATE OF COMPLIANCE (Part 1 of 3) PERF-1C

Project Name: *HCC Bldg. B* | Date: *7/24/2010*

Project Address: *1232 Arrowhead Ave. Livermore* | Climate Zone: *CA Climate Zone 12* | Total Cond. Floor Area: *15,887* | Addition Floor Area: *7,287*

GENERAL INFORMATION

Building Type: ☑ Nonresidential ☐ High-Rise Residential ☐ Hotel/Motel Guest Room ☐ Relocatable - Indicate specific climate zone ☐ all climates

Phase of Construction: ☐ New Construction ☐ Addition ☑ Alteration

STATEMENT OF COMPLIANCE

This certificate of compliance lists the building features and specifications needed to comply with Title 24, Parts 1 and 6 of the California Code of Regulations. This certificate applies only to a building using the performance compliance approach.

This documentation author hereby certifies that the documentation is accurate and complete

Documentation Author

Name: *Mangalore Suresh P.E.* | Signature:

Company: *Title 24 Online* | Date: *7/24/2010*

Address: *531 Natalino Circle* | Phone: *510-793-3658*

City/State/Zip: *Sacramento, ca 95835*

The Principal 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 energy efficiency requirements contained in sections 110, 116 through 118, and 140 through 149 of Title 24, Part 6. Please check one:

ENV.	LTG.	MECH.	
☐	☐	☐	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, mechanical engineer, 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 6737.2 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 Envelope Designer

Name: *B.R.Govinda Rao S.E.* | Signature:

Company: *B.R.Govinda Rao S.E.* | Date:

Address: *894 Bandal Way* | License #:

City/State/Zip: *San Ramon, CA 94582* | Phone: *925-832-9784*

Principal Mechanical Designer

Name: | Signature:

Company: *Mechanical Compliance Not In the Scope Of This Submittal* | Date:

Address: | License #:

City/State/Zip: | Phone:

Principal Lighting Designer

Name: | Signature:

Company: *Lighting Compliance Not In The Scope Of This Submittal* | Date:

Address: | License #:

City/State/Zip: | Phone:

INSTRUCTIONS TO APPLICANT COMPLIANCE & WORKSHEETS (check box if worksheets are included)

☐	ENV-1C Certificate of Compliance. Required on plans.	☐	MECH-1C Certificate of Compliance. Required on plans.
☐	LTG-1C Certificate of Compliance. Required on plans.	☐	MECH-2C Air/Water Side/Service Hot Water & Pool Requirements.
☐	LTG-2C Lighting Controls Credit Worksheet.	☐	MECH-3C Mechanical Ventilation and Reheat.
☐	LTG-3C Indoor Lighting Power Allowance.	☐	MECH-5C Mechanical Equipment Details.

PERFORMANCE CERTIFICATE OF COMPLIANCE (Part 3 of 3) PERF-1C

Project Name: *HCC Bldg. B* | Date: *7/24/2010*

ZONE INFORMATION

System Name	Zone Name	Occupancy Type	Floor Area (sqft.)	Inst. LPD (W/sf)	Ctrl. Credits (W/sf)	Allowed LPD Area (W/sf)	Allowed LPD Tailored (W/sf)	Proc. Loads (W/sf)
AC-C-1	*Proposed Addition*	*Religious Worship*	*7,287*	*0.000*				
	Existing Building	*Religious Worship*	*8,600*	*0.000*				

Notes: 1: See LTG-1C (items marked with asterisk, see LTG-1-C by others) 2: See LTG-2C 3: See LTG-3C (by others) 4: See LTG-4C Items above require special documentation

EXCEPTIONAL CONDITIONS COMPLIANCE CHECKLIST

The local enforcement agency should pay special attention to the items specified in this checklist. These items require special written justification and documentation, and special verification to be used with the performance approach. The local enforcement agency determines the adequacy of the justifications, and may reject a building or design that otherwise complies based on the adequacy of the special justification and documentation submitted.

The Zone Proposed Addition has a North/East/South Display Perimeter Credit of 52 ft.

The Zone Existing Building has a North/East/South Display Perimeter Credit of 52 ft.

The Roof R-38 Roof Reflectance = 0.30, Emittance = 0.75 shall be rated and labeled by the Cool Roof Rating Council in accordance with Section 10-113 c

The exceptional features listed in this performance approach application have specifically been reviewed. Adequate written justification and documentation for their use have been provided by the applicant.

Authorized Signature or Stamp: _____

CERTIFICATE OF COMPLIANCE AND FIELD INSPECTION ENERGY CHECKLIST (Part 1 of 3) ENV-1C

Project Name: *HCC Bldg. B* | Date: *7/24/2010*

Project Address: *1232 Arrowhead Ave. Livermore* | Climate Zone: *12* | Total Cond. Floor Area: *15,887* | Addition Floor Area: *7,287*

GENERAL INFORMATION

Building Type: ☑ Nonresidential ☐ High-Rise Residential ☐ Hotel/Motel Guest Room ☐ Schools (Public School) ☐ Relocatable Public School Bldg. ☑ Conditioned Spaces ☐ Unconditioned Spaces

☐ Skylight Area for Large Enclosed Space > 8000 ft² (If checked include the ENV-4C with submittal)

Phase of Construction: ☐ New Construction ☐ Addition ☑ Alteration

Approach of Compliance: ☐ Component ☑ Overall Envelope ☐ Unconditioned (file affidavit)

Front Orientation: N, E, S, W or in Degrees: *90 deg*

FIELD INSPECTION ENERGY CHECKLIST

OPAQUE SURFACE DETAILS — **INSULATION**

Tag ID[1]	Assembly Type[2]	Area (ft²)	Orientation N, NE, E, SE, S, SW, W	U-Factor	Cavity R-Value	Exterior R-Value	Exterior Furring	Interior R-Value	Interior Furring	Joint Appendix 4	Condition Status[3]	Pass	Fail[4]
9	*Door*	*16*	*(N)*	*0.500*	*Insul*					*4.5.1-A3*	*New*	☐	☐
10	*Door*	*18*	*(N)*	*0.500*	*Insul*					*4.5.1-A3*	*New*	☐	☐
11	*Door*	*21*	*(N)*	*0.500*	*Insul*					*4.5.1-A3*	*New*	☐	☐
12	*Wall*	*708*	*(W)*	*0.069*	*R-21*					*4.3.1-A6*	*New*	☐	☐
13	*Wall*	*431*	*(E)*	*0.069*	*R-21*					*4.3.1-A6*	*New*	☐	☐
14	*Door*	*11*	*(E)*	*0.500*	*Insul*					*4.5.1-A3*	*New*	☐	☐
15	*Door*	*18*	*(E)*	*0.500*	*Insul*					*4.5.1-A3*	*New*	☐	☐
16	*Roof*	*8,346*	*(N)*	*0.023*	*R-38*					*4.2.1-A21*	*Existing*	☐	☐
												☐	☐

1. See Instructions in the Nonresidential Compliance Manual, page 3-96.
2. If Fail, then describe on Page 2 of the Inspection Checklist Form and take appropriate action to correct. A fail does not meet compliance.

FENESTRATION SURFACE DETAILS

Tag ID[1]	Fenestration Type[2]	Area (ft²)	Orientation N, NE, E, SE, S, SW, W	Max U-Factor	U-Factor Source[4]	Max (SHGC)	SHGC Source[4]	Overhang	Conditions Status[3]	Pass	Fail[5]
9	*Window*	*84*	*(W)*	*0.710*	*Default*	*0.730*	*Default*	☐	*Existing*	☐	☐
								☐		☐	☐
								☐		☐	☐
								☐		☐	☐
								☐		☐	☐
								☐		☐	☐
								☐		☐	☐
								☐		☐	☐
								☐		☐	☐
								☐		☐	☐

1. See Instructions in the Nonresidential Compliance Manual, page 3-96.
2. If Fail then describe on Page 2 of the Inspection Checklist Form and take appropriate action to correct. Verify building plans if necessary.

CERTIFICATE OF COMPLIANCE AND FIELD INSPECTION ENERGY CHECKLIST (Part 2 of 3) ENV-1C

Project Name: *HCC Bldg. B* | Date: *7/24/2010*

ROOFING PRODUCT (COOL ROOFS)

(Note if the roofing product is not CRRC certified, this compliance approach cannot be used) Go to Overall Envelope Approach or Performance Approach

CHECK APPLICABLE BOX BELOW IF EXEMPT FROM THE ROOFING PRODUCT "COOL ROOF" REQUIREMENTS:

		Pass	Fail[1]	N/A
☐	Roofing compliance not required in Climate Zones 1 and 16 with a Low-Sloped: 2:12 pitch or less.	☐	☐	☐
☐	Roofing compliance not required in Climate Zone 1 with a Steep-Sloped with less than 5 lb/ft². Greater than 2:12 pitch.	☐	☐	☐
☐	Low-sloped Wood framed roofs in Climate Zones 3 and 5 are exempted, solar reflectance and thermal emittance or SRI that have a U-factor of 0.039 or lower. See Opaque Surface Details roof assembly, Column H of ENV-2C.	☐	☐	☐
☐	Low-sloped Metal building roofs in Climate Zone 3 and 5 are exempted, solar reflectance and thermal emittance or SRI that have a U-factor of 0.048 or lower. See Opaque Surface Details roof assembly below, Column H of ENV-2C.	☐	☐	☐
☐	The roof area covered by building integrated photovoltaic panels and building integrated solar thermal panels are exempted. Solar reflectance and thermal emittance or SRI, see spreadsheet calculator at www.energy.ca.gov/title24/.	☐	☐	☐
☐	Roof constructions that have thermal mass over the roof membrane with a weight of at least 25 lb/ft² are exempt from the Cool Roof criteria below.	☐	☐	☐
☐	High-rise residential buildings and hotels and motels with low-sloped roofs in Climate Zones 1 through 9, 12 and 16 are exempted from the low-sloped roofing criteria.	☐	☐	☐

1. If Fail then describe on this page of the Inspection Checklist Form and take appropriate action to correct. Verify building plans if necessary.

CRRC Product ID Number[1]	Roof Slope ≤ 2:12 = 2:12	Product Weight > 25 lb/ft² ≤ 25 lb/ft²	Product Type[1]	Aged Solar Reflectance[2]	Thermal Emittance	SRI[2]	Pass	Fail[3]
R-38 Roof	☑ ☐	☑ ☐		☐ [4] *0.30*	*0.75*		☐	☐
	☐ ☐	☐ ☐		☐ [4]			☐	☐
	☐ ☐	☐ ☐		☐ [4]			☐	☐
	☐ ☐	☐ ☐		☐ [4]			☐	☐
	☐ ☐	☐ ☐		☐ [4]			☐	☐

1. The CRRC Product ID Number can be obtained from the Cool Roof Rating Council's Rated Product Directory at www.coolroofs.org/products/search.php
2. Indicate the type of product is being used for the roof top. I.e. single-ply roof, asphalt roof, metal roof, etc.
3. If the Aged Reflectance is not available in the Cool Roof Rating Council's Rated Product Directory then use the Initial Reflectance value from the same directory and use the equation (0.2+0.7ρ$_{ini}$ − 0.2) to obtain a calculated aged value. Where ρ is the Initial Solar Reflectance from the Cool Roof Rating Council's Rated Product Directory.
4. Check box if the Aged Reflectance is a calculated value using the equation above.
5. The SRI value needs to be calculated from a spreadsheet calculator at http://www.energy.ca.gov/title24/
6. If Fail then describe on this page of the Inspection Checklist Form and take appropriate action to correct. Verify building plans if necessary.

To apply **Liquid Field Applied Coatings**, the coating must be applied across the entire roof surface and meet the dry mil thickness or coverage recommended by the coatings manufacturer and meet minimum performance requirements listed in §118(i)4. Select the applicable coating:

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

Discrepancies:

ENVELOPE MANDATORY MEASURES: NONRESIDENTIAL ENV-MM

Project Name: *HCC Bldg. B* | Date: *7/24/2010*

DESCRIPTION

Building Envelope Measures:

§118(a):	Installed insulating material shall have been certified by the manufacturer to comply with the California Quality Standards for insulating material, Title 20 Chapter 4, Article 3.
§118(c):	All Insulating Materials shall be installed in compliance with the flame spread rating and smoke density requirements of Sections 2602 and 707 of Title 24, Part 2.
§118(f):	The opaque portions of framed demising walls in nonresidential buildings shall have insulation with an installed R-value of no less than R-13 between framing members.
§117(a):	All Exterior Joints and openings in the building that are observable sources of air leakage shall be caulked, gasketed, weatherstripped or otherwise sealed.
§116(a) 1:	Manufactured fenestration products and exterior doors shall have air infiltration rates not exceeding 0.3 cfm/ft² of window area, 0.5 cfm/ft² of door area for residential doors, 0.3 cfm/ft² of door area for nonresidential single doors (swinging and sliding), and 1.0 cfm/ft.² for nonresidential double doors (swinging).
§116(a) 2:	Fenestration U-factor shall be rated in accordance with NFRC 100, or the applicable default U-factor.
§116(a) 3:	Fenestration SHGC shall be rated in accordance with NFRC 200, or NFRC 100 for site-built fenestration, or the applicable default SHGC.
§116(b):	Site Constructed Doors, Windows and Skylights shall be caulked between the unit and the building, and shall be weatherstripped (except for unframed glass doors and tile doors).

PERFORMANCE CERTIFICATE OF COMPLIANCE (Part 2 of 3) PERF-1C

Project Name: *HCC Bldg. B* | Date: *7/24/2010*

ANNUAL TDV ENERGY USE SUMMARY (kBtu/sqft-yr)

Energy Component	Standard Design	Proposed Design	Compliance Margin
Space Heating	*33.46*	*31.16*	*2.29*
Space Cooling	*229.43*	*225.52*	*3.90*
Indoor Fans	*57.56*	*56.48*	*1.08*
Heat Rejection	*0.00*	*0.00*	*0.00*
Pumps & Misc.	*0.00*	*0.00*	*0.00*
Domestic Hot Water	*0.00*	*0.00*	*0.00*
Lighting	*93.64*	*93.64*	*0.00*
Receptacle	*28.44*	*28.44*	*0.00*
Process	*0.00*	*0.00*	*0.00*
Process Lighting	*0.00*	*0.00*	*0.00*
TOTALS	*442.71*	*435.44*	*7.27*
Percent better than Standard		*1.6 %*	*(1.6 % excluding process)*

BUILDING COMPLIES

GENERAL INFORMATION

Building Orientation	*(E) 90 deg*	Conditioned Floor Area	*15,887* sqft.
Number of Stories	*1*	Unconditioned Floor Area	*0* sqft.
Number of Systems	*1*	Conditioned Footprint Area	*15,887* sqft.
Number of Zones	*2*	Natural Gas Available On Site	*Yes*

	Orientation	Gross Area	Glazing Area	Glazing Ratio
Front Elevation	*(E)*	*1,843* sqft.	*157* sqft.	*8.5 %*
Left Elevation	*(S)*	*2,345* sqft.	*200* sqft.	*7.9 %*
Rear Elevation	*(W)*	*1,783* sqft.	*119* sqft.	*6.6 %*
Right Elevation	*(N)*	*2,730* sqft.	*251* sqft.	*9.2 %*
Total		*8,901* sqft.	*727* sqft.	*8.2 %*
Roof		*15,887* sqft.	*469* sqft.	*3.0 %*

	Standard	Proposed	
Lighting Power Density	*1.500*	*0.000*	W/sqft.
Prescriptive Envelope TDV Energy	*469,845*	*466,622*	

Remarks:

CERTIFICATE OF COMPLIANCE AND FIELD INSPECTION ENERGY CHECKLIST (Part 1 of 3) ENV-1C

Project Name: *HCC Bldg. B* | Date: *7/24/2010*

Project Address: *1232 Arrowhead Ave. Livermore* | Climate Zone: *12* | Total Cond. Floor Area: *15,887* | Addition Floor Area: *7,287*

GENERAL INFORMATION

Building Type: ☑ Nonresidential ☐ High-Rise Residential ☐ Hotel/Motel Guest Room ☐ Schools (Public School) ☐ Relocatable Public School Bldg. ☑ Conditioned Spaces ☐ Unconditioned Spaces

☐ Skylight Area for Large Enclosed Space > 8000 ft² (If checked include the ENV-4C with submittal)

Phase of Construction: ☐ New Construction ☐ Addition ☑ Alteration

Approach of Compliance: ☐ Component ☑ Overall Envelope ☐ Unconditioned (file affidavit)

Front Orientation: N, E, S, W or in Degrees: *90 deg*

FIELD INSPECTION ENERGY CHECKLIST

OPAQUE SURFACE DETAILS — **INSULATION**

Tag ID[1]	Assembly Type[2]	Area (ft²)	Orientation N, NE, E, SE, S, SW, W	U-Factor	Cavity R-Value	Exterior R-Value	Exterior Furring	Interior R-Value	Interior Furring	Joint Appendix 4	Condition Status[3]	Pass	Fail[4]
1	*Roof*	*7,053*	*(N)*	*0.023*	*R-38*					*4.2.1-A21*	*New*	☐	☐
2	*Slab*	*7,387*	*(N)*	*0.730*	*None*					*4.4.7-A1*	*New*	☐	☐
3	*Wall*	*2,318*	*(S)*	*0.069*	*R-21*					*4.3.1-A6*	*New*	☐	☐
4	*Door*	*21*	*(S)*	*0.500*	*Insul*					*4.5.1-A3*	*New*	☐	☐
5	*Door*	*3*	*(S)*	*0.500*	*Insul*					*4.5.1-A3*	*New*	☐	☐
6	*Door*	*3*	*(S)*	*0.500*	*Insul*					*4.5.1-A3*	*New*	☐	☐
7	*Wall*	*2,399*	*(W)*	*0.069*	*R-21*					*4.3.1-A6*	*New*	☐	☐
8	*Door*	*21*	*(W)*	*0.500*	*Insul*					*4.5.1-A3*	*New*	☐	☐
												☐	☐
												☐	☐

1. See Instructions in the Nonresidential Compliance Manual, page 3-96.
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FENESTRATION SURFACE DETAILS

Tag ID[1]	Fenestration Type[2]	Area (ft²)	Orientation N, NE, E, SE, S, SW, W	Max U-Factor	U-Factor Source[4]	Max (SHGC)	SHGC Source[4]	Overhang	Conditions Status[3]	Pass	Fail[5]
1	*Skylight*	*235*	*(N)*	*0.480*	*NFRC*	*0.330*	*NFRC*	☐	*New*	☐	☐
2	*Window*	*200*	*(S)*	*0.330*	*NFRC*	*0.190*	*NFRC*	☐	*New*	☐	☐
3	*Window*	*251*	*(N)*	*0.330*	*NFRC*	*0.190*	*NFRC*	☐	*New*	☐	☐
4	*Window*	*35*	*(W)*	*0.330*	*NFRC*	*0.190*	*NFRC*	☐	*New*	☐	☐
5	*Window*	*13*	*(E)*	*0.330*	*NFRC*	*0.190*	*NFRC*	☑	*New*	☐	☐
6	*Skylight*	*235*	*(N)*	*0.710*	*Default*	*0.730*	*Default*	☐	*Existing*	☐	☐
7	*Window*	*64*	*(E)*	*0.710*	*Default*	*0.730*	*Default*	☐	*Existing*	☐	☐
8	*Window*	*60*	*(E)*	*0.330*	*NFRC*	*0.190*	*NFRC*	☐	*New*	☐	☐
								☐		☐	☐
								☐		☐	☐

1. See Instructions in the Nonresidential Compliance Manual, page 3-96.
2. If Fail then describe on Page 2 of the Inspection Checklist Form and take appropriate action to correct. Verify building plans if necessary.

CERTIFICATE OF COMPLIANCE AND FIELD INSPECTION ENERGY CHECKLIST (Part 1 of 3) ENV-1C

Project Name: *HCC Bldg. B* | Date: *7/24/2010*

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FIELD INSPECTION ENERGY CHECKLIST

OPAQUE SURFACE DETAILS — **INSULATION**

Tag ID[1]	Assembly Type[2]	Area (ft²)	Orientation N, NE, E, SE, S, SW, W	U-Factor	Cavity R-Value	Exterior R-Value	Exterior Furring	Interior R-Value	Interior Furring	Joint Appendix 4	Condition Status[3]	Pass	Fail[4]
17	*Slab*	*8,600*	*(N)*	*0.730*	*None*					*4.4.7-A1*	*Existing*	☐	☐
18	*Wall*	*1,208*	*(E)*	*0.069*	*R-21*					*4.3.1-A6*	*Existing*	☐	☐
19	*Wall*	*968*	*(W)*	*0.069*	*R-21*					*4.3.1-A6*	*Existing*	☐	☐
20	*Wall*	*528*	*(S)*	*0.069*	*R-21*					*4.3.1-A6*	*Removed*	☐	☐
21	*Door*	*40*	*(S)*	*0.700*	*None*					*4.5.1-A2*	*Removed*	☐	☐
22	*Door*	*20*	*(S)*	*0.700*	*None*					*4.5.1-A2*	*Removed*	☐	☐
												☐	☐
												☐	☐
												☐	☐

1. See Instructions in the Nonresidential Compliance Manual, page 3-96.
2. If Fail, then describe on Page 2 of the Inspection Checklist Form and take appropriate action to correct. A fail does not meet compliance.

FENESTRATION SURFACE DETAILS

Tag ID[1]	Fenestration Type[2]	Area (ft²)	Orientation N, NE, E, SE, S, SW, W	Max U-Factor	U-Factor Source[4]	Max (SHGC)	SHGC Source[4]	Overhang	Conditions Status[3]	Pass	Fail[5]
								☐		☐	☐
								☐		☐	☐
								☐		☐	☐
								☐		☐	☐
								☐		☐	☐
								☐		☐	☐
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								☐		☐	☐
								☐		☐	☐
								☐		☐	☐

1. See Instructions in the Nonresidential Compliance Manual, page 3-96.
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CERTIFICATE OF COMPLIANCE AND FIELD INSPECTION ENERGY CHECKLIST (Part 3 of 3) ENV-1C

Project Name: *HCC Bldg. B* | Date: *7/24/2010*

Required Acceptance Tests

Designer:

This form is to be used by the designer and attached to the plans. Listed below is the acceptance test for Envelope Fenestrations system. The designer is required to check the acceptance tests and list all the fenestration products that require an acceptance test. If all the site-built fenestration of a certain type requires a test, list the different fenestration products and the number of systems. The NA7 Section in the Appendix of the Nonresidential Reference Appendices Manual describes the test. 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.

Enforcement Agency:

Systems Acceptance. Before Occupancy Permit is granted for a newly constructed building or space or whenever new fenestration is installed in the building or space shall be certified as meeting the Acceptance Requirements.
The ENV-2A form is not considered a complete form and is not to be accepted by the enforcement agency unless the boxes are checked and/or filled and signed. In addition, a Certificate of Acceptance forms shall be submitted to the enforcement agency that certifies plans, specifications, installation certificates, and operating and maintenance information meet the requirements of §10-103(b) of Title 24 Part 6. The field inspector must receive the properly filled out and signed forms before the building can receive final occupancy. A copy of the ENV-2A for each different fenestration product line must be provided to the owner of the building for their records.

Test Description: Fenestration Products Name or ID Requiring Testing or Verification	Area of like Products	ENV-2A: Building Envelope Acceptance Test	Test Performed By:
Velux Skylight Lo-E	*235*	☑	
PPG SOLARBAN 60 XL	*559*	☑	
		☐	
		☐	
		☐	
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REVISIONS	BY
05-24-10 ISSUED FOR PLAN CHECK	SR

HINDU COMMUNITY and CULTURAL CENTER
1232 ARROWHEAD AVE. LIVERMORE, CA 94551

BUILDING ENVELOPE
PHASE 1A

DATE: 09/21/2010
SCALE: AS NOTED
DRAWN BY: AM/MS T-24ON-LINE
PROJECT: ARROWHEAD

T24-ENV

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

Project Name			Date
HCC Bldg. B			8/7/2010
Project Address: 1232 Arrowhead Ave. Livermore	Climate Zone: 12	Total Cond. Floor Area: 8,924	Unconditioned Floor Area: 0

GENERAL INFORMATION

Building Type:	☑ Nonresidential	☐ High-Rise Residential	☐ Hotel/Motel Guest Room
☐ School	☐ Relocatable Public School	☑ Conditioned Spaces	☐ Unconditioned Spaces
Phase of Construction:	☐ New Construction	☐ Addition	☑ Alteration
Method of Compliance:	☐ Complete Building	☑ Area Category	☐ Tailored

Documentation Author's Declaration Statement

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

Name: Mangalore Suresh P.E.	Signature: [signature]
Company: Title 24 Online	Date: 8/7/2010
Address: 531 Natalino Circle	CEA # CEPE #
City/State/Zip: Sacramento, ca 95835	Phone: 510-793-2658

The Principal Lighting Designer's Declaration Statement

- I am eligible under Division 3 of the California Business and Professional Code to accept responsibility for the lighting design.
- This Certificate of Compliance identifies the lighting features and performance specifications required for compliance with Title 24, Pages 1 and 6 of the California Code of Regulations.
- The design features represented on this Certificate of Compliance are consistent with the information provided to document this design on the other applicable compliance forms, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.

Name: Vish Ponnathpore P.E.	Signature
Company: Greene Engineers Inc	Phone
Address: 1740 Technology Drive Suite 210	License #
City/State/Zip: San Jose, CA. 95110	Date

Lighting Mandatory Measures
Indicate location on building plans of Mandatory Measures Note Block: ____________

LIGHTING COMPLIANCE FORMS & WORKSHEETS (check box if worksheets 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.

☑	LTG-1C Pages 1 through 4	Certificate of Compliance. All Pages required on plans for all submittals.
☑	LTG-2C	Lighting Controls Credit Worksheet
☑	LTG-3C	Indoor Lighting Power Allowance
☐	LTG-4C Pages 1 through 4	Tailored Method Worksheet
☐	LTG-5C Pages 1 and 2	Line Voltage Track Lighting Worksheet

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

Project Name: HCC Bldg. B — Date: 8/7/2010

INDOOR LIGHTING SCHEDULE and FIELD INSPECTION ENERGY CHECKLIST

Fill in controls for all spaces: a) area controls, b) multi-level controls, c) manual daylighting controls for daylit areas > 250 ft^2, automatic daylighting controls for daylit areas > 2,500 ft^2, d) shut-off controls, e) display lighting controls, f) tailored lighting controls – general lighting controlled separately from display, ornamental and display case lighting and g) demand responsive automatic controls for retail stores > 50,000 ft^2, in accordance with Section 131.

MANDATORY LIGHTING CONTROLS – FIELD INSPECTION ENERGY CHECKLIST

Type/ Description	Number of Units	Location in Building	Special Features	Field Inspector Pass	Field Inspector Fail
			☐	☐	☐
			☐	☐	☐
			☐	☐	☐
			☐	☐	☐
			☐	☐	☐
			☐	☐	☐
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			☐	☐	☐
			☐	☐	☐
			☐	☐	☐

SPECIAL FEATURES INSPECTION CHECKLIST (See Page 2 of 4 of LTG-1C)

The local enforcement agency should pay special attention to the items specified in this checklist. These items require special written justification and documentation, and special verification. The local enforcement agency determines the adequacy of the justification, and may reject a building or design that otherwise complies based on the adequacy of the special justification and documentation submitted.

Field Inspector's Notes or Discrepancies:

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

Project Name: HCC Bldg. B — Date: 8/7/2010

CONDITIONED AND UNCONDITIONED SPACE LIGHTING MUST NOT BE COMBINED FOR COMPLIANCE

Indoor Lighting Power for Conditioned Spaces		Watts	Indoor Lighting Power for Unconditioned Spaces		Watts
Installed Lighting (from Conditioned LTG-1C, Page 2)		8,398	**Installed** Lighting (from Unconditioned LTG-1C, Page 2)		0
Lighting Control Credit Conditioned Spaces (from LTG-2C)	-	611	Lighting Control Credit Unconditioned Spaces (from LTG-2C)	-	0
Adjusted **Installed** Lighting Power	=	7,787	Adjusted **Installed** Lighting Power	=	0
Complies if **Installed ≤ Allowed**		↕	Complies if **Installed ≤ Allowed**		↕
Allowed Lighting Power Conditioned Spaces (from LTG-3C or PERF-1)		9,835	**Allowed** Lighting Power Unconditioned Spaces (from LTG-3C)		0

Required Acceptance Tests

Designer:

This form is to be used by the designer and attached to the plans. Listed below is the acceptance test for the Lighting system, **LTG-2A**. The designer is required to check the acceptance tests and list all control devices serving the building or space shall be certified as meeting the Acceptance Requirements for Code Compliance. If all the lighting system or control of a certain type requires a test, list the different lighting and the number of systems. The NA7 Section in the Appendix of the Nonresidential Reference Appendices Manual describes the test. 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. **Forms can be grouped by type of Luminaire controlled.**

Enforcement Agency:

Systems Acceptance. Before Occupancy Permit is granted for a newly constructed building or space or when ever new lighting system with controls is installed in the building or space shall be certified as meeting the Acceptance Requirements.
The **LTG-2A** form is not considered a complete form and is not to be accepted by the enforcement agency unless the boxes are checked and/or filled and signed. In addition, a Certificate of Acceptance forms shall be submitted to the enforcement agency that certifies plans, specifications, installation certificates, and operating and maintenance information meet the requirements of §10-103(b) of Title 24 Part 6. The field inspector must receive the properly filled out and signed forms before the building can receive final occupancy. A copy of the **LTG-2A** for each different lighting luminaire control(s) must be provided to the owner of the building for their records.

Controls for Credits				LTG-2A
Equipment Requiring Testing	Description	Number of Luminaire controls	Location	Controls and Sensors and Automatic Daylighting Controls Acceptance
Occ Sensor - <= 250 sqft	3 Lamp Fluorescent Fixture W/ F32 T8	2	Wash Room # 131	☑
Occ Sensor - <= 250 sqft	3 Lamp Fluorescent F32 T8 Electronic	1	Prayer Rm # 115	☑
Occ Sensor - <= 250 sqft	(1) Lamp Fluorescent T5 Electronic	1	Prayer Rm # 115	☑
Occ Sensor - <= 250 sqft	3 Lamp Fluorescent F32 T8 Electronic	1	Prayer Rm # 116	☑
Occ Sensor - <= 250 sqft	(1) Lamp Fluorescent T5 Electronic	1	Prayer Rm # 116	☑
Occ Sensor - <= 250 sqft	3 Lamp Fluorescent F32 T8 Electronic	1	Prayer Rm # 117	☑
Occ Sensor - <= 250 sqft	(1) Lamp Fluorescent T5 Electronic	1	Prayer Rm # 117	☑
Occ Sensor - Hallway	2-Lamp Fluorescent F32T8 electronic	2	Corridor # 114	☑
Occ Sensor - Hallway	3 Lamp Fluorescent Fixture W/ F32 T8	2	Corridor # 127	☑
Occ Sensor - Hallway	3 Lamp Fluorescent Fixture W/ F32 T8	1	Corridor # 127	☑
Occ Sensor - Hallway	3 Lamp Fluorescent Fixture W/ F32 T8	1	Hall # 107	☑
Occ Sensor - Hallway	3 Lamp Fluorescent Fixture W/ F32 T8	1	Aisle 133	☑
Occ Sensor - Hallway	3 Lamp Fluorescent Fixture W/ F32 T8	1	Aisle 133	☑
Occ Sensor - <= 250 sqft	6" Round Compact Fluorescent Light	3	Corridor # 140	☑
Occ Sensor - <= 250 sqft	2-Lamp Fluorescent F32T8 electronic	1	Rest Room # 105	☑
				☐

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

Project Name: HCC Bldg. B — Date: 8/7/2010

POWER ADJUSTMENT FACTORS (PAF) FOR NON-DAYLIGHT CONTROLS

A Separate PAF Worksheet Must Be Filled Out for Conditioned and Unconditioned Spaces. Control Credits listed on this schedule are only for:
☑ **CONDITIONED SPACES** ☐ **UNCONDITIONED SPACES**

A	B	C	D	E	F	G
Room # Zone ID Areas	Lighting Control Description[1]	Plan Reference	Room Area (ft^2)	Watts of Control Lighting	Power Adjustments Factor[2]	Control Credit Watts (E x F)
Dress # 106	Occ Sensor - <= 250 sqft	B3	107	58	0.20	12
Dress # 108	Occ Sensor - <= 250 sqft	B3	107	58	0.20	12
Library	Occ Sensor - Library	A	738	290	0.15	44
Library	Occ Sensor - Library	A3	738	87	0.15	13
Storage # 120	Occ Sensor - Storage	B	259	261	0.15	39
Storage # 136	Occ Sensor - Storage	B	504	261	0.15	39
Storage # 111	Occ Sensor - Storage	C	203	58	0.15	9
Storage # 135	Occ Sensor - Storage	C	195	58	0.15	9
Exit # 112	Occ Sensor - <= 250 sqft	B	191	87	0.20	17
Exit # 112	Occ Sensor - <= 250 sqft	B1	191	87	0.20	17
Office # 134	Occ Sensor - <= 250 sqft	B	56	87	0.20	17
Office # 134	Occ Sensor - <= 250 sqft	W	56	34	0.20	7
Priest Office # 119	Occ Sensor - <= 250 sqft	A	84	58	0.20	12
IT Room # 118	Occ Sensor - <= 250 sqft	B	80	87	0.20	17
IT Room # 118	Occ Sensor - <= 250 sqft	W	80	34	0.20	7
Wash Room # 131	Occ Sensor - <= 250 sqft	B	225	174	0.20	35
Prayer Rm # 115	Occ Sensor - <= 250 sqft	A2	90	87	0.20	17
Prayer Rm # 115	Occ Sensor - <= 250 sqft	W	90	34	0.20	7
Prayer Rm # 116	Occ Sensor - <= 250 sqft	A2	90	87	0.20	17
Prayer Rm # 116	Occ Sensor - <= 250 sqft	W	90	34	0.20	7
Prayer Rm # 117	Occ Sensor - <= 250 sqft	A2	90	87	0.20	17
Prayer Rm # 117	Occ Sensor - <= 250 sqft	W	90	34	0.20	7
Corridor # 114	Occ Sensor - Hallway	A	154	116	0.25	29
Corridor # 127	Occ Sensor - Hallway	B1	264	174	0.25	44
Corridor # 127	Occ Sensor - Hallway	B	264	87	0.25	22
Hall # 107	Occ Sensor - Hallway	B1	77	87	0.25	22
Aisle 133	Occ Sensor - Hallway	B1	274	87	0.25	22
Aisle 133	Occ Sensor - Hallway	B	274	87	0.25	22
Corridor # 140	Occ Sensor - <= 250 sqft	G1	154	135	0.20	27
					PAGE TOTAL	564

Note: Conditioned and Unconditioned Space shall be separately totaled	Building total of non-daylight control credit watts for all pages of LTG-2C Page 1 of 2	
	Enter building total of all daylight controls credit watts from LTG-2C Page 2 of 2	0
	BUILDING TOTAL OF ALL CONTROL CREDIT WATTS (FOR BOTH NON-DAYLIGHT AND DAYLIGHT CONTROL CREDITS) Enter in LTG-1C; Page 4: Lighting Control Credit as appropriate for CONDITIONED or UNCONDITIONED Spaces	611

1. Description shall be consistent with Type of Control defined in Table 146-C
2. Power Adjustment Factor taken from Table 146-C

INDOOR LIGHTING POWER ALLOWANCE LTG-3C

Project Name: HCC Bldg. B — Date: 8/7/2010

ALLOWED LIGHTING POWER (Chose One Method)

A Separate LTG-3C must be filled out for Conditioned and Unconditioned Spaces. Indoor Lighting Power Allowances listed on this page are only for:
☑ CONDITIONED SPACES ☐ UNCONDITIONED SPACES

COMPLETE BUILDING METHOD

BUILDING CATEGORY (From §146 Table 146-E)	WATTS PER (ft^2)	X	COMPLETE BLDG. AREA	=	ALLOWED WATTS
	TOTALS				
			AREA		WATTS

AREA CATEGORY METHOD

BUILDING CATEGORY (From §146 Table 146-F)	WATTS PER (ft^2)	X	Area ft^2	=	ALLOWED WATTS
Locker/Dressing Room	0.80		214		171
Kitchen, Food Preparation	1.60		2,329		3,726
Library, Reading Area	1.20		738		886
Corridor/Restroom/Support	0.60		3,193		1,916
Classroom, Lecture, Training	1.20		317		380
Lobby, Main Entry	1.50		923		1,385
Office <= 250 sqft	1.10		140		154
Electrical, Mechanical Room	0.70		440		308
Religious Worship	1.50		270		405
Convention/Conference/Meeting	1.40		360		504
	TOTALS		8,924		9,835
			AREA		WATTS

TAILORED METHOD

Total Allowed Watts using the Tailored Method taken from LTG-4C (Page 1 of 4) Row 3: 0

The indoor lighting power allowance using the Tailored Method of compliance shall be determined using the LTG-4C set of forms. A separate set of LTG-4C forms shall be filled out for CONDITIONED and UNCONDITIONED spaces

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

Project Name: HCC Bldg. B — Date: 8/7/2010

INDOOR LIGHTING SCHEDULE and FIELD INSPECTION ENERGY CHECKLIST

Installation Certificate, LTG-1- INST (Retain a copy and verify form is completed and signed.) — **Field Inspector** ☐

Certificate of Acceptance, LTG-2A (Retain a copy and verify form is completed and signed.) — **Field Inspector** ☐

A separate Lighting Schedule Must Be Filled Out for Conditioned and Unconditioned Spaces Installed Lighting Power listed on this Lighting Schedule is only for:

☑ **CONDITIONED SPACE** ☐ **UNCONDITIONED SPACE**

☑ The actual indoor lighting power listed below includes all installed permanent and portable lighting systems in accordance with §146(a).

☑ Only for offices: Up to the first 0.2 watts per square foot of portable lighting shall not be required to be included in the calculation of actual indoor lighting power density in accordance with the Exception to §146(a). All portable lighting in excess of 0.2 watts per square foot is totaled below.

A	B	C	D	E		F	G	H	
	Luminaire (Type, Lamps, Ballasts)	Installed Watts		How wattage Was determined				Field Inspector[2]	
None or Item Tag	Complete Luminaire Description[1] (i.e, 3 lamp fluorescent troffer, F32T8, one dimmable electronic ballasts)	Special Features	Watts per Luminaire	CEC Default From NA8	According To §130 (d or e)	Number of Luminaires	Installed Watts (C X F)	Pass	Fail
A	2-Lamp Fluorescent F32T8 electronic	☐	58.0	☑	☐	17	986	☐	☐
A2	3 Lamp Fluorescent F32 T8 Electronic	☐	87.0	☑	☐	3	261	☐	☐
A3	3 Lamp Fluorescent Fixture W/ F32 T8 Emergency	☐	87.0	☑	☐	3	261	☐	☐
B	3 Lamp Fluorescent Fixture W/ F32 T8 Electronic	☐	87.0	☑	☐	34	2,958	☐	☐
B1	3 Lamp Fluorescent Fixture W/ F32 T8 Emergency	☐	87.0	☑	☐	13	1,131	☐	☐
B2	2-Lamp Fluorescent F32T8 electronic	☐	58.0	☑	☐	4	232	☐	☐
B3	2-Lamp Fluorescent F32T8 Emergency Fixture	☐	58.0	☑	☐	2	116	☐	☐
C	2 Lamp Surface Mounted Fluorescent F32 T8	☐	58.0	☑	☐	4	232	☐	☐
D1	Adjustable (4) 50W MR16 Light Fixture	☐	220.0	☑	☐	7	1,540	☐	☐
E	Wall Washer (1) 26w PLT	☐	30.0	☑	☐	2	60	☐	☐
G	6" Round Compact Fluorescent Down Light	☐	45.0	☑	☐	4	180	☐	☐
G1	6" Round Compact Fluorescent Light Emergency	☐	45.0	☑	☐	3	135	☐	☐
W	(1) Lamp Fluorescent T5 Electronic	☐	34.0	☑	☐	9	306	☐	☐
		☐		☐	☐			☐	☐
		☐		☐	☐			☐	☐
		☐		☐	☐			☐	☐
		☐		☐	☐			☐	☐
		☐		☐	☐			☐	☐
		☐		☐	☐			☐	☐
		☐		☐	☐			☐	☐

	Installed Watts Page Total:	8,398
Building total number of pages:	Installed Watts Building Total (Sum of all pages) Enter into LTG-1C Page 4 of 4	8,398

1. Wattage shall be determined according to Section 130 (d and e). Wattage shall be rating of light fixture, not rating of bulb.
2 . If Fail then describe on Page 2 of the Inspection Checklist Form and take appropriate action to correct. Verify building plans if necessary.

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

Project Name: HCC Bldg. B — Date: 8/7/2010

CONDITIONED AND UNCONDITIONED SPACE LIGHTING MUST NOT BE COMBINED FOR COMPLIANCE

Indoor Lighting Power for Conditioned Spaces		Watts	Indoor Lighting Power for Unconditioned Spaces		Watts
Installed Lighting (from Conditioned LTG-1C, Page 2)		8,398	**Installed** Lighting (from Unconditioned LTG-1C, Page 2)		0
Lighting Control Credit Conditioned Spaces (from LTG-2C)	-	611	Lighting Control Credit Unconditioned Spaces (from LTG-2C)	-	0
Adjusted **Installed** Lighting Power	=	7,787	Adjusted **Installed** Lighting Power	=	0
Complies if **Installed ≤ Allowed**		↕	Complies if **Installed ≤ Allowed**		↕
Allowed Lighting Power Conditioned Spaces (from LTG-3C or PERF-1)		9,835	**Allowed** Lighting Power Unconditioned Spaces (from LTG-3C)		0

Required Acceptance Tests

Designer:

This form is to be used by the designer and attached to the plans. Listed below is the acceptance test for the Lighting system, **LTG-2A**. The designer is required to check the acceptance tests and list all control devices serving the building or space shall be certified as meeting the Acceptance Requirements for Code Compliance. If all the lighting system or control of a certain type requires a test, list the different lighting and the number of systems. The NA7 Section in the Appendix of the Nonresidential Reference Appendices Manual describes the test. 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. **Forms can be grouped by type of Luminaire controlled.**

Enforcement Agency:

Systems Acceptance. Before Occupancy Permit is granted for a newly constructed building or space or when ever new lighting system with controls is installed in the building or space shall be certified as meeting the Acceptance Requirements.
The **LTG-2A** form is not considered a complete form and is not to be accepted by the enforcement agency unless the boxes are checked and/or filled and signed. In addition, a Certificate of Acceptance forms shall be submitted to the enforcement agency that certifies plans, specifications, installation certificates, and operating and maintenance information meet the requirements of §10-103(b) of Title 24 Part 6. The field inspector must receive the properly filled out and signed forms before the building can receive final occupancy. A copy of the **LTG-2A** for each different lighting luminaire control(s) must be provided to the owner of the building for their records.

Controls for Credits				LTG-2A
Equipment Requiring Testing	Description	Number of Luminaire controls	Location	Controls and Sensors and Automatic Daylighting Controls Acceptance
Occ Sensor - <= 250 sqft	2-Lamp Fluorescent F32T8 Emergen	1	Dress # 106	☑
Occ Sensor - <= 250 sqft	2-Lamp Fluorescent F32T8 Emergen	1	Dress # 108	☑
Occ Sensor - Library	2-Lamp Fluorescent F32T8 electronic	5	Library	☑
Occ Sensor - Library	3 Lamp Fluorescent Fixture W/ F32 T8	1	Library	☑
Occ Sensor - Storage	3 Lamp Fluorescent Fixture W/ F32 T8	3	Storage # 120	☑
Occ Sensor - Storage	3 Lamp Fluorescent Fixture W/ F32 T8	3	Storage # 136	☑
Occ Sensor - Storage	2 Lamp Surface Mounted Fluorescer	1	Storage # 111	☑
Occ Sensor - Storage	2 Lamp Surface Mounted Fluorescer	1	Storage # 135	☑
Occ Sensor - <= 250 sqft	3 Lamp Fluorescent Fixture W/ F32 T8	1	Exit # 112	☑
Occ Sensor - <= 250 sqft	3 Lamp Fluorescent Fixture W/ F32 T8	1	Exit # 112	☑
Occ Sensor - <= 250 sqft	3 Lamp Fluorescent Fixture W/ F32 T8	1	Office # 134	☑
Occ Sensor - <= 250 sqft	(1) Lamp Fluorescent T5 Electronic	1	Office # 134	☑
Occ Sensor - <= 250 sqft	2-Lamp Fluorescent F32T8 electronic	1	Priest Office # 119	☑
Occ Sensor - <= 250 sqft	3 Lamp Fluorescent Fixture W/ F32 T8	1	IT Room # 118	☑
Occ Sensor - <= 250 sqft	(1) Lamp Fluorescent T5 Electronic	1	IT Room # 118	☑
				☐

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

Project Name: HCC Bldg. B — Date: 8/7/2010

CONDITIONED AND UNCONDITIONED SPACE LIGHTING MUST NOT BE COMBINED FOR COMPLIANCE

Indoor Lighting Power for Conditioned Spaces		Watts	Indoor Lighting Power for Unconditioned Spaces		Watts
Installed Lighting (from Conditioned LTG-1C, Page 2)		8,398	**Installed** Lighting (from Unconditioned LTG-1C, Page 2)		0
Lighting Control Credit Conditioned Spaces (from LTG-2C)	-	611	Lighting Control Credit Unconditioned Spaces (from LTG-2C)	-	0
Adjusted **Installed** Lighting Power	=	7,787	Adjusted **Installed** Lighting Power	=	0
Complies if **Installed ≤ Allowed**		↕	Complies if **Installed ≤ Allowed**		↕
Allowed Lighting Power Conditioned Spaces (from LTG-3C or PERF-1)		9,835	**Allowed** Lighting Power Unconditioned Spaces (from LTG-3C)		0

Required Acceptance Tests

Designer:

This form is to be used by the designer and attached to the plans. Listed below is the acceptance test for the Lighting system, **LTG-2A**. The designer is required to check the acceptance tests and list all control devices serving the building or space shall be certified as meeting the Acceptance Requirements for Code Compliance. If all the lighting system or control of a certain type requires a test, list the different lighting and the number of systems. The NA7 Section in the Appendix of the Nonresidential Reference Appendices Manual describes the test. 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. **Forms can be grouped by type of Luminaire controlled.**

Enforcement Agency:

Systems Acceptance. Before Occupancy Permit is granted for a newly constructed building or space or when ever new lighting system with controls is installed in the building or space shall be certified as meeting the Acceptance Requirements.
The **LTG-2A** form is not considered a complete form and is not to be accepted by the enforcement agency unless the boxes are checked and/or filled and signed. In addition, a Certificate of Acceptance forms shall be submitted to the enforcement agency that certifies plans, specifications, installation certificates, and operating and maintenance information meet the requirements of §10-103(b) of Title 24 Part 6. The field inspector must receive the properly filled out and signed forms before the building can receive final occupancy. A copy of the **LTG-2A** for each different lighting luminaire control(s) must be provided to the owner of the building for their records.

Controls for Credits				LTG-2A
Equipment Requiring Testing	Description	Number of Luminaire controls	Location	Controls and Sensors and Automatic Daylighting Controls Acceptance
Occ Sensor - <= 250 sqft	2-Lamp Fluorescent F32T8 electronic	1	Shower # 110	☑
Occ Sensor - <= 250 sqft	2-Lamp Fluorescent F32T8 electronic	1	Rest Room # 109	☑
Occ Sensor - <= 250 sqft	2-Lamp Fluorescent F32T8 electronic	1	Shower # 104	☑
				☐
				☐
				☐
				☐
				☐
				☐
				☐
				☐
				☐
				☐
				☐
				☐
				☐

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

Project Name: HCC Bldg. B — Date: 8/7/2010

POWER ADJUSTMENT FACTORS (PAF) FOR NON-DAYLIGHT CONTROLS

A Separate PAF Worksheet Must Be Filled Out for Conditioned and Unconditioned Spaces. Control Credits listed on this schedule are only for:
☑ **CONDITIONED SPACES** ☐ **UNCONDITIONED SPACES**

A	B	C	D	E	F	G
Room # Zone ID Areas	Lighting Control Description[1]	Plan Reference	Room Area (ft^2)	Watts of Control Lighting	Power Adjustments Factor[2]	Control Credit Watts (E x F)
Rest Room # 105	Occ Sensor - <= 250 sqft	B2	52	58	0.20	12
Shower # 110	Occ Sensor - <= 250 sqft	B2	52	58	0.20	12
Rest Room # 109	Occ Sensor - <= 250 sqft	B2	52	58	0.20	12
Shower # 104	Occ Sensor - <= 250 sqft	B2	52	58	0.20	12
					PAGE TOTAL	46

Note: Conditioned and Unconditioned Space shall be separately totaled	Building total of non-daylight control credit watts for all pages of LTG-2C Page 1 of 2	
	Enter building total of all daylight controls credit watts from LTG-2C Page 2 of 2	0
	BUILDING TOTAL OF ALL CONTROL CREDIT WATTS (FOR BOTH NON-DAYLIGHT AND DAYLIGHT CONTROL CREDITS) Enter in LTG-1C; Page 4: Lighting Control Credit as appropriate for CONDITIONED or UNCONDITIONED Spaces	611

1. Description shall be consistent with Type of Control defined in Table 146-C
2. Power Adjustment Factor taken from Table 146-C

LIGHTING MANDATORY MEASURES: NONRESIDENTIAL LTG-MM

Project Name: HCC Bldg. B — Date: 8/7/2010

Indoor Lighting Measures:

§131(d):	**Shut-off Controls**
1.	For every floor, all interior lighting systems shall be equipped with a separate automatic control to shut off the lighting. This automatic control shall meet the requirements of Section 119 and may be an occupancy sensor, automatic time switch, or other device capable of automatically shutting off the lighting.
2.	Override for Building Lighting Shut-off: The automatic building shut-off system is provided with a manual, accessible override switch in sight of the lights. The area of override is not to exceed 5,000 square feet.
§119(h):	Automatic Control Devices Certified: All automatic control devices specified are certified, all alternate equipment shall be certified and installed as directed by the manufacturer.
§111:	Fluorescent Ballast and Luminaires Certified: All fluorescent fixtures specified for the project are certified and listed in the Directory. All installed fixtures shall be certified.
§131(a):	Individual Room/Area Controls: Each room and area in this building is equipped with a separate switch or occupancy sensor device for each area with floor-to-ceiling walls.
§131(b):	Uniform Reduction for Individual Rooms: All rooms and areas greater than 100 square feet and more than 0.8 watts per square foot of lighting load shall be controlled with bi-level switching for uniform reduction of lighting within the room.
§131(c):	Daylight Area Control: All rooms with windows and skylights that are greater than 250 square feet and that allow for the effective use of daylight in the area shall have 50% of the lamps in each daylit area controlled by a separate switch; or the effective use of daylight cannot be accomplished because the windows are continuously shaded by a building on the adjacent lot. Diagram of shading during different times of the year is included on plans.
§131(c):	Display Lighting. Display lighting shall be separately switched on circuits that are 20 amps or less.6.

Outdoor Lighting Measures:

§130(c)1:	Mandatory lighting power determination for medium base sockets without permanently installed ballasts
§132(a):	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(b):	All Luminaires with lamps rated greater than 175 Watts in hardscape area, including parking lots, building entrances, canopies, and all outdoor sales areas meet the Cutoff Requirements.
§132(c)1:	All permanently installed outdoor lighting meets the control requirements listed.
§132(c):	Building facades, parking lots, garages, canopies, and outdoor sales areas meet the Multi-Level Lighting Requirements listed.

REVISIONS	BY
05–24–10 ISSUED FOR PLAN CHECK	SR

HINDU COMMUNITY and CULTURAL CENTER

1232 ARROWHEAD AVE. LIVERMORE, CA 94551

INTERIOR LIGHTING
PHASE 1A

DATE
09/21/2010
SCALE:
AS NOTED
DRAWN BY:
AM/MS T-24ON-LINE
PROJECT:
ARROWHEAD

T24-LTG

CERTIFICATE OF COMPLIANCE and FIELD INSPECTION ENERGY CHECKLIST (Part 1 of 5) MECH-1C

Project Name			Date
HCC Bldg. B			7/30/2010
Project Address: 1232 Arrowhead Ave. Livermore	Climate Zone: 12	Total Cond. Floor Area: 3,189	Addition Floor Area: 3,189

GENERAL INFORMATION

Building Type: ☑ Nonresidential ☐ High-Rise Residential ☐ Hotel/Motel Guest Room
☐ Schools (Public School) ☐ Relocatable Public School Bldg. ☑ Conditioned Spaces ☐ Unconditioned Spaces (affidavit)
Phase of Construction: ☐ New Construction ☐ Addition ☑ Alteration
Approach of Compliance: ☐ Component ☐ Overall Envelope TDV Energy ☐ Unconditioned (file affidavit)
Front Orientation: N, E, S, W or in Degrees: 90 deg

HVAC SYSTEM DETAILS — FIELD INSPECTION ENERGY CHECKLIST — Meets Criteria or Requirements

Equipment[2]	Inspection Criteria	Pass	Fail – Describe Reason[2]
Item or System Tags (i.e. AC-1, RTU-1, HP-1)	DHW Heater	☐	☐
Equipment Type[3]:	Gas Fired DHW Boiler	☐	☐
Number of Systems	1	☐	☐
Max Allowed Heating Capacity[1]	185,000 Btu/hr	☐	☐
Minimum Heating Efficiency[1]	0.85 EF	☐	☐
Max Allowed Cooling Capacity[1]	n/a	☐	☐
Cooling Efficiency[1]	n/a	☐	☐
Duct Location/ R-Value	n/a	☐	☐
When duct testing is required, submit **MECH-4A & MECH-4-HERS**	n/a	☐	☐
Economizer	n/a	☐	☐
Thermostat	n/a	☐	☐
Fan Control	n/a	☐	☐

FIELD INSPECTION ENERGY CHECKLIST

Equipment[2]	Inspection Criteria	Pass	Fail – Describe Reason[2]
Item or System Tags (i.e. AC-1, RTU-1, HP-1)	AC-9	☐	☐
Equipment Type[3]:	Packaged DX	☐	☐
Number of Systems	1	☐	☐
Max Allowed Heating Capacity[1]	27,862 Btu/hr	☐	☐
Minimum Heating Efficiency[1]	80% AFUE	☐	☐
Max Allowed Cooling Capacity[1]	36,565 Btu/hr	☐	☐
Cooling Efficiency[1]	15.0 SEER / 12.7 EER	☐	☐
Duct Location/ R-Value	R-8.0	☐	☐
When duct testing is required, submit **MECH-4A & MECH-4-HERS**	No	☐	☐
Economizer	No Economizer	☐	☐
Thermostat	Setback Required	☐	☐
Fan Control	Constant Volume	☐	☐

1. If the Actual installed equipment performance efficiency and capacity is less than the Proposed (from the energy compliance submittal or from the building plans) the responsible party shall resubmit energy compliance to include the new changes.
2. For additional detailed discrepancy use Page 2 of the Inspection Checklist Form. Compliance fails if a Fail box is checked.
3. Indicate Equipment Type: Gas (Pkg or, Split), VAV, HP (Pkg or split), Hydronic, PTAC, or other.

CERTIFICATE OF COMPLIANCE and FIELD INSPECTION ENERGY CHECKLIST (Part 1 of 5) MECH-1C

Project Name			Date
HCC Bldg. B			7/30/2010
Project Address: 1232 Arrowhead Ave. Livermore	Climate Zone: 12	Total Cond. Floor Area: 3,189	Addition Floor Area: 3,189

GENERAL INFORMATION

Building Type: ☑ Nonresidential ☐ High-Rise Residential ☐ Hotel/Motel Guest Room
☐ Schools (Public School) ☐ Relocatable Public School Bldg. ☑ Conditioned Spaces ☐ Unconditioned Spaces (affidavit)
Phase of Construction: ☐ New Construction ☐ Addition ☑ Alteration
Approach of Compliance: ☐ Component ☐ Overall Envelope TDV Energy ☐ Unconditioned (file affidavit)
Front Orientation: N, E, S, W or in Degrees: 90 deg

HVAC SYSTEM DETAILS — FIELD INSPECTION ENERGY CHECKLIST — Meets Criteria or Requirements

Equipment[2]	Inspection Criteria	Pass	Fail – Describe Reason[2]
Item or System Tags (i.e. AC-1, RTU-1, HP-1)	AC-10	☐	☐
Equipment Type[3]:	Packaged DX	☐	☐
Number of Systems	1	☐	☐
Max Allowed Heating Capacity[1]	22,701 Btu/hr	☐	☐
Minimum Heating Efficiency[1]	80% AFUE	☐	☐
Max Allowed Cooling Capacity[1]	25,195 Btu/hr	☐	☐
Cooling Efficiency[1]	15.0 SEER / 12.7 EER	☐	☐
Duct Location/ R-Value	R-8.0	☐	☐
When duct testing is required, submit **MECH-4A & MECH-4-HERS**	No	☐	☐
Economizer	No Economizer	☐	☐
Thermostat	Setback Required	☐	☐
Fan Control	Constant Volume	☐	☐

FIELD INSPECTION ENERGY CHECKLIST

Equipment[2]	Inspection Criteria	Pass	Fail – Describe Reason[2]
Item or System Tags (i.e. AC-1, RTU-1, HP-1)	FC-2/CU-2	☐	☐
Equipment Type[3]:	Split DX	☐	☐
Number of Systems	1	☐	☐
Max Allowed Heating Capacity[1]	10,068 Btu/hr	☐	☐
Minimum Heating Efficiency[1]	8.00 HSPF	☐	☐
Max Allowed Cooling Capacity[1]	12,472 Btu/hr	☐	☐
Cooling Efficiency[1]	13.0 SEER / 10.0 EER	☐	☐
Duct Location/ R-Value	n/a	☐	☐
When duct testing is required, submit **MECH-4A & MECH-4-HERS**	No	☐	☐
Economizer	No Economizer	☐	☐
Thermostat	Setback Required	☐	☐
Fan Control	Constant Volume	☐	☐

1. If the Actual installed equipment performance efficiency and capacity is less than the Proposed (from the energy compliance submittal or from the building plans) the responsible party shall resubmit energy compliance to include the new changes.
2. For additional detailed discrepancy use Page 2 of the Inspection Checklist Form. Compliance fails if a Fail box is checked.
3. Indicate Equipment Type: Gas (Pkg or, Split), VAV, HP (Pkg or split), Hydronic, PTAC, or other.

CERTIFICATE OF COMPLIANCE and FIELD INSPECTION ENERGY CHECKLIST (Part 1 of 5) MECH-1C

Project Name			Date
HCC Bldg. B			7/30/2010
Project Address: 1232 Arrowhead Ave. Livermore	Climate Zone: 12	Total Cond. Floor Area: 3,189	Addition Floor Area: 3,189

GENERAL INFORMATION

Building Type: ☑ Nonresidential ☐ High-Rise Residential ☐ Hotel/Motel Guest Room
☐ Schools (Public School) ☐ Relocatable Public School Bldg. ☑ Conditioned Spaces ☐ Unconditioned Spaces (affidavit)
Phase of Construction: ☐ New Construction ☐ Addition ☑ Alteration
Approach of Compliance: ☐ Component ☐ Overall Envelope TDV Energy ☐ Unconditioned (file affidavit)
Front Orientation: N, E, S, W or in Degrees: 90 deg

HVAC SYSTEM DETAILS — FIELD INSPECTION ENERGY CHECKLIST — Meets Criteria or Requirements

Equipment[2]	Inspection Criteria	Pass	Fail – Describe Reason[2]
Item or System Tags (i.e. AC-1, RTU-1, HP-1)	FC-1/CU-1	☐	☐
Equipment Type[3]:	Split DX	☐	☐
Number of Systems	1	☐	☐
Max Allowed Heating Capacity[1]	2,659 Btu/hr	☐	☐
Minimum Heating Efficiency[1]	8.00 HSPF	☐	☐
Max Allowed Cooling Capacity[1]	5,637 Btu/hr	☐	☐
Cooling Efficiency[1]	13.0 SEER / 10.0 EER	☐	☐
Duct Location/ R-Value	n/a	☐	☐
When duct testing is required, submit **MECH-4A & MECH-4-HERS**	No	☐	☐
Economizer	No Economizer	☐	☐
Thermostat	Setback Required	☐	☐
Fan Control	Constant Volume	☐	☐

FIELD INSPECTION ENERGY CHECKLIST

Equipment[2]	Inspection Criteria	Pass	Fail – Describe Reason[2]
Item or System Tags (i.e. AC-1, RTU-1, HP-1)	AC-11	☐	☐
Equipment Type[3]:	Packaged DX	☐	☐
Number of Systems	1	☐	☐
Max Allowed Heating Capacity[1]	9,962 Btu/hr	☐	☐
Minimum Heating Efficiency[1]	80% AFUE	☐	☐
Max Allowed Cooling Capacity[1]	15,155 Btu/hr	☐	☐
Cooling Efficiency[1]	15.0 SEER / 12.7 EER	☐	☐
Duct Location/ R-Value	R-8.0	☐	☐
When duct testing is required, submit **MECH-4A & MECH-4-HERS**	No	☐	☐
Economizer	No Economizer	☐	☐
Thermostat	Setback Required	☐	☐
Fan Control	Constant Volume	☐	☐

1. If the Actual installed equipment performance efficiency and capacity is less than the Proposed (from the energy compliance submittal or from the building plans) the responsible party shall resubmit energy compliance to include the new changes.
2. For additional detailed discrepancy use Page 2 of the Inspection Checklist Form. Compliance fails if a Fail box is checked.
3. Indicate Equipment Type: Gas (Pkg or, Split), VAV, HP (Pkg or split), Hydronic, PTAC, or other.

CERTIFICATE OF COMPLIANCE and FIELD INSPECTION ENERGY CHECKLIST (Part 1 of 5) MECH-1C

Project Name			Date
HCC Bldg. B			7/30/2010
Project Address: 1232 Arrowhead Ave. Livermore	Climate Zone: 12	Total Cond. Floor Area: 3,189	Addition Floor Area: 3,189

GENERAL INFORMATION

Building Type: ☑ Nonresidential ☐ High-Rise Residential ☐ Hotel/Motel Guest Room
☐ Schools (Public School) ☐ Relocatable Public School Bldg. ☑ Conditioned Spaces ☐ Unconditioned Spaces (affidavit)
Phase of Construction: ☐ New Construction ☐ Addition ☑ Alteration
Approach of Compliance: ☐ Component ☐ Overall Envelope TDV Energy ☐ Unconditioned (file affidavit)
Front Orientation: N, E, S, W or in Degrees: 90 deg

HVAC SYSTEM DETAILS — FIELD INSPECTION ENERGY CHECKLIST — Meets Criteria or Requirements

Equipment[2]	Inspection Criteria	Pass	Fail – Describe Reason[2]
Item or System Tags (i.e. AC-1, RTU-1, HP-1)	AC-4	☐	☐
Equipment Type[3]:	Packaged DX	☐	☐
Number of Systems	1	☐	☐
Max Allowed Heating Capacity[1]	169,051 Btu/hr	☐	☐
Minimum Heating Efficiency[1]	81% AFUE	☐	☐
Max Allowed Cooling Capacity[1]	173,774 Btu/hr	☐	☐
Cooling Efficiency[1]	13.0 SEER / 10.0 EER	☐	☐
Duct Location/ R-Value	R-8.0	☐	☐
When duct testing is required, submit **MECH-4A & MECH-4-HERS**	No	☐	☐
Economizer	No Economizer	☐	☐
Thermostat	Setback Required	☐	☐
Fan Control	Constant Volume	☐	☐

FIELD INSPECTION ENERGY CHECKLIST

Equipment[2]	Inspection Criteria	Pass	Fail – Describe Reason[2]
Item or System Tags (i.e. AC-1, RTU-1, HP-1)		☐	☐
Equipment Type[3]:		☐	☐
Number of Systems		☐	☐
Max Allowed Heating Capacity[1]		☐	☐
Minimum Heating Efficiency[1]		☐	☐
Max Allowed Cooling Capacity[1]		☐	☐
Cooling Efficiency[1]		☐	☐
Duct Location/ R-Value		☐	☐
When duct testing is required, submit **MECH-4A & MECH-4-HERS**		☐	☐
Economizer		☐	☐
Thermostat		☐	☐
Fan Control		☐	☐

1. If the Actual installed equipment performance efficiency and capacity is less than the Proposed (from the energy compliance submittal or from the building plans) the responsible party shall resubmit energy compliance to include the new changes.
2. For additional detailed discrepancy use Page 2 of the Inspection Checklist Form. Compliance fails if a Fail box is checked.
3. Indicate Equipment Type: Gas (Pkg or, Split), VAV, HP (Pkg or split), Hydronic, PTAC, or other.

CERTIFICATE OF COMPLIANCE and FIELD INSPECTION ENERGY CHECKLIST (Part 2 of 5) MECH-1C

Project Name: HCC Bldg. B — Date: 7/30/2010

Discrepancies:

CERTIFICATE OF COMPLIANCE and FIELD INSPECTION ENERGY CHECKLIST (Part 3 of 5) MECH-1C

Project Name: HCC Bldg. B — Date: 7/30/2010

Required Acceptance Tests

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 applicable boxes by all acceptance tests that apply and listed 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. The NA number designates the Section in the Appendix of the Nonresidential Reference Appendices Manual that describes the test. 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.
Systems Acceptance: Before occupancy permit is granted. All newly installed HVAC equipment must be tested using the Acceptance Requirements.

The MECH-1C form is not considered a completed form and is not to be accepted by the building department unless the correct boxes are checked. The equipment requiring testing, person performing the test (Example: HVAC installer, TAB contractor, controls contractor, PE in charge of project) and what Acceptance test must be conducted. The following checked-off forms are required for **ALL** newly installed equipment. In addition a Certificate of Acceptance forms 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. The building inspector must receive the properly filled out and signed forms before the building can receive final occupancy.

TEST DESCRIPTION		MECH-2A	MECH-3A	MECH-4A	MECH-5A	MECH-6A	MECH-7A	MECH-8A	MECH-9A	MECH-10A	MECH-11A
Equipment Requiring Testing or Verification	Qty.	Outdoor Ventilation For VAV & CAV	Constant Volume & Single-Zone Unitary	Air Distribution Ducts	Economizer Controls	Demand Control Ventilation DCV	Supply Fan VAV	Valve Leakage Test	Supply Water Temp. Reset	Hydronic System Variable Flow Control	Automatic Demand Shed Control
Trane YHC-036-E	3	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐
ThermalRite # MOH025	1	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Mitsubishi # MSZ-A09NA/MUZ-A09NA	1	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Trane YHC-060-E3	1	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐
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CERTIFICATE OF COMPLIANCE and FIELD INSPECTION ENERGY CHECKLIST (Part 4 of 5) MECH-1C

Project Name: HCC Bldg. B — Date: 7/30/2010

TEST DESCRIPTION		MECH-12A	MECH-13A	MECH-14A	MECH-15A	
Equipment Requiring Testing	Qty.	Fault Detection & Diagnostics for DX Units	Automatic Fault Detection & Diagnostics for Air & Zone	Distributed Energy Storage DX AC Systems	Thermal Energy Storage (TES) Systems	Test Performed By:
Trane YHC-036-E	3	☐	☐	☐	☐	
ThermalRite # MOH025	1	☐	☐	☐	☐	
Mitsubishi # MSZ-A09NA/MUZ-A09NA	1	☐	☐	☐	☐	
Trane YHC-060-E3	1	☐	☐	☐	☐	
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CERTIFICATE OF COMPLIANCE (Part 5 of 5) MECH-1C

Project Name: HCC Bldg. B — Date: 7/30/2010

Documentation Author's Declaration Statement

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

Name	Mangalore Suresh P.E.	Signature	[signature]
Company	Title 24 Online	Date	7/30/2010
Address	531 Natalino Circle	CEA # / CEPE #	
City/State/Zip	Sacramento, ca 95835	Phone	510-793-2658

The Principal Mechanical Designer's Declaration Statement

- I am eligible under Division 3 of the California Business and Professions Code to accept responsibility for the mechanical design.
- This Certificate of Compliance identifies the mechanical features and performance specifications required for compliance with Title-24, Parts 1 and 6 of the California Code of Regulations.
- The design features represented on this Certificate of Compliance are consistent with the information provided to document this design on the other applicable compliance forms, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.

Name	Sam Rao P.E.	Signature	
Company	Systems Eng. Inc.	Date	
Address	P.O.Box 360683	License #	
City/State/Zip	Milpitas, CA. 95036	Phone	415-941-0661

Mandatory Measures
Indicate location on building plans of Note Block for Mandatory Measures________________

MECHANICAL COMPLIANCE FORMS & 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 2008 Nonresidential Manual.
Note: The Enforcement Agency may require all forms to be incorporated onto the building plans.

- ☑ MECH-1C Certificate of Compliance. Required on plans for all submittals.
- ☑ MECH-2C Mechanical Equipment Summary is required for all submittals.
- ☑ MECH-3C Mechanical Ventilation and Reheat is required for all submittals with mechanical ventilation.
- ☑ MECH-4C Fan Power Consumption is required for all prescriptive submittals.

AIR SYSTEM REQUIREMENTS (Part 1 of 2) MECH-2C

Project Name: HCC Bldg. B — Date: 7/30/2010

		Indicate Air Systems Type (Central, Single Zone, Package, VAV, or etc...)		
Item or System Tags (i.e. AC-1, RTU-1, HP-1)		AC-9	AC-10	FC-2/CU-2
Number of Systems		1	1	1
	Indicate Page Reference on Plans or Schedule and indicate the applicable exception(s)			
MANDATORY MEASURES	**T-24 Sections**			
Heating Equipment Efficiency	112(a)	80% AFUE	80% AFUE	8.00 HSPF
Cooling Equipment Efficiency	112(a)	15.0 SEER / 12.7 EER	15.0 SEER / 12.7 EER	13.0 SEER / 10.0 EER
HVAC Heat Pump Thermostat	112(b), 112(c)	n/a	n/a	Yes
Furnace Controls/Thermostat	112(c), 115(a)	n/a	n/a	n/a
Natural Ventilation	121(b)	Yes	Yes	Yes
Mechanical Ventilation	121(b)	216 cfm	194 cfm	91 cfm
VAV Minimum Position Control	121(c)	No	No	No
Demand Control Ventilation	121(c)	No	No	No
Time Control	122(e)	Programmable Switch	Programmable Switch	Programmable Switch
Setback and Setup Control	122(e)	Setback Required	Setback Required	Setback Required
Outdoor Damper Control	122(f)	Auto	Auto	Auto
Isolation Zones	122(g)	n/a	n/a	n/a
Pipe Insulation	123			
Duct Insulation	124	R-8.0	R-8.0	n/a
PRESCRIPTIVE MEASURES				
Calculated Design Heating Load	144(a & b)	27,862 Btu/hr	22,701 Btu/hr	10,068 Btu/hr
Proposed Heating Capacity	144(a & b)	48,000 Btu/hr	48,000 Btu/hr	5,017 Btu/hr
Calculated Design Cooling Load	144(a & b)	25,596 Btu/hr	17,636 Btu/hr	8,730 Btu/hr
Proposed Cooling Capacity	144(a & b)	30,853 Btu/hr	30,868 Btu/hr	4,844 Btu/hr
Fan Control	144(c)	Constant Volume	Constant Volume	Constant Volume
DP Sensor Location	144(c)			
Supply Pressure Reset (DDC only)	144(c)	Yes	Yes	Yes
Simultaneous Heat/Cool	144(d)	No	No	No
Economizer	144(e)	No Economizer	No Economizer	No Economizer
Heat Air Supply Reset	144(f)	Constant Temp	Constant Temp	Constant Temp
Cool Air Supply Reset	144(f)	Constant Temp	Constant Temp	Constant Temp
Electric Resistance Heating[1]	144(g)			
Air Cooled Chiller Limitation	144(i)			
Duct Leakage Sealing. If Yes, a MECH-4-A must be submitted	144(k)	No	No	No

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.

AIR SYSTEM REQUIREMENTS (Part 1 of 2) MECH-2C

Project Name: HCC Bldg. B — Date: 7/30/2010

		Indicate Air Systems Type (Central, Single Zone, Package, VAV, or etc...)		
Item or System Tags (i.e. AC-1, RTU-1, HP-1)		FC-1/CU-1	AC-11	AC-4
Number of Systems		1	1	1
	Indicate Page Reference on Plans or Schedule and indicate the applicable exception(s)			
MANDATORY MEASURES	**T-24 Sections**			
Heating Equipment Efficiency	112(a)	8.00 HSPF	80% AFUE	81% AFUE
Cooling Equipment Efficiency	112(a)	13.0 SEER / 10.0 EER	15.0 SEER / 12.7 EER	13.0 SEER / 10.0 EER
HVAC Heat Pump Thermostat	112(b), 112(c)	Yes	n/a	n/a
Furnace Controls/Thermostat	112(c), 115(a)	n/a	n/a	n/a
Natural Ventilation	121(b)	Yes	Yes	Yes
Mechanical Ventilation	121(b)	15 cfm	92 cfm	2,118 cfm
VAV Minimum Position Control	121(c)	No	No	No
Demand Control Ventilation	121(c)	No	No	No
Time Control	122(e)	Programmable Switch	Programmable Switch	Programmable Switch
Setback and Setup Control	122(e)	Setback Required	Setback Required	Setback Required
Outdoor Damper Control	122(f)	Auto	Auto	Auto
Isolation Zones	122(g)	n/a	n/a	n/a
Pipe Insulation	123			
Duct Insulation	124	n/a	R-8.0	R-8.0
PRESCRIPTIVE MEASURES				
Calculated Design Heating Load	144(a & b)	2,659 Btu/hr	9,962 Btu/hr	169,051 Btu/hr
Proposed Heating Capacity	144(a & b)	5,017 Btu/hr	48,000 Btu/hr	60,000 Btu/hr
Calculated Design Cooling Load	144(a & b)	3,946 Btu/hr	10,609 Btu/hr	121,642 Btu/hr
Proposed Cooling Capacity	144(a & b)	3,601 Btu/hr	27,095 Btu/hr	62,475 Btu/hr
Fan Control	144(c)	Constant Volume	Constant Volume	Constant Volume
DP Sensor Location	144(c)			
Supply Pressure Reset (DDC only)	144(c)	Yes	Yes	Yes
Simultaneous Heat/Cool	144(d)	No	No	No
Economizer	144(e)	No Economizer	No Economizer	No Economizer
Heat Air Supply Reset	144(f)	Constant Temp	Constant Temp	Constant Temp
Cool Air Supply Reset	144(f)	Constant Temp	Constant Temp	Constant Temp
Electric Resistance Heating[1]	144(g)			
Air Cooled Chiller Limitation	144(i)			
Duct Leakage Sealing. If Yes, a MECH-4-A must be submitted	144(k)	No	No	No

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.

MECHANICAL VENTILATION AND REHEAT MECH-3C

Project Name: HCC Bldg. B — Date: 7/30/2010

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 (ft²)	CFM per ft²	Min CFM By Area B X C	Number Of People	CFM per Person	Min CFM by Occupant E X F	REQ'D V.A. Max of D or G	Design Ventilation Air CFM	50% of Design Zone Supply CFM	B X 0.4 CFM / ft²	Max. of Columns H, J, K, 300 CFM	Design Minimum Air Setpoint	Transfer Air
Library Zone	722	0.15	108	14.4	15.0	216	216	216		289	300		
AC-9						Total	216	216					
Class Room Zone	648	0.38	246	13.0	15.0	194	246	194		259	300		52
AC-10						Total	246	194					
Cooler Zone	304	0.15	46	6.1	15.0	91	91	91		122	300		
FC-2/CU-2						Total	91	91					
Office Zone	121	0.15	18	1.0	15.0	15	18	15					3
FC-1/CU-1						Total	18	15					
Dresser Zone	305	0.15	46	6.1	15.0	92	92	92					
AC-11						Total	92	92					
Lobby Zone	686	0.15	103	137.2	15.0	2,058	2,058	2,058					
Prayer Rm Zone	403	1.07	431	4.0	15.0	60	431	60					371
AC-4						Total	2,489	2,118					
			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 setting.
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 50%; or the design zone outdoor airflow rate per §121.
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 H) 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 M), Column H minus M.

MECHANICAL MANDATORY MEASURES: NONRESIDENTIAL MECH-MM

Project Name: HCC Bldg. B — Date: 7/30/2010

Equipment and System Efficiencies

§111:	Any appliance for which there is a California standard established in the Appliance Efficiency Regulations will comply with the applicable standard.
§115(a):	Fan type central furnaces shall not have a pilot light.
§123:	Piping, except that conveying fluids at temperatures between 60 and 105 degrees Fahrenheit, or within HVAC equipment, shall be insulated in accordance with Standards Section 123.
§124:	Air handling duct systems shall be installed and insulated in compliance with Sections 601, 602, 603, 604, and 605 of the CMC Standards.

Controls

§122(e):	Each space conditioning system shall be installed with one of the following:
1A.	Each space conditioning system serving building types such as offices and manufacturing facilities (and all others not explicitly exempt from the requirements of Section 112 (d)) shall be installed with an automatic time switch with an accessible manual override that allows operation of the system during off-hours for up to 4 hours. The time switch shall be capable of programming different schedules for weekdays and weekends and have program backup capabilities that prevent the loss of the device's program and time setting for at least 10 hours if power is interrupted; or
1B.	An occupancy sensor to control the operating period of the system; or
1C.	A 4-hour timer that can be manually operated to control the operating period of the system.
2.	Each space conditioning system shall be installed with controls that temporarily restart and temporarily operate the system as required to maintain a setback heating and/or a setup cooling thermostat setpoint.
§122(g):	Each space conditioning system serving multiple zones with a combined conditioned floor area more than 25,000 square feet shall be provided with isolation zones. Each zone: shall not exceed 25,000 square feet; shall be provided with isolation devices, such as valves or dampers that allow the supply of heating or cooling to be setback or shut off independently of other isolation areas; and shall be controlled by a time control device as described above.
§122(c):	Thermostats shall have numeric setpoints in degrees Fahrenheit (F) and adjustable setpoint stops accessible only to authorized personnel.
§122(b):	Heat pumps shall be installed with controls to prevent electric resistance supplementary heater operation when the heating load can be met by the heat pump alone
§122(a&b):	Each space conditioning system shall be controlled by an individual thermostat that responds to temperature within the zone. Where used to control heating, the control shall be adjustable down to 55 degrees F or lower. For cooling, the control shall be adjustable up to 85 degrees F or higher. Where used for both heating and cooling, the control shall be capable of providing a deadband of at least 5 degrees F within which the supply of heating and cooling is shut off or reduced to a minimum.

Ventilation

§121(e):	Controls shall be provided to allow outside air dampers or devices to be operated at the ventilation rates as specified on these plans.
§122(f):	All gravity ventilating systems shall be provided with automatic or readily accessible manually operated dampers in all openings to the outside, except for combustion air openings.
§121(f):	Ventilation System Acceptance. Before an occupancy permit is granted for a newly constructed building or space, or a new ventilating system serving a building or space is operated for normal use, all ventilation systems serving the building or space shall be certified as meeting the Acceptance Requirements for Code Compliance

Service Water Heating Systems

§113(c)	Installation
3.	Temperature controls for public lavatories. The controls shall limit the outlet Temperature to 110°F.
2.	Circulating service water-heating systems shall have a control capable of automatically turning off the circulating pump when hot water is not required.

REVISIONS	BY
05-24-10 ISSUED FOR PLAN CHECK	SR

HINDU COMMUNITY and CULTURAL CENTER

1232 ARROWHEAD AVE. LIVERMORE, CA 94551

T24-MECHANICAL
PHASE 1A

DATE
09/21/2010
SCALE:
AS NOTED
DRAWN BY:
AM/MS T-24ON-LINE
PROJECT:
ARROWHEAD

T24-MECH

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

Project Name	Date
HCC Bldg B	*7/24/2010*

Project Address	Total Illuminated Area
1232 Arrowhead Avenue Livermore, Ca 94551	*9,943*

GENERAL INFORMATION

Phase of Construction: ☑ New Construction ☐ Addition ☐ Alteration

Documentation Author's Declaration Statement

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

Name: *Mangalore Suresh P.E.*	Signat[ure]
Company: *Title 24 Online*	Date: *7/24/2010*
Address: *531 Natalino Circle*	CEA # CEPE #
City/State/Zip: *Sacramento, ca 95835*	Phone: *510-793-2658*

Principal Lighting Designer's Declaration Statement

- I am eligible under Division 3 of the California Business and Professional Code to accept responsibility for the lighting design.
- This Certificate of Compliance identifies the lighting features and performance specifications required for compliance with Title 24, Pages 1 and 6 of the California Code of Regulations.
- The design features represented on this Certificate of Compliance are consistent with the information provided to document this design on the other applicable compliance forms, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.

Name: *Vish Ponnathpore P.E.*	Signature
Company: *Principal, Greene Engineers*	Phone
Address: *1740 Technology Drive Suite 210*	License #
City/State/Zip: *San Jose, CA 95110*	Date

Principal Lighting Designer's Declaration

☑ I certify that this Certificate of Compliance documentation is accurate and complete, and accounts for all outdoor lighting power, including building mounted, pole mounted, as well as all other lighting designed for the site, and that Additional Lighting Power Allowances for Specific Applications or Additional Lighting Power Allowances for Ordinance Requirements have not been counted more than one time for the same area, in accordance with Section 147 of the Standards.

Outdoor Lighting Mandatory Measures
Indicate location on building plans of Mandatory Measures Note Block: ______________________

LIGHTING COMPLIANCE FORMS & WORKSHEETS (check box if worksheets 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-1C	Certificate of Compliance. All 4 pages required on plans for all submittals.
☐	OLTG-2C	(Pages 1 of 3) Lighting Wattage Allowances for General Hardscape, Sales Frontage, or Ornamental Lighting. Optional on plans.
☑	OLTG-2C	(Pages 2 of 3) Lighting Wattage Allowance for Per Application or Per Area. Optional on plans.
☐	OLTG-2C	(Pages 3 of 3) Additional Lighting Power Allowance for Ordinance Requirements. Optional on plans.

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

Project Name	Date
HCC Bldg B	*7/24/2010*

COMPLIANCE FIXTURE / LIGHTING CONTROL SCHEDULE and FIELD INSPECTION CHECKLIST

INSTALLATION CERTIFICATE, OLTG-1INST (Retain a copy and verify form is completed and signed.) **Field Inspection** ☐

CERTIFICATE OF ACCEPTANCE, OLTG-2A (Retain a copy and verify form is completed and signed.) **Field Inspection** ☐

Luminaire Schedule			Installed Watts							
A	B	C	D	E	F		G	H	I	
					How wattage was determined				Field Inspector[2]	
Name or Item Tag	Luminaire Description[1] See footnote below (i.e.: 1 lamp pole-top shoe-box 400 watt metal halide)	Cutoff Designation	Watts per Luminaire	Special Features	Default from NA-8	According to §130 (D or E)	Number of Luminaires	Installed Watts (D X G)	Pass	Fail
A	*Wall Pack W/100w Metal Halide Lamp*		*122.0*	☐	☑	☐	*9*	*1,098*	☐	☐
B	*Ceiling Mtd 2-18w Compact Fluorescent Quad*		*50.0*	☐	☑	☐	*8*	*400*	☐	☐
				☐	☐	☐			☐	☐
				☐	☐	☐			☐	☐
				☐	☐	☐			☐	☐
				☐	☐	☐			☐	☐
				☐	☐	☐			☐	☐
				☐	☐	☐			☐	☐
				☐	☐	☐			☐	☐
Enter total into OLTG-1C; Page 4 of 4: Row H; Total Installed Watts:								*1,498*		

1. Type of luminaire (i.e.: post top, wall pack, surface, shoe box); for non-incandescent luminaires, indicate nominal lamp wattage and lamp type (i.e.: fluorescent, incandescent, HID); ballast type (i.e.: electronic or magnetic); number of lamps and number of ballasts per luminaire. For incandescent luminaires, the luminaire wattage listed in column D shall be the maximum relamping rated wattage on a permanent factory-installed label on the luminaire, NOT the wattage of the lamp (bulb) used, in accordance with Section 130(d or e).
2. If Fail then describe on Page 2 of the Inspection Checklist Form and take appropriate action to correct. Verify building plans if necessary.

EXEMPT LUMINAIRES **Field Inspection** ☐

Name or Symbol	Description of exempt luminaires in accordance with §147

MANDATORY CONTROLS **Field Inspection** ☐

#	Description	Location		#	Description	Location

SPECIAL FEATURES INSPECTION CHECKLIST (See Page 2 of 4 of OLTG-1C)

The local enforcement agency should pay special attention to the items specified in this checklist. These items require special written justification and documentation, and special verification. The local enforcement agency determines the adequacy of the justification, and may reject a building or design that otherwise complies based on the adequacy of the special justification and documentation submitted.

Filed Inspector Notes or Discrepancies:

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

Project Name	Date
HCC Bldg B	*7/24/2010*

A. OUTDOOR LIGHTING ZONE

OUTDOOR LIGHTING ZONE: ☐ OLZ 1 ☐ OLZ 2 ☑ OLZ 3 ☐ OLZ 4

Is the Outdoor Lighting Zone: ☑ Default in accordance with §10-114, or ☐ Amended by JHA

Complete the information below if the default Outdoor Lighting Zone has been amended by the local jurisdiction having authority (JHA):

- ☐ The site is a government designated park, recreational area, wildlife preserve, or portion thereof, and has been designated as LZ2 or LZ3, in accordance with Table 10-114-A, because the site is contained within such a zone.
- ☐ The local jurisdiction having authority has officially adopted a change to the State Default Lighting Zone and has notified the Energy Commission by providing the materials required in §10-114(d) to the Executive Director.
- ☐ The adopted change is posted on the Energy Commission website.

B. ADDITIONAL LIGHTING POWER ALLOWANCE FOR ORDINANCE REQUIREMENTS

Are additional lighting power allowances for ordinance in Table 147-C used? ☐ Yes ☑ No

Complete the information below if additional lighting power allowances for ordinance requirements are used:

- ☐ The local jurisdiction having authority has officially adopted specific outdoor light levels, which are expressed as average or minimum footcandle levels, by following a public process that allowed for formal public notification, review, and comment about the proposed change.
- ☐ The local jurisdiction having authority which adopted specific outdoor light levels and has notified the Commission by providing the following materials required §10-114(f) to the Executive Director.

C. ACCEPTANCE FORMS

Required Acceptance Tests

Designer:

This form is to be used by the designer and attached to the plans. Listed below is the acceptance test for the Lighting system, **OLTG-2A**. The designer is required to check the acceptance tests and list all control devices serving the building or space shall be certified as meeting the Acceptance Requirements for Code Compliance. If all the lighting system or control of a certain type requires a test, list the different lighting and the number of systems. The NA7 Section in the Appendix of the Nonresidential Reference Appendices Manual describes the test. 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. **Forms can be grouped by type of Luminaire controlled.**

Enforcement Agency:

Systems Acceptance. Before Occupancy Permit is granted for a newly constructed building or space or when ever new lighting system with controls is installed in the building or space shall be certified as meeting the Acceptance Requirements.
The **OLTG-2A** form is not considered a complete form and is not to be accepted by the enforcement agency unless the boxes are checked and/or filled and signed. In addition, a Certificate of Acceptance forms shall be submitted to the enforcement agency that certifies plans, specifications, installation certificates, and operating and maintenance information meet the requirements of §10-103(b) of Title 24 Part 6. The field inspector must receive the properly filled out and signed forms before the building can receive final occupancy. A copy of the **OLTG-2A** for each different lighting luminaire control(s) must be provided to the owner of the building for their records.

				Certificate of Acceptance
	Luminaires Controlled			OLTG-2A[1]
Equipment Requiring Testing	Description	Qty. of Like Controls	Location	Outdoor Lighting Acceptance Tests

1. Insert: **OMS** for Outdoor Motion Sensor; **OLSC** for Outdoor Lighting Shutoff Controls; **OP** for Outdoor Photocontrol; **ATS** for Astronomical Time Switch; and, **STS** for Standard (non-astronomical) Time Switch acceptance.

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

Project Name	Date
HCC Bldg B	*7/24/2010*

ALLOWED AND INSTALLED OUTDOOR LIGHTING POWER

		Lighting Wattage Power Allowance
A	Lighting power allowance for general hardscape (from OLTG-2C Page 1 of 3)	*0*
B	Specific application lighting wattage allowance per unit length (from OLTG-2C Page 1 of 3)	*0*
C	Specific application lighting wattage allowance for ornamental lighting (from OLTG-2C Page 1 of 3)	*0*
D	Specific application lighting wattage allowance per application (from OLTG-2C Page 2 of 3)	*0*
E	Specific application lighting wattage allowance per area (from OLTG-2C Page 2 of 3)	*1,498*
F	Specific application lighting wattage allowance for ordinance requirements (from OLTG-2C Page 3 of 3)	*0*
G	Total Allowed Wattage = Sum of rows A through F:	*1,498*
H	Total installed watts (from Compliance Fixture Schedule, (from OLTG-2C Page 1 of 3)	*1,498*

Complies if wattage in row H is less than or equal to the wattages in row G ☑ Yes ☐ No

REVISIONS	BY
05-24-10 ISSUED FOR PLAN CHECK	SR

HINDU COMMUNITY and CULTURAL CENTER

1232 ARROWHEAD AVE. LIVERMORE, CA 94551

EXTERIOR LIGHTING
PHASE 1A

DATE
09/21/2010
SCALE:
AS NOTED
DRAWN BY:
AM/MS T-24ON-LINE
PROJECT:
ARROWHEAD

T24-OLTG