BUILDING ENERGY ANALYSIS REPORT

PROJECT:

Happy Camp Resident Center

Happy Camp, CA

Project Designer:

KAS & Associates

Medford, OR 97501
541-772-5807

Report Prepared by:

ArcSine Engineering

,

Job Number:

1605

Date:

5/10/2016

The EnergyPro computer program has been used to perform the calculations summarized in this compliance report. This program has approval and is authorized by the California Energy Commission for use with both the Residential and Nonresidential 2013 Building Energy Efficiency Standards.

This program developed by EnergySoft, LLC – www.energysoft.com.

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ENVELOPE COMPONENT APPROACH

Project Name: Happy Camp Resident Center | Date Prepared: 5/10/2016

A. GENERAL INFORMATION

1	**Project Location:**		6	**Compliance Method:**	☑ Component ☐ Unconditioned (file Affidavit)
2	**CA City and Zip Code:**	Happy Camp,	7	**Building Front Orientation (deg or cardinal):**	90 deg
3	**Climate Zone:**	16	8	**Phase of construction**	☑ New Construction ☐ Addition ☐ Alteration
4	**Total Conditioned Floor Area:**	11,400	9	**Building Type(s)**	☑ Nonresidential ☐ High-Rise Residential ☐ Hotel/Motel Guest Room
5	☐ Schools (Public School) ☐ Relocatable Public School Bldg. ☑ Conditioned Spaces ☐ Unconditioned Spaces ☐ Skylight Area for Large Enclosed Space > 5000 ft^2 (If checked include the NRCC-ENV-04-E with submittal)				

B. ENVELOPE DETAILS – Framed

1	2	3	4	5	6	7	8	9	10	11
Tag/ID	Assembly Type	Frame Material	Frame Depth	Frame Spacing	Appendix JA4 Reference	Cavity R-value	Continuous Insulation R-value	Proposed U-Factor	Required U-Factor From Tables, B, C, D	Field Inspection Comments
1	Wall	Metal	Metal Pan		4.3.10-A5	0	0.0	0.033	0.062	Metal Panel

C. ENVELOPE DETAILS – Non-framed

1	2	3	4	5	6	7	8	9	10
Tag/ID	Assembly Type	Assembly Materials	Thickness (inches)	Interior or Core Insulation R-value	Continuous Insulation R-value	Appendix JA4 Reference	Proposed U-Factor	Required U-Factor from Tables, B, C, D	Field Inspection Comments
1	Door	Metal, Double-layer		0	0.0	4.5.1-A2	0.700	0.700	Metal Door

D. ENVEL0PE DETAILS – Mass

1	2	3	4	5	6	7	8	9	10	11
Tag/ID	Mass Type	Density ($lb/ft^{3)}$	Mass Thickness (inches)	Furring Strip Thickness (inches)	Interior Insulation R-value	Exterior Insulation R-value	Appendix JA4 Reference	Proposed Insulation U-factor	Required U-Factor from Tables, B, C, D	Field Inspection Comments

CERTIFICATE OF COMPLIANCE	NRCC-ENV-01-E
Envelope Component Approach	(Page 2 of 4)
Project Name: Happy Camp Resident Center	Date Prepared: 5/10/2016

E. ROOFING PRODUCTS (COOL ROOF)

1	2	3	4	5	6	7	8	9	10	11
				Proposed			**Minimum Required**			
Mass Roof 25 lb ft2 or greater	Roof Pitch	CRRC Product ID Number	Product Type	Aged Solar Reflectance	Thermal Emittance	SRI[2] (Optional)	Aged Solar Reflectance	Thermal Emittance	SRI (optional)	**Comments**
☐				☐[1]						
☐				☐[1]						
☐				☐[1]						

☐ An aged solar reflectance less than 0.63 is allowed provided the maximum roof / ceiling U-factor in TABLE 140.3 is not exceeded	
☐ High-rise residential buildings and Hotels and Motels with low-sloped roofs in Climate Zones 1 through 8, 12 and 16 are exempted from aged Solar Reflectance and emittance requirements.	
☐ High-rise residential buildings and Hotels and Motels with steep-sloped roofs in Climate Zones 1 and 16 are exempt from aged Solar Reflectance and emittance requirements.	
☐ The roof area covered by building integrated photovoltaic panels and building integrated solar thermal panels are exempt from aged Solar Reflectance and emittance requirements	
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 §110.8(i)4. Select the applicable coating:	
☐ Aluminum-Pigmented Asphalt Roof Coating ☐ Cement-Based Roof Coating ☐ Other _____	

NOTES:

1. *Check the box if the aged Solar reflectance was not available in the Cool Roof Rating Council's Rated Product Directory, Then use the* equation in Section 110.8(i)2 where the *Initial Reflectance value from the same directory and use the equation* $(0.2+B(\rho_{initial} - 0.2)$ *to obtain a calculated aged value. Where* ρ *is the Initial Solar Reflectance and* ***B*** *is either set to 0.65 for Field-Applied Coatings or it is set to 0.70 for all other roofing products other than Field-Applied Coating.*
2. *Calculate the SRI Value by using the SRI-Worksheet at (TBD) and enter the resulting value in the SRI Column above and attach a copy for the SRI-Worksheet NRCC-ENV-03-E to the to this form.*

F. Air Barrier

1	2	3	4	5
NameNa me	Air Barrier Material Type	Air Barrier Assembly Type	Whole Building Air Leakage Testing	Comments

CERTIFICATE OF COMPLIANCE	NRCC-ENV-01-E
Envelope Component Approach	(Page 3 of 4)
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G. FENESTRATION PROPOSED AREAS AND EFFICIENCIES

1	2	3	4	5	6	7	8	9	10	11	12
Tag/ID	Fenestration Type	Surface Area	Orientation N, S, W, E or Roof	# of Panes	Max U-Factor	Overhang	Max (R)SHGC	Min VT	Label	Conditions Status	Comments
1	Double Thermal Break Clear	120	E	2	0.36	No	0.25	0.42		New	

H. ENVELOPE MANDATORY MEASURES

Indicate location on building plans of Mandatory Envelope Measures Note Block: ENV-MM

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

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

- ☑ NRCC-ENV-01-E Certificate of Compliance. Required on plans for all submittals.
- ☐ NRCC-ENV-04-E Use when minimum skylight requirements for large enclosed spaces are required in climate zones 2 through 15. Optional on plans.

CERTIFICATE OF COMPLIANCE	NRCC-ENV-01-E
Envelope Component Approach	(Page 4 of 4)
Project Name: Happy Camp Resident Center	Date Prepared: 5/10/2016

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

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

Documentation Author Name: John Keller	Documentation Author Signature: John M Keller
Company: ArcSine Engineering	Signature Date: 5/10/2016
Address:	CEA/ HERS Certification Identification (if applicable):
City/State/Zip: ,	Phone:

RESPONSIBLE PERSON'S DECLARATION STATEMENT

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

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

Responsible Designer Name: Scott Pingle	Responsible Designer Signature:
Company : KAS & Associates	Date Signed:
Address:	License:
City/State/Zip: Medford, OR 97501	Phone: 541-772-5807

ENVELOPE MANDATORY MEASURES: NONRESIDENTIAL ENV-MM

Project Name	Date
Happy Camp Resident Center	*5/10/2016*

DESCRIPTION

Building Envelope Measures:

§110.8(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.
§110.8(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.
§110.8(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.
§110.7(a):	All Exterior Joints and openings in the building that are observable sources of air leakage shall be caulked, gasketed, weatherstripped or otherwise sealed.
§110.6(a):	Manufactured fenestration products and exterior doors shall have air infiltration rates not exceeding 0.3 cfm/ft.^{2} of window area, 0.3 cfm/ft.^{2} of door area for residential doors, 0.3 cfm/ft.^{2} of door area for nonresidential single doors (swinging and sliding), and 1.0 cfm/ft.^{2} for nonresidential double doors (swinging).
§110.6(a):	Fenestration U-factor shall be rated in accordance with NFRC 100, or the applicable default U-factor.
§110.6(a) :	Fenestration SHGC shall be rated in accordance with NFRC 200, or NFRC 100 for site-built fenestration, or the applicable default SHGC.
§110.6(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 fire doors).

CERTIFICATE OF COMPLIANCE	NRCC-MCH-01-E
Mechanical Systems	(Page 1 of 4)
Project Name: Happy Camp Resident Center	Date Prepared: 5/10/2016

A. 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, refer to the 2013 Nonresidential Manual
Note: The Enforcement Agency may require all forms to be incorporated onto the building plans.

YES	NO	Form/Worksheet #	Title
☑	☐	NRCC-MCH-01-E (Part 1 of 3)	Certificate of Compliance, Declaration. Required on plans for all submittals.
☑	☐	NRCC-MCH-01-E (Part 2 of 3)	Certificate of Compliance, Required Acceptance Tests (MCH-02A to 11A). Required on plans for all submittals.
☑	☐	NRCC-MCH-01-E (Part 3 of 3)	Certificate of Compliance, Required Acceptance Tests (MCH-12A to 18A). Required on plans where applicable.
☐	☑	NRCC-MCH-02-E (Part 1 of 2)	Mechanical Dry Equipment Summary is required for all submittals with Central Air Systems. It is optional on plans.
☐	☑	NRCC-MCH-02-E (Part 2 of 2)	Mechanical Wet Equipment Summary is required for all submittals with chilled water, hot water or condenser water systems. It is optional on plans.
☐	☑	NRCC-MCH-03-E	Mechanical Ventilation and Reheat is required for all submittals with multiple zone heating and cooling systems. It is optional on plans.
☐	☑	NRCC-MCH-07-E (Part 1 of 2)	Power Consumption of Fans. Required on plans where applicable
☐	☑	NRCC-MCH-07-E (Part 2 of 2)	Power Consumption of Fans, Declaration. Required on plans where applicable

CERTIFICATE OF COMPLIANCE	NRCC-MCH-01-E
Mechanical Systems	(Page 2 of 4)
Project Name: Happy Camp Resident Center	Date Prepared: 5/10/2016

B. MECHANICAL HVAC ACCEPTANCE FORMS (check box for required forms)

Test Performed By:

Designer:
This form is to be used by the designer and attached to the plans. Listed below are all the acceptance tests for HVAC systems. The designer is required to check the applicable boxes for all acceptance tests that apply and list all equipment that requires an acceptance test. All equipment of the same type that requires a test, list the equipment description and the number of systems.

Installing Contractor:
The contractor who installed the equipment is responsible to either conduct the acceptance test them self or have a qualified entity run the test for them. If more than one person has responsibility for the acceptance testing, each person shall sign and submit the Certificate of Acceptance applicable to the portion of the construction or installation for which they are responsible.

Enforcement Agency:
Plancheck – The NRCC-MCH-01-E form is not considered a completed form and is not to be accepted by the building department unless the correct boxes are checked.
Inspector - Before occupancy permit is granted all newly installed process systems must be tested to ensure proper operations.

Test Description		MCH-02A	MCH-03A	MCH-04A	MCH-05A	MCH-06A	MCH-07A	MCH-08A	MCH-09A	MCH-10A	MCH-11A
Equipment Requiring Testing or Verification	# of Units	Outdoor Air	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
RT-1 and 2	2	☑	☐	☐	☑	☑	☐	☐	☐	☐	☑
RT-3	1	☑	☑	☐	☑	☐	☐	☐	☐	☐	☐
		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
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		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

CERTIFICATE OF COMPLIANCE	NRCC-MCH-01-E
Mechanical Systems	(Page 3 of 4)
Project Name: Happy Camp Resident Center	Date Prepared: 5/10/2016

C. MECHANICAL HVAC ACCEPTANCE FORMS (check box for required forms)

Test Performed By:

Designer:
This form is to be used by the designer and attached to the plans. Listed below are all the acceptance tests for HVAC systems. The designer is required to check the applicable boxes for all acceptance tests that apply and list all equipment that requires an acceptance test. All equipment of the same type that requires a test, list the equipment description and the number of systems.

Installing Contractor:
The contractor who installed the equipment is responsible to either conduct the acceptance test them self or have a qualified entity run the test for them. If more than one person has responsibility for the acceptance testing, each person shall sign and submit the Certificate of Acceptance applicable to the portion of the construction or installation for which they are responsible. The following tests require a

Enforcement Agency:
Plancheck – The NRCC-MCH-01-E form is not considered a completed form and is not to be accepted by the building department unless the correct boxes are checked.
Inspector - Before occupancy permit is granted all newly installed process systems must be tested to ensure proper operations.

Test Description		MCH-12A	MCH-13A	MCH-14A	MCH-15A	MCH-16A	MCH-17A	MCH-18A
Equipment Requiring Testing or Verification	# of units	Fault Detection & Diagnostics for DX Units	Automatic Fault Detection & Diagnostics for Air & Zone	Distributed Energy Storage DX AC Systems	Thermal Energy Storage (TES) Systems	Supply Air Temperature Reset Controls	Condenser Water Reset Controls	ECMS
RT-1 and 2	2	☑	☐	☐	☐	☑	☐	☐
RT-3	1	☑	☐	☐	☐	☐	☐	☐
		☐	☐	☐	☐	☐	☐	☐
		☐	☐	☐	☐	☐	☐	☐
		☐	☐	☐	☐	☐	☐	☐
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		☐	☐	☐	☐	☐	☐	☐
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		☐	☐	☐	☐	☐	☐	☐

CERTIFICATE OF COMPLIANCE	NRCC-MCH-01-E
Mechanical Systems	(Page 4 of 4)
Project Name: Happy Camp Resident Center	Date Prepared: 5/10/2016

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

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

Documentation Author Name: John Keller	Documentation Author Signature:
Company: ArcSine Engineering	Signature Date: 5/10/2016
Address:	CEA/ HERS Certification Identification (if applicable):
City/State/Zip: ,	Phone:

RESPONSIBLE PERSON'S DECLARATION STATEMENT

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

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

Responsible Designer Name: John Keller	Responsible Designer Signature: John M Keller
Company : ArcSine Engineering	Date Signed:
Address: 1236 Disk Drive, Suite I	License: M 30429
City/State/Zip: Medford, OR 97501	Phone: 514-842-4188

CERTIFICATE OF COMPLIANCE	NRCC-MCH-04-E
Required Acceptance Tests	(Page 1 of 3)
Project Name: Happy Camp Resident Center	Date Prepared: 5/10/2016

MECHANICAL COMPLIANCE FORMS & WORKSHEETS (indicate if worksheet is included)

For detailed instructions on the use of this and all Energy Efficiency Standards compliance forms, refer to the 2013 Nonresidential Manual Note: The Enforcement Agency may require all forms to be incorporated onto the building plans. Forms NRCC-MCH-04-E and NRCC-MECH-05-E are alternative forms to NRCC-MCH-01-E, NRCC-MCH-02-E and NRCC-MCH-03-E for projects using only single zone packaged HVAC systems.

YES	NO	Form	Title
✔		NRCC-MCH-04-E (1 of 2)	Certificate of Compliance. Required on plans when used.
✔		NRCC-MCH-04-E (2 of 2)	Mechanical Acceptance Tests. Required on plans when used.
✔		NRCC-MCH-05-E (1 of 2)	HVAC Prescriptive Requirements. It is required on plans when used.
✔		NRCC-MCH-05-E (2 of 2)	Mechanical SWH Equipment Summary is required for all submittals with service water heating, pools or spas. It is required on plans where applicable.

CERTIFICATE OF COMPLIANCE	NRCC-MCH-04-E
Required Acceptance Tests	(Page 2 of 3)
Project Name: Happy Camp Resident Center	Date Prepared: 5/10/2016

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 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. 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.

Enforcement Agency:

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 NRCC-MCH-04-E 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 and replaced 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 Section 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		MCH-02-A	MCH-03-A	MCH-04-A	MCH-05-A	MCH-06-A	MCH-07-A	MCH-11-A	MCH-12-A	MCH-14-A	MCH-18-A	Test Performed By:
Equipment Requiring Testing or Verification	# of units	Outdoor Air	Single Zone Unitary	Air Distribution Ducts	Economizer Controls	Demand Control Ventilation (DCV)	Supply Fan VAV	Automatic Demand Shed Control	FDD for Packaged DX Units	Distributed Energy Storage DX AC Systems	Energy Management Control System	
RT-1 and 2	2	✔			✔	✔		✔	✔			
RT-3	1	✔	✔		✔				✔			

CERTIFICATE OF COMPLIANCE	NRCC-MCH-04-E
Required Acceptance Tests	(Page 3 of 3)
Project Name: Happy Camp Resident Center	Date Prepared: 5/10/2016

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT	
1. I certify that this Certificate of Compliance documentation is accurate and complete.	
Documentation Author Name: John Keller	Documentation Author Signature:
Company: ArcSine Engineering	Signature Date: 5/10/2016
Address:	CEA/ HERS Certification Identification (if applicable):
City/State/Zip: ,	Phone:

RESPONSIBLE PERSON'S DECLARATION STATEMENT

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1. The information provided on this Certificate of Compliance is true and correct.
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4. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.
5. I will ensure that a completed signed copy of this Certificate of Compliance shall be made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a completed signed copy of this Certificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy.

Responsible Designer Name: John Keller	Responsible Designer Signature: John M Keller
Company : ArcSine Engineering	Date Signed:
Address: 1236 Disk Drive, Suite I	License: M 30429
City/State/Zip: Medford, OR 97501	Phone: 514-842-4188

REQUIREMENTS FOR PACKAGED SINGLE ZONE UNITS

Project Name: Happy Camp Resident Center

Date Prepared: 5/10/2016

Equipment Tag(s)[1]		System 1		System 2			
MANDATORY MEASURES	***T-24 Sections***	***Requirement[3]***	***As Scheduled[3]***	***Requirement[3]***	***As Scheduled[3]***	***Requirement[3]***	***As Scheduled[3]***
Heating Equipment Efficiency[4]	110.1 or 110.2(a)	78% TE	82% TE	78% AFUE	82% AFUE		
Cooling Equipment Efficiency[4]	110.1 or 110.2(a)	10.8 EER	11.0 EER	13 SEER	14.0 SEER / 12		
Thermostats[5]	110.2(b), 110.2(c)	Setback	Setback	Setback	Setback		
Furnace Standby Loss Control[6]	110.2(d)	Req	IID	n/a			
Low Leakage AHU	110.2(f)	NR	none	NR	none		
Ventilation[7]	120.1(b)	4,332	2,657	410	205		
Demand Control Ventilation[8]	120.1(c)4	Req	Yes	NR	No		
Occupant Sensor Ventilation Control[8]	120.1(c)5, 120.2(e)3						
Shutoff and Reset Controls[9]	120.2(e)	Req	Programmable	Req	Programmable S		
Outdoor Air and Exhaust Damper Control	120.2(f)	Req	Auto	Req	Auto		
Automatic Demand Shed Controls	120.2(h)	NR	none	NR	none		
Economizer FDD	120.2(i)	Req		Req			
Duct Insulation	120.4	n/a	none	R-8	R-4.2		
PRESCRIPTIVE MEASURES							
Equipment is sized in conformance with 140.4 (a & b)	140.4(a & b)	260,041 Btu/h 207,632 Btu/h	400,000 Btu/hr 264,361 Btu/hr	49,464 Btu/hr 61,274 Btu/hr	48,000 Btu/hr 43,114 Btu/hr		
Economizer	140.4(e)	Req	Diff. Temp (Inte	Req	Fixed Temp (No		
Electric Resistance Heating[10]	140.4(g)	No	No	No	No		
Duct Leakage Sealing and Testing.[11]	140.4(l)	NR	No	NR	No		

Notes:

1. *Provide equipment tags (e.g. AC1 or AC1 to 10). Multiple units of the same make and model with the same application and accessories can be grouped together.*
2. *Enter the following information as appropriate: Unit Manufacturer; Unit Model Number (including all accessories); Description of the unit (e.g. gas-pack or heat pump; rated heating capacity (enter "N/A" if no heating); and, rated cooling capacity (enter "N/A" if no cooling). For unit capacities include the units (e.g. kBtuh or tons).*
3. *For each requirement, enter the minimum requirement from the Standard In the left column (under "Standard Requirement"). In the right column (under "As Scheduled") enter the value for the units as specified.*
4. *Where there is more than one requirement (e.g. full and part load efficiency) enter both with the appropriate labels (e.g. COP and IEER).*
5. *In the left column identify the thermostatic requirements from the standard (e.g. programmable setback thermostat or heatpump with electric heat), . In the right column indicate the capabilities of the thermostat as scheduled.*
6. *If the unit has a furnace which is rated at >=225,000 Btuh of capacity, indicate the rated standby loss and ignition source (e.g. IID). If there is no furnace or the unit is rated for <225,000 Btuh indicate "N/A".*
7. *In the left column, enter both the required ventilation value from Table 120.1A and for the number of occupants times 15 cfm/person. In the right column enter the actual minimum ventilation as scheduled. If the space is naturally ventilated enter "N/A" in the left column and "the space is naturally ventilated" in the right column.*
8. *If the space is required to have either DCV or Occupant Sensor Ventilation Control indicate "required" in the left column (otherwise indicate "N/A" in the left column). If either DCV or Occupant Sensor Ventilation Control is provided indicate "provided" in the right column (otherwise indicate "N/A" in the right column)*
9. *In the left column indicate the required time controls from the standard. In the right column identify the device that provides this functionality (e.g. EMCS or programmable timeclock).*
10. *Enter N/A if there is no electric heating. If the system has electric heating indicate which exception to 140.4(g) applies.*

CERTIFICATE OF COMPLIANCE	NRCC-MCH-05-E
Requirements for Packaged Single-Zone Units	(Page 2 of 2)
Project Name: Happy Camp Resident Center	Date Prepared: 5/10/2016

*11. If duct leakage sealing and testing is required, a **MCH-04-A** form must be submitted.*

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

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

Documentation Author Name: John Keller	Documentation Author Signature:
Company: ArcSine Engineering	Signature Date: 5/10/2016
Address:	CEA/ HERS Certification Identification (if applicable):
City/State/Zip: ,	Phone:

RESPONSIBLE PERSON'S DECLARATION STATEMENT

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

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

Responsible Designer Name: John Keller	Responsible Designer Signature: John M Keller
Company : ArcSine Engineering	Date Signed:
Address: 1236 Disk Drive, Suite I	License: M 30429
City/State/Zip: Medford, OR 97501	Phone: 514-842-4188

FAN POWER CONSUMPTION

Project Name: *Happy Camp Resident Center* Date Prepared: *5/10/2016*

Constant Volume Fans Systems

NOTE: Provide one copy of this worksheet for each fan system with a total fan system horsepower greater than 25 hp of Constant Volume Fan Systems when using the Prescriptive Approach. See Power Consumption of fans §140.4(c).

A	B	C	D	E	F
FAN DESCRIPTION	**DESIGN BRAKE HP**	**EFFICIENCY**		**NUMBER OF FANS**	**PEAK WATTS** B x E x 746 / (C x D)
		MOTOR	**DRIVE**		
System 1 - Supply Fan	*1.660*	*86.5 %*	*97.0 %*	*2.0*	*2,952*

Variable Air Volume Fans Systems

NOTE: Provide one copy of this worksheet for each fan system with a total fan system horsepower greater than 25 hp of Variable Air Volume (VAV) Systems when using the Prescriptive Approach. See Power Consumption of fans §140.4(c).

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

Totals and Adjustments

FILTER PRESSURE ADJUSTMENT Equation 140.4-A in §140.4(c) of the Building Energy Efficiency Standards.	1) TOTAL FAN SYSTEM POWER (WATTS, SUM COLUMN F)	*2,952*	W
	2) SUPPLY DESIGN AIRFLOW	*10,000*	CFM
A) If filter pressure drop (SP_a) is greater than 1 inch W. C. or 245 Pascal then enter SP_a on line 4. Enter Total Fan pressure drop across the fan (SP_f) on Line 5.	3) TOTAL FAN SYSTEM POWER INDEX (Row 1 / Row 2)[1]	*0.295*	W/CFM
	4) SP_a		in W.C or Pa
B) Calculate Fan Adjustment and enter on line 6.	5) SP_f		in W.C or Pa
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]	*0.295*	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.

FAN POWER CONSUMPTION

CERTIFICATE OF COMPLIANCE	NRCC-MCH-07-E
Power Consumption of Fans Requirements	(Page 1 of 2)
Project Name: *Happy Camp Resident Center*	Date Prepared: *5/10/2016*

Constant Volume Fans Systems

NOTE: Provide one copy of this worksheet for each fan system with a total fan system horsepower greater than 25 hp of Constant Volume Fan Systems when using the Prescriptive Approach. See Power Consumption of fans §140.4(c).

A	B	C	D	E	F
FAN DESCRIPTION	**DESIGN BRAKE HP**	**EFFICIENCY**		**NUMBER OF FANS**	**PEAK WATTS** B x E x 746 / (C x D)
		MOTOR	**DRIVE**		
System 2 - Supply Fan	*1.000*	*86.5 %*	*97.0 %*	*1.0*	*889*

Variable Air Volume Fans Systems

NOTE: Provide one copy of this worksheet for each fan system with a total fan system horsepower greater than 25 hp of Variable Air Volume (VAV) Systems when using the Prescriptive Approach. See Power Consumption of fans §140.4(c).

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

Totals and Adjustments

FILTER PRESSURE ADJUSTMENT Equation 140.4-A in §140.4(c) of the Building Energy Efficiency Standards.	1) TOTAL FAN SYSTEM POWER (WATTS, SUM COLUMN F)	*889*	W
	2) SUPPLY DESIGN AIRFLOW	*1,950*	CFM
A) If filter pressure drop (SP_a) is greater than 1 inch W. C. or 245 Pascal then enter SP_a on line 4. Enter Total Fan pressure drop across the fan (SP_f) on Line 5.	3) TOTAL FAN SYSTEM POWER INDEX (Row 1 / Row 2)[1]	*0.456*	W/CFM
	4) SP_a		in W.C or Pa
B) Calculate Fan Adjustment and enter on line 6.	5) SP_f		in W.C or Pa
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]	*0.456*	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.

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT	
1. I certify that this Certificate of Compliance documentation is accurate and complete.	
Documentation Author Name: John Keller	Documentation Author Signature:
Company: ArcSine Engineering	Signature Date: 5/10/2016
Address:	CEA/ HERS Certification Identification (if applicable):
City/State/Zip: ,	Phone:

RESPONSIBLE PERSON'S DECLARATION STATEMENT

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

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Responsible Designer Name: John Keller	Responsible Designer Signature: John M Keller
Company : ArcSine Engineering	Date Signed:
Address: 1236 Disk Drive, Suite I	License: M 30429
City/State/Zip: Medford, OR 97501	Phone: 514-842-4188

WATER HEATING SYSTEM GENERAL INFORMATION

A. GENERAL INFORMATION/SYSTEM INFORMATION		
1.	Water Heater System Name:	*Bosch 520 HN LP*
2.	Water Heater System Configuration:	*Non-Central*
3.	Water Heater System Type:	
4.	Building Type:	
5.	Total Number of Water Heaters in Systems:	*3*
6.	Central DHW Distribution Type:	*n/a*
7.	Dwelling Unit DHW Distribution Type:	*Standard*

B. WATER HEATER INFORMATION

Each water heater type requires a separate form.

1.	Water Heater Type:	*Small Instantaneous Gas*
2.	Fuel Type	*Gas Fired*
3.	Manufacture Name	*Bosch 520 HN LP*
4.	Model Number	
5.	Number of Identical Water Heaters:	*3*
6.	Installed Water Heater System Efficiency:	*0.83*
7.	Required Minimum Efficiency:	*0.83*
8.	Standby loss percent or Standby loss total:	*0.000*
9.	Rated Input	*117,000*
810	Pilot Energy:	
911	Water Heater Tank Storage Volume:	*0*
12	Exterior Insulation On Water Heater:	*0*
13.	Volume of Supplemental Storage:	
14.	Internal Insulation on Supplemental Storage:	
15.	Exterior Insulation on Supplemental Storage:	

CERTIFICATE OF COMPLIANCE	NRCC-PLB-01-E
Water Heating System General Information	(Page 2 of 2)
Project Name: Happy Camp Resident Center	Date Prepared: 5/10/2016

PLUMBING COMPLIANCE FORMS & WORKSHEETS (check box if worksheet is included)

For detailed instructions on the use of this and all Energy Efficiency Standards compliance forms, refer to the 2013 Nonresidential Manual

Note: The Enforcement Agency may require all forms to be incorporated onto the building plans.

YES	NO	Form/Worksheet #	Title
☐	☐	NRCC-PLB-01-E	Certificate of Compliance, Declaration. Required on plans for all submittals.
☐	☐	NRCI-PLB-01-E	Certificate of Installation. Required on plans for all submittals.
☐	☐	NRCI-PLB-02-E	Certificate of Installation, required on central systems in high-rise residential, hotel/motel application.
☐	☐	NRCI-PLB-03-E	Certificate of Installation, required on single dwelling unit systems in high-rise residential, hotel/motel application.
☐	☐	NRCI-PLB-21-H	Certificate of Installation, required on HERS verified central systems in high-rise residential, hotel/motel application.
☐	☐	NRCI-PLB-22-H	Certificate of Installation, required on HERS verified single dwelling unit systems in high-rise residential, hotel/motel application.
☐	☐	NRCI-STH-01-E	Certificate of Installation, required on any solar water heating

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

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

Documentation Author Name:	Documentation Author Signature:
Company: ArcSine Engineering	Signature Date: 5/10/2016
Address:	CEA/ HERS Certification Identification (if applicable):
City/State/Zip: ,	Phone:

RESPONSIBLE PERSON'S DECLARATION STATEMENT

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

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

Responsible Designer Name: John Keller	Responsible Designer Signature:
Company : ArcSine Engineering	Date Signed:
Address: 1236 Disk Drive, Suite I	License: M 30429
City/State/Zip: Medford, OR 97501	Phone: 514-842-4188

BUILDING ENERGY ANALYSIS REPORT

PROJECT:

Karuk Happy Camp Resident Center
537 Jacobs Way
Happy Camp, CA 96039

Project Designer:

KAS & Associates, Inc.
304 S. Holly St.
Medford, OR 97501
541-772-5807

Report Prepared by:

Katrina Ericson
ArcSine Engineering
950 Executive Way
Redding, CA 96002
530-222-7204

Job Number:

1605.

Date:

5/11/2016

The EnergyPro computer program has been used to perform the calculations summarized in this compliance report. This program has approval and is authorized by the California Energy Commission for use with both the Residential and Nonresidential 2013 Building Energy Efficiency Standards.

This program developed by EnergySoft, LLC – www.energysoft.com.

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STATE OF CALIFORNIA

INDOOR LIGHTING

CEC-NRCC-LTI-01-E (Revised 08/15)

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTI-01-E
Indoor Lighting	(Page 1 of 6)
Project Name: Karuk Happy Camp Resident Center	Date Prepared: 5/11/2016

A. General Information						
Climate Zone: 16	Conditioned Floor Area : 10,958					
	Unconditioned Floor Area : 120					
Building Type:	☑	Nonresidential	☐	High-Rise Residential	☐	Hotel/Motel
☐ Schools	☐	Relocatable Public Schools	☑	Conditioned Spaces	☑	Unconditioned Spaces
Phase of Construction:	☑	New Construction	☐	Addition	☐	Alteration
Method of Compliance:	☐	Complete Building	☑	Area Category	☐	Tailored
Project Address: 537 Jacobs Way						

B. Lighting Compliance Documents (select yes for each document included)

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

YES	NO	FORM	TITLE
✓		NRCC-LTI-01-E	Certificate of Compliance. All Pages required on plans for all submittals.
✓		NRCC-LTI-02-E	Lighting Controls, Certificate of Compliance, and PAF Calculation. All Pages required on plans for all submittals.
✓		NRCC-LTI-03-E	Indoor Lighting Power Allowance
	✓	NRCC-LTI-04-E	Tailored Method Worksheets
	✓	NRCC-LTI-05-E	Line Voltage Track Lighting Worksheets

C. Summary of Allowed Lighting Power

Conditioned and Unconditioned space Lighting must not be combined for compliance

	Indoor Lighting Power for Conditioned Spaces			Indoor Lighting Power for Unconditioned Spaces		
			Watts			Watts
1.	**Installed** Lighting NRCC-LTI-01-E, page 4	+	8,538	**Installed** Lighting NRCC-LTI-01-E, page 4	+	124
2.	PORTABLE ONLY FOR OFFICES NRCC-LTI-01-E, page 3	+				
3.	Minus Lighting Control Credits NRCC-LTI-02-E, page 2	-	1,241	Minus Lighting Control Credits NRCC-LTI-02-E, page 2	-	50
4.	Adjusted **Installed** Lighting Power (row 1 plus row 2 minus row 3)	=	7,297	Adjusted **Installed** Lighting Power (row 1 minus row 3)	=	74
5.	Complies ONLY if **Installed ≤ Allowed**			Complies ONLY if **Installed ≤ Allowed**		
6.	**Allowed** Lighting Power Conditioned NRCC-LTI-03-E, page 1		10,551	**Allowed** Lighting Power Unconditioned NRCC-LTI-03-E, page 1		84

D. Declaration of Required Installation Certificates

Declare by selecting yes for all Installation Certificates that will be submitted. (Retain copies and verify forms are completed and signed.)

YES	NO	Form/Title	
✓		NRCI-LTI-01-E - Must be submitted for all buildings	☐ Field Inspector
	✓	NRCI-LTI-02-E - Must be submitted for a lighting control system, or for an Energy Management Control System (EMCS), to be recognized for compliance.	☐ Field Inspector
	✓	NRCI-LTI-03-E - Must be submitted for a line-voltage track lighting integral current limiter, or for a supplementary overcurrent protection panel used to energize only line-voltage track lighting, to be recognized for compliance.	☐ Field Inspector
	✓	NRCI-LTI-04-E - Must be submitted for two interlocked systems serving an auditorium, a convention center, a conference room, a multipurpose room, or a theater to be recognized for compliance.	☐ Field Inspector
✓		NRCI-LTI-05-E - Must be submitted for a Power Adjustment Factor (PAF) to be recognized for compliance.	☐ Field Inspector
	✓	NRCI-LTI-06-E - Must be submitted for additional wattage installed in a video conferencing studio to be recognized for compliance.	☐ Field Inspector

E. Declaration of Required Certificates of Acceptance

Declare by checking all of the Certificates of Acceptance that will be submitted. (Retain copies and verify forms are completed and signed.)

YES	NO	Form/Title	
✓		NRCA-LTI-02-A - Must be submitted for occupancy sensors and automatic time switch controls.	☐ Field Inspector
	✓	NRCA-LTI-03-A - Must be submitted for automatic daylight controls.	☐ Field Inspector
	✓	NRCA-LTI-04-A - Must be submitted for demand responsive lighting controls.	☐ 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**

F. Indoor Lighting Schedule and Field Inspection Energy Checklist

- ☐ The actual indoor lighting power listed on this page and on the next page includes all installed permanent and planned portable lighting systems.
- ☐ When Complete Building Method is used for compliance, list each different type of luminaire on separate lines.
- ☐ When Area Category Method or Tailored Method is used for compliance, list each different type of luminaire by each different function area on separate lines
- ☐ Also include track lighting in schedule, and submit the track lighting compliance form (NRCC-LTI-05-E) when line-voltage track lighting is installed.

G. Installed Portable Luminaires in Offices – Exception to Section 140.6(a)

☐ This section shall be filled out ONLY for portable luminaires in offices (As defined in §100.1). All other planned portable luminaires shall be documented on next page of this compliance form.

☐ This section is used to determine if greater than 0.3 watts of portable lighting is planned for any office

☐ Fill out a separate line for each different office. Small offices that are typical (having the same general and portable lighting) may be grouped together. This allowance shall not be traded between offices having different lighting systems.

Office Portable Luminaire Schedule	Office Installed Portable Luminaire Watts Per Square Foot							Office Location	Field Inspector	
1	2	3	4	5	6	7	8	9	10	
Complete Luminaire Description (i.e., LED, under cabinet, furniture mounted direct/indirect)	Watts per Luminaire	Number of Luminaires	Installed portable luminaire watts in this office (G02 x G03)	Square feet of this office	Watts per square foot (G04 / G05)	If F ≤ 0.3, enter zero; if G06 > 0.3, (G06-0.3)	G05 x G07	Identify Office area in which these portable luminaires are installed	Pass	Fail
									☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐
Total installed portable luminaire watts that are greater than 0.3 watts per square foot per office:								Enter sum total of all pages into NRCC-LTI-01-E; Page 1		

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**

H. INDOOR LIGHTING SCHEDULE and FIELD INSPECTION ENERGY CHECKLIST

Luminaire Schedule		Installed Watts					Location	Field Inspector [1]	
A	B	C	D		E	F	G	H	
Name or Item Tag	Complete Luminaire Description (i.e, 3 lamp fluorescent troffer, F32T8, one dimmable electronic ballast)	Watts per Luminaire	How wattage was determined: CEC Default from NA8	How wattage was determined: According to §130.0(c)	Number Luminaires	Total Installed Watts in this area (H03 x H05)	Primary Function area in which these luminaires are installed	Pass	Fail
A, AB	6 Lamp 54w Linear T5 HO Elec	324.0	☐	☑	20	6,480	Exercise, Gymnasium	☐	☐
CB, E	C - 26w CFL	26.0	☐	☑	4	104	Corridor/Restroom/Support	☐	☐
D	2 Lamp 4 ft T8 Rapid Start Elec	62.0	☑	☐	4	248	Corridor/Restroom/Support	☐	☐
D, DB	2 Lamp 4 ft T8 Rapid Start Elec	62.0	☑	☐	6	372	Office > 250 sqft	☐	☐
D, DB	2 Lamp 4 ft T8 Rapid Start Elec	62.0	☑	☐	6	372	Exercise, Gymnasium	☐	☐
D, DB	2 Lamp 4 ft T8 Rapid Start Elec	62.0	☑	☐	7	434	Corridor/Restroom/Support	☐	☐
E	C - 26w CFL	26.0	☐	☑	2	52	Kitchen, Food Preparation	☐	☐
F	2 Lamp 4 ft T8 Rapid Start Elec	62.0	☑	☐	2	124	Office > 250 sqft	☐	☐
K	2 Lamp 4 ft T8 Rapid Start Elec	62.0	☑	☐	4	248	Kitchen, Food Preparation	☐	☐
				INSTALLED WATTS PAGE TOTAL:		8,434	Enter sum total of all pages into NRCC-LTI-01-E; Page 2		

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**

H. INDOOR LIGHTING SCHEDULE and FIELD INSPECTION ENERGY CHECKLIST

Luminaire Schedule		Installed Watts					Location	Field Inspector [1]	
A	B	C	D		E	F	G	H	
			How wattage was determined						
Name or Item Tag	Complete Luminaire Description (i.e, 3 lamp fluorescent troffer, F32T8, one dimmable electronic ballast)	Watts per Luminaire	CEC Default from NA8	According to §130.0(c)	Number Luminaires	Total Installed Watts in this area (H03 x H05)	Primary Function area in which these luminaires are installed	Pass	Fail
V	V - 4 13w CFL	52.0	☐	☑	2	104	Corridor/Restroom/Support	☐	☐
			☐	☐				☐	☐
			☐	☐				☐	☐
			☐	☐				☐	☐
			☐	☐				☐	☐
			☐	☐				☐	☐
			☐	☐				☐	☐
			☐	☐				☐	☐
			☐	☐				☐	☐
INSTALLED WATTS PAGE TOTAL:						104	Enter sum total of all pages into NRCC-LTI-01-E; Page 2		

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**

H. INDOOR LIGHTING SCHEDULE and FIELD INSPECTION ENERGY CHECKLIST

Luminaire Schedule		Installed Watts					Location	Field Inspector [1]	
A	B	C	D		E	F	G	H	
Name or Item Tag	Complete Luminaire Description (i.e, 3 lamp fluorescent troffer, F32T8, one dimmable electronic ballast)	Watts per Luminaire	How wattage was determined: CEC Default from NA8	How wattage was determined: According to §130.0(c)	Number Luminaires	Total Installed Watts in this area (H03 x H05)	Primary Function area in which these luminaires are installed	Pass	Fail
F	2 Lamp 4 ft T8 Rapid Start Elec	62.0	☑	☐	2	124	Electrical, Mechanical Room	☐	☐
			☐	☐				☐	☐
			☐	☐				☐	☐
			☐	☐				☐	☐
			☐	☐				☐	☐
			☐	☐				☐	☐
			☐	☐				☐	☐
			☐	☐				☐	☐
			☐	☐				☐	☐
INSTALLED WATTS PAGE TOTAL:						124	Enter sum total of all pages into NRCC-LTI-01-E; Page 2		

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT	
1. I certify that this Certificate of Compliance documentation is accurate and complete.	
Documentation Author Name: Katrina Ericson	Documentation Author Signature: KAT Ericson
Company: ArcSine Engineering	Signature Date: 5/11/2016
Address: 950 Executive Way	CEA Certification Identification (if applicable):
City/State/Zip: Redding, CA 96002	Phone: 530-222-7204

RESPONSIBLE PERSON'S DECLARATION STATEMENT

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

1. The information provided on this Certificate of Compliance is true and correct.
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Responsible Designer Name: Doug McHaney	Responsible Designer Signature:
Company: ArcSine Engineering	Date Signed: 5/12/16
Address: 950 Executive Way	License: CA-E013928
City/State/Zip: Redding, CA 96002	Phone: 530-222-7204

The NRCC-LTI-02-E shall be used to document all mandatory and prescriptive lighting controls that are applicable to the project.

Mandatory Lighting Control Declaration Statements (Indicate if the measure applies by checking yes or no below.)

YES	NO	Control Requirements
✓		Lighting shall be controlled by self-contained lighting control devices which are certified to the Energy Commission according to the Title 20 Appliance Efficiency Regulations in accordance with Section 110.9.
	✓	Lighting shall be controlled by a lighting control a system or energy management control system in accordance with §110.9. An Installation Certificate shall be submitted in accordance with Section 130.4(b).
	✓	One or more Track Lighting Integral Current Limiters shall be installed which have been certified to the Energy Commission in accordance with §110.9 and §130.0. Additionally, an Installation Certificate shall be submitted in accordance with Section 130.4(b).
	✓	A Track Lighting Supplementary Overcurrent Protection Panel shall be installed in accordance with Section 110.9 and Section 130.0. Additionally, an Installation Certificate shall be installed in accordance with Section 130.4(b).
✓		All lighting controls and equipment shall comply with the applicable requirements in §110.9 and shall be installed in accordance with the manufacturer's instructions in accordance with Section 130.1.
✓		All luminaires shall be functionally controlled with manually switched ON and OFF lighting controls in accordance with Section 130.1(a).
✓		General lighting shall be separately controlled from all other lighting systems in an area. Floor and wall display, window display, case display, ornamental, and special effects lighting shall each be separately controlled on circuits that are 20 amps or less. When track lighting is used, general, display, ornamental, and special effects lighting shall each be separately controlled; in accordance with Section 130.1(a)4.
✓		The general lighting of any enclosed area 100 square feet or larger, with a connected lighting load that exceeds 0.5 watts per square foot shall meet the multi-level lighting control requirements in accordance with Section 130.1(b).
✓		All installed indoor lighting shall be equipped with controls that meet the applicable Shut-OFF control requirements in Section 130.1(c).
	✓	Lighting in all Daylit Zones shall be controlled in accordance with the requirements in Section 130.1(d) and daylit zones are shown on the plans.
	✓	Lighting power in buildings larger than 10,000 square feet shall be capable of being automatically reduced in response to a Demand Responsive Signal in accordance with Section 130.1(e).
✓		Before an occupancy permit is granted for a newly constructed building or area, or a new lighting system serving a building, area, or site is operated for normal use, indoor lighting controls serving the building, area, or site shall be certified as meeting the Acceptance Requirements for Code Compliance in accordance with Section 130.4.(a). The controls required to meet the Acceptance Requirements include automatic daylight controls, automatic shut-OFF controls, and demand responsive controls.

A separate document must be filled out for Conditioned and Unconditioned Spaces. This page is used only for the following:

☑ CONDITIONED SPACES ☐ UNCONDITIONED SPACES

MANDATORY AND PRESCRIPTIVE INDOOR LIGHTING CONTROL SCHEDULE, PAF CALCULATION, and FIELD INSPECTION CHECKLIST

Lighting Control Schedule			Standards Complying With [1] (✓ all that apply, or enter 'E' if Exempted)							PAF Credit Calculation [2]			✓ if Acceptance Test Required	Field Inspector	
										Watts of Controlled Lighting	PAF	Control Credit (K x L)			
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	
Location in Building	Type/ Description of Lighting Control (i.e.: occupancy sensor, automatic time switch, dimmer, automatic daylight, etc...)	# of Units	§130.1(a)	§130.0(b)	§130.1(c)	§130.1(d)	§130.1(e)	§140.6(a)2	§140.6(d)					Pass	Fail
	Manual Area	1	✓										✓	☐	☐
	Multi Level	1		✓									✓	☐	☐
	Occupancy Sensor	1			✓								✓	☐	☐
Gymnasium, Exercise Roon	Dimming - Manual							✓		6,480	0.10	648	✓	☐	☐
Gymnasium, Exercise Roon	Occ Sensor - <= 500 sqft							✓		372	0.20	74	✓	☐	☐
Entry/Hallway	Occ Sensor - <= 250 sqft							✓		434	0.30	130	✓	☐	☐
Bathrooms	Occ Sensor - <= 250 sqft							✓		248	0.30	74	✓	☐	☐
Control Credit PAGE TOTAL (Sum of Column M):												927			
IF MULTIPLE PAGES ARE USED, ENTER SUM TOTAL OF Control Credit for all pages HERE (Sum of all Column M):												1,241			
												Enter Control Credit total into NRCC-LTI-01-E; Page 1.			

1. §130.1(a) = Manual area controls; §130.0(b) = Multi Level; §130.1(c) = Auto Shut-Off; §130.1(d) = Mandatory Daylight; §130.1(e) = Demand Responsive; §140.6(d) = Additional lighting controls installed to earn a PAF; §140.6(d) = Prescriptive Secondary Sidelit Daylight Controls.

2. Check Table 140.6-A for correct Factor. PAFs shall not be traded between conditioned and unconditioned spaces. As a condition to earn a PAF, an Installation Certificate is also required to be filled out, signed, and submitted.

STATE OF CALIFORNIA

INDOOR LIGHTING – LIGHTING CONTROLS

CEC-NRCC-LTI-02-E (Revised 05/15)

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTI-02-E
Indoor Lighting - Lighting Controls	(Page 2 of 3)
Project Name: Karuk Happy Camp Resident Center	Date Prepared: 5/11/2016

A separate document must be filled out for Conditioned and Unconditioned Spaces. This page is used only for the following:

☑ CONDITIONED SPACES ☐ UNCONDITIONED SPACES

MANDATORY AND PRESCRIPTIVE INDOOR LIGHTING CONTROL SCHEDULE, PAF CALCULATION, and FIELD INSPECTION CHECKLIST

Lighting Control Schedule			Standards Complying With [1] (✓ all that apply, or enter 'E' if Exempted)							PAF Credit Calculation [2]			✓ if Acceptance Test Required	Field Inspector	
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	
Location in Building	Type/ Description of Lighting Control (i.e.: occupancy sensor, automatic time switch, dimmer, automatic daylight, etc...)	# of Units	§130.1(a)	§130.0(b)	§130.1(c)	§130.1(d)	§130.1(e)	§140.6(a)2	§140.6(d)	Watts of Controlled Lighting	PAF	Control Credit (K x L)		Pass	Fail
Bathrooms	Occ Sensor - <= 250 sqft							✓		104	0.30	31	✓	☐	☐
Bathrooms	Occ Sensor - <= 250 sqft							✓		104	0.30	31	✓	☐	☐
Computer Lab	Occ Sensor - <= 250 sqft							✓		248	0.30	74	✓	☐	☐
Office	Occ Sensor - <= 250 sqft							✓		124	0.30	37	✓	☐	☐
Extra Room, IT Room	Occ Sensor - <= 125 sqft							✓		124	0.40	50	✓	☐	☐
Kitchen	Occ Sensor - <= 250 sqft							✓		248	0.30	74	✓	☐	☐
Kitchen	Occ Sensor - <= 250 sqft							✓		52	0.30	16	✓	☐	☐
Control Credit PAGE TOTAL (Sum of Column M):												314			
IF MULTIPLE PAGES ARE USED, ENTER SUM TOTAL OF Control Credit for all pages HERE (Sum of all Column M):												1,241			
												Enter Control Credit total into NRCC-LTI-01-E; Page 1.			

1. §130.1(a) = Manual area controls; §130.0(b) = Multi Level; §130.1(c) = Auto Shut-Off; §130.1(d) = Mandatory Daylight; §130.1(e) = Demand Responsive; §140.6(d) = Additional lighting controls installed to earn a PAF; §140.6(d) = Prescriptive Secondary Sidelit Daylight Controls.

2. Check Table 140.6-A for correct Factor. PAFs shall not be traded between conditioned and unconditioned spaces. As a condition to earn a PAF, an Installation Certificate is also required to be filled out, signed, and submitted.

A separate document must be filled out for Conditioned and Unconditioned Spaces. This page is used only for the following:

☐ CONDITIONED SPACES ☑ UNCONDITIONED SPACES

MANDATORY AND PRESCRIPTIVE INDOOR LIGHTING CONTROL SCHEDULE, PAF CALCULATION, and FIELD INSPECTION CHECKLIST

Lighting Control Schedule			Standards Complying With [1] (✓ all that apply, or enter 'E' if Exempted)							PAF Credit Calculation [2]			✓ if Acceptance Test Required	Field Inspector	
										Watts of Controlled Lighting	PAF	Control Credit (K x L)			
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	
Location in Building	Type/ Description of Lighting Control (i.e.: occupancy sensor, automatic time switch, dimmer, automatic daylight, etc...)	# of Units	§130.1(a)	§130.0(b)	§130.1(c)	§130.1(d)	§130.1(e)	§140.6(a)2	§140.6(d)					Pass	Fail
	Manual Area	1	✓										✓	☐	☐
	Multi Level	1		✓									✓	☐	☐
	Occupancy Sensor	1			✓								✓	☐	☐
Mechanical	Occ Sensor - <= 125 sqft							✓		62	0.40	25	✓	☐	☐
Storage	Occ Sensor - <= 125 sqft							✓		62	0.40	25	✓	☐	☐
														☐	☐
														☐	☐
Control Credit PAGE TOTAL (Sum of Column M):												50			
IF MULTIPLE PAGES ARE USED, ENTER SUM TOTAL OF Control Credit for all pages HERE (Sum of all Column M):												50			
												Enter Control Credit total into NRCC-LTI-01-E; Page 1.			

1. §130.1(a) = Manual area controls; §130.0(b) = Multi Level; §130.1(c) = Auto Shut-Off; §130.1(d) = Mandatory Daylight; §130.1(e) = Demand Responsive; §140.6(d) = Additional lighting controls installed to earn a PAF; §140.6(d) = Prescriptive Secondary Sidelit Daylight Controls.

2. Check Table 140.6-A for correct Factor. PAFs shall not be traded between conditioned and unconditioned spaces. As a condition to earn a PAF, an Installation Certificate is also required to be filled out, signed, and submitted.

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

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

Documentation Author Name:	Katrina Ericson	Documentation Author Signature:	KAT Ericson
Company:	ArcSine Engineering	Signature Date:	5/11/2016
Address:	950 Executive Way	CEA Certification Identification (if applicable):	
City/State/Zip:	Redding, CA 96002	Phone:	530-222-7204

RESPONSIBLE PERSON'S DECLARATION STATEMENT

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

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

Responsible Designer Name:	Doug McHaney	Responsible Designer Signature:	
Company :	ArcSine Engineering	Date Signed:	5/12/16
Address:	950 Executive Way	License:	CA-E013928
City/State/Zip:	Redding, CA 96002	Phone:	530-222-7204

STATE OF CALIFORNIA

INDOOR LIGHTING POWER ALLOWANCE

CEC-NRCC-LTI-03-E (Revised 05/15) CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTI-03-E
Certificate of Compliance - Indoor Lighting Power Allowance	(Page 1 of 4)
Project Name: Karuk Happy Camp Resident Center	Date Prepared: 5/11/2016

A separate page must be filled out for Conditioned and Unconditioned Spaces. This page is only for:

☑ CONDITIONED spaces ☐ UNCONDITIONED spaces

A. SUMMARY TOTALS OF LIGHTING POWER ALLOWANCES

☐ If using Complete Building Method for compliance, use only the total in column (a) as total allowed building watts.

☐ If using Area Category Method, Tailored Method, or a combination of Area Category and Tailored Method for compliance, use only the total in column (b) as the total allowed building watts

	(a)		(b)
1. Complete Building Method Allowed Watts. Documented in section B of NRCC-LTI-03-E (below on this page)			
2. Area Category Method Allowed Watts. Documented in section C-1 of NRCC-LTI-03-E (below on this page)			10,551
3. Tailored Method Allowed Watts. Documented in section A of NRCC-LTI-04-E			0
TOTAL ALLOWED BUILDING WATTS. Enter number into correct cell on NRCC-LTI-01, Page 2, Row 1			10,551

☑ Check here if building contains both conditioned and unconditioned areas.

B. COMPLETE BUILDING METHOD LIGHTING POWER ALLOWANCE

1	2		3		4
TYPE OF BUILDING (From §140.6 Table 140.6-B)	WATTS PER (ft^2)	X	COMPLETE BLDG. AREA	=	ALLOWED WATTS
Total Area:					
Total Watts. Enter Total Watts into section A, row 1 (Above on this page)					

C -1 AREA CATEGORY METHOD TOTAL LIGHTING POWER ALLOWANCES (D plus E)	Watts
Total from section C-2 .	10,551
Total from section C-3 .	0
Total Watts. Enter Total Watts into section A, row 2 (Above on this page) .	10,551

STATE OF CALIFORNIA

INDOOR LIGHTING POWER ALLOWANCE

CEC-NRCC-LTI-03-E (Revised 05/15) CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTI-03-E
Certificate of Compliance - Indoor Lighting Power Allowance	(Page 2 of 4)
Project Name: Karuk Happy Camp Resident Center	Date Prepared: 5/11/2016

A separate page must be filled out for Conditioned and Unconditioned Spaces. This page is only for:

☑ CONDITIONED spaces ☐ UNCONDITIONED spaces

C -2 AREA CATEGORY METHOD GENERAL LIGHTING POWER ALLOWANCE

☐ Do not include portable lighting for offices. Portable lighting for offices shall be documented only in section B of NRCC-LTI-01-E.

☐ Separately list lighting for each primary function area as defined in §100.1 of the Standards.

A		B		C		D
AREA CATEGORY (From §140.6 Table 140.6-C)		WATTS				ALLOWED
Location in Building	Primary Function Area per Table 140.6-C	PER (ft^2)	X	AREA (ft^2)	=	WATTS
Gymnasium & Exercise Room	Exercise, Gymnasium	1.00		8,854		8,854
Entry, Corridor, Restrooms	Corridor/Restroom/Support	0.60		1,118		671
Computer Lab, Office, IT Room, Room 9	Office > 250 sqft	0.75		649		487
Kitchen, Food Service Window	Kitchen, Food Preparation	1.60		337		539
		TOTALS		10,958		
Enter sum total Area Category allowed watts into section C-1 of NRCC-LTI-03-E (this compliance form)						10,551
						WATTS

STATE OF CALIFORNIA

INDOOR LIGHTING POWER ALLOWANCE

CEC-NRCC-LTI-03-E (Revised 05/15)

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTI-03-E
Certificate of Compliance - Indoor Lighting Power Allowance	(Page 3 of 4)
Project Name: Karuk Happy Camp Resident Center	Date Prepared: 5/11/2016

A separate page must be filled out for Conditioned and Unconditioned Spaces. This page is only for:

☑ CONDITIONED spaces ☐ UNCONDITIONED spaces

C-3 AREA CATEGORY METHOD ADDITIONAL LIGHTING WATTAGE ALLOWANCE (from Table 140.6-C Footnotes)

A	B	C [2]	D	E	F	G
Primary Function	Sq Ft or linear ft [1]	Additional Watts Allowed	Wattage Allowance (B x C)	Description(s) and Quantity of Special Luminaire Types in each Primary Function Area	Total Design Watts [3]	ALLOWED WATTS Smaller of D or F
				TOTALS – Enter into TOTAL AREA CATEGORY METHOD ADDITIONAL ALLOWANCES – Section C-1		0

1. Use linear feet only for additional allowance for white board or chalk board. All other additional Area Category allowances shall use watts per square foot.
2. Additional watts are available only when allowed according to the footnotes on bottom of Table 146-C, which include: Specialized task work; Ornamental lighting; Precision commercial and industrial work; Per linear foot of white board or chalk board; Accent, display and feature lighting; and Videoconferencing Studio lighting..
3. Luminaire classification and wattage shall be determined in accordance with §130.0(c) of the Standards.

STATE OF CALIFORNIA

INDOOR LIGHTING POWER ALLOWANCE

CEC-NRCC-LTI-03-E (Revised 05/15) CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTI-03-E
Certificate of Compliance - Indoor Lighting Power Allowance	(Page 1 of 4)
Project Name: Karuk Happy Camp Resident Center	Date Prepared: 5/11/2016

A separate page must be filled out for Conditioned and Unconditioned Spaces. This page is only for:

☐ CONDITIONED spaces ☑ UNCONDITIONED spaces

A. SUMMARY TOTALS OF LIGHTING POWER ALLOWANCES

☐ If using Complete Building Method for compliance, use only the total in column (a) as total allowed building watts.

☐ If using Area Category Method, Tailored Method, or a combination of Area Category and Tailored Method for compliance, use only the total in column (b) as the total allowed building watts

	(a)		(b)
1. Complete Building Method Allowed Watts. Documented in section B of NRCC-LTI-03-E (below on this page)			
2. Area Category Method Allowed Watts. Documented in section C-1 of NRCC-LTI-03-E (below on this page)			84
3. Tailored Method Allowed Watts. Documented in section A of NRCC-LTI-04-E			0
TOTAL ALLOWED BUILDING WATTS. Enter number into correct cell on NRCC-LTI-01, Page 2, Row 1			84

☑ Check here if building contains both conditioned and unconditioned areas.

B. COMPLETE BUILDING METHOD LIGHTING POWER ALLOWANCE

1	2		3		4
TYPE OF BUILDING (From §140.6 Table 140.6-B)	**WATTS PER (ft^2)**	**X**	**COMPLETE BLDG. AREA**	**=**	**ALLOWED WATTS**
Total Area:					
Total Watts. Enter Total Watts into section A, row 1 (Above on this page)					

C -1 AREA CATEGORY METHOD TOTAL LIGHTING POWER ALLOWANCES (D plus E)	**Watts**
Total from section C-2 .	84
Total from section C-3 .	0
Total Watts. Enter Total Watts into section A, row 2 (Above on this page) .	84

STATE OF CALIFORNIA

INDOOR LIGHTING POWER ALLOWANCE

CEC-NRCC-LTI-03-E (Revised 05/15)

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTI-03-E
Certificate of Compliance - Indoor Lighting Power Allowance	(Page 2 of 4)
Project Name: Karuk Happy Camp Resident Center	Date Prepared: 5/11/2016

A separate page must be filled out for Conditioned and Unconditioned Spaces. This page is only for:

☐ CONDITIONED spaces ☑ UNCONDITIONED spaces

C -2 AREA CATEGORY METHOD GENERAL LIGHTING POWER ALLOWANCE

☐ Do not include portable lighting for offices. Portable lighting for offices shall be documented only in section B of NRCC-LTI-01-E.

☐ Separately list lighting for each primary function area as defined in §100.1 of the Standards.

A		B		C		D
AREA CATEGORY (From §140.6 Table 140.6-C)		WATTS				ALLOWED
Location in Building	Primary Function Area per Table 140.6-C	PER (ft^2)	X	AREA (ft^2)	=	WATTS
Mechanical, Storage	Electrical, Mechanical Room	0.70		120		84
		TOTALS		120		
Enter sum total Area Category allowed watts into section C-1 of NRCC-LTI-03-E (this compliance form)						84
						WATTS

STATE OF CALIFORNIA

INDOOR LIGHTING POWER ALLOWANCE

CEC-NRCC-LTI-03-E (Revised 05/15)

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTI-03-E
Certificate of Compliance - Indoor Lighting Power Allowance	(Page 3 of 4)
Project Name: Karuk Happy Camp Resident Center	Date Prepared: 5/11/2016

A separate page must be filled out for Conditioned and Unconditioned Spaces. This page is only for:

☐ CONDITIONED spaces ☑ UNCONDITIONED spaces

C-3 AREA CATEGORY METHOD ADDITIONAL LIGHTING WATTAGE ALLOWANCE (from Table 140.6-C Footnotes)

A	B	C [2]	D	E	F	G
Primary Function	Sq Ft or linear ft [1]	Additional Watts Allowed	Wattage Allowance (B x C)	Description(s) and Quantity of Special Luminaire Types in each Primary Function Area	Total Design Watts [3]	ALLOWED WATTS Smaller of D or F
				TOTALS – Enter into TOTAL AREA CATEGORY METHOD ADDITIONAL ALLOWANCES – Section C-1 .		0

1. Use linear feet only for additional allowance for white board or chalk board. All other additional Area Category allowances shall use watts per square foot.
2. Additional watts are available only when allowed according to the footnotes on bottom of Table 146-C, which include: Specialized task work; Ornamental lighting; Precision commercial and industrial work; Per linear foot of white board or chalk board; Accent, display and feature lighting; and Videoconferencing Studio lighting..
3. Luminaire classification and wattage shall be determined in accordance with §130.0(c) of the Standards.

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT	
1. I certify that this Certificate of Compliance documentation is accurate and complete.	
Documentation Author Name: Katrina Ericson	Documentation Author Signature: KAT Ericson
Company: ArcSine Engineering	Signature Date: 5/11/2016
Address: 950 Executive Way	CEA Certification Identification (if applicable):
City/State/Zip: Redding, CA 96002	Phone: 530-222-7204

RESPONSIBLE PERSON'S DECLARATION STATEMENT

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

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

Responsible Designer Name: Doug McHaney	Responsible Designer Signature:
Company : ArcSine Engineering	Date Signed: 5/12/16
Address: 950 Executive Way	License: CA-E013928
City/State/Zip: Redding, CA 96002	Phone: 530-222-7204

CERTIFICATE OF COMPLIANCE	NRCC-LTO-01-E
Outdoor Lighting	(Page 1 of 4)
Project Name: Karuk Happy Camp Resident Center	Date Prepared: 5/11/2016

Project Address: 537 Jacobs Way Happy Camp, CA 96039	Total Illuminated Hardscape Area 0

General Information

Phase of Construction: ☑ New Construction ☐ Addition ☐ Alteration

Outdoor Lighting Zone (OLZ) ☐ OLZ-1 ☐ OLZ-2 ☑ OLZ-3 ☐ OLZ-4

I have confirmed with the AHJ which OLZ applies to this site. For default lighting zone designations, see Title 24 Part 6, §10-114

LIGHTING COMPLIANCE DOCUMENTS (check box for each document included)

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

☑	NRCC-LTO-01-E	Certificate of Compliance
☑	NRCC-LTO-02-E	Outdoor Lighting Controls Certificate of Compliance
☑	NRCC-LTO-03-E	Outdoor Lighting Power Allowance Certificate of Compliance

Summary of Allowed Outdoor Lighting Power			Watts
1.	**Sum Total ALLOWED** Outdoor Lighting Wattage from NRCC-LTO-03-E, page 1	=	280
	Complies ONLY if **Installed ≤ Allowed**		↕
2.	**Sum Total INSTALLED** Outdoor lighting Wattage from NRCC-LTO-01-E, page 3		280

Declaration of Required Installation Certificates – Declare by checking all Installation Certificates that will be submitted. (Retain copies and verify forms are completed and signed.)

☑ NRCI-LTO-01-E - Must be submitted for all buildings	☐ Field Inspector
☑ NRCI-LTO-02-E - Must be submitted for a lighting control system, or for an Energy Management Control System (EMCS), to be recognized for compliance.	☐ Field Inspector

Declaration of Required Certificates of Acceptance – Declare by checking all of the Certificates of Acceptance that will be submitted. (Retain copies and verify forms are completed and signed.)

☑ NRCA-LTO-02-A - Must be submitted for outdoor lighting controls.	☐ Field Inspector

Schedule of luminaires exempt from the outdoor lighting power requirements in §140.7	
Name or Symbol	Description of exempt luminaire in accordance with the exemptions

Schedule of luminaires exempt from the cutoff requirements in §130.2(b)	
Name or Symbol	Description of exempt luminaire in accordance with the exemptions

Schedule of luminaires exempt from the outdoor lighting control requirements in §130.2(c)	
Name or Symbol	Description of exempt luminaire in accordance with the exemptions

A. OUTDOOR LIGHTING SCHEDULE and FIELD INSPECTION ENERGY CHECKLIST

Luminaire Schedule		Installed Watts					Location	Cutoff	Field Inspector	
A	B	C	D		E	F	G	H	I	
Name or Item Tag	Complete Luminaire Description	Watts per Luminaire	How wattage was determined: CEC Default from NA8	How wattage was determined: According to §130.0(c)	Number of Luminaires	Total Installed Watts in this area (C x E)	Primary Function area in which these luminaires are installed	BUG Rating	Pass	Fail
WB	LED Wall Packs	40.0	☐	☑	3	120	Main Entrance		☐	☐
W	LED Wall Packs	40.0	☐	☑	2	80	Other Entrance/Exit		☐	☐
W	LED Wall Packs	40.0	☐	☑	2	80	Building Facade		☐	☐
			☐	☐					☐	☐
			☐	☐					☐	☐
			☐	☐					☐	☐
			☐	☐					☐	☐
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			☐	☐					☐	☐
			☐	☐					☐	☐
			☐	☐					☐	☐
				INSTALLED WATTS PAGE TOTAL:		280	Enter sum total of all pages (**Sum Total INSTALLED** Outdoor lighting wattage) into NRCC-LTO-01-E; Page 1		280	

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT	
1. I certify that this Certificate of Compliance documentation is accurate and complete.	
Documentation Author Name: Katrina Ericson	Documentation Author Signature: KAT Ericson
Company: ArcSine Engineering	Signature Date: 5/11/2016
Address: 950 Executive Way	CEA Certification Identification (if applicable):
City/State/Zip: Redding, CA 96002	Phone: 530-222-7204

RESPONSIBLE PERSON'S DECLARATION STATEMENT

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

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Responsible Designer Name: Doug McHaney	Responsible Designer Signature:
Company : ArcSine Engineering	Date Signed: 5/12/16
Address: 950 Executive Way	License: CA-E013928
City/State/Zip: Redding, CA 96002	Phone: 530-222-7204

The NRCC-LTO-02-E shall be used to document all mandatory outdoor lighting controls that are applicable to the project.

Mandatory Outdoor Lighting Control Declaration Statements

Check all that apply:

- ☐ Lighting shall be controlled by self-contained lighting control devices which are certified to the Energy Commission according to the Title 20 Appliance Efficiency Regulations in accordance with §110.9(a).
- ☐ Lighting shall be controlled by a lighting control system or energy management control system in accordance with §110.9. An Installation Certificate shall be submitted in accordance with §130.4(b).
- ☑ All lighting controls and equipment shall comply with the applicable requirements in §110.9 and shall be installed in accordance with the manufacturer's instructions in accordance with §130.1
- ☐ Part-Night Outdoor Lighting Controls, as defined in Section 100.1(b), shall meet the requirements in Section 110.9(b)5
- ☐ All outdoor incandescent luminaires rated over 100 watts, determined in accordance with Section 130.0(c), shall be controlled by a motion sensor.
- ☑ All outdoor luminaires rated for use with lamps greater than 150 lamp watts, determined in accordance with Section 130.0(c), shall comply with Backlight, Uplight, and Glare (collectively referred to as "BUG") in accordance with Section 130.2(b)
- ☐ All installed outdoor lighting shall be controlled by a photocontrol or outdoor astronomical time-switch control in accordance with Section 130.2(c)1
- ☑ All installed outdoor lighting shall be circuited and independently controlled from other electrical loads by an automatic scheduling control in accordance with Section 130.2(c)2
- ☐ All installed outdoor lighting, where the bottom of the luminaire is mounted 24 feet or less above the ground, shall be controlled with automatic lighting controls in accordance with Section 130.2(c)3
- ☐ For Outdoor Sales Frontage, Outdoor Sales Lots, and Outdoor Sales Canopies lighting, an automatic lighting control in accordance with Section 130.2(c)4
- ☐ For Building Facade, Ornamental Hardscape and Outdoor Dining lighting, an automatic lighting control in accordance with Section 130.2(c)5
- ☑ Before an occupancy permit is granted for a newly constructed building or area, or a new lighting system serving a building, area, or site is operated for normal use, indoor lighting controls serving the building, area, or site shall be certified as meeting the Acceptance Requirements for Code Compliance in accordance with §130.4.(a). Outdoor lighting controls shall comply with the applicable requirements of Section 130.2(c) and Reference Nonresidential Appendix NA7.8

STATE OF CALIFORNIA

OUTDOOR LIGHTING CONTROLS

CEC-NRCC-LTO-02-E (Revised 05/15)

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTO-02-E
Outdoor Lighting Controls	(Page 2 of 3)
Project Name: Karuk Happy Camp Resident Center	Date Prepared: 5/11/2016

MANDATORY OUTDOOR LIGHTING CONTROL SCHEDULE and FIELD INSPECTION CHECKLIST

Outdoor Lighting Control Schedule			Standards Complying With (✓ all that apply, or enter 'E' if Exempted)						✓ if Acceptance Test Required	Field Inspector	
A	B	C	D	E	F	G	H	I	N	O	
Location and Application of Luminaires being controlled	Type/ Description of Lighting Control (i.e. motion sensor, photocontrol, outdoor astronomical time-switch control, centralized time-based zone lighting control)	# of Units	§130.2(a)	§130.2(c)1	§130.2(c)2	§130.2(c)3	§130.2(c)4	§130.2(c)5		Pass	Fail
	Astronomical Time Switch	1		✓					✓	☐	☐
										☐	☐
										☐	☐
										☐	☐
										☐	☐
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STATE OF CALIFORNIA

OUTDOOR LIGHTING CONTROLS

CEC-NRCC-LTO-02-E (Revised 05/15)

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTO-02-E
Outdoor Lighting Controls	(Page 3 of 3)
Project Name: Karuk Happy Camp Resident Center	Date Prepared: 5/11/2016

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Address: 950 Executive Way	License: CA-E013928
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STATE OF CALIFORNIA

OUTDOOR LIGHTING POWER ALLOWANCES

CEC-NRCC-LTO-03-E (Revised 05/15)

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTO-03-E
Outdoor Lighting Power Allowances	(Page 1 of 4)
Project Name: Karuk Happy Camp Resident Center	Date Prepared: 5/11/2016

A. OUTDOOR LIGHTING POWER ALLOWANCE SUMMARY

1. General Hardscape Lighting Power Allowance (Site Total from Section B of NRCC-LTO-03-E)	1.	0

2. Additional Specific "use it or lose it" Lighting Power Allowances listed in each of these cells shall be identical to total allowed watts determined in Section C-1 to C-4 of NRCC-LTO-03-E.

PER APPLICATION from Section C-1		PER UNIT LENGTH (SALES FRONTAGE) from Section C-2		PER HARDSCAPE AREA (ORNAMENTAL LIGHTING) from Section C-3		PER SPECIFIC AREA from Section C-4.			
200	+	0	+	0	+	80	=	2.	280
3. **Sum Total ALLOWED** Outdoor Lighting Wattage (add rows 1 and 2)								3.	280

B. GENERAL HARDSCAPE LIGHTING POWER ALLOWANCE FROM TABLE 140.7-A

Area Wattage Allowance (AWA)				Linear Wattage Allowance (LWA)			Initial Wattage Allowance (IWA)	Total General Hardscape Lighting Allowance
A	B	C	D	E	F	G	H	I
Name of area	Illuminated Hardscape Area	AWA Per Square Foot	AWA (B x C)	Perimeter Length of General Hardscape	LPA per Linear Foot	LWA (E x F)	IWA (Watts)	D + G + H
							TOTAL	0

C. ADDITIONAL "USE IT OR LOSE IT" OUTDOOR LIGHTING POWER ALLOWANCES FOR SPECIFIC APPLICATIONS

☐ The additional specific outdoor lighting power allowance shall be the smaller of the allowed lighting power or the actual lighting power used.

☐ Use Outdoor Lighting Zone (OLZ) that is documented on page 1 of NRCC-LTO-01-E to calculate the specific wattage allowances.

C-1. WATTAGE ALLOWANCE PER APPLICATION – Table 140.7-B

☐ Available only for qualifying locations, which include Building Entrances or Exits; Primary Entrances to Senior Care Facilities, Police Stations, Hospitals, Fire Stations, and Emergency Vehicle Facilities; Drive Up Windows; Vehicle Service Station Uncovered Fuel Dispenser

☐ If more than one luminaire type is used per location, use multiple rows for that location

A	B	C	D	E	F	G	H	I	J
	ALLOTTED WATTS			DESIGN WATTS					
Name of Location for which allowance is claimed	Number of qualifying locations	Wattage Allowance per qualifying location	Allotted Watts (B x C)	Luminaire Code or Symbol	Luminaire Description	Luminaire Quantity	Watts per luminaire	Design Watts (G x H)	Allowed Watts (smaller of D or I)
Double Doors	3	90	270	WB	LED Wall Packs	3	40.0	120	120
Other Doors	3	90	270	W	LED Wall Packs	2	40.0	80	80
								Sum total allowance per application on this site:	200

C-2. WATTAGE ALLOWANCE PER UNIT LENGTH (Sales Frontage) from Table 140.7-B

☐ If more than one luminaire type is used per location, use multiple rows for that location

A	B	C	D	E	F	G	H	I	J
	ALLOTTED WATTS			DESIGN WATTS					
Name of Location for which allowance is claimed	Linear feet of Sales Frontage	Wattage Allowance per linear foot	Allotted Watts (B x C)	Luminaire Code or Symbol	Luminaire Description	Luminaire Quantity	Watts per luminaire	Design Watts (G x H)	Allowed Watts (smaller of D or I)
								Sum total allowance for sales frontage on the site:.	0

C-3. WATTAGE ALLOWANCE PER SQUARE FOOT OF HARDSCAPE AREA (Ornamental Lighting) – Table 140.7-B

☐ Allowance for the total site illuminated hardscape area. Luminaires qualifying for this allowance shall be rated for 100 watts or less as determined in accordance with Section 130.0(c), and shall be post-top luminaires, lanterns, pendant luminaires, or chandeliers.

☐ If more than one luminaire type is used per location, use multiple rows for that location

A	B	C	D	E	F	G	H	I	J
	ALLOTTED WATTS			DESIGN WATTS					
Name of area for which ornamental allowance is claimed	Square feet of Hardscape	Wattage Allowance per square foot	Allotted Watts (B x C)	Luminaire Code or Symbol	Luminaire Description	Luminaire Quantity	Watts per luminaire	Design Watts (G x H)	Allowed Watts (smaller of D or I)
								Sum total allowance for ornamental lighting on the site:	0

C-4. WATTAGE ALLOWANCE PER SQUARE FOOT OF SPECIFIC AREA - Table 140.7-B

☐ Allowances for Building Facades; Outdoor Sales Lots; Vehicle Service Station Hardscape; Vehicle Service Station Canopies; Sales Canopies; Non-sales Canopies; Guard Stations; Student Pick-up/Drop-off zone: Outdoor Dining; Special Security Lighting for Retail Parking and Pedestrian Hardscape.

☐ If more than one luminaire type is used per location, use multiple rows for that location

A	B	C	D	E	F	G	H	I	J
	ALLOTTED WATTS			DESIGN WATTS					
Name of Location for which allowance is claimed	Illuminated Area of Application	Wattage Allowance per square foot	Allotted Watts (B x C)	Luminaire Code or Symbol	Luminaire Description	Luminaire Quantity	Watts per luminaire	Design Watts (G x H)	Allowed Watts (smaller of D or I)
Building Facade	1,000	0.350	350	W	LED Wall Packs	2	40.0	80	80
								Sum total allowance for specific area on the site:	80

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