CERTIFICATE OF ACCEPTANCE	NRCA-MCH-15-A
NA7.5.14 Thermal Energy Storage (TES) System Acceptance	**(Page 1 of 3)**

Project Name/Address:	
System Name or Identification/Tag:	System Location or Area Served:

Enforcement Agency:	Permit Number:
Note: Submit one Certificate of Acceptance for each system that must demonstrate compliance.	Enforcement Agency Use: Checked by/Date

Documentation Author's Declaration Statement

- **I certify that this Certificate of Acceptance documentation is accurate and complete.**

Name:	Signature:
Company :	Date:
Address:	If Applicable ☐ CEA or ☐ CEPE (Certification #):
City/State/Zip:	Phone:

FIELD TECHNICIAN'S DECLARATION STATEMENT

- I certify under penalty of perjury, under the laws of the State of California, the information provided on this form is true and correct.
- I am the person who performed the acceptance requirements verification reported on this Certificate of Acceptance (Field Technician).
- I certify that the construction/installation identified on this form complies with the acceptance requirements indicated in the plans and specifications approved by the enforcement agency, and conforms to the applicable acceptance requirements and procedures specified in Reference Nonresidential Appendix NA7.
- I have confirmed that the Installation Certificate(s) for the construction/installation identified on this form has been completed and is posted or made available with the building permit(s) issued for the building.

Company Name:		
Field Technician's Name:		Field Technician's Signature:
	Date Signed:	Position With Company (Title):

RESPONSIBLE PERSON'S DECLARATION STATEMENT

- I certify under penalty of perjury, under the laws of the State of California, that I am the Field Technician, or the Field Technician is acting on my behalf as my employee or my agent and I have reviewed the information provided on this form.
- I am a licensed contractor, architect, or engineer, who is eligible under Division 3 of the Business and Professions Code, in the applicable classification, to take responsibility for the scope of work specified on this document and attest to the declarations in this statement (responsible person).
- I certify that the information provided on this form substantiates that the construction/installation identified on this form complies with the acceptance requirements indicated in the plans and specifications approved by the enforcement agency, and conforms to the applicable acceptance requirements and procedures specified in Reference Nonresidential Appendix NA7.
- I have confirmed that the Installation Certificate(s) for the construction/installation identified on this form has been completed and is posted or made available with the building permit(s) issued for the building.
- I will ensure that a completed, signed copy of this Certificate of Acceptance shall be posted, or made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a signed copy of this Certificate of Acceptance is required to be included with the documentation the builder provides to the building owner at occupancy.

Company Name:		Phone:
Responsible Person's Name:		Responsible Person's Signature:
License:	Date Signed:	Position With Company (Title):

Project Name/Address:	
System Name or Identification/Tag:	System Location or Area Served:

Intent: *Verify proper operation of distributed energy storage TES systems.*

Construction Inspection

1. Instrumentation to perform test includes, but not limited to:
   a No special instrumentation is required for the acceptance tests.

A. Certificate of Compliance Information

The following Certificate of Compliance information for both the chiller and the storage tank shall be provided on the plans to document the key TES System parameters and allow plan check comparison to the inputs used in the DOE-2 simulation. DOE-2 keywords are shown in ALL CAPITALS in parentheses.

a.	Chiller	Brand and Model:			
		Type (Centrifugal, Reciprocating, etc):			
		Capacity (tons): (Size)			
		Starting Efficiency (kW/ton): (at beginning of ice production) (COMP-KW/TON-START)			
		Ending Efficiency (kW/ton): (at end of ice production) (COMP-KW/TON-END)			
		Capacity Reduction (% / F): (PER-COMP-REDUCT/F)			
b.	Storage Tank	Storage Type (Check): (TES-TYPE)	☐ Chilled Water Storage	☐ Ice-on-Coil	☐ CHS
			☐ Ice Harvester	☐ Brine	
			☐ Ice-Slurry	☐Eutectic Salt	
		Number of tanks (SIZE)			
		Storage Capacity per Tank (ton-hours)			
		Storage Rate (tons): (COOL-STORE-RATE)			
		Discharge Rate (tons): (COOL-SUPPLY-RATE)			
		Auxiliary Power (watts): (PUMP+AUX-KW)			
		Tank Area (sq ft): (CTANK-LOSS-COEFF)			
		Tank Insulation (R-Value): (CTANK-LOSS-COEFF)			

Project Name/Address:	
System Name or Identification/Tag:	System Location or Area Served:

B. Functional Testing		Results
Step 1: TES System Design Verification		
a.	In the TES System Design Verification part, the installing contractor shall certify the following information, which verifies proper installation of the TES System consistent with system design expectations:	Y / N
	☐ The TES system is one of the above eligible systems ☐ Initial discharge rate of the storage tanks (tons) ☐ Discharge test time (hrs).	
	☐ Initial charge rate of the storage tanks (tons) ☐ Final discharge rate of the storage tank (tons) ☐ Tank storage capacity after charge (ton-hrs)	
	☐ Final charge rate of the storage tank (tons) ☐ Charge test time (hrs) ☐ Tank storage capacity after discharge (ton-hrs)	
	☐ Tank standby storage losses (UA) ☐ Initial chiller efficiency (kW/ton) during charging ☐ Final chiller efficiency (kW/ton) during charging	
Step 2: TES System Controls and Operation Verification		
a.	The TES system and the chilled water plant is controlled and monitored by an EMS.	☐ Pass ☐ Fail
b.	Force the time between 9:00 p.m. and 9:00 a.m. and simulate a partial or no charge of the tank and simulate no cooling load by setting the indoor temperature setpoint higher than the ambient temperature. Verify that the TES system starts charging (storing energy).	☐ Pass ☐ Fail
c.	Force the time to be between 6:00 p.m. and 9:00 p.m. and simulate a partial charge on the tank and simulate a cooling load by setting the indoor temperature set point lower than the ambient temperature. Verify that the TES system starts discharging.	☐ Pass ☐ Fail
d.	Force the time to be between noon and 6:00 p.m. and simulate a cooling load by lowering the indoor air temperature set point below the ambient temperature. Verify that the tank starts discharging and the compressor is off. For systems designed to meet partial loads the system should be run until the TES storage is fully depleted. The number of hours of operation must meet or exceed the designed operational hours for the system.	☐ Pass ☐ Fail
e.	Force the time to be between 9:00 a.m. to noon, and simulate a cooling load by lowering the indoor air temperature set point below the ambient temperature. Verify that the tank does not discharge and the cooling load is met by the compressor only.	☐ Pass ☐ Fail
f.	Force the time to be between 9:00 p.m. and 9:00 a.m. and simulate a full tank charge by changing the output of the sensor to the EMS. Verify that the tank charging is stopped.	☐ Pass ☐ Fail
g.	Force the time to be between noon and 6:00 p.m. and simulate no cooling load by setting the indoor temperature set point above the ambient temperature. Verify that the tank does not discharge and the compressor is off.	☐ Pass ☐ Fail

C. Evaluation (check one):	
☐	PASS: Construction Inspection responses are complete and all tests in step 2 pass.