THERMAL ENERGY STORAGE

Project Name and Address	Authority Having Jurisdiction
Name: Project Name	Enforcement Agency: Agency
Address: Project Address	Permit Number: Permit Number
City, Zip: City, Zip Code	Permit Application Date: Date

Building: Er	nter Value	Floor: Enter Value	Room: Enter Value		Control/tag: Value
Construction inspection and functional testing comply Does not comply Date Submitted to AHJ: Date					mitted to AHJ: Date
Intent:	used in co Eligibility (This acceptance test is intended for Thermal Energy Storage (TES) Systems that are used in conjunction with chilled water air conditioning systems as limited under Eligibility Criteria in Table A-2. Submit one Certificate of Acceptance for each system that must demonstrate compliance. References: §120.5(a)14, §160.3(d)1N, and			

Table A-1: Construction Inspection

NA7.5.14.

Prior to functional testing, verify access to the following documentation:

Step	Entry	Item	Code Reference
1	Pass Fail	Designs, plans, schematics, and schedules as approved by the authority have jurisdiction.	§10-103(a)
2	Pass Fail	Using a California Energy Commission approved compliance software; software inputs and output results for the TES system as approved by the authority having jurisdiction.	NA7.5.14.1
3	Pass Fail	Manufacturer specifications or tear sheets for the installed TES system as available.	NA7.5.14.1

Table A-2: Construction Inspection

Verify system eligibility (check one):

			Code
Step	Entry	Item	Reference
1		Chilled Water Storage	NA7.5.14.1(a)
2		Ice-on-Coil Internal Melt	NA7.5.14.1(b)
3		Ice-on-Coil External Melt	NA7.5.14.1(c)
4		Ice Harvester	NA7.5.14.1(d)
5		Brine	NA7.5.14.1(e)
6		Ice-Slurry	NA7.5.14.1(f)
7		Eutectic Salt	NA7.5.14.1(g)
8		Clathrate Hydrate Slurry (CHS)	NA7.5.14.1(h)
9		Cryogenic	NA7.5.14.1(i)
10		Encapsulated (e.g., Ice Balls)	NA7.5.14.1(j)



Table A-3: Construction Inspection

Compare the installed unit to the documentation from Table A-1, Step 2 (Check all of the following):

Step	Entry	Item	Code Reference
1	No Entry	TES System Chiller	NA7.5.14.1
1.1	Pass Fail	Brand and Model	NA7.5.14.1(k)
1.2	Pass Fail	Type (Centrifugal, Reciprocating, Other)	NA7.5.14.1(I)
1.3	Pass Fail	Heat Rejection Type (Air, Water, Other)	NA7.5.14.1(m)
1.4	Pass Fail	Charge Mode Capacity (Tons)	NA7.5.14.1(n)
1.5	Pass Fail	Discharge Mode Capacity (Tons)	NA7.5.14.1(o)
1.6	Pass Fail	Discharge Mode Efficiency (kW/Ton or EER)	NA7.5.14.1(p)
1.7	Pass Fail	Charge Mode Efficiency (kW/Ton or EER)	NA7.5.14.1(q)
1.8	Pass Fail	Fluid Type and Percentage	NA7.5.14.1(r)
2	No Entry	TES System Storage	NA7.5.14.1
2.1	Pass Fail	Brand and Model	NA7.5.14.1(s)
2.2	Pass Fail	Number of Tanks	NA7.5.14.1(t)
2.3	Pass Fail	Storage Capacity per Tank (ton-hours)	NA7.5.14.1(u)
2.4	Pass Fail	Storage Rate (tons)	NA7.5.14.1(v)
2.5	Pass Fail	Minimum Charging Temperature	NA7.5.14.1(w)
2.6	Pass Fail	Discharge Rate (tons)	NA7.5.14.1(x)
3	Pass Fail	Indicate that the Construction Inspection complies with ALL requirements.	NA

Table B: Functional Testing

Acceptance testing should be conducted in two parts: TES System Verification (Part 1) and TES

System Controls and Operation (Part 2).

			Code
Step	Entry	Functional Test	Reference
1	Pass Fail	Chiller(s) start-up procedure has been completed.	NA7.5.14.2 Part 1(a)
2	Pass Fail	System fluid test and balance has been completed.	NA7.5.14.2 Part 1(b)



Step	Entry	Functional Test	Code Reference
3	Pass Fail	Air separation and purge has been completed.	NA7.5.14.2 Part 1(c)
4	Pass	Fluid (e.g., glycol) has been verified at the concentration and type indicated on the design documents.	NA7.5.14.2 Part 1(d)
5	Pass	The TES system has been fully charged at least once and the charge duration noted.	NA7.5.14.2 Part 1(e)
6	Pass Fail	The system has been partially discharged at least once and the discharge duration noted.	NA7.5.14.2 Part 1(f)
7	Pass Fail	The system is in a partial charge state in preparation for the TES System Controls and Operation Verification.	NA7.5.14.2 Part 1(g)
8	Pass Fail	The schedule of operation has been activated as designed.	NA7.5.14.2 Part 1(h)
9	Pass	Mode documentation describes the state of system components in each mode of operation.	NA7.5.14.2 Part 1(i)
10	Pass Fail	Verify that the TES system and the chilled water plant is controlled and monitored by an energy management system (EMS).	NA7.5.14.2 Part 2(a)
11	☐ M ☐ E	Indicate one of the following methods of simulation that will be used during the test. Manual selection (M) or use of an EMS by inputting the schedule as indicated by the designer or manufacturer (E).	NA7.5.14.2 Part 2(b)
12	Pass Fail	Storage/charge mode. Verify that TES system stores energy.	NA7.5.14.2 Part 2(c)
13	Pass Fail	End of charge signal. Simulate a full storage charge by changing the (manufacturer recommended) thermal storage end of charge output sensor to the EMS. Verify that the storage charging has stopped.	NA7.5.14.2 Part 2(d)
14	☐ Pass ☐ Fail	Discharge mode. Generate a call for cooling. Verify that the storage starts discharging with the compressors off. Return to the off/secured mode.	NA7.5.14.2 Part 2(e)
15	Pass Fail	Mechanical cooling only mode. Generate a call for cooling. Verify that the storage does not discharge, and the cooling load is met by the compressor only. Return to the off/secure mode.	NA7.5.14.2 Part 2(f)
16	☐ Pass ☐ Fail	Discharge and mechanical cooling mode. Generate a call for cooling. Verify that the TES system discharges with the compressor sharing the load.	NA7.5.14.2 Part 2(g)
17	Pass Fail	Off/storage-secured mode. Verify that the storage does not discharge and all compressors are off, regardless of the presence of calls for cooling.	NA7.5.14.2 Part 2(h)
18	☐ Pass ☐ Fail	Charge plus cool mode. If provisions for this mode have been made by the system designer, then verify that the tank(s) can be charged while serving an active cooling load; or, verify that the energy storage is disallowed or discontinued while an active cooling load is present.	NA7.5.14.2 Part 2(i)



Declaration Statement	Signatory
Document Author	Name
I assert that this Certificate of Acceptance documentation is accurate and complete.	Company Name
	Author Signature
	Date Signed
Field Technician	
I certify the following under penalty of perjury, under the laws of the State of California:	Name
The information provided on this Certificate of Acceptance is true and correct. I am the person who	Company Name
performed the acceptance verification reported on this Certificate of Acceptance (Field Technician). The	ATT No.: ATT Cert. No.
construction or installation identified on this Certificate of Acceptance complies with the applicable	Title
acceptance requirements indicated in the plans and specifications approved by the enforcement agency	Phone
and conforms to the applicable acceptance requirements and procedures specified in Reference	Signature
Nonresidential Appendix NA7. I have confirmed that the Certificate(s) of Installation for the construction or	Date Signed
installation identified on this Certificate of Acceptance has been completed and signed by the responsible	
builder/installer and has been posted or made available with the building permit(s) issued for the building.	
Responsible Person	
I assert the following under penalty of perjury, under the laws of the State of California:	
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 Certificate of Acceptance. I am eligible under Division 3 of the Business and Professions Code in the applicable classification to accept responsibility for the system	
design, construction or installation of features, materials, components, or manufactured devices for the	
scope of work identified on this Certificate of Acceptance and attest to the declarations in this statement.	Name
The information provided on this Certificate of Acceptance substantiates that the construction or	Company Name
installation identified on this Certificate of Acceptance complies with the acceptance requirements	Lic. No.: License No.
indicated in the plans and specifications approved by the enforcement agency and conforms to the	Title
applicable acceptance requirements and procedures specified in Reference Nonresidential Appendix NA7. I	Phone
have confirmed that the Certificate(s) of Installation for the construction or installation identified on this	Signature
Certificate of Acceptance has been completed and is posted or made available with the building permit(s)	Date Signed
issued for the building. I understand 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 shall be made	
available to the enforcement agency for all applicable inspections. I will take the necessary steps to fulfill	
this requirement. 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. I will take the	
necessary steps to fulfill this requirement.	