

## CHPS PreFAB RECOGNITION FOR MODULAR CLASSROOMS

### OVERVIEW

The CHPS PreFAB Program pre-approves qualifying modular, factory built classroom models that meet the CHPS Criteria high performance school rating system. Classrooms earning this designation meet stringent standards related to indoor environmental quality, energy efficiency, materials, waste management and other sustainable attributes that help students learn and thrive while lowering operating costs. The program has benefits for both manufacturers and purchasers/leasers of modular classrooms:

- **For modular classroom manufacturers**, CHPS Prefab is an opportunity to obtain pre-approval that their modular units meet CHPS Criteria. Units that meet the CHPS requirements will be listed on the CHPS website in the High Performance Product Database, have access to the CHPS PreFAB or PreFAB Leader label designation, and a host of other benefits.
- **For school districts or individual schools**, purchasing or leasing CHPS PreFAB modular classrooms provides assurance that they are acquiring units which incorporate a significant number of high performance characteristics. Note that while the PreFAB unit has been pre-approved by CHPS, the project must go through one of the CHPS recognition programs (Verified or Designed) to be designated as a CHPS approved project.

CHPS PreFAB units can be installed in isolation or as part of a CHPS project and help attain CHPS Designed, CHPS Verified, or CHPS Verified Leader recognition. The use of a CHPS PreFAB unit as part of a CHPS project can reduce the school-required input to a minimal number of site-related prerequisites and credits, thus reducing verification time and cost. CHPS PreFAB is based on the 2014 US-CHPS criteria and point allocation. Regional and state CHPS versions can also be utilized, however, the US-CHPS point values are used in all cases and non-US CHPS credits are considered for Innovative Design points.

Under the CHPS PreFAB program, the US-CHPS prerequisites, credits and associated points have been divided between those in the control of the manufacturer, those that must be completed on site and those that can be achieved either by the manufacturer or by the school. 158 of the 250 possible US-CHPS points are applicable to CHPS PreFAB buildings.

Eligible classrooms can qualify for one of two CHPS PreFAB levels:

- **CHPS PreFAB™** - CHPS pre-approved modular building. Validated demonstration through chain of custody and supporting documentation that all relevant US-CHPS prerequisites have been met and that a minimum of 70 points have been earned (out of 158). For regional approval, all regional CHPS Criteria prerequisites and credit requirements must be met; the required number of points is unchanged and still based on the US-CHPS point allocation.
- **CHPS PreFAB Leader™** - CHPS pre-approved higher tier modular building. Validated demonstration through chain of custody and supporting documentation that all relevant US-CHPS prerequisites have been met and that a minimum of 100 points have been earned (out of 158). For regional approval, all regional CHPS Criteria prerequisites and credit requirements

must be met; the required number of points is unchanged and still based on the US-CHPS point allocation.

**CHPS PreFAB Pre-Approval** is available for individual buildings that are single or multiple classrooms, one or more stories, permanent construction or relocatable, and have independent HVAC systems, are pre-wired and, if applicable, are pre-plumbed. CHPS PreFAB units must meet all local, state and federal requirements. Pre-approved units can be a single model or a line of models with different “standard” options, i.e. base with a pre-defined range of options.

### **PreFAB PROCESS**

To attain CHPS PreFAB or PreFAB Leader for a modular model/unit(s), the manufacturer must submit an application indicating interest, provide basic information on their PreFAB unit(s), and submit payment. The required information includes the states where pre-approval is requested and whether the pre-approval is for a single model or a model line. A minimum number of points must be earned to qualify.

Upon receipt of payment, the manufacturer will receive a workbook that defines the process that must be followed to demonstrate compliance with all relevant prerequisites and all credits selected by the manufacturer. The workbook includes two key items: a Chain of Custody document and a Scorecard (Appendices 1 and 2).

The Scorecard is used to indicate which credits are being pursued and what supporting documentation is being provided. For the CHPS PreFAB Program Scorecard the individual prerequisites and credits, and associated points, of the US-CHPS Criteria are categorized to show those that are in the control of the manufacturer and applicable to the modular building unit and those that are under the purview of the school or district. There are also a number of credits (points) that can be achieved either by the manufacturer or by the school. The documentation will be reviewed for compliance with all requirements for the prerequisites and credits pursued by the manufacturer.

The Chain of Custody document must be completed by the manufacturer and accompany each delivered unit. It is designed to bridge the gap between the model that has been “pre-approved” through the CHPS PreFAB program and the building that is delivered to the customer. From the Chain of Custody, the customer learns what they can expect the manufacturer to complete in the factory and what must be completed at the time of delivery and installation in order to ensure a high performance classroom. The Chain of Custody includes commissioning, acoustics and construction site waste management, among other prerequisites and credits. The Chain of Custody serves as a binding agreement between the PreFab building's manufacturer and the purchasing entity.

Upon successful completion of the CHPS PreFAB pre-approval process, manufacturers will receive a letter from CHPS acknowledging that their modular unit(s) have met the CHPS PreFAB or PreFAB Leader requirements along with access use of the CHPS PreFAB logo, listing in the CHPS High Performance Product Database, and an announcement in the CHPS newsletter and on the CHPS website.

**CHPS PreFAB Update Committee Roster**

<b><u>Participation</u></b>	<b><u>Last Name</u></b>	<b><u>First Name</u></b>	<b><u>Affiliation</u></b>
Co-chair	Allen	Cathy	Sac City USD
Co-chair	Hardiman	Tom	Modular Building Institute
Voting	Ammon	Margi	Adams 12 Five Star Schools
Voting	Becker	Gary	SMUD
Voting	Gaunce	Brian	PreFast
Voting	Healy	Michal	School Building Consultants
Voting	Howland	Maggie	AMS/Gen 7
Voting	Jennings	Pat	The Carpet and Rug Institute
Voting	Jobson	Aaron	QKA
Voting	McIntosh	Ryan	Silver Creek
Voting	Miller	Samantha	Lionakis
Voting	Morrison	John	Mark Line Industries / Mosaic Capital Group
Voting	Stein	Antoinette "Toni"	IGC
Voting	Tannous	Raja	Building Material Testing Lab.
Voting	Tiernan	Maury	Geary Pacific/Bard
Voting	Weintraub	Jonathan	Hawaii DOE
Voting	Zinner	John	Zinner Consultants/AMS
NVM/SEM	Barron	Lydia	State of Calif.
NVM/SEM	Bragg	Karen	Green Dinosaur
NVM/SEM	Brown	Roland	Ramtech Building Systems, Inc.
NVM/SEM	Byrne	Paul	Paul Byrne Architect/ Green Apple Classrooms/ Sovereign Modular
NVM/SEM	Hopkins	Arlene	Applied Human Ecology
NVM/SEM	Sharpe	Lisa	Growth Point Structures

**APPENDIX 1 – CHPS PreFAB CHAIN of CUSTODY**

<b>Collaborative for High Performance Schools (CHPS)</b>	
<b>Manufacturer:</b>	<b>Date:</b>
<b>Model Name:</b>	<b>Model Nos.:</b>
<b>CHPS PreFab™ Building Chain of Custody <i>Version 2.0</i></b>	
<i>Based on the 2014 Edition of the US-CHPS Criteria</i>	

States	PC Number(s)
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<b>State(s) in which this model is Pre-Approved*</b>	
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\*Complete if additional regional prerequisites and credit requirements have been met (e.g. CA, TX, NE)

**Note: This document must be completed and signed in order to achieve CHPS PreFab Pre-Approval. This Chain of Custody document will serve as a binding agreement between the PreFab building's final point of contact with the owner and said owner.**

**IV. Prerequisite/Credit EQ11.0/11.1 Daylighting**

**Sign Off (manufacturer)**

<b>Building Orientations that will meet Criteria as demonstrated by Daylighting model (orientation from due North)</b>	
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**Sign Off (Cx Agent)**

<b>Building Orientation on site</b>	
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**IV. Prerequisite EQ14.0 Minimum Acoustical Performance**

The follow acoustical testing services must be provided. Select from the check boxes to designate when the services will be performed, and insert the verified levels in accordance with the tests performed.

Acoustical Testing Service	In Factory	On Site	Tested Level
Reverb time in accordance with Criteria			
LAeq30 w/ HVAC off with exterior noise level of 60dB at 10 feet			
LAeq30 w/ HVAC off with exterior noise level of 75dB at 10 feet			

L <sub>Aeq</sub> 30 w/ HVAC on with exterior noise level of 90dB at 10 feet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
On site Testing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sign off (Cx Agent or Consultant)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**IV. Credit EQ14.1 Improved Acoustical Performance**

To achieve additional credits for acoustical performance a building must be tested at the factory. Choose the actual tested performance below as verified by the Commissioning Agent or Acoustical Consultant.

Acoustical Testing	40dBa	35dBa	Sign off (Cx Agent or Consultant)
L <sub>Aeq</sub> 30 w/ HVAC on with exterior noise level of 90dB at 10 feet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**IV. Credit EE1.1 Superior Energy Performance**

The energy score reflected in the scorecard is relevant in the following Climate Zones.

Climate Zones	Sign Off (mechanical engineer)
<input type="checkbox"/>	<input type="checkbox"/>

**IV. Prerequisite EE3.0 Commissioning**

The follow commissioning services must be provided. Select from the check boxes to designate when the services will be performed. The person who has performed the following services shall sign off and date when services are completed.

Commissioning Service	In Factory	On Site	Sign Off (Cx Agent)
Design Intent Document	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Commissioning Plan	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Commissioning Specification Development	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Prefunctional Testing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Functional Testing			
Meeting Attendance			
O&M Manual Review			
Systems Manual			

**IV. Prerequisite/Credit MW2.0/2.1 Construction Site Waste Management**

The amount of construction waste generated must be reported. Waste generation should be broken down into two categories, waste sent to the landfill, and waste diverted from the landfill. If PreCertification is being pursued before the first unit is built, waste documentation must be provided after the first unit is built and delivered to achieve final Certification.

	% Diverted	Total Waste	Waste Diverted	Sign Off (manufacturer)
Waste Diversion (tons)				

By including a signature below, the Company agrees to the following:

- I have read the CHPS PreFAB™ Chain-of-Custody (COC) form ;
- I affirm that I am properly authorized to make the claims and commitments set forth on the COC form;
- I commit my company to submit a completed copy of this form to CHPS within 30 days for each school project where this model is installed;
- I agree to submit a new COC form should any of the above information change;
- I certify that the above information is true and correct.

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Title: \_\_\_\_\_

**APPENDIX 2 – CHPS PreFAB SCORECARD**

Either  
points  
PreFAB  
only

Prereq. / Credit	Number	Title	US-CHPS Points	Manufr Points	School Points	Available to Either	Notes
<b>TOTAL</b>			<b>250</b>	<b>158</b>	<b>92</b>		
<b>REQUIRED for CHPS PreFAB</b>						<b>70</b>	
<b>REQUIRED for CHPS PreFAB Leader</b>						<b>100</b>	
<b>Integration &amp; Innovation (II)</b>			<b>21</b>	<b>7</b>	<b>14</b>		
Prereq	II 1.0	Integrated Design	1		1		
Credit	II 1.1	Enhanced Integrated Design	2	1	1		1 mfr pt for II 1.1.3 for BIM
Credit	II 2.1	District Level Commitment	2		2		
Credit	II 3.1	School Master Plan	2		2		
Credit	II 4.1	High Performance Transition Plan	1		1		
Prereq-NE, CA	II 5.1	Educational Display	1	1		x	
Credit	II 6.1	Educational Integration	2		2		
Credit	II 7.1	Demonstration Areas	1	1		x	
Credit	II 8.1	Climate Change Action / Carbon Footprint Reporting	3	1	2		1 mfr pt (of 2) for II 8.1.1 for GHG inventory of the unit
Prereq-NE	II 9.1	Crime Prevention Through Environmental Design	2		2		
Credit	II 10.1	Innovation (CHPS Verified Projects only)	4	3	1	x	1 pt reserved for site innovation
Regional Credit	II 11.1 - CA	District-Wide Sustainability Planning			x		
<b>Environmental Quality (EQ)</b>			<b>82</b>	<b>68</b>	<b>14</b>		
Prereq	EQ 1.0	HVAC Design - ASHRAE 62.1	7	7			
Credit	EQ 1.1	Enhanced Filtration	2	2			

Credit	EQ 1.2	Dedicated Outdoor Air System (DOAS)	3	3			
Prereq-NE	EQ 2.1	Pollutant and Chemical Source Control	3	3		x	Typically, only EQ 2.1.2, 2.1.3, & 2.1.6 available to mfr for 2 pts
Prereq-NE, CA, TX	EQ 3.1	(Outdoor) Moisture Management	3	1	2		1 mfr pt (of 3) for condensate systems, downspouts & rain leaders, that meet the criteria
Credit	EQ 4.1	Ducted Returns	2	2			
Prereq-CA	EQ 5.1	Construction Indoor Air Quality Management	6	3	3		3 mfr pts for EQ 5.1.1 and 5.1.2
Credit	EQ 5.2	Construction Moisture Management	3	3			
Credit	EQ 6.1	Post Construction Indoor Air Quality	1		1		
Prereq	EQ 7.0	Low Emitting Materials	2	2			
Credit	EQ 7.1	Additional Low Emitting Materials	6	5	1		Mfr pts for all but 7.1.4 Furniture & furnishings
Credit	EQ 8.1	Low Radon	1		1		
Prereq-CA	EQ 9.1	Thermal Comfort - ASHRAE 55	4	4			
Credit	EQ 10.1	Individual Controllability	2	2			
Credit	EQ 10.2	Controllability of Systems	1	1			
Prereq	EQ 11.0	Daylighting: Glare Protection	4	3	1		1 pt reserved for appropriate school siting & orientation
Credit	EQ 11.1	Daylight Availability	5	4	1		1 pt reserved for appropriate school siting & orientation
Prereq - NE	EQ 12.1	Views	3	3			
Credit	EQ 12.2	Additional Views	2	2			
Credit	EQ 13.1	Electric Lighting Performance	2	2			
Credit	EQ 13.2	Superior Electric Lighting Performance	6	6			
Prereq	EQ 14.0	Acoustical Performance	4	3	1		1 pt reserved for appropriate school siting & exterior BG noise
Credit	EQ 14.1	Enhanced Acoustical Performance	6	5	1		1 pt reserved for appropriate school siting & exterior BG noise
Credit	EQ 15.1	Low-EMF Wiring	2	2			
Credit	EQ 15.2	Low-EMF Best Practices	2	1	1		1 mfr pt for EQ 15.2.2 or 15.2.3 for Wired LAN or phones



Regional Credit	EQ 16.1 - CA	Thermal Displacement Ventilation		ID			
Regional Credit	EQ 16.1 - NE	High Intensity Fluorescent Fixtures		ID			
Regional Credit	EQ 17.1/16.1 - CA/TX	Mercury Reduction		ID	-		
Regional Credit	EQ 17.1 - TX	Building Envelope Integrity		ID			
<b>Energy Efficiency (EE)</b>			<b>63</b>	<b>57</b>	<b>6</b>		
Prereq	EE 1.0	Energy Performance	5	5			
Credit	EE 1.1	Superior Energy Performance	40	40			
Prereq-CA	EE 2.1	Solar Ready/Zero Net Energy (ZNE) Capable	3	3		x	
Prereq	EE 3.0	Commissioning	5	2	3	x	2 mfr pts for documentation (see footnote 1 below) – required; the additional 3 points can be obtained by the manufacturer and requires completion of the EQ3.0 section of the chain of custody
Credit	EE 3.1	Additional Commissioning Qualifications	1		1	x	Only available to mfr if pursuing 5 pts for EE 3.0
Credit	EE 3.2	Building Envelope Commissioning	2		2		
Prereq-NE, CA	EE 4.1	Environmentally Preferable Refrigerants	1	1			
Prereq-CA	EE 5.1	Energy Management System	2	2		x	
Credit	EE 5.2	Advanced Energy Management System and Submetering	2	2		x	
Credit	EE 6.1	Natural Ventilation & Energy Conservation Interlocks	2	2			
Regional Credit	EE 3.3 - NE	Enhanced Commissioning		ID			
Regional Credit & Prereq-NE	EE 7.0/7.1 - NE/TX	Local Energy Efficiency Incentive and Assistance			x		
Regional Credit	EE 7.1 - CA	Low Carbon School		ID	x		
Regional Credit	EE 8.1 - NE	Variable Air Volume Systems		ID			
Regional Credit	EE 9.1/8.1 - NE/TX	Renewable Energy Performance Monitoring		ID		x	

Regional Credit	EE 10.1/8.1 - NE/CA	Electric Vehicle Charging			x		
<b>Water Efficiency (WE)</b>			<b>20</b>	<b>9</b>	<b>11</b>		
Prereq-NE, CA	WE 1.1	Minimum Reduction in Indoor Potable Water Use	5	5		x	
Prereq-CA	WE 2.1	Reduce Potable Water Use for Sewage Conveyance	4	4		x	
Prereq-CA	WE 3.1	Irrigation and Exterior Water Budget - Use Reduction	4		4		
Credit	WE 4.1	Reduce Potable Water Use for Non-Recreational Landscaping	4		4		
Credit	WE 5.1	Reduce Potable Water Use for Recreational Landscaping	2		2		
Prereq-NE	WE 6.1	Irrigation Systems Commissioning	1		1		
Regional Credit	WE 7.1 - NE	Rainwater Collection and Storage		ID		x	
Regional Credit	WE 8.1/7.1 - NE/CA	Demonstration Rainwater Catchment			x		
Regional Credit	WE 8.1/7.1 - CA/TX	Water Management System		ID		x	
<b>Sustainable Sites (SS)</b>			<b>24</b>	<b>2</b>	<b>22</b>		
Prereq	SS 1.0	Site Selection	3		3		
Credit	SS 2.1	Environmentally Sensitive Land	3		3		
Credit	SS 3.1	Minimize Site Disturbance	1		1		
Prereq-CA, TX	SS 4.1	Construction Site Runoff Control and Sedimentation	1		1		
Credit	SS 5.1	Post Construction Stormwater Management	2		2		
Credit	SS 6.1	Central Location	2		2		
Credit	SS 7.1	Located Near Public Transportation	1		1		
Credit	SS 8.1	Joint-Use of Facilities	1		1		
Prereq-CA	SS 9.1	Human-Powered Transportation	2		2		
Credit	SS 10.1	Reduce Heat Islands - Landscaping and Sites	2		2		
Credit	SS 11.1	Reduce Heat Islands - Green/Cool Roofs and Green Walls	2	1	1		1 mfr pt for SS 11.1.1 – cool/green roof

Prereq-CA	SS 12.1	Avoid Light Pollution and Unnecessary Lighting	2	1	1	x	1 mfr pt for SS 12.1.1 - automatic shutoff of outdoor non-emergency lighting
Credit	SS 13.1	School Gardens	1		1		
Credit	SS 14.1	Use Locally Native Plants for Landscape	1		1		
Regional Credit & Prereq-NE	SS 15.0 - NE	Site and Building Best Practices				x	
<b>Materials &amp; Waste Management (MW)</b>			<b>21</b>	<b>14</b>	<b>7</b>		
Prereq	MW 1.0	Storage and Collection of Recyclables	2		2		
Prereq-NE, CA, TX	MW 2.1.1	Minimum Construction Site Waste Management	2	1	1	x	Both factory and on-site construction waste must meet the criteria. Points allocated 50% to each (see footnote 2 below); 1 of 2 points required by mfr for factory waste
Credit	MW 2.1.2/3/4	Construction Site Waste Management	2	1	1	x	
Credit	MW 3.1	Single Attribute - Recycled Content	2	2			
Credit	MW 4.1	Single Attribute - Rapidly Renewable Materials	1	1			
Credit	MW 5.1	Single Attribute - Certified Wood	1	1			
Credit	MW 6.1	Single Attribute - Materials Reuse	1		1		
Credit	MW 7.1	Multi-Attribute Materials Selection	3	3			
Credit	MW 8.1	Building Reuse - Exterior	3		3		
Credit	MW 9.1	Building Reuse - Interior	1		1		
Credit	MW 10.1	Health Product Related Information Reporting	3	3			
Regional Credit	MW 1.1 - TX	Storage & Collection of Recyclables for School Community				x	
Regional Credit	MW 11.1 - TX	Durable and Low Maintenance Flooring		ID			
Regional Credit	MW 11.1 - NE	Locally Produced Materials				x	
Regional Credit	MW 12.1 - TX	Environmental Performance Reporting		ID			
<b>Operations &amp; Metrics (OM)</b>			<b>19</b>	<b>2.5</b>	<b>16.5</b>		
Prereq	OM 1.0	Facility Staff and Occupant Training	2	1	1		1 mfr pt for User's Manual and O&M Guide

Credit	OM 2.1	Post-Occupancy Transition	2	1	1	x	1 mfr pt for participation in Post Occupancy Transition Meeting and implementing meeting actions (OM 2.1.2 and OM 2.1.3)
Prereq	OM 3.0	Performance Benchmarking	2		2		
Credit	OM 4.1	High Performance Operations	5		5		
Prereq-NE	OM 5.1	Systems Maintenance Plan	1	0.5	0.5		½ mfr pt for providing a Systems Maintenance Plan for the unit
Prereq-NE	OM 6.1	Indoor Environmental Management Plan	2		2		
Credit	OM 7.1	Green Cleaning	2		2		
Prereq-NE	OM 8.1	Integrated Pest Management	1		1		
Prereq-NE, CA	OM 9.1	Anti-Idling Measures	1		1		
Credit	OM 10.1	Green Power	1		1		
Regional Credit & Prereq-NE	OM 11.0 - NE	ENERGY STAR Equipment and Appliances		ID		x	
Regional Credit	OM 12.1 - NE	Computerized Maintenance Management System			x		
<b>TOTAL</b>			<b>250</b>	<b>158</b>	<b>92</b>		

ID = Innovative Design points available

<sup>1</sup> Implement the following fundamental best practice commissioning procedures as part of the manufacturing process:

- Submit documentation that describes the quality control measures that were implemented before the unit leaves the production facility. Include a description of adherence to ISO 9001. Utilize EDR as necessary.
- Document all systems that were tested and methods used. At minimum: Electrical, lighting, sensors, controls, plumbing, HVAC equipment and ducts. In addition, an air balance test shall be run to ensure building shell is adequate in preventing air/particulate infiltration.

<sup>2</sup> For example MW 2 - Recycle, reuse, and/or salvage at least 50% (by weight) of non-hazardous construction and demolition waste, not including land clearing and associated debris. **(2 pts)** is implemented as:

- Recycle, compost, and/or salvage at least 50% (by weight) of the non-hazardous construction and demolition debris from **factory production and transportation (1 pt)**  
**And**
- Recycle, compost, and/or salvage at least 50% (by weight) of the non-hazardous construction and demolition debris from the **scope of onsite construction (1 pt)**