

**Table 1 – Potential Points for using Precast Concrete for NY-CHPS Version 1.0<sup>1</sup>**

<b>Credit No.</b>	<b>Topic (possible points)</b>	<b>How precast concrete helps earn this credit</b>
1.2.1	Construction erosion & sedimentation control (Prerequisite)	Precast concrete building components are manufactured offsite and rarely stored onsite. They are delivered as pieces to be assembled. This means less soil disturbance at the construction site compared to components that are constructed on-site.
1.2.2	Post-Construction Stormwater Management (1 point)	Water storage basins constructed of segmental precast concrete units are available to hold stormwater and reduce peak discharge rates.
3.1.1	Exceed NY State Energy Code by 20% (Prerequisite)	The thermal mass and low air infiltration of precast concrete in combination with required insulation provides energy efficiency. This prerequisite requires energy simulations. Using a model that performs energy calculations hourly for a year and has thermal mass capabilities will demonstrate the efficiency of precast concrete. Guidance on achieving the 20% cost savings is provided in the document. For above-grade mass walls with exterior insulation, R11.5 continuous insulation is recommended. For mass walls with interior insulation, R13 insulation is recommended. (Appendix C).
3.1.3	Exceed NY State Energy Code by 22.5 to 45% in energy cost savings compared to NY Code (2 points; 25% energy cost savings)	This credit allows up to 10 points for energy cost savings of 45%. These points require energy simulations. Using a model that performs calculations hourly for a year and has thermal mass capabilities will demonstrate the efficiency of thermal mass. Adding more insulation than is required in precast walls, such as R15, may be able to yield two additional points (25% energy cost savings) depending on the building and climate.

<sup>1</sup> This table provides suggestions on ways precast concrete can help achieve prerequisites and obtain points for the New York Collaborative for High Performance Schools Guidelines (NY-CHPS). Points must be documented according to NY-CHPS procedures in order to be earned. <http://emsc33.nysed.gov/facplan/NYSERDA/nychps.html>

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4.1.1	Interior and exterior wallboard and roof deck products must be mold resistant (Prerequisite)	Precast concrete is resistant to moisture problems.
4.1.2	Select flooring based on life cycle cost analysis (4 points)	The long term durability and low maintenance costs of precast concrete often makes it the preferred option in a life cycle cost analysis. Costs of a maintaining some floor systems can exceed initial installation costs by a factor of ten over the life of the floor, lowering the impact of a higher initial cost. According to this credit, flooring materials and the products to maintain them should have low VOC emissions and not contribute to moisture problems or airborne contaminants. Precast concrete meets these requirements.
4.1.3	Select interior wall systems based on life cycle cost analysis (4 points)	The long term durability of precast concrete often makes it the preferred option in a life cycle cost analysis. Periodic maintenance and replacement costs for walls can easily outweigh savings from an initial lower cost wall system. Precast concrete has the ability to recover from accidental exposure to moisture in the event of a roof or plumbing leak. The guidance in this section states that paper-faced gypsum products should be avoided in classroom interior walls whenever possible.
4.1.4	Select exterior wall systems based on life cycle cost analysis. Requires moisture resistant exterior walls. (2 points)	The long term durability of precast concrete often makes it the preferred option in a life cycle cost analysis. The guidance in this section states that precast concrete panels “require recaulking, patching and cleaning, but generally, their maintenance costs are low compared to many alternatives.” Precast concrete is moisture resistant.
4.1.5	Select roof systems based on life cycle cost analysis. (2 points)	The long term durability of precast concrete often makes it the preferred option in a life cycle cost analysis.
4.2.2	Site construction waste management; recycle reuse, or salvage at least 50% by weight (1 point)	Precast concrete is custom made. Excess material is not delivered to the site. Although using precast concrete meets the intent of minimizing site waste, since these points are earned by recycling or reusing site waste, precast concrete may not help earn these points. (If the amount of waste is small, the amount recycled or reused is small.)

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4.3.1	Reuse 75% of existing building structure and shell (1 point)	Precast concrete is durable and can be left in place during renovation or redevelopment projects.
4.3.2	Use a combination of rapidly renewable, salvaged, recycled content, and certified wood materials (1 point; 1% of materials)	This credit allows up to five points corresponding to 5% of the materials meeting this requirement. A template is available for calculations. Using recycled cementitious materials such as fly ash and slag cement to make precast concrete can contribute to the recycled content. Using recycled aggregates such as slag or recycled concrete can also contribute. Precast concrete can also be salvaged and reused.
5.1.1	Access to views for 70% of classrooms and administration areas (Prerequisite)	Precast concrete overhangs and fins can help provide uniformly distributed daylight and minimize direct sunlight penetration.
5.1.2	Access to views for 90% of classrooms and admin areas (2 points)	Precast concrete overhangs and fins can help provide uniformly distributed daylight and minimize direct sunlight penetration.
5.1.3	Daylighting in classrooms (5 points)	Precast concrete overhangs and fins can help provide uniformly distributed daylight and minimize direct sunlight penetration.
5.3.10	Low-emitting materials (2 points)	<p>This credit allows for one point for low-emitting materials in each of these areas (as well as up to three additional points for other materials):</p> <ul style="list-style-type: none"> <li>- Adhesives, sealants and concrete sealers (at least 50% of the specified products in this category must comply)</li> <li>- All paint that covers interior walls, floors, and ceilings</li> </ul> <p>Materials must meet CHPS Material Specifications Section 1350. These are listed in the Compliant Material Table on the CHPS website. Using low-emitting adhesives, sealers, and paints on precast concrete can help obtain these points.</p>
5.4.1	Construction IAQ Plan (Prerequisite)	The objective is to protect the ventilation system components and air pathways against contamination during construction. Using precast concrete can help meet these requirements since it is delivered to the site in pieces that do not require fabrication, processing, or cutting, thereby reducing dust and airbourne contaminants on the construction site. In addition, the plan must include a plan for proper curing of concrete before

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		covering. Since precast concrete is partially or completely cured offsite, this is less of an issue.
5.4.2	Mold Protection (Prerequisite)	This prerequisite requires building materials such as wood, porous insulation, paper, and fabric to be kept dry. The requirements are easier to meet with precast concrete due to its moisture resistance.
5.4.4	Continuously ventilate during installation of materials that emit VOCs (Prerequisite)	Precast concrete does not emit significant VOCs and does not require this continuous ventilation. Paints, sealers, and coatings may require ventilation.
5.4.5	HEPA vacuuming (Prerequisite)	Since precast concrete is not a carpet or soft material, this vacuuming is not required.
5.4.6	Duct protection during dust producing activities (Prerequisite)	This credit requires the ventilation system be turned off and protected during drywall installation or wood floor sanding. If precast concrete is used as an interior finish material, these dust producing activities are avoided.
5.5.1	Minimal acoustical performance (Prerequisite)	Precast concrete can be used to minimize background noise levels. A 6-in. thick precast concrete wall has an STC of 57. (PCA Report No. RD066, <i>Sound Transmission Loss Through Concrete and Concrete Masonry Walls</i> ). A report from a qualified acoustical consultant is required.
5.5.2	Sound isolation (2 points)	This credit specifies required STC ratings between rooms. A 6-in. thick precast concrete wall has an STC of 57. (PCA Report No. RD066, <i>Sound Transmission Loss Through Concrete and Concrete Masonry Walls</i> ). This rating meets most requirements. A report from a qualified acoustical consultant is required.
5.5.3	Improved acoustical performance (2 points)	This credit specifies more stringent acoustical requirements for schools with 7 <sup>th</sup> through 12 <sup>th</sup> grade classrooms. Precast concrete can be used to improve acoustical performance.
5.6.1	ASHRAE 55-2004 on <i>Thermal Environmental Conditions for Human Occupancy</i> (Prerequisite)	Precast concrete walls enhance thermal comfort by absorbing internal gains, including those from students, thereby moderating the room temperature without the need for as much additional energy as would be needed for lightweight frame construction.
6.1.1	Develop an energy plan (Prerequisite)	The plan covers building energy use during occupied periods or after hours use. Thermal mass in precast concrete helps reduce energy use because it moderates energy use throughout the day. Thermal mass will shift some of the peak

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		afternoon electricity use to after school hours when demand is less. It will also help maintain room temperatures for after school activities.
6.2.3	Integrated pest management plan (Prerequisite)	Vermin and insects cannot destroy precast concrete because it is inedible. Due to its hardness, vermin and insects will not bore through precast concrete.
7.5.2	Use as a Red Cross / Community Shelter (1 point)	A building envelope constructed of precast concrete is disaster resistant – including floods, winds, hurricane, fire, earthquakes, and blast – and can provide shelter for occupants during and after many emergencies.
7.6.1	Innovation credits (1 to 3 points)	These credits offer an opportunity to earn additional points that follow the spirit of the program’s requirements.

### Summary

Precast concrete can contribute to obtaining 13 out of a total of 38 prerequisites and 32 out of a total of 130 points in this program, not including the innovation credits in Section 7.6.1. All prerequisites and a total of 65 points must be obtained to be designated a New York High Performance School.

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