Potential LEED Points For Precast Concrete Parking Structures

LEED Category: Sustainable Sites Credit	Pt.	Title and Precast Contribution
5.1:	1	**Site Development—**Protect or restore habitat. *A precast building design can obtain this credit by limiting the site disturbance to prescribed distances from the building. Less dust and waste is created at construction site because only needed precast concrete elements are delivered; there is no debris from formwork and associated fasteners. Fewer trucks and less time are required for construction because concrete is made offsite; particularly beneficial in urban areas where minimal traffic disruption is critical. Precast concrete units are normally large components, so greater portions of the building are completed with each activity, creating less disruption overall. Less noise at construction sites because concrete is made off-site.*
5.2:	1	**Site Development—**Development footprint. *Mixed-use precast buildings and parking structures are particularly good for this credit, as they are capable of exceeding the local open space zoning requirement by 25%.*
6.1:	1	**Stormwater Management—**Limit disruption of hydrology. *Reducing impervious cover by specifying mixed-use precast buildings and free-standing parking structures. The footprint will be smaller than asphalt parking lots. Vegetated roofs can be used on free-standing parking structures.*
6.2:	1	**Stormwater Management—**Reduce or eliminate water pollution *Storm water can easily be recaptured in a precast parking structure for non-potable uses (landscape irrigation; toilet and urinal flushing; and custodial).*
7.1:	1	**Heat Island Effect—**Non-roof. *The requirement is met by placing a minimum of 50% of parking spaces under cover (defined as underground, under deck, under roof, or under a building). This is easily achieved through mixed-use precast structures with parking under or free-standing parking structures.*
7.2:	1	**Heat Island Effect—**Roof. *Light colored concrete reduces heat island effect in urban areas. This means using materials with reflectance greater than 0.3. Concrete typically has reflectance between 0.35 and 0.8. Asphalt typically has reflectance less than 0.3 and does not meet the criteria. Thermal images taken with digital infrared thermometer showed an average 40-degree temperature difference between new concrete and new asphalt.*
8.0:	1	**Light Pollution Reduction—**Minimize site lighting where possible. *Structured precast parking will require fewer fixtures to produce the same level of lighting compared to asphalt parking lots. Other benefits are reduced light trespass from the building, improved night sky access, reduced development impact on nocturnal environments, and reduced energy demand.*

LEED Category: Materials & Resources Credit	Pt.	Title and Precast Contribution
1.1:	1	**Building Reuse—**Maintain 75% of existing shell. *Precast concrete's durability helps it to maintain its appearance, so shells will remain in place longer. Precast buildings can be recycled after building life cycle. Components can either be dismantled and reused or the components can be crushed and used for road base or construction fill after the structure's life cycle.*
1.2:	1	**Building Reuse—**Maintain 95% of existing shell. *Same as above.*
2.1:	1	**Construction Waste Management—**Divert 50% by weight or volume. *Precast is made off-site in a controlled production environment, construction site waste is automatically eliminated. Construction waste is also reduced at the plant by producing products in reusable steel forms for standard sections. Many precast producers recycle water and materials at their plants.*
2.2:	1	**Construction Waste Management—**Divert 75% by weight or volume. *Same as above.*
4.1:	1	**Recycled Content—**The post-consumer recycled content plus one-half of the preconsumer content constitutes at least 10% (based on cost) of the total value of the materials in the project. *A significant amount of industrial by-products can be used in precast concrete products to replace and supplement some of the cement in the mix. These products are called supplementary cementitious materials or SCMs for short.* *ASTM C 618 provides standards for fly ash. Fly ash is used in quantities of 5 to 65% to replace the Portland cement. ASTM C 989 is for blast furnace slag. Slag is used to replace 20 to 70% of cement in the mix. ASTM C 1240 is for silica fume. Silica fume is used in quantities of 5 to 12%. Using silica fume will also increase concrete strength and provide exceptional durability.*
4.2:	1	**Recycled Content—**An additional credit is available if the project uses 20% post-consumer recycled content. *Same as above.*
5.1:	1	**Local/Regional Materials—**Use a minimum of 10% (based on cost) of the total materials value. *Most precast components use local material (sand, water, aggregates) and are made at a plant close to the site, saving transportation costs.* *Precast concrete components are usually transported and erected within 200 miles of the plant and easily meet the 500-mile requirement. Most precast products are also manufactured with materials extracted, harvested, or recovered within 500 miles such as aggregates, cement, sand, reinforcing steel and additives.*
5.2:	1	**Local/Regional Materials—**Use a minimum of 20% (based on cost) of the total materials value. *Same as above.*

LEED Category: Innovation & Design Process Credit(s)	Pts.	Title and Precast Contribution
1.1 — 1.4:	1-4	**Apply for other credits demonstrating exceptional performance** (must be submitted and approved). *Precasters can help create innovative systems that achieve key sustainability goals, (e.g., use of thin brick reduces material and transportation costs).*
2.1:	1	**LEED Accredited Professional.** *Some precasters have LEED Accredited Professionals on staff.*