Sto Corp. - Building with conscience.

LEED® Product Assessment

Report prepared for Sto Corp. by Paul R Bertram, Jr. FCSI, CDT, LEED AP
July, 2007

"The greatest opportunities for saving costs over the life of a building occur at the beginning of the design process"

- AIA Energy Design Handbook

Executive Overview

For over 50 years, Sto has been committed to the concept of sustainability. Our mission statement, summarized by the three words: “Building with conscience” focuses on this commitment to environmental, economic and social sustainability.

Sto recognizes the impact that buildings can have on the environment and on their occupants. That is why our mission is to maintain the value of old and new buildings for their owners, investors and users, by researching, developing, producing and marketing product systems and services that improve a building’s energy efficiency, durability and aesthetic appeal. Through collaboration with like-minded customers and partners, we want to act as a pacemaker and play a leading role in helping to ensure that the world in which we live is designed in line with environmental requirements and our needs as human beings.

The current world focus on global climate change and depletion of natural resources has spawned a revolutionary interest in sustainable building. A number of green building rating systems have been developed to help measure a building’s impact on the environment. The LEED® (Leadership in Energy and Environmental Design) Green Building Rating System developed by the US Green Building Council is one of the most widely used building rating systems in the US. Sto manufactures several products that can contribute to improving a building’s overall impact on the environment, and thus can contribute to a projects ability to earn points toward LEED certification. These include: insulated cladding systems that significantly reduce the energy required to heat and cool buildings; structural waterproofing / air barriers that help extend the life of buildings by prevent moisture damage and mold while increasing their energy efficiency and improving indoor air quality; and environmentally friendly coatings that are low VOC and highly durable.

This paper outlines specific LEED point requirements and details how Sto products can be used to help achieve them.

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Climate Change Urgency

Two profound, life changing events are converging to create the most significant crisis of modern times— the warming of the earth's atmosphere by burning fossil fuels, and the rapid depletion of global petroleum and natural gas reserves. As these events intensify over the coming years, they will dramatically change how we live and how we relate to the natural world.

The current world focus on global climate change and depletion of natural resources has spawned a revolutionary interest in sustainable buildings. Buildings are the single most important contributor to the greenhouse gas emissions that cause climate change. The built environment can make an important contribution to climate change improvement while providing more livable spaces. With current technologies and the expansion of a few key policies, significant reductions in greenhouse gases can be realized in the near future. A combination of technology, research and development reserves, and clear and sustained climate and energy policies would drive more dramatic reductions over time.

Building Solutions to Climate Change

Green building has changed dramatically in recent years. What started as a charismatic environmental cause movement has evolved into an established sector of the construction industry. The market for sustainable buildings has exponentially grown as new guidelines and ratings systems that define sustainable buildings have been developed. Green building is gaining acceptance and is being practiced in all corners of the globe.

Energy Design Goals

The long-term energy consumption of a building has the most significant environmental impact, and from an operational cost standpoint, the most economic impact, than any other building feature.

Increasing the energy efficiency of a building reduces:

- Energy demand
- Need for as many new power plants
- Green house gas emissions
- Energy cost of ongoing operation of the building

Some of the most important design considerations for energy efficiency are:

- Building Orientation - position building to take advantage of natural light and decrease heat gain.

- Building Envelope - Building envelope components include windows, doors, walls, the roof, and the foundation. Heat flows from the warmer side of the building shell to the colder side. The most commonly discussed parameters of heat flow through the building envelope, in or out, are conduction, infiltration, and solar radiation.

Two important components of the building envelope system that help to minimize the flow of heat through the building envelope are insulation and air barriers.

EIFS Cladding

Exterior Insulation and Finish Systems (EIFS), also called synthetic stucco, are insulated wall cladding systems that resemble traditional masonry stucco finishes. EIF systems are aesthetically attractive to many people due to the variety of colors and textures available, and special architectural features that are easily created. Among the more economical finishing systems available, EIFS, when properly applied and integrated into construction, benefit the structure by providing an insulating exterior finish without the worries about moisture penetration and migration that are at the center of most construction industry litigation. EIFS are ideal for new construction and major renovations where existing walls (interior and exterior) can achieve extended life strategies.

EIFS Impact on Energy Efficiency:

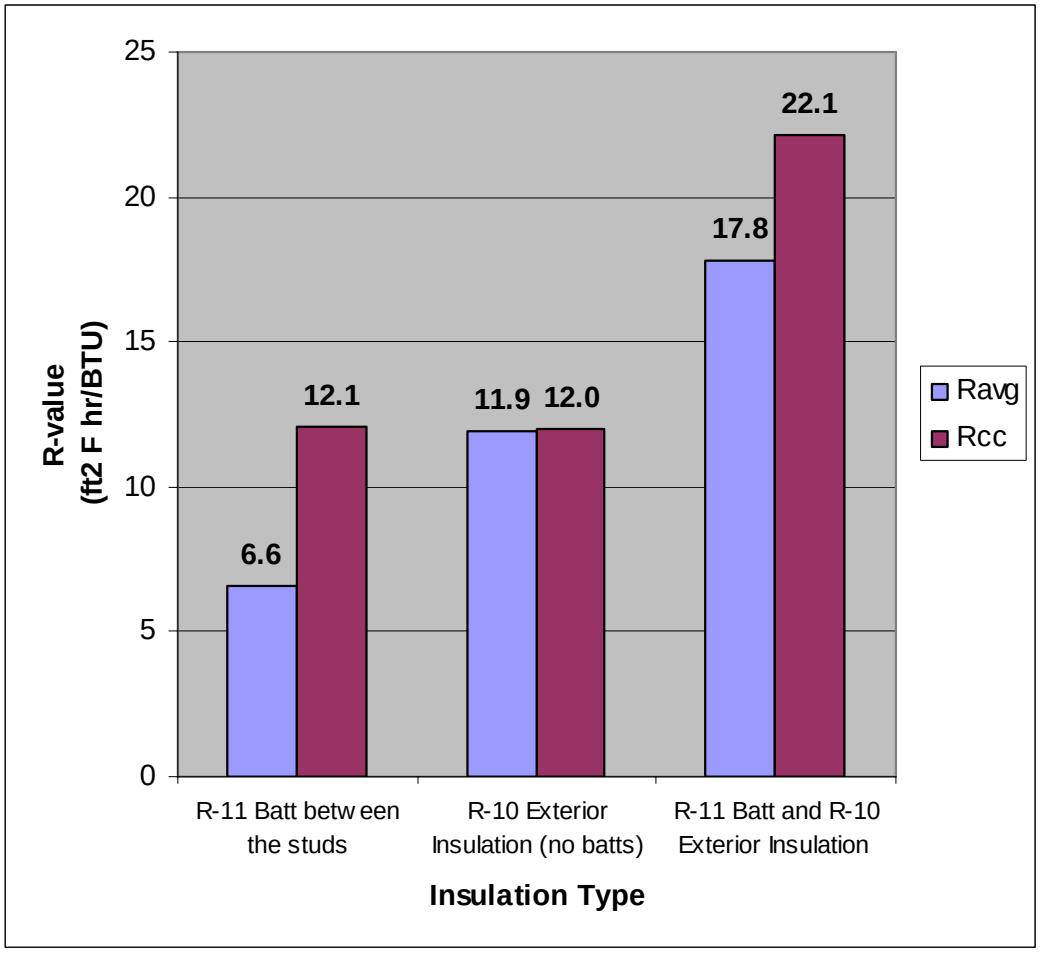
The overall energy performance of a building and its interior environment can be greatly improved by placing the insulation on the outside of the building; this minimizes thermal bridging and helps keep the structural members at a consistent temperature, thus improving their expected longevity.

The "EI" in EIFS stands for "Exterior Insulation"; the insulation is applied to the exterior of the building framing, virtually eliminating the multiple thermal bridges that can compromise thermal efficiency.[1] Chart 1 Exterior Insulation Influence on Thermal Efficiency and R-Value[2], illustrates this point.

The R-11 frame assembly with batt insulation has a thermal efficiency of 55%. The same assembly without the batt insulation and R-10 exterior insulation has a thermal efficiency of 99%. An assembly with both R-11 batt insulation and R-10 exterior insulation has a thermal efficiency of 81%, while the effective R-value (R_{avg}) is increased to 17.8. Further, the thickness of the insulation in EIFS can be increased to almost any level to make dramatic increases to the R-value and the thermal efficiency of the wall.

[1] Construction Specifier Magazine, *EIFS: Sustainable Design,* August 2007
[2] IBID

Chart 1: Exterior Insulation Influence on Thermal Efficiency and R-Value[3]



Notes:
1.Data source: PHRC (Pennsylvania Housing Research Center) Report No. 58
2. Base wall assembly: 2x4 steel studs @ 400 mm (16" oc) w 13 mm (½") gypsum board interior and 13 mm (½") plywood sheathing exterior
3. Rcc = center-of-cavity R-value
4. Ravg = average R-value when studs are factored into measurement of R-value
5. Thermal efficiency = Ravg/Rcc
6. Contribution of any cladding or surface air films not included in R-value

Air / Moisture Barriers

Air barriers are used to minimize air infiltration and exfiltration (leaks) through the wall construction. The use of an effective air barrier can reduce the risk of moisture condensation in the wall assembly, increase the thermal efficiency of the wall, provide energy cost savings, and increase occupant comfort.

[3] IBID

Air Barriers Impact on Energy Efficiency

A 2005 NIST Study "Investigation of the Impact of Commercial Building Envelope Airtightness on HVAC Energy Use - NISTIR 7238", investigated the impact of building envelope airtightness on the energy consumption of typical commercial buildings in the US. It found that reduction of air infiltration rates to a target level of 1.2 L/s-m2 (0.24 cfm/ft2) , which was assumed achievable through the use of an air barrier and good construction practices, could result in annual energy cost savings of up to 40%. In addition to the impact on energy costs, air infiltration can have many negative consequences, including reduced thermal comfort, interference with the proper operation of mechanical ventilation systems, degraded indoor air quality, and moisture damage of building envelope components.[4]

Air / Moisture Barriers Impact on Environmental Air Quality

Waterproofing/air barrier systems, when properly installed and integrated with other waterproofing/air barrier components, reduce the chances for moisture penetration in the wall assembly that can be associated with propagation of mold and mildew. This solution can significantly lessen a foremost health concern for building occupants, while improving the long-term durability of the wall system by minimizing the possibility of moisture damage to the water-sensitive elements in the wall.

[4] From: Investigation of the Impact of Commercial Building Envelope Airtightness on HVAC Energy Use - NISTIR 7238 By: Steven J. Emmerich, Tim McDowell, Wagdy Anis
Prepared for: U.S. Department of Energy Office of Building Technologies, June 2005

Green Building Rating Systems

Sustainable design and green building initiatives have gained recent attention in part due to the numerous green rating systems and guidelines that have been developed to assess the environmental sustainability of a building's design. A few of the higher profile initiatives include:

- The US Green Building Council's LEED® rating system (www.usgbc.org)
- The EPA's High Performance Building programs
- The Collaborative for High Performance Schools (http://www.chps.net)
- The Sustainable Buildings Industry Council's (http://www.psic.org) Building Green Guidelines

Additionally, there are countless local, state, federal and NGO (non government organization) sustainable initiatives influencing the current green building interest, each with their own product evaluation criteria. Most recently the GreenGlobes rating system has entered the market and has already registered and been approved as an ANSI (American National Standards Institute) rating system provider.

What is LEED®?

Much of the current sustainability movement momentum has been created by the LEED (Leadership in Energy and Environmental Design) Green Building Rating System®. LEED® is a voluntary, consensus-based rating program for developing high-performance, sustainable buildings developed by the U.S. Green Building Council (www.usgbc.org). Based on well-founded scientific standards, LEED emphasizes state of the art strategies for sustainable site development, water savings, energy efficiency, materials selection and indoor environmental quality.

LEED provides a complete framework for assessing building performance and meeting sustainability goals. Based on a system of prerequisites and credits, LEED projects earn points during the certification process and then are awarded one of four certification levels.

The LEED programs currently available include:

- LEED-NC: New commercial construction and major renovation projects
- LEED-EB: Existing building operations
- LEED-CI: Commercial interiors projects
- LEED-CS: Core and shell projects
- LEED-H: Homes
- LEED-ND: Neighborhood development
- LEED Application Guides: Retail (currently in pilot), Multiple Buildings/Campuses, Schools, Healthcare, Laboratories, Lodging

LEED for New Construction and Major Renovations (LEED-NC) is the most utilized rating system and was designed to guide and distinguish high-performance commercial and institutional projects, with a focus on office buildings. Practitioners have also applied the system to K-12 schools, multi-unit residential buildings, manufacturing plants, laboratories and many other building types.

There are four levels of LEED-NC certification:

Certified Level	26 - 32 points
Silver Level	33 - 38 points
Gold Level	39 - 51 points
Platinum Level	52+ points (69 possible)

There are five environmental categories that are further divided into “credits.” For each credit, the rating system identifies the intent, requirements, and technologies or strategies to achieve the credit. One or more points are available within each credit, and points are achieved by meeting specified requirements.

Most categories contain prerequisites. *ALL* seven prerequisites *MUST* be met in order to qualify for *ANY* certification level.

In addition to the five environmental categories, there is also an “Innovation and Design Process” category.

69 points total:

- Sustainable Sites: 8 credits, 14 points
- Water Efficiency: 3 credits, 5 points
- Energy and Atmosphere: 6 credits, 17 points
- Materials and Resources: 7 credits, 13 points
- Indoor Environmental Quality: 8 credits, 15 points
- Innovation: 4 points
- LEED Accredited Professional: 1 point

Sto Products Contribution to LEED Points

Sto EIFS, stucco, air barrier and coating products potentially contribute to LEED points and credits in a number of areas depending on specified materials.

Sto recognizes that no product by itself is LEED certified and submits this report based on the understanding that each project is situational and that Sto products will vary in point contributions from project to project. This report suggests potential areas of contribution to earning LEED points and credits using the LEED for New Construction Version 2.2 rating system.

Table 1: Quick View of Sto Products and LEED NC v. 2.2

Sto Products and LEED NC v. 2.2	Potential Points
Sustainable Sites (SS)	
Credit 7.1: Heat Island Effect - Non-Roof	1
Energy & Atmosphere (EA)	
Prerequisite 2: Minimum Energy Performance	2 (req'd)
Credit 1: Optimize Energy Performance	10 (2 req'd)
Materials & Resources (MR)	
Credit 1.1 / 1.2: Building Reuse - 75% / 95%	1 / 2
Credit 2.1 / 2.2: Construction Waste Management - 50% / 75%	1 / 2
Credit 4.1 / 4.2: Recycled Content - 10% / 20%	1 / 2
Credit 5.1 / 5.2: Regional Materials - 10% / 20%	1 / 2
Indoor Environmental Quality (EQ)	
Credit 4.2: Low Emitting Materials - Paints and Coatings	1
Innovation In Design (ID)	
Credit 1.1- 1.4: Innovation in Design	4

Sustainable Sites (SS) Credit 7.1
Heat Island Effect: Non-Roof

Intent
Reduce heat islands (thermal gradient differences between developed and undeveloped areas) to minimize impact on microclimate and human and wildlife habitat.

Requirements:
OPTION 1
Provide any combination of the following strategies for 50% of the site hardscape (including
roads, sidewalks, courtyards and parking lots):

- Shade (within 5 years of occupancy)
- Paving materials with a Solar Reflectance Index $(SRI)_2$ of at least 29
- Open grid pavement system

OR

OPTION 2
Place a minimum of 50% of parking spaces under cover (defined as under ground, under deck, under roof, or under a building). Any roof used to shade or cover parking must have an SRI of at least 29.

Potential Sto EIFS, Stucco and Coatings LEED Contributions

Sto has several coatings designed for use on horizontal surfaces such as walkways, driveways and parking decks. These coatings generally can be ordered in a variety of colors that will meet the criteria of Solar Reflectance Index (SRI) >29.

Sto Products typically used in these types of applications include:

- StoPur™ Traffic Deck Coating Systems – CR675/676/679,
- Sto Texture Coat – 510 (with topcoat of 648)
- StoCoat™ Acryl Plus – 648
- Sto Decocoat – 119 (with appropriate topcoat sealer)

Note: The Solar Reflectance Index (SRI) is a measure of the constructed surface's ability to reflect solar heat, as shown by a small temperature rise. It is defined so that a standard black (reflectance 0.05, emittance 0.90) is 0 and a standard white (reflectance 0.80, emittance 0.90) is 100. To calculate the SRI for a given material, obtain the reflectance value and emittance value for the material. SRI is calculated according to ASTM E 1980. Reflectance is measured according to ASTM E 903, ASTM E 1918, or ASTM C 1549. Emittance is measured according to ASTM E 408 or ASTM C 1371. (From: LEED NC2.2 Reference manual)

Energy & Atmosphere (EA) Prerequisite 2 and Credit 1
Optimize Energy Performance

EA Prerequisite: Minimum Energy Performance (2 Points)

EA Credit 1: Optimize Energy Performance
1–10 Points (2 Mandatory)

Intent
Achieve increasing levels of energy performance above the baseline in the prerequisite standard to reduce environmental and economic impacts associated with excessive energy use.

Requirements
Select one of two compliance path options described below. Project teams documenting achievement using either option are assumed to be in compliance with EA Prerequisite 2.

OPTION 1 — WHOLE BUILDING ENERGY SIMULATION (1–10 Points)

Demonstrate a percentage improvement in the proposed building performance rating compared to the baseline building performance rating per ASHRAE/IESNA Standard 90.1-2004 (without amendments) by a whole building project simulation using the Building Performance Rating Method in Appendix G of the Standard. The minimum energy cost savings percentage for each point threshold is outlined in Table 2:

Table 2: LEED NC v 2.2 Minimum Energy Cost Savings Percentage

New Buildings	Renovations	Points	
10.5%	3.5%	1	Mandatory
14%	7%	2	Mandatory
17.5%	10.5%	3	
21%	14%	4	
24.5%	17.5%	5	
28%	21%	6	
31.5%	24.5%	7	
35%	28%	8	
38.5%	31.5%	9	
42%	35%	10	

OR
OPTION 2 — PRESCRIPTIVE COMPLIANCE PATH (4 Points)
Comply with the prescriptive measures of the ASHRAE Advanced Energy Design Guide for Small Office Buildings 2004. The following restrictions apply:

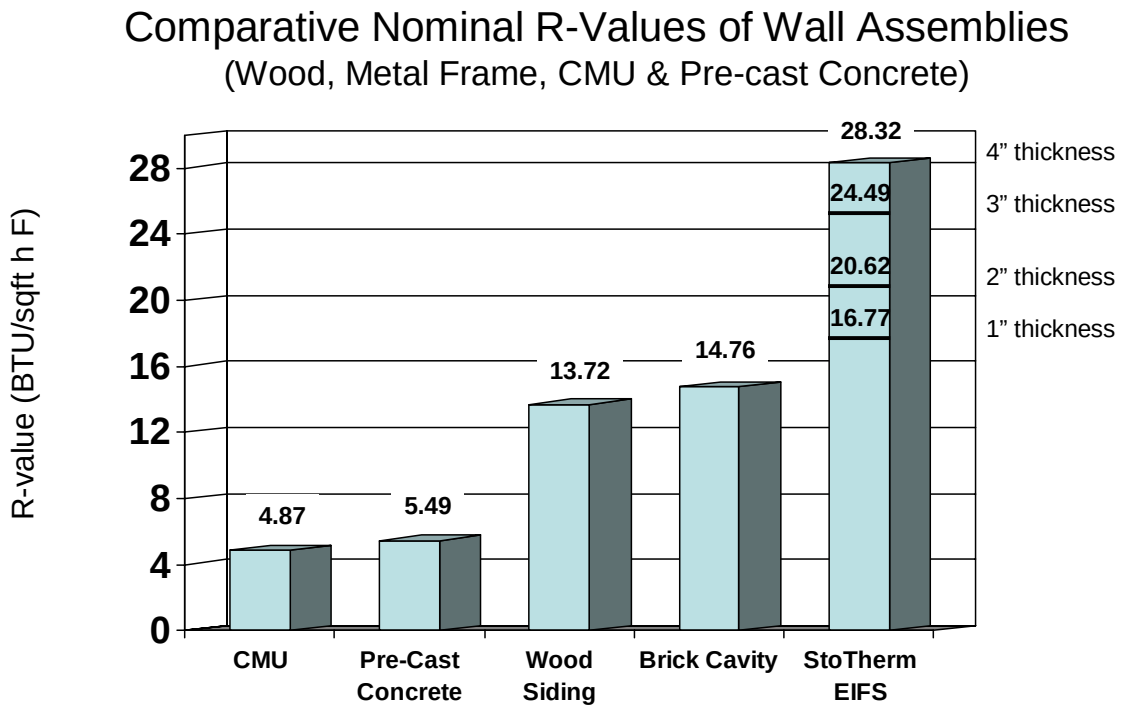
- Buildings must be under 20,000 square feet
- Buildings must be office occupancy
- Project teams must fully comply with all applicable criteria as established in the Advanced Energy Design Guide for the climate zone in which the building is located

Potential Sto EIFS, Stucco and Coatings LEED Contributions

The building enclosure is the component (typically comprised of an assembly of numerous materials and layers) of a building that acts as an environmental separator between the indoor and outdoor environments. The thermal, air pressure, and rainwater boundary lie within the confines of the enclosure. A building enclosure controls heat flow, air flow, water vapor flow, rain penetration, and contributes to energy efficiency.

StoTherm® EIFS
StoTherm EIFS systems can be engineered to specified R-Values and in combination with an interior insulation can be a cost effective solution for energy efficiency and carbon reduction strategies. See Chart 2 below for comparison of StoTherm EIFS products versus other commonly used claddings:

Chart 2: R-Values of StoTherm EIFS versus other claddings



Note: R-Value in the case of the framed wall assemblies in the charts refers to average R- value. Wall assemblies from exterior to interior are:
CMU: Nominal 8" hollow core painted CMU with expanded perlite insulation in hollow cores, 0.75" air space and ½" gypsum interior wall board
Pre-Cast Concrete: 4" painted pre-cast concrete panel with 1" EPS insulation and ½" gypsum wall board interior.
Brick Cavity: Nominal 4" face brick with 2" cavity, building paper, 5/8" gypsum sheathing, metal studs with R-11 batt insulation and ½" gypsum wall board interior
Wood Siding: ½" lap siding, ½" plywood sheathing, building paper, metal studs with R-11 batt insulation, ½" gypsum wall board interior
Sto System 1" StoTherm EIFS, ½" plywood sheathing, metal studs with R-11 batt insulation, ½" gypsum wall board interior.

<u>StoGuard™ Waterproofing/Air Barrier</u>

StoGuard Waterproofing/Air Barrier, is a fully performing continuous air barrier with the added benefit of being a protective waterproofing barrier. It is spray or roller applied to the supporting substrate, thus becoming a structural part of the building enclosure. Studies performed by the Department of Energy and the NIST[5] have shown that continuous, structural air barrier systems can save up to 40% of heating and cooling energy costs, depending on the climate.[6]

[5] National Institute of Standards and Technology
[6] Investigation of the Impact of Commercial Building Envelope Airtightness on HVAC Energy Use - NISTIR 7238

Materials & Resources (MR) Credit 1.1 & 1.2
Building Reuse: Credit 1.1: Maintain 75% of Existing Walls, Floors & Roof
Building Reuse: Credit 1.2: Maintain 95% of Existing Walls, Floors & Roof

Intent
Extend the life cycle of existing building stock, conserve resources, retain cultural resources,
reduce waste and reduce environmental impacts of new buildings as they relate to materials
manufacturing and transport.

Requirements
Maintain at least 75% (based on surface area) for Credit 1.1 or with option to maintain an additional 20% (95% total, based on surface area), for Credit 1.2, of existing building structure (including structural floor and roof decking) and envelope (exterior skin and framing, excluding window assemblies and non-structural roofing material). Hazardous materials that are remediated as a part of the project scope shall be excluded from the calculation of the percentage maintained. If the project includes an addition to an existing building, this credit is not applicable if the square footage of the addition is more than 2 times the square footage of the existing building.

Potential Sto EIFS, Stucco and Coatings LEED Contributions:

Sto products, including StoTherm EIFS and Sto coatings / finishes can be applied to properly cleaned surfaces of many types, including masonry, cement block, and even painted surfaces. Thus they may contribute by contributing to a new aesthetic exterior design and increased performance depending on the specified products. StoTherm EIFS would add energy performance in addition to a new visual appeal.

Materials & Resources (MR) Credit 2.1 & 2.2
Construction Waste Management: Credit 2.1 - Divert 50% From Disposal
Construction Waste Management: Credit 2.2 - Divert 75% From Disposal

Intent
Divert construction, demolition and land-clearing debris from disposal in landfills and incinerators. Redirect recyclable recovered resources back to the manufacturing process. Redirect reusable materials to appropriate sites.

Requirements
Recycle and/or salvage at least 50% (MR 2.2 75%) of non-hazardous construction and demolition debris. Develop and implement a construction waste management plan that, at a minimum, identifies the materials to be diverted from disposal and whether the materials will be sorted on-site or commingled. Excavated soil and land-

clearing debris do not contribute to this credit. Calculations can be done by weight or volume, but must be consistent throughout.

Potential Sto EIFS, Stucco and Coatings LEED Contributions

Left over materials should be inventoried for use in up-keep maintenance. Most product containers can be recycled through traditional waste management programs as prescribed by LEED programs. In addition, use of a StoSilo for application of base coats means that the base coat material can be delivered in large, reusable totes, further reducing the packaging waste at the jobsite.

Materials & Resources (MR): Credit 4.1 & 4.2

Recycled Content Credit 4.1: 10% Post-consumer + ½ Pre-consumer
Recycled Content Credit 4.2: 20% Post-consumer + ½ Pre-consumer

Intent
Increase demand for building products that incorporate recycled content materials, thereby reducing impacts resulting from extraction and processing of virgin materials.

Requirements
Use materials with recycled content such that the sum of post-consumer recycled content plus one-half of the pre-consumer content constitutes at least 10% (based on cost) of the total value of the materials in the project.
The recycled content value of a material assembly shall be determined by weight. The recycled fraction of the assembly is then multiplied by the cost of assembly to determine the recycled content value.
Mechanical, electrical and plumbing components and specialty items such as elevators shall not be included in this calculation. Only include materials permanently installed in the project. Furniture may be included, providing it is included consistently in MR Credits 3–7.
Recycled content shall be defined in accordance with the International Organization of Standards document, *ISO 14021—Environmental labels and declarations—Self-declared environmental claims (Type II environmental labeling).*

- **Post-consumer material** is defined as waste material generated by households or by commercial, industrial and institutional facilities in their role as end-users of the product, which can no longer be used for its intended purpose.
- **Pre-consumer material** is defined as material diverted from the waste stream during the manufacturing process. Excluded is reutilization of materials such as rework, regrind or scrap generated in a process and capable of being reclaimed within the same process that generated it.

Potential Sto EIFS, Stucco and Coatings LEED Contributions:

Table 3 is provided to demonstrate potential recycled content inclusion:

Table 3: Sto Products with Recycled Content

Product Name	Recycled Content (% by Weight)	
	Post-Consumer	Pre-Consumer
Sto BTS Plus - 727	0	2.75%
Sto BTS Silo - 727Silo	0	3.00%
Sto Gold Coat	0	2.75%
Sto EmeraldCoat	0	2.75%

Materials & Resources (MR) Credit 5.1 & 5.2

Regional Materials: Credit 5.1 - 10% Extracted, Processed & Manufactured Regionally
Regional Materials: Credit 5.2 - 20% Extracted, Processed & Manufactured Regionally

Intent
Increase demand for building materials and products that are extracted and manufactured within the region, thereby supporting the use of indigenous resources and reducing the environmental impacts resulting from transportation.

Requirements
Use building materials or products that have been extracted, harvested or recovered, as well as manufactured, within 500 miles of the project site for a minimum of 10% based on cost (20% for MR Credit 5.2) of the total materials value. If only a fraction of a product or material is extracted/harvested/recovered and manufactured locally, then only that percentage (by weight) shall contribute to the regional value.

Potential Sto EIFS, Stucco and Coatings LEED Contributions:

Sto Manufacturing Locations
Sto operates 3 manufacturing plants located in the Southeast, Northeast and Southwest to meet local demand of much of our market. In addition, much of the raw material volume by weight is extracted locally to our manufacturing facilities. Depending on the location of the project, Sto products may contribute to this credit.

Sto Manufacturing Locations

StoPowerwall™ Stucco

StoPowerwall Stucco is manufactured and shipped directly from several locations outside the three main Sto plants. Table 4 below lists the cities that currently have StoPowerwall Stucco manufacturing facilities. In addition, StoPowerwall Stucco products are field mixed products, with a mix ratio of greater than 2 to 1 of locally sourced sand to manufactured stucco.

Table 4: Locations of StoPowerwall Stucco Manufacturing Locations

City	State	Zip
Theodore	Alabama	36582
Glendale	Arizona	85311
Los Angeles	California	90043
West Sacramento	California	95691
Medley	Florida	33178
Ocala	Florida	34472
Tampa	Florida	33619
Atlanta	Georgia	30331
Cartersville	Georgia	30120
Flanders	New Jersey	07836
Albuquerque	New Mexico	
Holly Hills	South Carolina	29059
Alvarado	Texas	76009
El Paso	Texas	79907
Salt Lake City	Utah	84115

Note: Locations are subject to change, please verify with Sto.

Indoor Environmental Quality (EQ) Credit 4.2
Low-Emitting Materials: Paints & Coatings

Intent
Reduce the quantity of indoor air contaminants that are odorous, irritating and/or harmful to the comfort and well-being of installers and occupants.

Requirements
Paints and coatings used on the interior of the building (defined as inside of the weatherproofing system and applied on-site) shall comply with the following criteria:

- Architectural paints, coatings and primers applied to interior walls and ceilings: Do not exceed the VOC content limits established in Green Seal Standard GS-11, Paints, First Edition, May 20, 1993.
    - Flats: 50 g/L
    - Non-Flats: 150 g/L
- Anti-corrosive and anti-rust paints applied to interior ferrous metal substrates: Do not exceed the VOC content limit of 250 g/L established in Green Seal Standard GC-03, Anti-Corrosive Paints, Second Edition, January 7, 1997.
- Clear wood finishes, floor coatings, stains, and shellacs applied to interior elements: Do not exceed the VOC content limits established in South Coast Air Quality Management District (SCAQMD) Rule 1113, Architectural Coatings, rules in effect on January 1, 2004.
    - Clear wood finishes: varnish 350 g/L; lacquer 550 g/L
    - Floor coatings: 100 g/L
    - Sealers: waterproofing sealers 250 g/L; sanding sealers 275 g/L; all other sealers 200 g/L
    - Shellacs: Clear 730 g/L; pigmented 550 g/L
    - Stains: 250 g/L

Potential Sto EIFS, Stucco and Coatings LEED Contributions

Sto Coatings used for interior applications
Sto DécorTex® is a fast-track formulation product that is an acrylic coating system with the ability to finish a properly taped and bedded wallboard surface in less than 1/2 the time of traditional finishing. With a VOC of <25 g/L, it complies with GS-11 standards for interior flat coatings. In addition, it is a highly durable coating, with high resistance to scratching and staining, thus contributing to increased life cycle performance and extended life strategies.

In addition to Sto DécorTex, Sto has several coatings that are commonly used for interior applications. Table 5 below lists those products and their VOC content. Note: plans are in place to have all Sto coatings meet SCAQMD[1] – Rule 1113 standards (effective July 2008).

Table 5: Sto Interior Coatings Meeting GS-11 Standard

Product Name	Item Number	Limits		VOC Content (g/L)[2]
		Green Seal (GS-11)	SCAQMD[1]	
Sto DecorTex®	204	50	100	25
Sto Decocoat®	119	50	100	21
Sto Granitex®	171	50	100	21
StoCreativ® Granite	173	50	100	19
StoCoat Color Sand	230	50	100	46
Sto Primer Smooth	804	50	100	50
Sto Primer Creativ	806	50	100	34

1. SCAQMD: South Coast Air Quality Management District
2. VOC Content calculation method is less water and exempt solids.

Innovation In Design (ID) Credit 1.1–1.4
Innovation in Design

Intent
To provide design teams and projects the opportunity to be awarded points for exceptional
performance above the requirements set by the LEED-NC Green Building Rating System and/or innovative performance in Green Building categories not specifically addressed by the LEED-NC Green Building Rating System.

Requirements
Credit 1.1 (1 point) In writing, identify the intent of the proposed innovation credit, the proposed requirement for compliance, the proposed submittals to demonstrate compliance, and the design approach (strategies) that might be used to meet the requirements.

Credit 1.2 (1 point) Same as Credit 1.1
Credit 1.3 (1 point) Same as Credit 1.1
Credit 1.4 (1 point) Same as Credit 1.1

Potential Technologies & Strategies
Substantially exceed a LEED-NC performance credit such as energy performance or water efficiency. Apply strategies or measures that demonstrate a comprehensive approach and quantifiable environment and/or health benefits.

Potential Sto EIFS, Stucco and Coatings LEED Contributions

Use of a structural air barrier such as StoGuard can significantly reduce energy costs of buildings (up to 40%).

Use of lightweight claddings such as StoTherm EIFS or thin coat StoPowerwall Stucco in place of brick can reduce structural requirements of the building, significantly reducing the amount of structural components such as steel required in the project design.

Use of StoCoat™ Lotusan® coating with its self-cleaning properties and extended service life reduces amount of cleansers and water used to keep buildings clean.

References:

www.usgbc.org - US Green Building Council
www.gbi.org **- The Green Building Initiative – Green Globes**
http://www.sbicouncil.org - Sustainable Buildings Industry Council
http://www.epa.gov/greeningepa/content/sustainable_mou_508.pdf - search="EPA high Performance Buildings"
www.buildinggreen.com - Industry Directory on green building products

http://www.energystar.gov/ia/business/BUM_supplemental_loads.pdf#search=%22energy%20star%20supplemental%20Load%20reduction%22 - **Energy Star Supplemental Load Reduction**

www.ashrae.org - **ASHRAE, the American Society of Heating, Refrigerating and Air-Conditioning Engineers – see 90.1**

www.masterformat.com - CSI MasterFormat classification system for organizing specifications by “work results”.

NOTE: *This evaluation is offered in good faith based on an independent LEED AP reviewer’s knowledge of the LEED rating system and intended design strategy. This product potentially contributes to earning points and credits for the credits listed in the evaluation.. Verification of qualifying points and credits is achieved according to the LEED documentation reporting, calculation requirements and methods. LEED® is a registered trademark of the US Green Building Council.*

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