

LEED® 2009 SCHOOLS New Construction & Major Renovations

The purpose of this document is to help professional designers achieve the highest possible energy efficiency in their buildings. Our products meet the testing guidelines of the National Fenestration Rating Council and the EPA'S Energy Star program. The following will show you how to maximize your credits through the use of our products to help obtain upto 30 points under the United States Green Building Council's Leadership in Energy and Environmental Design (LEED) for New Construction Program, Existing Building Program. LEED is a standard that was consensus based to manage the development of environmentally responsible buildings. For New Construction, points are awarded in Sustainable Sites, Water Efficiency, Energy & Atmosphere, Materials and Resources, Indoor Environmental Quality and Innovation in Design. A LEED NC certified project must obtain a minimum rating of 40 to become certified : certified 40-49, Silver 50-59, Gold 60-79, Platinum 80+ out of 110). Additional information is available through the USGBC @ www.usgbc.org.

All product specifications, Thermal and Performance testing for specific product applications should be obtained from the nanawall.com website or by contacting NanaWall® Technical Support info@nanawall.com

SS CR 8 LIGHT POLLUTION REDUCTION, 1 POINT

CREDIT & INTENT

- Minimize light trespass from the building at night, power to be reduced by 50% or glazing to be shielded.
- Improve visibility through glare reduction.

NANAWALL® SOLUTIONS

- Light transmission parameters are controlled by glazing and color selection. Interior shading options are available.
- It may be possible to obtain SS Cr 8 by incorporating select NanaWall® products into the building's envelope.

EA CR 1 OPTIMIZE ENERGY PERFORMANCE, 1-19 POINTS (PRESCRIPTIVE 1+ 1-3PT)

CREDIT & INTENT

- Design project to comply with ASHRAE St 90.1-2007 Option 1: Whole Building Simulation to reduce process & non-process loads by 12(1 point)-48% (19 point) over ASHRAE 90.1-2007. Projects in California may use Title 24, 2005, Part 6.
- Option 2: Prescriptive Path: Small buildings may demonstrate compliance with ASHRAE for K-12 Schools (1 point). Prescriptive compliance path using "Advanced Buildings Core Performance" Guide may claim 1 point, plus 2 additional points for implementing Enhanced Performance strategies listed in Section 3.

NANAWALL® SOLUTIONS

- NanaWall® products allow natural sunlight to illuminate interiors, saving energy with passive solar heat, natural daylighting, and when open, natural ventilation, reducing the demand on HVAC systems and artificial lighting. High performance windows are able to significantly reduce the energy loss through the building envelope. Not only does a high thermal resistance reduce heating loss, but a low shading coefficient reduces solar gain, thereby cooling loads. A high visible transmittance can help reduce lighting loads by contributing more useful daylight
- NanaWall® products meet Energy Star performance requirements , depending on product selected.
- Potential strategies include designing the building envelope, HVAC, lighting, and other systems to maximize energy performance. High performance windows are able to improve the insulative value (which can reduce energy loss) of the building envelope. Low solar heat gain glazings, such as those found in NanaWall®, reduce direct and indirect solar gain from the sun, thereby reducing air conditioning loads.

General Introduction

MR CR 2.1,2 CONSTRUCTION WASTE MANAGEMENT, 1 OR 2 POINTS

CREDIT & INTENT

- Divert construction waste/ recycle from land fill, 50% (1point), 75% (2 points)

NANAWALL SOLUTIONS

- NanaWall® cardboard shipping crates are made of 60% recycled material and are 100% recyclable.

MR CR 5.1, 2: REGIONAL MATERIALS, 1 POINT FOR 10% VALUE, 2 POINTS FOR 20% VALUE

CREDIT & INTENT:

- Provide materials that are manufactured and extracted within a 500 mile radius or the project.

NANAWALL® SOLUTIONS

- NanaWall® manufactures, SL45, SL60, SL70, SL72 and SL73 products in Richmond, CA.

MR CR 7: CERTIFIED WOOD, 1 POINT

Prerequisite + \$.5 credit : \$1 spent.

Prerequisite + 30% of credits 1:1

Prerequisite + 60% of credits 2:1

CREDIT & INTENT

- Provide 50% of the wood (based on cost) used on the project are certified in accordance with the USGBC Forest Certification Benchmark. Categories include: Governance, Forest Standard Substance, Chain of Custody & Labeling, and Accreditation & Certification

NANAWALL® SOLUTIONS

- NanaWall® Douglas Fir wood is PEFC certified. Other woods, including Red Meranti, European Pine, Spruce and Oak, are available with options to be upgraded to FSC. Depending on the wood selected, potential contributions include: forestry specialty conservation value, reforestation, timber procurement, economic viability, training and research. NanaWall/Solarlux has FSC Chain of Custody Certification (certificate SGS-COC-008117) and PEFC Chain of Custody Certification (certificate SGS/COC-1188). What this means is that wood from the certified forest to the end user has been in a controlled "Chain of Custody" that has been independently verified for adherence to FSC/PEFC standards.

IEQ CR 2 INCREASED VENTILATION, 1 point

CREDIT & INTENT

- Provide additional outdoor ventilation via mechanical or natural ventilation systems.

NANAWALL® SOLUTIONS

- NanaWall® Operable Glass Walls provide natural ventilation in its open state, assisting in the required natural ventilation to 90% of the occupied spaces per ASHRAE 62.1-2007.

IEQ CR 3.2: CONSTRUCTION IAQ MANAGEMENT, 1 point

CREDIT & INTENT

- Reduce Indoor Air Quality (IAQ) during construction and prior to occupancy by flushing the building with fresh air.

NANAWALL® SOLUTIONS

- NanaWall® Operable Glass Walls have the ability to provide a total building flush rapidly before occupancy, during occupancy or via air quality testing, saving time and energy while improving the air quality. PATH1: Prior to construction, total air volume at a minimum air temperature of 60 degrees.

IEQ 6.1, 6.2: LIGHTING SYSTEM & THERMAL COMFORT CONTROLLABILITY, 1 point each

CREDIT & INTENT

- Provide individual lighting controls for 90% (minimum) of the building occupants in workspaces to enable adjustments to suit individual task needs and preferences. Provide lighting levels of 35 to 50 lumens in classroom and core learning spaces.
- Provide individual comfort controls for 50% (minimum) of the building occupants in workspaces to enable adjustments to suit individual task needs and preferences. Operable windows can be used in lieu of comfort controls for occupants of areas that are 20 feet inside of and 10 feet to either side of the operable part of the window. The areas of operable window must meet the requirements of ASHRAE 62.1-2007 Natural Ventilation.

NANAWALL SOLUTIONS

- NanaWall® Operable Glass Walls can provide lighting levels required with support of artificial lighting. Additional occupant control can be achieved through Interior shading devices or roof overhangs.

IEQ CR 7.1: THERMAL DESIGN, 1 point

CREDIT & INTENT

- Provide comfortable thermal environment that supports productivity and well-being, per ASHRAE 55-2004.

NANAWALL® SOLUTIONS

- NanaWall® Operable glass systems aid the design of the building envelope, giving it the capability to deliver performance to the comfort criteria under expected environmental and use conditions follow ASHRAE Standard 55-2004 requirements for naturally ventilated spaces. For natatoriums, and gymnasiums, must comply with the "Typical Natatorium Design Conditions" defined in Chapter 4 (Places of Assembly) of the ASHRAE HVAC Applications Handbook, 2003 edition.

IEQ CR 8.1 DAYLIGHT AND VIEWS: DAYLIGHT 1 -3 point

CREDIT & INTENT

- Provide for the building occupants a connection between indoor spaces and the outdoors through the introduction of daylight and views in 75%/90 % of the regularly occupied spaces.
- Option 1: Simulation
- Option 1: Prescriptive: Provide side and top lighting to achieve 25 footcandles in at least 75% (1 point) and 90% (2 points)

NANAWALL® SOLUTIONS

- NanaWall® Operable Glass Walls provide a view for the entire wall, not just a small framed window (2% minimum glazing), creating more interior daylight. Strategies to consider include building orientation, increased building perimeter, and visible light transmittance (VLT) increase as part of the window to floor area ratio (WFR) and use of high performance glazing. NanaWall® systems under 70% of the ceiling height qualify for Top-Lighting Zone under the Prescriptive Method.

IEQ CR 8.2 DAYLIGHT AND VIEWS: VIEWS 1 point

CREDIT & INTENT

- Achieve direct line of sight to the outdoor environment via perimeter vision glazing between 30" and 90" above finish floor for building occupants in 90% of all regularly occupied spaces perimeter vision glazing.

NANAWALL® SOLUTIONS

- NanaWall® systems offer a full wall with exterior views when closed, and the flexibility to completely open for a direct/interactive connection with the exterior environment.

General Introduction

IEQ CR 9 ENHANCED ACOUSTICAL PERFORMANCE, 1 point

CREDIT & INTENT

- Design classrooms and other core learning spaces to meet the Reverberation Time (RT) and Impact Insulation Class (IIC) requirements of ANSI Standard S12.60-2002, Acoustical Performance Criteria, Design Requirements and Guidelines for Schools. Also design classrooms and other core learning spaces to meet the Sound Transmission Class (STC) requirements, excepting windows, which must meet an STC rating of at least 35.

NANAWALL® SOLUTIONS

- NanaWall® Operable Glass Wall SL70, with specialty laminated insulated glazing can achieve an STC rating of up to 45 and an OITC rating of 35. They are sealed/ weather-resistant to be approved for hurricanes, but in interior applications can provide flexible class room space and minimum sound transmission. WD65, WD66 & SL60 with specialty glazing have an STC of 36-38. Designers can achieve the maximum threshold under Option 1: Using the methodology described in Standard S12.60-2002, achieve a maximum unoccupied background noise level in classrooms and other primary learning spaces.

ID CR 1, INNOVATION (1 -4pt)

CREDIT & INTENT

- Exemplary energy performance, school as teaching tool, or integrations of sustainable features not included above.
- Path 1 Innovation in Design (1-4 pt) Measurable environmental performance
- Path2 Exemplary Performance (1-3pt) Exemplary Performance in existing category for the next higher incremental percentage.

NANAWALL® SOLUTIONS

- NanaWall® products not only exceed thermal performance at levels eligible for exemplary credit, but also provide innovative ways for operable glass walls that can provide increased ventilation, thermal comfort while decreasing the need for grid based power.
- NanaWall® Operable Glass Walls placed strategically can achieve daylighting in 95% of occupied spaces and may qualify for Exemplary Performance.
- NanaWall® products allow the designer to create a smaller carbon foot print by using smaller square footage. The Operable glass wall allows the design of combination indoor-outdoor spaces, divisions of classroom into multiple spaces, enhanced acoustical performance, ventilation, thermal comfort and daylighting all in one product.