

Net-Zero Tower Design— Charles Cacciabaudo M.Arch—cfcacciab@gmail.com

InSync Designer News



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“Form” versus “Function” and “The Great Cover Up”

The cost of energy is changing the way that architects and owners look at building design. No owner wants a great looking space that is all but impossible to heat and cool. We see this all too often when “Form” dictates “Function”.

People love places with lots of light and a great view. Almost no one likes the sun’s glare and oppressive heat—especially when forced to sit or work in spaces enclosed by glass.

We also forget that the sun can be equally uncomfortable on bright and sunny winter days. Yes, the space can be warmed by the winter sun, sometimes too much so, but night time and cloudy days can be a chilling experience.

It’s one of the great contradictions in architecture that we spend lots of time and resources to open spaces up with glass only to be forced to close them back up again because of the sun. There has to be a way to strike a balance.

“The Great Cover Up” usually involves window treatments and the suspects

are always the same—“Form and “Function”. It’s a predictable game of give and take - but which comes first?

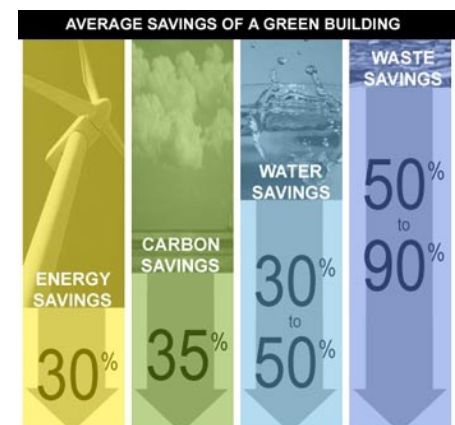
Louis Sullivan, the “father of modernism” and the great skyscrapers, understood “function” always comes before “form”. To have it any other way would induce unwanted stress into the system.

Window treatments should have “form” - and that is often where the equation stops. When energy was cheap and the building’s occupants were an after thought this may have been acceptable—but never correct.

“Function” allows us to view window coverings as system unto themselves where they are part of the building matrix not something simply added on.

Window coverings need to earn their keep in modern architecture. They should be both attractive and functional. The US Green Building Council has developed LEED criteria to achieve this objective. With proper planning, function and form can peacefully co-exist.

LEED Credit Strategies That Work



LEED Credit Guidelines for Window Coverings



Sustainable Sites

Credit 8, Light Pollution Reduction:

This credit has two parts, interior lighting control and exterior lighting control. Both parts must be satisfied to earn this credit. The interior lighting portion of this credit has two compliance options to choose from. Motorized window shades and draperies will satisfy this requirement.

“All exterior openings, such as windows, must have shielding that can be automatically controlled and programmed to close from 11:00 p.m. to 5:00 a.m. Shielding options include automatic shades that have less than 10% transmittance. An example is a timer-controlled automated rolling shade with the appropriate light transmittance.”



Sustainable Sites

Credit 9, Site Master Plan

This credit is only for LEED SCHOOLS. The credit requires that 4 out of 7 credits be achieved. One of the credits is SS Credit 8: Light Pollution Reduction.



Sustainable Sites

Credit 9, Tenant Design and Construction Guidelines:

This credit is only for LEED Core & Shell (CS). The intent of this credit is to educate tenants on sustainable design for their tenant improvement build-out. One of the LEED 2009 credits to be addressed is Day lighting and Views. Window shades are an excellent choice to control glare when pursuing a day lighting strategy.

“So that tenants can optimize day lighting, a LEED for Core & Shell commercial office building design should consider floor-to-ceiling heights, the bay size, the type of glazing, and the depth of occupied spaces. Daylight shelves and glare control devices should also be considered.”



LEED Credit Guidelines for Window Coverings



Energy & Atmosphere

Prerequisite 1- Fundamental Commissioning of Building Energy Systems:

To achieve LEED certification all prerequisites must be satisfied. This prerequisite requires a commissioning authority (CxA) to take a number of fundamental commissioning steps. Commissioning activities must be completed for lighting and day lighting controls. DWF Contract can provide information about our window shade controls.

“Commissioning process activities must be completed for the following energy-related systems, at a minimum (if they are installed as part of the core and shell project)... lighting and day lighting controls...”

Sustainable Sites Credit 8: Light Pollution Reduction is a related credit.



Energy & Atmosphere

Prerequisite 2- Minimum Energy Performance

To achieve LEED certification all prerequisites must be satisfied. This prerequisite requires a 10% improvement (55% for existing buildings) compared with the baseline building performance rating. Motorized shades, operating based on the sun's movement through automated controls will increase energy efficiency. Motorized shades should be included in the energy model.



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Energy & Atmosphere

Credit 1- Optimize Energy Performance

This credit is worth up to 19 points. The minimum energy cost savings percentage is 12% for new buildings and 8% for existing building renovations. Additional points (up to 19) can be awarded for greater percentage savings. Motorized shades, operating based on the sun's movement through automated controls will increase energy efficiency. Motorized window shades should be included in the energy model.

“Manually controlled interior shading devices such as blinds and curtains should not be modeled. Automatically controlled interior shading devices can be modeled...”



Energy & Atmosphere

Credit 1- Optimize Energy Performance

Credit 3- Enhanced Commissioning

There are 12 steps involved in the enhanced commissioning process. By providing information and documentation, DWF Contract can assist with Steps 9 and 10. Step 9 specifies that a systems manual be developed for all commissioned systems. Day lighting controls were a requirement Prerequisite 1, Fundamental Commissioning. Step 10 requires training on commissioned systems for operating personnel and building occupants. Related credits include: Sustainable Sites Credit 8: Light Pollution Reduction; and Energy and Atmosphere Credit 1: Optimize Energy Performance. “Manually controlled interior shading devices such as blinds and curtains should not be modeled. Automatically controlled interior shading devices can be modeled...”

LEED Credit Guidelines for Window Coverings



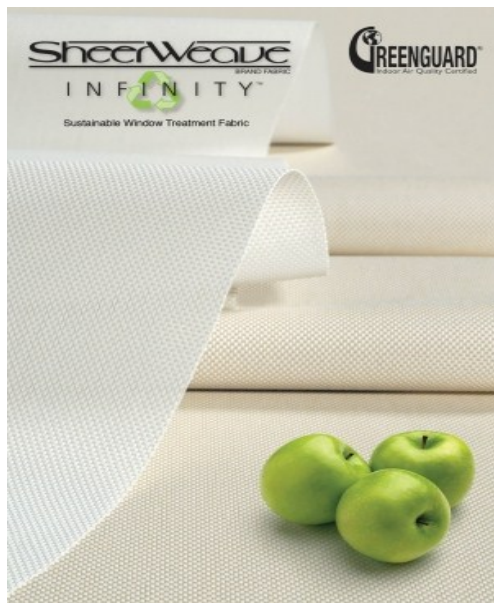
Materials & Resources

Prerequisite 1- Fundamental Commissioning of Building Energy Systems:

Credit 3- Materials Reuse

This credit considers the reuse of materials on the project. This credit only considers products in CSI divisions 3-10. InSync projection screens are in Division 11. InSync window shades are in Division 12, which can possibly be counted in this credit. It is possible that DWF Contract window shades salvaged for reuse could contribute towards this credit.

"Exclude furniture and furnishing (CSI Division 12 components) unless they are included consistently across MR credits 3-7."



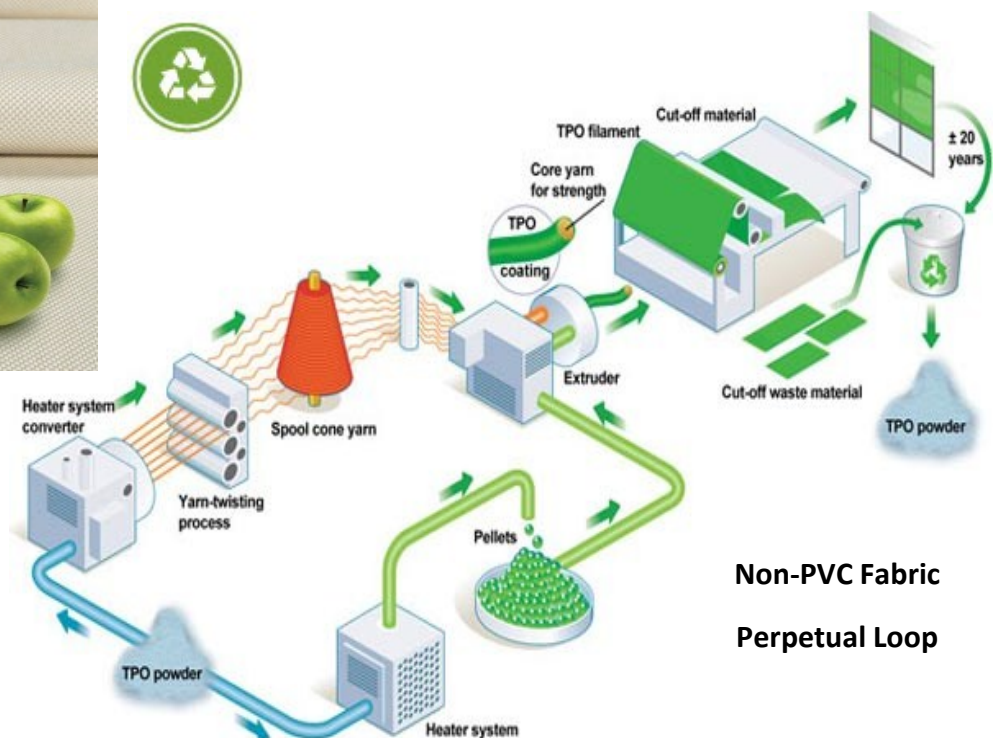
Materials & Resources

Prerequisite 2- Minimum Energy Performance

This credit considers the recycled content of materials on the project. This credit only considers products in CSI divisions 3-10. InSync projection screens are in division 11. InSync window shades are in Division 12 which can possibly be counted in this credit. DWF Contract uses components with recycled content. It is possible that InSync window shades could contribute to this credit. Please contact DWF Contract for recycled content information.

Materials & Resources

This credit considers products which have been extracted, harvested and manufactured within 500 miles of the project. This credit only considers products in CSI divisions 3-10. InSync projection screens are in division 11. InSync window shades are in Division 12 which can possibly be counted in this credit.



**Non-PVC Fabric
Perpetual Loop**

LEED Credit Guidelines for Window Coverings



Indoor Environmental Quality

Prerequisite 1- Fundamental Commissioning of Building Energy Systems:

Credit 8.1- Daylight and Views-Daylight

The intent of this credit is to provide building occupants with a connection between indoor spaces and the outdoors through the introduction of daylight and views.

"Glare control is perhaps the most common failure in day lighting strategies. Large windows provide generous amounts of daylight. If not controlled, properly, this daylight can produce unwanted glare and affect interior lighting quality. Measures to control glare include light shelves, louvers, blinds, fins, and shades...Glare control is required for each window."



Innovation in Design

Credit 1- Optimize Energy Performance

Credit 1- Innovation in Design

This credit is worth up to 5 points (4 for LEED SCHOOLS). One point is awarded for each innovation achieved. DWF Contract products could contribute to a number of innovative strategies. One past accepted strategy was the use of GREENGUARD Certified products. The use of numerous GREENGUARD products would be a possible innovative strategy if it met the intent of the strategy being used on the project.

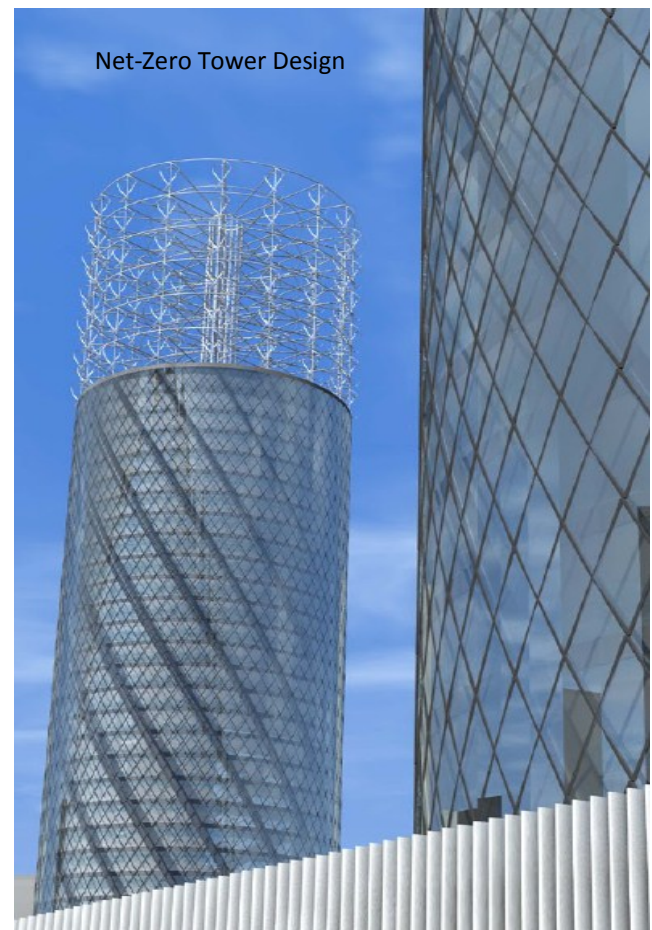
"Installing a single green product or addressing a single aspect of a sustainability issue is not a sufficient level of effort."



Regional Priority

Credit 1- Regional Priority Credits

This credit addresses regional issues by emphasizing 6 credits based upon zip code. You can earn up to four points by achieving 4 out of the 6 regional credits. If DWF Contract products help you achieve regional credits, then they may also help contribute towards Regional priority credits. For example, if SS credit 8 is a regional credit for your project, and you achieved SS credit 8 with the help of InSync motorized shades, then you would earn the SS credit 8 **and** a regional priority credit.



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Controlling the Sun