

2012

Green Globes NC
Stage II Assessment
Prairie Medical Building
Grayslake, Illinois



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Keclik Associates Ltd.

05/03/2012



*New Construction
Stage II Assessment*



June 15, 2012

Werner Briske, AIA, ALA
2610 Lake Cook Rd. Suite 280
Riverwoods, Illinois 60015

Subject: Green Globes Stage II Assessment for New Construction
Prairie Medical Building
180 South Highway 45
Grayslake, Illinois, 60030

Dear Werner,

Thank you for the opportunity to complete a Green Globes Stage II assessment of the new Prairie Med Building in Grayslake, Illinois.

This is the second and final stage of the Green Globes assessment. Completion of this stage included onsite verification of the items identified in the Stage I Assessment, and discussions and documentation reviewed during and after the final visit to the project.

Stage II is accomplished through an onsite review of the completed building; interviews with members of the construction team that were responsible for the management of the project; and review of any commissioning documentation or product submittals and documentation necessary to verify the targeted achievement that was defined in Stage I.

I visited the site on May 3, 2012. You, Ms. Andrea Cecilia and Mr., Marc Siegel of SJS Realty Services, LLC were the key contacts for this project. Other attendees at the interview process included:

- Patricia Lloyd, Leopardo Construction, LEED Project Coordinator
- Frank Hanson, Leopardo Construction, Project Site Superintendent.

A tour through the interior and exterior of the facility followed the interview process. This onsite assessment included a review of all interior and exterior spaces and equipment on site used for building operations. We also observed mechanical spaces, roof surface and environs, and all site features. Those features of the building that were verified in this Stage II assessment as well as other conditions observed while at the facility are the subject matter of this report. We are not reviewing the design as defined in the original online data unless it was in question.

Survey

The purpose of the site visit was to review and verify that the final construction and interior build out conform with the online survey information submitted to the Green Building Initiative™ prior to the Stage II on-site review. The independent rating is based upon submitted design construction documents, including drawing and specifications as well as the onsite visit. The onsite visit is a mandatory step in obtaining a Green Globes certification.

- Green Globes Survey Documentation, submitted in April 2012.
- On site observations of the property, submitted on May 3, 2012.
- Interviews with the building personnel, submitted on May 3, 2012.

Following the on site assessment, the information collected and verified during the site visit was reviewed and analyzed further in comparison to the building data originally submitted. The preliminary rating of 71% reflected the building score prior to final adjustments by the assessor. That rating was based upon some online survey information that was incomplete or required further verification. The final point score for the Prairie Medical Building was 697 points out of a possible 926 points after the score was adjusted by the assessor as a result of the onsite assessment. That point award level raises the final overall rating of the Prairie Medical Building increased to 75% which translates into a Three Green Globe rating. This is a significant achievement and reflects a very high level of effort to design and construct this facility with sustainability as major focus.

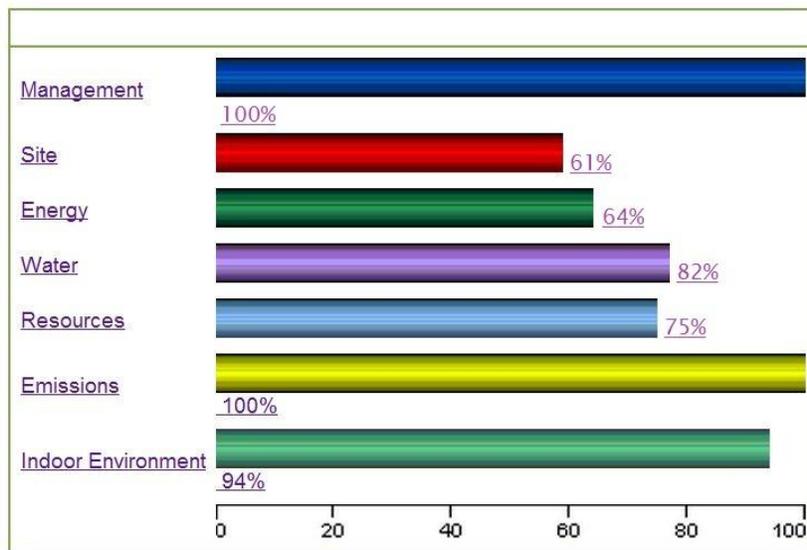
The breakdown of scoring for each of the six sections used to assess the building is shown in the chart at right. Green Globes online tools create this summary as part of a recommendation report that is generated upon completion of the questionnaire.

The remainder of this report will further explain the methodology used to derive the final score, review each of the individual sections, comment on key accomplishments, and provide recommendations for improvement if appropriate. The recommendations are offered as suggestions for continual improvement with the intent that sustainability is a lifelong process for any building and continues after the initial construction.

Green Globes Recommended Rating



Three Green Globes



Prairie Med Building Overall Rating: 75%.

Scoring Summary

Overall, I am very impressed with the ways that you have integrated green design features with good design practice. My recommendation to the Green Building Initiative, that they award a Three Green Globe rating, is based upon an onsite assessment of the project and the manner in which the building and building team members have demonstrated leadership in the planning, design and construction of an energy and environmentally efficient building.

Point Assessment Tables

The tables on the following pages provide a summary of the process used to assess points.

Green Globes New Construction Building Assessment					
Sections	Applicable	Scored	Rating Earned Percentage		
<i>Project Management</i>	50	50.0	100%		
<i>Site</i>	115	70.0	61%		
<i>Energy</i>	378	243.0	64%		
<i>Water</i>	71	58.0	82%		
<i>Resources</i>	80	60.0	75%		
<i>Emissions</i>	52	52.0	100%		
<i>Indoor Environment</i>	180	169.0	94%		
Section 1: Project Management Policies and Practice					
Criteria	Pre-Assess	Manual Adjust	Survey Change	Final Scores	Comments
Integrated Design Process	20	0	0	20	
Environmental Purchasing	10	0	0	10	
Commissioning Plan	15	0	0	15	
Emergency Response Plan	0	0	5	5	
Proj. Mgmt. Subtotal	45.0	0.0	5.0	50.0	50/50 - Rating Earned 100%
Section 2: Site					
Criteria	Pre-Assess	Manual Adjust	Survey Change	Final Scores	Comments
Development Area	5	0	5	10	<i>Changes reflecting no impact to wetland.</i>
Ecological Impact	16	2	7	25	<i>Changes reflecting light trespass minimization.</i>
Watershed Features	15	0	0	15	
Site Ecology	20	0	0	20	
Site Subtotal	56.0	2.0	12.0	70.0	70/115 - Rating Earned 61%
Section 3: Energy					
Criteria	Pre-Assess	Manual Adjust	Survey Change	Final Scores	Comments
Building Energy Performance	40	0	0	40	
Energy Demand Minimization	75	0	0	75	
Energy Efficient Systems	52	0	0	52	
Renewable Sources of Energy	0	0	0	0	
Energy Efficient Transportation	76	0	0	76	
Energy Subtotal	243.0	0.0	0.0	243.0	243/378 - Rating Earned 64%

Section 4: Water					
Criteria	Pre- Assess	Manual Adjust	Survey Change	Final Scores	Comments
Water performance	30	3	24	27	
Water Conserving Features	31	0	0	31	
Off-Site Treatment of Water	0	0	0	0	
Water Subtotal	61.0	3.0	24.0	58.0	58/71 - Rating Earned 82%
Section 5: Resources, Building Materials and Solid Waste					
Criteria	Pre- Assess	Manual Adjust	Survey Change	Final Scores	Comments
Low Environmental Impact Materials	10	0	0	15	<i>Reflects life cycle analysis for envelope assemblies</i>
Min. Consumption of Resources	16	0	0	16	
Reuse of Existing Buildings	0	0	0	0	
Durability, Adaptability and Disassembly	9	0	0	14	<i>Increase due to disassemblable systems</i>
Recycling of Construction Waste	5	0	0	5	
Recycling and Composting	10	0	0	10	
Resource Subtotal	50.0	0.0	0.0	60.0	60/80 - Rating Earned 75%
Section 6: Emissions, Effluents, and Pollution Controls					
Criteria	Pre- Assess	Manual Adjust	Survey Change	Final Scores	Comments
Min. of Air Emissions	0	0	0	0	
Min. of Ozone Depletion	25	0	0	25	
Min. of Sewers or Waterways	5	0	0	5	
Min. of Pollution	22	0	0	22	
Emissions Subtotal	52.0	0.0	0.0	52.0	52/52 - Rating Earned 100%
Section 7: Indoor Environment					
Criteria	Pre- Assess	Manual Adjust	Survey Change	Final Scores	Comments
Ventilation	42	0	0	47	<i>Increase due to limited personal control over space conditioning</i>
Source Control of Indoor Pollutants	35	0	0	35	
Lighting	42	0	0	42	
Thermal Comfort	20	0	0	20	
Acoustic Comfort	20	0	0	25	<i>Increase due to STC rating information for wall assemblies</i>
Indoor Envir. Subtotal	159.0	0.0	0.0	169.0	169/180- Rating Earned 94%

Environmental Assessment Areas

(Summary of relevant environmental features that have been field verified, by category)

Project Management

Integrated Design Process (20 points)

Design Development Sustainable Reporting (10 points)

Review and discussion of project documentation reflects that sustainability of systems was discussed at the inception and throughout the construction of the facility. Attention to a high level of design and construction sustainability was the focus of the construction of this facility. The owner, Mr. Marc Siegel, entered into discussions with The Green Building Initiative and other highly sustainable project owner's years before and continuing during the design of this facility. Attention to sustainable and efficient building practices is a core focus of the owner - SJS Realty Services. The onsite tour substantiated the level of attention to environmental sensitivity at the interior and exterior environment of the facility. Werner Briske and Andrea Cecilia of Partners In Design Architects, Marc Siegel and of SJS Realty Services and Patricia Lloyd of Leopardo Construction acted as the Green Facilitator(s) on this project.

Green Globes rating requirements were not defined. Notes addressing the pursuit of a LEED silver rating for this facility were addressed in the Outline Specifications for Bidding, section 03.09.11., and the Architectural Scope Summary within the Project Specification Manual. Future projects would benefit from a specification section devoted to sustainable project performance requirements in a generic but comprehensive specification section. The Master Spec format system does have a section dedicated to Sustainable Design Reporting - Section 01 33 29. Alternatively, add an additional section specific to Green Globes rating of the facility so bidders may understand their documentation requirements for both, if a dual rating is pursued. It is noted however that no points were deducted or lost from the absence of specific Green Globe specifications documentation. In fact the definition of sustainable guidance in drawings and specifications, and documentation of waste and source information for materials at Prairie Medical center was extremely high for this project. Pursuit of a sustainable building rating did address a performance based approach to sustainable design and construction

Commissioning Plan (15 points)

The tenant for the facility was involved in cooperation with the building design architect to extend the consistency of the dedication to sustainable practices. The facility has a significantly high level of sustainable design and construction features. Commissioning of building systems and equipment operation was in progress at the time of my visit. Full system tests were implemented. Future projects would benefit from the adoption of the practices defined in the total commissioning standard – ASHRAE Guideline 0-2005. That level of total commissioning documents all of the owner's project requirements, not just those in MEP and specialty systems.

Emergency Response Plan (5 points)

The Emergency Response Program was defined by Leopardo Construction and defines the practices and procedures, and the contact chain of command for the responses and containment of environmental and other emergencies. The 41 page document, provided for our review, addresses a safety and emergency response plan tailored specifically to the Prairie Medical Center Site. The response plan defined a required operating procedure and written plan that Leopardo maintains in place, prior to project start-up and for the duration of the project to completion. It mitigates and provides response

procedures for accidents, spills weather, man-made and environmental emergencies involving, but not limited to construction accidents, fire, water, hazardous materials, explosive occurrences or contamination during site preparation or construction.

The Project Management score increased from 45 to 50 out of 50 possible points for a 100% rating. This was due to increase of 5 points for provision of the emergency response plan for environmental goals and procedures for our review.

Site Considerations

Development Area (30 points)

Existing Serviced Site (20 points)

It is noted that documentation of the existing site conditions prior to construction or preparation of the site, was reviewed through photographs. The pre-building conditions show the extent of original vegetation, site material changes and topography changes. As discussed in Stage I, the site had natural scrub vegetation in most areas with non-active wetland areas below the threshold of preservation, at the west end of the site.

The U.S. Army Corps of Engineers (Corps) (Federal Register 1982) and the Environmental Protection Agency (Federal Register 1980) jointly define wetlands as:

“Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.”

Floodplain, Wetland, Wildlife (5 points)

Minimizing Site Topography Disturbance (5 points)

The Prairie Medical Center salvaged minimal vegetation from the existing pre-construction site. The existing soil was left open as much as possible, but reconfigured to accommodate rain swales and retention areas. Lawn areas were covered with no mow seed mix and plantings were native and drought resistant. Documentation of the flood plain/wetland identification was provided through the ALTA/ASCM Land Title Survey which shows the two wetlands at the north and south east corners of the site limits. Total area of existing wetlands was 0.30 acres. The two small wetland areas were evaluated for the wildlife, vegetation and ground water conditions affecting adjacent properties and area drainage. Although the wetlands were not destroyed or altered, they were found to be insufficiently critical to the surrounding ecosystem to prevent modification of the site topography at the remaining areas of the property. The No answer for use of a site that affects wetlands, wildlife or a floodplain, was changed to a Yes answer for an additional 5 points.

Minimization of Ecological Impact (30 points)

Impervious Surfaces (7 points)

The new building utilizes the constraints of the existing site with minimal disturbance to neighboring property as well as synergy with the surrounding environment. The post construction ratio of pervious to impervious area of the site (57%) is much lower than the ratio of the undeveloped Greenfield site prior to construction (100%). The natural vegetative area surrounding the project site has a tempering effect on the localized microclimate but less than 35% of the actual site is shaded by trees. Modifications to the existing topography are minimal and occur primarily at the footprint of the

building. However, the quality and quantity of site enhancement features (ex: natural cooling and site water preservation) from the newly planted vegetation is a significant improvement to the site. Based upon the increased vegetation and low albedo materials used for many of the impervious elements such as walks, we are awarding 2 out of the 7 possible points available for this impervious surface criteria. There were no (0) previously awarded points.

Reduce Heat Build-up on Roof (7 points)

The installed PVC roof coverings have a surface color of bright white. The high albedo roof has an initial Solar Reflectance Index (SRI) of approximately 0.94 – higher than the 0.65 required as an acceptable minimum. Emissivity for the installed roof was approximately 0.87 which is also highly acceptable to emit heat back into the surrounding atmosphere, decreasing cooling loads and increasing the efficiency of energy usage for HVAC equipment.

Obtrusive Aspects of Exterior Lighting & Reduced Collisions of birds (7 points)

Exterior lighting is concentrated on pole mounted fixtures at the curb of the access drive and parking areas. These fixtures were specified by the Village of Grayslake using a proprietary lighting manufacturer – Sternberg. The lights were not in place at the time of the assessment site visit. Support foundations, bolts and electrical service were in place. Minimal use of bollard lighting at the paths leading to the parking areas also comprised the exterior site lighting. Operation of exterior lighting at the entry paths will be controlled with timed operation.

In the original provided drawing *E-1 Electrical Site Plan*, a photometric plan of the site was prepared based upon the specified 250W Pulse Start Metal Halide (PSMH) pole mounted luminaires. Exterior lighting luminance was shown for all points within the site boundaries. It is our understanding that these fixtures initially specified were not the final luminaires purchased for installation. Consequently the original prepared site photometric is different from the final installed illuminance readings.

Sternberg outdoor fixtures that were installed do not allow the light to spill above a 100° cone of illumination (10° above horizontal). New manufacturer fixture information was submitted for review. A new drawing *E-1 Electrical Site Plan* with a photometric plan of the site was also submitted for our review. The illuminance measurements comply with the zero direct beam illumination leaving the site. The original onsite survey stated that obtrusive aspects of exterior lighting would not be minimized and resulted in 0 out of 7 available points awarded. Final installed lighting does meet the intent of guidance defined by IESNA, for recommended practices for Lighting of Exterior Environments RP-33-39. The points awarded for this item increased to 7 points.

Enhancement of Watershed Features (15 points)

Storm Water Run-off Control On-site & Roof Conditions (15 points)

The new building made use of the general existing drainage flow of the property with flow of stormwater toward the East. The gentler slope of land represented by the new grading was served by creation of a new retention pond area near the US Route 45 Highway, and a Rain Garden areas to the south of the building. A rain Garden is provided at the south edge of the side immediately adjacent to the new building which will detain stormwater runoff for slower discharge into the larger detention pond. The retention area used micro pools to increase water discharge times. That results in greater absorption into the retention area soils and adds a level of cleaning by permitting sediments to drop out into the soil prior to final discharge into the regional drainage flow. Filtration and quality of the storm water from this building will be deteriorated beyond the contribution of the Prairie Medical Center due to contributory storm water flow from the hospital

immediately north/northwest of this site. Surface water flows downhill from the hospital through the discharge paths of the Prairie Medical Center.

The Site point score increased from 56 to 70 out of 115 applicable points for a 61% rating. This was due to the addition of 2 points awarded for the improvement of the site vegetation and minimized use of impervious surfaces, and a 7 point verification of minimization of light trespass.

Energy

Building Energy Performance (100 points)

Energy Performance Targets (100 points)

The Stage I assessment noted the identified target for energy use. Final computations for carbon dioxide savings were prepared upon completion of the building and submitted for our review. The original saving projection of a 504,000 kg. reduction in CO₂ over the baseline was verified as 503 metric tons of CO₂, through the prepared documentation response by Cartland Kraus Engineering, Ltd. (Cartland Kraus), dated June 29, 2012. An Energy Star evaluation of building performance was also provided by Kraus Cortland. The EPA Performance Rating was calculated at 89, or 39 higher than the baseline of 50 defined for this building. Final projected savings of the completed building were identified at 24%. The scoring in the Building Energy Performance section of the online documentation was 40 out of 100 points.

Energy Demand Minimization (112 points)

Space Optimization (8 points)

The space utilization and floor planning of the building minimize the footprint and maximize the internal usable space. Double loaded corridors and a central stair access minimize circulation space. Movement of staff and customers has been evaluated and designed with the cooperation of the primary tenant, to route interior travel routes to avoid overlap of travel paths and excessive circulation space.

Phasing Plan (0 points)

A Phasing Plan was not proposed for this project because it is a freestanding facility that uses the site to a maximum capability with little to no room for expansion. The score was unchanged for this item even though the answer was moved from a NO to a Not Applicable status.

Response to Microclimate and Topography (24 points)

The building has been sited to maximize microclimatic conditions. By positioning the long axis of the building to utilize southern exposure and northern light, and minimize east and west high gain exposures, natural daylight was also maximized into the space. Low-E glazing and shades are provided at all exterior fenestration with the exception of the entrance doors which enclose a lobby vestibule

Integration of Day Lighting (35 points)

Daylighting is maximized within the design of the Prairie Medical Building with a majority of interior spaces including living quarters, receiving natural daylighting for tasks by staff and patients. Significant amounts of interior glazing is used to provide borrowed light to as much of the interior as possible. The identified VLT for this project was 51%. Submitted manufacturer documentation for the Guardian SunGuard glazing, documents the Visible Light Transmittance at 35%. That correction was noted in the online survey data but did not have any effect on the score for that rating feature.

Highly efficient T5 fluorescent lamps were used throughout the building. It is suggested that the corridor lighting be switched to activate only ½ of the lamps during daylight hours when the sun is shining. This would require either manual procedures or light sensing capability, but it is suggested to decrease lighting load on the energy resources. During the sunny day when we visited, the lighting level was extremely high when the sun was up. Corridor lighting even at patient areas can be switched down to minimal illumination levels during overnight hours.

Occupancy Sensors (but not daylight sensors) are used throughout the building.

Building Envelope (35 points)

The building has a thin masonry veneer over precast panels as well as exposed finish panels. The interior framing is steel decking on steel structural framing. The exterior envelope was evaluated for efficiency and changes to the original exterior wall assembly were modified to include spray foam insulation at the perimeter and above glazing units. The tight foam encapsulation creates a very tight air seal on the exterior envelope. Insulating value increases as a result of the diminished air movement through the exterior envelope. Located in a Midwestern humid continental climate, this facility will experience four distinct seasons and require a wide range of space conditioning.

Since the U-factors are different for the glass, edge-of-glass zone, and frame, it can be misleading to compare U-factors if they are not carefully described. In order to address this problem, the concept of a total window U-factor is utilized by the National Fenestration Rating Council (NFRC). The U-Value for the installed windows is 0.28 and was verified by Guardian SunGuard manufacturer documentation. Grayslake is in Climate Zone 5A according to the 2009 International Energy Conservation Code (IECC). A fenestration U-value of 0.35 is required by that code. There is no Solar Heat Gain Coefficient (SHGC) defined in the IECC for Zone 5A although the glazing for this building has an SHGC of 0.30. The window performance is better than required by the energy codes for this location.

Energy Metering (10 points)

There are no individual meters for the spaces renovated and constructed for this project. The building has a moderate and consistent use of energy that is well distributed. There are no significant uses of energy on a basis that would make sub metering helpful for evaluation. The original online survey answer was *No* for this item. It has been changed after the assessment to a Not Applicable (NA). The score was unchanged for this item even though the answer was moved from a *No* to a Not Applicable status.

Energy-Efficient Systems (66 points)

Energy-Efficient Systems

An energy recovery ventilator was specified as an energy efficient system unique to this facility. The online survey states: "...the HVAC system has been designed with a sequence of control to improve energy efficiency by utilizing gas heat to heat the 2nd floor (24/7 operation), available in the RTU, versus the electric heat mounted in each fan-powered VAV box. During the heating season the RTU that operates during the evening hours from 9:00 PM to 7:00AM will operate as a VVT unit providing warm air to the primary air duct system and the VAV boxes will modulate air-flow to maintain the room temperature set-points. The electric heat in the fan-powered boxes will act as the second stage heat each space and only operate during period of extreme cold." A Variable Volume and Temperature (VVT) system provides a single heating/cooling constant volume packaged rooftop unit for central heating and cooling capacity to the VVT boxes. Each box modulates its volume control damper in response to the zone thermostat or sensor.

Energy-Efficient Transportation (80 points)

Public Transportation (60 points)

The Prairie Med Building is served by several forms of public and private transportation. Pace Bus Line (#572) travels near the facility on US Route 45 and interfaces with the Waukegan, Mundelein and Libertyville Metra train stations.

Preferred parking for four (4) fuel efficient vehicles is provided near the ADA accessible spaces. Four (4) additional parking spaces are provided in the same area for van and carpool commuters. Covered waiting is provided in the lobby vestibule at the front drop-off lane at the main entrance to the building.

Cycling Facilities (20 points)

Facilities are provided for changing for bicycle riders (staff) and a bicycle rack was installed at the rear of the facility adjacent to the parking area.

The Energy point score remained at 261 out of 378 applicable points to place the rating for the Energy section at 64%.

Water

Water Performance (30 points)

Water Consumption Estimations

Estimated water consumption targets were set to Less than 10 gallons/ft²/year for the Prairie Medical Facility in the online survey. The target accomplishment of the final installation was based upon the identification by the MEP engineers of water usage of 602, 410 gallons per year and the onsite interview identified the final savings at 21% under the baseline for a similar building of this type. The final target projections were based upon the substitution of certain faucets with a higher performance level faucets than originally specified. The target rate was consequently less than 20 gallons per year which would have lowered the score for the water use to 20 out of 30 available points. The basis of a medical office building does not address the fact that this building does drug testing. As such it uses dormitory facilities to house test patients which introduces the factor of daily showers into the base building water use. That change in documentation reflects a decrease of water performance credit points from 30 to 24 points. We would manually split the difference to account for significant dormitory use of space within the building. The final point total for this water performance then was decreased by a total of 3 points for the documented 15.45 Gallons/Square Foot/Year for 27 final points.

Water-Conserving Features (35 points)

Sub-metered High Water-Usage Operations (4 points)

The water usage at the Prairie Medical Building has a single meter. Major water consuming operations at most buildings are generally a function of water use from boilers, cooling tower make-up lines, water-cooled air conditioning units, special laboratory operations or high water consuming operations such as kitchens and laundries. Although there are laboratory operations in this facility, there are not significantly high water use areas that would benefit from the separate metering. The No answer for water sub-metering was changed to Not Applicable.

Water Efficient Equipment (16 points)

P.0.1 Plumbing Schedule, Specifications, Details, Abbreviations and Index was not provided for the Stage I Assessment. Onsite observation of the installed plumbing fixtures validated that the installed water closets were 0.5 Gallon Per Flush (GPF) fixtures. Green Globes requires a minimum of 1.6 GPF or less so the designed water closets significantly exceed the minimum for more efficient operation.

The specified urinals used 0.125 GPF with water saving electronic flush valves for automatic operation. That level of water use is basically as low as possible in all fixtures except a waterless urinal with present technology.

Specified lavatory faucets and spray heads at showers appear to have a performance requirement of 0.5 gpm with a battery operated self closing faucets. Shower heads utilize 1.75 gpm flow controls with maximum temperature limits. These are all well below the minimum 2.4 gpm fixtures required. Water fixture selection is exemplary in this facility with respect to maximum resource conservation.

Minimal Use of Water for Irrigation (15 points)

An irrigation system for exterior vegetation has not been designed or specified for this facility. Natural precipitation will provide acceptable levels of irrigation once plantings are established. Hand sprinklering will be used for establishment of plantings only. Plantings are native, drought resistant and low maintenance wherever possible. The lack of an irrigation system reflects a zero water use level for exterior plantings.

Precipitation water and storm water runoff are absorbed onsite for a majority of the site footprint, using a combination of rain garden, Bioswales and a micro pool retention pond. Ground percolation diminishes the quantity of discharge into the site and adjacent stormwater flow.

The Water point score increased from 61 out of 75 applicable Points for an 81% rating, to 61 out of 71 points for an 86% rating due to a 4 point decrease in applicable points for metering high water usage operations. There are no high water usage operations. However, 3 points were then decreased for the documented water performance which was greater than the 10 gallons/ft²/year which was originally identified. The final water point score was 58 out of 71 points for an 82% rating

Resources, Building Materials, and Solid Waste

Systems and Materials with Low Environmental Impact (35 points)

Life Cycle Assessment

Decision making by the architect, contractor and tenant design architect considered the lifecycle, environmental burden and embodied energy of the various components of this building. Several different roof assemblies were evaluated for the life cycle fit of this building. The exterior envelope was reviewed initially and refined during the construction process to minimize the long term air and moisture infiltration potential. The original online survey did not recognize the envelope assembly assessment and long term maintenance issues inherent in the selected solution. An increase of 5 points is reflected for recognition of this additional assessment.

Materials that Minimize Consumption of Resources (16 points)

Used Building Material Integration (4 points)

Interior furnishings, casework, and counters were reused from other existing buildings owned by the tenant. Refurbished casework and furniture look new and reflect a significant savings in embodied energy and materials. The percentage of interior casework that was used on this project was 100%.

Recycled Building Material Integration (4 points)

There were many areas identified in the specifications and executed in the construction that utilize materials with recycled content. This project targeted a 20% recycled material usage. Final results from records and documentation gathered by the general contractor from suppliers and sub-contractors support were above that number and totaled 23.26% for both pre-consumer and post-consumer recycled content materials used in the project. The following materials were integrated into the Prairie Medical facility, utilize recycled content:

Concrete –cast in place, architectural, and precast.

Asphalt - paving surfaces

Metals – Structural steel for interior columns and floor plates, ornamental metals used for railings and safety features, handrails, doors, and entrances, rebar, metal reinforcing meshes.

General Building materials: sheathing, insulation, coverboard, roofing accessories & fasteners, hollow metal doors windows and skylights and frames, aluminum gutters, and laminate work surfaces.

Finishes – gypsum and other backer boards; ceramic and vinyl tiles; carpeting; resilient flooring; acoustical wall and ceiling materials.

Locally Manufactured Materials (4 points)

In recognition of the fact that transportation consumes energy and generates pollution, locally produced materials (i.e. those manufactured within a 250-500 mile radius of the project site) were used on this project. This project targeted a 30% recycled material usage. Final results from records and documentation gathered by the general contractor from suppliers and sub-contractors support that goal and reflect a 30.05% regional material use. The following materials came from locally manufactured sources:

Concrete and Masonry – cast in place, architectural precast; concrete masonry units, grout and mortar;

Asphalt base aggregate; Landscaping Plant Materials

Metals – Structural steel

General Building materials: sheathing, insulation, hollow metal door frames, wood doors, and hardware; interior wall construction and finish materials.

Hardwood Certified and Sustainable Sources (4 points)

Certified and Sustainable wood materials were required for this project. This project targeted a 50% recycled material usage. Final results from records and documentation gathered by the general contractor from supplies and sub-contractors support a final total usage number of 90.33%.

Reuse of Existing Buildings (20 points)

There are no existing buildings on this site that would qualify for a reuse of existing façade and structure points. Points possible for the awarding of this feature have been identified as Non-Applicable points

Building Durability, Adaptability, & Disassembly (14 points)

Durable & Low Maintenance Building Materials (4 points)

This medical services and office building integrates the use of durable and low maintenance building materials throughout the design. The following materials used on this project represent durable and low maintenance materials: exterior wall materials identified as precast exterior walls with acid etch and brick inlay finish, and prefinished metal fascias and soffit. Roofing materials have been specified as durable PVC roof membrane. At the interior, vinyl wall covering, corner guards, flooring of hard materials in wet areas and compact carpet tile for localized wear repair, are items designed for durability.

Adaptability and Disassembly (10 points)

Interior steel stud partitions and suspended ceiling systems provide ease of change for some space programming as needs change. The HVAC system is a variable Air Volume system that provides localized control within spaces that can be reconfigured easily. The disassembly credit addresses materials and fastening systems that would allow easy disassembly and was not claimed in the initial online survey. This provided an increase of 5 points.

Reuse & Recycling of Construction / Demolition Waste (5 points)

The recycling of construction waste was defined in a Construction Waste Management Plan. This project targeted a 75% recycled material usage. Final results from records and documentation gathered by the general contractor from suppliers and sub-contractors were above that number and exceeded them to a level of approximately 95%. Local waste haulers do not pick up and process recycled materials during winter months when a significant amount of construction work was accomplished on this project. Adherence to the plan during construction resulted in efficient use and recycling of demolition and construction generated materials. Continued diversion of construction and demolition debris is a targeted initiative.

Facilities for Recycling and Composting (10 points)

The recycling program at the Prairie Medical Building addresses storage and collection in marked containers. As a medical based facility, future recycling can be expanded to address some or all of the following:

- Miscellaneous metals
- Solvents
- Computers and peripherals including toner cartridges
- Batteries
- Unserviceable furniture and wooden pallets

Composting is not planned for the Prairie Medical Facility, but deposition of the minimal cuttings from site vegetation is possible in the natural areas remaining on the site. Wood waste from grounds maintenance, including tree, limbs, shrubs, and leaves will not be significant and lawn areas are designated as no mow surfaces.

Specification Section 01 74 19 Construction Waste Management, as defined, was followed for control of wastes generated on the site as a result of the construction activities. A complete Emergency Management System Plan for this location included detailed information on the procedures to follow during events of personal or environmental emergencies.

The Resources point score increased from 50 to 60 out of 80 applicable Points for an increase from a 62% to a 75% rating. This increase is due to recognition of the evaluation of the environmental burden and embodied energy of the exterior envelope assemblies and subsequent increase in long term efficiencies of the revised design and construction methods. It also reflects increase due to recognition of disassemblable and modifiable building systems.

Emissions, Effluents, and Other Impacts

Minimization of Air Emissions (0 points)

Low-NOx Boilers and Furnaces

There are no boilers or chillers used for this facility so those criteria are all rated as Not Applicable. Three (3) Roof Top Units (Carrier Weather Master) are rated at a heat input (Max.) of 244,000 to 325,000 BTU per hour with an output capacity of 263,000 BTU/Hour. Onsite observations revealed the unit operates at a Thermal Efficiency of 81%.

Minimization of Ozone Depletion (25 points)

Refrigeration System (20 points)

The majority of refrigerant in use at the Prairie Medical Center is R410A. R410A, sold under the trademark name of Puron in Carrier systems, is a hydrochlorofluorocarbon (HCFC) compound (a mixture of difluoromethane (CH₂F₂, called R-32) and pentafluoroethane (CHF₂CF₃, called R-125). It is often used as a retrofit replacement for R22. R410A has basically a zero ozone depletion potential (ODP) but a moderately higher global warming potential (GWP). ODP = 0.0 and GWP = 1725 to 1890.

Building Air-Conditioning System (5 points)

Discussions with the Mechanical engineer at the time of the site visit verified that the building's space conditioning system complies with ASHRAE 15-1994.

Avoiding Contamination of Sewers or Waterways (5 points)

A triple basin is provided with manual shut off valve at loading dock/generator area, and containment areas are located at the emergency generator location, bio swales and rain garden locations. After review of construction documents all items mentioned in online survey are true and contribute to the prevention of contaminants entering the sewers or waterways. The drawings for the project were followed by the General Contractor and depicted the use of many water contamination prevention methods during construction and permanently, including: silt fences; inlet protection; drop inlet sediment filters; rip rap at the edge of retention and drainage runoff areas; and storm catch basins. The use of micro pools at the large retention pond near Highway Route 45 was discussed and noted previously. Lake County, the governing entity for the engineered site drainage where Prairie Medical Center is located, mandated and performed erosion and sedimentation control inspections.

Pollution Minimization (22 points)

Compliant Storage Tanks (2 points)

Onsite verification of underground storage tanks verified that documentation met federal requirements for Certification of Underground Storage Tanks (USTs). A double wall containment tanks serves the emergency generator, and is provided with a shut-off drain

Control Other Pollutants - PCBs, Asbestos, Radon (3 points)

The United States Environmental Protection Agency has EPA has identified the Grayslake, Illinois area as a Zone 2 for Radon potential. Counties in Zone 2 have a moderate to low potential for existence of the gas (a predicted average indoor radon screening level between 2 and 4 pCi/L). Radon is a gas and as such can move through a concrete slab through future cracks and control joints. We did not receive structural drawings to determine the type of vapor barrier used under the concrete slab at the ground

level. At some point in the future, a radon test should be performed to determine the safety level of ground discharge in this area.

There are no asbestos or PCB concerns in the existing building because it is a new building and was constructed on a site without previous buildings in place at the time of construction.

There are minimal to no hazardous materials stored in the building. Cleaning solvents and discarded medical waste are the predominant hazards. Those medical wastes are stored in a separate area from other hazardous wastes. All solvents and hazardous materials are stored in a fenced and locked area at the interior of the loading. Spill protection does not lead to a common drain and/or has treatment or separators. It is suggested that the locked storage area that dedicated for hazardous waste should have partitions running to the underside of the deck above and containing a separate exhaust.

Integrated Pest Management (10 points)

Exterior penetrations are tightly sealed for pest infiltration. The exterior envelope is a tight system and does not provide openings for rodent or insect infiltration.

The Emissions and Effluents point score remained at 52 out of 52 applicable Points for a 100% rating.

Indoor Environment

Ventilation (50 points)

Ventilation System (10 points)

Sufficient ventilation will be provided to obtain an acceptable IAQ, in accordance with ANSI/ASHRAE 62.1-2004 using the Ventilation Rate Procedure. The reported design ventilation rate was listed as 0.14 cfm/square foot. The quantity of cfm/square foot installed and operational is supported by design documentation indicates a minimum airflow rate of 3605 cfm which will generate a ventilation rate of 0.12 cfm/sf.

Effective Air Exchange (10 points)

The building used the ASHRAE 62MZ spread sheet to calculate the minimum Outside Airflow (OA) required for each space, and adjusting total system OA percentage to meet the demand of the critical space. The capability is performed by the Building Automation System.

Mechanical Ventilation System (5 points)

Submitted documentation verified the ventilation system flushed out the building with 100% outside air during unoccupied building hours at ambient temperatures above 32°F. Flush-out and final commissioning occurred after the date of assessment.

Personal Controls (5 points)

Each corner office and each exterior exposure office is zoned for personal control of the indoor environment through wall-mounted adjustable thermostats that may be set by occupants (within a range). Unitary controllers have the capability for timed control of space conditioning as well as comfort modes based upon occupancy sensors.

MERV 13 filtration is provided for air distributed to occupied spaces. Entry areas are provided with self-closing doors and exhaust to minimize and capture pollutants in the air. Some areas have a lower dust spot rating for non critical activities such as the Information Technology control room, but the majority are at MERV 13 offering 90% dust spot efficiency.

Source Control of Indoor Pollutants (35 points)

Prevention Growth of Fungus, Mold, & Bacteria (10 points)

Rooftop units were equipped with UV-C germicidal lamp system. The ultraviolet radiation is used to kill microorganisms, molds and fungus in air systems.

Air-Handling Units (AHUs) (5 points)

Indoor air is monitored for Carbon Dioxide. Access to air handling units on the rooftop has significant open area around it facilitating ease in changing filters and facilitating drainage. They are located in well protected enclosures on a roof with a high parapet and restricted access area so accumulation of debris and damage are minimized. CO₂ sensors will be used to ensure acceptable maintenance of the ventilation levels will be maintained. The building automation system acts to bridge the monitoring results of the sensors and control adjustments of the system between unit and BAS with the all standard BAC-NET. Lab Hoods, Janitors Closets where solvent based cleaners may be used, and trash collection areas discharge exhaust air directly to the exterior.

Domestic Hot Water System (5 points)

Tank type storage water heaters were set at 130 degrees to reduce the quantity of Legionella in the water supply. The bacteria actually die when the temperature reaches 130, but stratification of the water in a water heater – cold water at the bottom and hot water above – can sometimes require the water heated to the higher temperature to accommodate that stratification. This is inefficient and should be evaluated for every specific facility.

Interior Materials Low-VOC emitting (10 points)

Adhesives, sealants, paints, coatings, carpet, composite wood, agrifiber, and other interior materials comply with the specifications and standards defined in the construction guidelines proposed in the original specifications, for low-VOC emitting interior materials.

Lighting (45 points)

More than 80% of the primary workable spaces include ambient daylight. A minimum daylight factor of 0.2 for partially lit and 0.5 for well day-lit areas provide a highly sustainable lighting approach to the interior of a building. A daylight factor was calculated after our request to determine the daylighting of this facility. The glass corridor walls that allow light to penetrate into the corridor and the corridor skylit light wells create the greatest reach of daylight possible in this building. In several instances, even core spaces that are far removed from the exterior walls are enclosed in glass. The reach of natural daylight is to the center of the structure at times. The daylight factor can be calculated with many variable and should always include recognition of the skylights contribution. The decision has been made to award the points for this feature for the entire building for a minimum daylight factor of 0.2.

The building lighting design conforms to IESNA standards. Window shades for glare control and minimization of fenestration solar gain were provided in each space with an exterior window exposure.

Thermal Comfort (20 points)

The building design conforms to the ASHRAE 55-2004 standard for thermal comfort.

Acoustic Comfort (30 points)

Sound Transmission Class (STC) of interior walls varies. Values were noted on the partition type details shown on drawing AE602. Each room has sound dampening insulation in the walls running from the floor to the underside of the deck at the floor or roof above. Metal stud framed walls have STC values ranging from 45 to 49 to 50-54 in chase walls. Some interior partitions use masonry units. All mechanical equipment is located at the roof surface.

The Indoor Environment point score increased from 159 to 169 out of 180 applicable points for a 94% rating. This increase is due to recognition of the recognition of a range of personal control over interior spaces and STC rating information supplied for interior partitions.

SUMMARY

The Prairie Medical Building is a great example of the success possible in the sustainable design and construction of a unique specialized medical and scientific care center.

697 points out of a possible 926 points for a 75% rating represents Three Green Globes

I am recommending to the Green Building Initiative that they award the Prairie Medical Building three Green Globes for New Construction, in recognition of high levels of effort to create this building and site with great attention to sustainability in all aspects of the process. Three Globes is an excellent accomplishment and you should be proud of the manner in which you approached the design and construction of this facility for efficient use of energy and resources, a healthful environment for employees, and fiscal prudence for the public owners.

In addition to the design and construction team, the owner is highly dedicated to a sustainable approach to building and operating facilities. After a minimum of 12 months, assessment of the facility with respect to operation can be evaluated for compliance with the standards of the Continual Improvement of Existing Buildings (CIEB). This is mentioned to make note of the concept that sustainability is a dynamic process and continues for the lifetime of a building. If interest in assessment of the operations of the facility is desired, the minimum amount of time mentioned above is required due to the need to evaluate utility bills and usage data and evaluate the increased performance over time. The collection of operational data is important to constantly monitor the success of building performance goals.

We have no doubt that the Prairie Medical Building facility will continue the dedication to the concept of sustainability through operations, as exhibited by the dedication to these goals in the cooperative initial design and construction of the facility.

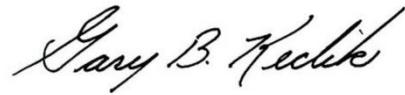
697 out of 926 applicable Points = 75% preliminary rating.

AUTHORIZATION

Congratulations on the team effort and pursuit of goals that will result in reduction of environmental impact to the Grayslake/Lake County, Illinois area. It has been a pleasure to work with you through the initial and final Green Globes rating process.

Best of luck on all future projects and we hope to work with you again.

Sincerely,



Gary Keclik, AIA, CSI, LEED AP

gbk

cc: Kevin Stover, The Green Building Initiative
Mark Leshar, The Green Building Initiative