



LEED v4 for BD+C: Schools

Project Checklist

Belmont High School

3-Jan-20

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1	0	0	Credit 1	Integrative Process	1	P+W + BALA to document ongoing process.
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9	0	6	Location and Transportation		Possible Points:	15	Comments
		15	Credit 1	LEED for Neighborhood Development Location		15	N/A
1			Credit 2	Sensitive Land Protection		1	Site was previously developed.
		2	Credit 3	High Priority Site		2	Site is not in an historic district, a listed priority site, or a brownfield site
2		3	Credit 4	Surrounding Density and Diverse Uses		5	See Documentation (2 pt for Diversity, no pts for density)
4			Credit 5	Access to Quality Transit		4	See Documentation
		1	Credit 6	Bicycle Facilities		1	Covered structures required to house bikes, quantity to be determined. Town would need to designate bike lanes to town center to allow access to 10 diverse uses mapped for credit LT4 or to Commuter Rail station (about 2.2 miles away) Not likely to provide additional shower and changing facilities within the school to meet the credit requirement.
1			Credit 7	Reduced Parking Footprint		1	Current Parking count is 392 spaces. 40% reduction of baseline is to 399 spaces (LEED baseline of 665) Warner Larson to confirm the LEED baseline number according to current LEED boundary
1			Credit 8	Green Vehicles		1	Green vehical purchase not likely. Design team to pursue this credit by providing 5% of green vehicle parking space (20 spots) and an addition 2% parking space (8 spots) with electrical charging stations. <b>Owner's decision made to install 4 electrical charging stations (each serves 2 spots).</b> Electrical connection will be provided for future installation.

2	4	6	Sustainable Sites		Possible Points:	12	Comments
Y			Prereq 1	Construction Activity Pollution Prevention		Required	Create erosion and sedimentation control plan
Y			Prereq 2	Environmental Site Assessment		Required	Phase 1 ESA report completed.
1			Credit 1	Site Assessment		1	Need to assemble site analysis documentation (Topography, Hydrology, Climate, Vegetation, Soils, Human Use, Human health effects)
		2	Credit 2	Site Development--Protect or Restore Habitat		2	Not protecting or restoring habitat as part of project scope
	1		Credit 3	Open Space		1	Design can likely utilize native seed mix and planting areas as required, WL to confirm the current design still meet the requirement of having 30% open area of the total site area (including the building footprint) after the conversion of the HS entrance green area to living grass.
	3		Credit 4	Rainwater Management		3	Strategy to be designed for 98th percentile event, Nitsch to confirm
		2	Credit 5	Heat Island Reduction		2	Roof will be designed to receive PV. Would need additional substantial non-roof measures to achieve this credit.
		1	Credit 6	Light Pollution Reduction		1	Pond may not be included in the LEED boundary which affects the current lighting pollution calculation. <b>The current LEED boundary is the property line which includes the pond. There are three locations in which the fixtures are close to the LEED boundry line that do not comply with the second part of the point per BUG calculation.</b>
		1	Credit 7	Site Master Plan		1	Not elligile since no substantial future development is planned
1			Credit 8	Joint Use of Facilities		1	Auditorium, gymnasium, and joint parking are available for community use.

6	0	6	Water Efficiency		Possible Points:	12	Comments
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Y			Prereq 1	Outdoor Water Use Reduction	Required	Reduce by 30% Achieved as documented
Y			Prereq 2	Indoor Water Use Reduction	Required	Reduce by 20%, Achieved as documented
Y			Prereq 3	Building-Level Water Metering	Required	Install permanent water meter to measure total potable water use. Commit to share with USGBC.
1		1	Credit 1	Outdoor Water Use Reduction	2	Drought tolerant species to be specified. Currety at 50% reduction for 1 credit (require 75% reduction to get 1 more credit)
3		4	Credit 2	Indoor Water Use Reduction	7	For 4 points, need to reduce by 40%. AEI confirmed we met 30% reduction but not 40%.
2			Credit 3	Cooling Tower Water Use	2	No cooling tower in the project
		1	Credit 4	Water Metering	1	Water submetering will be required for the following. Owner confirmed not to pursue. <ul style="list-style-type: none"><li>• Non-potable water to the science labs</li><li>• Make-up water to mechanical equipment (if needed)</li><li>• Water for irrigation.</li></ul>

29	0	2	Energy and Atmosphere			Possible Points:	31	Comments
Y			Prereq 1	Fundamental Commissioning and Verification	Required	Commissioning to be specified 019113. The Div. 23 specification needs to reference the commissioning specification and require the HVAC subcontractor assist with the commissioning process.		
Y			Prereq 2	Minimum Energy Performance	Required	Achievable as designed		
Y			Prereq 3	Building-Level Energy Metering	Required	Achievable as designed		
Y			Prereq 4	Fundamental Refrigerant Management	Required	Achievable as designed		
5		1	Credit 1	Enhanced Commissioning	6	BVH confirmed their scope includes enhanced commissioning and envelope commisioning, but not monitoring-based commissioning. <b>Confirm if IDS's scope of work in the project can achieve the last credit concerning monitoring-based commissioning scope.</b>		
16			Credit 2	Optimize Energy Performance	16	For an additional MSBA reimbursement, projects must exceed the level of energy efficiency required in the current Massachusetts (base) energy code by 20%. Project currently excessds the base energy code requirement by more than 20%. Project currently achieves LEED baseline (REGIONAL CREDIT ACHIEVED BELOW) by more than 20%.		
1			Credit 3	Advanced Energy Metering	1	Interior lighting, exterior lights, space cooling (roof top units), space heating (boilers), fans, and receptacles will require energy meters. Also includes meters for geo-thermal equipments		
2			Credit 4	Demand Response	2	Owner confirmed to pursue demand response credit. Design team to work with Belmont Light to determine if there is any demand response program to participate in order to achieve a minimum of 10% reduction of the estimated peak electricity demand		
3			Credit 5	Renewable Energy Production	3	Credits achievable with planned PV		
		1	Credit 6	Enhanced Refrigerant Management	1	BALA confirmed the selected mechanical equipment does not meet the requirement for this credit		
2			Credit 7	Green Power and Carbon Offsets	2	50% green power to receive 1 point, 100% green power to achieve 2 points (5 year contract) - Town to explore purchase agreement beyond planned onsite renewables		

2	3	8	Materials and Resources			Possible Points:	13	Comments
Y			Prereq 1	Storage and Collection of Recyclables	Required	P+W to review space needs are met, DPI to document Belmont facilites proceedures		
Y			Prereq 2	Construction and Demolition Waste Management Planning	Required	CM Responsibility		



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	1	4	Credit 1	Building Life-Cycle Impact Reduction	5	Competitive bidding requirement makes specification of life cycle conscious materials challenging, particularly on GWB and steel. PW to explore life cycle assessment possibility to achieve one credit in LEED V4.1 instead of V.4. Skanska to assist with carbon dioxide calculation with their embodied carbon dioxide calculator software.
	1	1	Credit 2	Building Product Disclosure and Optimization - Environmental Product Declarations	2	EPDs are available for 20+ products that we will use, but due to the value-engineering process, it is difficult to find 3 equals for 20+ products that are also comparable in pricings for public bidding. The budget leaves very little room to achieve this credit. Belmont will also need to approve finalized list and vote to make proprietary purchase agreement. PW to provide at least one product in the 20+ types of the 3 equals products that provides EPD. <b>PW to explore achieving one credit through substituting V4 with V4.1</b>
		2	Credit 3	Building Product Disclosure and Optimization - Sourcing of Raw Materials	2	Difficult to achieve in competitive bidding structure due to lack of documentation. For 1 credit, LEED requires at least 20 permanently installed products from at least five different manufacturers that have publicly released report from their raw material suppliers which include raw material supplier extraction locations, a commitment to long-term ecologically responsible land use, a commitment to reducing environmental harms from extraction/manufacturing process and a commitment to meeting applicable standards or programs voluntarily that address responsible sourcing criteria. For the second credit, 25% of the permanently installed products (by cost) have to meet responsible extraction criteria such as recycled content, material reuses, bio-based materials, etc.
	1	1	Credit 4	Building Product Disclosure and Optimization - Material Ingredients	2	HPDs are available for 20+ products that we will use, but due to the value-engineering process, it is difficult to find 3 equals for 20+ products that are also comparable in pricings for public bidding. The budget leaves very little room to achieve this credit. Belmont will also need to approve finalized list and vote to make proprietary purchase agreement. PW to provide at least one product in the 20+ types of the 3 equals products that provides HPD. <b>PW to explore achieving one credit through substituting V4 with V4.1</b>
2			Credit 5	Construction and Demolition Waste Management	2	CM to monitor during construction and provide monthly report to document recycling by weight.

10	2	4	Indoor Environmental Quality		Possible Points:	16	Comments
Y			Prereq 1	Minimum Indoor Air Quality Performance	Required	Achievable	
Y			Prereq 2	Environmental Tobacco Smoke Control	Required	Signage at entries to site	
Y			Prereq 3	Minimum Acoustic Performance	Required	Confirmed by current calcs	
2			Credit 1	Enhanced Indoor Air Quality Strategies	2	Mechanical requirements and vestibule depths to be executed	
2	1		Credit 2	Low-Emitting Materials	3	P+W to incorporate into specifications. CM to track during construction. For new school construction, 90% (by volume) of exterior applied products need to meet the VOC limits of California Air Resources Board 2007 Suggested Control Measure.	
1			Credit 3	Construction Indoor Air Quality Management Plan	1	CM to develop and implement an indoor air quality management plan for the construction and preoccupancy phases of the building.	
2			Credit 4	Indoor Air Quality Assessment	2	The building flush-out to be specified in 230000-4.30.N. 1 credit for flush-out and 2 credits for air testing and flush-out. CM and Daedalus to review as construction schedule is defined. Flush-out in certain area may take up to 1 month. BALA advised that flush-out process will be approximately a month long and it has to happen between project completion and occupancy and installation of furniture. The current project timeline (due to phasing) does not allow enough time to do a the flush-out.	



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		1	Credit 5	Thermal Comfort	1	Thermal confort control part of the credit cannot be met. Thermostat control is less than 50% of individual occupant spaces.
2			Credit 6	Interior Lighting	2	Achievable as planned in narrative
		3	Credit 7	Daylight	3	Credit difficult to achieve due to large internal spaces and lack of natural light in pool and gym area. VE process leads to reduced size/elimination of skylight.
1			Credit 8	Quality Views	1	P+W to document, likely acheivable
	1		Credit 9	Acoustic Performance	1	Difficult to achieve with adaptive classroom typologies. Folding partitions in classrooms affect overall acoustic performance. <b>PW to confirm if HVAC background noise is 35 dBA or less in classroom and core learning spaces. Also to confirm all exterior windows have STC rating pf at least 35.</b>

5	0	1	Innovation		Possible Points:	6	Comments (max 5 credits + 1 Credit for LEED ACCREDITED PROFESSIONAL)
		1	Credit 1	Innovation		1	Culinary farm to table is not part of curriculum anymore
1			Credit 2	Innovation		1	Building Dashboard (TMP) and Curriculum integration (P+W) (questionable if minimized metering negates the value of a building dashboard. Dashboard to show building energy use in real time to educate students. Design team to explore if dashboard can incorporate different information or graphics such as event info.
			Credit 3	Innovation		1	Walkable Sites Pilot Credit (P+W to review requirements)
1			Credit 4	Innovation		1	HG (Mercury) Free Lighting, TMP has confirmed all LED lamping is in compliance
1			Credit 5	Innovation		1	Green Cleaning Plan (materials are being chosen to support this, ie. No VCT requiring chemicals) Need to look at O+M Starter Plan for v4. PW to advise on documentation requirement
1			Credit *	Innovation		1	Sustainable community engagement
				Innovation		1	Exemplary Performance credit for waste management of demolition process. 95% of materials (by weight) to be recycled
				Innovation		1	Intergrated pest management (preventative maintenance)
1			Credit 6	LEED Accredited Professional		1	Requirement met

4	0	0	<b>Regional Priority</b>		Possible Points:	4	<b>Comments (max 4 credits)</b>
1			Credit 1	Regional Priority: Specific Credit	Optimized Energy (8 points)	1	Achieve 30% better than LEED basline (REGIONAL CREDIT ACHIEVED BELOW)
			Credit 2	Regional Priority: Specific Credit	Building Life-cycle Impact (2 points)	1	Life-Cycle impact reduction likely not achieved due to competitive bidding requirement
			Credit 3	Regional Priority: Specific Credit	Site Development-protect and restore (2 points)	1	N/A
1			Credit 4	Regional Priority: Specific Credit	Access to Quality Transit	1	We meet the requirement with 3 points (see documentation)
1			Credit 5	Regional Priority: Specific Credit	Renewable Energy Production	1	Potential to be met with on site PV
1			Credit 6	Regional Priority: Specific Credit	Cooling Tower Water Use	1	Achieved through LEED for Schools pilot credit "No Cooling Tower"

68	9	33	<b>Total</b>		Possible Points:	110
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Certified 40 to 49 points   Silver 50 to 59 points   Gold 60 to 79 points   Platinum 80 to 110