

LEED Information for Calstone Segmental Retaining Wall (SRW) Units



Calstone Recycling Center in Sunnyvale

Developed by the USGBC (U.S. Green Building Council) membership, LEED the Leadership in Energy and Environmental Design Green Building Rating System is a voluntary consensus based national standard for developing high performance sustainable buildings. With well founded and documented scientific information, LEED provides the complete foundation for assessing building performance and meeting sustainability goals over six categories; Sustainable Sites, Water Efficiency, Energy and Atmosphere, Materials and Resources, Indoor Environmental Quality and Innovation.

We congratulate you on your decision to include SRW's in your latest construction project. We feel that SRW's are an excellent environmental choice because

Calstone – Segmental Retaining Wall (SRW) Units

- Improves environmental impacts through life-cycle considerations
- Made from abundant local raw materials
- Manufactured close to construction sites, minimizing fuel requirements for handling and transportation
- Available in mix designs using recycled materials
- Manufacturing SRW units is extremely efficient. There is very little waste.
- Because SRW units are modular, there is little or no construction waste. If there is excess SRW units at the end of construction, it can be returned to our plant and reused on another project. Damaged SRW units can be ground up for aggregate. SRW units never need to end up in the landfill. When the building is demolished at the end of its life, you can either rebuild with it or you can grind it up for aggregate.

It is important to note that LEED certification points are based on the overall building envelope, design, and performance. SRW's will help in the contribution to the gaining of points in three out of the six LEED categories

Where Calstone SRW's Can Help Your Project Achieve LEED Credits:

LEED Credit Category	LEED Section and Description	What Calstone SRW's Contributes
Materials and Resources (MR) 2.1 and 2.2	Construction Waste Management – 2.1 for 50%, and 2.2 for 75% waste diversion from disposal.	SRW's are modular and therefore have very little waste. SRW's that are left over can be used on other jobs or recycled into more products.
Materials and Resources (MR) 4.1 and 4.2	Recycled Content – 4.1 for 10% and 4.2 for 20% total recycled content	SRW's can be manufactured with recycled aggregates, thus eliminating the harvesting of virgin materials.
Materials and Resources (MR) 5.1 and 5.2	Regional Materials – 5.1 for 10% and 5.2 for 20% of extracted, processed & manufactured within a 500 mile radius.	Our manufacturing plants are local and are within a 500 mile radius of our Northern California Service area. Over 99% of the materials used in our SRW's are sourced within a 500 mile radius
Innovation in Design (ID) 1.1 - 1.4	Innovative Ideas and Designs	Substantially exceed a LEED performance credit in any of the above sections

Useful Links:

www.usgbc.org

Materials and Resources Credits MR2.1 and MR2.2—Construction Waste Management

SRW's are modular. Because most segmental retaining walls are laid out to minimize cutting, there is little waste at the job site. On a typical job a wall contractor will order 5% to 7% more SRW units than the job requires because he assumes that some units will be damaged in shipment and he wants to be sure he has enough to finish the job. We encourage the wall contractors to bring these unused units back to our plant. If the units are undamaged, we can sell them again. If they are damaged, we can grind them up for aggregate to make new units. The reusability and recyclability of the block will keep thousands of pounds of material out of the landfill.

We ship our SRW units on wooden pallets. We charge the wall contractor a deposit on each pallet so that they will return them to us for reuse. Recycling the pallets on your job will keep more waste out of the landfill.

Materials and Resources Credits MR 4.1 and 4.2—Recycled Content

Calstone Company has the ability to incorporate recycled concrete in our SRW's. The recycled concrete that we use is deemed pre-consumer, so half credit is given. We have a lot of flexibility on the recycled content in each mix design. We manufacture our products using many different mix designs and colors, and offer custom work as well. Several factors influence how much recycled material we can use in any given mix design.



Because Quality Matters

Some of those factors are;

- Texture or finish - Generally speaking we can add more recycled material to a precision or smooth finished product than we can with a split face product.
- Unit weight per cubic foot - Generally speaking we can use more recycled material in a medium weight product than we can in a light or normal weight product.
- Color - Some colors incorporate pumice (white), black cinders, and/or red cinders. The requirement to use those aggregates can reduce the amount of reclaimed concrete used in the mix.
- Strength requirements - High strength units use more cement and therefore proportionally reduce the effective portion of recycled concrete.

As an example; Using a medium weight mix design that meets ASTM C-90 requirements and utilizing the maximum amount of recycled pre-consumer aggregates we can achieve a 85 plus percent recycled content.

USGBC LEED NC Version 2.2

MR Credits 4.1 - 4.2: Recycled Content

The following worksheet can be used to calculate the recycled content per batch of segmental retaining wall units.

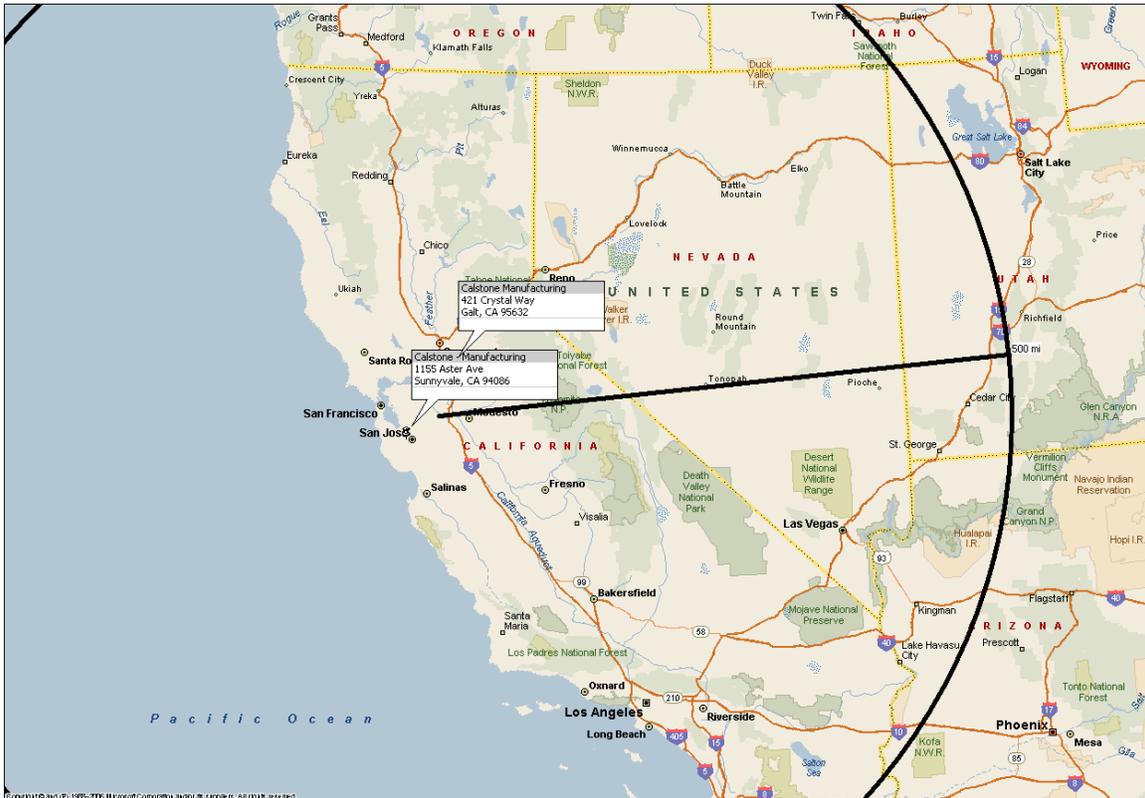
Component:	Virgin Materials		Recycled Materials				Totals	
	Weight Lbs	Pre-consumer		Post-Consumer		Lbs	%	
		Weight Lbs	%	Weight Lbs	%			
Cemex Sand	0	0	0.0%	0	0.0%	0	0.0%	
Glass Mtn Pumice	0	0	0.0%	0	0.0%	0	0.0%	
Cemex cement	700	0	0.0%	0	0.0%	700	11.6%	
Slag		0	0.0%	0	0.0%	0	0.0%	
Recycled Aggregates		5310	88.4%	0	0.0%	5310	88.4%	
Other		0	0.0%	0	0.0%	0	0.0%	
Total						6010	100.0%	

Both of these percentages pre-consumer **88.4%** **0.0%** post-consumer.
 and the total cost for SRW's are to be reported to the design team.
 The team might also want to see a calculation like the one above.

The recycled material is very controlled. We use our own crushing machine and material generated on site to insure proper gradations and eliminate the possible of harmful contaminates.

Materials and Resources Credits MR 5.1 and 5.2—Regional Materials

Points are awarded when materials are manufactured regionally within a 500-mile radius. Our two SRW manufacturing plants are located in Northern California allowing us a large area to ship and service our projects. Raw materials used in the manufacturing process within a 500 mile radius of the project is also used to calculate the total regional materials. Over 99% of the materials used in our SRW units are sourced within a 500 mile radius of our normal job service area.



Please don't hesitate to contact us if we can help you design your next LEED project.
408-984-8800 or www.calstone.com