

Toyota Scion of Bend

Bend, OR

Project Profile

Architect
Gensler
Neal Huston & Associates

Mechanical Engineer
JJC Engineering
Trane Oregon
CEA Consulting

General Contractor
Sunwest Builders

Project Features

Size
50,000 sq. ft.

Contract Cost
\$13 million

Completion
February 2011



photo courtesy of Cascade Business News

As Central Oregon's first LEED certified car dealership, many new design challenges awaited JJC Engineering and fellow mechanical engineering consultants when they joined the project team for the new Toyota Scion of Bend. Initially conceptualized by Toyota Corporate's global design and architecture firm Gensler, Neal Huston & Associates Architects further developed the design and fleshed out its requirements as a USGBC LEED Gold project. The mechanical design team was required to find 30% projected energy savings for this building which required extensive computer based energy modeling. The results were incorporated into the mechanical design as high efficiency HVAC systems with integral evaporative cooling and heat recovery ventilators, external sunshades, lighting controls, and extensive daylighting.

JJC Engineering was also tasked to find 51% projected water efficiency savings. Offsetting water use by reclaiming rainwater was one design approach to scavenge for water efficiency. This posed quite a challenge however, as this project's location only receives about 18-24 inches of precipitation each year. Even with over an acre's worth of roof for water reclaim it didn't amount to much. Creativity prevailed though as JJC Engineering was able to find almost all of the water efficiency savings in recycling water from the dealership's two car wash bays. Each car wash normally uses 30 gallons of water, but with a packaged water treatment skid provided by the car wash vendor, net water usage was brought down to 6 gallons per car wash (a projected savings of over 475,000 gallons per year!).

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Interesting Facts

- 90% of construction waste from this project was recycled (52 tons!).
- Sanitary wastewater from the building drain is lifted over 10' in elevation and connected to a pressurized public sewer.
- The concrete block used to construct the service bays was locally manufactured.



photo courtesy of Cascade Business News

Waterless urinals, dual flush toilets, and low flow faucets and shower heads rounded out the rest of the design for meeting the projected water efficiency savings.

Even after completion of design, many challenges ensued making sure Toyota Scion of Bend's 3 main areas of service, sales and showroom, and office were properly permitted and could begin construction. JJC Engineering, as part of the project team, worked tirelessly with the local jurisdiction and the general contractor to make sure all aspects of the mechanical design met code requirements and were properly coordinated in the field. This required an especially focused effort for the 2 high efficiency car wash bays, 2 lube pits, 5 express oil service lanes, and 18 service bays.

From its lot area accommodating up to 400 cars to its large showroom; from its bistro café to its retail tire center; and from its employee locker rooms to its customer lounge and kids play zone; Toyota Scion of Bend has turned out as a dramatic piece of signature architecture. JJC Engineering was proud to participate in its design effort and felt privileged to be part of an effective and solution focused team that successfully met the challenges of this building project.



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