

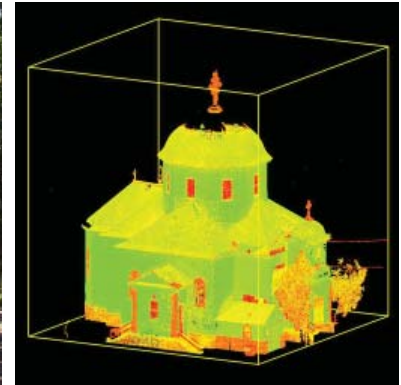


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Laser Scanning Expedites Redevelopment and Historic Preservation

What's old is new again: various factors have been favoring redevelopment in the marketplace. Redevelopment tends to be more environmentally friendly than breaking new ground, in part because it takes advantage of existing infrastructure. Redevelopment also provides an opportunity to protect cultural resources through preservation and restoration. It has its own set of challenges, however, and foremost among them is a frequent lack of documentation for existing buildings or other structures that need to be modified.

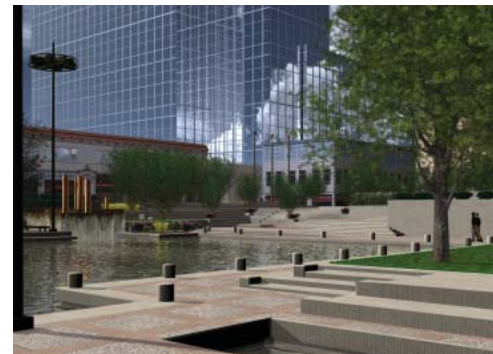


Laser scanning facilitated restoration at the historic St. Stefan's Romanian Orthodox Church in South St. Paul.

The laser scanner has become an indispensable tool for documenting existing conditions and re-creating construction documents where they are damaged or missing. Even when original plans are on hand, the shifting of structures over time can wreak havoc on attempts to retrofit and update them. The need to install an elevator in a historic church, a desire to document the historic features of an urban park, or investigation of a malfunctioning stormwater pipe are all examples of laser scanning's diverse applications.

Land surveyors use the laser scanner to generate highly detailed, three-dimensional data that can be used to create computer-aided design (CAD) documents. These CAD files essentially resurrect lost architectural blueprints or engineering plans so that renovation or other modifications can be more easily designed and adapted to current conditions. The laser scanner can capture detail at widely varying scales, from outdoor features at a building site to the architectural molding on a building's interior.

A laser scanner records physical characteristics of an object by emitting a laser beam that bounces off surfaces, resulting in a "point cloud" of 3-D data. The point cloud consists of georeferenced X, Y, Z coordinates for every surface point touched by the laser. Data can then be transformed into 3-D



In Minneapolis, laser scanning documented the landscape architecture of Peavey Plaza, a top ten example of Modernist design.

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models. These models are useful not just to designers but to anyone who needs compelling visualization to communicate about a project.

Laser scanning provides a permanent digital snapshot in time, eliminating the need for additional site visits to capture data that traditional survey techniques may have missed. These digital records are extremely precise, with accuracies approaching the sub-millimeter level. Scanning also provides increased accessibility and safety at dangerous or sensitive structures by allowing points to be captured from distances up to 300 feet.

Utilizing the latest technology, an old structure can get a new lease on life through redevelopment. Where historic preservation or any type of major renovation is involved, laser scanning is the high-tech tool of choice for providing the necessary documentation with accuracy, efficiency, and safety.



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