



Mind the Gap

The Need to Supplement Laser Scan Data in HABS Documentation Projects

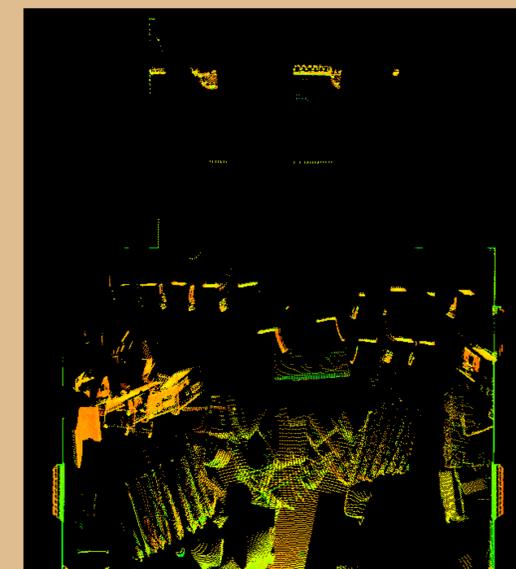
When HABS employs laser scanning, it is in conjunction with more traditional methods of collecting data. We use the ScanStation 2 frequently in our field work, and our familiarity with its strengths and limitations allows us to quickly assess whether a hand-measurement of some kind is preferable to a laser scan. This is generally for one of the following reasons: because traditional techniques produce a higher quality and clarity of information, because they allow the data to be collected more quickly and efficiently, because the resulting data requires less processing in the office, or because of issues of limited access.

HAND MEASUREMENTS



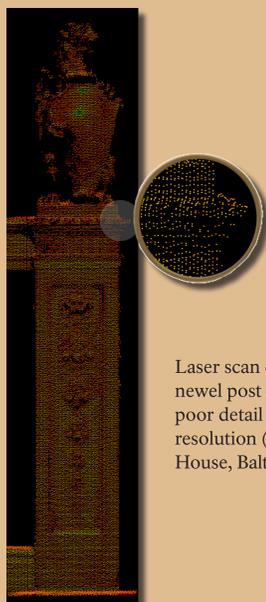
Some minor obstructions (Chapel, Mountain Home VAMC, Johnson City, TN)

Laser scanning building interiors divided into many rooms is at this time still impractical and time consuming. In addition to the multitude of stations one would have to set up, break down, and tie together in order to generate a complete plan, some of the spaces to be documented may be too small to operate the scanner in, or full of furniture that obstructs lines of sight. Measuring rooms by hand remains the most efficient way to gather the needed dimensions.



Laser scan of the same area

RECTIFIED PHOTOGRAPHY



Laser scan of a carved newel post showing poor detail even at high resolution (Evergreen House, Baltimore, MD)

Rectified digital photography is often used in areas of sculptural relief, where a laser scanner may fail to provide a high enough resolution to ascertain minute changes in elevation (left).

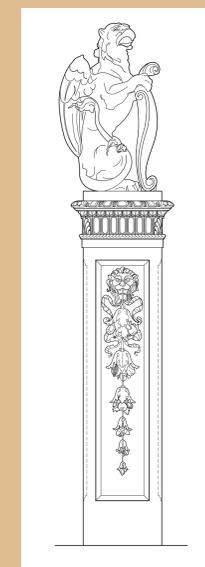
Detail may also be lost due to the object returning too few points, either because of the object's color (blacks and reds are particularly problematic) or a glossy surface. A well-lit photograph, on the other hand, is highly legible and easy to decipher in CAD. The point cloud may still serve to locate the detail in the final drawing.



Detail photograph of gryphon



Detail photograph with 3-inch square for scale



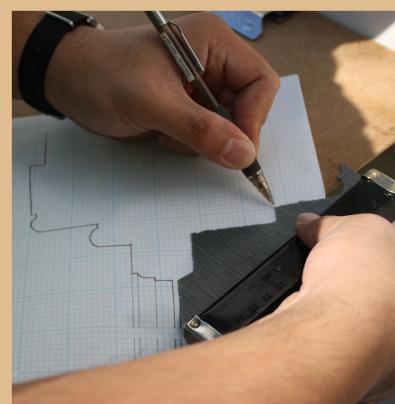
Finished elevation drawn in CAD

MOLDING COMBS

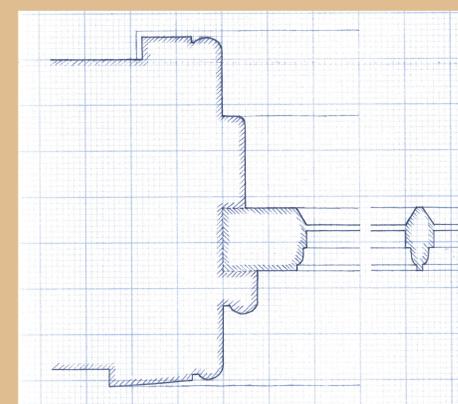


Typical laser scan of an exterior window jamb (Ward Memorial Hall, Zablocki VAMC, Milwaukee, WI)

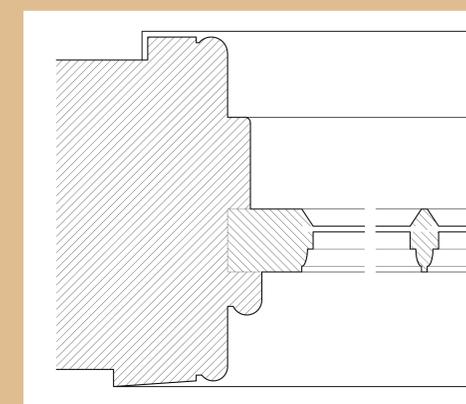
Scanning often presents difficulties in determining the profiles of molding and door and window jambs due to poor edge definition (left). The use of a molding comb (right) is faster and less expensive, providing a higher-quality result. It also gives the user the opportunity to interpret the original condition of the detail through many layers of paint. The sketched field note, (center right), is easy to translate into a CAD drawing and serves as an archival record of the detail.



Using a profile comb to record a window detail (Best Farm, Monocacy National Battlefield, Frederick, MD)



Field note sketched on archival paper



Finished detail drawn in CAD