M3DI AND 3D PRINTSMITH

The Burrage House, Back Bay, Boston

OBJECTIVE: Scan historically preserved architectural details, and reproduce using 3D printed and CNC foam cut molds

A view of the home from the corner of Commonwealth Ave and Hereford St, 1903

A view of the home from the corner of Commonwealth Ave and Hereford St, 2013

For the purposes of preserving and duplicating the intricate carvings and modling s of the Burrage House, traditional methods of taking images, hand measurements, and moldings would prove to be a very time consuming and labor intensive process.

Instead, M3DI's 3D scanning technology was employed to digitize the carvings and moldings. With M3DI's advanced reconstruction algorithms, the carvings and moldings could be 3D scanned directly, without the need to prepare the surfaces with a matte white powder coating, as is traditionally needed with 3D scanners. This meant reduced on site scanning time and, literally, no contact to the items being digitized, greatly reducing the risk of damage.

M3DI teams with 3D Printsmith, a user of M3DI technology, to scan the carvings and moldings.

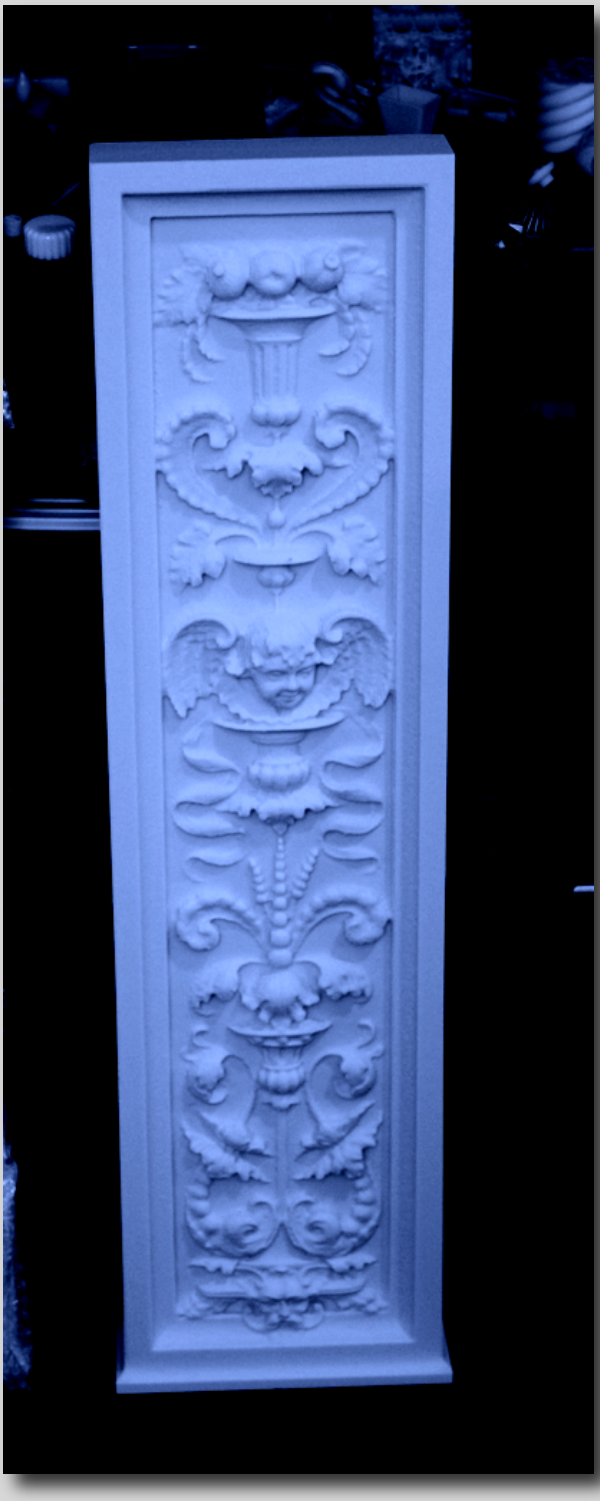
Here, the 3D scanner is being setup to scan the foyer vestibule plaque.

Since the carvings are fixed in place, the 3D scanner is moved around the item to capture different views which will be aligned and merged together to form the complete model.

Foyer Carving 3D scan result.

Top, center, bottom close ups

Final replica made
from CNC cut foam



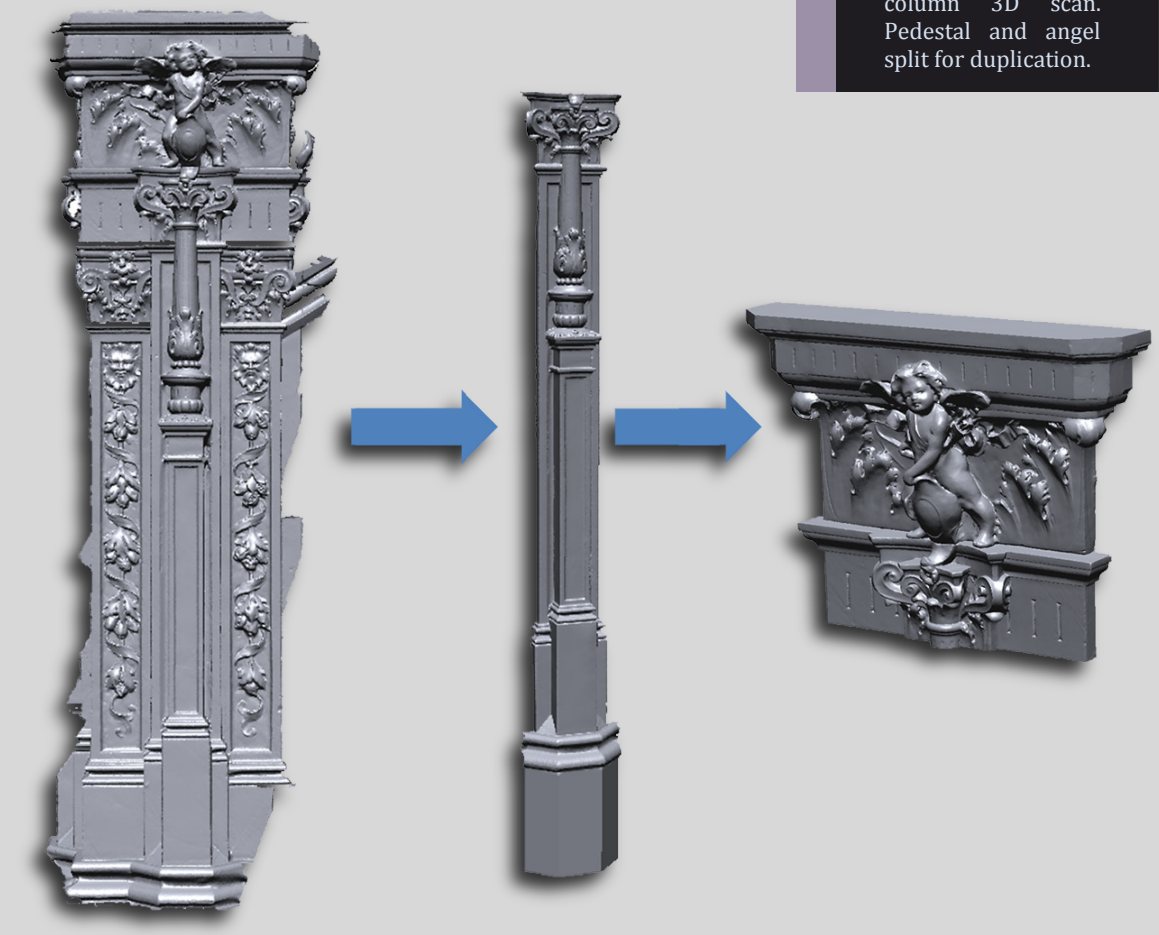
Scanning the column with pedestal and angel carvings. A tripod is used to set the 3D scanner up on an uneven surface.

Using a mini flexible tripod to get the lower scans of the stairway column.

The large window at the top of the stairs posed no problems for the 3D scanner even in the highly lit area

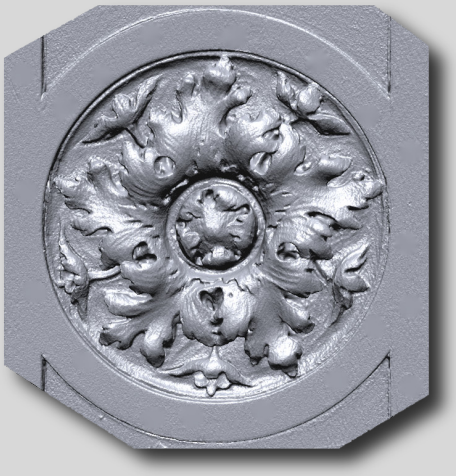
Main stairway angle column 3D scan result

Main stairway angle column 3D scan. Pedestal and angel split for duplication.

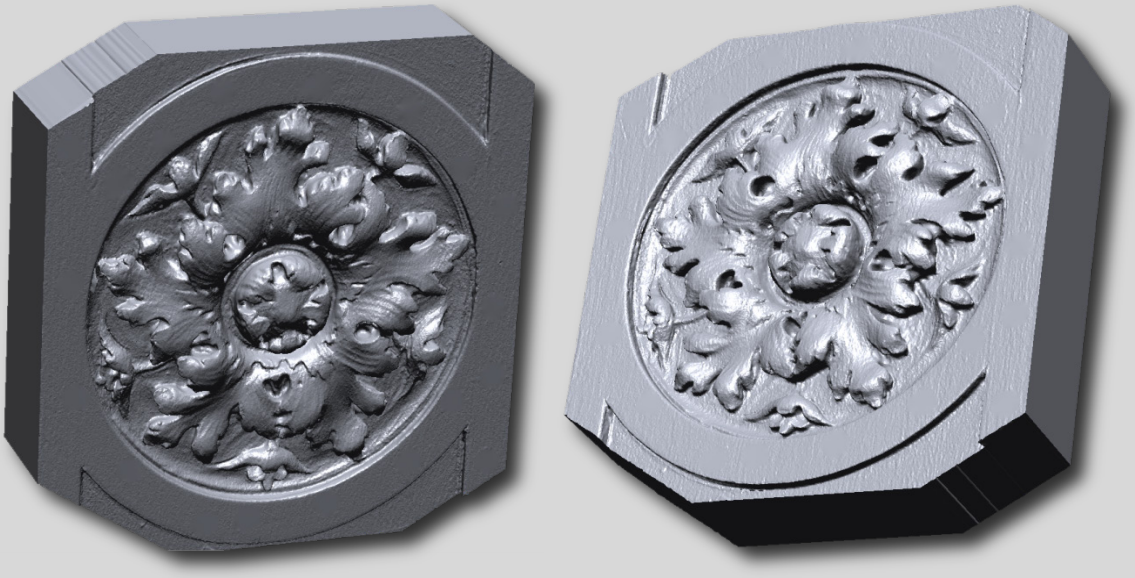


Main stairway angle column 3D print final result.

Scanning a wood carved rosette. No part preparation needed



Wood carved rosette scan result



Wood carved rosette scan detail

Finished piece of wood carved rosette made out of CNC cut foam

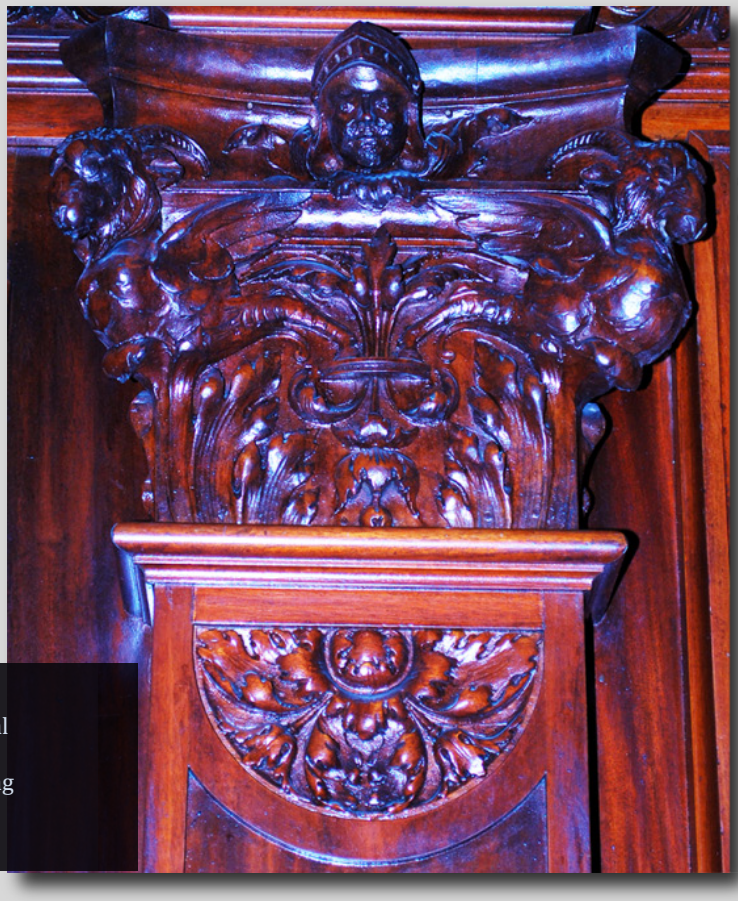
Tripod extension poles where used to scan high mounted carvings. Here the first of two capital carving is being 3D scanned.

M3DI scanners feature automatic alignment with uncoded photogrammetry targets. The targets (small white cirlces) can be seen placed in random locations on the capital carving.

Capital one carving scan result

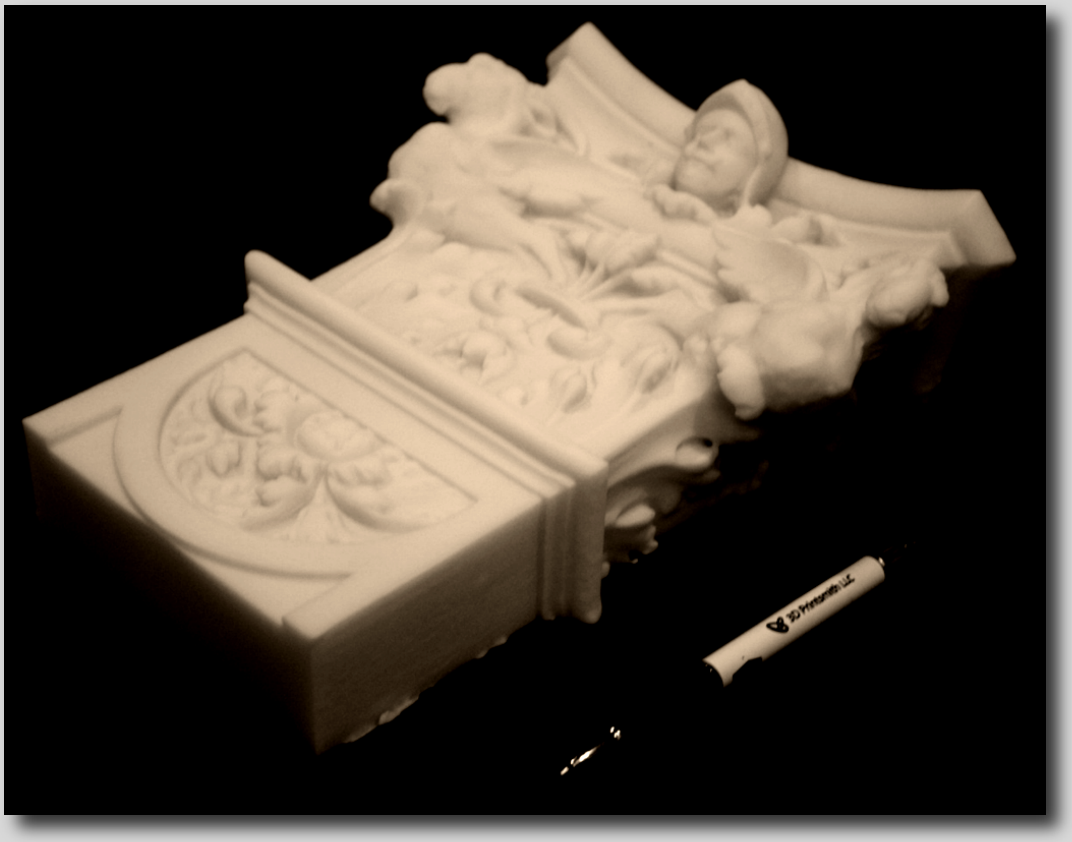
Capital one carving scan detail

Capital one 3D print result.

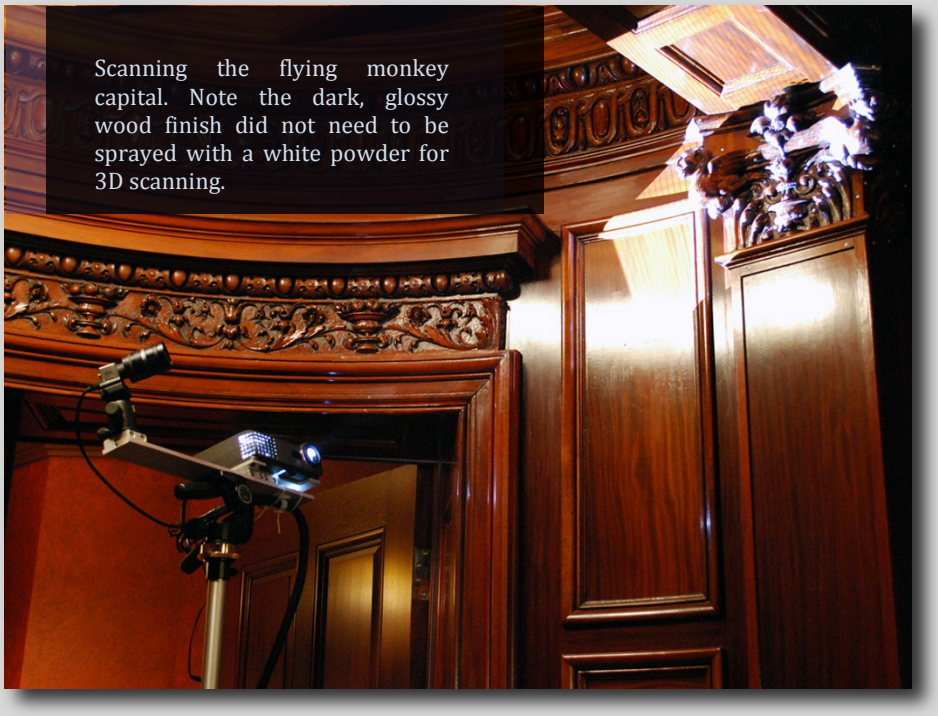


Capital two carving scan result

Capital two carving scan detail



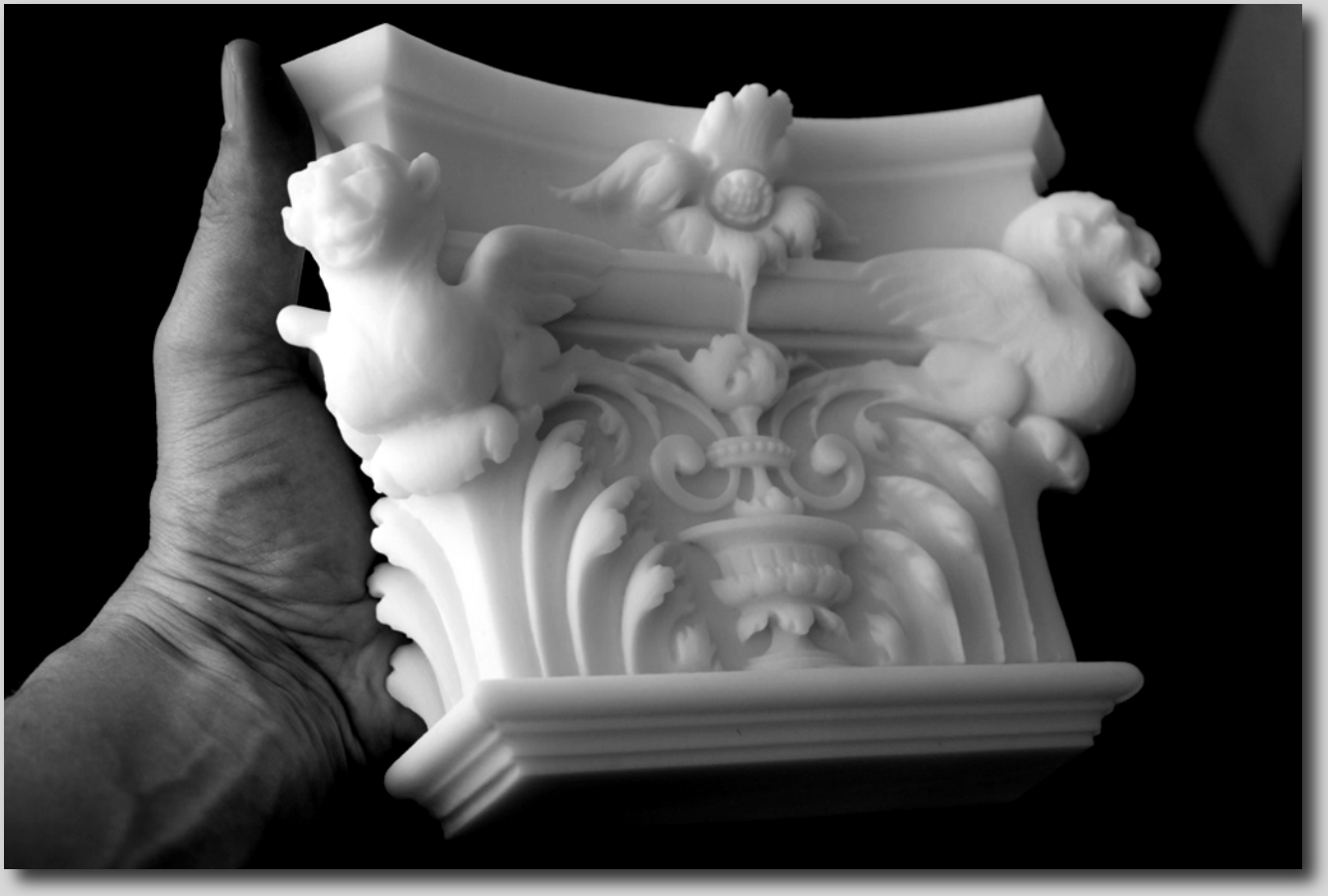
Capital two carving 3D print result



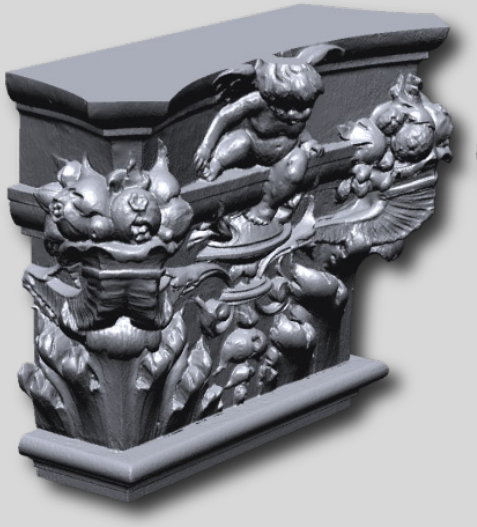
Scanning the flying monkey capital. Note the dark, glossy wood finish did not need to be sprayed with a white powder for 3D scanning.

Flying monkey capital scan result

Flying monkey capital 3D print result.

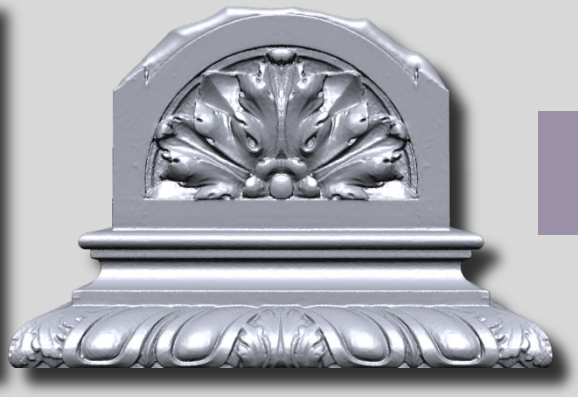


Cupid capital carving scan result



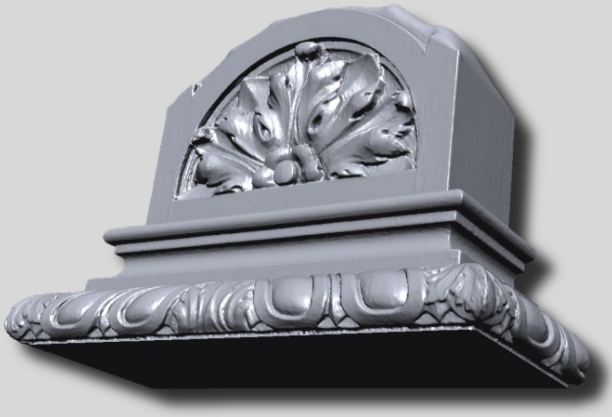
Cupid capital carving scan detail

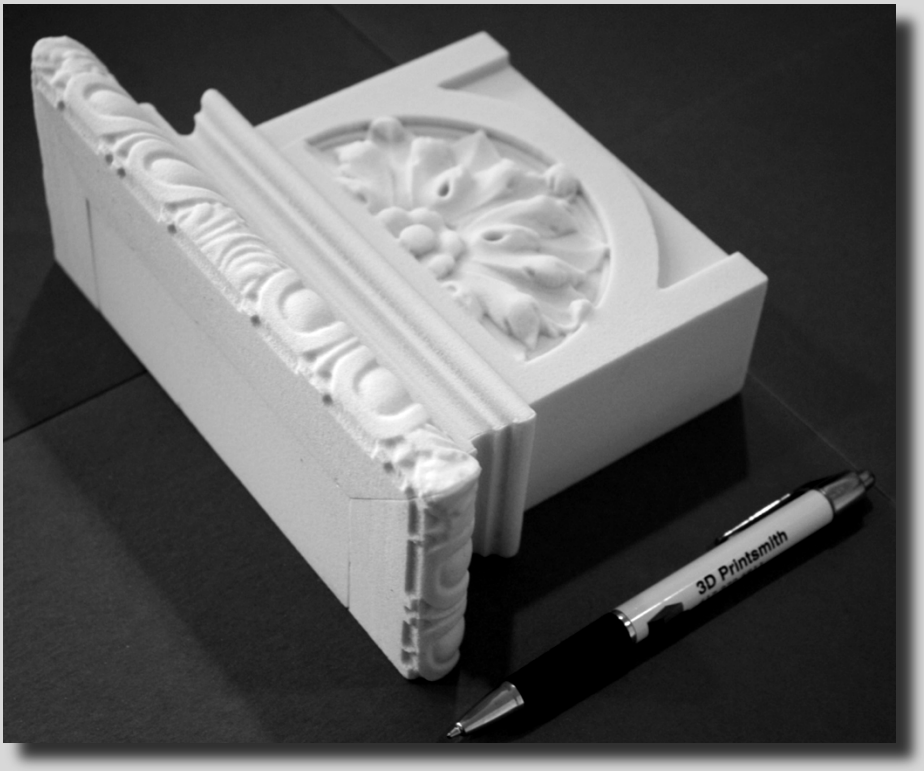
Cupid capital carving
3D print result.



Flower base 3D scan result

Flower base 3D scan detail

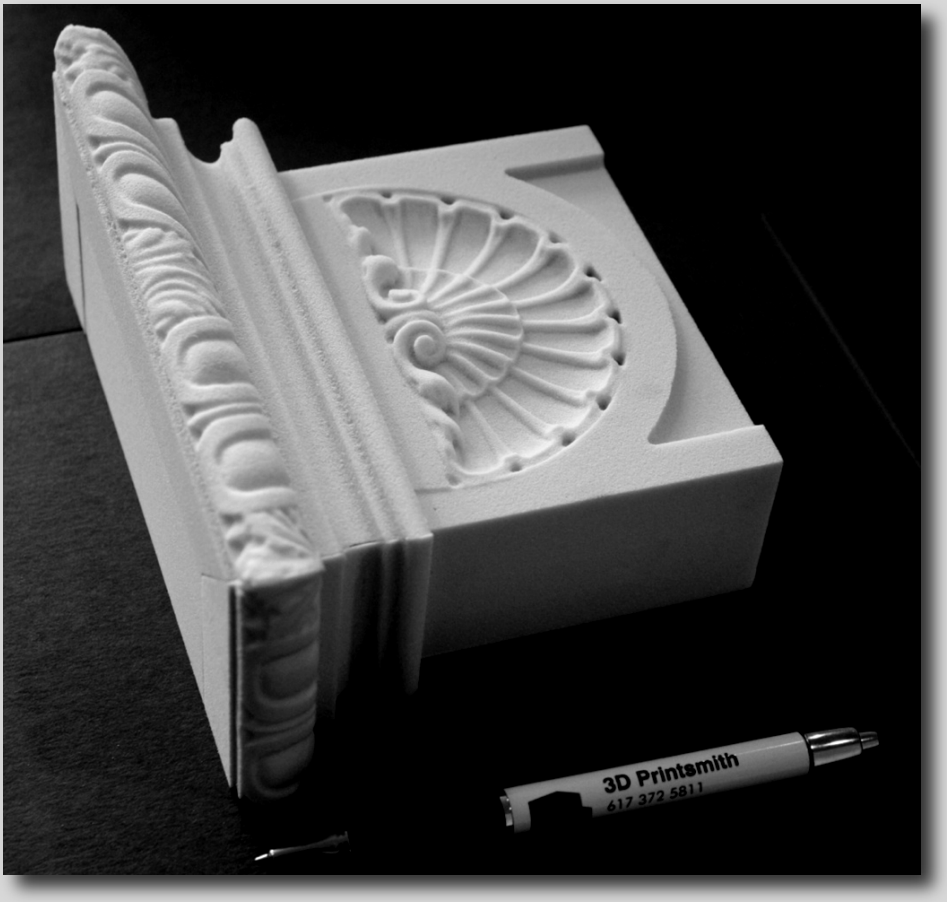




Final flower base piece made out of CNC cut foam

Seashell base 3D scan result

Seashell base 3D scan detail



Final Seashell base piece made out of CNC cut foam