

SOLDIER REPLICATION FOR DEERFIELD CIVIL WAR MONUMENT

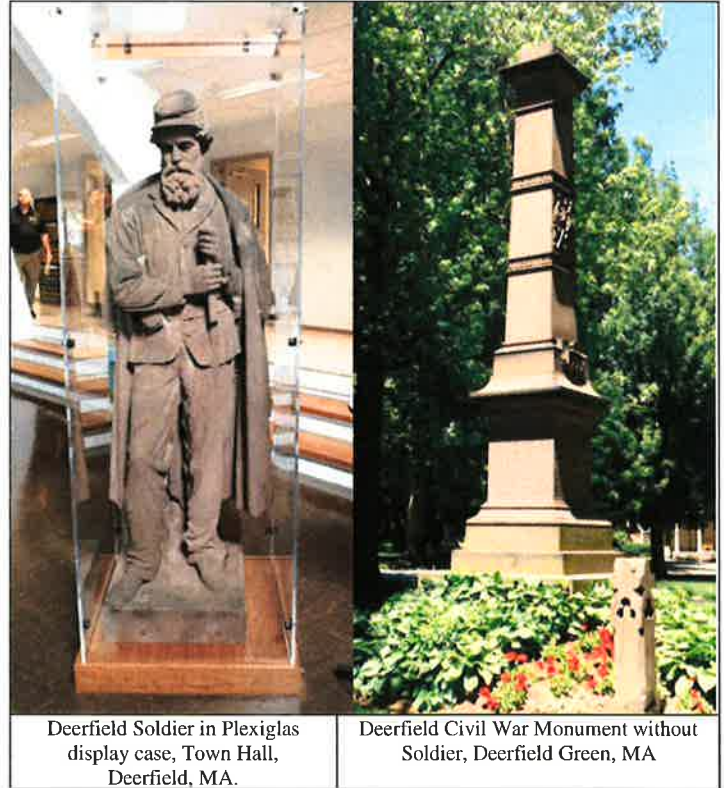
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THE DEERFIELD SOLDIER

The Deerfield Civil War Monument was erected on the Deerfield Town Green by the Batterson Monumental Works in 1867, shortly after the end of the Civil War. The cut and carved stone unites consist of Connecticut Valley sandstone quarried in Portland, CT. Over the following 148 years, the sandstone soldier crowning the monument suffered from deterioration in the form of cracks, breaks and loss. Due to the severity of the damage, the sculpture was stabilized on a temporary scaffold and removed by crane for display in Deerfield Town Hall, where it now stands in a protective, Plexiglas, display case.

The Batterson Monumental Company made several monuments with the near identical, bearded soldiers, including the Granby Civil War Monument in Granby, CT, and the Knight Hospital Monument in Evergreen Cemetery, New Haven, CT. With like sculptures nearby, the Town of Deerfield, Deerfield Academy, and the concerned and generous alumni of the class of '69, decided to make a replica in bronze for their figureless monument. The original goal was to take a mold directly from a like stone sculpture for replication. The Knight Soldier was selected for both its completeness, all elements are original, and for the durability of the granite.

Upon request by the Town of Deerfield, approval for replication was graciously offered by Dale Fiore CCE, General Manager of Evergreen Cemetery. Scaffold erected around the Knight Monument for mold making allowed for close inspection. It was discovered at that time that the figure is slightly larger than the Deerfield sculpture and would not properly fit the sandstone base. The granite, however, still provided the best model for replication due to the stone surface texture and clean surfaces absent of organic growth. To address this issue, the sculpture was digitally scanned by Direct Dimensions Inc to a resolution of .5mm. The captured imagery was digitally resized to match the desired dimensions. The resulting computer data provided input to a Five-Axis CNC machine to carve a like, full scale pattern in foam. This foam pattern was transported to Modern Art Foundry for bronze replication. A silicon rubber mold was made to cast a wax model for the centuries old "lost wax" casting method. Sprues were added to allow the flow of molten metal the escape of hot gases that occur during casting. The wax model with sprues was encased in plaster and the placed in a kiln where the wax melted from the interiors creating an interior hollow space in the plaster. The foundry team melted ingots of bronze in a kiln and by crucible pored the white-hot liquified metal into the plaster hollows. After cooling, the bronze surfaces were finished, a patina designed specifically to harmonize with the original sandstone colorations applied to the bare bronze and a protective coating sealed the surfaces to prevent surface corrosion.



Deerfield Soldier in Plexiglas display case, Town Hall, Deerfield, MA.

Deerfield Civil War Monument without Soldier, Deerfield Green, MA

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Front overview of the Knight Hospital Monument Soldier.



Front overview of the Deerfield Soldier before removal from the monument.

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Technician scanning the granite sculpture to create a digital model.



Digital 3-D model of the sculpture generated from the scans.

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Foam, full-scale model cut with CNC machine.



Silicon rubber and plaster molds "pulled" from the foam model.

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Wax cast from the rubber mold for “lost Wax” casting process. The wax will have sprues added and then encased in plaster.



Encased in plaster, the wax and plaster block is placed into a kiln to melt the wax and create hollow cavities for the bronze pour.

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Pouring molten bronze into the plaster form.



Overview of the fished bronze sculpture at the foundry after patination and coating.