# Pointools Models Shape Restoration of Historic London Theatre

Complex laser scanned computer models, created using software from Pointools, are helping architects design the most complete recreation of an English renaissance indoor theatre ever attempted. The indoor Jacobean theatre, the shell of which already exists on the Shakespeareâ€™s Globe site in London, will be restored to provide a brand new theatre space that will seat around 320 people, with two tiers of galleried seating and an authentic pit seating area.

"We commissioned a laser scan survey at the outset of the construction venture to enable the project management team to establish the exact dimensions of the space and to discover any hidden issues that may affect the design and build process of the new theatre," commented Paul Williams, technical manager at the Globe Theatre. "The Pointools models will, primarily be used by project architect - Allies and Morrison - to inform their design and quantify the interior dimensions of the space that the indoor theatre will occupy."

The original vision for Shakespeare's Globe Theatre extended beyond the iconic 'wooden-O' structure that already exists. When it opened in 1997 (after more than 27 years of planning and four years of construction) the indoor Jacobean theatre was left as a shell - divided and partitioned into rooms for educational workshops and rehearsals.

APR Services, the original survey firm to scan the Globe Theatre and a 3D laser scanning veteran, was again contracted to survey the indoor Jacobean theatre space. Using a Faro 3D laser scanner, APR captured around 3 billion millimetre-accurate measurements to detail the inside and outside of the complex building shell that included false doors and steps. Then using Pointools' point cloud software, the billions of individual measurement points were processed to create a visually stunning, highly accurate, 3D replica of the existing structure and space for use in the design and construction process.

Tony Rogers of APR Services commented, "We completed the original survey of the main theatre at the Globe a few years back so it was important that we could tie the indoor Jacobean theatre data to the existing models." He continued, "Using Pointools software we were able to create very accurate 3D replicas of the theatre to support architectural designs and decision-making. It's hoped that these models will support a faithful recreation of the indoor Jacobean theatre within the constraints of modern rules and regulations."