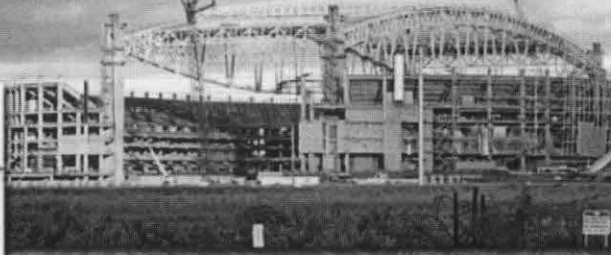
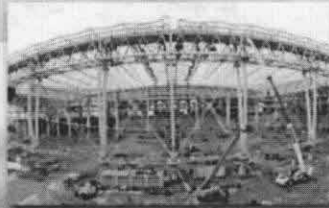
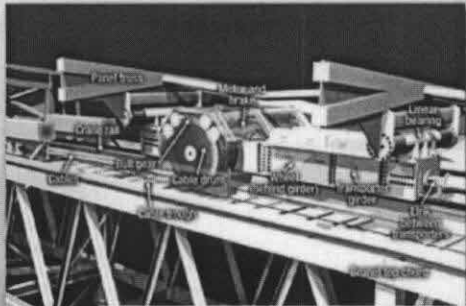




NEWSMAKERS



David A. Schuff
Chairman, Schuff Steel Company

Collaborating on the Fabrication and Preassembly of the \$450-million Arizona Cardinals Stadium Retractable Roof

Well aware of the challenges of erecting a 5,400-ton retractable roof, veteran steel fabricator Schuff worked closely with fellow Newsmaker Corissa M. Anderson on a plan to ease erection and ensure safety. His innovative approach called for preassembling the 700 x 257.5-ft steel roof on short ground shores, and jacking the truss assembly – including the travel mechanism – up 150 feet in slots in the roof's concrete supercolumns.

On Dec. 3, roof panels parted for the first time, without a hitch.

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Cardinals Stadium Facts: Super Lift 5400-tons single lift Retractable Roof

500,000 square feet

Features: two 87-ft deep by 700-ft long Brunel Trusses. The Brunel Trusses are 257.5 feet apart and are spanned by eight teardrop Vierndeel trusses for each 270-ft by 180-ft panel. The top chord is a 15-ft 'laced' square, and the bottom chord is a double wide flange beam. Each Brunel Truss sits on 171-ft tall concrete super columns at each end. The roof was pre-assembled on the ground and then jacked into place. The roof is clad in fabric.

INTRODUCTION

In November of 2000, voters in Maricopa County went to the polls to cast their votes on a proposition that would pave the way for the building of a new home for the NFL's Arizona Cardinals. The outcome of that vote would be just the first of several major hurdles that would have to be overcome over the course of the next 6 years before the Cardinals could actually play their inaugural game in their new stadium.

With the successful passing of the stadium tax initiative, the groundwork was in place to help fund the new stadium project. Since their arrival in the Valley of the Sun in 1988, the Cardinals and their fans had endured the high



temperatures normal to the Phoenix area desert for nearly half of their home games each year, by playing in the open-air Sun Devil Stadium. With a new home in the future, the obvious choice for Arizona would be a covered structure with climate control abilities. However, in order for public tax revenue to be used to help cover the structures' construction cost, there was a requirement that the new facility must have "Multipurpose Use" possibilities. Presented with these challenges, stadium designers had a bold plan....An operable roof stadium coupled with North America's first fully mechanical playing field. This was a combination that gave the Cardinals and their fans the control over what the climate the football games could be played in, as well as provided a state of the art facility with an abundance of other non-sporting uses.

The natural choice of construction materials for the new stadium's long span operable roof was structural steel. Large and complex steel projects were nothing new to Phoenix based Schuff Steel Company, and this new stadium posed an awesome challenge and opportunity right in their own back yard. Schuff's chairman and founder Dave Schuff envisioned not only his company providing the steelwork services for the new roof, but also erecting the massive structure in a manner that had never been attempted in modern sports facilities. For Dave, the bold challenge of lifting the majority of the roof as a single massive assembly, thus allowing better construction tolerances, promoting safety, and speeding up the overall projects' schedule, seemed like the perfect challenge for his company. Thus, the general concept of a "superlift" was conceived, which simply stated, was to raise and set as much of the roof structure as possible at one time.



So, just how does a steel fabricator and erector tackle a project as high profile and equally high risk as a long span roof for a new NFL stadium, and wind up successful at the end of the long and difficult road? Well it was far from easy, but remaining focused on the plans and goals they had established at the beginning of the complex project, Schuff Steel Company did just that. The focus of this paper will highlight the importance of proper pre-planning for a fabricator/erector, open communication in a design-assist subcontractor role, and maintaining crucial project milestones despite unexpected changes and challenges that present themselves along the way.