Martino & Luth, Inc.
Consulting Structural Engineers

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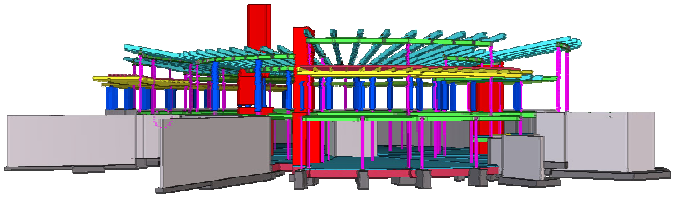
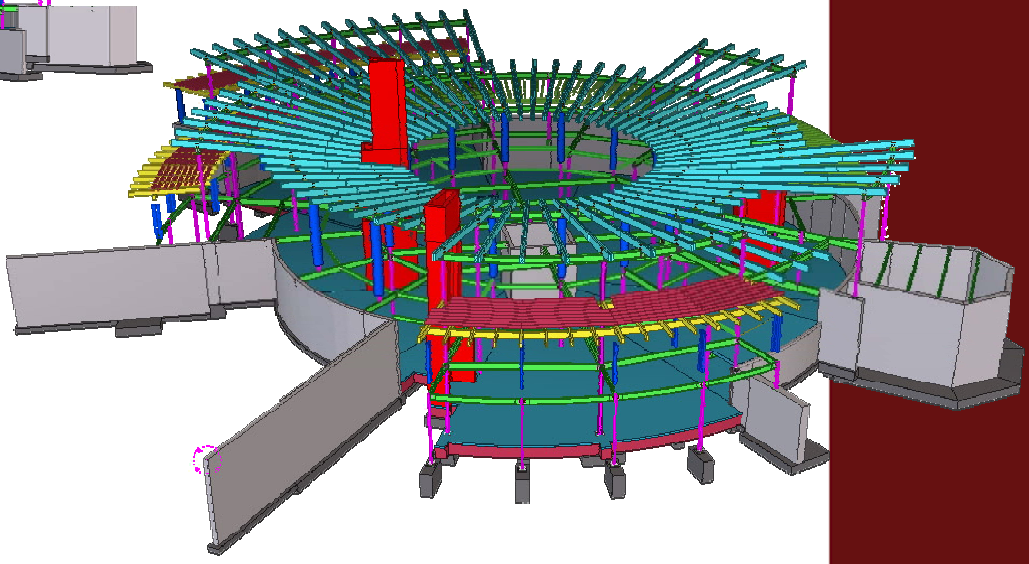
A Member of the Renaissance Design Group

Modeling Capabilities:

At Martino and Luth we are always striving to revolutionize the way buildings are designed and built. In order to accomplish this goal it is important that we utilize all tools that will allow the design and construction process to be more efficient. This is why we have embraced the idea of 3D and 4D modeling.

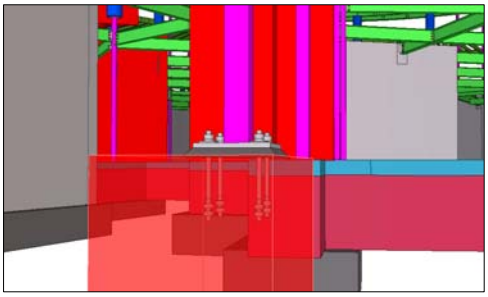
Using a program called Tekla Structures, we are able to create 4D models of our buildings to both design and document complex buildings and load paths.



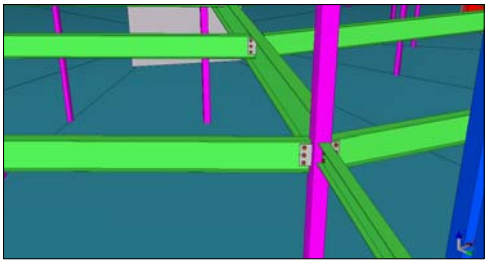


Sundial House:

This is a doughnut shaped building that will tell time. The tall triangular lateral element casts a shadow on the central round courtyard which has the numbers on it to complete the sundial. This unique community center also has a gym, a bar, a resturaunt and an outdoor amphitheatre.



In addition to using the 4D model above to coordinate the structure with the architecture and mechanical systems, we were able to use it to give steel and concrete quantities to the contractor and check them against the bid quantities. The detail at the left shows the anchor bolts, non shrink grout, and base plate, for a typical column. The rebar in the stem walls can also be modeled and detailed using TEKLA.



In an attempt to streamline the shop production process, M&L offered to do the steel shop drawings. This process could have taken 2 months off of the construction schedule since we were able to complete the model at almost the same time as the Construction Documents. The detail at the right shows a typical column to beam connection. The composite slab has been removed for clarity.

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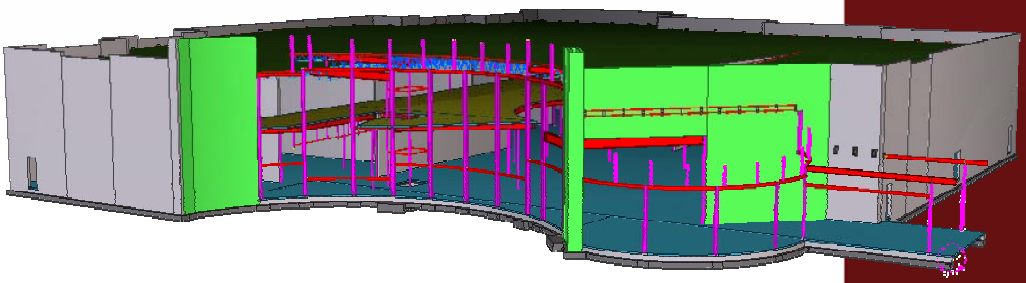
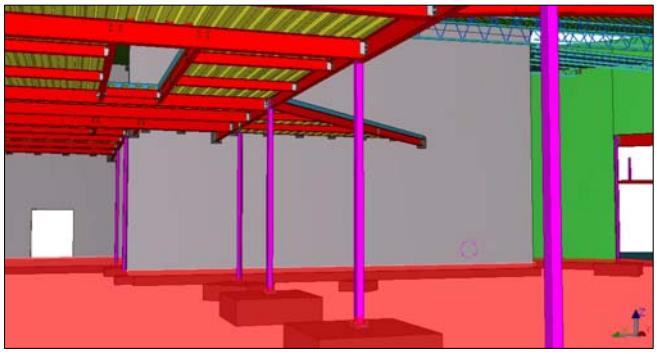
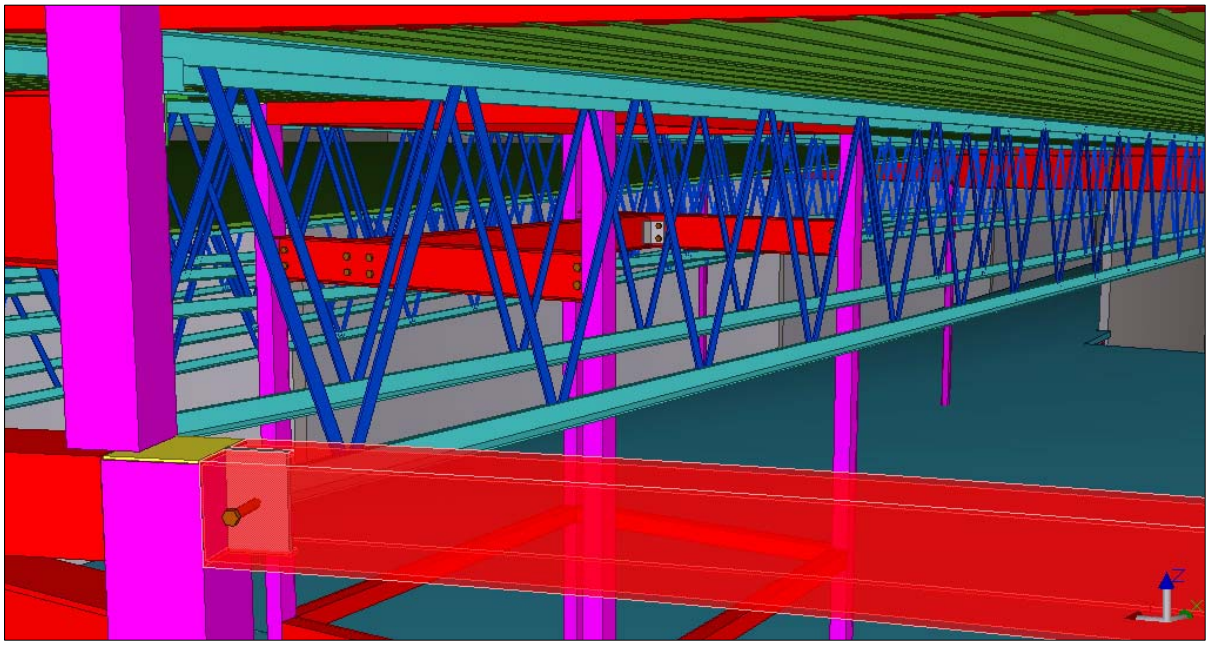
Las Cruces Theatre

This is a ten plex theatre in Las Cruces New Mexico. It consists of a bar joist roof and composite steel mezzanine floor spanning to ICF walls. The ICF walls were used for ease of construction and sound proofing between the theatres.





We completed a similar project in Alamorgordo New Mexico last year. The steel was delivered to the site and none of the bolt holes aligned. M&L spent a number of site visits and countless hours fixing and redrawing connections that did not align due to detailing errors. We decided, and convinced the owner, that we should do the steel shop drawings on this theatre. We were granted the contract and produced the shop drawings in half the time as the original detailer's schedule allowed. So far, there has not been a single detailing error.



These two pictures show the complexity of the model. The top shows the mezzanine slab complete with composite deck over steel composite beams spanning to ICF walls and steel columns. The slab is shown shaded and the footings are visible below. The grey in the background is the ICF Walls. The bottom picture shows the bar joist roof structure as it passes the elevator framing. The foreground shows the front curved wall of the grand entry complete with parapet supports and erection bolts.

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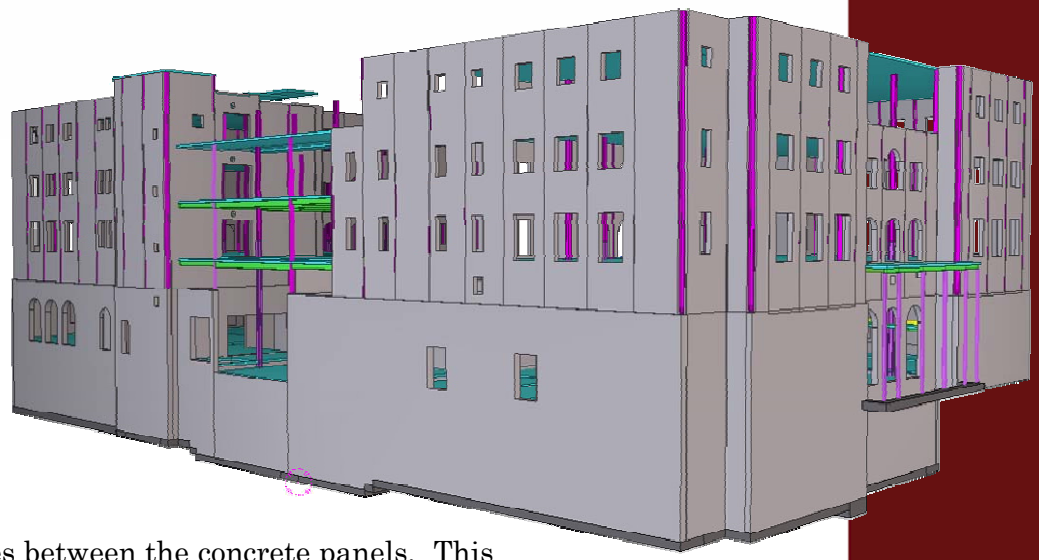
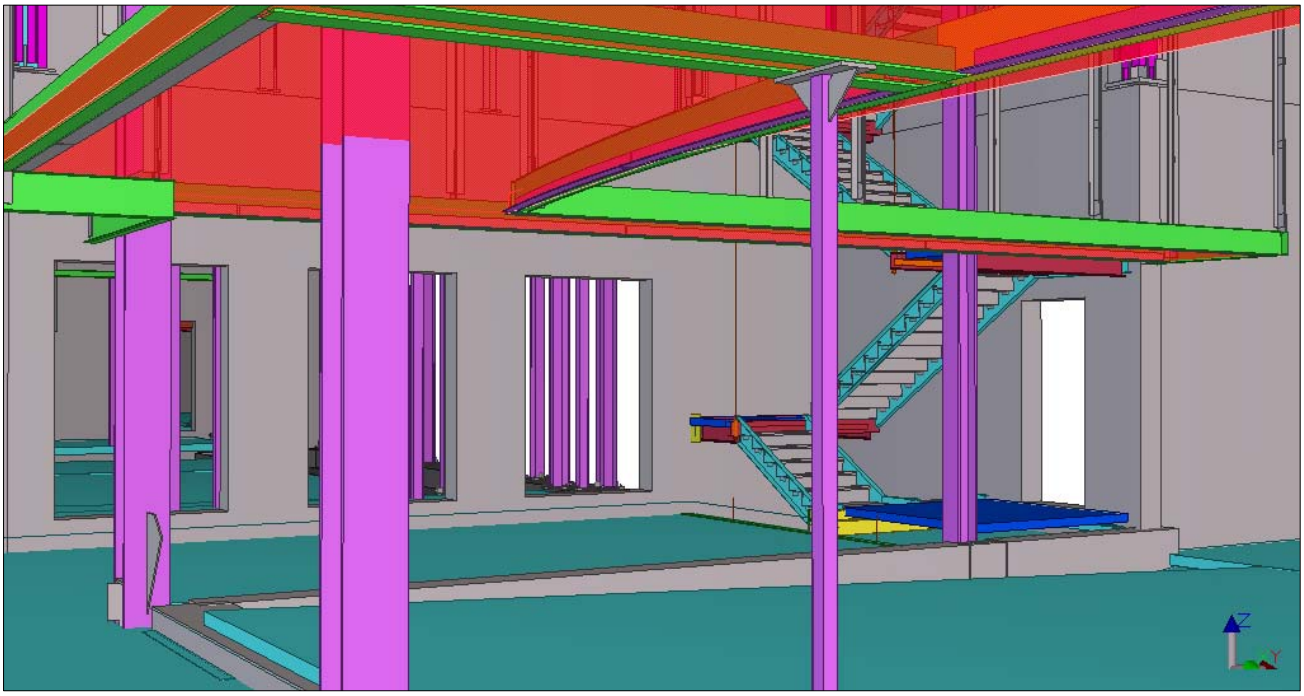
USC School of Cinema



This project was done out of our affiliated office in Santa Clara California, Gregory P. Luth and Associates. The owner wanted a finish stucco system with no expansion or control joints in it. To do this, and meet LA city code, the back up has to be concrete. The system provided is a reparable concrete shear wall system that has fusible links between each of the concrete panels. These links yield during the big one and contain the damage to discrete lines between the concrete panels. This system is completely repairable by replacing the links and finishing fixing the finish along the cracking lines. In order to meet the construction schedule, a steel superstructure was built then infilled with the concrete by shot creteing between the steel members.



For this to work and save time, the rebar cages had to be fabricated for the full six stories off site then delivered and swung into place between the steel frames. This meant that the steel frame and rebar had to be completely coordinated. GPLA was able to fully detail both systems in their model and the rebar cages were able to be swung into place after the steel was erected.