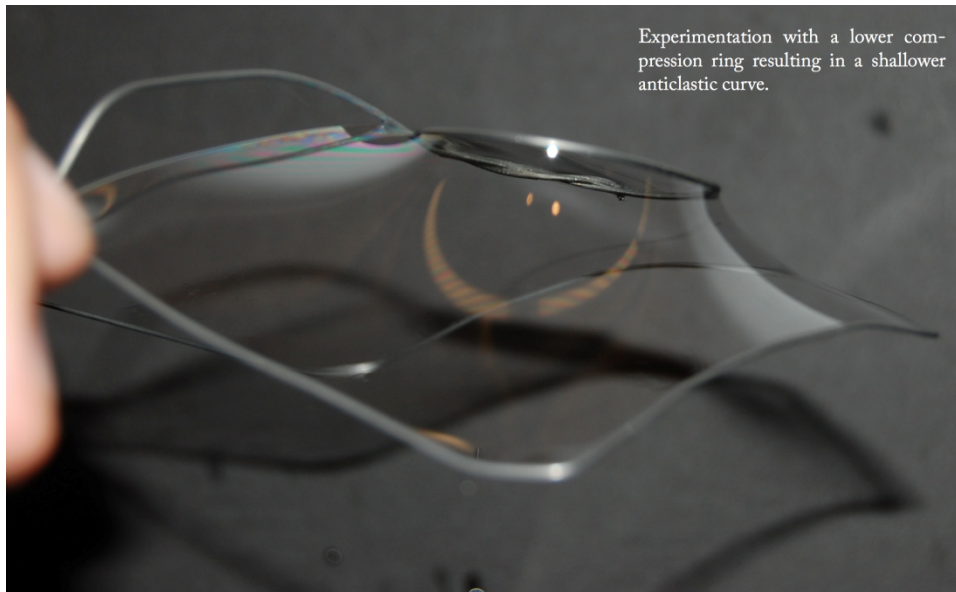
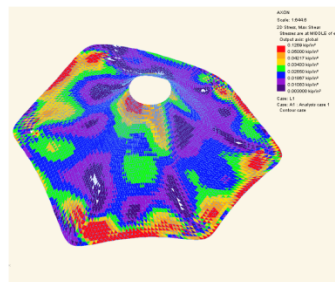
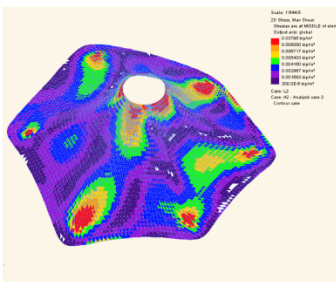


CourseNo: ARCHA4113\_001\_2012\_3  
 Meeting Location: AVERY HALL 114  
 Meeting Time: R 10:00A-01:00P

Instructor Information:  
[Wilfried Laufs](#)

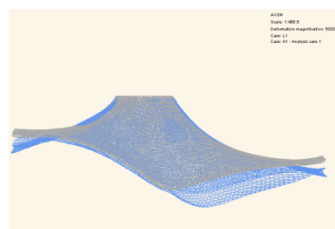
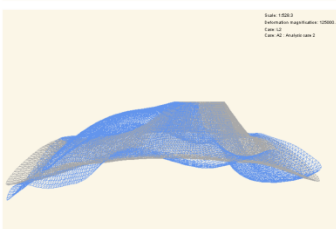


New Form: Wind Load  
 Thickness: 12.25"  
 Material: Spruce



New Form: Dead Load Analysis  
 Thickness: 12.25"  
 Material: Spruce  
 Dead load more evenly distributed from the top tension ring.

New Form: Wind Load, Deformation  
 Thickness: 12.25"  
 Material: Spruce



New Form: Dead Load Analysis, Deformation  
 Thickness: 12.25"  
 Material: Spruce

## Syllabus

### Overview

This class is not just about cathedrals. But in cathedrals we often find pure harmony between structure and aesthetic, where the structure itself is expressed to add spatial tension and heighten the experience of its occupants. We see this in the thin concrete shells of Felix Candela, the cast iron bridges of Thomas Telford, the sweeping fabric roofs of Jörg Schlaich, and the hyperboloid towers of Vladimir Suchov.

The implementation of such structure requires intimate knowledge of the principles and precedents of the assembly, as well as unique construction considerations and the analytical techniques used to validate its performance. An analysis of these aspects will confirm that these assemblies exist not only because of their compelling form, but likewise as a result of the ability of early designers to prove that they can be built using conventional construction techniques at reasonable cost, and perform adequately throughout their useful lifetimes despite their unique and unusual configuration.

Students will gain a holistic understanding of these essential characteristics through group-based research and design projects. Groups will select an existing assembly, which they will explore through four class modules: principles and precedents, analysis, construction, and innovation. Each group will prepare and deliver a presentation for the class at the end of each module.

Lectures will be given for a portion of each class and will focus on notable case studies related to the current module. Students are expected to walk away from this class with a fundamental understanding of structural stability, a taxonomic approach to selecting structural solutions, and familiarity with some of the most historically significant successes and failures within this realm. As a consequence of the class format, students will also gain familiarity with the works of great engineers throughout history.

### Complete Syllabus:

[https://courseworks.columbia.edu/access/content/group/ARCHA4118\\_001\\_2012\\_3/Course\\_Syllabus\\_2012-3\\_Rev0.pdf](https://courseworks.columbia.edu/access/content/group/ARCHA4118_001_2012_3/Course_Syllabus_2012-3_Rev0.pdf)