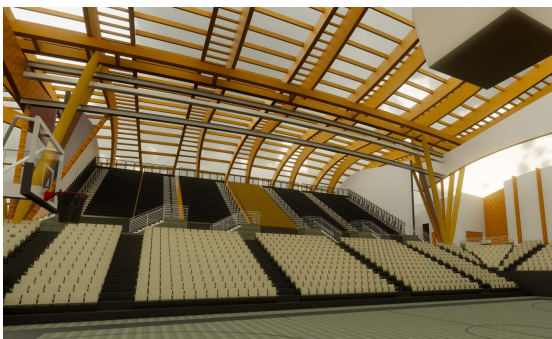
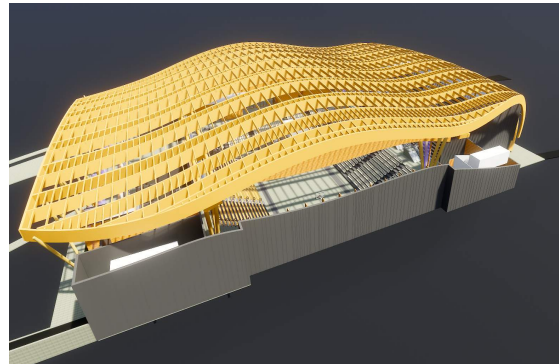
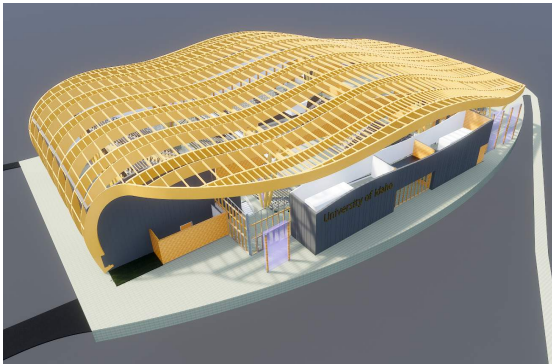


## 2018 Timber Design Competition

The Department of Civil and Environmental Engineering, with support from the Idaho Forest Products Commission (IFPC), are pleased to announce a competition for the **IFPC Engineering Design Award** for students enrolled in CE 404/504-Timber Design. The goal from the competition is to engage future professionals in developing sustainable structural designs of the Idaho Central Credit Unit Arena on the University of Idaho campus that will be constructed from renewable sources using new and traditional wood materials. The competition will challenge participants to interpret and arrange numerous methods of structural systems with a focus on innovations in wood design.

For thousands of years, wood has been used as a building material. Modern timber products and systems have greatly expanded the potential uses of this historic material. Timber is an ideal green building material: it is well suited for a broad range of structural and aesthetic applications, it offers economical construction and high-performance characteristics; and wood is an economic driver to maintain forests and protect jobs in rural communities.



**Proposed architectural layout of main arena area**

## The Challenge

The competition challenges students to design the Idaho Central Credit Unit Arena. The description of the innovative structure is posted on the arena website as:

*"The arena is intended to be designed to showcase massive curvilinear roof that drapes itself over the building, V-shaped timber columns are on prominent display above the entrance, while the underside of the roof features a curving lattice of wooden beams that's visible from everywhere in the building. Light wood finishes have been used in the few interior areas where the structural elements are hidden, and the building's exterior will be cladding in metal paneling".*

## Criteria for Judging

Criteria for the judging design submissions will include: (1) Timber/wood as the primary structural material; (2) Creative and innovative use of timber/wood as a design solution (3) Efficient use of wood materials and/or constructability of design details.

## Competition Details

The competition is for UI students who are enrolled in CE 404/504-Timber Design class during the Fall 2018 semester. Architectural drawings of the arena will be provided to students to help start the structural design process.

Students will work to perform the following:

1. Provide at least three alternatives for the **Level-01** floor plan main framing system (10%).
2. Perform structural analyses of the three alternatives using either RISA3D or SAP2000 software (10%).
3. Conduct a comprehensive timber design of the most beneficial alternative using the latest version of the wood design manual-NDS (30%).
4. Prepare detailed calculation report to provide the most economical solutions/sections. (Hint: you need to contact at least one outside source to get the up-to-date labor and materials cost) (25%).
5. Deliver the final design details of the main framing system using AutoCAD-generated drawings (25%).

### P.S:

- The winners will be announced and awards will be distributed based on the criteria on shown above.
- Undergraduate students are expected to be involved in the design competition, however the graduate student leading each team will be responsible of the main tasks and mentor the undergraduate students.
- Each team consists of ONE graduate student and FOUR undergraduate students as listed below on page 3.
- Arena architectural plans are attached to this document.
- The instructor will perform a peer review in addition to the feedback from the judges.
- More information about the award ceremony will be announced to you during the semester.
- Please keep the provided arena drawings VERY confidential as the project is still under contracting.

**Deadline:** Students are required to submit their final report electronically as a single PDF file to Dr. Ibrahim by 5 pm on 11/27/2018. [aibrahim@uidaho.edu](mailto:aibrahim@uidaho.edu)

### Anticipated Project Groups

Team No.	Group 1	Group 2	Group 3
<b>Lead</b>	<b>Almakrab Abdullah</b>	<b>Arowojolu Olaniyi</b>	<b>Gdeh Tawfeeq</b>
<b>Members</b>	Alrashdi Ayoub	Bemis Nathan	Corley Austin
	Langan Riley	Graff Joshua	Hodgson Cody
	McCain Joshua	Tompkins Nicole	Noe Walker

Team No.	Group 4	Group 5	Group 6
<b>Lead</b>	<b>Mohamed Mahmoud</b>	<b>Ramirez Kevin</b>	<b>Al Hatailah Hussain</b>
<b>Members</b>	Felton Cooper	Almuhaisen Suliman	Dieckmann Morgen
	Johnson Nathan	Bomber Paul	Wood Chaney
	Lamberton Dylan	Weimer Eric	Aus Connor

**IFPC Engineering Award  
2018-19 IMPLEMENTATION  
University of Idaho Students**

*Student Design Awards* – IFPC is sponsoring an award to recognize the best use of Idaho wood in structural design.

Award Title: Best Use of Idaho Wood (Idaho Species & Products)

Level: Timber Design Engineering Students

*Judges:* 2018 Panel of Judges:

ASCE Idaho Section representative – TBD

Forest Industry Representative – TBD

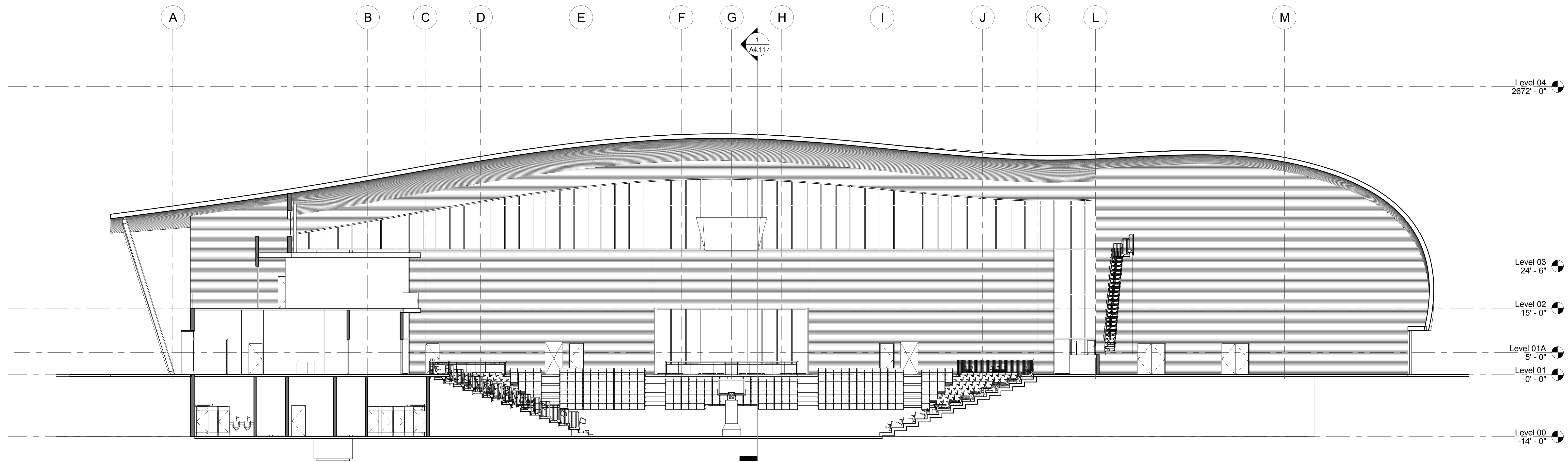
Regional Professional Engineer(s) -- TBD

Woodworks Representative – TBD

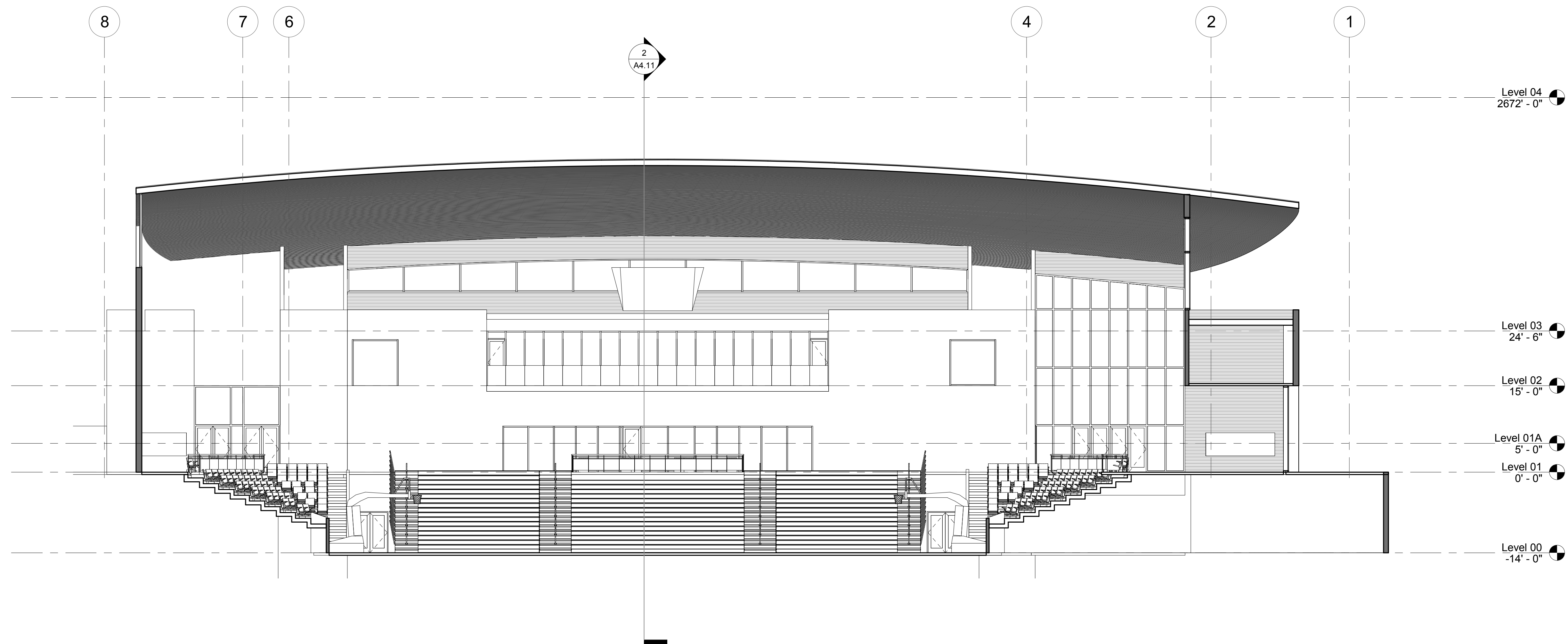
*Criteria:* Best use of Idaho wood in a structural design that demonstrates a creative solution and knowledgeable application.

*Awards:* The first-place team will be awarded \$600 from IFPC with Plaques for graduate and undergraduate students. The second-place team award consists of \$400 cash with Plaques for graduate and undergraduate students. Awards are at discretion of judges.

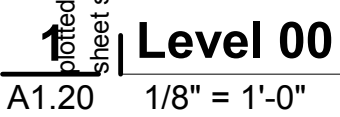




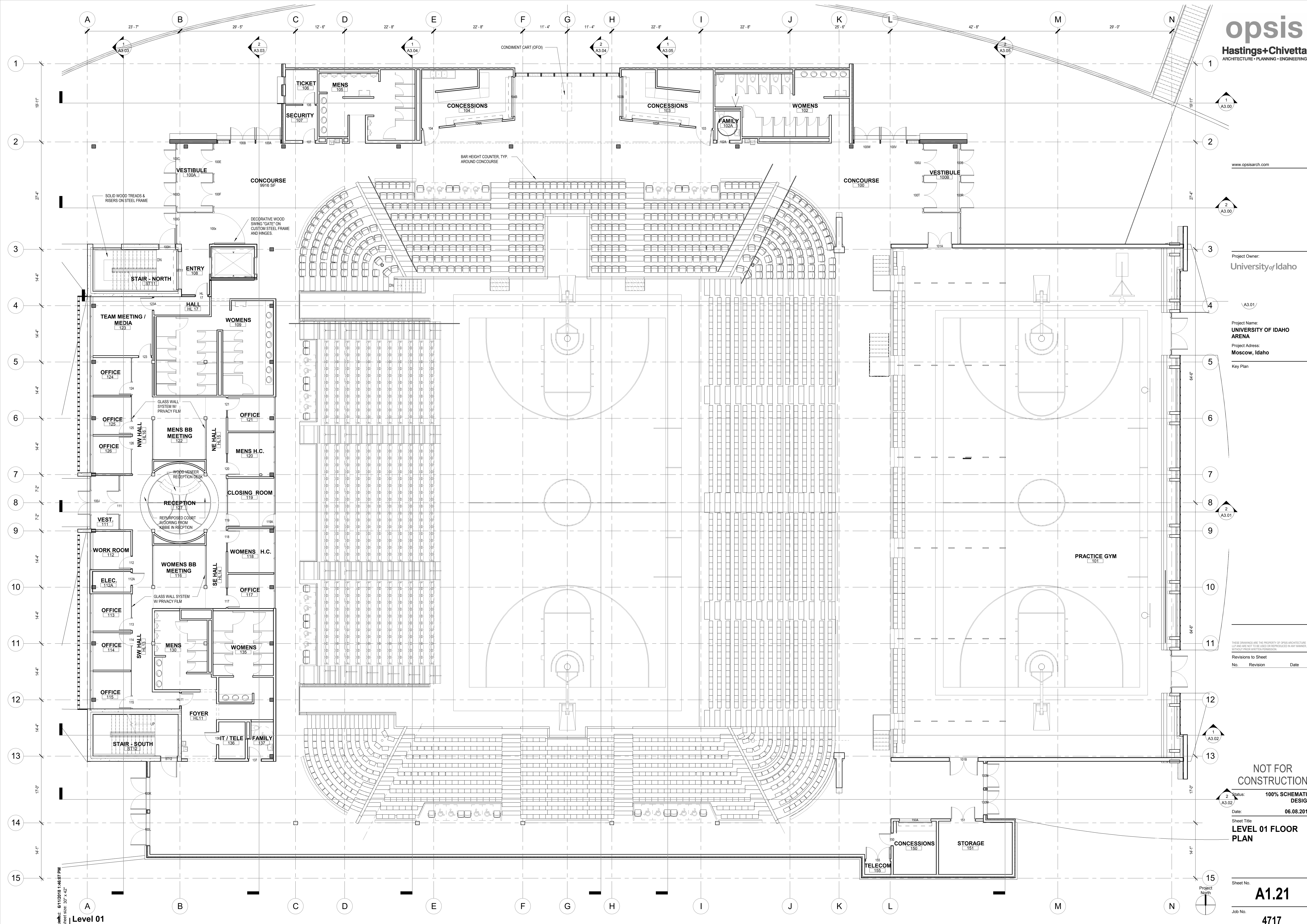
2 BUILDING SECTION EAST / WEST - CENTER  
A4.11 3/32" = 1'-0"

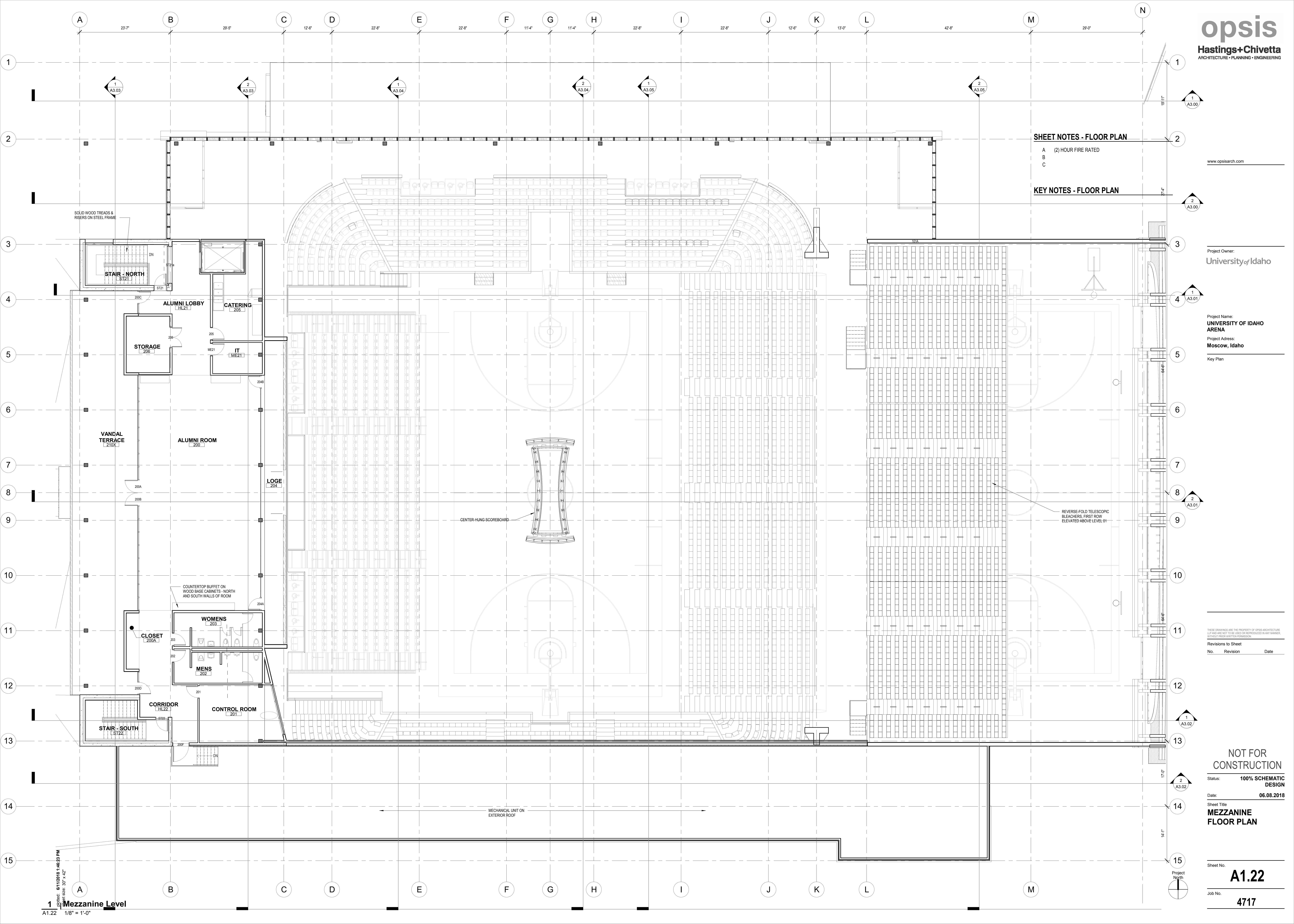


1 BUILDING SECTION NORTH / SOUTH - CENTER  
A4.11 3/32" = 1'-0"











1. REFERENCE SHEET AX.XX FOR MOUNTING HEIGHTS AND GENERAL INFORMATION
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- 3.

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Portland, OR 97209  
503.525.9511  
www.opsisarch.com  
Stamp

Consultant Logo

Key Plan

Project Owner:  
Owner

Project Name:  
UI Arena

Project Address:  
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Revisions to Sheet

Status: Project Status

Date: Issue Date

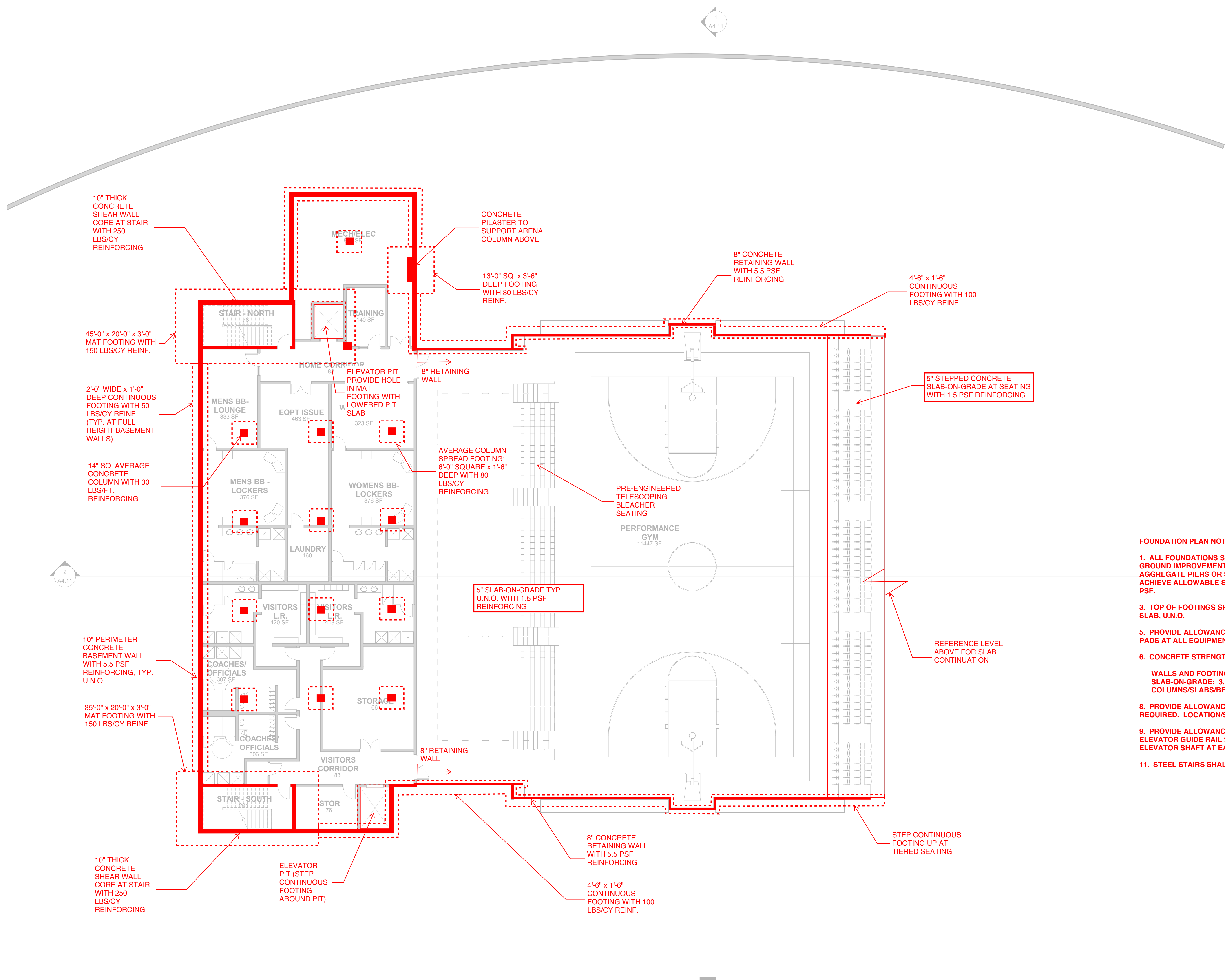
Sheet Title  
LEVEL 00 FLOOR  
PLAN

Sheet No.

A1.10

Job No.

3400



FOUNDATION PLAN NOTES:

1. ALL FOUNDATIONS SHOULD BE SUPPORTED ON GROUND IMPROVEMENT CONSISTING OF RAMMED AGGREGATE PIERS OR STONE COLUMNS IN ORDER TO ACHIEVE ALLOWABLE SOIL BEARING PRESSURE OF 6,000 PSF.
3. TOP OF FOOTINGS SHALL OCCUR 1'-0" BELOW TOP OF SLAB, U.N.O.
5. PROVIDE ALLOWANCES FOR CONCRETE HOUSEKEEPING PADS AT ALL EQUIPMENT.
6. CONCRETE STRENGTHS:  
  
WALLS AND FOOTINGS: 4,000 PSI  
SLAB-ON-GRADE: 3,000 PSI  
COLUMNS/SLABS/BEAMS: 5,000 PSI
8. PROVIDE ALLOWANCE FOR TOWER CRANE FOOTING AS REQUIRED. LOCATION/SIZE TBD.
9. PROVIDE ALLOWANCE FOR VERTICAL HSS 10x4x1/2 ELEVATOR GUIDE RAIL SUPPORT AT EACH SIDE OF ELEVATOR SHAFT AT EACH LEVEL.
11. STEEL STAIRS SHALL BE BIDDER DESIGNED

1 | Level 00  
A1.10 3/32" = 1'-0"

CONCEPT A

KPFF 9.29.17



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Status: Project Status

Date: Issue Date

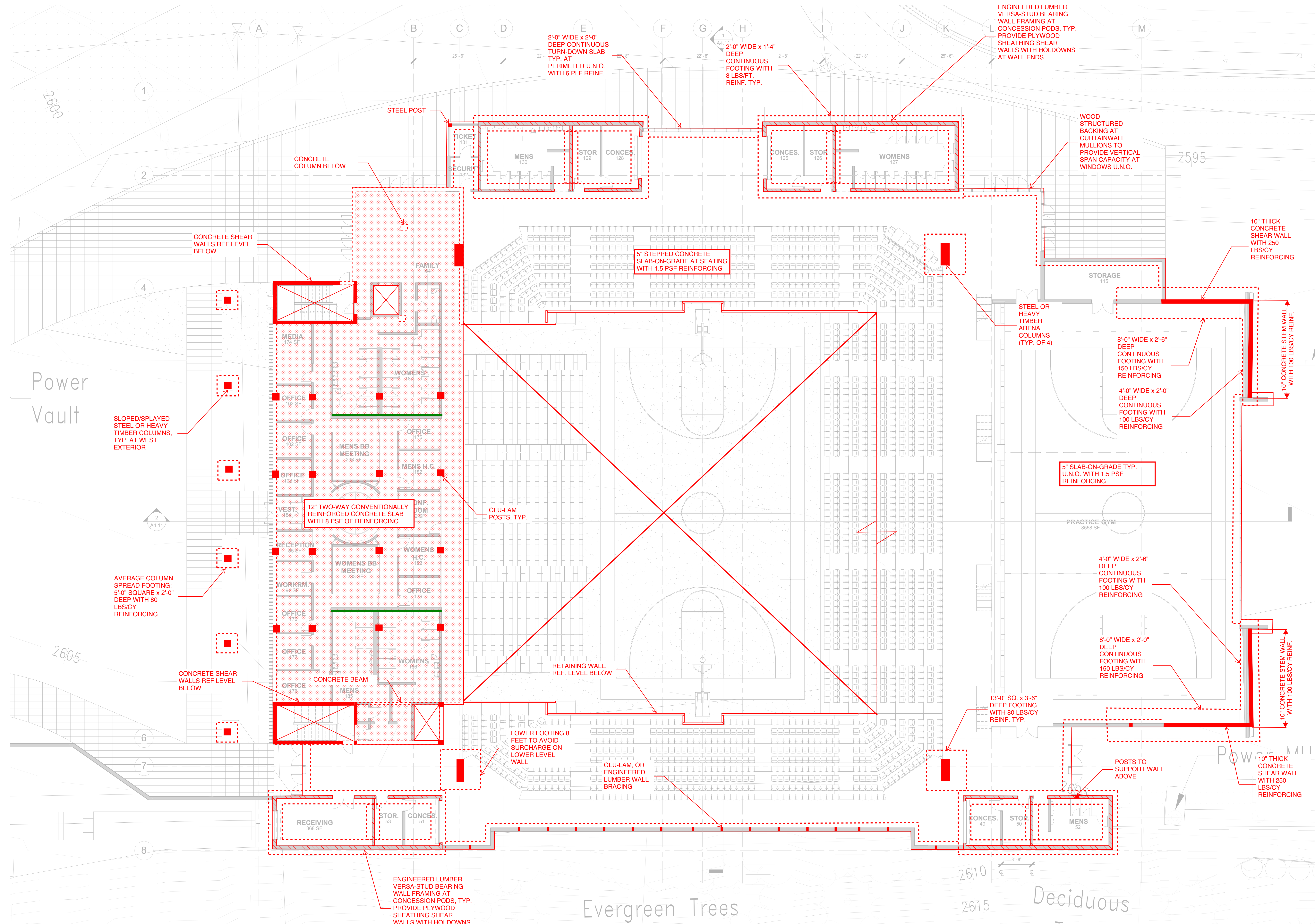
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**LEVEL 01 FLOOR  
PLAN**

Sheet No.

**A1.11**

Job No.

**3400**



**1 | Level 01**  
A1.11 3/32" = 1'-0"

CONCEPT A

**KPFF 9.29.17**



- SHEET NOTES - FLOOR PLAN
- 1. REFERENCE SHEET AX.XX FOR MOUNTING HEIGHTS AND GENERAL INFORMATION
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KEY NOTES - FLOOR PLAN

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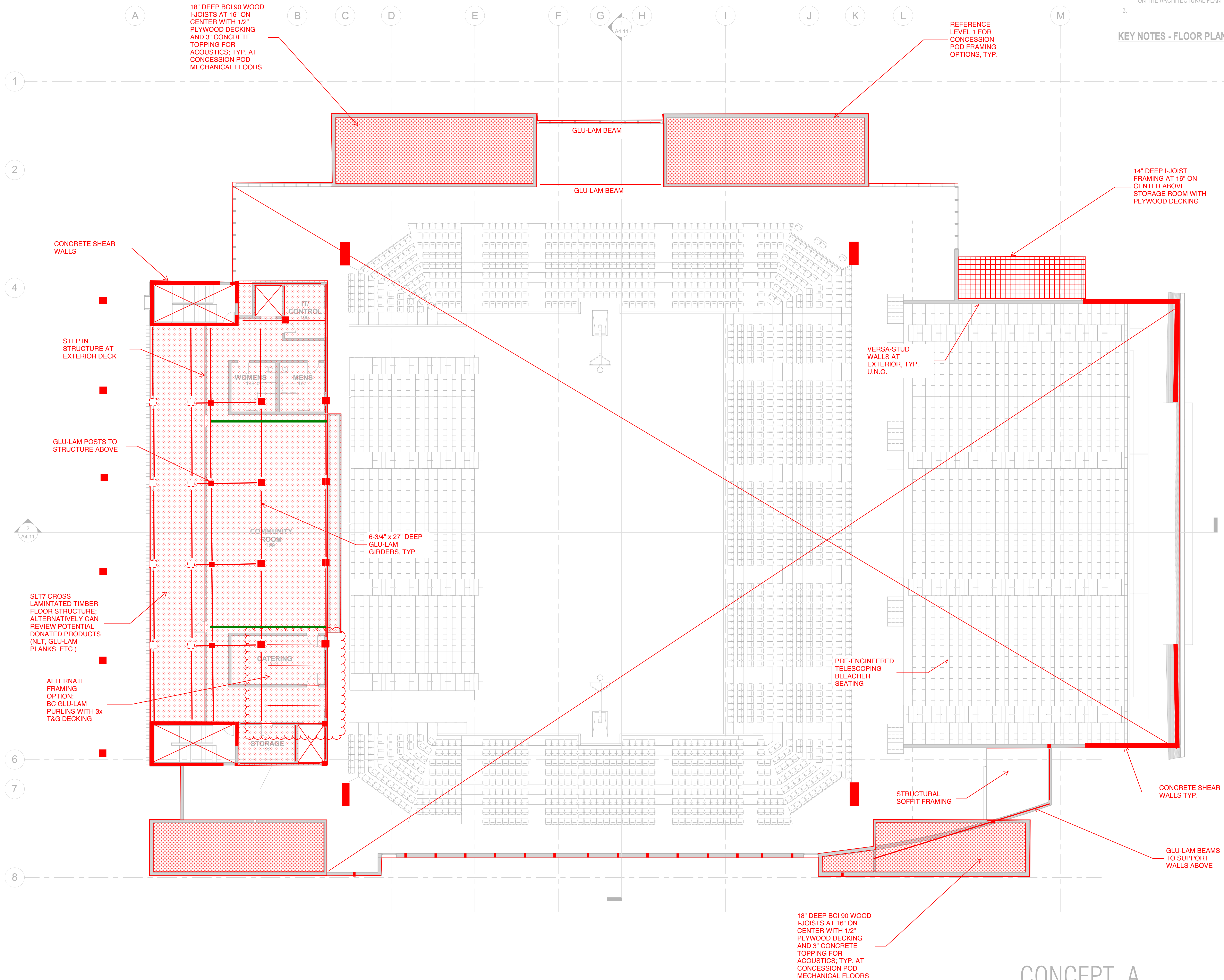
Sheet Title  
LEVEL 02 FLOOR PLAN

Sheet No.

A1.12

Job No.

3400



1 | Level 02  
A1.12 3/32" = 1'-0"

CONCEPT A

KPFF 9.29.17



