

## **Appendix I : “As-Found” Conditions Drawings**



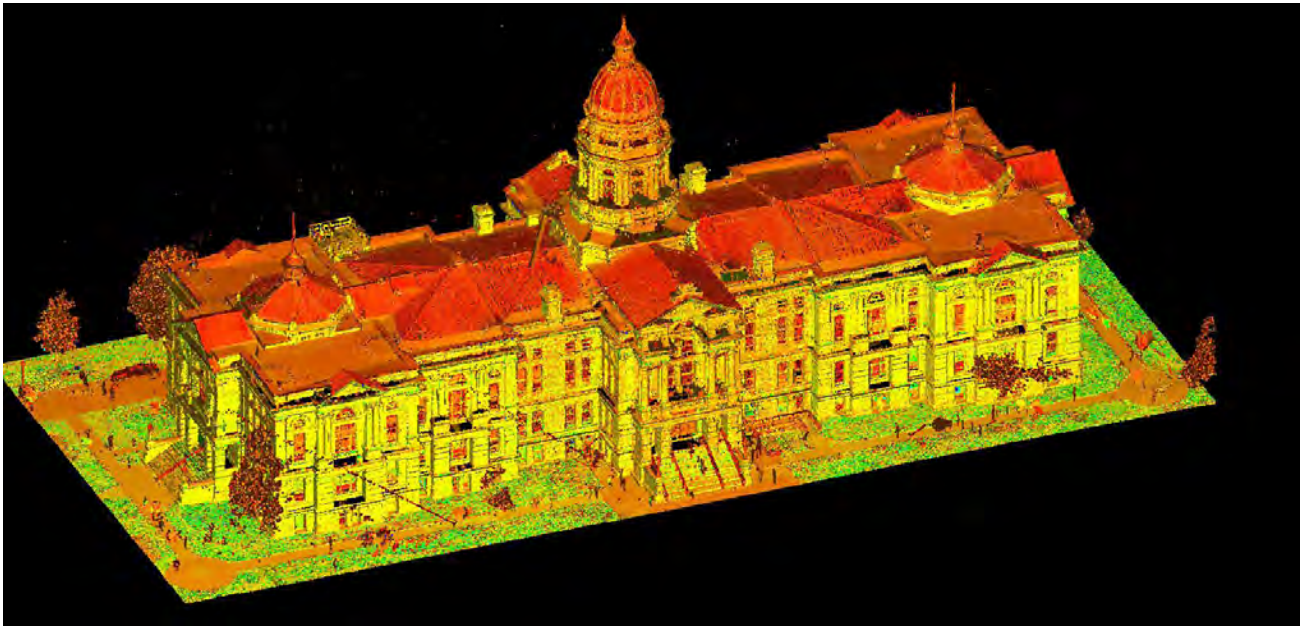


Figure I-1. Point Cloud Model of the Wyoming State Capitol Exterior Envelope Produced by Laser Scanning.

INTRODUCTION

The production of accurate and detailed base drawings was one of the first project tasks of the Level I / Level II Study for the Wyoming State Capitol project. The Design Team retained GBG Geotechnics [GBG] to produce Measured Drawings and Orthophotography [rectified photography] for the Capitol. GBG began work at the Capitol in April 2013 and conducted the site work and developed the measured drawings between April 2013 and May 2013.

For a project that involves the comprehensive treatment of a monumental National Historic Landmark, a clear course of action can only be developed using the following principles:

1. There must be a clear understanding of the historic development of the building.

The Wyoming State Capitol is a historic structure that was developed over three [3] distinct building campaigns [1888, 1890, and 1917] representing different periods of construction, structural systems and building materials. In many respects, it is a combination of several buildings. Information about a building’s historic development is the first level of understanding necessary to determine and predict building performance.

2. The team must have accurate documents to perform the work.

One of the messages we aim to convey through this report is the value of an accurate “As-Found” Conditions set of documents. While there may be several generations of existing documents available today, a highly accurate and detailed “As-Found” Conditions documentation set using state-of-the-art technology has and will continue to provide significant benefits for the Wyoming State Capitol project, including:

- a. Accurate record of quantities for reliable cost estimates
- b. Ability to use these drawings for CADD, 3-D and BIM documentation during the design effort without having to convert unverified existing documents of several generations into CAD drawings of questionable value.

Members of the GBG team performed a detailed measured building survey of the Capitol Building interior and exterior, including high-

definition laser scanning, traditional surveying methods [e.g. total station], orthophotography, and hand measurements. Orthophotography is a process by which photographs are digitally transformed to eliminate lens and parallax distortion, and rectified such that the surfaces depicted in the photographs correspond to the real world size and shape of the surfaces shown. Laser scanning involves gathering an immense collection of three-dimensional data points through multiple overlapping scans, and combining the collected data in conjunction with traditional survey techniques to produce a comprehensive point cloud database of the building. The point cloud was then used as a basis for generating a three-dimensional “As-Found” Building Information Model [BIM].

In addition to a 3D “As-Found” BIM model, measured 2D AutoCAD plan, section, and elevation drawings of the building were generated in order to delineate the precise layout and composition of the building interior and exterior. The orthophotography and the AutoCAD drawings produced by GBG are included as part of this Appendix.

LEVEL OF DETAIL

The product of the measured building survey is a comprehensive, highly accurate representation of the existing building conditions, combining the aforementioned tools to form a complementary documentation system. This system allows for the clear identification of building materials and the near exact representation of the size and scope of specific conditions, including the location and size of existing structure and equipment.

USE IN THE PROJECT

The BIM model, measured drawings and orthophotography generated by GBG are critical tools in:

1. The evaluation and analysis of the existing building conditions, and;
2. The production of clear, graphical representations of the existing building, providing a detailed and accurate background for the preparation of contract documents.

All members of the Design Team have transferred their field survey information of the existing building to the measured drawings. When overlaid, the series of drawings indicating specific conditions are combined to tell a story regarding the potential deficiencies [at a micro scale] and how they inform the larger condition [at a macro scale]. The accuracy of the measured drawings generated by GBG enable the Design Team to accurately represent the present form of the building, while providing well-defined quantities for cost estimating purposes.

The “as found” measured drawings will serve as the base drawings for the Construction Documents. In addition, the “as found” drawings provide a foundation for selective removals and the proposed restoration and renovation of the Capitol.

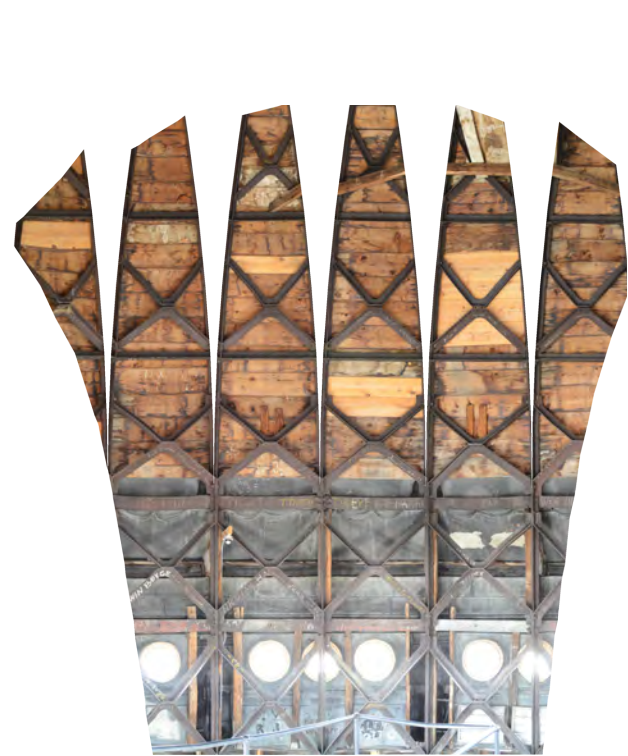


Figure I-2. Photogrammetry of the Dome Interior.

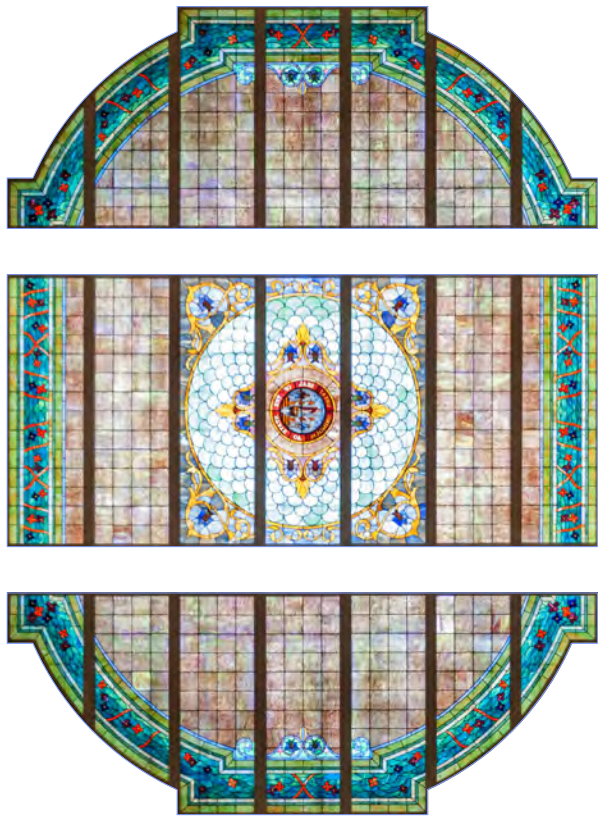
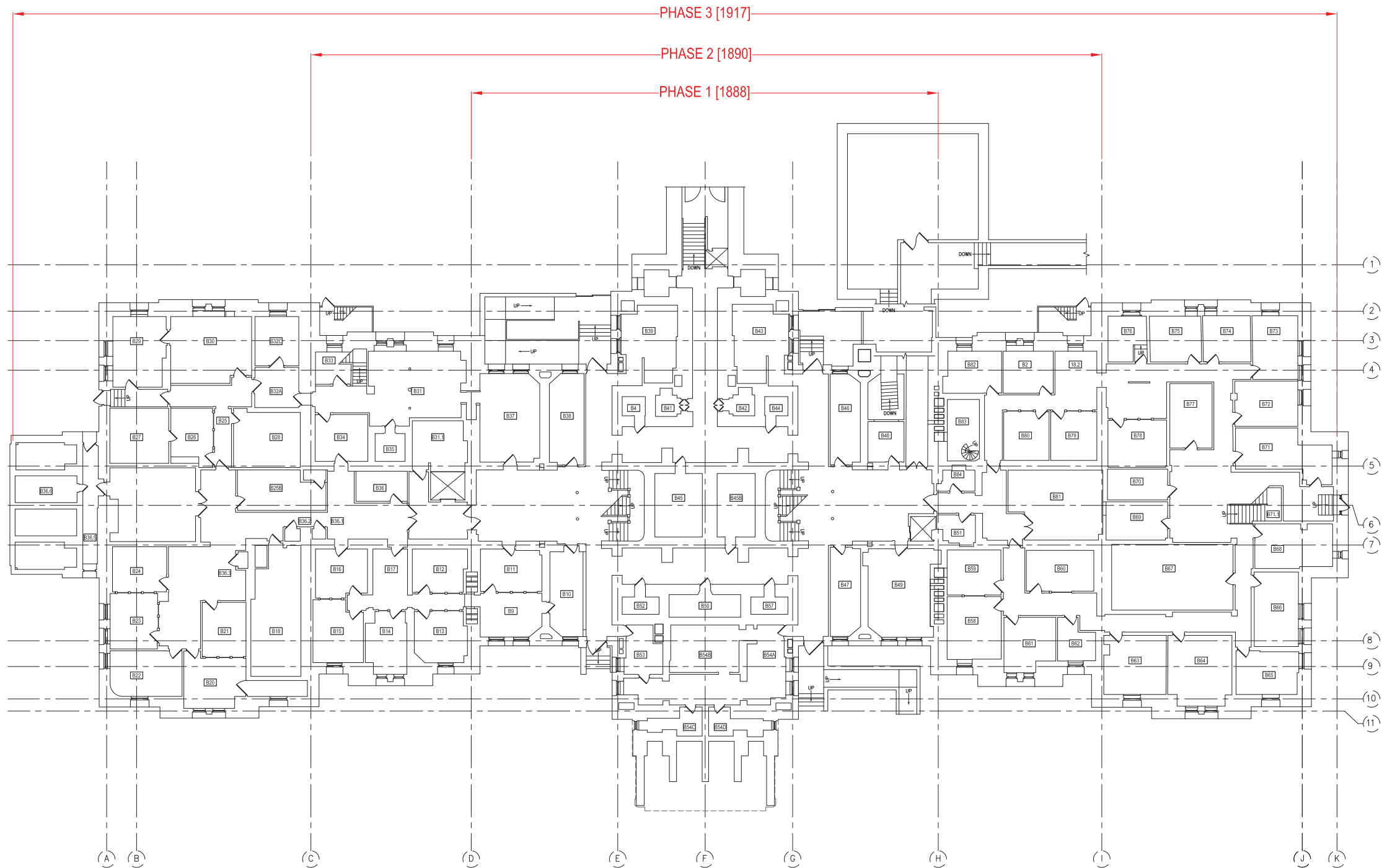


Figure I-3. Photogrammetry of the House Chamber Laylight.







CERTIFICATE OF AUTHORIZATION

STATE #

PROJECT

WYOMING STATE CAPITOL

700 WEST 21ST STREET  
CHEYENNE, WYOMING 82002

SHEET TITLE

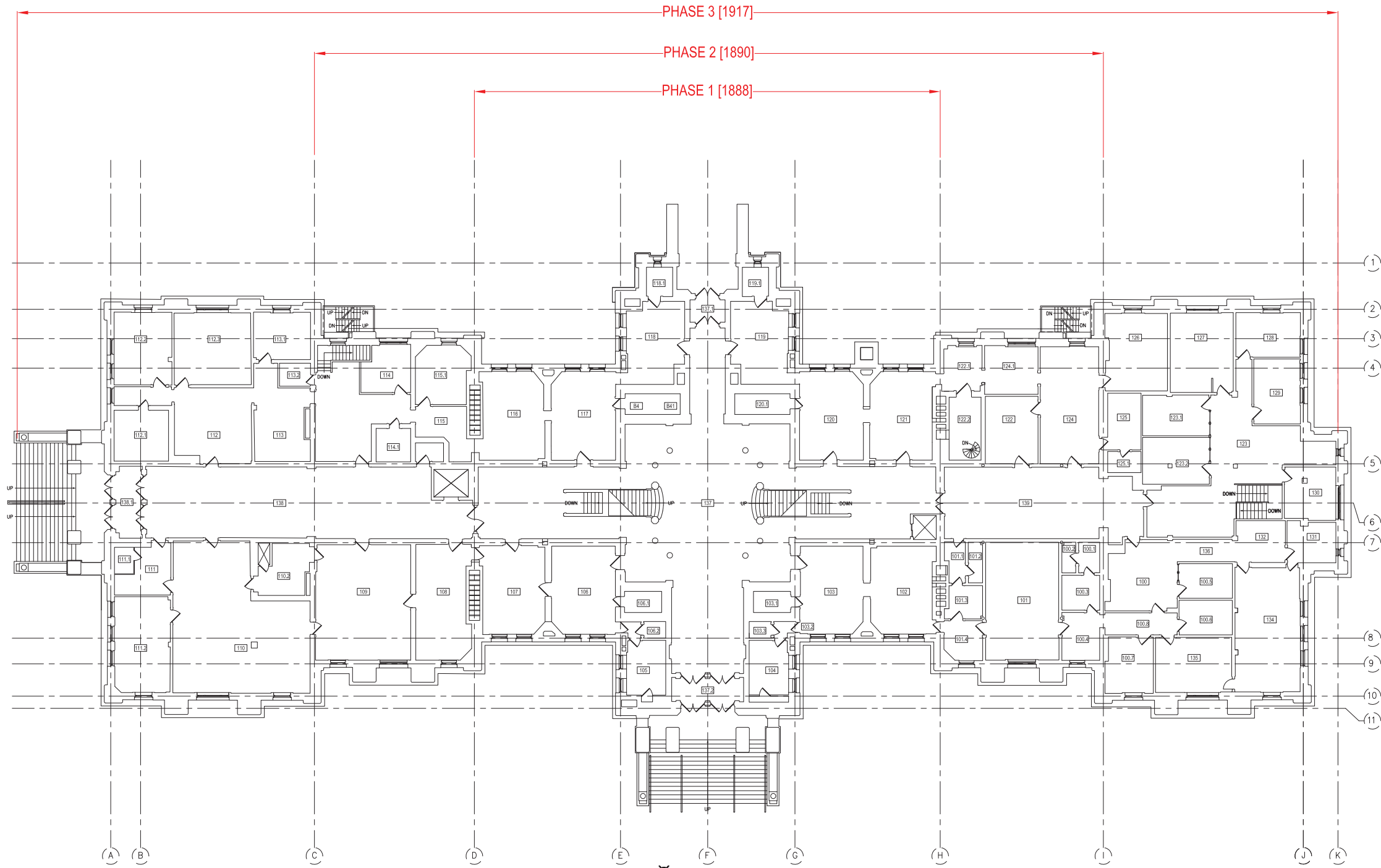
BASEMENT LEVEL PLAN

REV	DATE	PURPOSE

DRAWING NUMBER

AF-100





1 FIRST FLOOR LEVEL PLAN  
AF-101 3/32" = 1'-0"

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SHEET TITLE  
FIRST FLOOR LEVEL PLAN

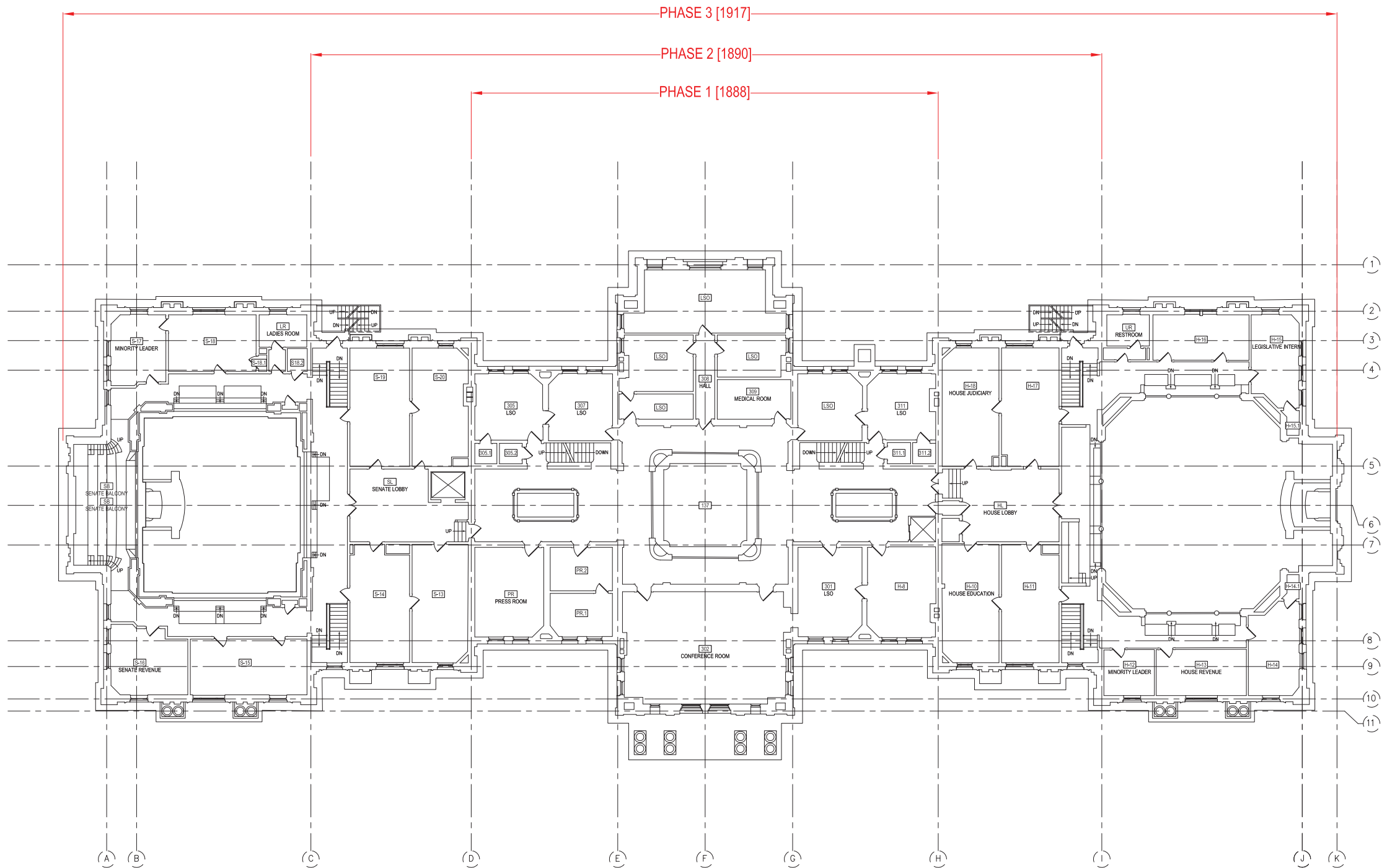
REV	DATE	PURPOSE

DRAWING NUMBER  
AF-101









1 THIRD FLOOR LEVEL PLAN  
AF-103 3/32" = 1'-0"

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SHEET TITLE

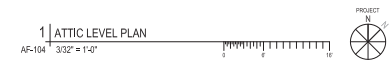
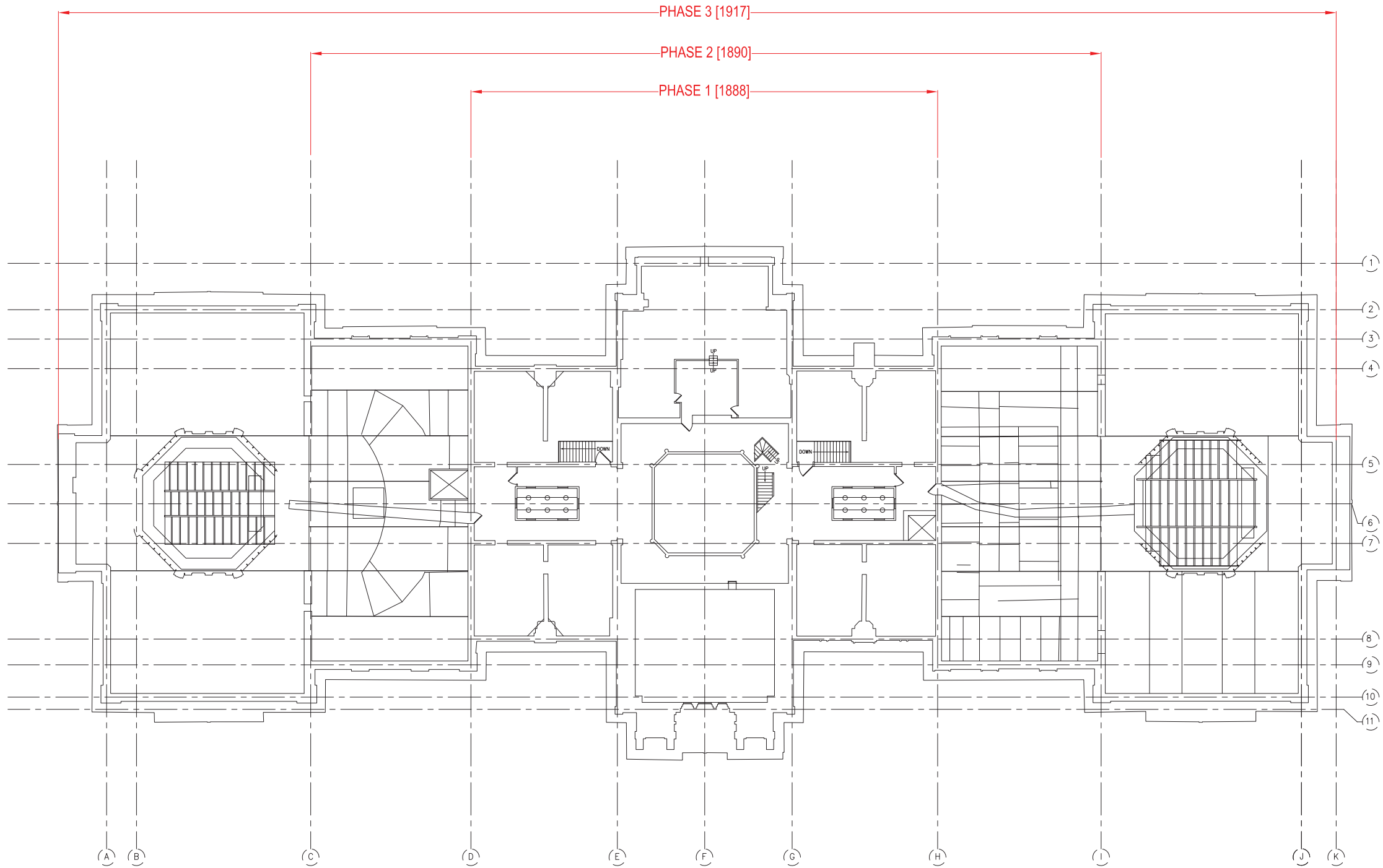
THIRD FLOOR LEVEL PLAN

REV	DATE	PURPOSE

DRAWING NUMBER

AF-103





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SHEET TITLE

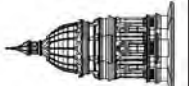
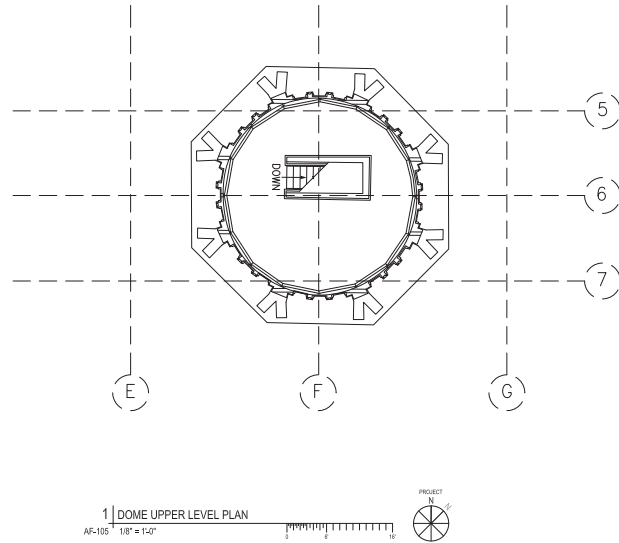
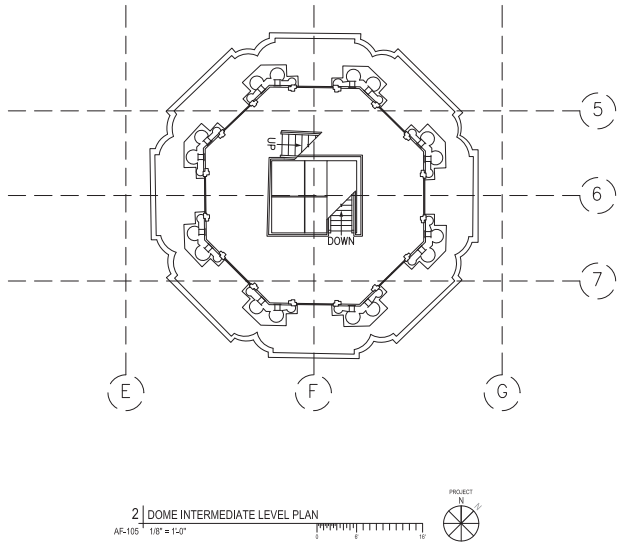
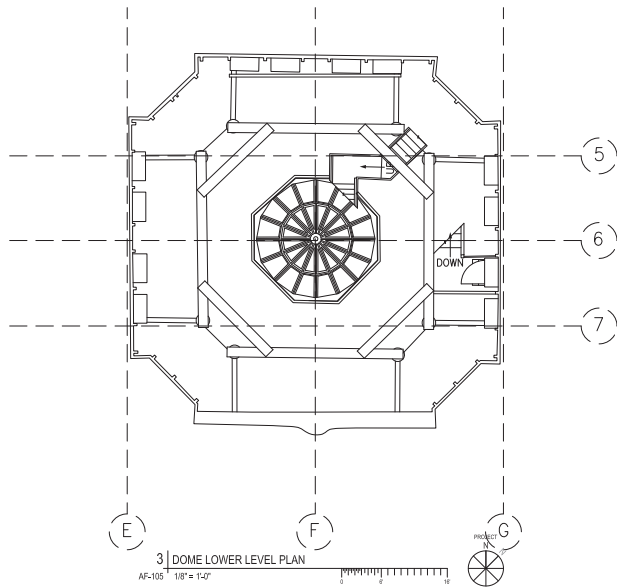
ATTIC LEVEL PLAN

REV	DATE	PURPOSE

DRAWING NUMBER

AF-104





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State of Wyoming A&I Construction Management

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PDP

and

ERM

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SHEET TITLE

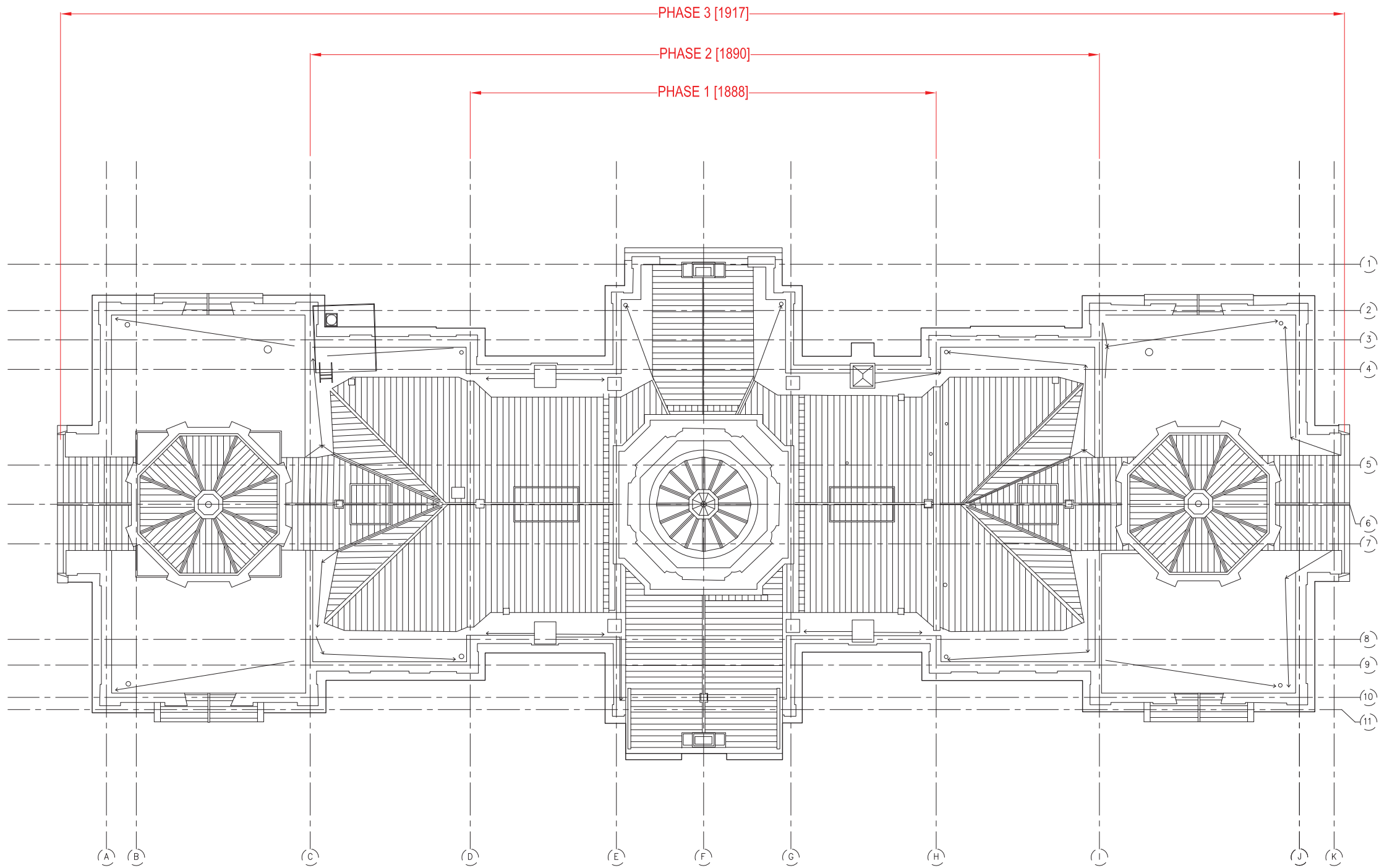
DOME PLATFORM  
LEVEL PLANS

REV	DATE	PURPOSE

DRAWING NUMBER

AF-105





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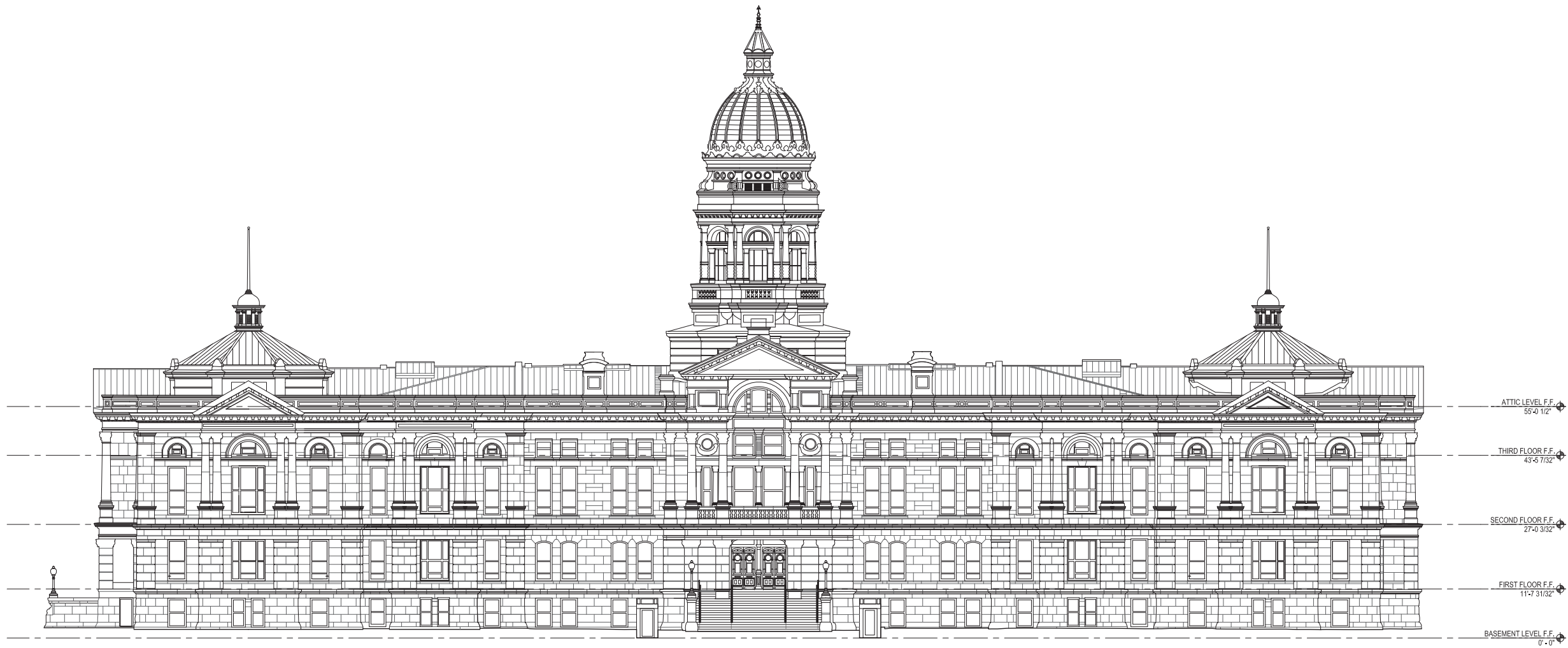
ROOF PLAN

REV	DATE	PURPOSE

DRAWING NUMBER

AF-106





1 | SOUTH ELEVATION  
AF-201 3/32" = 1'-0"



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SHEET TITLE

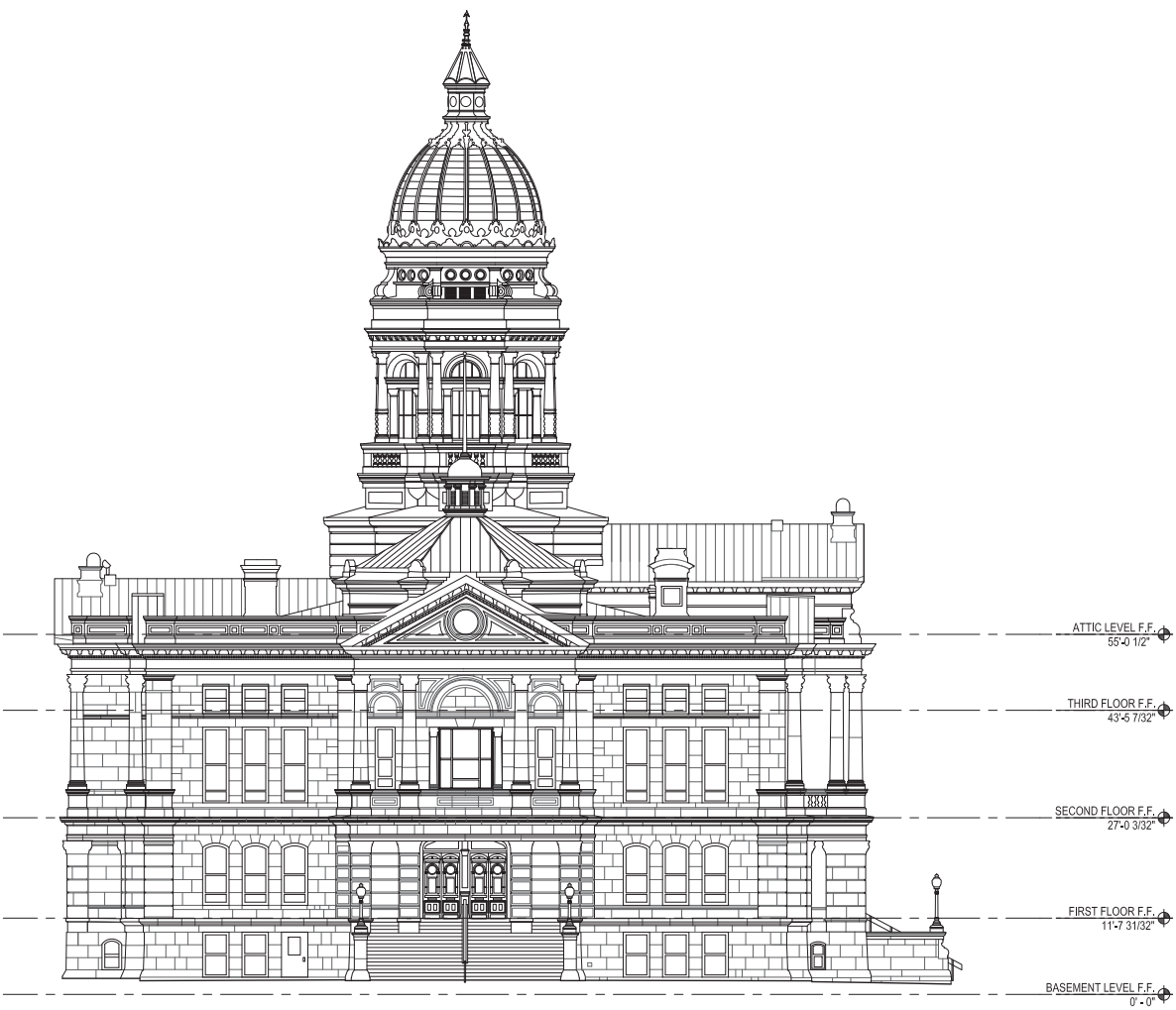
SOUTH ELEVATION

REV	DATE	PURPOSE

DRAWING NUMBER

AF-201





1 | WEST ELEVATION  
AF-202 3/32" = 1'-0"



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SHEET TITLE

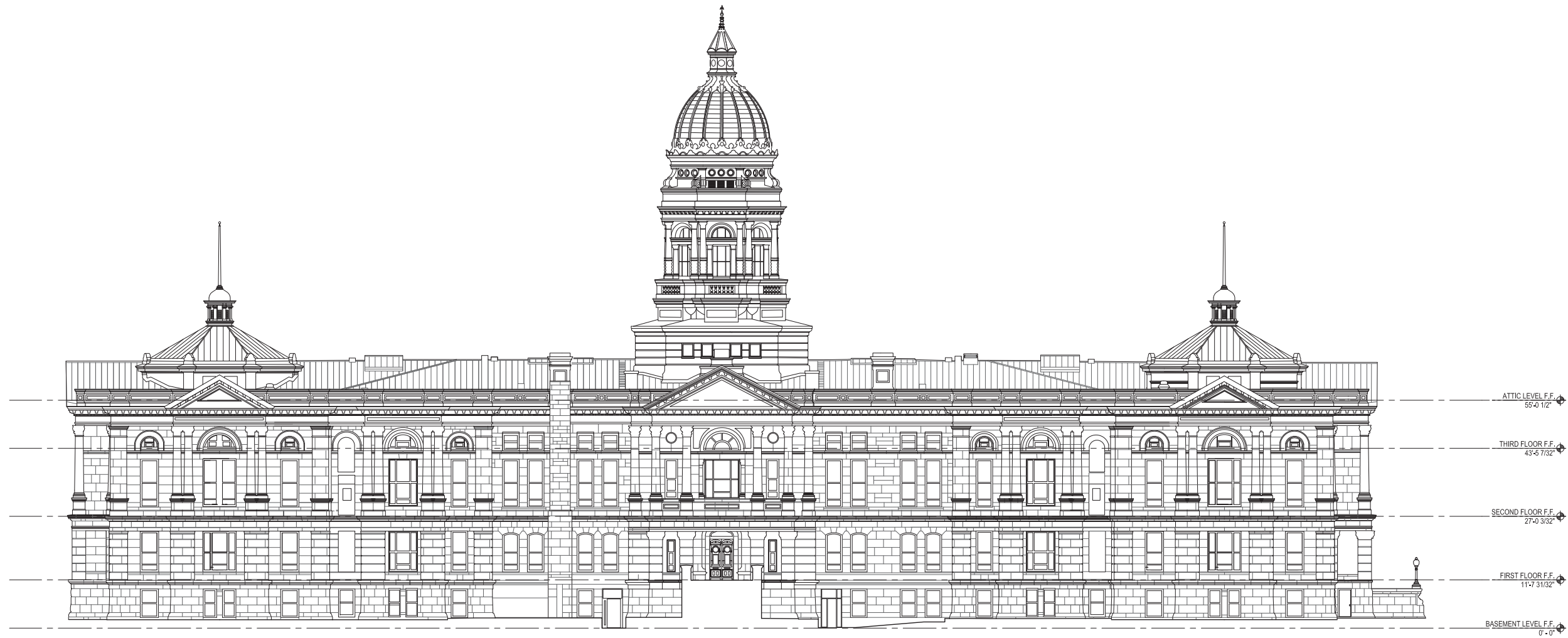
WEST ELEVATION

REV	DATE	PURPOSE

DRAWING NUMBER

AF-202





1 | NORTH ELEVATION  
AF-203 3/32" = 1'-0"

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SHEET TITLE

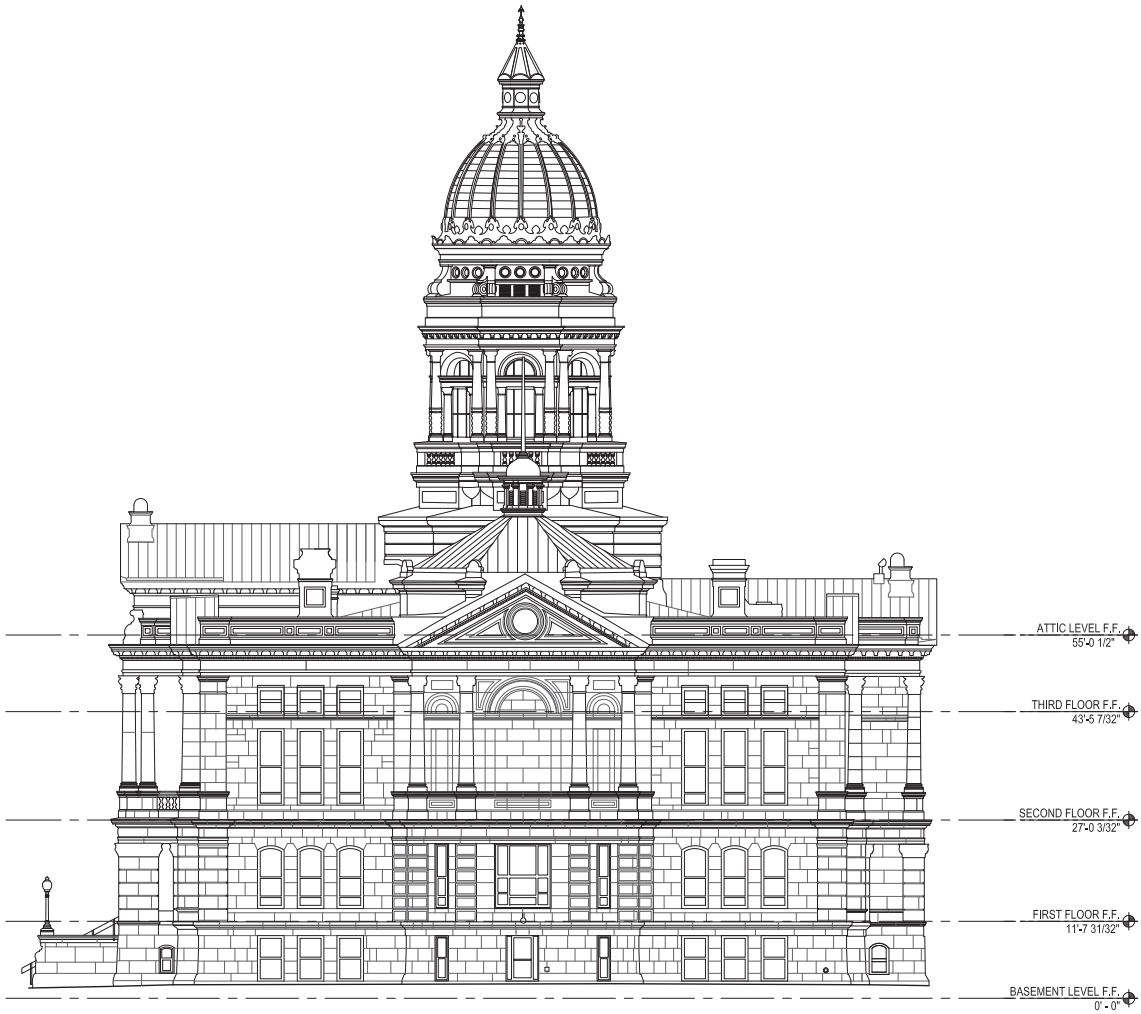
NORTH ELEVATION

REV	DATE	PURPOSE

DRAWING NUMBER

AF-203





1 | EAST ELEVATION  
AF-204 3/32" = 1'-0" 0 1 2 3 4 5 6 7 8 9 10



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SHEET TITLE

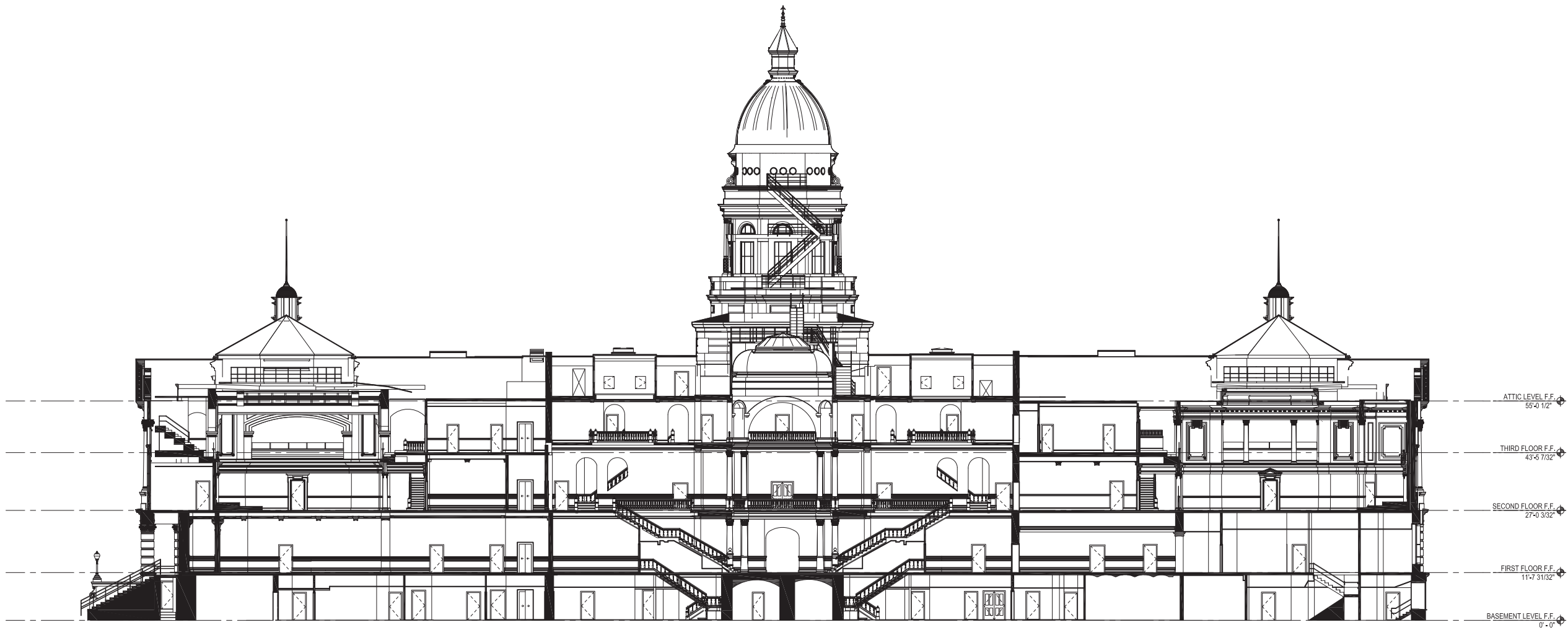
EAST ELEVATION

REV	DATE	PURPOSE

DRAWING NUMBER

AF-204





1 | LONGITUDINAL SECTION  
3/32" = 1'-0"



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SHEET TITLE

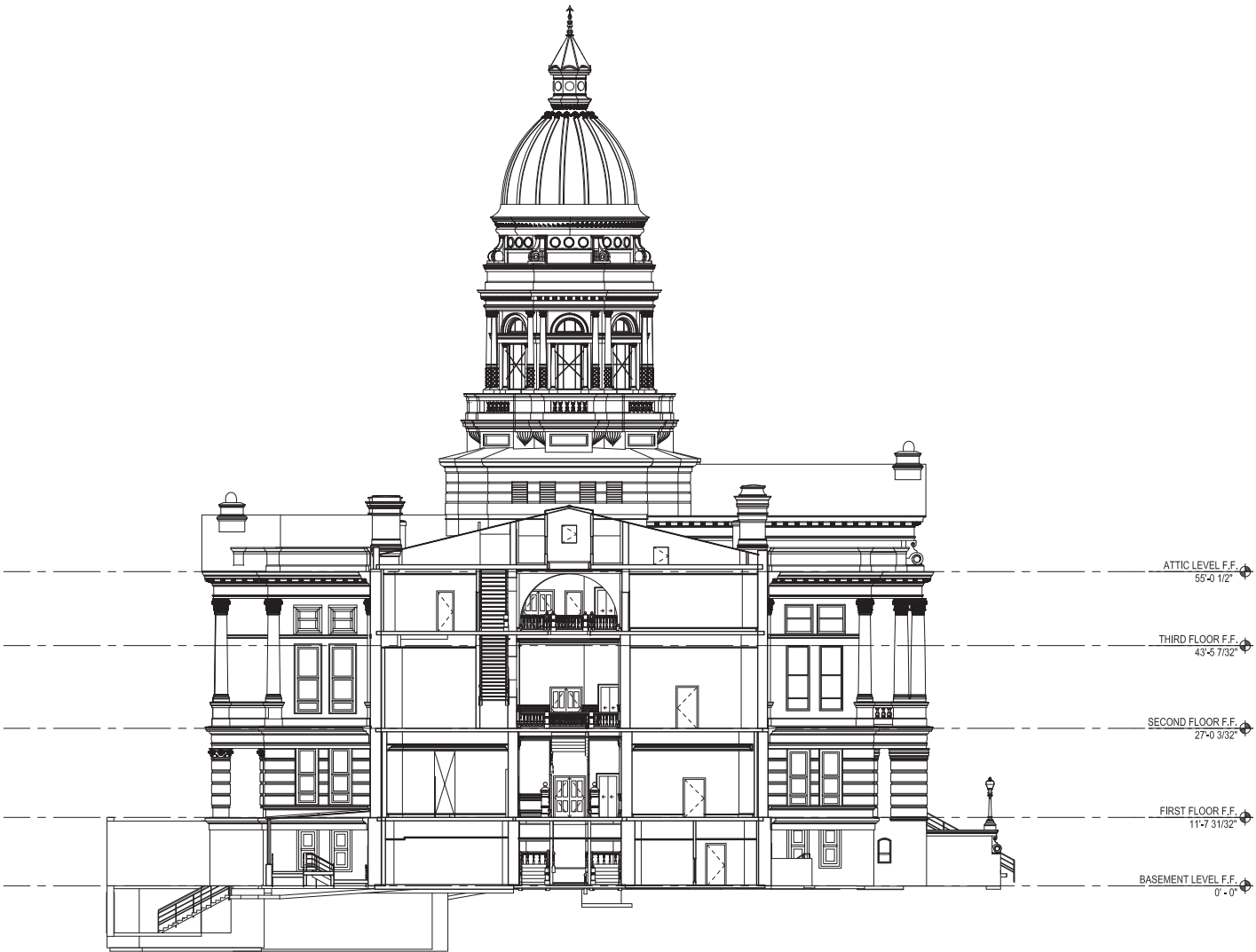
LONGITUDINAL SECTION

REV	DATE	PURPOSE

DRAWING NUMBER

AF-301





1 | TRANSVERSE SECTION  
3/32" = 1'-0"



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700 WEST 21ST STREET  
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SHEET TITLE

TRANSVERSE SECTION

REV	DATE	PURPOSE

DRAWING NUMBER

AF-302

