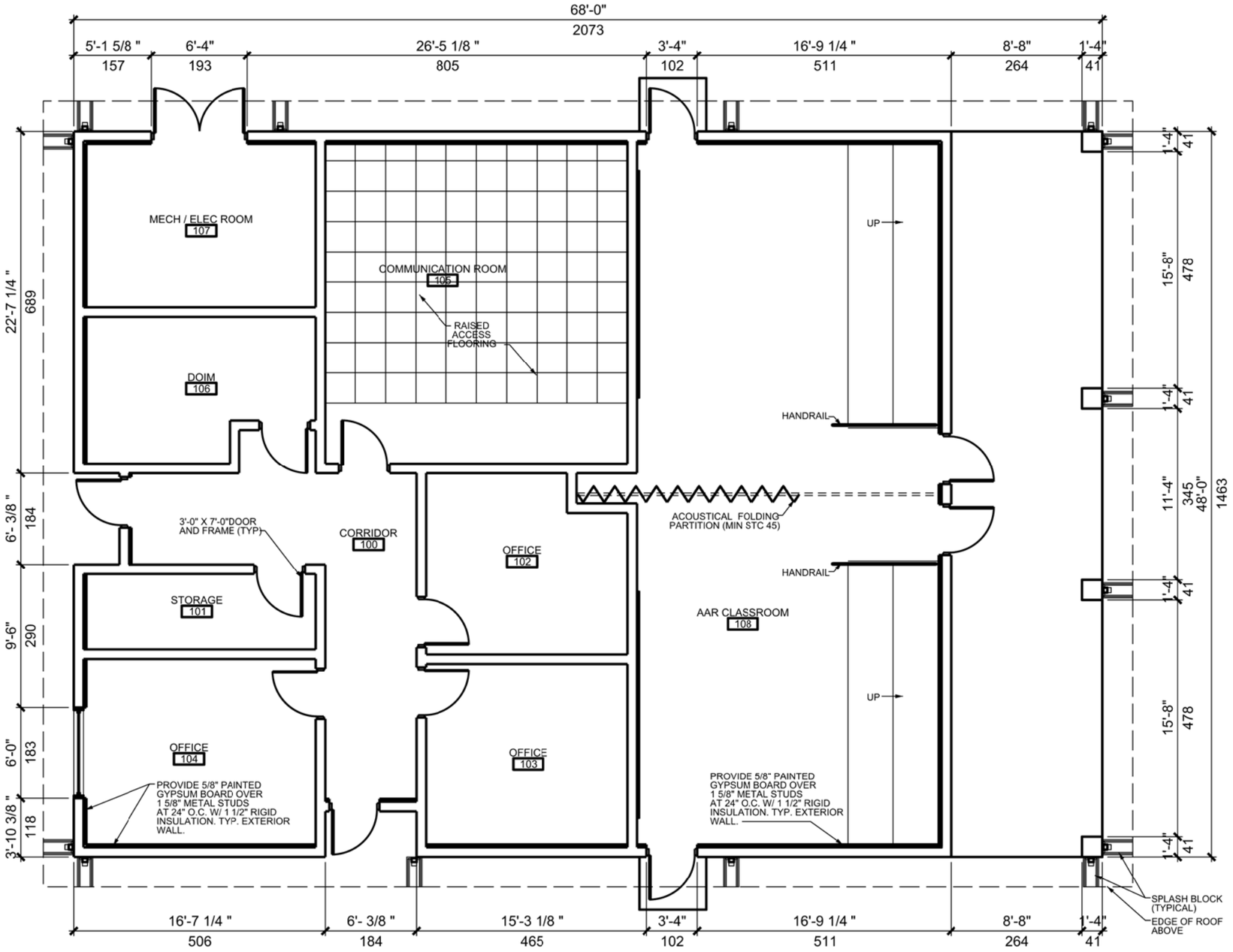


FLOOR PLAN

SCALE: 1/4" = 1'-0"

GENERAL
The Instrumented Range After Action Review (AAR) facility provides space for personnel to review training exercises. The facility has space for electronics and communications equipment used to connect downrange targetry data to the Range Control Tower and a separate space for common user communication equipment. The occupant load factor is 9.3 net sq. meters (100 sq. feet) (per person) for the offices. The occupant load for the classroom is 100 based on assembly occupancy, less concentrated use, without fixed seating. See NFPA 101 table 7.3.1.2.
All dimensions not labeled are in millimeters.

SITE ADAPTATION
This standard definitive design should be adapted to local conditions such as climate, available construction materials and techniques, topography, seismic zone, the existing character of surrounding buildings and the local Installation Design Guide. These factors may affect plans, elevations and building systems. The building foundation must be designed based on the results of a geotechnical investigation.

REFERENCE CRITERIA
The design and construction must comply with applicable codes and standards.

FUNCTIONAL REQUIREMENTS
A folding partition is provided in the classroom to provide the option for two smaller classrooms. Windows are double hung to meet functional requirements providing viewing, natural light and ventilation. Windows have forced entry resistant metal frames and are provided with insect screens. Provide polycarbonate security glazing in windows and doors. Floors should be sealed concrete or vinyl tile for ease of cleaning, with acoustical drop ceilings.
Gutters, downspouts and splash blocks should be provided where required by climatic conditions. Covered entries and ice guards may be necessary in northern climates. The AAR is accessed only by able-bodied personnel and does not require ADA compliance unless dictated by local criteria.

MECHANICAL
The Mechanical Equipment shall be selected and sized based on site requirements, local weather design criteria, available energy sources, and building construction materials. U-Factor requirements are based on the local climatic conditions in accordance with TI 800-1. The mechanical system must be sized to maintain an equipment operating temperature of 72 degrees F +/- 2 degrees F in rooms containing range communication equipment. Obtain communication equipment heat release from targetry supplier for HVAC load calculations and equipment sizing. HVAC design for personnel comfort shall be in accordance with UFC 3-410-FA. Route ductwork to provide an even distribution of conditioned air throughout the building to meet occupant comfort and outdoor air requirements. Provide diffusers and dampers to allow for manual balancing

ELECTRICAL
The AAR shall be served by either 1 phase or 3 phase source. Provide Surge Protective Device (SPD) for incoming service. Rigid Steel conduit shall extend a minimum of 5' (1524 mm) outside the building for power and communication circuits entering and leaving the building. Voltage drop shall comply with NEC standards and Army technical manuals. Grounding will be installed in accordance with NFPA 70 and other applicable standards.

All panel boards shall be recessed if installed in finished areas. Verify locations and provide power to all workstations installed in the Rooms 102 and 103 with dedicated 120V, 20 amp circuits serving quad outlets mounted 18"AFF. Provide 120V duplex receptacles mounted flush in the ceiling for the overhead projector in each classroom. Provide 120V duplex receptacles for each presentation podium located in the front of each classroom. Coordinate the requirements for the projector screen at the front of each classroom and provide power for screen as required.

The raised computer floor in the communications room must maintain a minimum depth of 305mm (12in) and form an interconnecting pathway between the communications and control rooms. Additionally, two dedicated 120 V, 20A duplex receptacles outlets on separate circuits should be provided in the base of each communications rack and DTR installed floor boxes mounted flush in the raised floor. These outlet boxes shall be wired to junction boxes by flexible conduit to allow raised floor tiles to be moved for access under the floor. A separate power distribution panel shall be provided for the communications equipment installed in the Communications Room. A UPS will be provided and installed by others and installed in the Communications Room. The weight load of the UPS shall be considered when providing the raised floor in the Communications Room. A manual transfer scheme consisting of a double-throw safety switch and a separate UPS disconnect switch shall be provided in the design to allow for simple installation of the UPS by others and allow for a bypass circuit to utility power.

Provide a complete 24"ladder type cable tray and conduit system for OPA installed cables interconnecting OPA installed equipment. Conduits shall extend from the cable tray to the overhead projectors, workstations and presentation podiums in each classroom. Provide a 4"X 4"junction box recessed in the wall with removable face plate for each presentation podium with a 1" conduit extending back to the cable tray system. Provide a 4"X 4"junction box recessed in the ceiling with removable face plate for each overhead projector with a 1"conduit extending back to the cable tray system. Provide vertical cable tray elbows above each DTR. Provide 12"X 4" vertical cable tray sections recessed inside the walls at each workstation location with a removable wall plate 18"AFF for access cable tray access at the workstations.

Illumination levels will be designed in accordance with IES. Interior lighting shall consist of fluorescent lamps at a level of 50 foot-candles with dimmer control. Fixtures with red lamps on separate switching shall be placed near each fluorescent lamp rooms with doors or windows to the exterior of the buiding, and Fixtures with red lamps on separate switching shall be provided next to all exterior lighting fixtures. Exterior lighting shall be provided with separate switching located near points of egress. The emergency electrical system shall comply with NFPA 70 and NFPA 101.

Lightning protection is required for this building in the form of either mast protection or air terminals on the building.

TELEPHONE
Telephone service should be provided in the AAR. A tie in to the installation fiber backbone is required for Instrumented Ranges.

TARGETRY SYSTEM INTERFACE
Targetry system fiber optic cables from downrange areas are brought into the Communications Room and terminated on the MCA provided rack. An additional 24 strands of single-mode fiber optic cable should be run from the Communications Room to the Range Control Tower.

FIRE PROTECTION
Fire protection is not required per fire codes for this building. The fire alarm shall be a local audible alarm. Fire extinguishers and cabinets are required per NFPA. Consult local Fire Marshall for compliance with local requirements. Provide a Mass Notification system per UFC.

4' 2' 0 4' 8' 12'
GRAPHIC SCALE: ¼"=1'-0"

US Army Corps of Engineers

Rev.	Description	Date	Approved

Designed by: | Date: | Rev.
Dwn by: | Ckd by: | Design file no.
Reviewed by: | Drawing code:
Submitted by: | File name: Plot scale: Plot date:

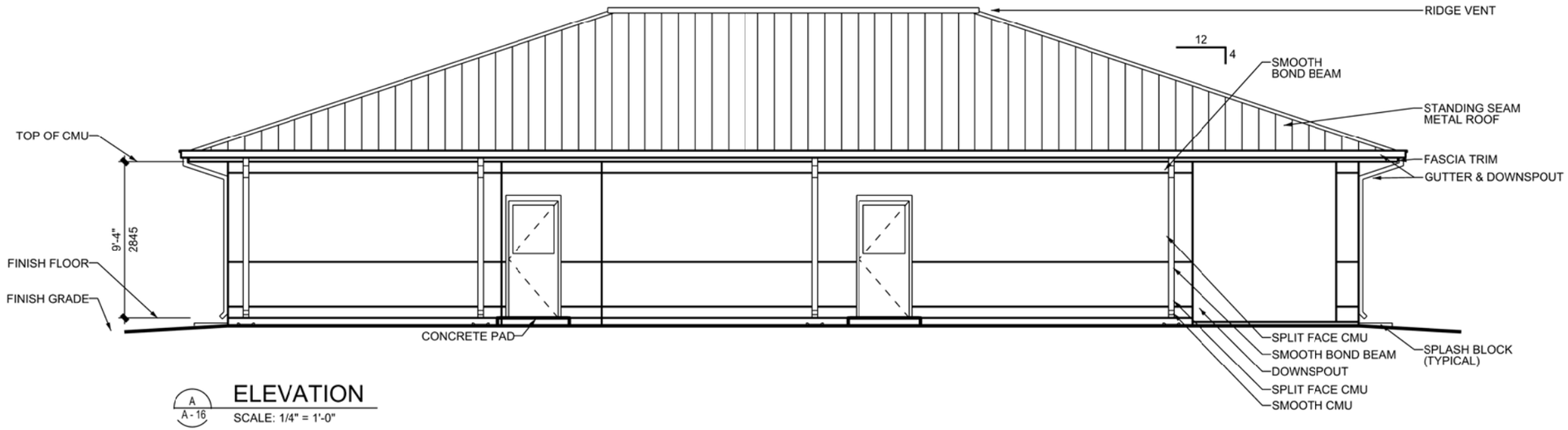
U. S. ARMY ENGINEERING AND SUPPORT CENTER, HUNTSVILLE
HUNTSVILLE, ALABAMA

JANUARY 2011

RANGE AND TRAINING LAND PROGRAM
STANDARD DESIGN MANUAL

INSTRUMENTED RANGE AFTER ACTION REVIEW

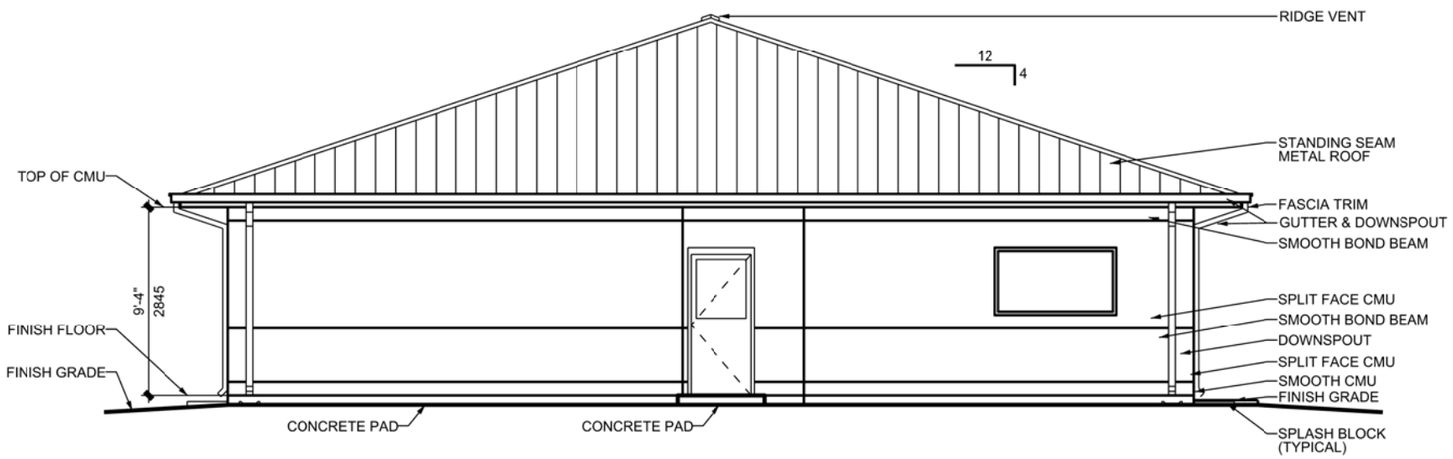
Sheet reference number:
A–13



A
A - 16

ELEVATION

SCALE: 1/4" = 1'-0"



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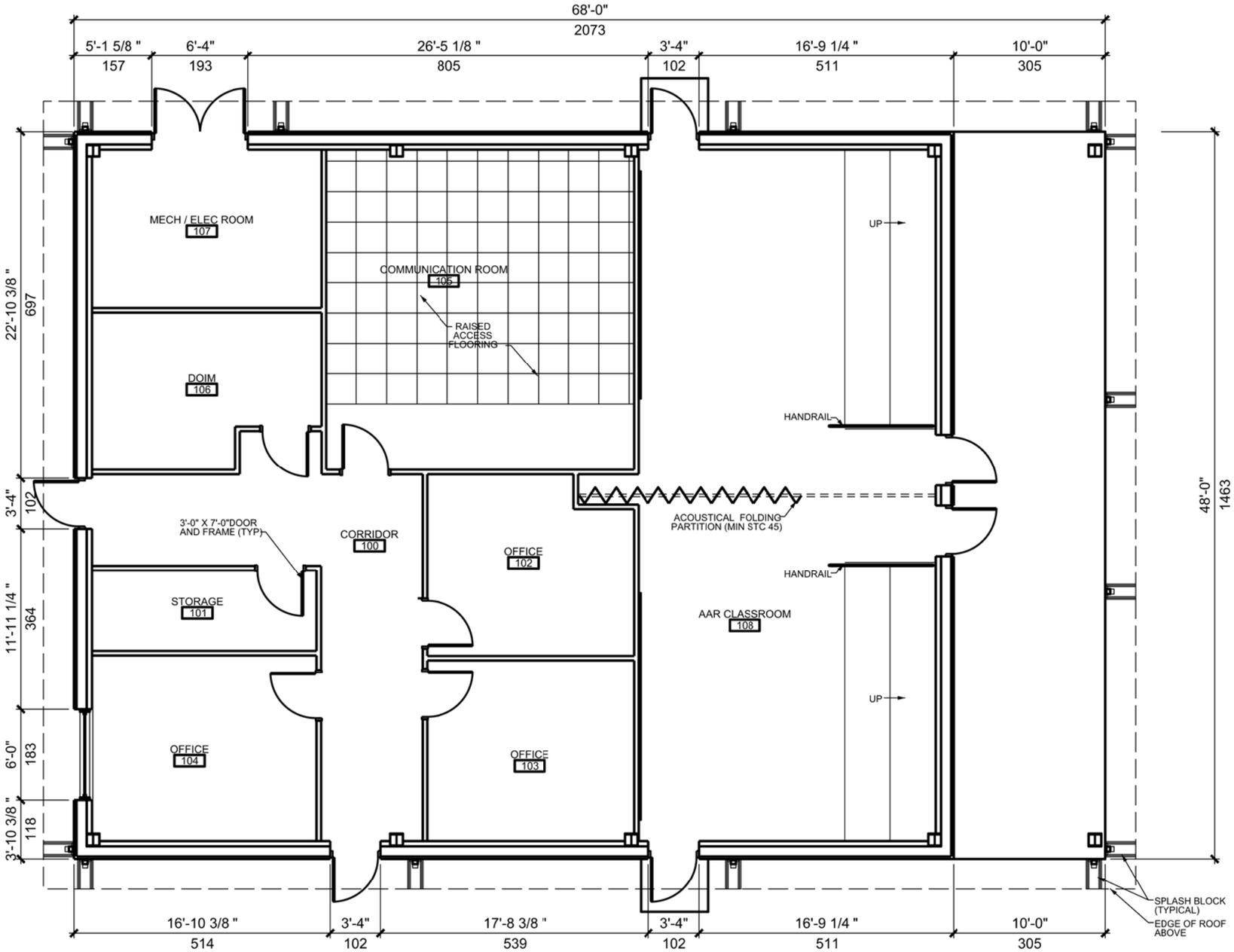

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HUNTSVILLE, ALABAMA

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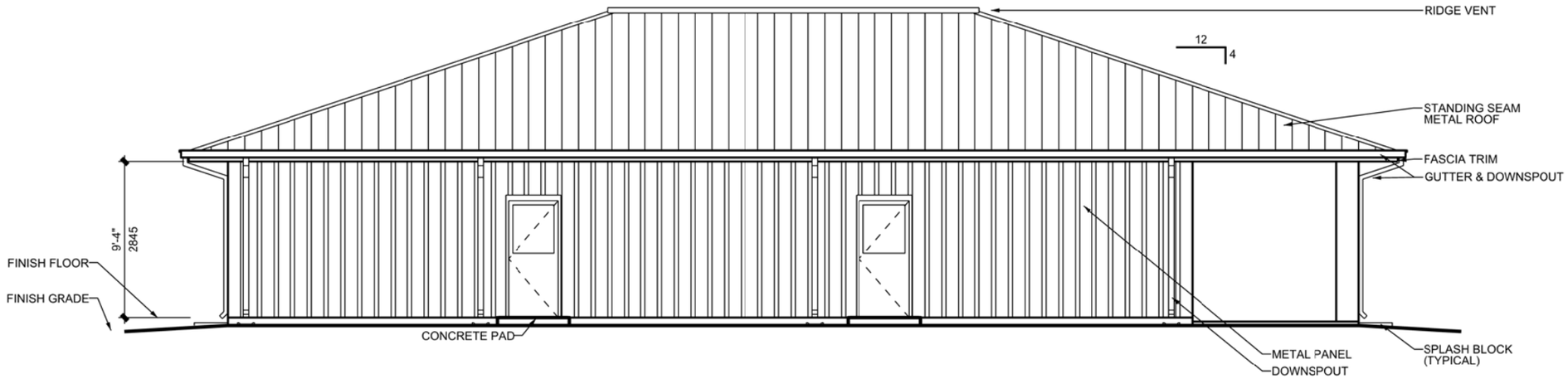

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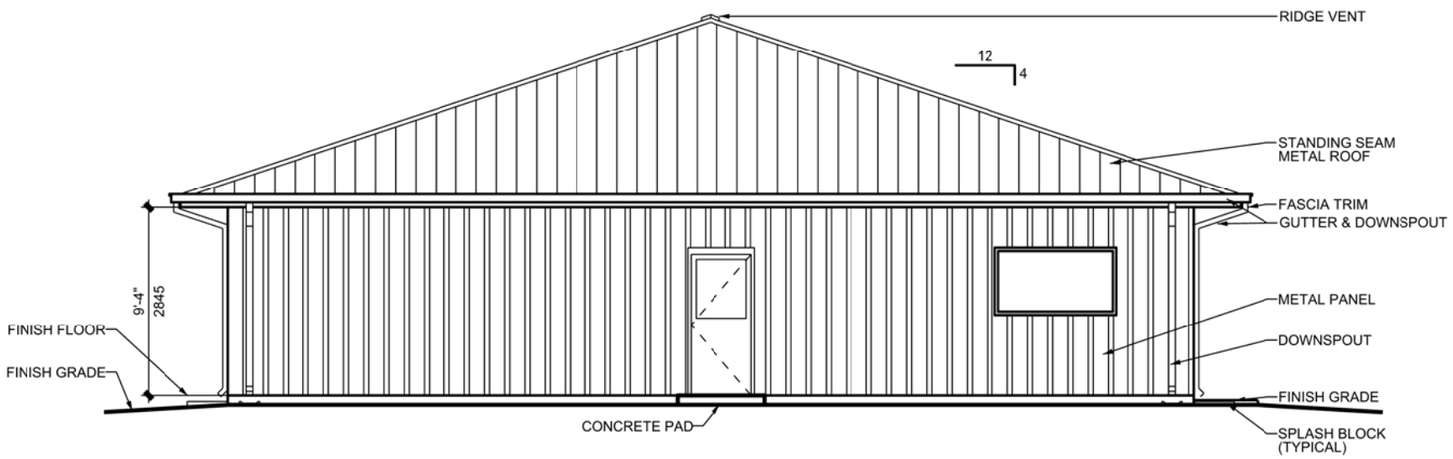
A - 16

ELEVATION

SCALE: 1/4" = 1'-0"



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ELEVATION

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