

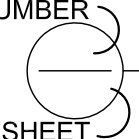
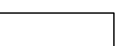
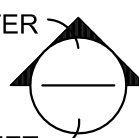
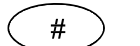
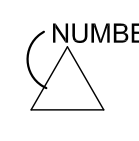

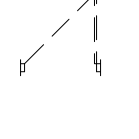

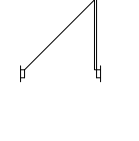

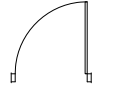


Deferred Submittals

The following item is required and will be provided as a deferred submittal:

1. Fire Sprinkler System.
Automatic Fire Sprinkler System submittal documents for deferred submittal shall be submitted to the local fire district, who shall review them and forward them to the building official, with a notation indicating that the deferred submittal documents have been reviewed and that they have been found to be in general conformance with the design of the building. The deferred submittal items shall "NOT" be installed until their design and submittal documents have been approved by the fire marshal having jurisdiction.

Graphic Standards

	NORTH ARROW INDICATOR		ELEVATION DESIGNATOR
	DETAIL DESIGNATOR		DESRIPTIVE NOTE DESIGNATOR
	BUILDING SECTION DESIGNATOR		ROOM NUMBER / FINISH DESIGNATOR
	REVISION DESIGNATOR		DOOR NUMBER DESIGNATOR
	TYPICALLY INDICATES EXISTING DOOR & FRAME TO BE REMOVED		DOOR TYPE DESIGNATOR
	TYPICALLY INDICATES EXISTING DOOR & FRAME TO REMAIN		WINDOW TYPE DESIGNATOR
			GRID LINE DESIGNATOR
			TYPICALLY INDICATES PROPOSED DOOR & FRAME - REFER TO DOOR SCHEDULE

Project Description

Embry-Riddle Aeronautical University intends to add 1,000 square feet to building F-8 for storage. A gas heater and lighting will be provided. The existing sand and oil interceptor will be modified to be accommodated in the new enclosure. The existing concrete apron will be extended to the end of the storage addition. A new exterior hose bib will be provided at the existing structure. The make-up air registers in the existing storage room will be relocated and the existing exterior storage room wall will be modified to provide a fire rated wall between the storage rooms.

Site / Vicinity Map



PROJECT
BUILDING F-8



IMPROVEMENTS FOR

EMBRY-RIDDLE HANGAR EQUIPMENT STORAGE BUILDING F-8

Project Information

OWNER:	Embry-Riddle Aeronautical University 3700 Willow Creek Road Prescott, AZ 86301	PH: 928-777-6600 FAX: 928-777-3950 CONTACT: Carl Beumer beumerc@erau.edu
PREPARED BY:	W. Alan Kenson & Associates, P.C. P.O. Box 11593 Prescott, AZ 86304	PH: 928-443-5812 FAX: 928-443-5815 CONTACT: Alan Kenson waka@cableone.net
CONTRACTOR:	TO BE DETERMINED	
SCOPE OF WORK:	Building expansion	
PROJECT ADDRESS:	6492 Corradi Way Prescott, AZ 86301	
ZONE:	IL - Industrial Light	

OCCUPANCY: S-1

CONSTRUCTION TYPE: II-B

ACTUAL AREA

BUILDING F-8:	2,800 SQUARE FEET
BUILDING ADDITION:	1,000 SQUARE FEET
TOTAL AFTER ADDITION:	3,800 SQUARE FEET

EMERGENCY LIGHTING:	Yes
FIRE ALARMS:	Yes
FIRE SPRINKLERS:	Yes
FIRE EXTINGUISHERS:	Yes - 1 per 3,000 S.F.
BUILDING CODE:	2012 International Building Code
PARKING:	Parking is existing and adequate

Sheet Index

ARCHITECTURAL

CS1	Cover Sheet
CS2	Code Summary
A1.0	Demolition and Proposed Architectural Site Plans
A2.0	Floor Plan, Reflected Ceiling Plan, Door Schedule and Demolition Elevation Plan
A3.0	Building Sections and Exterior Elevations
A4.0	Wall Sections and Details
A5.0	Specifications

STRUCTURAL

S1.0	General Structural Notes and Details
S2.0	Foundation Plan and Details
S3.0	Roof Framing Plan
S4.0	Structural Details

MECHANICAL - PLUMBING

MP1	Mechanical - Plumbing Floor Plan
MP2	Mechanical - Plumbing Schedules

ELECTRICAL

E1	Electrical Lighting Plan
E2	Electrical Power Plan
E3	Electrical One-Line Diagram
E4	Electrical Specifications

FIRE ALARM

FA1	Fire Alarm Layout and Riser Diagram
-----	-------------------------------------

Architect:

W. Alan Kenson & Associates, P.C.

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email: waka@cableone.net
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ARCHITECTURE & PLANNING

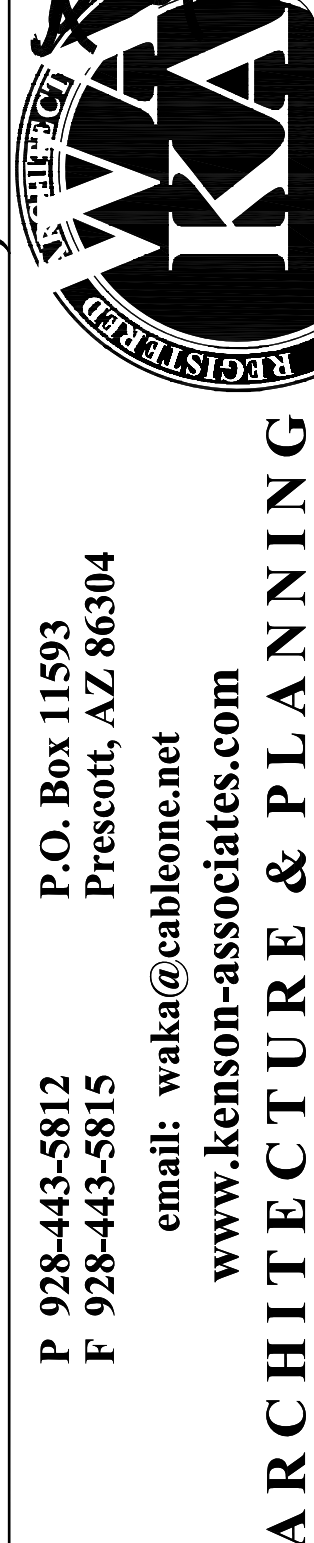


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W. Alan Kenson & Associates, P.C.

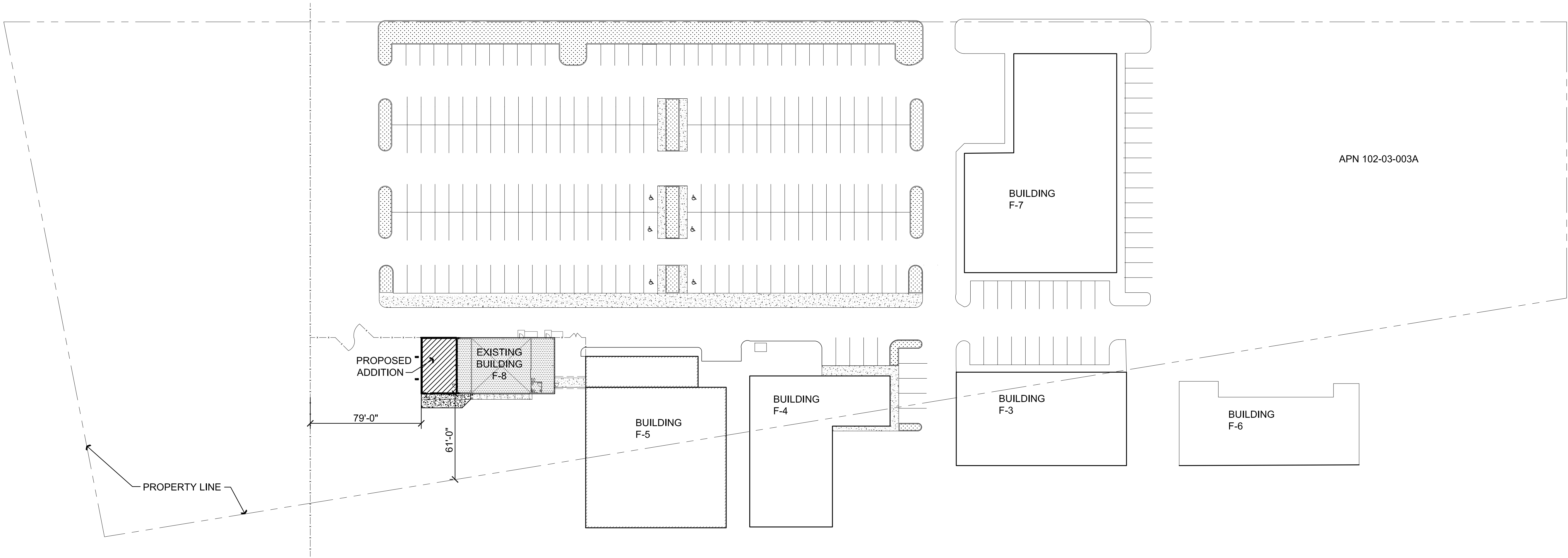


DRAWING: COVER SHEET
PROJECT: ERAU F8 HANGAR EQUIPMENT STORAGE ADDITION
6492 Corradi Way
Prescott, AZ 86301

DRAWN BY L.O.
CHECKED BY W.A.K.
DATE May 11th, 2015
SCALE AS NOTED
JOB NO. 668
SHEET

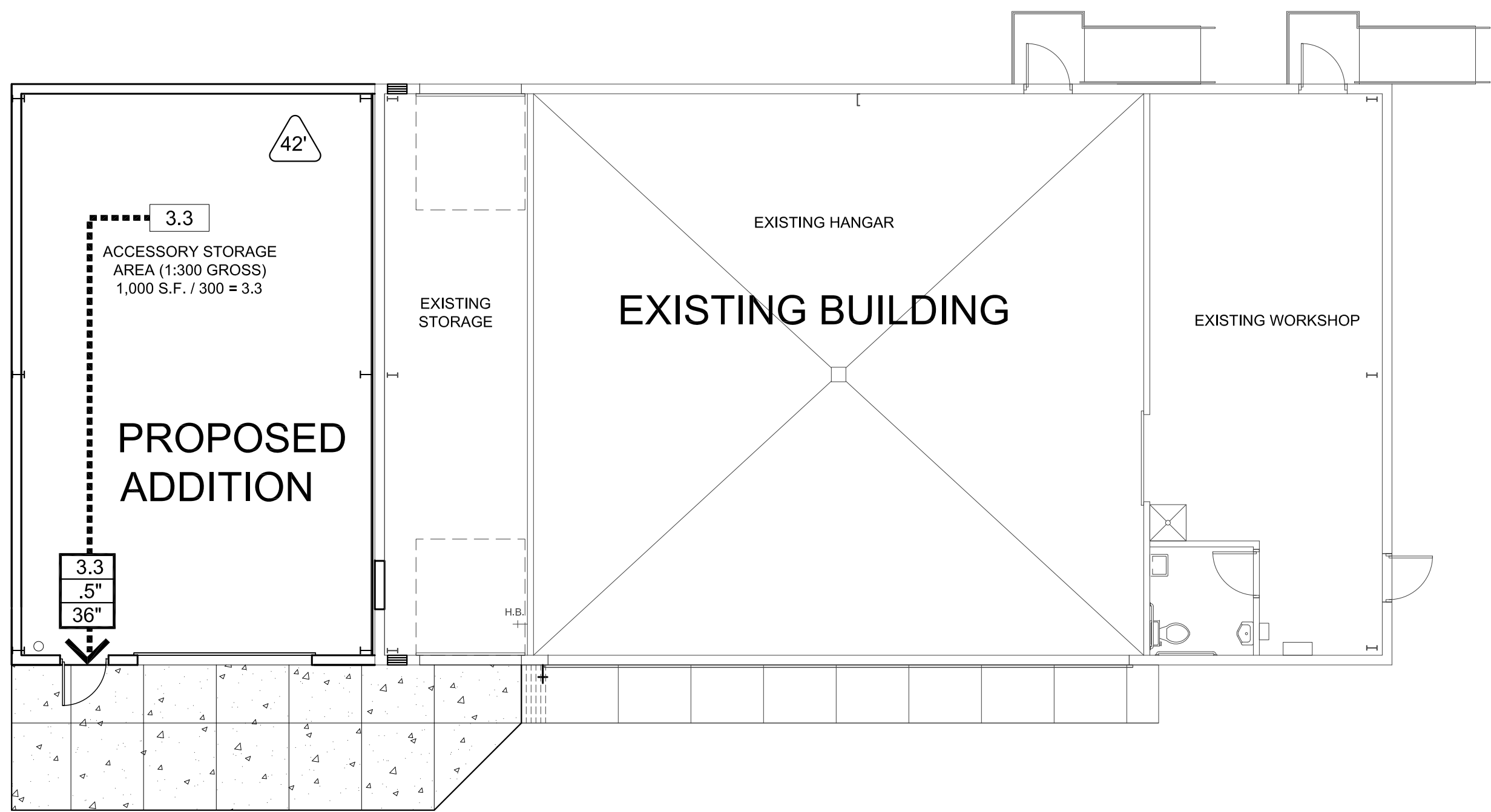
CS1

May 11, 2015 - 10:27am



A2 Site Plan

Scale: 1"=40'-0"



A1 Exit Plan

Scale: 1/8"=1'-0"



Egress Legend:

- > EXIT ACCESS
- XX ROOM OCCUPANCY LOAD
- XX OCCUPANCY TOTAL
XX REQUIRED EXIT WIDTH (FACTOR = 0.15)
XX PROVIDED EXIT WIDTH
- # WORST CASE TRAVEL DISTANCE

FUNCTION OF SPACE	OCCUPANT LOAD FACTOR
STORAGE	300 GROSS

Occupant load summary

STORAGE AREA: 1,000 SQ. FT. 3.3 OCCUPANTS

Wall Finish Requirements

STORAGE AREA: CLASS 'C'
FLAME SPREAD INDEX 76 - 200
SMOKE DEVELOPED INDEX 0 - 450

NOTE: REFER TO SHEET A2.0 FOR FIRE RATED WALL LOCATION

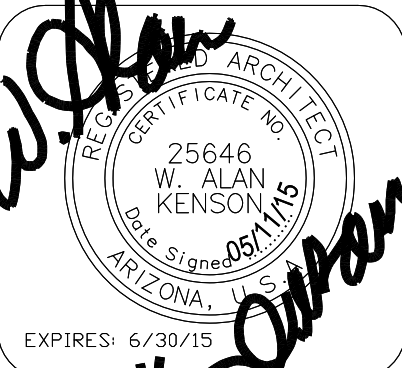
- NOTE:**
- PROVIDE A 6"x9" BLUE TACTILE 'EXIT' SIGN AS MANUFACTURED BY 'SIMPLY EXIT SIGNS (#SE-1980)' OR EQUAL COMPLYING WITH ICCA117.1 AND IBC 1011.3 ADJACENT TO EACH DOOR TO AN EXIT PASSAGEWAY AND THE EXIT DISCHARGE. SIGN SHALL BE MOUNTED 60" A.F.F. TO THE CENTER OF THE SIGN.

Accessibility Notes

- ACCESS TO THESE FACILITIES SHALL BE AT PRIMARY ENTRANCES.
- THE SLOPE OF PUBLIC WALKS SHALL NOT EXCEED A MAXIMUM CROSS SLOPE OF 2%.
- WALKING SURFACES GREATER THAN 2% SHALL BE SLIP RESISTANT.
- PROVIDE A 44"x60" MINIMUM LANDING ON THE STRIKE SIDE OF THE ENTRANCE DOOR WITH 44" MINIMUM WIDTH IN THE DIRECTION OF TRAVEL.
- WALLS SHALL EXTEND 18" TO THE SIDE OF THE STRIKE EDGE OF A DOOR OR GATE THAT SWINGS TOWARDS THE OCCUPANT.
- RAMPS SHALL HAVE A NON-SLIP SURFACE.
- RAMPS SHALL BE A MINIMUM OF 36" WIDE.
- EVERY REQUIRED EXIT DOORWAY SHALL BE SIZED FOR A DOOR NOT LESS THAN 36" WIDE BY NOT LESS THAN 6'-8" HIGH CAPABLE OF OPENING 90 DEGREES AND MOUNTED SO THE CLEAR WIDTH OF THE EXIT WAY IS 32" MINIMUM.
- THRESHOLDS TO BE A MAXIMUM OF 1/4" ABOVE ADJACENT FLOOR FINISH. ONE-HALF INCH THRESHOLD MAY BE USED IF BEVELED PER A.D.A. STANDARDS.
- MAXIMUM EFFORT TO OPERATE A DOOR SHALL NOT EXCEED 5 POUNDS.
- THE BOTTOM 10 INCHES OF ALL DOORS EXCEPT AUTOMATIC AND SLIDING DOORS SHALL HAVE A SMOOTH UNINTERRUPTED SURFACE.
- PROVIDE LEVER TYPE HARDWARE, PANIC BARS, PUSH AND PULL ACTIVATING BARS, OR OTHER HARDWARE DESIGNED TO PROVIDE PASSAGE WITHOUT REQUIRING THE ABILITY TO GRASP THE OPENING HARDWARE. (30" TO 44" A.F.F.) REFER TO DOOR HARDWARE SCHEDULE.

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ARCHITECTURE & PLANNING

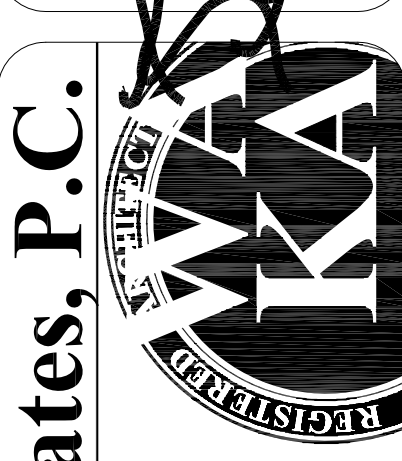
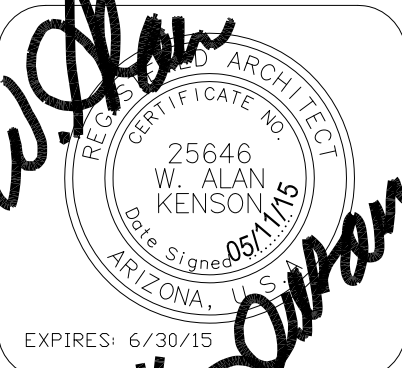
DRAWING: CODE SUMMARY
PROJECT: ERAU F8 HANGAR EQUIPMENT STORAGE ADDITION
6492 Corradi Way
Prescott, AZ 86301

DRAWN BY L.O.
CHECKED BY W.A.K.
DATE May 11th, 2015
SCALE AS NOTED
JOB NO. 668
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CS2

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ARCHITECTURE & PLANNING

DRAWING: DEMOLITION AND PROPOSED ARCHITECTURAL SITE PLANS
PROJECT: ERAU F8 HANGAR EQUIPMENT STORAGE ADDITION
 6492 Corradi Way
 Prescott, AZ 86301

DRAWN BY L.O.
CHECKED BY W.A.K.
DATE May 11th, 2015
SCALE AS NOTED
JOB NO. 668
SHEET

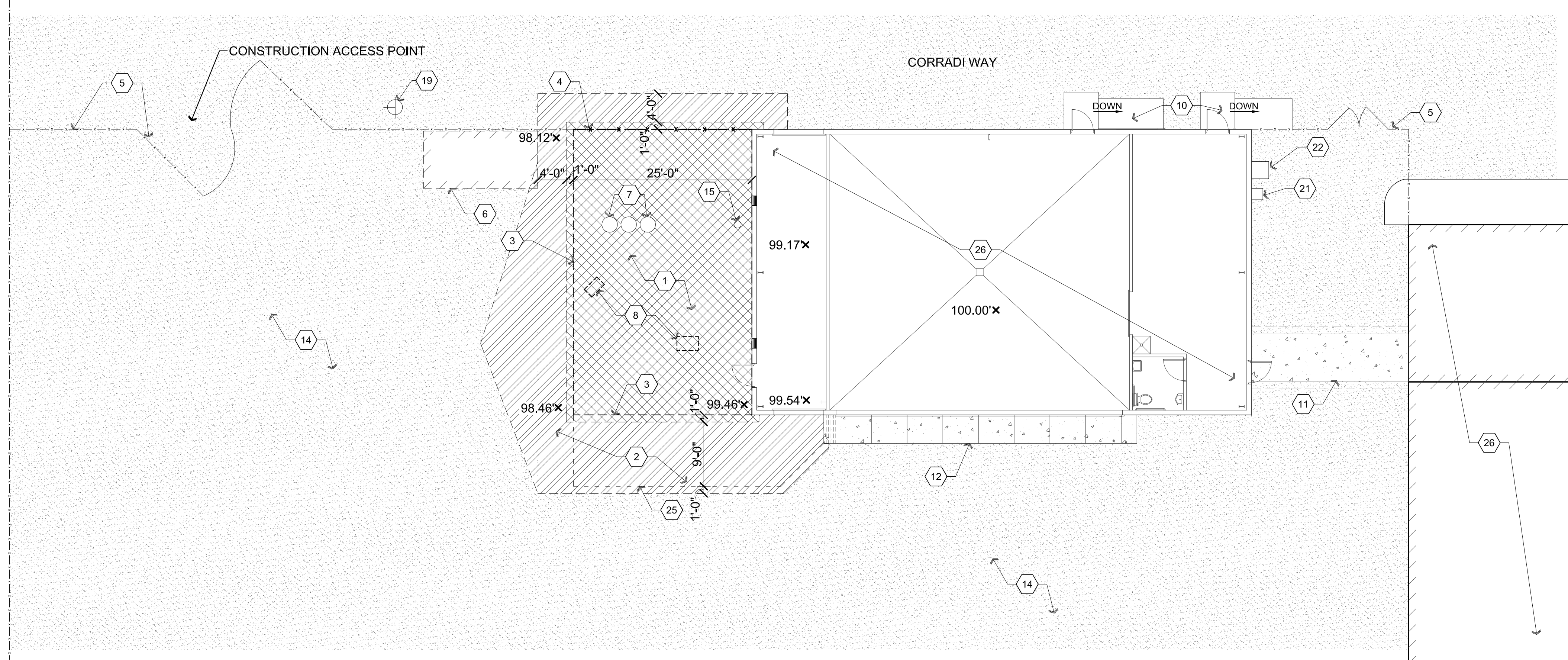
A1.0

Descriptive Keynotes

- SAWCUT EXISTING ASPHALT 12" BEYOND PROPOSED BUILDING ADDITION FOOTPRINT, REMOVE ASPHALT, RECOMPACT EXISTING SOIL.
- AFTER BUILDING COMPLETION, SAWCUT AND REMOVE ASPHALT AND SOIL TO A DEPTH OF ±9-10" BELOW EXISTING GRADE AS INDICATED.
- PROPOSED BUILDING ADDITION OUTLINE.
- PORTION OF EXISTING FENCE TO BE REMOVED.
- EXISTING FENCE AND GATE TO REMAIN.
- EXISTING CONEX BOX TO BE RELOATED BY OWNER.
- EXISTING SAND AND OIL INTERCEPTOR TO REMAIN. ADJUST HEIGHT TO FINISH FLOOR WITH EXTENSION RINGS.
- EXISTING 2-WAY CLEAN-OUT AND WASTE LINE TO BE ABANDONED. REFER TO PLUMBING PLANS.
- EXISTING CLEAN-OUT. ADJUST HEIGHT TO NEW ASPHALT ELEVATION AND PROVIDE 2'-0" x 2'-0" x 6" THICK CONCRETE SURROUND.
- EXISTING RAMP TO REMAIN.
- EXISTING COVERED WALK-WAY TO REMAIN.
- EXISTING CONCRETE APRON TO REMAIN.
- PROVIDE 6" CONCRETE APRON W/ #4s @ 2'-0" O.C. EACH WAY, OVER 4" COMPACTED A.B.C.
- EXISTING ASPHALT TO REMAIN.
- EXISTING SEWER CLEAN-OUT TO REMAIN. ADJUST HEIGHT TO FINISH FLOOR. REFER TO PLUMBING PLANS.
- EXISTING 1-1/2" WATER METER TO REMAIN.
- EXISTING WATER SHUT-OFF VALVE TO REMAIN.
- PORTION OF EXISTING FIRE LINE TO REMAIN AND GET BUILT OVER. VERIFY EXACT LOCATION AND DEPTH.
- EXISTING FIRE HYDRANT TO REMAIN.
- PROVIDE NEW CHAIN LINK FENCE END POST TO MATCH EXISTING. RE-CONNECT CHAIN LINK FENCE AND BRACE ACCORDINGLY.
- EXISTING NATURAL GAS METER.
- EXISTING ELECTRIC SERVICE ENTRANCE SECTION.
- PROVIDE 6' HIGH TEMPORARY CHAIN LINK FENCE PANELS.
- PROVIDE 2-WAY CLEAN-OUT WITH BACKWATER VALVE WITH CONCRETE SURROUND. REFER TO PLUMBING PLANS.
- PROPOSED CONCRETE APRON OUTLINE.
- EXISTING BUILDING.
- PROVIDE 3" ASPHALT OVER 6" COMPACTED A.B.C. TACK AT NEW SAWCUT EDGE.
- CONTRACTOR STORAGE CONTAINER LOCATION.
- PROVIDE TEMPORARY GATE IN TEMPORARY CHAIN LINK FENCE PANELS.

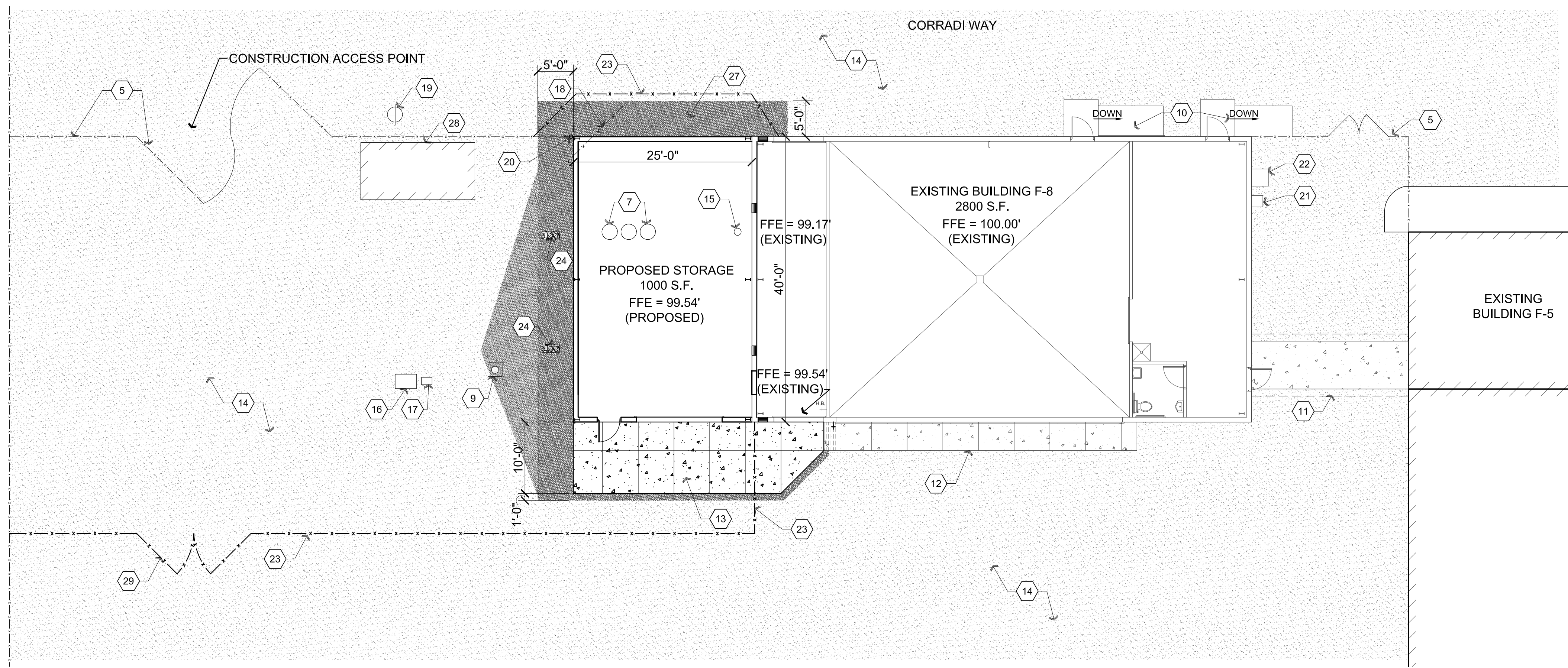
Legend

- ASPHALT TO BE SAW CUT AND REMOVED. REFER TO NOTE 1.
- ASPHALT TO BE SAW CUT AND REMOVED. REFER TO NOTE 2.
- EXISTING ASPHALT TO REMAIN.
- PROVIDE NEW ASPHALT, REFER TO NOTE 27.
- PROVIDE NEW CONCRETE APRON, REFER TO NOTE 13.
- EXISTING CONCRETE SIDEWALK / APRON TO REMAIN.
- EXISTING SURFACE SPOT ELEVATION.



A2 Demolition Site Plan

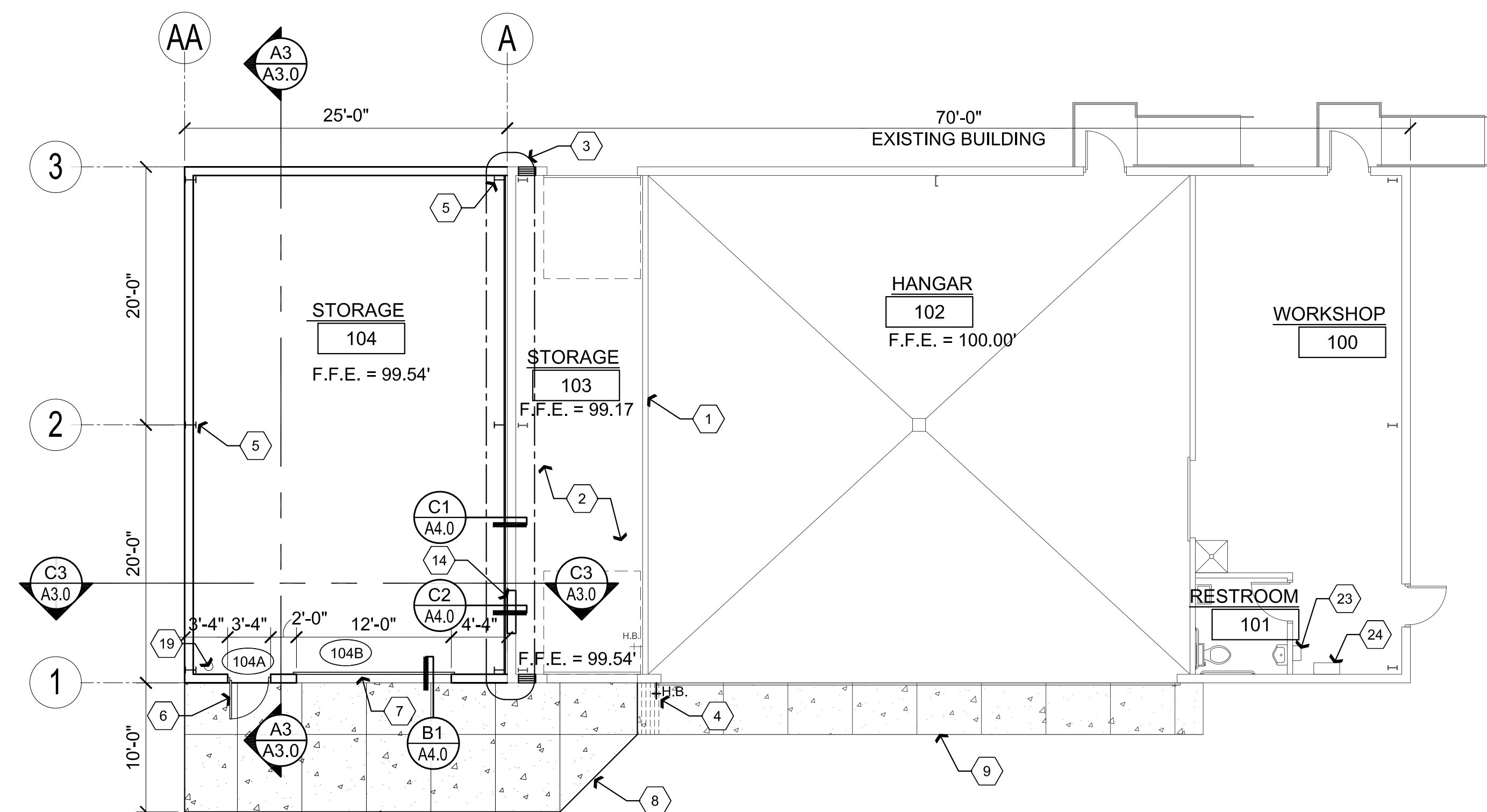
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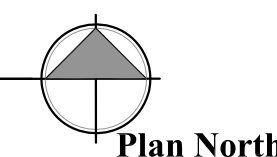
A1 Proposed Partial Site Plan

Scale: 1"=10'-0"





Scale: 1/8"=1'-0"



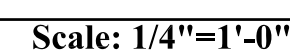
CODE	MATERIAL	LOCATION	MANUFACTURER	SPECIFICATION
M-1	METAL WALL PANEL	EXTERIOR SIDE OF EXTERIOR WALLS	NCI	36" DURARIB PANEL 26 GAUGE SADDLE TAN
M-2	METAL ROOF PANEL	ROOF	NCI	36" DURARIB PANEL 26 GAUGE POLAR WHITE
M-3	METAL BUILDING LINER	INTERIOR OF EXTERIOR WALLS 8' HIGH	MBCI	36" PBR PANEL, 26 GAUGE, POLAR WHITE
PT-1	EXTERIOR / INTERIOR PAINT	DOORS AND FRAMES	SHERWIN WILLIAMS	MATCH MBCI SADDLE TAN
PT-2	INTERIOR PAINT	INTERIOR DRYWALL	SHERWIN WILLIAMS	MATCH MBCI POLAR WHITE

1. PROVIDE COST TO PAINT BUILDING ADDITION EXTERIOR WALLS, TRIM AND RELATED ITEMS. REFER TO SPECIFICATIONS.
2. PROVIDE COST TO PAINT EXISTING BUILDING EXTERIOR WALLS, TRIM AND RELATED ITEMS AS WELL AS BUILDING ADDITION EXTERIOR WALLS, TRIM AND RELATED ITEMS. REFER TO SPECIFICATIONS.

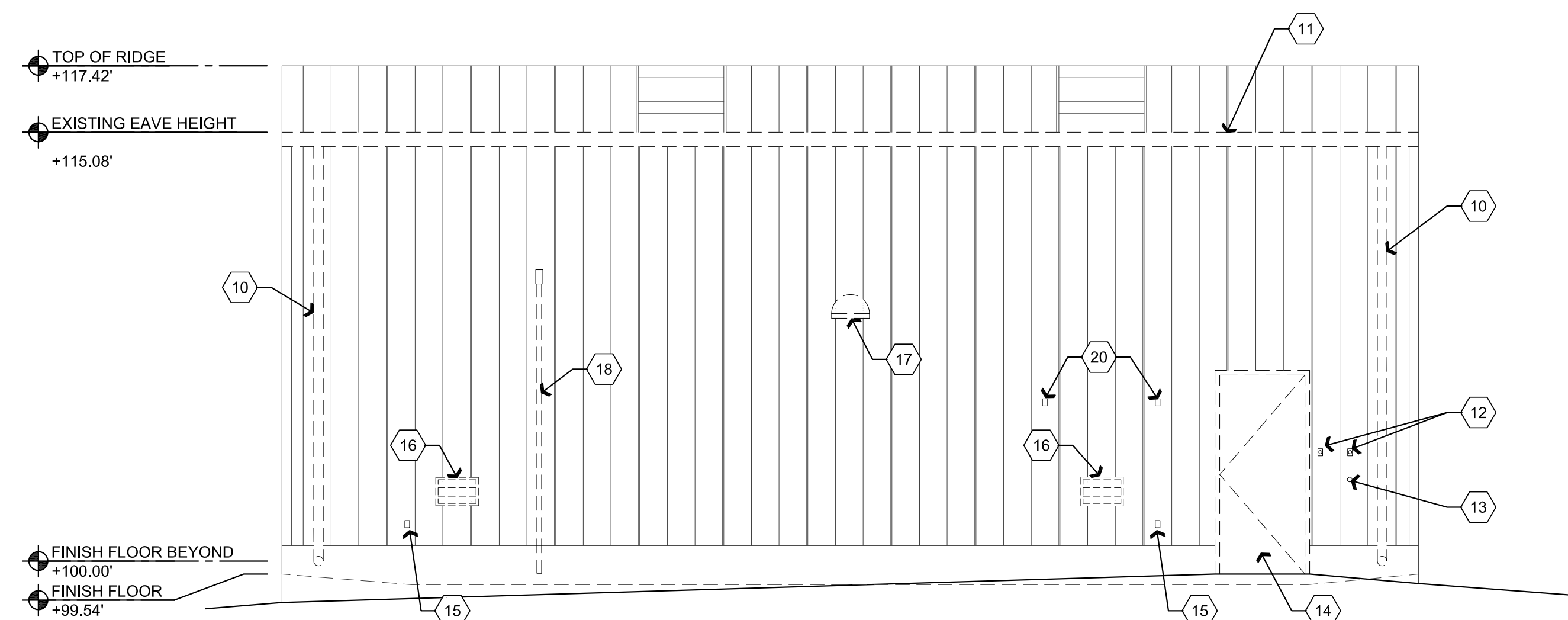
NO.	SIZE	TYPE	DOOR MATERIAL	DOOR FINISH	FRAME MATERIAL	FRAME FINISH	HARDWARE TYPE	COMMENTS
104A	3'-0"x7'-0"	A	HM	PT-1	HM	PT-1	01	INSULATED
104B	12'-0"x10'-0"	B	STEEL	PT-2	STEEL	PT-2	-	ELECTRIC & INSULATED

Heading # HW-01					
1	SGL	Door 104A	Exterior from Storeroom 104	LH	90 Deg
		3-0 x 7-0 x 1-3/4 HMD x HMF			
3	EA.	Hinge	FBB 179 4.5 x 4.5 NRP	652	Stanley
1	EA.	Storeroom	9K37 D 15D S3	626	Best
1	EA.	Core	By Owner	626	Best
1	EA.	Closer	4040XP Cush	689	LCN
1	EA.	Weather-strip	303AS 36" x 84"	Alum	Pemko
1	EA.	Door Sweep	315CN – 36"	Alum	Pemko
1	EA.	Threshold	171A – 36" MS/ES	Alum	Pemko

1. ALL EXIT DOORS & HARDWARE SHALL COMPLY WITH THE 2012 I.B.C.
2. DOOR THRESHOLDS SHALL HAVE A MAX HEIGHT OF 1/2" FOR H.C. ACCESSIBILITY. THRESHOLD SHALL HAVE A MAXIMUM RISE OF 1/4" AND 1/2" RISE WHEN BEVELED WITH MAXIMUM 1:2 SLOPE.
3. ALL INTERIOR DOORS SHALL BE OPERABLE FOR EMERGENCY EXITING PURPOSES WITHOUT THE USE OF A KEY, SPECIAL KNOWLEDGE NOR EFFORT.
4. IF A DOOR HAS A CLOSER, THEN THE SWEEP PERIOD OF THE CLOSER SHALL BE ADJUSTED SO THAT FROM AN OPEN POSITION OF 70 DEGREES, THE DOOR WILL TAKE AT LEAST 3 SECONDS TO MOVE TO A POINT 3" FROM THE LATCH, MEASURED TO THE LEADING EDGE OF THE DOOR.
5. DOOR HANDLES, PULLS, LATCHES, LOCKS, AND OTHER OPERATING DEVICES ON ACCESSIBLE DOORS SHALL HAVE A SHAPE THAT IS EASY TO GRASP WITH ONE HAND AND DOES NOT REQUIRE TIGHT GRASPING, TIGHT PINCHING, OR TWISTING OF THE WRIST TO OPERATE. HARDWARE REQUIRED FOR DOOR PASSAGE SHALL BE MOUNTED NO HIGHER THAN 48" ABOVE FINISH FLOOR.
6. DOOR OPENING FORCE SHALL BE: 5lb/ft MAX INTERIOR HINGED, SLIDING OR FOLDING DOORS; FIRE DOORS SHALL HAVE THE MINIMUM OPENING FORCE ALLOWABLE BY THE APPROPRIATE ADMINISTRATIVE AUTHORITY.



Demolition West Elevation

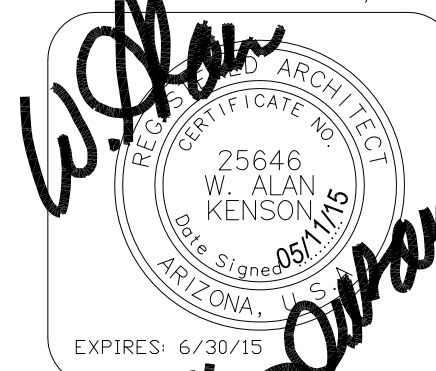


Scale: 1/4"=1'-0"

1. EXISTING ONE-OUR FIRE RATED WALL.
2. EXISTING MATERIALS STORAGE AREA.
3. PROVIDE 1-HOUR FIRE RATED WALL, REFER TO WALL SECTIONS.
4. PROVIDE HOSE BIB. REFER TO PLUMBING PLANS.
5. STEEL COLUMN, REFER TO STRUCTURAL PLANS.
6. PROVIDE HOLLOW METAL DOOR REFER TO DOOR SCHEDULE. PT-1
7. PROVIDE MOTORIZED ROLL-UP DOOR, REFER TO DOOR SCHEDULE. PT-1
8. PROVIDE CONCRETE APRON. REFER TO ARCHITECTURAL SITE PLAN.
9. EXISTING CONCRETE APRON TO REMAIN.
10. EXISTING DOWNSPOUT TO BE REMOVED AND RELOCATED TO NEW EXTERIOR WEST WALL.
11. EXISTING GUTTER TO BE REMOVED AND RELOCATED TO NEW EXTERIOR WEST WALL.
12. EXISTING ELECTRICAL OUTLET TO BE REMOVED AND RELOCATED. REFER TO ELECTRICAL PLANS.
13. EXISTING COMPRESSED AIR STUB OUT TO BE REMOVED AND RELOCATED. REFER TO PLUMBING PLANS.
14. EXISTING DOOR AND DOOR FRAME TO BE REMOVED AND RETURNED TO ERAU.
15. EXISTING ELECTRICAL OUTLET TO BE REMOVED AND RELOCATED. REFER TO ELECTRICAL PLANS.
16. EXISTING VENTILATION REGISTERS TO BE REMOVED AND RELOCATED, REFER TO MECHANICAL PLANS.
17. EXISTING LIGHT TO BE RELOCATED TO NEW EXTERIOR WEST WALL, REFER TO ELECTRICAL PLANS.
18. EXISTING DE-ICING HOSE TO BE RELOCATED BY OWNER.
19. PROVIDE TYPE 2A10BC FIRE EXTINGUISHER.
20. EXISTING HOOK TO BE REMOVED.
21. LIGHT FIXTURE, REFER TO ELECTRICAL PLANS.
22. PROVIDE GAS UNIT HEATER, REFER TO MECHANICAL PLANS.
23. EXISTING FIRE ALARM CONTROL PANEL.
24. EXISTING ELECTRICAL PANEL.

REVISIONS	BY

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ARCHITECTURE & PLANNING

DRAWING: FLOOR PLAN, REFLECTED CEILING PLAN, DOOR SCHEDULE AND DEMOLITION ELEVATION

PROJECT:
ERAU F8 HANGAR EQUIPMENT STORAGE ADDITION
6492 Corradi Way
Prescott, AZ 86301

DRAWN BY
L.O.

CHECKED BY
W.A.K.

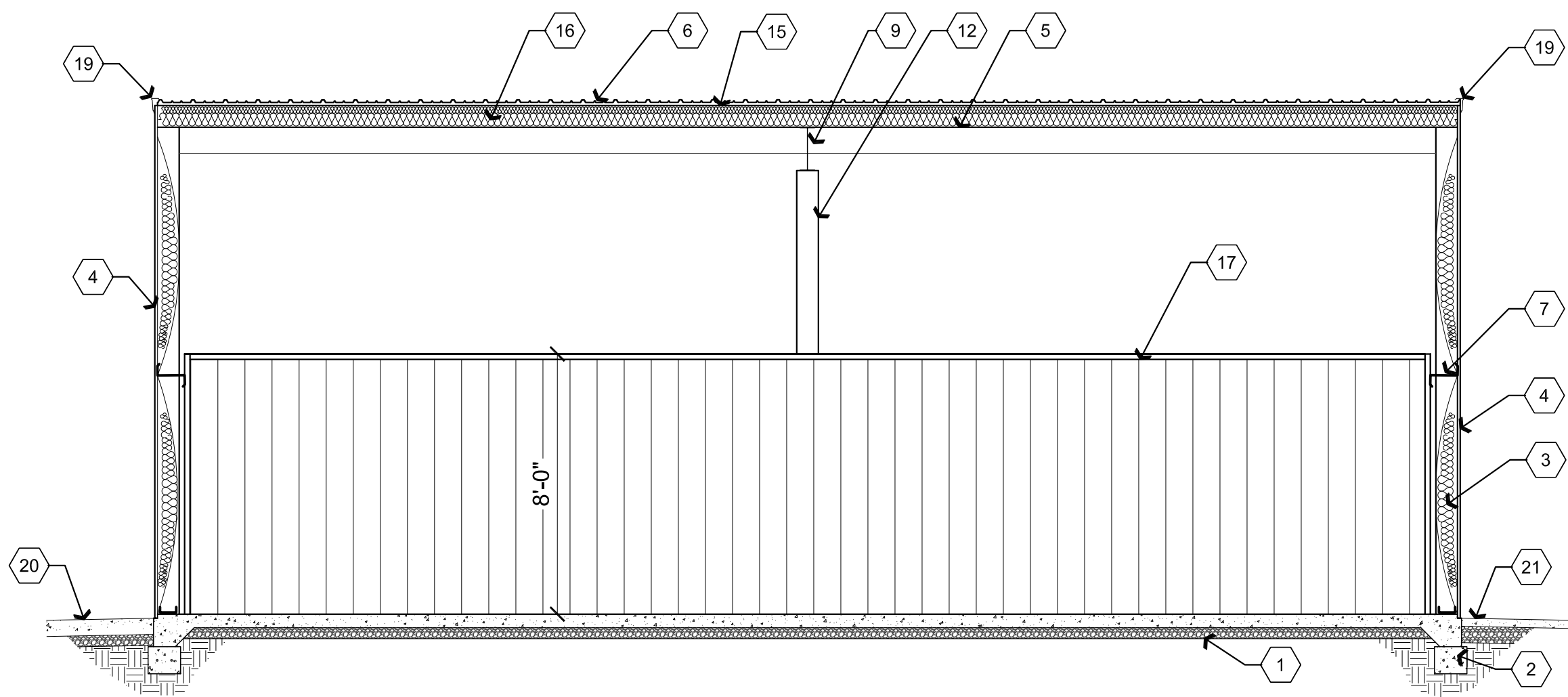
DATE
May 11th, 2015

SCALE
AS NOTED

JOB NO.
668

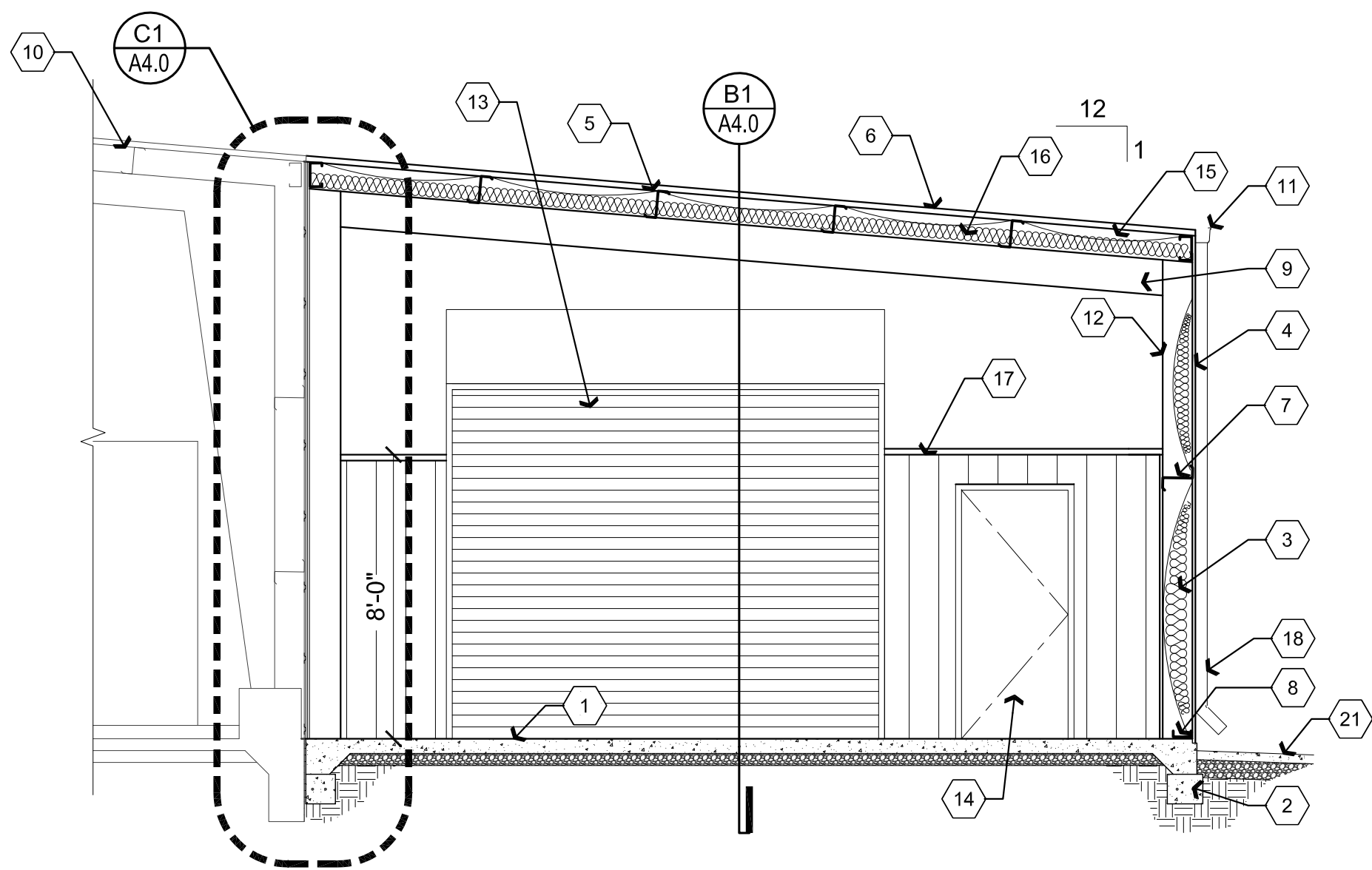
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A2.0



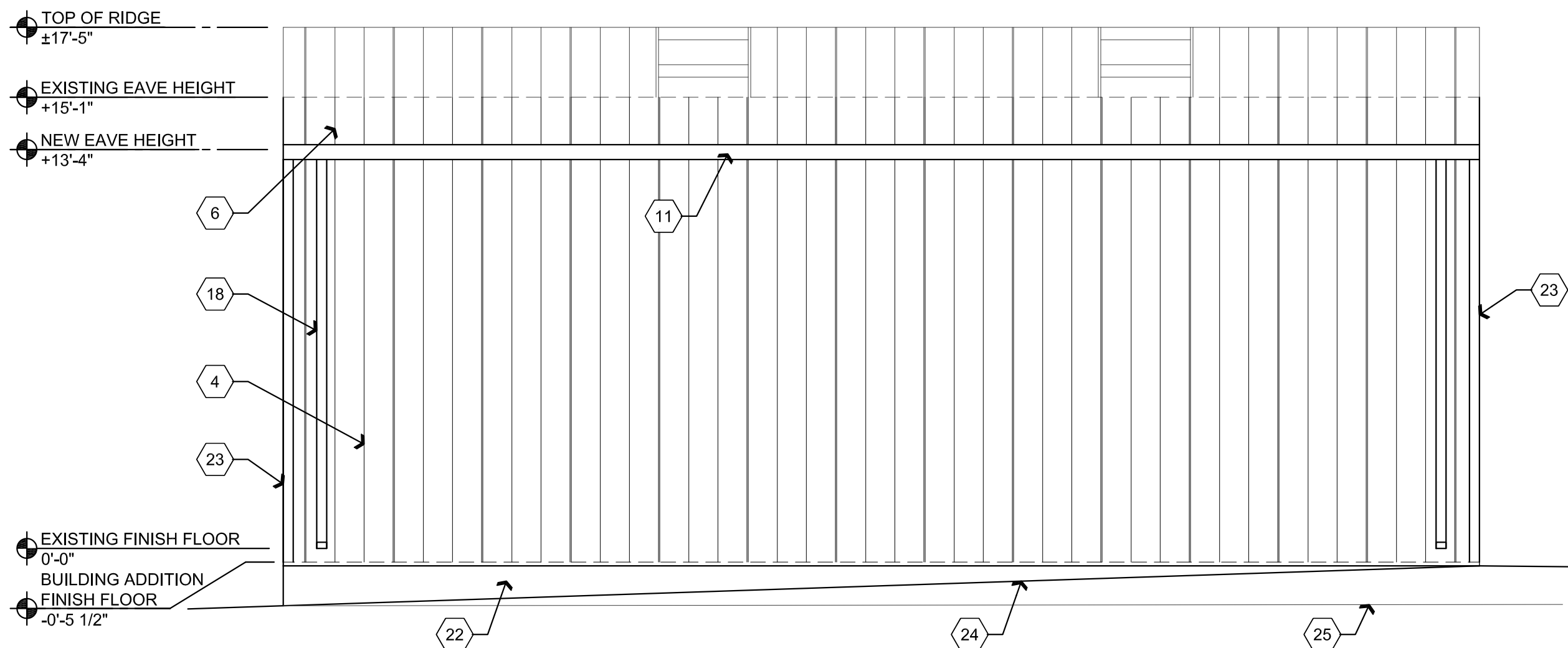
A3 Building Section

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



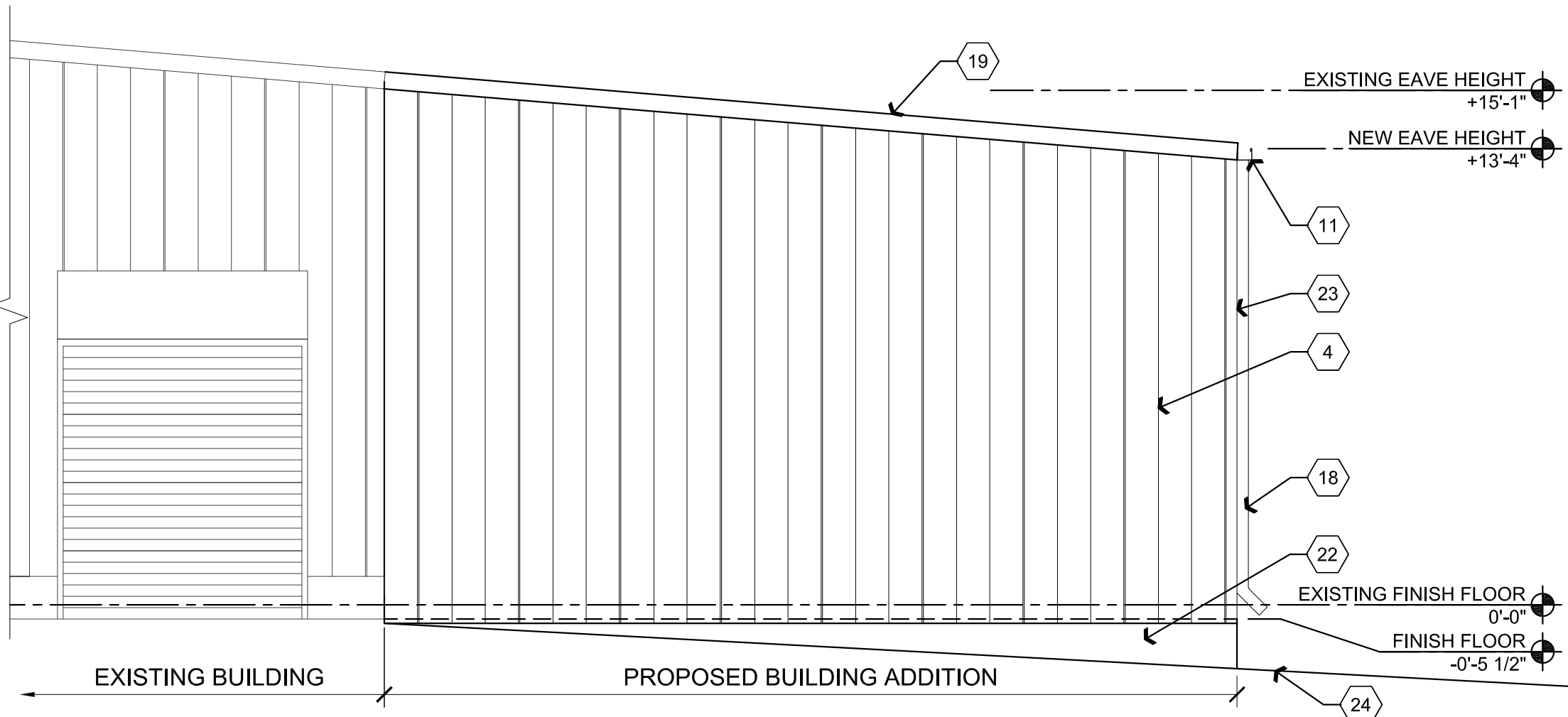
C3 Building Section

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



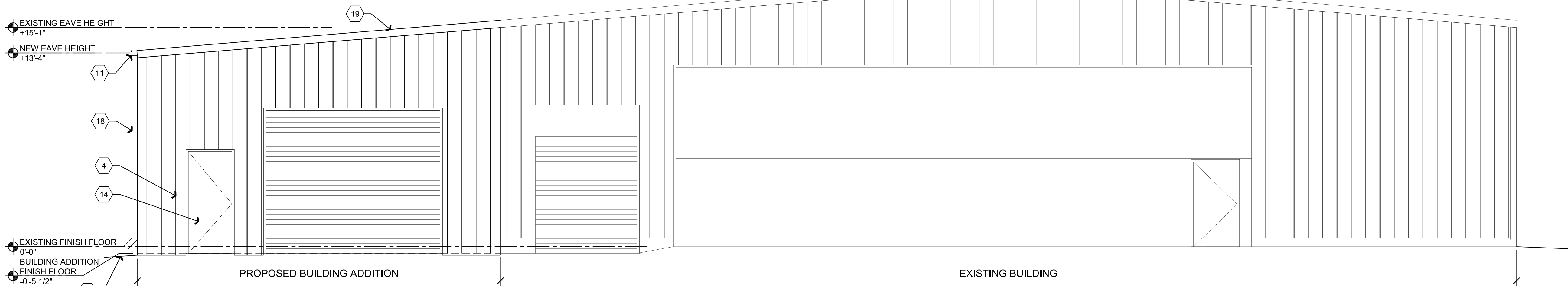
A2 Proposed West Elevation

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



C2 Proposed Partial North Elevation

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



A1 Proposed South Elevation

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

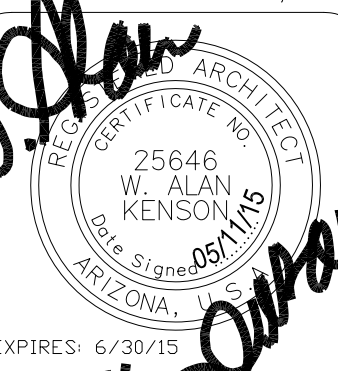
Descriptive Keynotes

1. PROVIDE CONCRETE SLAB OVER COMPACTED A.B.C. REFER TO STRUCTURAL PLANS.
2. PROVIDE CONCRETE FOOTING. REFER TO STRUCTURAL PLANS.
3. PROVIDE R-11 VINYL FACED BLANKET INSULATION.
4. PROVIDE DURARIB METAL BUILDING SIDING PANELS. **M-1**
5. PROVIDE ROOF PURLIN, TYPICAL. REFER TO STRUCTURAL PLANS.
6. PROVIDE DURARIB METAL ROOF PANEL. **M-2**
7. PROVIDE STEEL GIRT, TYPICAL. REFER TO STRUCTURAL PLANS.
8. PROVIDE CEE CHANNEL. REFER TO STRUCTURAL PLANS.
9. PROVIDE STEEL BEAM. REFER TO STRUCTURAL PLANS.
10. EXISTING BUILDING.
11. RELOCATED SHEET METAL GUTTER.
12. PROVIDE STEEL COLUMN. REFER TO STRUCTURAL PLANS.
13. PROVIDE MOTORIZED ROLLING DOOR. REFER TO DOOR SCHEDULE. **PT-2**
14. PROVIDE HOLLOW METAL DOOR REFER TO DOOR SCHEDULE. **PT-1**
15. PROVIDE R-11 VINYL FACED, 6' WIDE BLANKET INSULATION.
16. PROVIDE R-19 VINYL FACED BLANKET INSULATION CUT TO FIT BETWEEN PURLINS WITH WIRES AT 2'-0" O.C.
17. 8'-0" HIGH 'R' PANEL LINER SYSTEM WITH 'J' CAP AT TOP. **M-3**
18. RELOCATED SHEET METAL DOWNSPOUT.
19. PROVIDE RAKE TRIM TO MATCH EXISTING.
20. CONCRETE APRON. REFER TO ARCHITECTURAL SITE PLAN.
21. ASPHALTIC PAVEMENT. REFER TO ARCHITECTURAL SITE PLAN.
22. EXPOSED CONCRETE STEM WALL.
23. RELOCATED SHEET METAL CORNER TRIM.
24. PROPOSED FINISH GRADE.
25. EXISTING GRADE.

REVISIONS

BY

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ARCHITECTURE & PLANNING

DRAWING: BUILDING SECTIONS AND EXTERIOR ELEVATIONS

PROJECT: ERAU F8 HANGAR EQUIPMENT STORAGE ADDITION
6492 Corradi Way
Prescott, AZ 86301

DRAWN BY
L.O.

CHECKED BY
W.A.K.

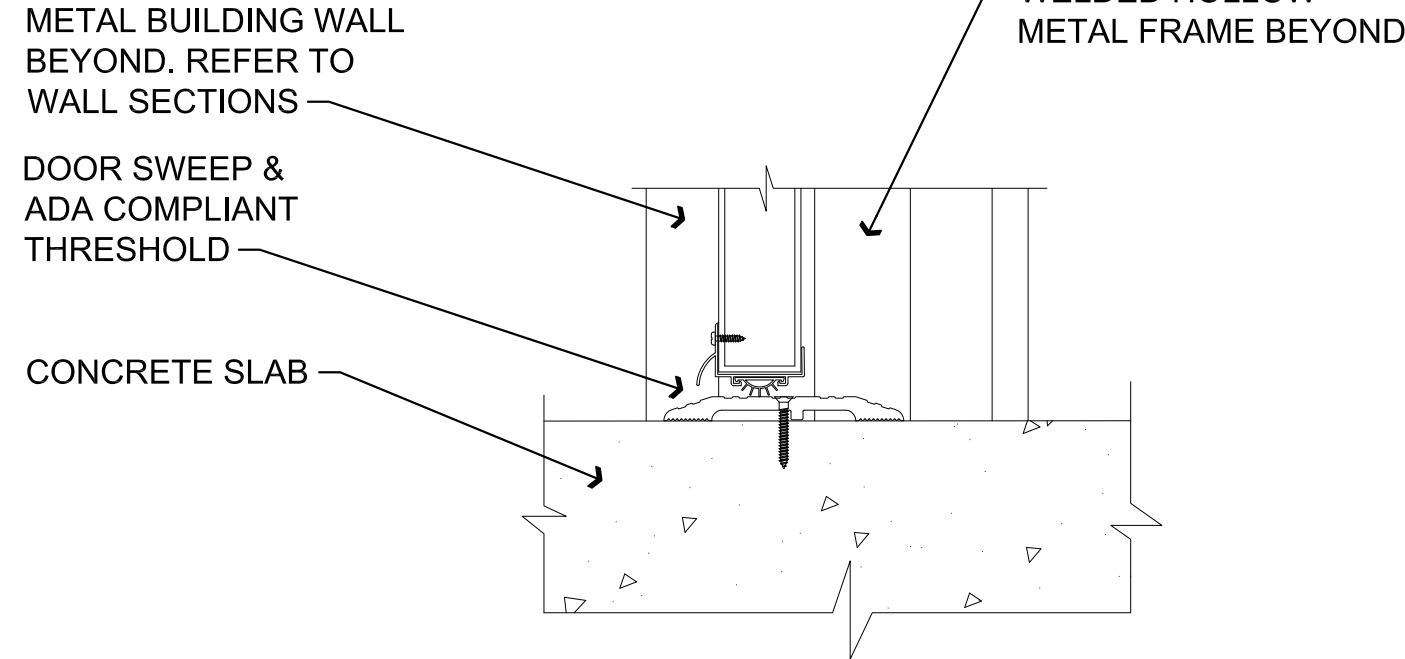
DATE
May 11th, 2015

SCALE
AS NOTED

JOB NO.
668

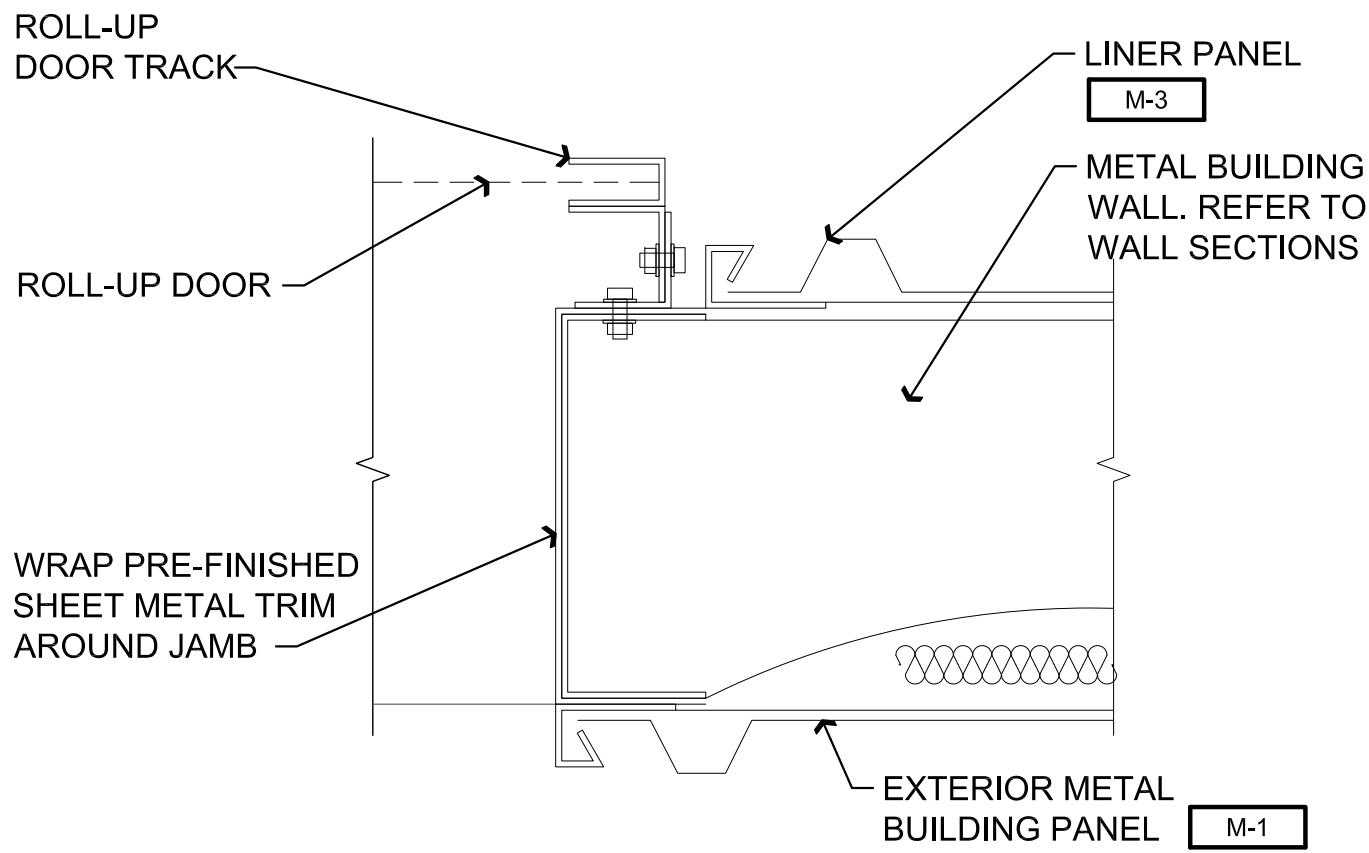
SHEET

A3.0



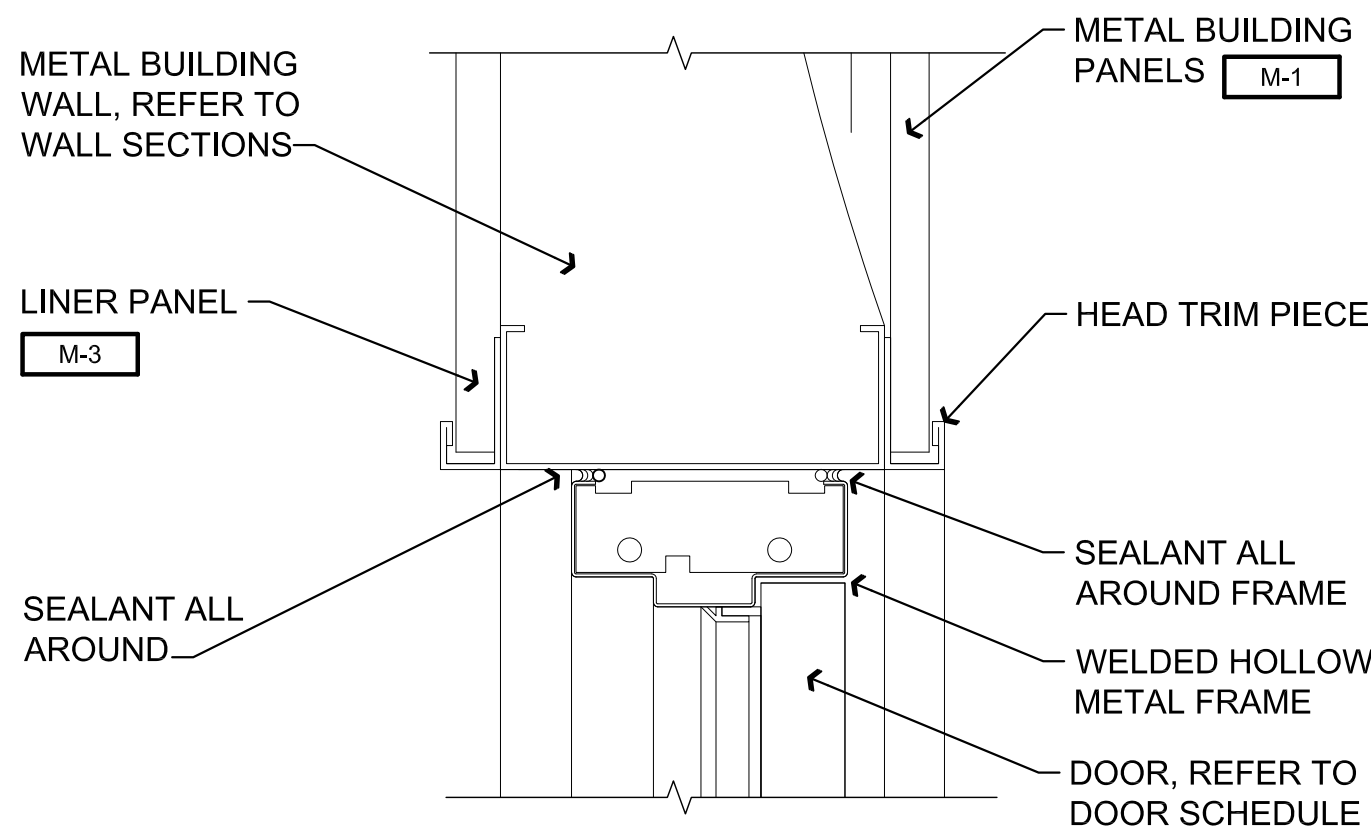
A3 Door Threshold

SCALE: 3" = 1'-0"



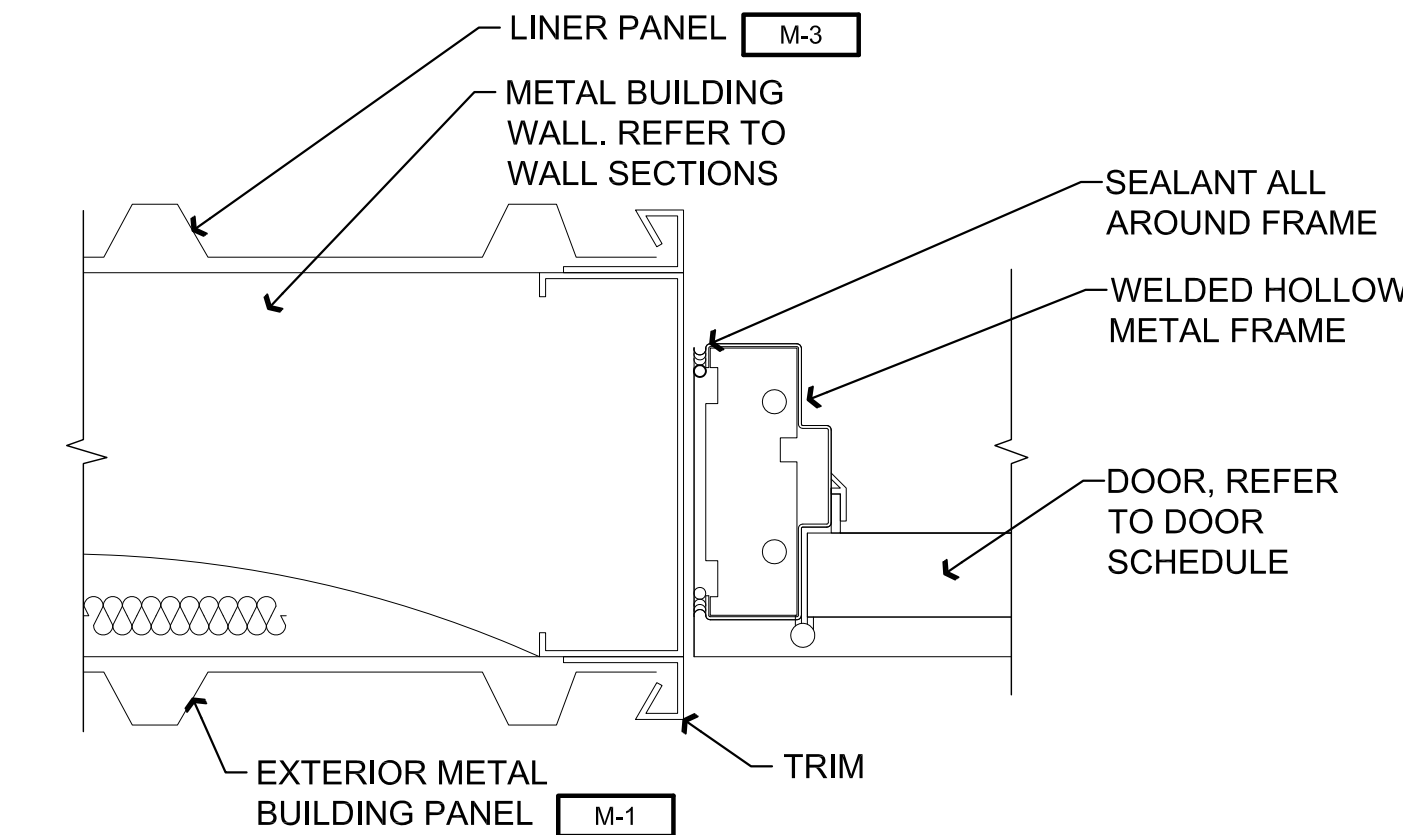
B3 Door Jamb

SCALE: 3" = 1'-0"



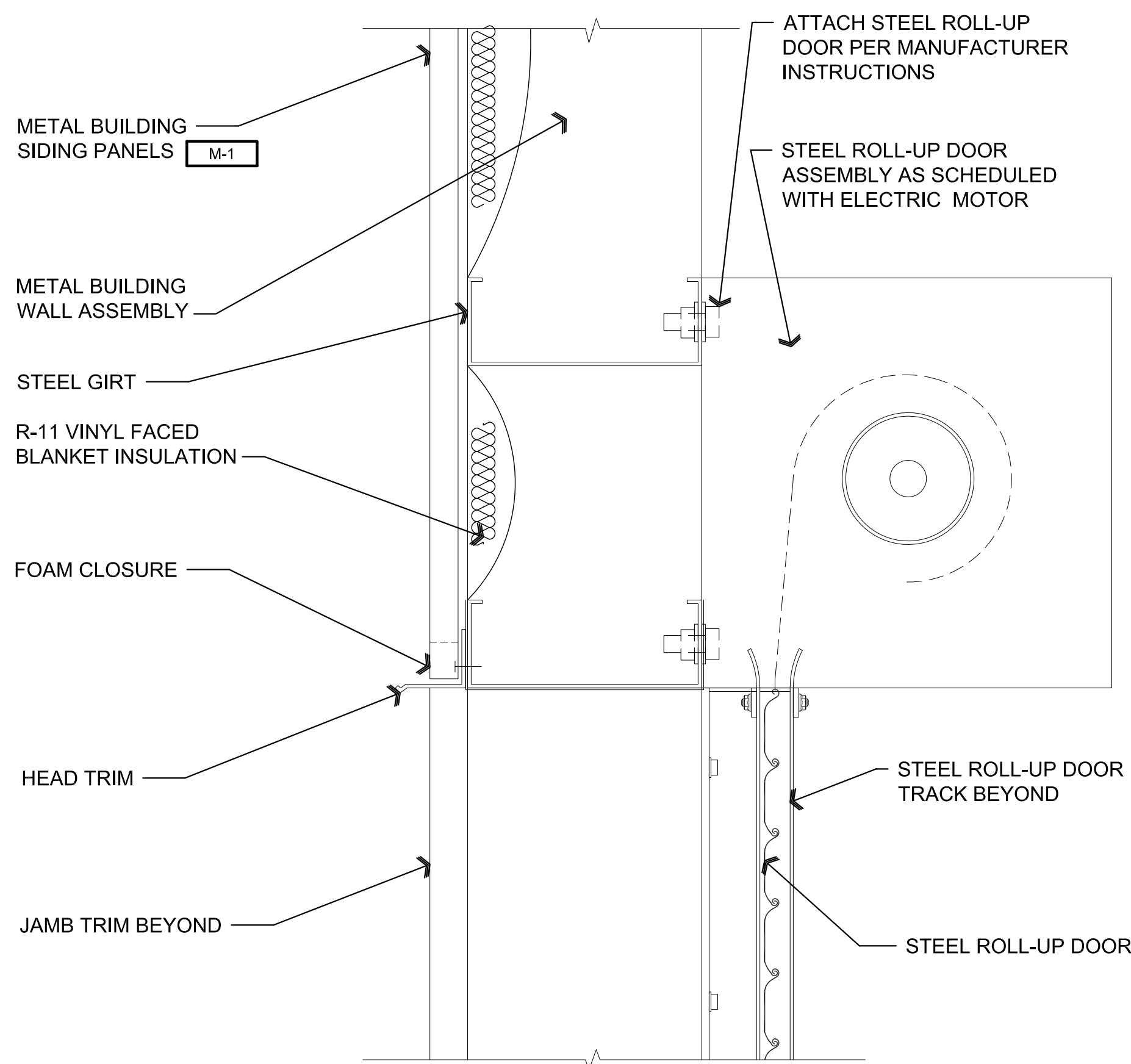
A2 Door Head

SCALE: 3" = 1'-0"



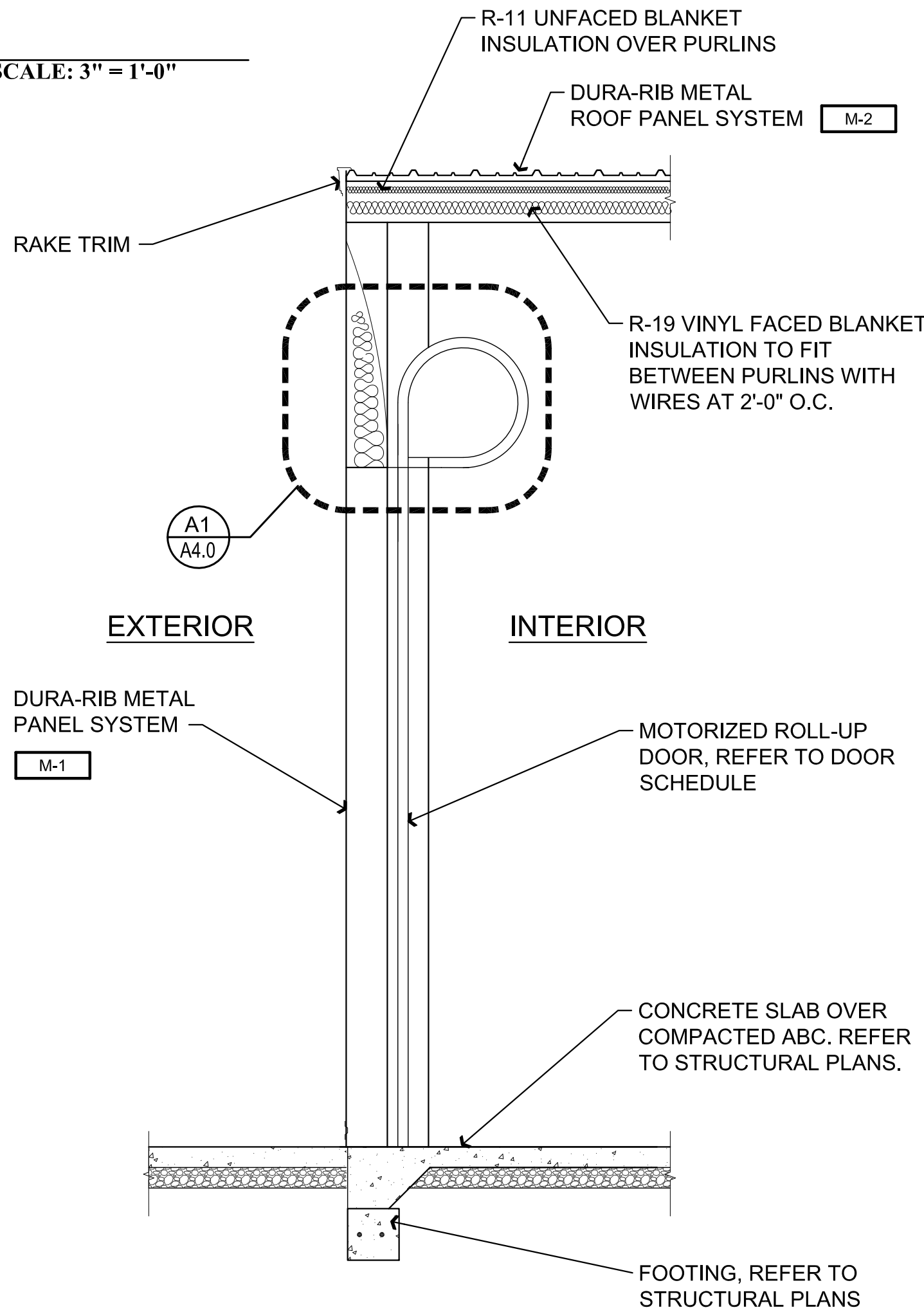
B2 Door Jamb

SCALE: 3" = 1'-0"



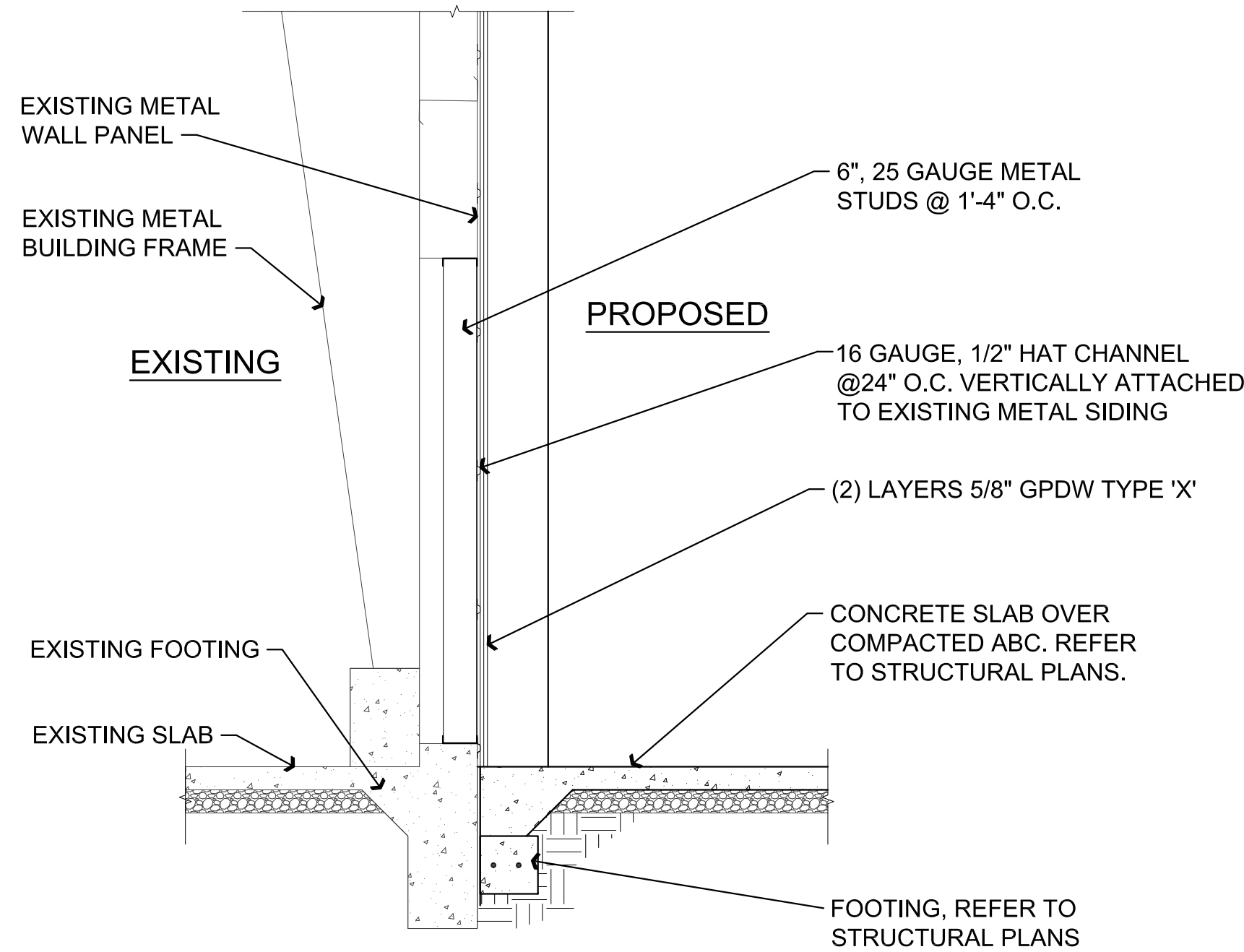
A1 Rolling Door Head

Scale: 1/2"=1'-0"



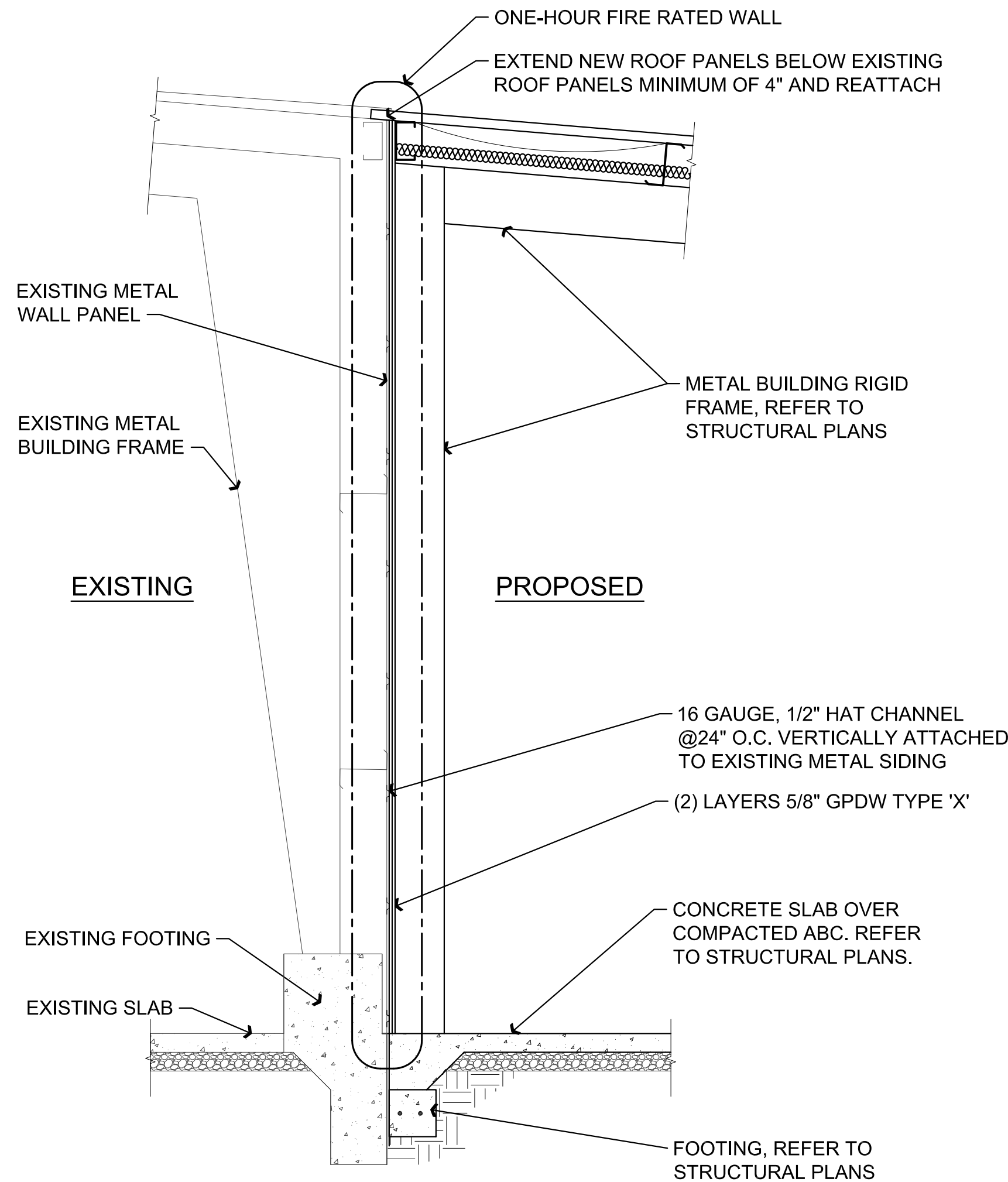
B1 Wall Section

Scale: 1/2"=1'-0"



C2 Wall where Door was Removed

Scale: 1/2"=1'-0"

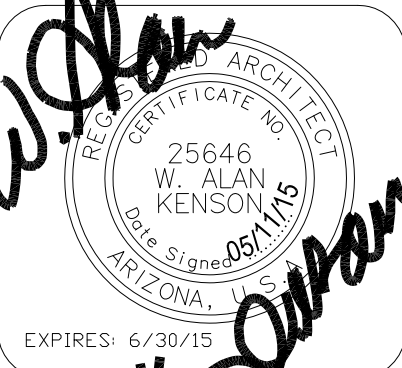


C1 Wall Section

Scale: 1/2"=1'-0"

REVISIONS	BY

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ARCHITECTURE & PLANNING

DRAWING: WALL SECTIONS AND DETAILS

PROJECT: ERAU F8 HANGAR EQUIPMENT STORAGE ADDITION
6492 Corradi Way
Prescott, AZ 86301

DRAWN BY L.O.
CHECKED BY W.A.K.
DATE May 11th, 2015
SCALE AS NOTED
JOB NO. 668
SHEET

A4.0

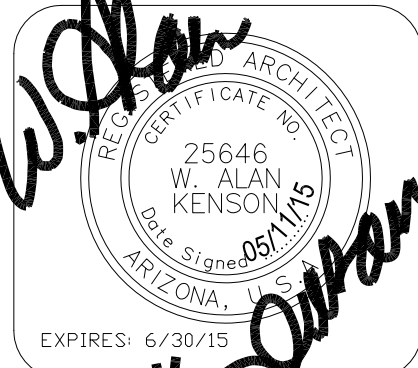
00 - PROCUREMENT AND CONTRACTING REQUIREMENTS	
00 70 00 - GENERAL CONDITIONS	
	General Conditions of the Contract for Construction, AIA Document A201, 2007 Edition, is made a part of the Construction Documents by reference. A copy of the referenced document is available for inspection at the office of the Architect.
01 - GENERAL REQUIREMENTS	
01 30 00 - ADMINISTRATIVE REQUIREMENTS	
Shop Drawings	Six (6) paper copies of Shop Drawings and/or Catalog Cut Sheets are to be submitted to the Architect for review and approval. The Architect will review the shop drawings and affix a stamp indicating the findings of the review and return three (3) copies to the Contractor. The Contractor shall correct and resubmit as necessary. Required for all products and samples and materials to be included in the project.
Meetings	Contractor shall hold construction progress meetings every other week at jobsite. Representatives from owner, architect, contractor, and any relative subcontractor or suppliers shall attend. Contractor shall take minutes of the meetings and distribute to all attendees.
Portable Toilet Facility	Contractor to maintain portable toilet facility throughout construction period.
Dumpster	Contractor to provide dumpster throughout construction period.
Samples	Three (3) samples of each color or style of the products to be submitted to the Architect.
01 50 00 - TEMPORARY FACILITIES AND CONTROLS	
Designated Areas	Owner shall provide designated areas for the contractor's employee parking, material storage and staging. Contractor shall control his employees, sub-contractors and material suppliers from parking in un-designated areas.
Protection	Contractor shall take All necessary precautionary measures to protect their work and ensure the safety of workmen, public and property. Neither the Owner nor Architect shall have any responsibility or control of construction means, methods, techniques, sequences or procedures affecting job-site safety, or for safety precautions and programs, contractor shall legally defend and hold harmless the Owner and Architect from all such claims.
Contractor's Responsibility	<p>The Contractor shall supervise and direct the work, and be solely responsible for and have control over all methods, techniques and procedures necessary for the proper execution of the work. Where the work of this agreement affects owner's utilities, fire alarm, fire suppression or controls systems, the contractor shall give the owner a minimum of 24 hours advance notice.</p> <p>The Contractor shall be responsible to the owner for the acts and omissions of the Contractor's employees, agents, sub-contractors, and their agents, employees, and other persons performing portions of the work under a contract with the Contractor to the fullest extent permitted by law.</p> <p>The Contractor shall indemnify and hold harmless the Owner, the Owner's consultants, agents and employees of any of them from and against claims, damages, losses and expenses including but not limited to attorney's fees arising out of or resulting from performance of the work, provided that such claim damages, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury or destruction of tangible property other than the work itself, including loss of use resulting therefrom, but only to the extent caused in whole or in part by negligent acts or omissions of the contractor, a sub-contractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable regardless of whether or not such damage, claim, loss or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge or reduce other rights or obligations of indemnity which would otherwise exist as to a party or person described in this paragraph.</p>
Material	The Contractor warrants that unless otherwise specified, all materials and equipment shall be new, free from defects, suitable for the intended purpose, and in conformance with laws in effect on the date of this agreement.
01 70 00 - EXECUTION REQUIREMENTS	
General	<p>Contractor shall field verify all existing conditions and lay out all of the work prior to starting construction on any part of the work. As a minimum contractor shall verify:</p> <ul style="list-style-type: none"> - all dimensions, both horizontal and vertical - Utility locations, buried and overhead - existing conditions affecting this project

Conflicts	If Contractor discovers an existing condition which differs from that shown (or is not shown), Contractor shall immediately notify the Architect.
Cutting and Demolition	In all cases, exercise extreme care in cutting operations and perform such operations under adequate supervision by competent mechanics skilled in the applicable trade. Openings shall be neatly cut and shall be kept as small as possible to avoid unnecessary damage. Careless and/or avoidable cutting damage, etc. will not be tolerated and the contractor will be held responsible for such avoidable or willful damage.
Patching and Refinishing	All replacing, patching and repairing of materials and surfaces cut or damaged in the execution of the work shall be performed by experienced mechanics of the specific trades involved. Such repairing and/or patching shall be done with the applicable materials in a manner that all surfaces so replaced, etc. will, upon completion of the work, match the surrounding similar surfaces.
Locations	Walls - paint all affected walls, interior and exterior from corner to corner. (e.g. if you install a door in an existing frame, you need only to paint the door and frame, but if you install a door and frame, paint the entire wall to match existing) Gypsum wall board ceilings - Paint the entire ceiling of the room affected. (e.g. if anything is installed in/on/through the ceiling of a room, paint the ceiling of that room) Roofs - Replace portion of roof covering as required to flash new assembly. If roof warranty is still in effect, Contractor issuing warranty shall perform the required work. All patching and refinishing will be performed in a manner such that at the completion of the work, it shall not be obvious where an item was removed from, or added to.
Disposal	Remove all materials noted on the drawings and all miscellaneous materials which will be rendered useless with removal of the item noted. Unless specifically noted otherwise, materials shall become the property of the contractor and shall be removed from the site in a legal and safe manner. Patch and repair all adjacent surfaces such that at the completion of the work, it shall not be obvious where an item was removed from or added to. Final appearance shall be totally acceptable to the owner. Contractor shall provide and maintain his own trash receptacles, unless specifically directed otherwise. All surplus materials become the property of the contractor. Large quantities of unused metal shall be disposed of in Embury Riddle's recycle dumpster located in maintenance yard. Remove all trash, rubbish and surplus materials from the site and dispose of in a legal and safe manner.
As-Builts	Contractor shall maintain a clean set of drawings at the job site that is specifically set aside for recording: - all differences between the work as shown on the drawings and the work installed. - All work added or deleted during the course of construction - Exact measurements of all buried and/or concealed work (e.g. conduit below slab, conduit and data cable below raised platforms, conduit in walls etc.) All recordings shall be neat and legible. Stamp this set of drawings 'As-Built drawings' and list as a minimum, the name, address and telephone number of the General Contractor and all major sub-contractors. (e.g. electrical, HVAC, etc.) At the completion of the project as prerequisite for final payment, Contractor shall turn these as-builts over to the owner.
Final Cleaning	After the construction of each phase and before occupancy, thoroughly clean the space by dusting the sills, washing windows, vacuuming the carpet and replace all HVAC filters. Clean site areas of any refuse created in the scope of work.

<u>03 - CONCRETE</u>	
03 30 00 CAST-IN-PLACE-CONCRETE	
General	Refer to general structural notes on the engineering drawings. Shall supersede this section.
Mix Design	Concrete Mix # 160X109 in Winter and #160X149 in Summer as produced by Hanson products. Curing compound provided on all slabs per ACI and ASTM specifications.
<u>05 - METALS</u>	
05 00 00 - METALS	
General	Refer to the manufacturers written instructions for installation of metal panel systems for walls and roof. Refer to structural plans for steel columns, beams and roof purlins.
<u>08 - OPENINGS</u>	
08 11 00 - METAL DOORS AND FRAMES	
General	Provide 16 gauge hollow metal doors with 14 gauge hollow metal frames as shown on the drawings per steel door institute standards. Provide Roll-up doors per schedule. Doors shall be installed in accordance with manufacturers written instructions. Refer to door types schedule.
08 70 00 - HARDWARE	
General	Refer to hardware schedule.
<u>09 - FINISHES</u>	
09 90 00 - PAINTING	
General	Painting products shall be specified from Sherwin Williams.
Number of Coats	Number of coats listed below are minimum number. Apply as many coats as necessary to obtain full coverage and uniform appearance.
Paint Schedule	Hollow metal doors, finish - semi gloss Frames and other ferrous materials 1 coat ferrous metal primer 2nd -3rd coats acrylic eggshell enamel Metal siding and trim New metal components to be prepared to be 'oil free' prior to painting 1 coat DTM bonding primer 2 coats Sher-Cryl Refer to materials schedule for color and location.

REVISIONS	BY

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ARCHITECTURE & PLANNING



DRAWING: SPECIFICATIONS

PROJECT: ERAU F8 HANGAR EQUIPMENT STORAGE ADDITION
6492 Corral Way
Prescott, AZ 86301

DRAWN BY L.O.
CHECKED BY W.A.K.
DATE May 11th, 2015
SCALE AS NOTED
JOB NO. 668
SHEET

A5.0

5/11/2015 12:51 PM

6/6

GENERAL STRUCTURAL NOTES

(APPLY UNLESS NOTED OTHERWISE ON PLANS/DETAILS)

GENERAL REQUIREMENTS:

- THE STRUCTURAL SYSTEMS AND MEMBERS DEPICTED HEREIN HAVE BEEN DESIGNED PRIMARILY TO SAFEGUARD AGAINST MAJOR STRUCTURAL DAMAGE AND LOSS OF LIFE, NOT TO LIMIT DAMAGE OR MAINTAIN FUNCTION (IBC SECTION 101.3).
- THESE DRAWINGS, AND THEIR ASSOCIATED STRUCTURAL CALCULATIONS, HAVE BEEN PERFORMED USING STANDARDS OF PROFESSIONAL CARE AND COMPLETENESS NORMALLY EXERCISED UNDER SIMILAR CIRCUMSTANCES BY REPUTABLE STRUCTURAL ENGINEERS IN THIS OR SIMILAR LOCALITIES. THEY NECESSARILY ASSUME THAT THE WORK DEPICTED WILL BE PERFORMED BY AN EXPERIENCED CONTRACTOR AND/OR WORKMEN WHO HAVE A WORKING KNOWLEDGE OF THE INTERNATIONAL BUILDING CODE CONVENTIONAL FRAMING REQUIREMENTS AND OF INDUSTRY ACCEPTED STANDARD GOOD PRACTICE, AS NOT EVERY CONDITION OR FRAMING ELEMENT IS (OR CAN BE) EXPLICITLY SHOWN ON THESE DRAWINGS. IT IS UNDERSTOOD THAT THE CONTRACTOR WILL USE INDUSTRY ACCEPTED STANDARD GOOD PRACTICE FOR ALL MISCELLANEOUS WORK NOT EXPLICITLY SHOWN.
- THESE DRAWINGS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES. CONSTRUCTION MATERIALS SHALL BE SPREAD OUT IF PLACED ON FRAMED CONSTRUCTION SUCH THAT DESIGN LIVE LOAD PER SQUARE FOOT AS STATED HEREIN IS NOT EXCEEDED. OPTIONS ARE FOR CONTRACTOR'S CONVENIENCE. IF AN OPTION IS USED, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL NECESSARY CHANGES, AND SHALL COORDINATE ALL DETAILS.
- WHERE DISCREPANCIES OCCUR BETWEEN PLANS, TYPICAL DETAILS AND GENERAL STRUCTURAL NOTES, NOTES AND DETAILS ON DRAWINGS SHALL TAKE PRECEDENCE. TYPICAL DETAILS AND NOTES ARE NOT NECESSARILY INDICATED ON THE PLANS, BUT SHALL APPLY NONE-THE-LESS. WHERE NO DETAILS ARE SHOWN, CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ON THE PROJECT. DETAILS MAY SHOW ONLY ONE SIDE OF CONNECTION OR MAY OMIT INFORMATION FOR CLARITY.
- ESTABLISH AND VERIFY ALL OPENINGS AND INSERTS FOR ARCHITECTURAL, MECHANICAL, PLUMBING AND ELECTRICAL WITH APPROPRIATE TRADES, DRAWINGS AND SUBCONTRACTORS PRIOR TO CONSTRUCTION.
- ANY INSPECTIONS, SPECIAL (IBC CHAPTER 17) OR OTHERWISE THAT ARE REQUIRED BY THE BUILDING CODES, LOCAL BUILDING DEPARTMENTS, OR BY THESE PLANS SHALL BE DONE BY AN INDEPENDENT INSPECTION COMPANY OR THE BUILDING DEPARTMENT. SITE VISITS BY THE STRUCTURAL ENGINEER DO NOT CONSTITUTE AN OFFICIAL INSPECTION, UNLESS SPECIFICALLY CONTRACTED FOR.

BASIS FOR DESIGN:

- BUILDING CODE: 2012 EDITION OF THE IBC.

OCCUPANCY CATEGORY = II

- VERTICAL LOADS:

LOCATION	LIVE LOAD	DEAD LOAD
ROOF	30 PSF(SNOW)	6 PSF

- SEISMIC DESIGN PARAMETERS:

ANALYSIS PROCEDURE	EQUIVALENT LATERAL FORCE PROCEDURE
IMPORTANCE FACTOR	$I_e = 1.00$
SITE CLASS	D
SEISMIC DESIGN CATEGORY	C
SPECTRAL RESPONSE ACCELERATIONS	$S_{ms} = 0.532, S_{m1} = 0.244$
SPECTRAL RESPONSE COEFFICIENTS	$S_{ds} = 0.355, S_{d1} = 0.163$

- WIND DESIGN PARAMETERS:

WIND SPEED	115 MPH (3 SECOND GUST)
WIND EXPOSURE	C
IMPORTANCE FACTOR	$I_w = 1.00$
INTERNAL PRESSURE COEFFICIENT	-0.18
COMPONENT & CLADDING PRESSURE	19.2 PSF
GROSS UPLIFT ON ROOF	17.7 PSF

FOUNDATION NOTES:

- FOUNDATIONS DESIGNED IN CONFORMANCE WITH RECOMMENDATIONS BY: WESTERN TECHNOLOGIES, INC. JOB NO. 2526JW280 DATED JANUARY 19, 2007.
- SITE PREPARATION AND GRADING REQUIREMENTS OF THE SOIL REPORT AND ANY ADDENDUM'S SHALL BE COMPLETED PRIOR TO CONSTRUCTION OF FOUNDATIONS. ANY TESTS OR INSPECTIONS REQUIRED BY THE SOIL REPORT SHALL BE PERFORMED PRIOR TO PLACEMENT OF FOUNDATION REINFORCING. STEEL OR CONCRETE ALTERATIONS TO SITE PREPARATION OR GRADING SHALL BE REPORTED TO THE GEOTECHNICAL ENGINEER PRIOR TO FOUNDATION CONSTRUCTION.

THE SOIL DESIGN VALUES FOR THE FOUNDATION ARE:

ALLOWABLE BEARING PRESSURE	1500 PSF
ALLOWABLE LATERAL BEARING PRESSURE	150 PSF/FT
ALLOWABLE LATERAL SLIDING COEFFICIENT	0.25
SITE CLASS	D

- A ONE-THIRD INCREASE IN BEARING PRESSURES IS ALLOWED WITH SEISMIC OR WIND LOAD COMBINATIONS. LATERAL BEARING AND LATERAL SLIDING RESISTANCE MAY BE COMBINED.
- ALL FOUNDATIONS SHALL BEAR 18 INCHES MINIMUM BELOW FINISH GRADE.

FOUNDATION BEARING DEPTH
18" BELOW FINISHED GRADE

- ALL FOUNDATIONS SHALL BEAR ON FIRM, UNDISTURBED (NATURAL) SOIL OR COMPACTED ENGINEERED FILL 18 INCHES MINIMUM BELOW FINISH GRADE. GRADE IS DEFINED AS TOP OF SLAB FOR INTERIOR FOOTINGS AND LOWEST ADJACENT GRADE WITHIN 5 FEET OF THE BUILDING FOR PERIMETER FOOTINGS. WHERE EXTERIOR PAVING OR CONCRETE IS DIRECTLY ADJACENT TO BUILDING, GRADE IS DEFINED AS TOP OF EXTERIOR PAVING AT LEAST 5 FEET FROM BUILDING. CONCRETE FOOTING EXCAVATIONS SHALL BE CLEAN AND FREE OF LOOSE DEBRIS OR UNCOMPACTED MATERIAL AT TIME OF CONCRETE PLACEMENT.
- CONCRETE SLABS ON GRADE SHALL BE SUPPORTED ON A 36 INCHES OF IMPORTED FILL MATERIAL ACCORDING TO THE SPECIFICATIONS OF THE SOIL REPORT. FILL MATERIAL SHOULD BE MOISTENED, BUT NOT SATURATED JUST PRIOR TO PLACING CONCRETE.

CONCRETE:

- MINIMUM 28 DAY CONCRETE STRENGTH SHALL BE AS FOLLOWS:

USE	CONCRETE STRENGTH	REMARKS
FOUNDATIONS	4000 PSI	W/O INSPECTION
CONCRETE SLABS ON GRADE	4000 PSI	W/O INSPECTION

- ALL NORMAL WEIGHT CONCRETE SHALL BE REGULAR WEIGHT OF 150 POUNDS PER CUBIC FOOT USING HARD-ROCK AGGREGATES. AGGREGATE USED IN CONCRETE SHALL CONFORM TO ASTM C67 FOR 3/4 INCH, ASTM C57 FOR 1 INCH AND ASTM C467 FOR 1-1/2 INCH AGGREGATE.
- MAXIMUM SLUMP FOR ALL CONCRETE SHALL BE 4 INCHES. SLUMP FOR EXTERIOR SLABS SHALL BE 6 INCHES. PORTLAND CEMENT SHALL CONFORM TO ASTM C150. TYPE V CEMENT SHALL BE USED FOR CONCRETE IN CONTACT WITH ALKALINE SOIL, AND TYPE II ELSEWHERE.
- NO MORE THAN 90 MINUTES SHALL ELAPSE BETWEEN CONCRETE BATCHING AND CONCRETE PLACEMENT UNLESS APPROVED BY THE TESTING AGENCY.
- CONCRETE PLACEMENT AND QUALITY SHALL BE PER RECOMMENDATIONS IN ACI 614, ACI 301 AND ACI 318. MECHANICALLY VIBRATE ALL CONCRETE WHEN PLACED, EXCEPT THAT SLABS ON GRADE NEED BE VIBRATED ONLY AROUND AND UNDER FLOOR DUCTS, ETC. CAST CLOSURE POUR, WHERE SHOWN ON PLANS AROUND COLUMNS AFTER COLUMN DEAD LOAD IS APPLIED. REMOVE ALL DEBRIS FROM FORMS BEFORE PLACING CONCRETE. CONCRETE SHALL NOT BE DROPPED THROUGH REINFORCING STEEL (AS IN WALLS AND COLUMNS) SO AS TO CAUSE SEGREGATION OF THE AGGREGATES. UNCONFINED FALL OF CONCRETE SHALL NOT EXCEED 5 FEET. CARE SHALL BE TAKEN IN PLACING SLABS ON GRADE TO NOT DISTURB FILL MATERIAL.
- ALL ITEMS TO BE CAST IN CONCRETE SUCH AS REINFORCING, DOWELS, BOLTS, ANCHORS, PIPES, SLEEVES, ETC., SHALL BE SECURELY POSITIONED IN THE FORMS BEFORE PLACING THE CONCRETE.
- UNLESS APPROVED OTHERWISE, ALL CONCRETE SLABS ON GRADE SHALL BE BOUNDED BY CONTROL JOINTS (KEYED OR SAW CUT) SUCH THAT THE ENCLOSED AREA DOES NOT EXCEED 200 SQUARE FEET. CONCRETE SLABS ON GRADE SHALL BE BOUNDED BY CONTROL JOINTS AS SHOWN ON FOUNDATION PLAN. KEYED CONTROL JOINTS NEED ONLY OCCUR AT EXPOSED EDGES DURING POURING. ALL OTHER JOINTS MAY BE SAW CUT.
- HORIZONTAL PIPES AND ELECTRICAL CONDUITS SHALL NOT BE EMBEDDED IN STRUCTURAL CONCRETE AND SLABS ON GRADE EXCEPT WHERE SPECIFICALLY APPROVED OR NOTED BY THE STRUCTURAL ENGINEER. PIPES AND CONDUITS SHALL NOT IMPAIR THE STRENGTH OF THE WORK.
- FLY ASH MAY BE USED ONLY IF PERMITTED BY ARCHITECTURAL SPECIFICATIONS AND SHALL BE LIMITED TO 18 PERCENT OF CEMENTITIOUS MATERIALS AND SHALL HAVE A REPLACEMENT FACTOR OF 1.2 RELATIVE TO CEMENT. REPLACED. NO FLY ASH ADDITIVES SHALL BE USED IN FLATWORK OR ARCHITECTURALLY EXPOSED CONCRETE.
- COLD/HOT WEATHER CONCRETE CONSTRUCTION: PROTECT CONCRETE FROM DAMAGE OR REDUCED STRENGTH IN COMPLIANCE WITH ACI 305 AND 306.
- CONCRETE MIXES SHALL BE DESIGNED BY A CERTIFIED LABORATORY AND APPROVED BY THE STRUCTURAL ENGINEER.
- OWNER REQUIRES CONCRETE MIX #160X109 IN WINTER AND #160X149 IN SUMMER AS PRODUCED BY HANSON PRODUCTS OR EQUAL.

REINFORCING STEEL:

- ASTM A615 GRADE 60 (FY = 60 KSI) DEFORMED BARS FOR ALL BARS #5 AND LARGER. ASTM A615 GRADE 40 (FY = 40 KSI) DEFORMED BARS FOR ALL BARS #4 AND SMALLER. GRADE 60 DEFORMED BARS SHALL BE USED FOR CONCRETE WALLS, BEAMS, ELEVATED SLABS AND COLUMN REINFORCING.
- ALL DIMENSIONS SHOWING THE LOCATION OF REINFORCING STEEL NOT NOTED AS "CLEAR" OR "CLR" ARE TO CENTER OF STEEL. MINIMUM COVER FOR NON-PRESTRESSED CONCRETE REINFORCING SHALL BE AS FOLLOWS:

LOCATION	MINIMUM COVER	TOLERANCE
CAST AGAINST EARTH (FOOTINGS)	3"	±3/8"
SLABS ON GRADE	1 1/2"	±1/4"

- LAP SPLICES PER SCHEDULE BELOW:

REBAR SIZE	STANDARD LAP
#3	24"
#4	32"
#5	39"

- NO TACK WELDING OF REINFORCING BARS ALLOWED WITHOUT PRIOR REVIEW OF PROCEDURE WITH THE STRUCTURAL ENGINEER. LATEST ACI CODE AND DETAILING MANUAL APPLY. PROVIDE BENT CORNER BARS TO MATCH AND LAP WITH HORIZONTAL BARS AT ALL CORNERS AND INTERSECTIONS PER TYPICAL DETAILS. VERTICAL WALL BARS SHALL BE SPLICED AT OR NEAR FLOOR LINES.
- WELDING OF REINFORCING BARS SHALL BE MADE ONLY TO ASTM A706 GRADE 60 BARS AND ONLY USING E30 SERIES RODS. WELDING OF REINFORCING BARS SHALL BE MADE ONLY AT LOCATIONS SHOWN ON PLANS OR DETAILS.
 - REINFORCING BAR SPACING GIVEN ARE MAXIMUM ON CENTERS. ALL BARS PER CRSI SPECIFICATIONS AND HANDBOOK. DOWEL ALL VERTICAL REINFORCING TO FOUNDATION. SECURELY TIE ALL BARS IN LOCATION BEFORE PLACING CONCRETE.

STEEL:

- MATERIALS: ROLLED W SHAPES, SHALL CONFORM TO ASTM A992 (FY=50 KSI). ALL OTHER STRUCTURAL STEEL SHAPES, ROLLED SECTIONS, BARS AND PLATES SHALL CONFORM TO ASTM A36 (FY = 36 KSI). ALL PIPE STEEL SHALL BE ASTM A501 (FY = 36 KSI) OR ASTM A53, TYPE E OR S, GRADE B (FY = 35 KSI). ALL TUBULAR STEEL SHALL BE ASTM A500 (FY = 46 KSI).
- ALL BOLTS AND STUDS SHALL BE ASTM A307, UNLESS NOTED OTHERWISE. ALL EXPANSION BOLTS TO HAVE CURRENT ICBO RATING FOR MATERIAL INTO WHICH INSTALLATION TAKES PLACE. HEADED STUDS SHALL CONFORM TO ALL REQUIREMENTS OF THE LATEST EDITION OF THE RECOMMENDED PRACTICES FOR STUD WELDING AND THE "STRUCTURAL WELDING CODE" PUBLISHED BY AWS. ALL BOLTS, ANCHOR BOLTS, EXPANSION BOLTS, ETC. SHALL BE INSTALLED WITH STEEL WASHERS AT FACE OF WOOD OR AT SLOTTED HOLES IN STEEL SECTIONS.
- ALL STRUCTURAL AND MISCELLANEOUS STEEL SHALL BE FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS, LATEST EDITION.
- WELDING SHALL BE BY WELDERS HOLDING VALID CERTIFICATES AND HAVING CURRENT EXPERIENCE IN THE TYPE OF WELD SHOWN ON THE DRAWINGS OR NOTES. ALL WELDING SHALL USE E70 SERIES LOW HYDROGEN RODS UNLESS NOTED OTHERWISE. ALL WELDING PER LATEST AMERICAN WELDING SOCIETY STANDARDS. ALL WELDS ON DRAWINGS ARE SHOWN AS SHOP WELDS. CONTRACTOR MAY SHOP WELD OR FIELD WELD AT HIS DISCRETION. ALL FULL PENETRATION WELDS SHALL BE TESTED AND CERTIFIED BY AN INDEPENDENT TESTING LABORATORY.
- STEEL TO STEEL BOLTED CONNECTIONS: HIGH STRENGTH BOLTS SHALL BE ASTM A325M AND SHALL BE INSTALLED AS BEARING-TYPE CONNECTIONS WITH THREADS INCLUDED IN SHEAR PLANE (TYPE "N" CONNECTION). BOLTS MAY BE TIGHTENED USING ANY AISC APPROVED METHOD.

COLD FORMED STEEL (ICBO ER 4943P):

- MATERIALS: STANDARD COLD-FORMED STEEL STUDS, JOISTS, TRACK, BRIDGING AND TRAPSS SHALL CONFORM TO 1996 AISI (FY = 33 KSI). STEEL FOR PURLINS AND GIRTS SHALL CONFORM TO (FY = 55 KSI). STEEL SHALL BE GALVANIZED AT EXTERIOR WALLS AND

STEEL ROOF DECKING AND WALL SHEETING:

- ROOF DECK(DURARIB PANEL): DECK SHALL BE 1.25" DEEP, 36" WIDE, 24 GAGE PRE-FINISHED STEEL, WITH MINIMUM YIELD STRESS OF 80 KSI, WITH MINIMUM $S = 0.055$ IN"3 AND $I = 0.046$ IN"4 PER FOOT OF WIDTH.
- ROOF DECK ATTACHMENT: PER TYPICAL DETAILS.
- WALL SHEETING(DURARIB PANEL): DECK SHALL BE 1.25" DEEP, 36" WIDE, 24 GAGE PRE-FINISHED STEEL, WITH MINIMUM YIELD STRESS OF 80 KSI, WITH MINIMUM $S = 0.055$ IN"3 AND $I = 0.046$ IN"4 PER FOOT OF WIDTH.
- SHEETING ATTACHMENT: PER TYPICAL DETAILS.

SPECIAL INSPECTION:

- THE OWNER SHALL EMPLOY A SPECIAL INSPECTOR DURING CONSTRUCTION OF CERTAIN TYPES OF WORK. PER IBC SECTION 1704 AND THE STRUCTURAL ENGINEER OF RECORD, SPECIAL INSPECTION IS(S) NOT) REQUIRED AS FOLLOWS:

TYPE OF WORK	REQUIRED	REMARKS
CONCRETE SLAB ON GRADE	NO	DESIGN BASED ON $f_c=2500$ PSI
CONCRETE FOUNDATIONS	NO	DESIGN BASED ON $f_c=2500$ PSI
EPOXY / EXPANSION ANCHORS	YES	DURING INSTALLATION OF ANCHORS
WELDING	YES	AFTER WORK IS COMPLETE
STEEL TO STEEL BOLTED CONNECTIONS	YES	AFTER WORK IS COMPLETE

SPECIAL INSPECTIONS NOT LISTED ABOVE ARE NOT REQUIRED.

- DESIGNATION OF SPECIAL INSPECTOR:

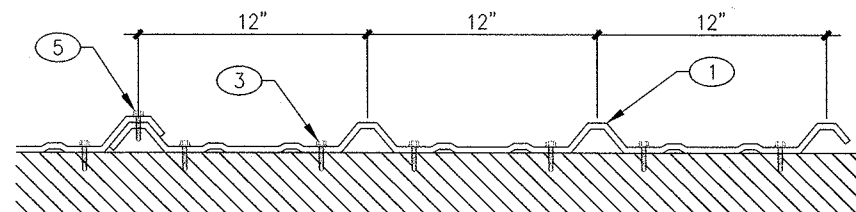
- FOR STRUCTURAL ITEMS LISTED ABOVE, THE SPECIAL INSPECTOR SHALL BE, OR WORK UNDER THE DIRECT SUPERVISION OF THE STRUCTURAL ENGINEER OF RECORD - FROST STRUCTURAL ENGINEERING (928)776-4757.
- FOR GEOTECHNICAL ITEMS LISTED ABOVE, THE SPECIAL INSPECTOR SHALL BE, OR WORK UNDER THE DIRECT SUPERVISION OF THE GEOTECHNICAL ENGINEER OF RECORD. SEE GEOTECHNICAL REPORT FOR CONTACT INFORMATION.
- THE OWNER, AT HIS OPTION, MAY DESIGNATE AN ALTERNATE SPECIAL INSPECTOR, OBTAIN THE REQUIRED CERTIFICATE(S), AND MAKE THE NECESSARY NOTIFICATIONS TO ALL PARTIES INVOLVED. THE ALTERNATE SPECIAL INSPECTOR SHALL BE A LICENSED STRUCTURAL ENGINEER (OR GEOTECHNICAL ENGINEER FOR GEOTECHNICAL ITEMS) OR AN ICBO CERTIFIED SPECIAL INSPECTOR.
- TO SCHEDULE ANY SPECIAL INSPECTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING THE SPECIAL INSPECTOR AT LEAST ONE DAY IN ADVANCE.

- QUALITY ASSURANCE PROGRAM:

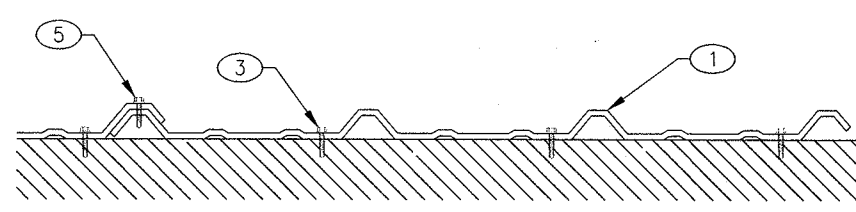
- THE SPECIAL INSPECTOR SHALL OBSERVE THE WORK ASSIGNED TO BE CERTAIN IT CONFORMS WITH THE APPROVED DESIGN DRAWINGS AND SPECIFICATIONS.
- THE SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS TO THE BUILDING OFFICIAL, AND TO THE STRUCTURAL ENGINEER OF RECORD. ALL DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION. THEN, IF UNCORRECTED, TO THE DESIGN AUTHORITY AND THE BUILDING OFFICIAL.
- UPON COMPLETION OF THE ASSIGNED WORK THE STRUCTURAL ENGINEER SHALL COMPLETE AND SIGN THE APPROPRIATE FORMS CERTIFYING THAT TO THE BEST OF HIS KNOWLEDGE THE WORK IS IN CONFORMANCE WITH THE APPROVED PLANS AND SPECIFICATIONS, AND THE APPLICABLE WORKMANSHIP PROVISIONS OF THE INTERNATIONAL BUILDING CODE.

KEY NOTES:

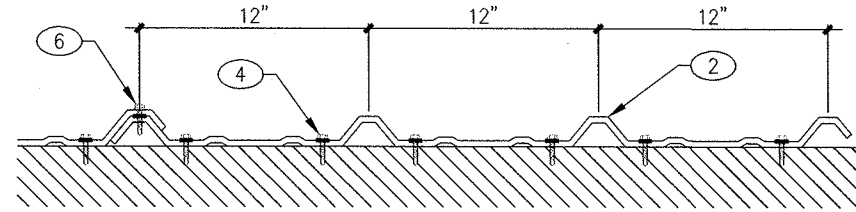
- METAL WALL PANEL PER G.S.N. AND ARCHITECTURAL DRAWINGS.
- METAL ROOF PANEL PER G.S.N. AND ARCHITECTURAL DRAWINGS.
- #12 X 1.25" SELF-TAPPING TEK'S SCREWS AT 12" O.C.
- #12 X 1.25" SELF-TAPPING TEK'S SCREWS WITH NEOPRENE WASHERS AT 12" O.C.
- WALL PANEL STITCH SCREW: #14 X 3/4" SELF-TAPPING TEK'S SCREWS AT 18" O.C.
- ROOF PANEL STITCH SCREW: #14 X 3/4" SELF-TAPPING TEK'S SCREWS AT 18" O.C. WITH CONTINUOUS MASTIC TAPE.



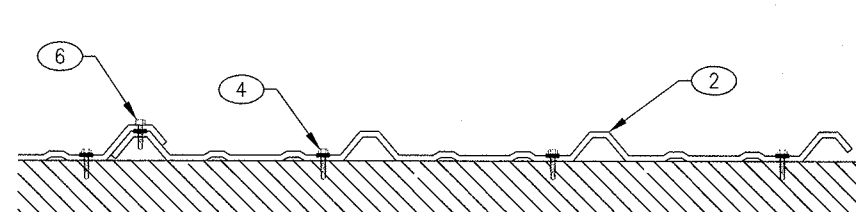
WALL PANELS - ATTACHMENT AT PANEL ENDS



WALL PANELS - INTERMEDIATE ATTACHMENT



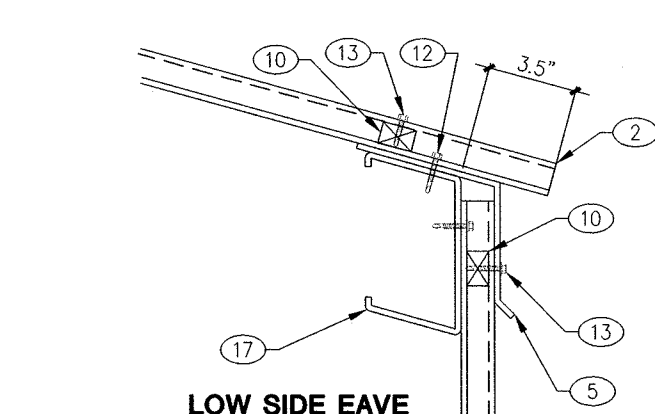
ROOF PANELS - ATTACHMENT AT PANEL ENDS



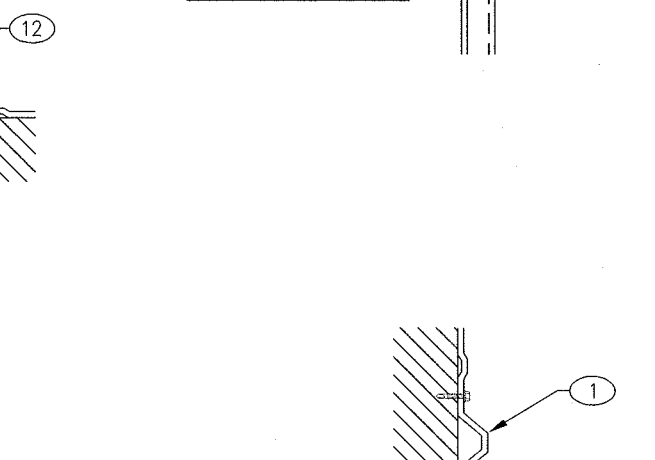
ROOF PANELS - INTERMEDIATE ATTACHMENT

T4 TYPICAL "PBR" PANEL ROOFING/SIDING ATTACHMENT

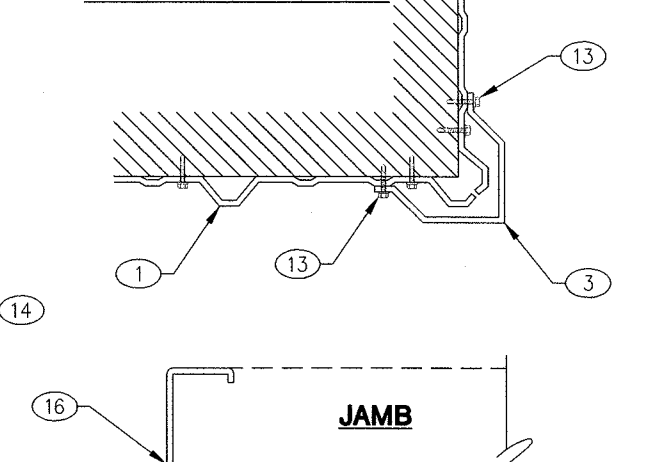
SD05



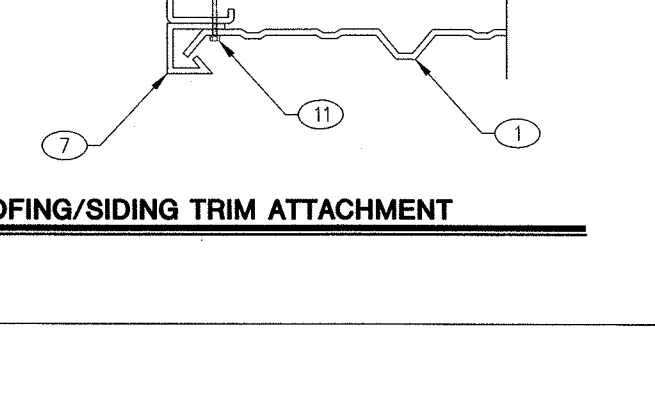
LOW SIDE EAVE



RAKE TRIM



WALL PANEL CORNER

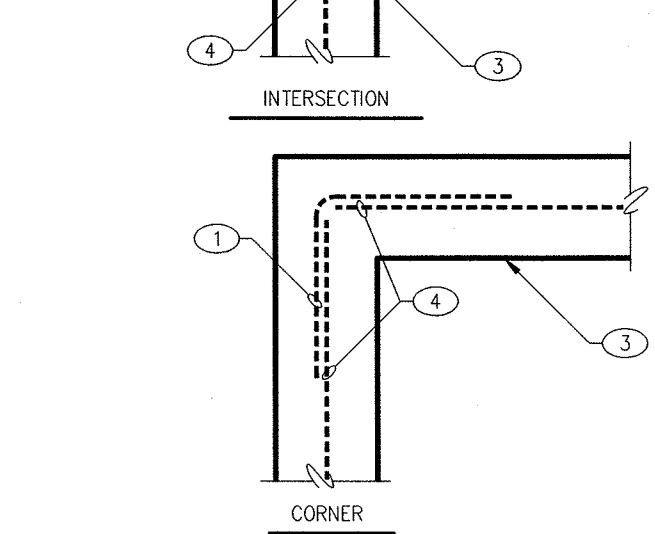


JAMB

T5 TYPICAL METAL ROOFING/SIDING TRIM ATTACHMENT

SD06

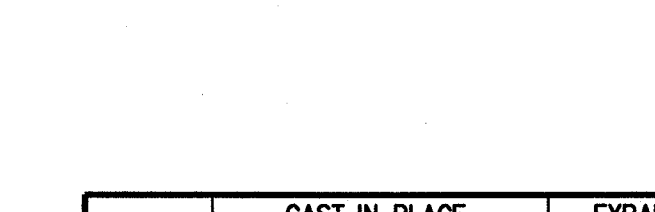
- KEY NOTES:
- CORNER BARS SAME SIZE AND SPACING AS HORIZONTAL REINFORCING. MINIMUM LAP PER G.S.N.
 - ALTERNATE DIRECTION OF BENDS.
 - CONCRETE STEM WALL OR FOOTING.
 - REINFORCING PER PLANS AND SCHEDULES.



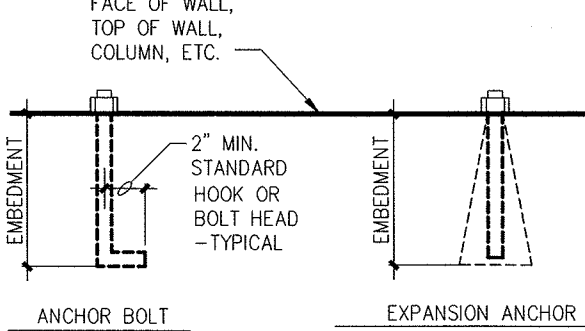
PLAN - CORNER REINFORCING IN CONCRETE FOOTINGS AND/OR CONCRETE STEM WALLS

F02

NO SCALE



BOLT SIZE	CAST IN PLACE EMBEDMENT(MINIMUM)		EXPANSION ANCHOR EMBEDMENT(MINIMUM)	
	VERTICAL	HORIZONTAL	VERTICAL	HORIZONTAL
1/4"	4"	4"	2"	1.125"
3/8"	5"	4"	3"	1.5"
1/2"	7"	4"	4"	2"



KEY NOTES:

- ANCHOR OR BOLT DIAMETERS SPECIFIED IN DETAILS OR ON PLANS SHALL MEET THESE MINIMUM REQUIREMENTS FOR EMBEDMENT.

THICKNESS OF DRYPACK DOES NOT APPLY TOWARDS EMBEDMENT.

EXPANSION ANCHOR APPROVALS:
SIMPSON WEDGE-ALL (ESR-1590)
HILTI ANCHORS KWIK-BOLT (ESR-1917),
POWERS POWER-STUD (ESR-2818)

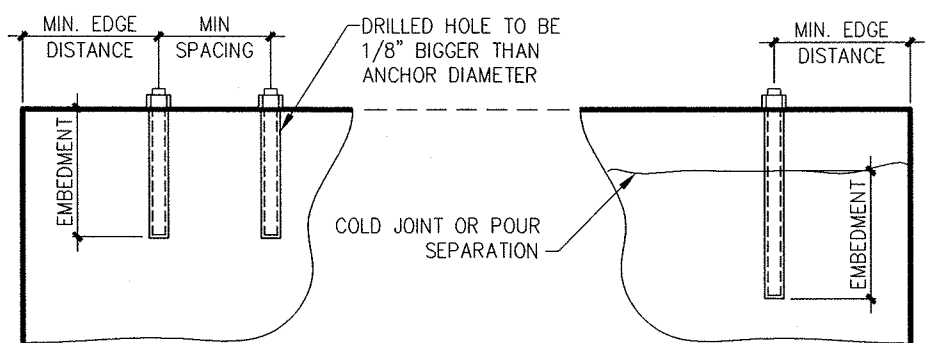
T2 TYPICAL ANCHOR BOLT, AND EXPANSION BOLT SCHEDULE

S0101

NO SCALE

ALL THREAD SIZE	REBAR SIZE	SPACING OR EDGE DISTANCE	EMBEDMENT DEPTH	SPACING OR EDGE DISTANCE	EMBEDMENT DEPTH
1/2"	#4	2" TO 6"	11"	6" MIN.	6"
5/8"	#5	2" TO 7.5"	12"	7.5" MIN.	7"
3/4"	#6	2" TO 9"	14"	9" MIN.	9"

- CONCRETE: USE HILTI HIT-HY 150 ADHESIVE (ESR-3013) OR SIMPSON SET-XP (ESR-2508). MASONRY: USE SIMPSON "SET" ADHESIVE (ESR-1772).
- INSTALL ALL SYSTEMS ACCORDING TO MANUFACTURERS RECOMMENDATIONS.
- DO NOT PLACE ALL-THREAD ROD WITHIN MINIMUM EDGE DISTANCE TO FREE EDGE OF CONCRETE OR ADJACENT BOLTS.



T3 TYPICAL EPOXY ANCHOR INSTALLATION

S0102

NO SCALE

DRAWING INDEX		
DETAILS	SHEET	DESCRIPTION
T1-T5	S10	GENERAL STRUCTURAL NOTES
---	S20	FOUNDATION PLAN
---	S30	ROOF FRAMING PLAN
101-106	S40	FOUNDATION DETAILS
201-210	S40	FRAMING DETAILS
CAD OPERATOR: MJS PROJECT MANAGER: RRF JOB NO.: 2015-0087		
FROST STRUCTURAL ENGINEERING		
1678 Oaklawn Drive, Suite C Prescott, Arizona 86305 info@frost-structural.com		phone: 928.776.4757 fax: 928.776.4931

REVISIONS	BY

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ARCHITECTURE & PLANNING

DRAWING: GENERAL STRUCTURAL NOTES
TYPICAL DETAILS

PROJECT: ERAU F8 HANGAR EQUIPMENT STORAGE ADDITION
6462 Conrail Way
Prescott, AZ 86301

DRAWN BY

CHECKED BY

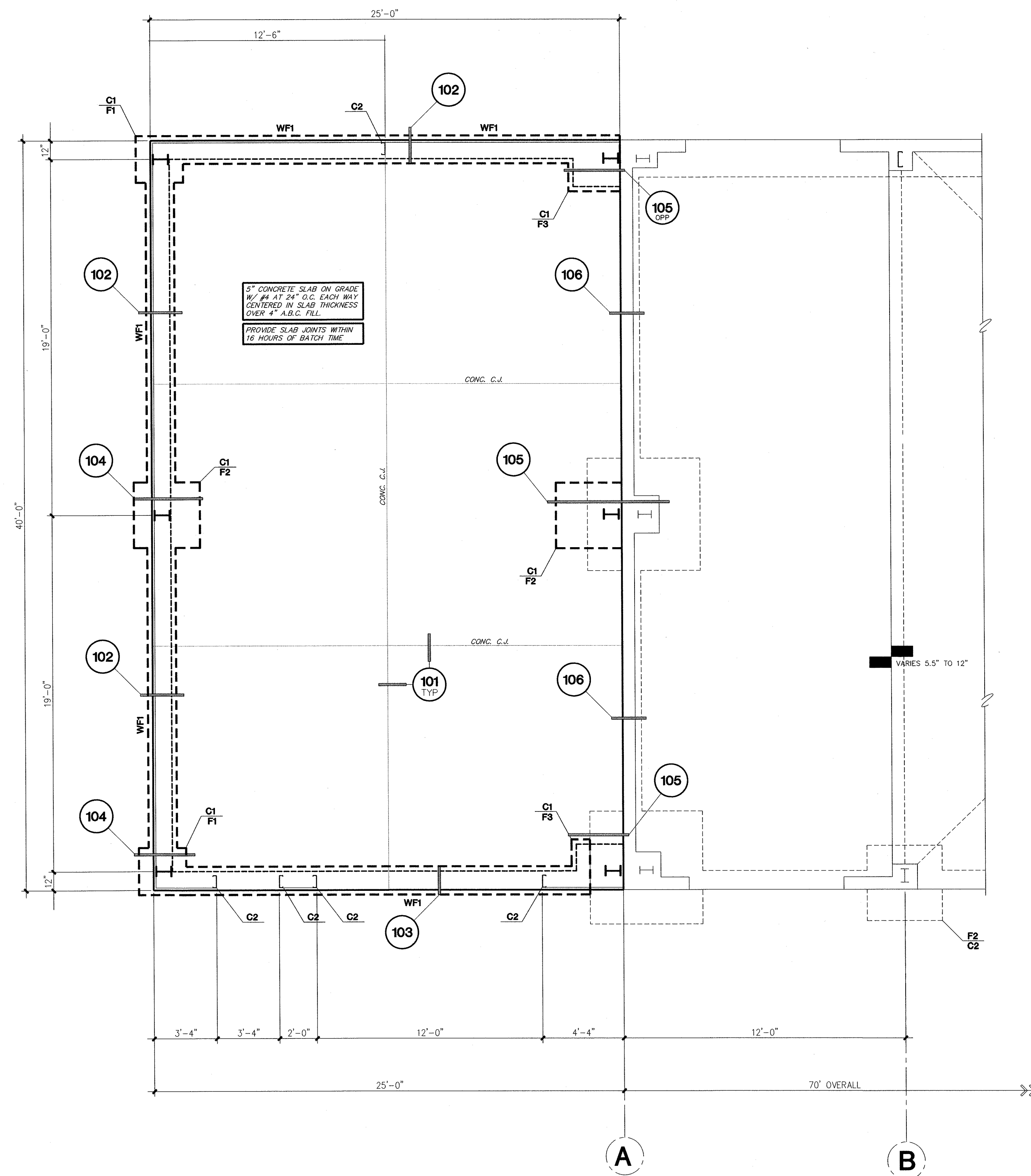
DATE
April 30th, 2015

SCALE
AS NOTED

JOB NO.
668

SHEET

S1.0



FOUNDATION PLAN

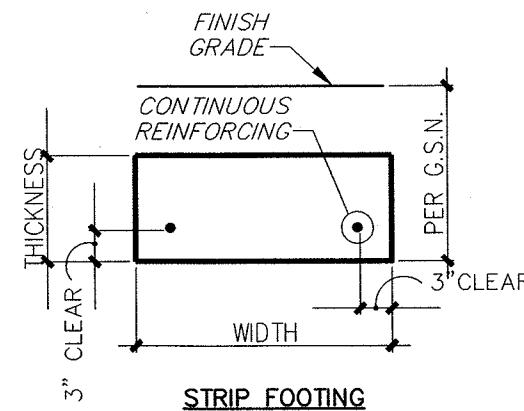
SCALE: 1/4" = 1'-0"

FOUNDATION PLAN NOTES

1. VERIFY ALL DIMENSIONS WITH THE ANCHOR BOLT PLAN FROM THE BUILDING MANUFACTURER.
2. THE DEPTH OF FOOTING DIMENSION INDICATED IN THE G.S.N. IS A MINIMUM. FOUNDATION CONTRACTOR SHALL COORDINATE WITH THE SOILS REPORT AND OTHER TRADES TO INSURE THAT THESE MINIMUMS ARE SUFFICIENT FOR THE WORK. SEE TYPICAL DETAILS FOR ADDITIONAL REQUIREMENTS.
3. WF1 - AS SHOWN ON PLAN INDICATES A CONTINUOUS WALL FOOTING. SEE WALL FOOTING SCHEDULE FOR ADDITIONAL INFORMATION.
4. F1, F2, ETC. - AS SHOWN ON PLAN INDICATES A CONCRETE FOOTING. SEE FOOTING SCHEDULE FOR ADDITIONAL INFORMATION.
5. C1, C2, ETC. - AS SHOWN ON PLAN INDICATES A COLUMN. SEE COLUMN SCHEDULE FOR ADDITIONAL INFORMATION.
6. CONC. C.J. - AS SHOWN ON PLAN INDICATES LOCATION OF EITHER A KEYED OR A SAW CUT CONTROL JOINT IN THE SLAB ON GRADE AT CONTRACTOR'S OPTION. SEE GENERAL STRUCTURAL NOTES AND DETAIL 101.

WALL FOOTING (WF) SCHEDULE

FOR CONSTRUCTION ABOVE FOOTING, SEE DETAILS.

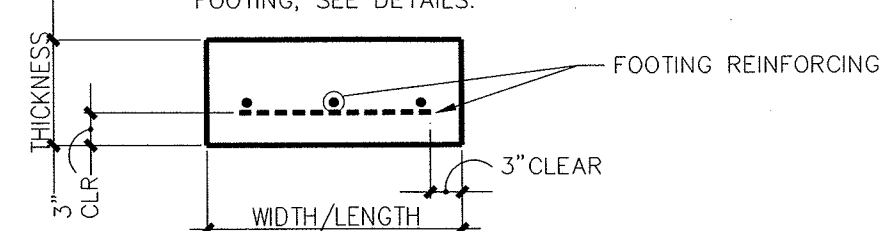


MARK	DIMENSIONS		FOOTING REINFORCING	FOOTING TYPE
	WIDTH	HEIGHT OR THICKNESS		
WF1	18"	10"	(2) #4 CONTINUOUS	STRIP FOOTING

SCH01

CONCRETE FOOTING (F) SCHEDULE

FOR CONSTRUCTION ABOVE FOOTING, SEE DETAILS.

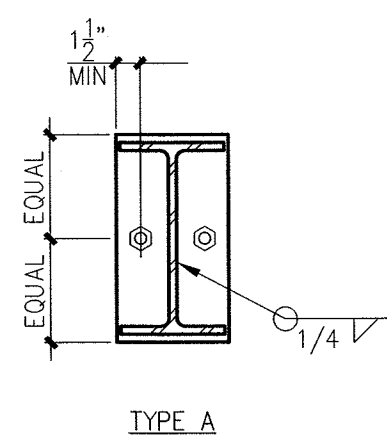


MARK	DIMENSIONS			FOOTING REINFORCING	REMARKS
	LENGTH	WIDTH	THICKNESS		
F1	2'-6"	2'-6"	10"	(4) #4 EACH WAY	---
F2	3'-6"	3'-6"	10"	(5) #4 EACH WAY	---
F3	2'-6"	2'-6"	8" MIN	(4) #4 EACH WAY	MONO WITH SLAB

SCH02

COLUMN (C) SCHEDULE

MARK	SIZE	BASE CONNECTION	BASE CONNECTION TYPE
C1	W10X22 STEEL COLUMN	11"x6"x1/2" THICK STEEL PLATE W/ (2) 3/4"x10" J-BOLTS	TYPE A
C2	8"x2.5"x16 GA. STEEL "C" COLUMN	6" LONG X 3/8" THICK CLIP ANGLE W/ (2) 3/8"x7" J-BOLTS OR (2) 1/2"x6" SIMPSON WEDGE-ALL TYPE ANCHORS	---



TYPE A

SCH0601

LOCATION OF DETAILS

DETAILS	SHEET	DESCRIPTION
T1-T5	S10	GENERAL STRUCTURAL NOTES
101-106	S40	FOUNDATION DETAILS
201-210	S40	FRAMING DETAILS

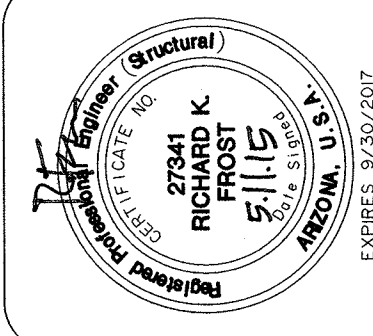
CAD OPERATOR: MUS PROJECT MANAGER: RKF JOB NO.: 2015-0087

FROST STRUCTURAL ENGINEERING

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REVISIONS	BY

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ARCHITECTURE & PLANNING

DRAWING: FOUNDATION PLAN

PROJECT:

ERAU F8 HANGAR EQUIPMENT STORAGE ADDITION
6492 Conrad Way
Prescott, AZ 86301

DRAWN BY

CHECKED BY

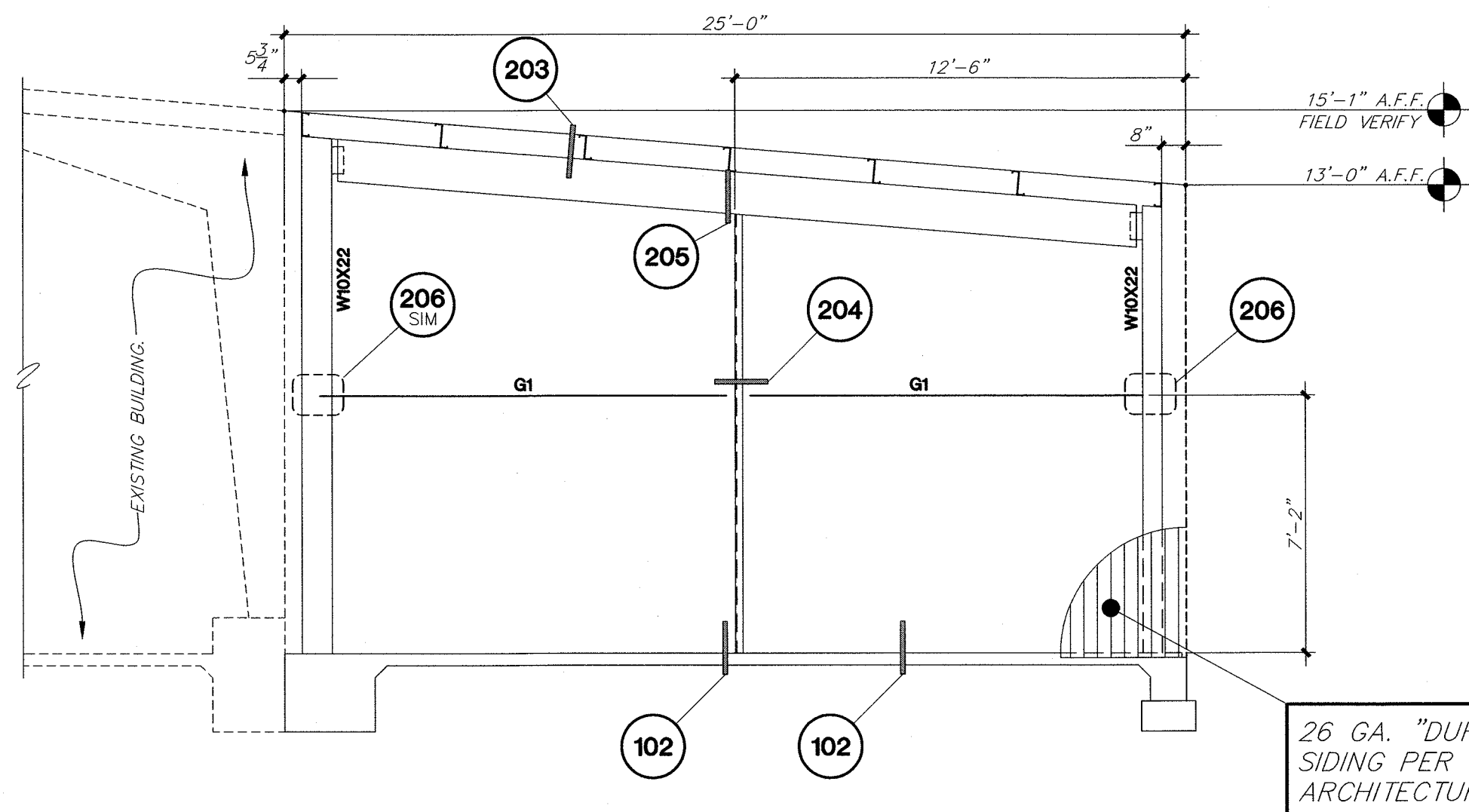
DATE
April 30th, 2015

SCALE
AS NOTED

JOB NO.
668

SHEET

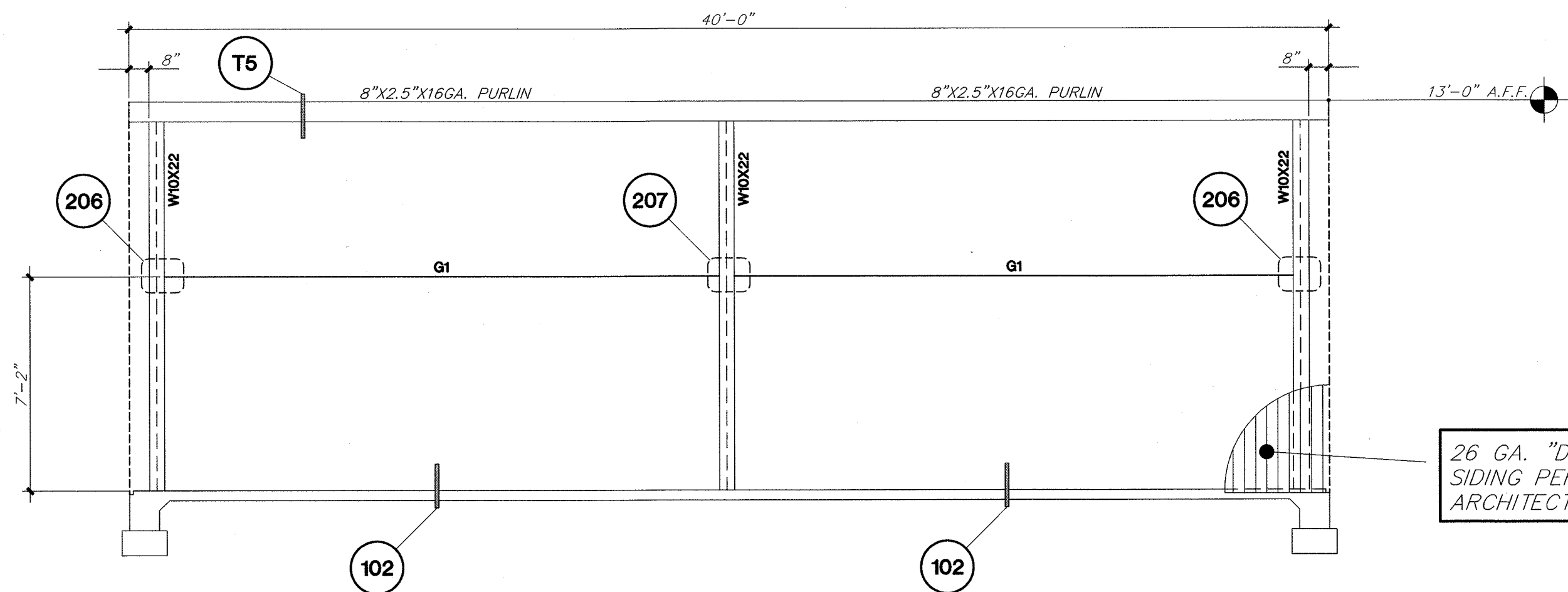
S2.0



NORTH ELEVATION

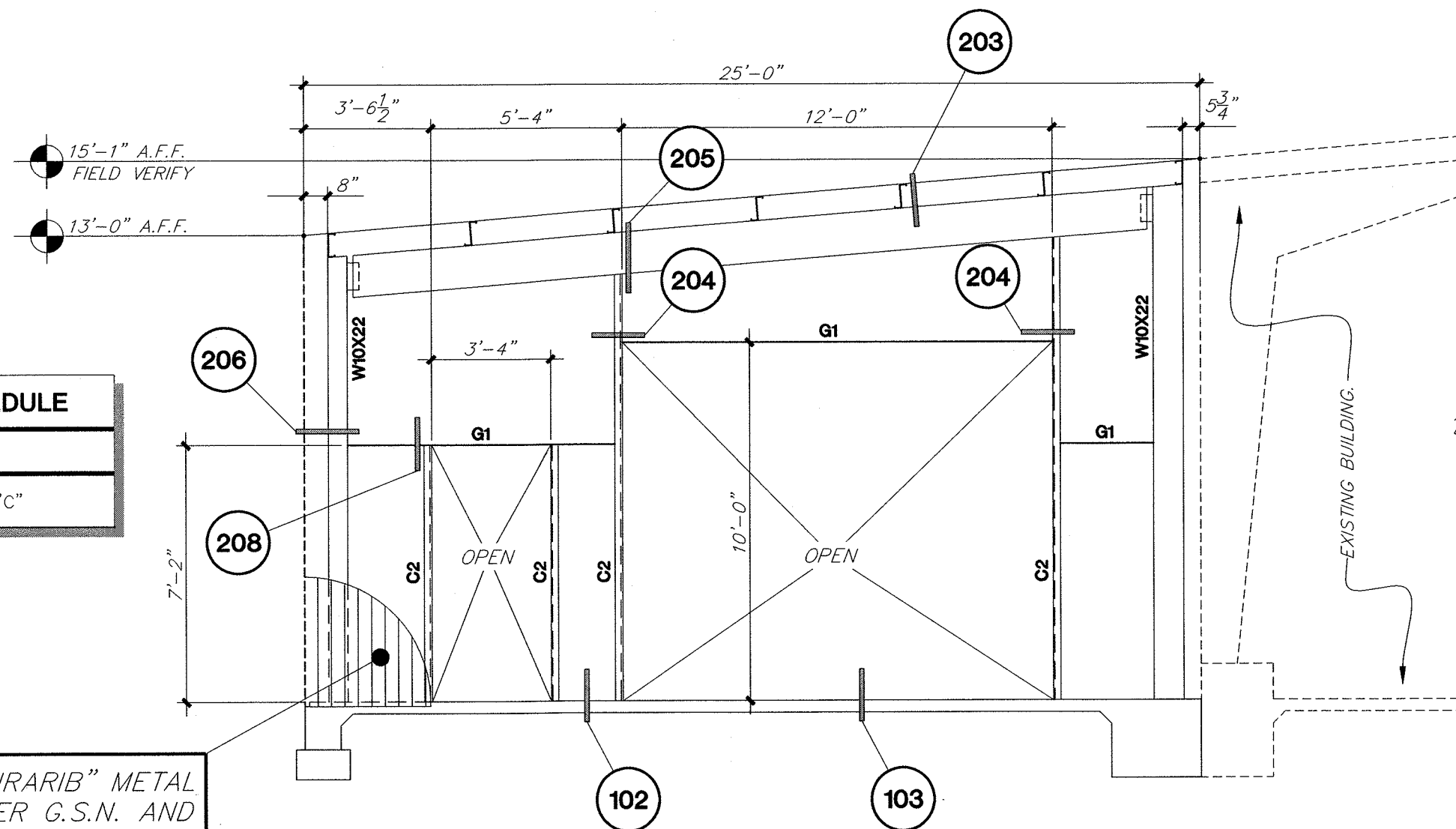
SCALE: 1/4" = 1'-0"

WIND GIRT (G) SCHEDULE	
MARK	SIZE
G1	8"x2.5"x16 GA. "C"



WEST ELEVATION

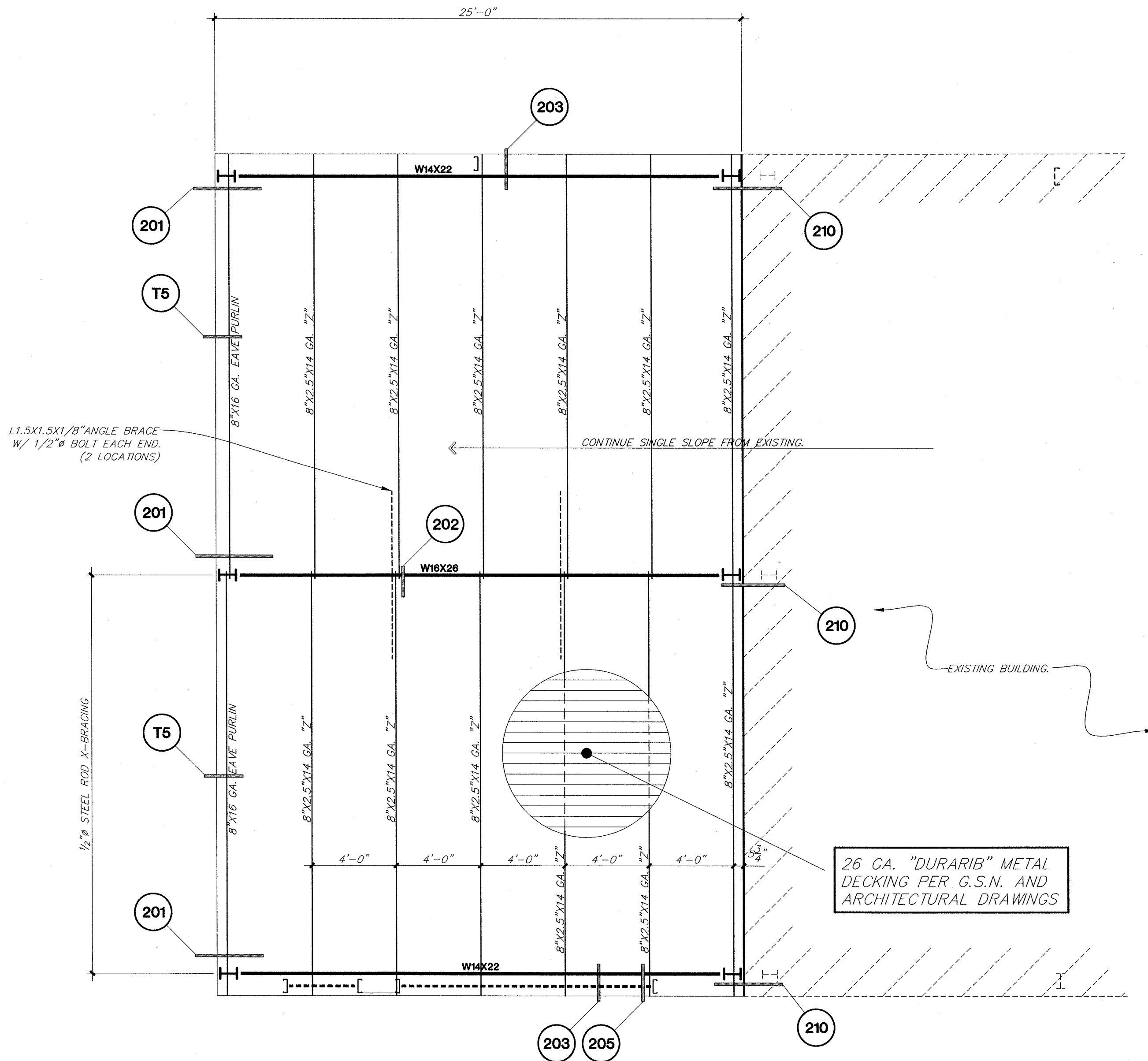
SCALE: 1/4" = 1'-0"



SOUTH ELEVATION

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

WIND GIRT (G) SCHEDULE	
MARK	SIZE
G1	8"x2.5"x16 GA. "C"



ROOF FRAMING PLAN

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



LOCATION OF DETAILS		
DETAILS	SHEET	DESCRIPTION
T1-T5	S10	GENERAL STRUCTURAL NOTES
101-106	S40	FOUNDATION DETAILS
201-210	S40	FRAMING DETAILS

CAD OPERATOR: MJS	PROJECT MANAGER: RKF	JOB NO.: 2015-0087
FROST STRUCTURAL ENGINEERING		
1678 Oaklawn Drive, Suite C Prescott, Arizona 86305		phone: 928.776.4757 fax: 928.776.4931 info@frost-structural.com

- ROOF FRAMING PLAN NOTES**
1. VERIFY ALL DIMENSIONS AND ROOF SLOPE WITH ARCHITECTURAL DRAWINGS.
 2. DO NOT CUT ANY MEMBERS WITHOUT ENGINEER'S APPROVAL.
 3. ATTACH METAL SIDING AND ROOFING PER GSN AND TYPICAL DETAILS.
 4. X-BRACING TO BE LEFT IN PLACE AFTER COMPLETION.

REVISIONS

NO.	DESCRIPTION	BY

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RICHARD K. FROST
Professional Engineer
No. 27844
State of Arizona
EXPIRES 9/30/2017

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ARCHITECTURE & PLANNING

DRAWING: ROOF FRAMING PLAN
STRUCTURAL ELEVATIONS

PROJECT: ERAU F8 HANGAR EQUIPMENT STORAGE ADDITION
6492 Coradi Way
Prescott, AZ 86301

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DATE
April 30th, 2015

SCALE
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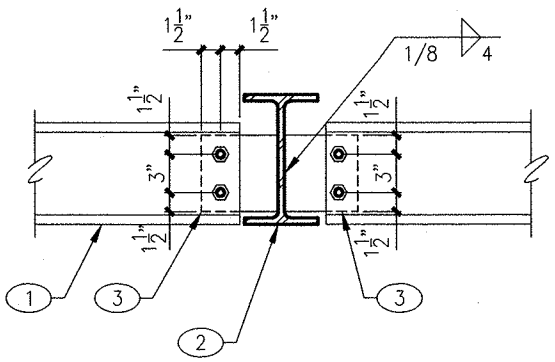
JOB NO.
668

SHEET

S3.0

KEY NOTES:

1. STEEL "C" GIRT.
2. STEEL COLUMN PER PLAN/ SCHEDULES.
3. 6"x6"x0-6" LONG PLATE W/ (2) 1/2" A307 BOLTS.

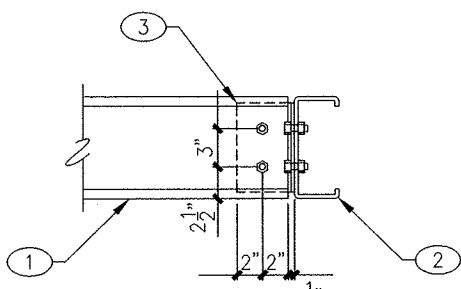


NOTE:
SEE TYPICAL DETAILS FOR ATTACHMENT OF METAL SIDING.

207 PLAN VIEW - STEEL "C" GIRT AT STEEL COLUMN
NO SCALE

KEY NOTES:

1. STEEL "C" JAMB OR COLUMN.
2. STEEL GIRT "C".
3. L4"x4"x1/4 GA. x 6" LONG W/ (2) 1/2" A307 BOLTS TO GIRT AND JAMB.



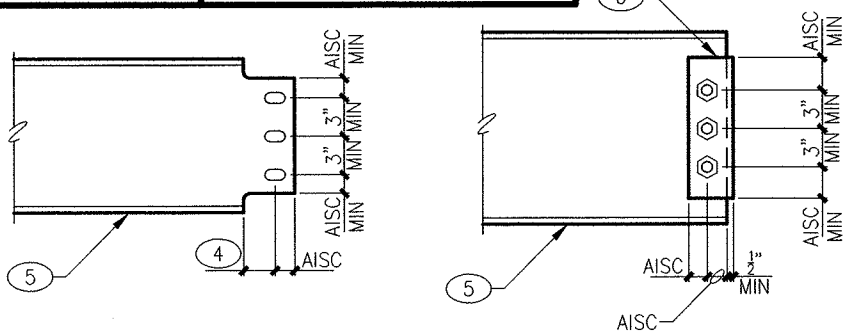
NOTE:
SEE TYPICAL DETAILS FOR ATTACHMENT OF METAL SIDING.

208 STEEL "C" GIRT AT STEEL "C" JAMB OR COLUMN
NO SCALE

KEY NOTES:

1. THE TYPICAL STEEL BEAM TO STEEL COLUMN OR STEEL BEAM TO STEEL BEAM CONNECTION CONSISTS OF 3/4" THICK SINGLE SHEAR PLATES WITH 3/4" ASTM A325N BOLTS. USE 3/8" SHEAR PLATES WHERE "D" IS 27" OR GREATER.
2. ALL BOLTS SHALL BE INSTALLED USING SHORT SLOTTED HOLES IN EITHER THE BEAM WEB OR THE SHEAR PLATE PER LATEST AISC SPECIFICATIONS.
3. MAINTAIN MINIMUM BOLT SPACING AND EDGE DISTANCES PER AISC SPECIFICATIONS 116.4 AND 116.5. AND AS SHOWN BELOW.
4. CLIP PLANGE FOR 1/2" CLR.
5. STEEL BEAM.
6. SHEAR PLATE.

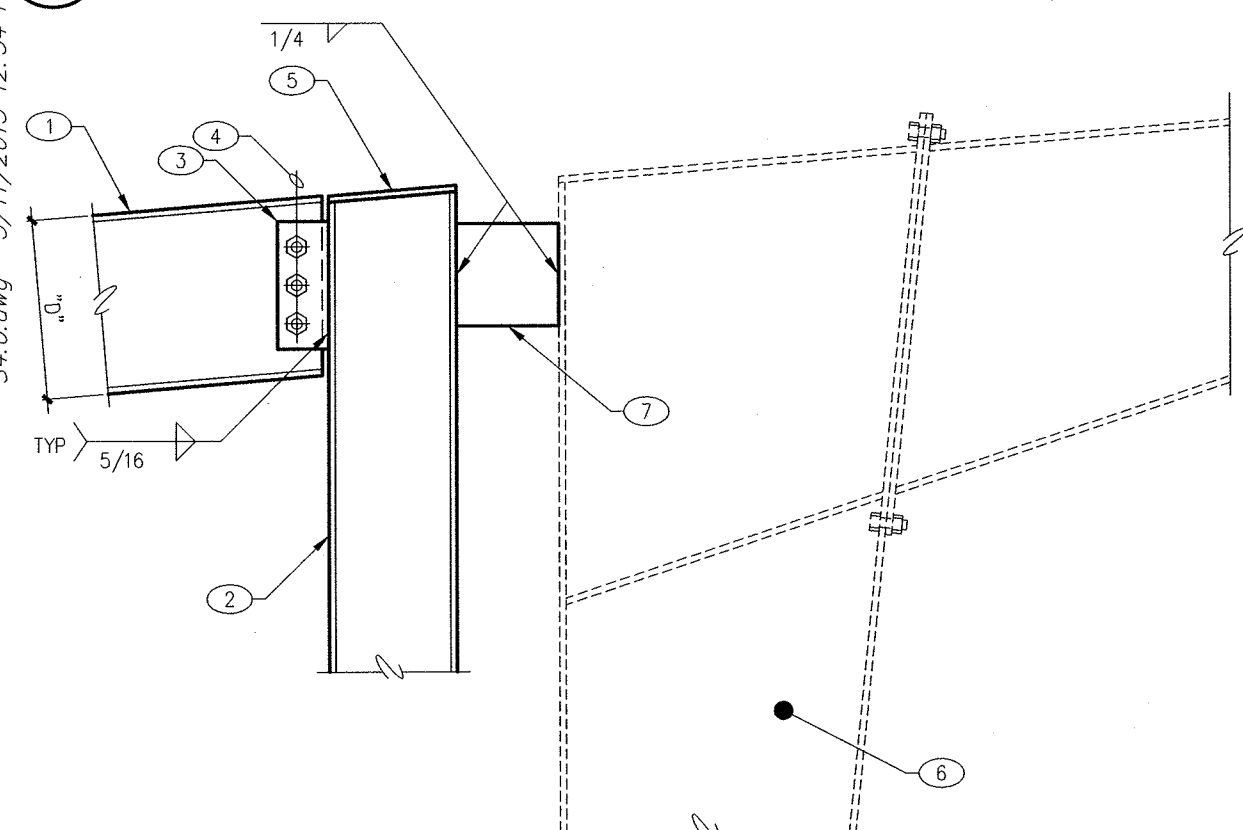
NOMINAL BEAM DEPTH "D"	NUMBER OF 3/4" DIA. ASTM, A325N BOLTS
UP TO 7"	2
8" - 11"	2
12" - 14"	3
15" - 17"	4
18" - 20"	5
21" - 23"	6
24" - 29"	7
30" - 32"	8
33" - 35"	9
36"	10



209 BOLT SCHEDULE FOR STEEL CONNECTIONS
NO SCALE

KEY NOTES:

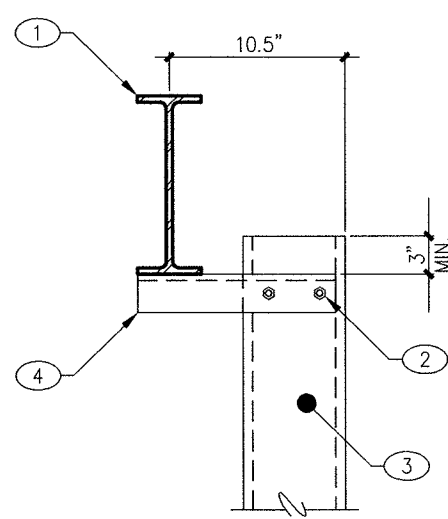
1. STEEL BEAM.
2. STEEL COLUMN.
3. 3/8" STEEL SHEAR PLATE. FOR TYPE, SIZE, AND NUMBER OF BOLTS, SEE DETAIL (209) "BOLT SCHEDULE FOR STEEL CONNECTIONS".
5. 3/8" THICK CAP PLATE.
6. EXISTING RIGID FRAME.
7. 8" SQ X3/8" THICK STEEL PLATE.



210 STEEL BEAM AT STEEL COLUMN
NO SCALE

KEY NOTES:

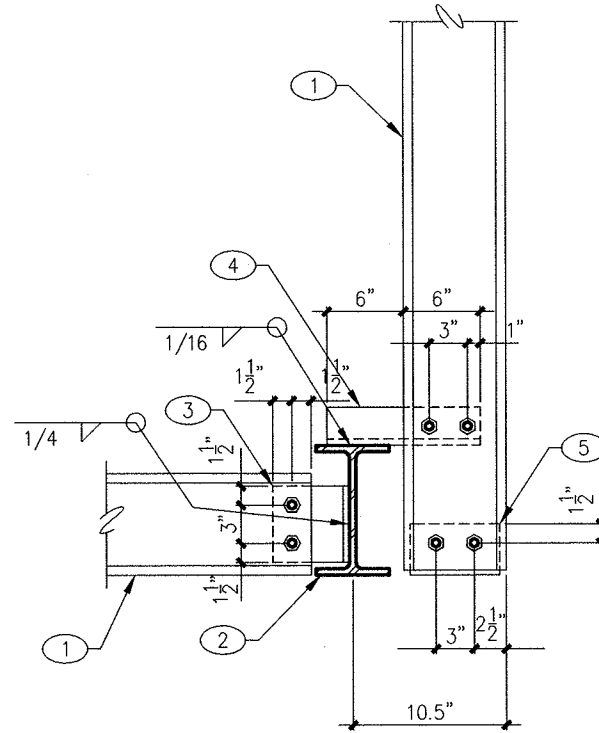
1. STEEL EAVE BEAM (W14X22).
2. (2) 1/2" A307 BOLTS.
3. STEEL "C" COLUMN PER PLAN.
4. L3X3X1/4 GA. ANGLE.



205 STEEL EAVE BEAM AT STEEL "C" COLUMN OR JAMB
NO SCALE

KEY NOTES:

1. STEEL "C" GIRT PER STRUCTURAL ELEVATIONS.
2. STEEL COLUMN PER PLAN/ SCHEDULES.
3. 6" LONG x 1/2" STEEL PLATE W/ (2) 1/2" A307 BOLTS.
4. L3"x3"x1/4 GA. x 1'-0" LONG W/ (2) 1/2" A307 BOLTS.
5. L4"x4"x1/8 GA. x 7" LONG CLIP ANGLE FOR ATTACHMENT OF METAL SIDING.

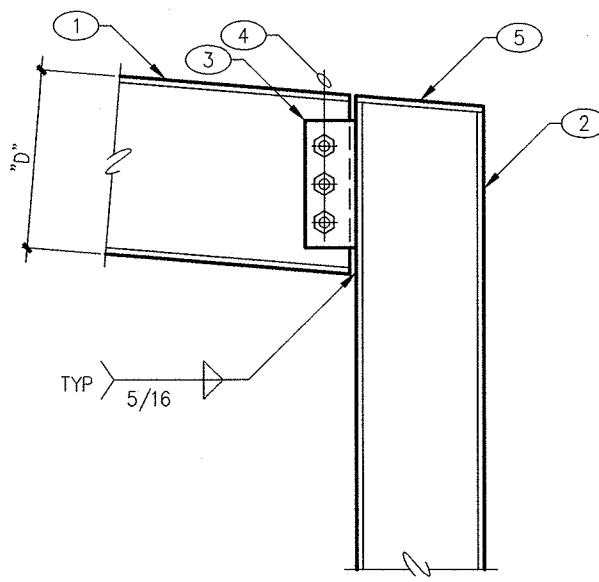


NOTE:
SEE TYPICAL DETAILS FOR ATTACHMENT OF METAL SIDING.

206 PLAN VIEW - STEEL "C" GIRT AT STEEL COLUMNS
NO SCALE

KEY NOTES:

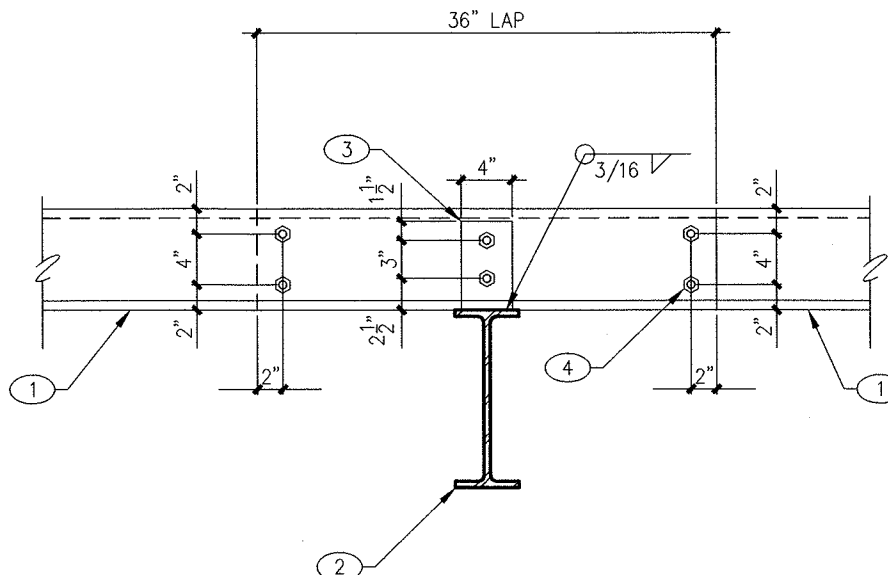
1. STEEL BEAM.
2. STEEL COLUMN.
3. 3/8" STEEL SHEAR PLATE. FOR TYPE, SIZE, AND NUMBER OF BOLTS, SEE DETAIL (209) "BOLT SCHEDULE FOR STEEL CONNECTIONS".
5. 3/8" THICK CAP PLATE.



201 STEEL BEAM AT STEEL COLUMN
NO SCALE

KEY NOTES:

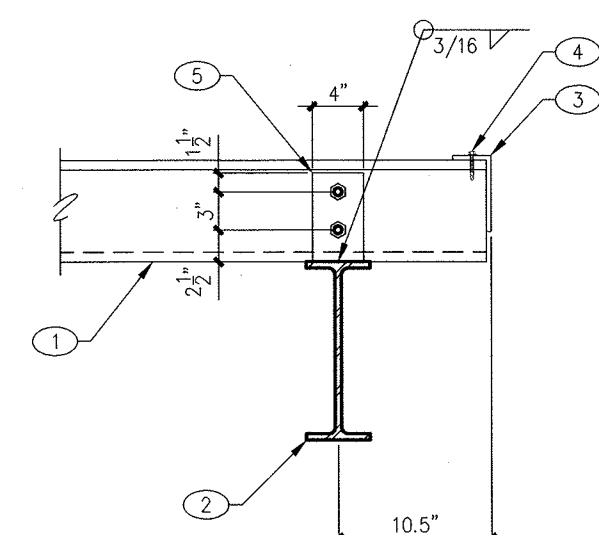
1. STEEL "Z" PURLIN.
2. STEEL BEAM.
3. 1/2" THICK STEEL PLATE W/ (2) 1/2" A307 BOLTS.
4. (4) 1/2" A307" BOLTS AT SPLICE.



202 STEEL "Z" PURLINS AT STEEL BEAM
NO SCALE

KEY NOTES:

1. STEEL PURLIN "Z" PER STRUCTURAL ELEVATIONS.
2. STEEL BEAM.
3. CONTINUOUS L6"x4"x 1/4 GA. (LLV) STEEL RAKE ANGLE.
4. (2) #12 TEK'S SELF-TAPPING SCREWS.
5. 3/8" THICK STEEL PLATE W/ (2) 1/2" A307 BOLTS.

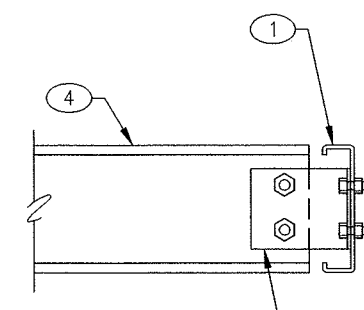


NOTE:
SEE TYPICAL DETAILS FOR ATTACHMENT OF METAL ROOFING/ SIDING.

203 STEEL "Z" PURLIN AT STEEL BEAM
NO SCALE

KEY NOTES:

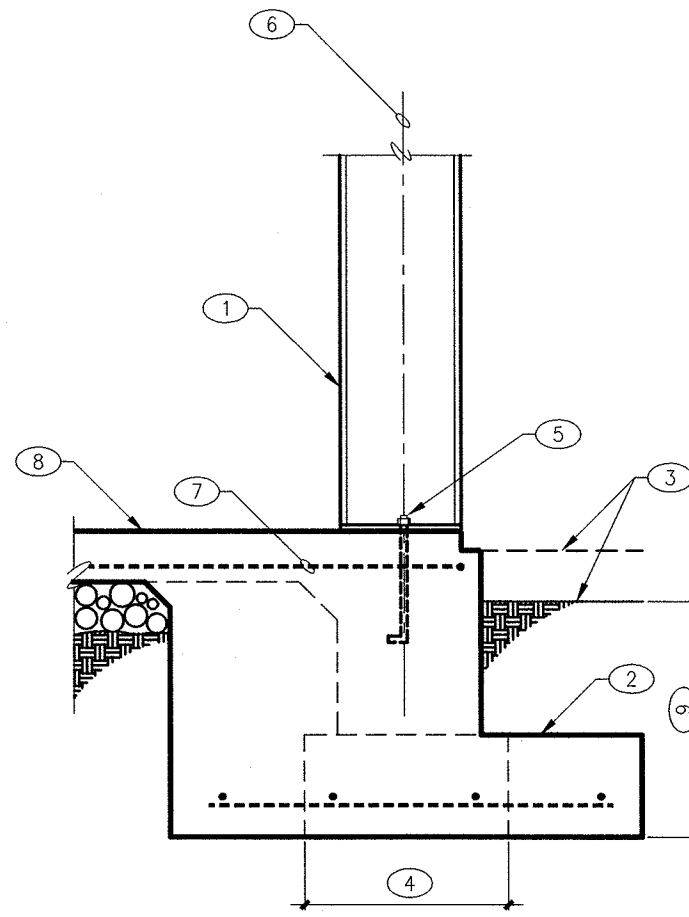
1. STEEL "C" COLUMN PER PLAN.
2. (2) 1/2" BOLTS.
3. STEEL BENT PLATE (6" LONG L6X6X8") W/ (2) 1/2" BOLTS.
4. STEEL "C" GIRTS PER PLAN.



204 PLAN - STEEL "C" GIRT AT STEEL "C" COLUMN OR JAMB
NO SCALE

KEY NOTES:

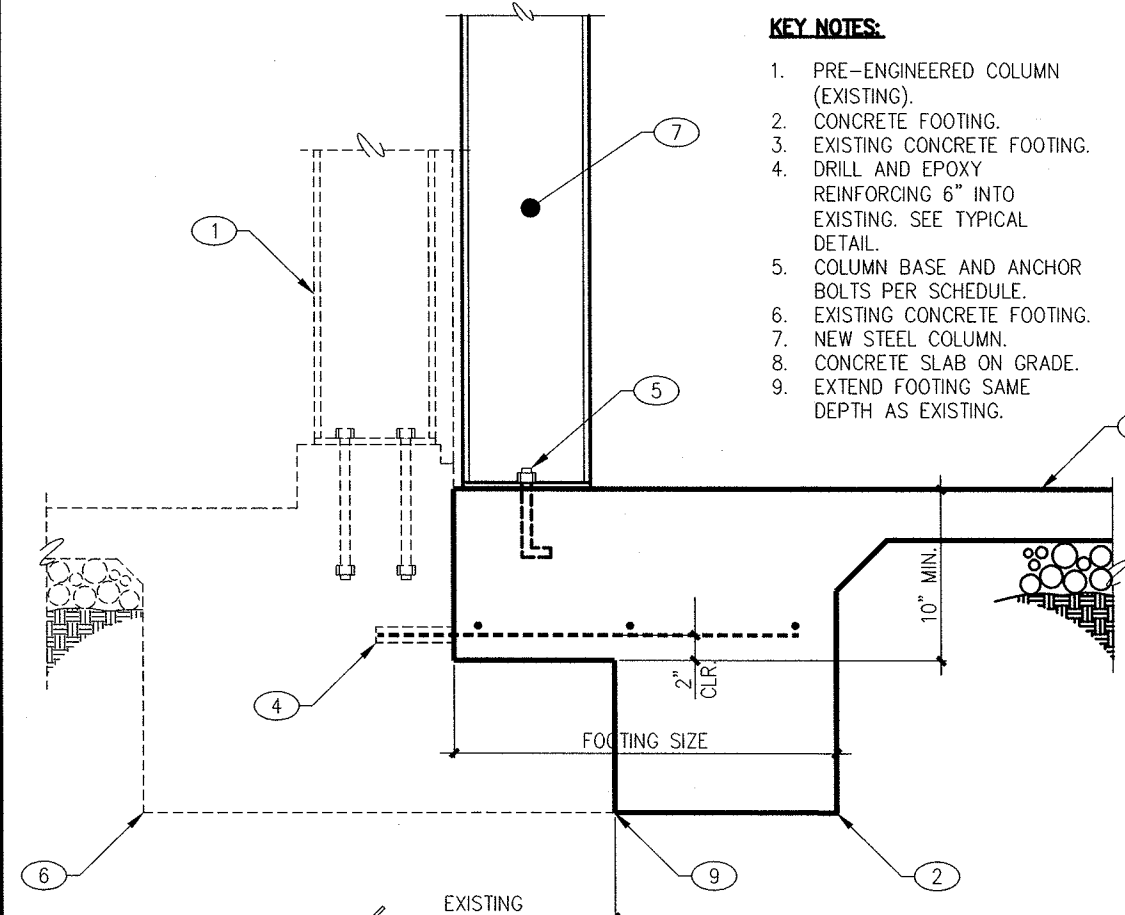
1. STEEL COLUMN.
2. CONCRETE FOOTING.
3. SIDEWALK, PLACEMENT, OR FINISH GRADE PER ARCHITECTURAL DRAWINGS.
4. CONCRETE FOOTING - REINFORCING CONTINUOUS FROM BEYOND.
5. ANCHOR BOLTS PER COLUMN SCHEDULE.
6. CENTERLINE OF STEEL COLUMN AND FOOTING.
7. HAIRPIN BAR.
8. CONCRETE SLAB ON GRADE.
9. MINIMUM FOOTING DEPTH PER G.S.N.



104 STEEL COLUMN AT CONCRETE FOOTING
NO SCALE

KEY NOTES:

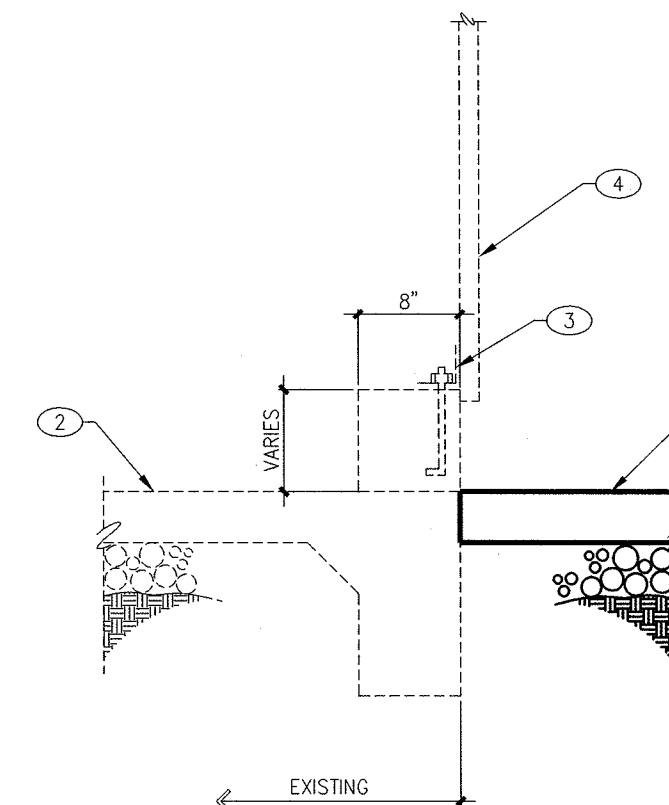
1. PRE-ENGINEERED COLUMN (EXISTING).
2. CONCRETE FOOTING.
3. EXISTING CONCRETE FOOTING.
4. DRILL AND EPOXY REINFORCING 6" INTO EXISTING. SEE TYPICAL DETAIL.
5. COLUMN BASE AND ANCHOR BOLTS PER SCHEDULE.
6. EXISTING CONCRETE FOOTING.
7. NEW STEEL COLUMN.
8. CONCRETE SLAB ON GRADE.
9. EXTEND FOOTING SAME DEPTH AS EXISTING.



105 STEEL COLUMN AT CONCRETE FOOTING
NO SCALE

KEY NOTES:

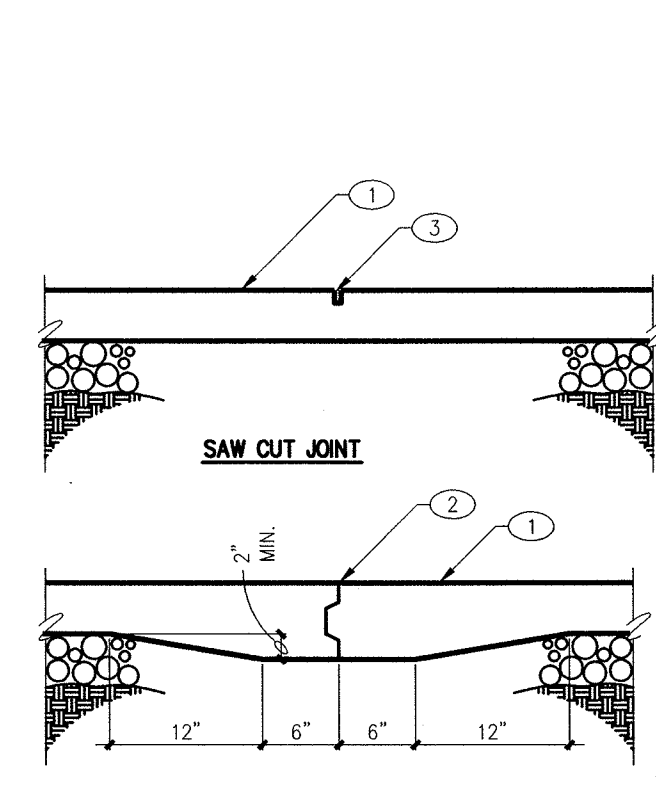
1. CONCRETE SLAB ON GRADE.
2. EXISTING CONCRETE SLAB ON GRADE AND CURB.
3. CONTINUOUS ANGLE (EXISTING).
4. PRE-ENGINEERED BUILDING WALL SHEATHING (EXISTING).



106 CONCRETE SLAB AT EXISTING BUILDING
NO SCALE

KEY NOTES:

1. CONCRETE SLAB ON GRADE.
2. CONTINUOUS KEYED JOINT.
3. SAWCUT-1/2" WIDE X 1/2" SLAB THICKNESS IN DEPTH-CUT SHALL BE MADE SOON ENOUGH TO PREVENT SHRINKAGE CRACKING, BUT NOT SO SOON AS TO CAUSE SPALLING OF THE CONCRETE WHILE SAWING. WORK MUST BE COMPLETE WITHIN 16 HOURS OF CONCRETE PLACEMENT.



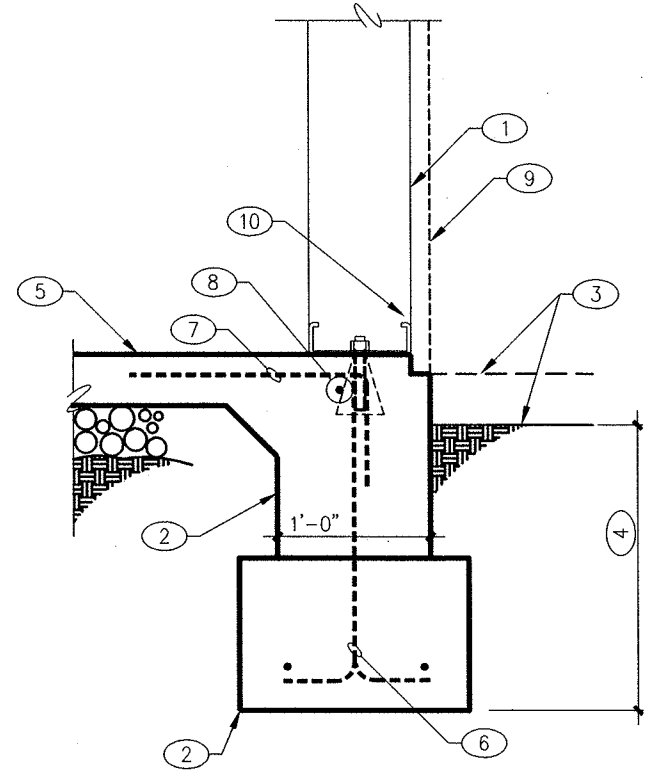
101 CONTROL JOINTS IN CONCRETE SLAB ON GRADE
NO SCALE

NOTE:

KEYED JOINTS NEED ONLY OCCUR AT EXPOSED EDGES DURING PLACEMENT UNLESS SPECIFICALLY NOTED ON THE PLANS. "TOOL WET JOINT", "ZIP STRIP", ETC. SHALL MATCH SAWCUT REQUIREMENTS.

KEY NOTES:

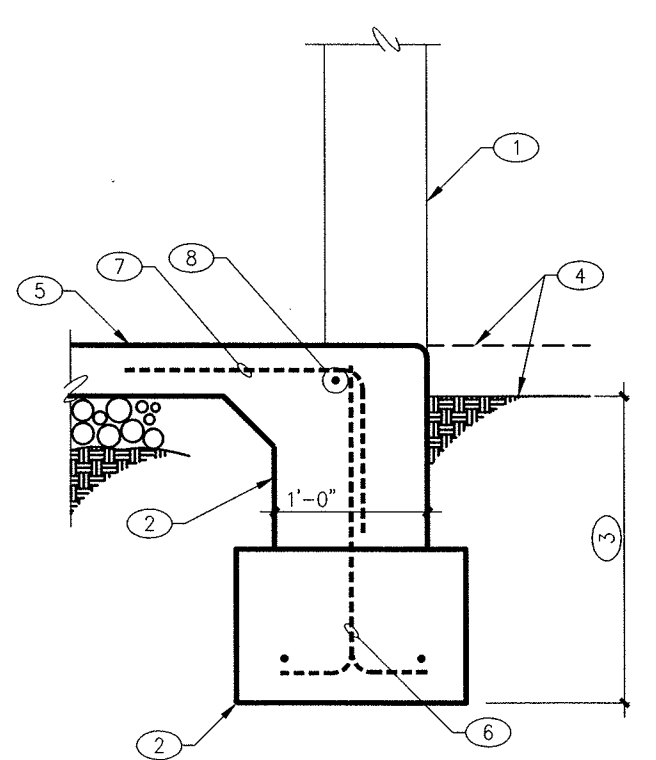
1. OUTSIDE FACE OF 8" STEEL WALL GIRT.
2. CONCRETE STEM WALL AND CONCRETE FOOTING W/ REINFORCING CONTINUOUS FROM BEYOND.
3. SIDEWALK, PAVEMENT OR FINISH GRADE PER ARCHITECTURAL DRAWINGS.
4. MINIMUM FOOTING DEPTH PER G.S.N.
5. CONCRETE SLAB ON GRADE, TOOLED EDGE AT OPENING.
6. #4 VERT. AT 48" O.C.
7. #4 HOOK 24"16" AT 48" O.C.
8. (1) #4 CONTINUOUS.
9. METAL SIDING PER G.S.N. AND ARCHITECTURAL DRAWINGS.
10. 8"x2.5"x16 GA. "C". ATTACHED TO CONCRETE WITH 7"x6"x3" REDHEAD ANCHORS AT 32" O.C. AND WITHIN 12" OF ENDS.



102 METAL BUILDING WALL AT CONCRETE FOOTING
NO SCALE

KEY NOTES:

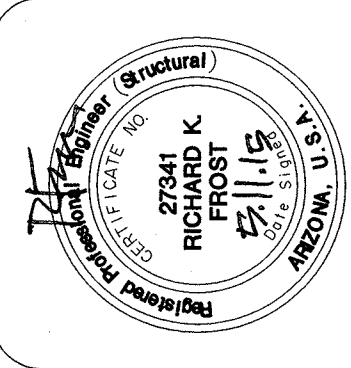
1. PRE-MANUFACTURED METAL BUILDING BEYOND.
2. CONCRETE STEM WALL AND CONCRETE FOOTING W/ REINFORCING CONTINUOUS FROM BEYOND.
3. MINIMUM FOOTING DEPTH PER G.S.N.
4. SIDEWALK, PAVEMENT OR FINISH GRADE PER ARCHITECTURAL DRAWINGS.
5. CONCRETE SLAB ON GRADE, TOOLED EDGE AT OPENING.
6. #4 VERTICAL 48" O.C.
7. #4 HOOK 24"16" AT 48" O.C.
8. (1) #4 CONTINUOUS.



103 DOOR OPENING AT CONCRETE FOOTING
NO SCALE

REVISIONS	BY

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ARCHITECTURE & PLANNING

DRAWING: FOUNDATION DETAILS 101-106
FRAMING DETAILS 201-210

PROJECT: ERAU F8 HANGAR EQUIPMENT STORAGE ADDITION
6492 Corradi Way
Prescott, AZ 86301

DRAWN BY

CHECKED BY

DATE
April 30th, 2015

SCALE
AS NOTED

JOB NO.
668

SHEET

S4.0

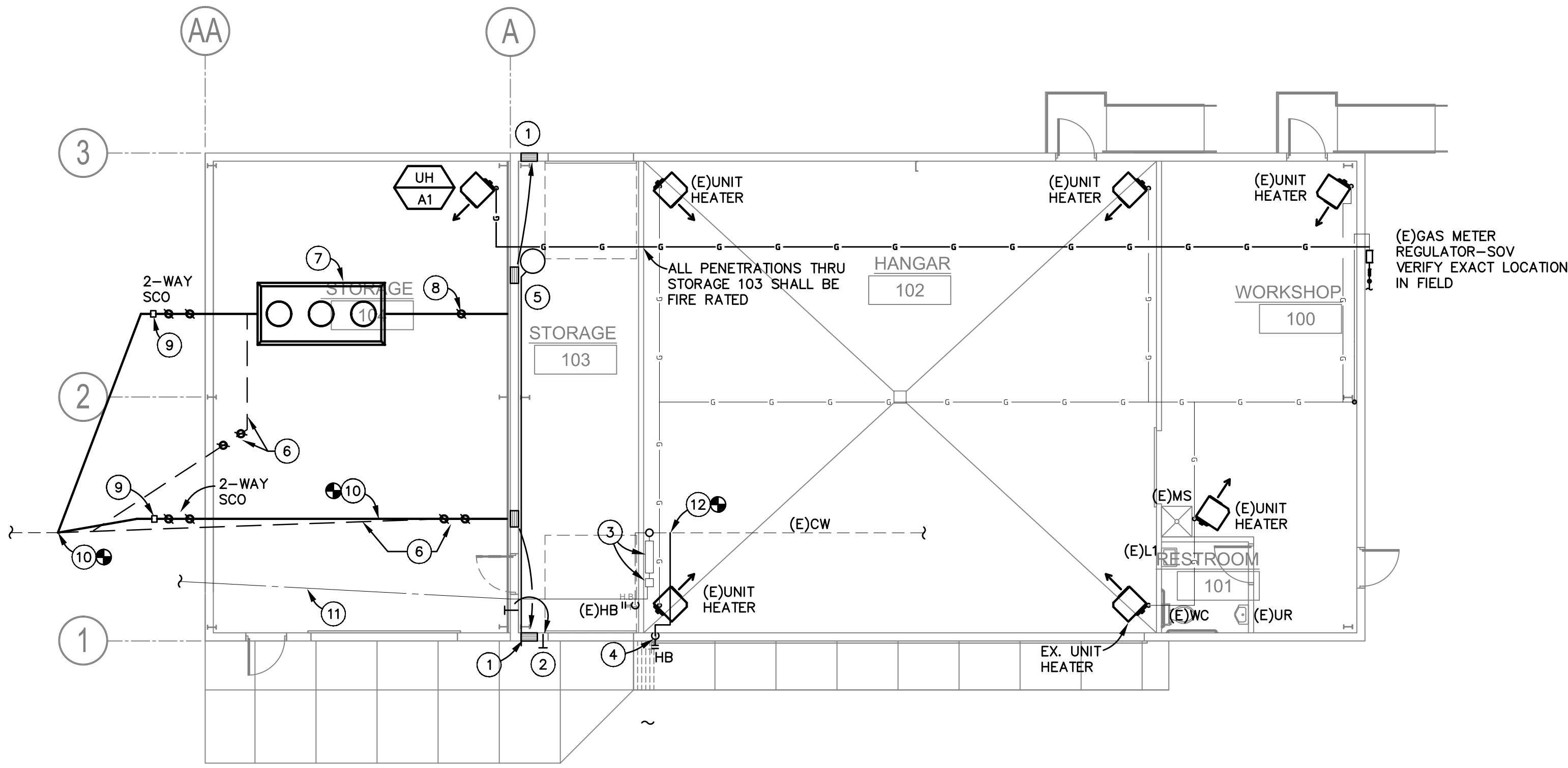
FOUNDATION DETAILS 101 THRU 106

FRAMING DETAILS 201 THRU 210

CAD OPERATOR: MUS PROJECT MANAGER: RPF JOB NO.: 2015-0087

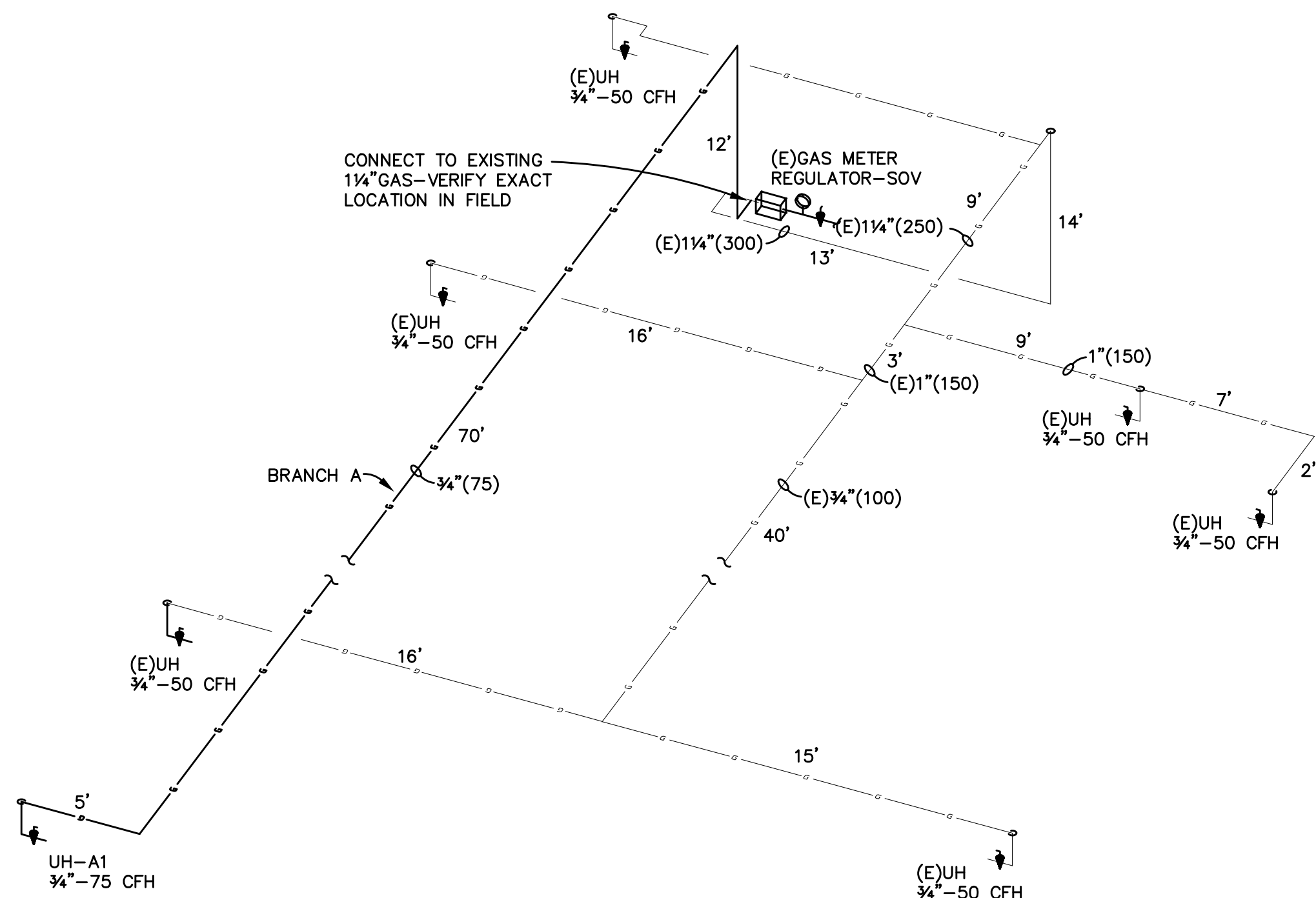
FROST STRUCTURAL ENGINEERING

1678 Oaklawn Drive, Suite C phone: 928.776.4757
Prescott, Arizona 86305 fax: 928.776.4931
info@frost-structural.com



MP1 Mechanical - Plumbing Floor Plan

Scale: 1/8"=1'-0"



P2 Gas Schematic

Scale: N.T.S.

BRANCH A

SIZING BASED ON 2012 IFGC TABLE 402.4(2) WITH A MAXIMUM CONNECTED LOAD OF 75 CFH AND A TOTAL LENGTH OF 87 FEET.

BRANCH A-EXISTING

SIZING BASED ON 2012 IFGC TABLE 402.4(2) WITH A MAXIMUM CONNECTED LOAD OF 375 CFH AND A TOTAL LENGTH OF 95 FEET.

KEYED NOTES :

#

1. RELOCATED LOUVER MOUNT BOTTOM OF LOUVER AT +30" AFF
2. RELOCATE EXISTING COMPRESSED AIR STUB OUT AS SHOWN.
3. EXISTING PRESSURE REDUCER AND BACKFLOW PREVENTOR TO REMAIN.
4. EXTEND 3/4"CW TO HB.
5. 3/4"DE ICER HOSE TO BE ROUTED TO EXTERIOR. BY OWNER.
6. EXISTING 2-WAY SCO AND WASTE TO BE ABANDONED.
7. EXISTING SAND OIL INTERCEPTOR TO REMAIN, ADJUST HEIGHT TO FINISH FLOOR WITH EXTENSION RINGS.
8. EXISTING SURFACE CLEAN OUT TO REMAIN, ADJUST HEIGHT TO FINISH FLOOR AND PROVIDE FLUSH BRASS CAP.
9. PROVIDE J.R. SMITH BACKWATER VALVE #7012 OR EQUAL WITH TRAFFIC RATED COVER. INSTALLED PER MANUFACTURES GUIDELINES
10. CONNECT NEW WASTE TO EXISTING WASTE. VERIFY EXACT LOCATION AND INVERTS IN FIELD.
11. EXISTING WATER LINE TO REMAIN.
12. CONNECT NEW 3/4"CW TO EXISTING, VERIFY EXACT LOCATION IN FIELD.

GENERAL NOTES :

1. EXACT LOCATION OF PLUMBING FIXTURES SHALL BE DETERMINED FROM ARCHITECTURAL DRAWINGS.
2. BEFORE SUBMITTING BID, THE PLUMBING CONTRACTOR SHALL REVIEW THE ARCHITECTURAL DRAWINGS AND INCLUDE IN HIS BID AN AMOUNT TO FURNISH AND INSTALL ANY FIXTURES WHICH ARE SHOWN IN ADDITION TO FIXTURES SHOWN ON THE PLUMBING DRAWINGS.
3. CONTRACTOR SHALL VERIFY INVERT ELEVATIONS OF SEWERS TO WHICH NEW WASTE LINES ARE TO BE CONNECTED BEFORE MAKING UP OR INSTALLATION OF NEW WASTE SYSTEM.
4. CONTRACTOR SHALL VERIFY AND COORDINATE LOCATION OF ALL PLUMBING LINES WITH DUCTWORK AND ELECTRICAL SERVICES.
5. THE INSTALLATION OF ALL VALVES, UNIONS, THERMOMETERS, GAUGES, OR OTHER INDICATING OR RECORDING EQUIPMENT, OR SPECIALTIES REQUIRING FREQUENT READING, REPAIRS, ADJUSTMENT, INSPECTION, REMOVAL OR REPLACEMENT SHALL BE CONVENIENTLY AND ACCESSIBLY LOCATED WITH REFERENCE TO THE FINISHED BUILDING.
6. CONTRACTOR SHALL NOT CUT HOLES IN STRUCTURAL MEMBERS WITHOUT FIRST SECURING WRITTEN APPROVAL FROM THE ARCHITECT.
7. CONTRACTOR SHALL INSTALL DIELECTRIC UNIONS AT CONNECTIONS OF DISSIMILAR METALS.
8. CONTRACTOR SHALL ROUGH-IN ALL WASTES AND SUPPLIES TO SPECIAL EQUIPMENT ACCORDING TO MANUFACTURERS SHOP DRAWINGS AND MAKE FINAL CONNECTIONS. ALL SUPPLIES SHALL BE VALVED.
9. ASSUMED WATER PRESSURE-CONTRACTOR SHALL VERIFY ACTUAL WATER PRESSURE PRIOR TO CONSTRUCTION. IF PRESSURE IS LESS THAN 50 PSI CONTRACTOR SHALL CONTACT THE ENGINEER FOR PIPE SIZING EVALUATION. IF PRESSURE EXCEEDS 80 PSI, A PRESSURE REDUCING VALVE SHALL BE PROVIDED. PIPING VELOCITY SHALL NOT EXCEED 8 FEET PER SECOND.

PLUMBING SYMBOL LIST

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
—GW—	GREASE WASTE (GW)	⊗	POINT OF CONNECTION
---	EXISTING (E)	⊗	SHUT OFF VALVE (GATE)
---	SOIL WASTE LINE (W)	⊗	CHECK VALVE
---	VENT LINE (V)	⊗	UNION
---	COLD WATER (C.W.)	⊗	LUBRICATED PLUG VALVE
---	HOT WATER (H.W.)	⊗	HOSE BIBB (H.B.)
---	HOT WATER RETURN	⊗	BRANCH RISE OFF MAIN
—G—	GAS LINE	⊗	S.C.O. SURFACE CLEANOUT
—TW—	TEMPERED WATER	⊗	F.C.O. FLOOR CLEANOUT
—SW—	SOFT WATER	⊗	GLOBE VALVE
---	BUILDING SEWER	⊗	BALL VALVE
⊗	FLOOR DRAIN (F.D.)	—R.D.L.—	ROOF DRAIN LEADER
⊗	FLOOR SINK (F.S.)	—O.D.L.—	OVERFLOW DRAIN LEADER
⊗	ROOF DRAIN (R.D.)	—CD—	CONDENSATE DRAIN LINE
⊗	OVER FLOW DRAIN	—ICW—	INDUSTRIAL COLD WATER

NOTE: ONLY THOSE SYMBOLS SHOWN ON THE DRAWING APPLY

PIPING MATERIALS

SANITARY WASTE AND VENT SYSTEMS

PIPING:

ABS CONFORMING TO ASTM D 2661 OR

DWV PVC CONFORMING TO ASTM D 1784

DOMESTIC WATER SYSTEM

PIPING:

TYPE "L" HARD DRAWN COPPER, CONFORMING TO ASTM B-88. TYPE "K" HARD DRAWN COPPER, CONFORMING TO ASTM B-88. TYPE "K" SOFT DRAWN COPPER, CONFORMING TO ASTM B-88.

FUEL GAS SYSTEM

PIPE:

BLACK STEEL PIPE, SCHEDULE 40 BLACK STEEL CONFORMING TO ASTM A-53, GRADE A OR B, SEAMLESS OR WELDED PIPE.

MAVEN
ENGINEERING

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Tempe, Arizona 85283

Note: Any changes made to final bid documents due to field changes will be billed hourly to the contractor.

REVISIONS	BY

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DRAWING: MECHANICAL - PLUMBING FLOOR PLAN

PROJECT: ERAU F8 HANGAR EQUIPMENT STORAGE ADDITION
6492 Corradi Way
Prescott, AZ 86301

DRAWN BY KEF
CHECKED BY AJW
DATE April 21th, 2015
SCALE AS NOTED
JOB NO. 668
SHEET

MP1

PLUMBING SPECIFICATIONS

1. SCOPE
THE WORK SPECIFIED UNDER THIS CONTRACT INCLUDES THE FURNISHING OF ALL LABOR, MATERIALS, TOOLS, TRANSPORTATION, SERVICES, ETC., REQUIRED IN THE COMPLETE INSTALLATION OF PLUMBING WORK AS SPECIFIED HEREIN AND SHOWN ON ACCOMPANYING DRAWINGS AND AS REQUIRED BY THE CONDITIONS AT THE SITE. THE GENERAL AND SPECIAL CONDITIONS ARE HEREBY MADE A PART OF THIS SECTION. IN ADDITION, WORK IN THESE SECTIONS ARE GOVERNED BY ALL PROVISIONS OF THE CONTRACT DOCUMENTS.

2. SUBMITTALS
SUBMIT SHOP DRAWINGS AND ALL DATA REQUIRED TO CONFIRM COMPLIANCE WITH SPECIFIED EQUIPMENT PROVIDED ACCORDANCE WITH ARCHITECTURAL SPECIFICATIONS REQUIREMENTS.

3. RECORD DRAWINGS
PROVIDE RECORD DRAWINGS WHICH SHALL CLEARLY SHOW ALL DIFFERENCES BETWEEN THE CONTRACT WORK AS DRAWN AND INSTALLED. PIPING MAINS BELOW SLAB AND/OR GRADE AND ALL BRANCH LINES BELOW SLAB OR GRADE IN EXCESS OF 5 FT. IN LENGTH SHALL BE DIMENSIONED FROM COLUMNS OF ANY PERMANENT STRUCTURE. ALSO, SHOW ALL WORK ADDED TO THE CONTRACT WHICH IS NOT SHOWN ON THE CONTRACT DRAWINGS.

4. EQUIPMENT LIST AND MAINTENANCE MANUAL
MAINTENANCE MANUAL SHALL INCLUDE ALL AVAILABLE MANUFACTURERS' OPERATION AND MAINTENANCE INSTRUCTIONS TOGETHER WITH THE RECORD DRAWINGS HERE IN BEFORE SPECIFIED AND ALL OTHER DIAGRAMS AND INSTRUCTIONS NECESSARY TO PROPERLY OPERATE AND MAINTAIN THE EQUIPMENT. THE MANUAL SHALL ALSO INCLUDE THE NAME, ADDRESS, AND PHONE NUMBER OF THE GENERAL CONTRACTOR AND ALL SUBCONTRACTORS INVOLVED IN ANY OF THE WORK SPECIFIED HEREIN.

5. CODES, PERMITS, FEES, INSPECTIONS, RULES & REGULATIONS
THE CONTRACTOR MUST, AT HIS OWN EXPENSE, PAY ALL LEGAL FEES AND COMPLY WITH ALL STATE AND MUNICIPAL BUILDING AND SAFETY LAWS, ORDINANCES AND REGULATIONS, RELATING TO BUILDING AND PUBLIC HEALTH AND SAFETY. ALL WORK SHALL BE IN CONFORMANCE WITH THE GOVERNING CITY CODES.

6. EXCAVATION AND BACKFILL
COMPLETE ALL SAW CUTTING, EXCAVATION AND BACKFILL AS NECESSARY FOR THE INSTALLATION OF UNDERGROUND PIPING. COMPACT AND TAMP BACKFILL TO ORIGINAL GRADE AND REMOVE EXCESS DIRT AS DIRECTED. NO WORK SHALL BE COVERED UNTIL PROPERLY TESTED AND APPROVED. ALL PAVEMENT, SIDEWALK, PIPING, ELECTRICAL CONDUIT, ETC., CAUSED TO BE CUT OR DAMAGED BY THIS SECTION SHALL BE RESTORED TO ORIGINAL CONDITION BY WORKMEN QUALIFIED AND ACTIVE IN THE TRADES INVOLVED.

7. ELECTRIC WIRING
ALL POWER WIRING IS INCLUDED IN DIVISION 16, ELECTRICAL. THE RESPONSIBILITY FOR PROPER CONNECTIONS AND OPERATION IS THE ELECTRICIAN.

8. WARRANTY
WARRANT THE SYSTEM, LABOR, MATERIALS AND EQUIPMENT FOR ONE (1) YEAR AFTER COMPLETION AND ACCEPTANCE. REPLACE OR REPAIR ALL DEFECTIVE WORKMANSHIP, EQUIPMENT, AND MATERIALS AT NO ADDITIONAL COST TO THE OWNER.

9. WORK SPECIFIED HEREIN
PROVIDE ALL LABOR, MATERIALS, EQUIPMENT, AND SERVICES NECESSARY TO FURNISH AND INSTALL COMPLETE PLUMBING AND PIPING SYSTEMS AS INDICATED OR SPECIFIED. INSTALL AND DELIVER ALL SYSTEMS COMPLETE, IN PERFECT WORKING ORDER, AND IN FULL ACCORDANCE WITH THE INTENT AND MEANING OF THE DRAWINGS AND SPECIFICATIONS. THE WORK, IN GENERAL, CONSISTS OF, BUT IS NOT NECESSARILY LIMITED TO, THE FOLLOWING:

COMPLETE SANITARY PLUMBING SYSTEMS FOR THE BUILDING WITH CONNECTIONS FROM EXISTING LINE IN THE BUILDING.

DOMESTIC WATER SYSTEM INCLUDING CONNECTION TO EXISTING STUB OUT, AND CONNECTIONS TO ALL PLUMBING FIXTURES AND EQUIPMENT.

VALVED OUTLETS AND CONNECTIONS TO ALL HEATING, AIR CONDITIONING, OR ELECTRICAL EQUIPMENT WITH LOCATION AS REQUIRED.

FUEL GAS SYSTEM VALVED CONNECTIONS TO ALL EQUIPMENT USING SAME.

PLUMBING SPECIALTIES, INCLUDING CLEAN-OUTS, DRAINS, FIXTURE SUPPORTS, INTERCEPTORS, ETC.

PLUMBING EQUIPMENT AS SPECIFIED AND SCHEDULED.

PLUMBING FIXTURES AS SPECIFIED.

ADEQUATE SUPERVISION OF ERECTION, BALANCING, ADJUSTMENTS AND INSTRUCTIONS FOR PROPER OPERATION AND MAINTENANCE.

10. APPROVED MANUFACTURERS
SPECIFICATION HEREIN BY BRAND NAME IS INTENDED TO ESTABLISH A STANDARD OF QUALITY. FURTHER, THIS EQUIPMENT HAS BEEN CHECKED AS TO SIZE AND WEIGHT REQUIREMENTS AND SPACE ALLOCATION HAS BEEN MADE ACCORDINGLY.

SUBMITTAL OF EQUIPMENT BY OTHER ACCEPTABLE MANUFACTURERS MUST BE COMPLETE IN EVERY DETAIL, INCLUDING SPACE REQUIREMENTS, WEIGHT, COMPLETE PERFORMANCE DATA, AND SUPPLEMENTAL DATA REQUESTED BY THE ARCHITECT. CONTRACTOR SHALL BE RESPONSIBLE FOR ASSURANCE THAT THE EQUIPMENT MEETS ALL THE REQUIREMENTS DETAILED IN THIS AND OTHER SECTIONS, AND INDICATED ON THE DRAWINGS.

EACH SECTION INCLUDES A LIST OF MANUFACTURERS WHOSE EQUIPMENT IS ACCEPTABLE TO MANUFACTURE, SUBJECT TO CONFORMANCE WITH ALL DRAWINGS, SPECIFICATIONS AND ADDENDA ITEMS. CAREFUL CHECKING MUST BE MADE TO VERIFY THAT THE EQUIPMENT WILL MEET ALL CAPACITIES, REQUIREMENTS, SPACE ALLOCATIONS, AND THAT THE WEIGHTS ARE NOT EXCESSIVE.

11. MATERIALS
MANUFACTURERS INDICATE A STANDARD OF QUALITY, OTHER MANUFACTURES MUST BE APPROVED AS AN EQUAL.

SANITARY WASTE VENT AND STORM DRAINAGE: ABS CONFORMING TO ASTM D 2661 OR DWV PVC CONFORMING TO ASTM D 1784.

DOMESTIC WATER: TYPE 'L' HARD DRAWN COPPER, CONFORMING TO ASTM B-88.

NATURAL GAS: PIPE, BLACK STEEL PIPE, SCHEDULE 40 BLACK STEEL CONFORMING TO ASTM A-53, GRADE A OR B, SEAMLESS WELDED PIPE.

GENERAL: WRAP ALL GAS PIPING INSTALLED BELOW GRADE OR EXPOSED TO WEATHER IN ACCORDANCE WITH MANVILLE SPECIFICATION 220. PROVIDE CATHODIC PROTECTION FOR GAS PIPING INSTALLED BELOW GRADE.

CLEAN OUTS: INTERIOR/EXTERIOR CONCRETE AND TILE FLOORS: AS INDICATED ON DRAWINGS.

BALL VALVES: NIBCO #S-585-70, 150# SOLDER JOINT FOR ALL LINES UP TO 2" IN DIAMETER.

CHECK VALVES: NIBCO #S-413-Y, 150# SOLDER JOINT FOR ALL VALVES UP TO 2" IN DIAMETER.

GLOBE VALVES: NIBCO #S-235-Y, 150# SOLDER JOINT FOR ALL VALVES UP TO 2" IN DIAMETER.

12. INSTALLATION
THE ENTIRE PLUMBING SYSTEM SHALL BE INSTALLED IN A NEAT, WORKMANLIKE, FINISHED, AND SAFE MANNER. CONCEAL ALL PIPING IN FINISHED AREAS UNLESS NOTED OTHERWISE. ALL PIPING SHALL BE ADEQUATELY SUPPORTED AND INSTALLED PARALLEL WITH THE BUILDING WALLS. THE ENTIRE INSTALLATION SHALL BE SUBJECT TO THE ARCHITECT'S APPROVAL.

13. TESTS
TEST WATER PIPING TO 100 PSI AND HOLD FOR 4 HOURS.
TEST SEWER AND VENT PIPING WITH A 10 FOOT HEAD OF WATER FOR 4 HOURS.
TEST FUEL GAS SYSTEM TO 50 PSI AIR PRESSURE AND HOLD FOR 4 HOURS.
REPAIR ALL LEAKS UNTIL SYSTEMS ARE WATERTIGHT.

END OF SECTION

MECHANICAL EQUIPMENT SCHEDULE

NOTE: 1. AMBIENT TEMPERATURE 96 F COOLING, 10 F HEATING.
2. NO EQUIPMENT WITH LESS THAN 98% OF LISTED CAPACITIES WILL BE APPROVED.
3. PROVIDE ONE ELECTRICAL CONNECTION FOR EACH UNIT.
4. UPON COMPLETION, MANUFACTURER SHALL PROVIDE ONE YEAR PARTS AND LABOR WARRANTY.

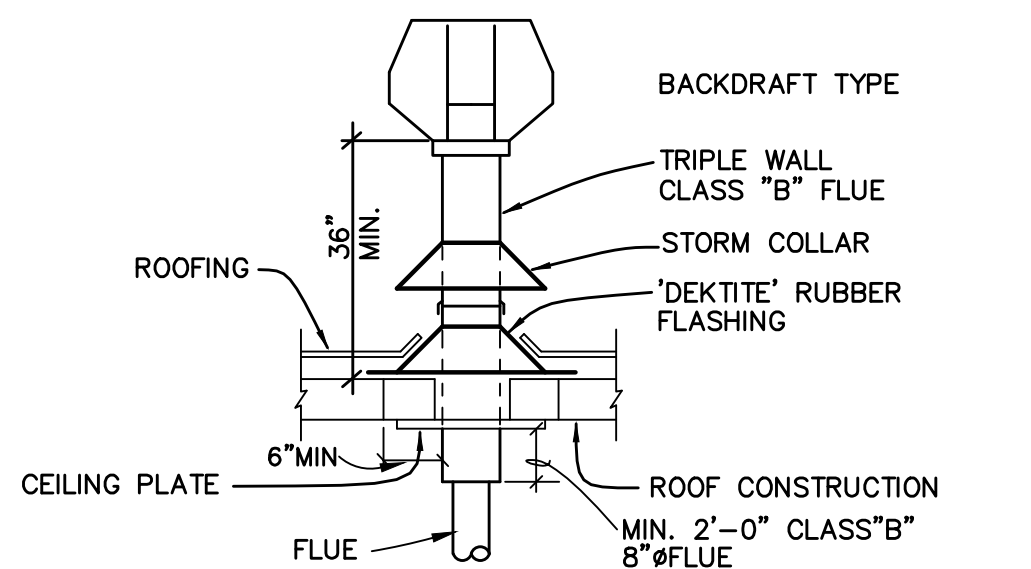
UNIT										COOLING				HEATING				OSA CFM	WEIGHT LBS	NOTES
MARK	MANUFACTURER	MODEL	SEER /EER	CFM	ESP "WG"	HP	VOLT	PH	MCA	SEN MBH	TOT MBH	ENT AIR DB WB		GAS MBH	GAS OUTPUT	VOLT	PH			
UH-A1	REZNOR	UDAP-150	-	961	-	0.06	120	1	3.3	-	-	-	-	75	62.2	-	-	-	50	INTEGRAL T'STAT
LEGEND: UNIT HEATER (UH)																				

LEGEND: UNIT HEATER (UH)

* VERIFY EXACT FIXTURES WITH OWNER/ARCH. PRIOR TO ORDERING.

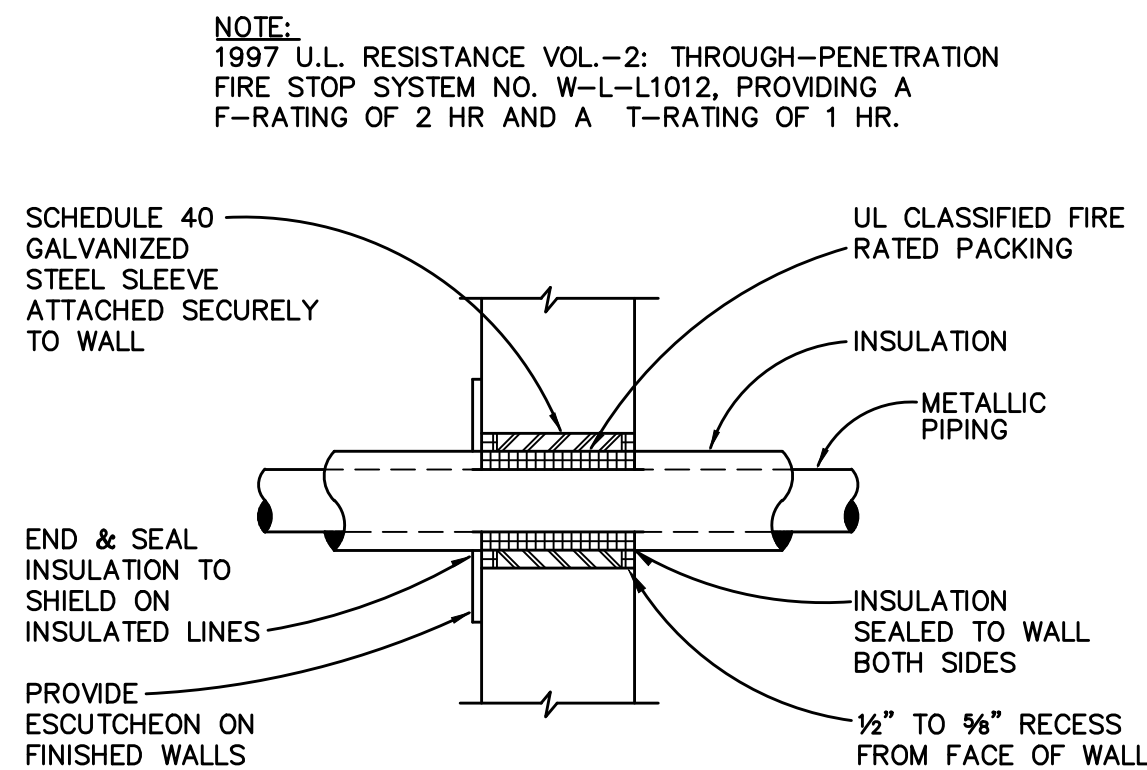
PLUMBING FIXTURE SCHEDULE

FIXTURE SPECIFICATIONS					FIXTURE CONNECTIONS			
MARK	DESCRIPTION	MANUFACTURER AND MODEL NUMBER	FITTING & CAPACITY	ACCESSORIES/ REMARKS	C.W.	H.W.	WASTE	VENT
HB	- HOSE BIBB -	"WOODFORD" #17 SERIES FREEZE PROOF	- 3/4" INLET -	W/ VACUUM BREAKER BACKFLOW PREVENTER -	3/4"	-	-	-

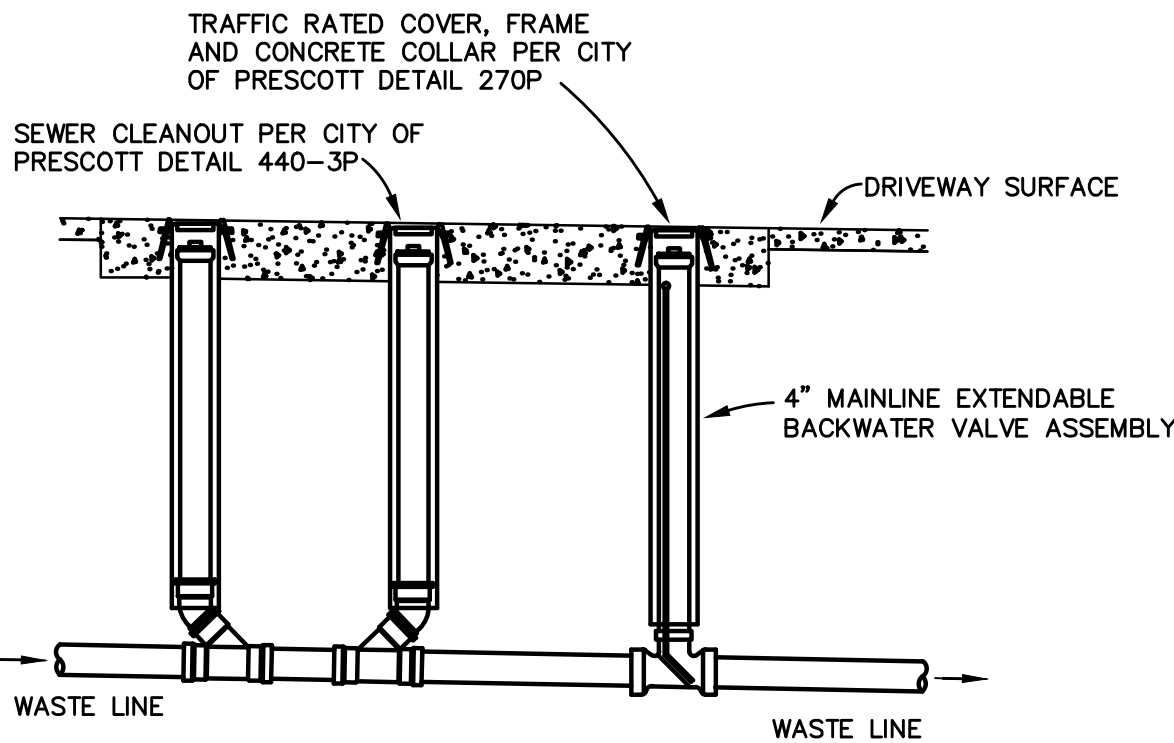


NOTE:
1. COMBUSTIBLE MATERIAL SHALL NOT BE WITHIN 6" OF PENETRATION THRU ROOF. ALL OTHER AREAS MUST BE A MINIMUM OF 18".
2. VENT SHALL TERMINATE A MINIMUM OF 8'-0" FROM VERTICAL WALLS OR 2'-0" ABOVE PARAPET WALLS.

3 FLUE THRU ROOF N.T.S.



1 PIPE THRU WALL (FIRE RATED) N.T.S.



2 SEWER BACKWATER VALVE N.T.S.

MAVEN
ENGINEERING

Job #15EMB050
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REGISTERED PROFESSIONAL ENGINEER

Kirk J. Hoffman

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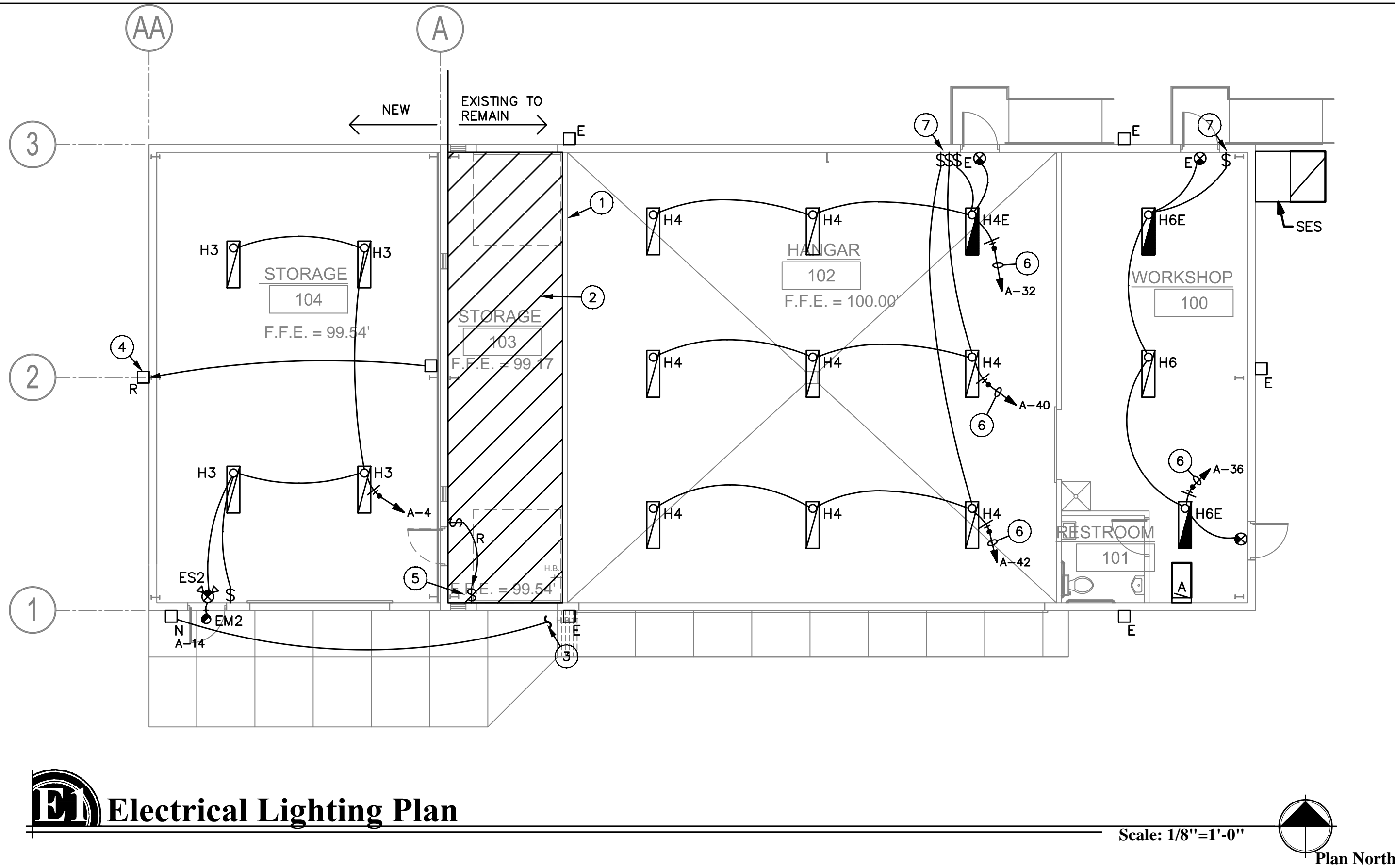
ARCHITECTURE & PLANNING

DRAWING: MECHANICAL - PLUMBING SCHEDULES

PROJECT: ERAU F8 HANGAR EQUIPMENT STORAGE ADDITION
6492 Corrao Way
Prescott, AZ 86301

DRAWN BY KEF
CHECKED BY AJW
DATE April 21th, 2015
SCALE AS NOTED
JOB NO. 668
SHEET

MP2



LUMINAIRE SCHEDULE								
CALLOUT	SYMBOL	LAMP	MODEL	DESCRIPTION	BALLAST	MOUNTING	INPUT WATTS	VOLTS
EM2		(2) 6W ELP L168	LITHONIA LIGHTING AFN-W-EXT	ARCHITECTURAL EMERGENCY LIGHTING. XENON LAMPS, WIDE THROW OPTICS, CLEAR PRISMATIC LENS	ELECTRONIC	WALL	12	120V 1P 2W
ES2		(1) INCLUDED	LITHONIA LIGHTING LHQM-S-W-3-R-120/277-N	THERMOPLASTIC LED EXIT SIGN/EMERGENCY UNIT COMBO.	ELECTRONIC	CEILING	1	120V 1P 2W
H3		(3) 54W T5HO	LITHONIA LIGHTING EJ-3-54T5HO-WG2EJ WIRE GUARD	HEAVY-DUTY INDUSTRIAL, 4FT LONG, 12" WIDE, WITH WHITE PAINTED REFLECTOR, AND THREE LAMPS.	ELECTRONIC	CHAIN HUNG	186.4	120V 1P 2W
H4		(4) 54W T5HO	LITHONIA LIGHTING IBZ-454L-WD-ACL-WGIBZ14 WIRE GUARD	4FT LINEAR RETAIL HIGH BAY WITH WIDE DISTRIBUTION REFLECTOR, 0.125" CLEAR ACRYLIC, I-BEAM T5 FLOURESCENT HIGHBAY.	ELECTRONIC	CHAIN HUNG	228.4	120V 1P 2W
H4E		(4) 54W T5HO	LITHONIA LIGHTING IBZ-454L-WD-ACL-WGIBZ14-EL14 WIRE GUARD	4FT LINEAR RETAIL HIGH BAY WITH WIDE DISTRIBUTION REFLECTOR, 0.125" CLEAR ACRYLIC, I-BEAM T5 FLOURESCENT HIGHBAY. PROVIDED EMERGENCY BATTERY BACK UP 90 MINUTE MIN. OPERATING ONE LAMP 1150 LUMENS	ELECTRONIC	CHAIN HUNG	228.4	120V 1P 2W
H6		(6) 54W T5HO	LITHONIA LIGHTING IBZ-654L-WD-ACL-WGIBZ14 WIRE GUARD	I-BEAM T5 FLUORESCENT HIGHBAY WITH WIDE DISTRIBUTION REFLECTOR, 0.125" CLEAR ACRYLIC LENS, AND <5% UPLIGHT	ELECTRONIC	CHAIN HUNG	345.6	120V 1P 2W
H6E		(6) 54W T5HO	LITHONIA LIGHTING IBZ-654L-WD-ACL-WGIBZ14-EL14 WIRE GUARD	I-BEAM T5 FLUORESCENT HIGHBAY WITH WIDE DISTRIBUTION REFLECTOR, 0.125" CLEAR ACRYLIC LENS, AND <5% UPLIGHT	ELECTRONIC	CHAIN HUNG	345.6	120V 1P 2W
N		(2) 28W T4	LITHONIA LIGHTING TWAC 28DTT 120-PF-DMB-LPI NEW TO MATCH EXISTING	BUILDING MOUNTED LUMINAIRE WITH VERTICAL LAMP ORIENTATION (Two 26WATT DTT COMPACT FLUORESCENT LAMPS) COORDINATE MOUNTING HEIGHT WITH ARCHITECT.	MAGNETIC	WALL	56	120V 1P 2W

LIGHTING

GENERAL NOTES:

A. PRIOR TO ROUGH-IN, THE ELECTRICAL CONTRACTOR SHALL COORDINATE THE EXACT LOCATION OF ALL LIGHT FIXTURES. TO INCLUDE MOUNTING HEIGHTS AND LOCATIONS. ALL CONFLICTS SHALL BE REPORTED TO THE ENGINEER/ARCHITECT.

B. THE ELECTRICAL CONTRACTOR SHALL (PRIOR TO THEIR BID) a) VISIT THE SITE AND FIELD VERIFY ALL EXISTING CONDITIONS AND b) TAKE ALL CONSIDERATIONS INTO ACCOUNT AT THE TIME OF BID. NO CONSIDERATIONS WILL BE GRANTED THE CONTRACTOR AFTER THE BID IS ACCEPTED.

C. THE ELECTRICAL LIGHTING INSTALLATIONS SHALL CONFORM TO ALL STATE AND LOCAL SEISMIC AND CODE REQUIREMENTS REGARDING LIGHT FIXTURE SUPPORT.

D. ALL ELECTRICAL METALLIC TUBING (EMT), RIDGED NON-METALLIC CONDUITS, "SEAL TIGHT" TYPE CONDUITS AND ALL OTHER CONDUITS THAT DO NOT CONTAIN A CODE SIZED GROUND WIRE SHALL HAVE A CODE SIZED BOND WIRE INSTALLED WITH THE CIRCUIT CONDUCTORS.

E. ALL FIXTURES INSTALLED OUTDOORS SHALL BE RATED FOR DAMP/WET LOCATIONS AS REQUIRED. THE CONTRACTOR SHALL COORDINATE DAMP/WET LOCATION RATING PER NEC ARTICLE 410.10(A). ALL INSTALLATIONS SHALL CONFORM TO NEC ARTICLE 410, ALL SUB ARTICLES.

F. ALL FLUORESCENT FIXTURES THAT UTILIZE DOUBLE ENDED LAMPS AND CONTAIN BALLAST(S) THAT CAN BE SERVICED IN PLACE SHALL BE CODE COMPLIANT WITH N.E.C. 410.130(G)

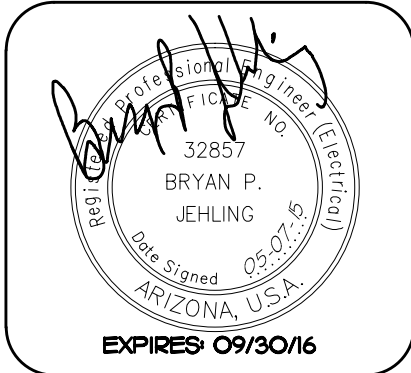
KEYED NOTES :

- EXISTING 1 HR FIRE RATED WALL.
- EXISTING MATERIALS STORAGE AREA. ALL CONDUIT THROUGH THIS AREA MUST BE EXPLOSION PROOF AND FIRE RATED AT WALL PENETRATIONS.
- CONNECT NEW LIGHTING ONTO EXISTING EXTERIOR LIGHTING CIRCUIT.
- RELOCATE EXISTING EXTERIOR LIGHTING FIXTURE AS SHOWN. EXTEND EXISTING CIRCUIT TO NEW LOCATION. MAINTAIN CIRCUIT INTEGRITY.
- RELOCATE EXISTING LOCAL AREA LIGHTING SWITCH AS SHOWN, WITH EXPLOSION PROOF CONDUIT
- REPLACE EXISTING LIGHT FIXTURES. REUSE EXISTING CONDUIT AND CIRCUIT. SEE PANEL SCHEDULE FOR NEW LOAD.
- TIE THE NEW LIGHTS ONTO EXISTING LOCAL AREA LIGHTING CONTROLS. VERIFY EXISTING LOCATION IN FIELD.

FIXTURE / ITEM IDENTIFIED WITH LETTER:
'E' - INDICATES EXISTING TO REMAIN.
'N' - INDICATES NEW TO MATCH EXISTING.
'R' - INDICATES EXISTING TO BE RELOCATED.
'X' - INDICATES EXISTING TO BE REMOVED.

REVISIONS	BY

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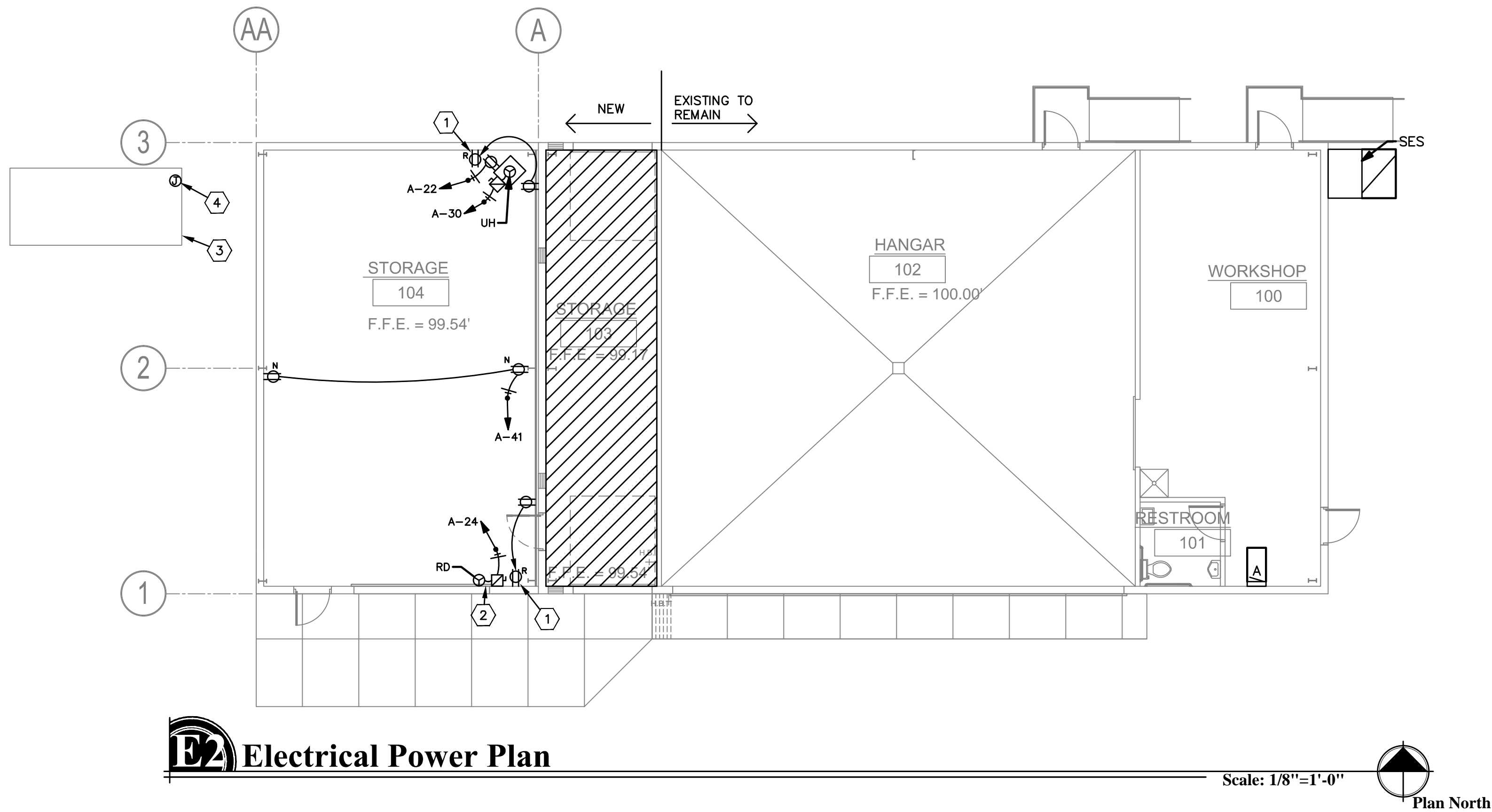
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DRAWING: ELECTRICAL LIGHTING PLAN
PROJECT: ERAU F8 HANGAR EQUIPMENT STORAGE ADDITION
6492 Corradi Way
Prescott, AZ 86301

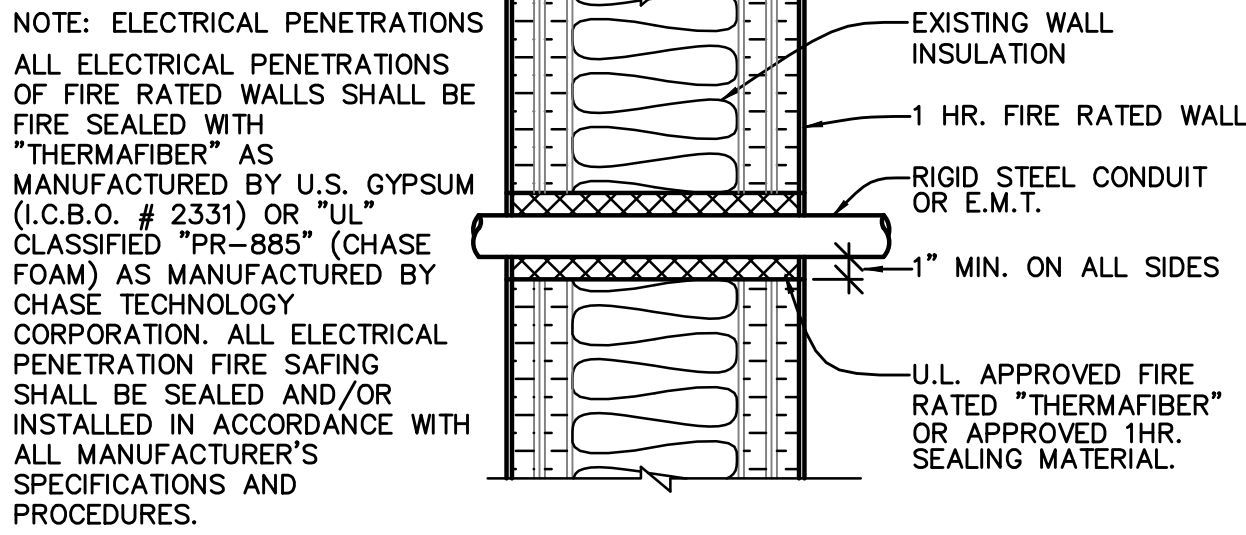
DRAWN BY ERC
CHECKED BY KJH
DATE April 21th, 2015
SCALE AS NOTED
JOB NO. 668
SHEET

E1

MAVEN ENGINEERING Job #15EMB050
Tel: (480) 303-0180
Fax: (480) 302-7927
230 West Baseline Rd, Suite 103
Tempe, Arizona 85283
Note: Any changes made to final bid documents due to field changes will be billed hourly to the contractor.



GENERAL EQUIPMENT SCHEDULE								
CALLOUT	SYMBOL	DESCRIPTION	NEMA	VOLTS	CALCULATED AMPS	KVA	CIRCUIT	WIRE CALLOUT
RD		ELEC. ROLL UP DOOR	NEMA 1	120V 1P 2W	13.8	1.66	A-24	3/4"C,1#10,#10N,#10G
UH		UNIT HEATER	NEMA 1	120V 1P 2W	3.3	0.4	A-30	3/4"C,1#10,#10N,#10G



1 HR. FIRE RATED
WALL PENETRATION

N.T.S. E-010

POWER
GENERAL NOTES:

- A. ALL EXTERIOR DISCONNECTS SHALL BE W.P. TYPE.
- B. REFER TO MECHANICAL AND PLUMBING PLANS FOR EXACT SIZE, LOCATION, AND ELECTRICAL REQUIREMENTS FOR ALL MECHANICAL AND PLUMBING EQUIPMENT. PROVIDE ELECTRICAL SERVICE AS REQUIRED FOR EACH ITEM.
- C. ELECTRICAL CONTRACTOR RESPONSIBLE FOR COORDINATING EXACT LOCATION, QUANTITIES, AND INSTALLATION REQUIREMENTS OF ELECTRICAL EQUIPMENT IN MILL WORK.
- D. ALL EXTERIOR RECEPTACLES SHALL BE W.P./GFCI TYPE.
- E. ALL ELECTRICAL PANEL BOARDS SHALL MAINTAIN 3'-0" INFRONT WORKING CLEARANCE REFER TO ONE-LINE FOR DETAILS.
- F. PER NEC 430.102 A DISCONNECTING MEANS SHALL BE PROVIDED FOR A MOTOR IN ACCORDANCE WITH NEC 430.102(B)(1) OR (B)(2).

KEYED NOTES : (#)

1. RELOCATE EXISTING RECEPTACLE AS SHOWN. EXTEND EXISTING CIRCUIT TO NEW LOCATION. MAINTAIN CIRCUIT INTEGRITY.
2. PROVIDE POWER FOR ELECTRIC ROLL-UP DOOR COORDINATE FINAL LOCATION WITH EQUIPMENT AND POWER REQUIREMENTS WITH ARCH./MANUFACTURER.
3. EXISTING STORAGE 'CONEX BOX' TO BE RELOCATED BY OWNER.
4. ELECTRICIAN TO DISCONNECT POWER AND REMOVE ELECTRICAL CONDUIT ON CHAIN LINK FENCE AND BACK TO SUPPLY POINT IN BUILDING.

FIXTURE / ITEM IDENTIFIED WITH LETTER:
'E' - INDICATES EXISTING TO REMAIN.
'N' - INDICATES NEW TO MATCH EXISTING.
'R' - INDICATES EXISTING TO BE RELOCATED.
'X' - INDICATES EXISTING TO BE REMOVED.

REVISIONS	BY

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ARCHITECTURE & PLANNING

DRAWING: ELECTRICAL POWER PLAN

PROJECT: ERAU F8 HANGAR EQUIPMENT STORAGE ADDITION
6492 Corradi Way
Prescott, AZ 86301

DRAWN BY ERC
CHECKED BY KJH
DATE April 21th, 2015
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FAULT CURRENT SCHEDULE																					
DEVICE	FAULT	AIC RATING	L-N VOLTS	UTILITY			FED FROM				FEEDER						TOTAL MOTOR	DIRECTLY CONNECTED MOTOR LOAD			
				FAULT	X	R	DEVICE	FAULT	X	R	SIZE	X / 1000'	R / 1000'	LENGTH	X	R		KVA	FAULT	X	R
																	FAULT				
SES	51,606	65,000	120V	51,502	0.002285	0.000457					(3)#300kcmil	0.0137	0.0147		0	0	104				
A	18,556	22,000	120V	18,452	0.004563	0.004634	SES	51,502	0.002285	0.000457	#3/0	0.042	0.077	54'-3"	0.0023	0.0042	104	9.35	104	1.121	0.2803

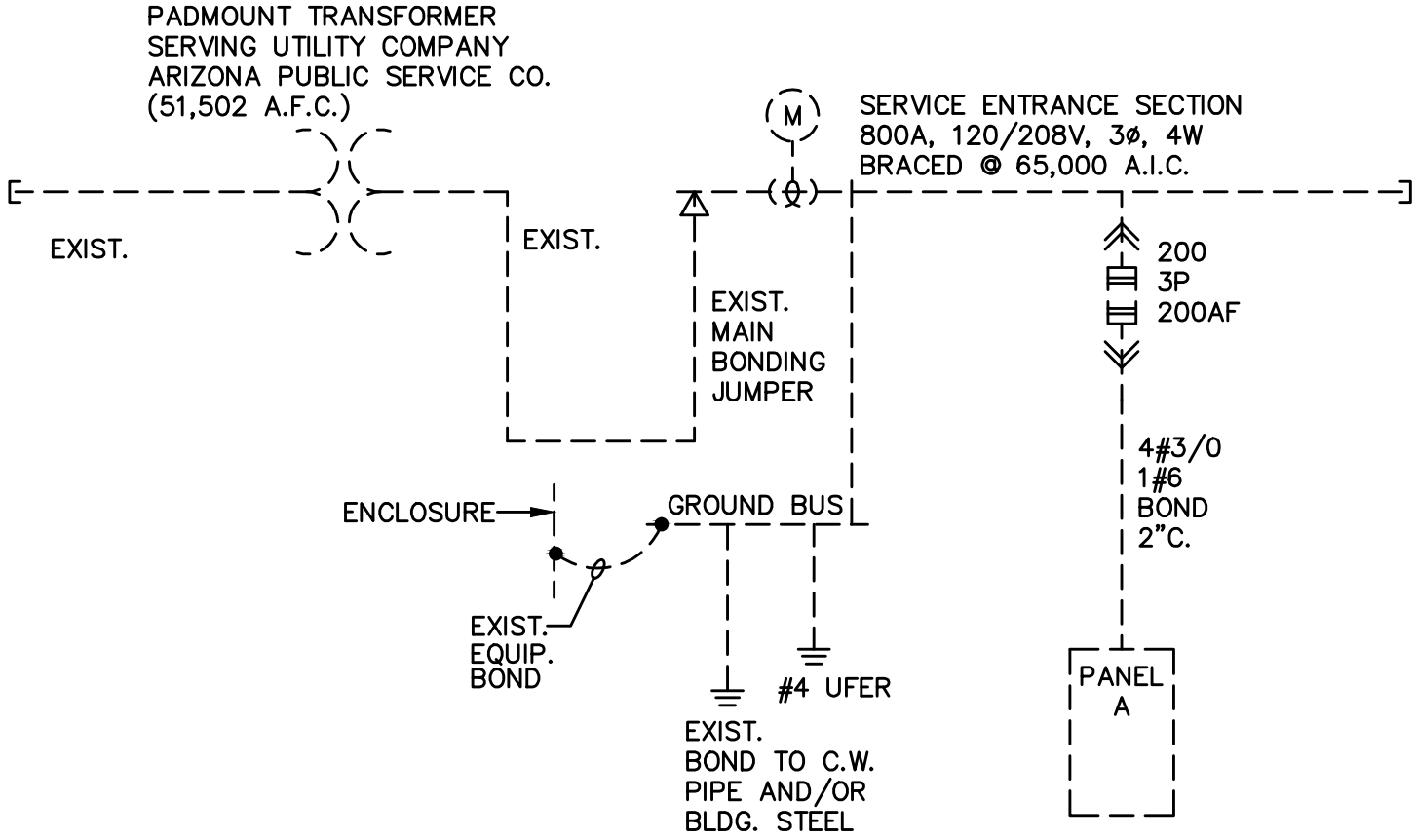
PANEL SCHEDULE KEYED NOTES :

- (1) INDICATES EXISTING BREAKER EXISTING LOAD.
(2) INDICATES EXISTING BREAKER NEW LOAD.

SES

ROOM		VOLTS 208Y/120V 3P 4W				AIC 65,000	
MOUNTING FLUSH		BUS AMPS 800				MAIN BKR MLO	
FED FROM UTILITY		NEUTRAL 100%				LUGS STANDARD	
NOTE							
CKT #	CIRCUIT DESCRIPTION	KVA LOAD			BREAKER TRIP /POLES	COND.	FEEDER RACEWAY AND CONDUCTORS
		A	B	C			
1	PANEL A	11.8	10.8	12.6	200/3	CU	2"C, 3#3/0, #3/GN, #6G
2	SPACE	0	0	0	-/3	CU	
3	SPACE	0	0	0	-/3	CU	
4	SPACE	0	0	0	-/3	CU	
5	SPACE	0	0	0	-/3	CU	
6	SPACE	0	0	0	-/3	CU	
TOTAL CONNECTED KVA BY PHASE		11.8	10.8	12.6			
		CONN. KVA	CALC. KVA			CONN. KVA	CALC. KVA
LIGHTING		5.91	7.38	(125%)	CONTINUOUS	0	0 (125%)
LARGEST MOTOR		1.66	2.07	(125%)	HEATING	0	0 (100%)
OTHER MOTORS		7.7	7.7	(100%)	NONCONTINUOUS	2.1	2.1 (100%)
RECEPTACLES		17.9	13.9	(50%>10)	KITCHEN EQUIP	0	0 (N/A)
					NONCOIN/DIVERSE	0	0 (N/A)
					TOTAL KVA	35.2	33.2
BALANCED THREE PHASE AMPS 92.1							

A											
ROOM INTERIOR			VOLTS 208Y/120V 3P 4W					AIC 22,000			
MOUNTING SURFACE			BUS AMPS 200					MAIN BKR MLO			
FED FROM SES			NEUTRAL 100%					LUGS STANDARD			
NOTE NEMA-1											
CKT #	CKT BKR	CIRCUIT DESCRIPTION	KVA LOAD			CKT #	CKT BKR	CIRCUIT DESCRIPTION	KVA LOAD		
			A	B	C				A	B	C
1	20/1	FIRE ALARM	0.6			2	20/1	HOTWATER HEATER	1.5		
3	20/1	N&E HANGER RECEPTS.		1.08		4	20/1	NEW STORAGE LIGHTING		0.758	
5	20/1	HANGER S RECEPTS & CORD REEL			1.08	6	20/1	EVAP COOLER			1.2
7	20/1	O/S N & W RECEPTS	0.9			8	20/1	ROOF RECEPTS.	0.36		
9	20/1	O/S N & E RECEPTS		0.9		10	20/1	HANGER HEATER		1.2	
11	20/1	HANGER EAST RECEPTS.			1.08	12	20/1	SHOP HEATER			1.2
13	20/1	HANGER SOUTH RECEPTS.	1.08			14	20/1	O/S LIGHTS LIGHTING	1.06		
15	20/1	HANGER SOUTH RECEPTS.		1.08		16	20/1	PHONE BOARD		0.36	
17	20/1	SHOP NORTH RECEPTS			1.08	18	20/1	SPARE			0
19	20/1	SHOP NORTH RECEPTS	1.08			20	20/1	EXHAUST HOODS	1.2		
21	20/1	SHOP EAST RECEPTS		1.08		22	20/1	MECH.SERV. RECEPTACLE		0.18	
23	20/1	SHOP CORD REELS			1.08	24	20/1	RD - ELEC. ROLL-UP DOOR			1.66
25	20/1	SHOP S. & S. O/S RECPETS.	1.08			26	20/1	SPARE	0		
27	20/1	SHOP S. & S. O/S RECPETS.		1.08		28	20/1	SPARE		0	
29	20/1	SHOP SOUTH RECEPTS.			1.08	30	20/1	UH - UNIT HEATER			0.396
31	20/1	SHOP SOUTH RECEPTS.	1.08			32	20/1	HANGER NORTH LIGHTS LIGHTING	0.685		
33	20/1	BATH GFCI		0.18		34	20/1	STORAGE RM LIGHTS		1	
35	20/1	SPRINKLER			0.6	36	20/1	SHOP/BATH LIGHTING			1.14
37	20/1	HANGER DOOR	1.2			38	-/1	SPACE	0		
39	20/1	HANGER DOOR		1.2		40	20/1	HANGER MID BAY LIGHTS LIGHTING		0.685	
41	20/1	NEW RECEPTACLE			0.36	42	20/1	HANGER S. BAY LIGHTS LIGHTING			0.685
								TOTAL CONNECTED KVA BY PHASE	11.8	10.8	12.6
								TOTAL CONNECTED AMPS BY PHASE	98.5	89.9	105
								CONN. KVA	CALC. KVA		
LIGHTING			5.91	7.38	(125%)	CONTINUOUS			0	0	(125%)
LARGEST MOTOR			1.66	2.07	(125%)	HEATING			0	0	(100%)
OTHER MOTORS			7.7	7.7	(100%)	NONCONTINUOUS			2.1	2.1	(100%)
RECEPTACLES			17.9	13.9	(50%>10)	KITCHEN EQUIP			0	0	(N/A)
						NONCOIN/DIVERSE			0	0	(N/A)
						TOTAL KVA			35.2	33.2	
EXISTING PANEL			BALANCED THREE PHASE AMPS 92.1								



ONE-LINE NOTES:

A. SWITCHBOARD COMPONENTS, INCLUDING OVERCURRENT PROTECTIVE DEVICES SHALL BE FULLY RATED FOR THE AVAILABLE FAULT CURRENT SHOWN.

B. PROVIDE ARC FLASH AND SHOCK HAZARD WARNING IDENTIFICATION PER NEC ARTICLE 110.16

C. "NO DESIGN CHANGES MAY BE MADE TO THE SYSTEM WITHOUT THE PRIOR APPROVAL OF THE DESIGN ENGINEER AND THE ELECTRICAL INSPECTOR."

PANEL SCHEDULE NOTES:

A. A.I.C. RATING SHOWN ON PANEL SCHEDULES ARE THE MINIMUM RATING FOR NEW AND REPLACEMENT OVERCURRENT PROTECTIVE DEVICES. EACH DEVICE SHALL BE FULLY RATED AT AFC AS SHOWN ON ONE-LINE DIAGRAM.

B. ALL PANEL BOARDS SHALL HAVE A TYPE WRITTEN DIRECTORY IDENTIFYING EACH NUMBERED CIRCUIT PLACED IN A DIRECTORY HOLDER INSIDE THE DOOR.

C. THE CONTRACTOR SHALL PERMANENTLY MARK WITH PERMANENT MARKER THE CIRCUIT IDENTIFICATIONS ON THE COVERPLATES OF RECEPTACLES, EQUIPMENT, AND LIGHTING JUNCTION BOXES. (STICK ON LABELS NOT ACCEPTABLE)

ELECTRICAL ONE-LINE DIAGRAM

N.T.S.

GENERAL NOTES :

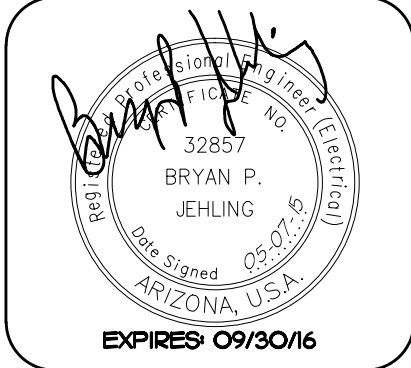
A. DASHED LINES INDICATE EXISTING EQUIPMENT. SOLID LINES INDICATE NEW EQUIPMENT U.N.O.

B. ALL NEW ELECTRICAL GEAR SHALL MATCH EXISTING U.N.O.

C. PER NEC 210.4(B), ALL MULTIWIRE BRANCH CIRCUITS ARE TO BE PROVIDED WITH A DEVICE THAT WILL DISCONNECT POWER TO ALL UNGROUNDED CONDUCTORS SIMULTANEOUSLY AT POINT OF ORIGIN.

REVISIONS	BY

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ARCHITECTURE & PLANNING

DRAWING: ELECTRICAL ONE-LINE DIAGRAM

PROJECT: ERAU F8 HANGAR EQUIPMENT STORAGE ADDITION
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DRAWN BY ERC
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ELECTRICAL SPECIFICATIONS

1 GENERAL PROVISIONS:

SUMMARY: THIS SECTION DESCRIBES IN GENERAL, REQUIREMENTS OF THE ELECTRICAL AND RELATED ITEMS OF WORK NECESSARY FOR THE COMPLETE JOB INDICATED BY THE CONTRACT DOCUMENTS. THE GENERAL CONDITIONS ARE APPLICABLE TO THIS SECTION AND SHALL FORM A PART OF THE CONTRACT.

GENERAL LIST OF WORK: RELATED WORK DESCRIBED IN OTHER SECTIONS WHICH IS COMMONLY EXECUTED BY AN ELECTRICAL SUB-CONTRACTOR AND/OR HIS SUPPLIER INCLUDES BUT IS NOT LIMITED TO THE FOLLOWING:

FURNISHING AND INSTALLING:

DISTRIBUTION SYSTEMS FOR LIGHTING AND POWER INCLUDING FEEDERS, BRANCH CIRCUIT PANELS, LIGHTING FIXTURES WITH LAMPS, CONTROL SWITCHES, RECEPTACLES, AND DISCONNECT SWITCHES.

WIRING TO AND CONNECTION OF MOTORS AND CONTROLS AND INSTALLING MOTORS, CONTROLS AND MOTORIZED EQUIPMENT. STARTERS NOT FURNISHED INTEGRAL WITH THE EQUIPMENT SHALL BE FURNISHED AS A PART OF THIS CONTRACT.

SLEEVES, BLOCKOUTS, INSERTS, ANCHORAGE DEVICES, ETC.

WORK LISTED ELSEWHERE:

THE FOLLOWING ITEMS OF WORK, EVEN IF DESCRIBED IN THIS SECTION SHALL BE EXECUTED UNDER OTHER SECTIONS.

FURNISHING AND INSTALLING MOTORS AND CONTROLS.

FURNISHING HOLE CUTTING IN PRE-CAST STRUCTURAL CONCRETE.

CODES AND ORDINANCES: INSTALL ALL WORK IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND ITS LATEST REVISIONS, WITH THE REGULATIONS OF ANY AND ALL STATE AND LOCAL CODES AND ORDINANCES STANDARD SPECIFICATIONS OF THE POWER COMPANY.

CERTIFICATES:

ALL WORK INCLUDED SHALL COMPLY WITH ALL STATE AND LOCAL RULES AND REGULATIONS. FURNISH TO THE OWNER ALL CERTIFICATES OF INSPECTION AND APPROVAL AS REQUIRED.

EXAMINATION OF PREMISES:

PRIOR TO SUBMITTING PROPOSAL, THE BIDDER SHALL EXAMINE ALL GENERAL CONSTRUCTION DRAWINGS AND VISIT CONSTRUCTION SITE TO BECOME FAMILIAR WITH EXISTING CONDITIONS UNDER WHICH HE WILL HAVE TO OPERATE AND WHICH WILL IN ANY WAY AFFECT THE WORK UNDER THIS CONTRACT. NO SUBSEQUENT ALLOWANCE WILL BE MADE IN THIS CONNECTION ON BEHALF OF THE CONTRACTOR FOR ANY ERROR OR NEGLIGENCE ON HIS PART.

PRIOR TO ORDERING ANY MATERIALS OR DOING ANY WORK, VERIFY THE DIMENSIONS AT THE SITE. CORRECTNESS OF DIMENSIONS WILL BE THIS CONTRACTOR'S RESPONSIBILITY. NO EXTRA CHARGES OR COMPENSATION WILL BE ALLOWED FOR DIFFERENCES BETWEEN ACTUAL DIMENSIONS AND DIMENSIONS INDICATED ON THE DRAWINGS. IMMEDIATELY REPORT DIFFERENCES TO THE ARCHITECT AND DO NOT PROCEED WITH WORK UNTIL THE ARCHITECT REVISOR HIS DECISION.

HANGERS: FURNISH AND INSTALL ALL UNISTRUT, HANGERS, SUPPORTS, ETC., REQUIRED FOR WORK UNDER THIS DIVISION. SUPPORT CONDUIT FROM BUILDING STRUCTURE, NOT FROM CEILING SUPPORTS. BRANCH CIRCUIT CONDUIT 3/4" AND SMALLER MAY BE RUN FROM CEILING SUPPORTS USING SPRING STEEL CLIPS.

FINAL LOCATION OF SURFACE FEATURES: SHALL BE ACCOMPLISHED IN THE FIELD, SUBJECT TO THE APPROVAL OF THE ARCHITECT. THE LOCATION OF ALL SWITCHES, FIXTURES, PANELS, ETC., AND THEIR PROXIMITY AND RELATIONSHIP TO ALL VISIBLE FEATURES OF EQUIPMENT FURNISHED BY OTHER TRADES, SHALL BE MADE KNOWN TO THE ARCHITECT. IN CASE OF CONFLICT BETWEEN TRADES, OR BETWEEN A TRADE AND THE ARCHITECT, THE DECISION OF THE ARCHITECT SHALL BE FINAL AND HIS INSTRUCTIONS IN THESE MATTERS SHALL BE FOLLOWED BY ALL CONCERNED.

STANDARD OF MATERIAL AND WORKMANSHIP: ALL MATERIALS SHALL BE NEW AND SHALL CONFORM TO UL STANDARDS IN EVERY CASE WHERE SUCH A STANDARD HAS BEEN ESTABLISHED AND SHALL BEAR THE UL LABEL. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE BEST ACCEPTED STANDARDS OF GOOD WORKMANSHIP AND SHALL PRESENT A NEAT APPEARANCE WHEN COMPLETE.

CUTTING AND PATCHING:

ALL CUTTING NECESSARY FOR INSTALLATION OF THE WORK AND REPAIR OF ALL DAMAGE TO WORK UNDER OTHER SECTIONS, SHALL BE INCLUDED IN WORK SPECIFIED UNDER THIS SECTION INCLUDING PATCHING, FLASHING AND SEALING ALL ROOF PENETRATIONS RELATING TO OVERHEAD SERVICES. NO CUTTING SHALL BE DONE WITHOUT APPROVAL OF ARCHITECT.

CONTRACTOR SHALL REPAIR ANY DAMAGE DONE BY HIMSELF OR HIS WORKMEN AND SHALL COORDINATE HIS WORK WITH THAT OF OTHER PARTIES. CUTTING, PATCHING, AND PROVIDING ANY OPENINGS, UNTEL, OR SUPPORTS REQUIRED FOR INSTALLATION OF THE WORK SHALL BE INCLUDED IN THIS SECTION.

PAINTING:

ALL EXPOSED ELECTRICAL EQUIPMENT, CONDUIT, FLUSH PANEL FRONTS, TRANSFORMERS, SWITCHES, SWITCHBOARDS, PANELS AND SIMILAR ITEMS SHALL BE PAINTED AS SPECIFIED UNDER THE PAINTING SECTION OF ARCH. SPECIFICATIONS.

SUPERVISE ALL PAINTING OF ELECTRICAL EQUIPMENT.

2 BASIC MATERIALS AND METHODS:

WIRE AND CABLE:

GENERAL: ALL CONDUCTORS SHALL BE COPPER.

ALL INTERIOR BRANCH WIRING SHALL BE TYPE "THW-2", "THHN-2" OR "THWN-2", 600 VOLT AND A MINIMUM OF #12 EXCEPT FOR CONTROL WIRING WHICH SHALL BE STRANDED AND A MINIMUM OF #14.

WIRE #6 AND LARGER SHALL BE STRANDED. WIRE #2 AND LARGER, OR AS NOTED, SHALL BE TYPE "XHHW-2" WITH CROSS LINK POLYETHYLENE INSULATION.

MANUFACTURERS SHALL BE GENERAL CABLE, OKONITE, ROME CABLE, ANACONDA, GENERAL ELECTRIC, KAISER OR SOUTHWIRE.

NO CABLE MAY BE USED WHERE CONCEALED ONLY IN ACCESSIBLE SPACES AND ONLY WITH WRITTEN PERMISSION FROM THE OWNER PRIOR TO INSTALLATION. ALL INSTALLATIONS SHALL COMPLY WITH NEC 330.

WIRE SINGLE PHASE EQUIPMENT AND LIGHTING SO THERE IS A MINIMUM OF IMBALANCE BETWEEN CURRENT CARRYING CONDUCTORS. CONDUCTORS SHALL BE OF CONTINUOUS AND OF SINGLE LENGTHS THAT NO JOINTS OCCUR EXCEPT WITHIN OUTLET, JUNCTION OR PULLBOXES, SWITCH, CONDUIT FITTINGS, OR OTHER SIMILAR DEVICES IN EQUIPMENT. SPLICES SHALL JOIN CONDUCTORS SECURELY TOGETHER BOTH MECHANICALLY AND ELECTRICALLY.

MAKE CONNECTIONS AND SPLICES FOR #10 WIRE AND SMALLER WITH BUCHANAN B-CAP, 3-M SCOTCHLOK OR IDEAL WING-NUT, PRE-INSULATED WIRE CONNECTORS (SIZES AS RECOMMENDED BY MANUFACTURER). MAKE CONNECTIONS AND SPLICES FOR #6 COMPRESSION TYPE CONNECTORS BY O.Z., BURNDY, BUCHANAN, T & B OR ILSCO. TAPE ALL SPLICES WITH PLASTIC SO INSULATION IS AT LEAST EQUIVALENT TO INSULATION OF CONDUCTORS. THOROUGHLY CLEAN ENDS BEFORE SPLICING. WHERE PLASTIC TAPE IS USED AND THERE IS ANY DANGER OF INSULATION DAMAGE FROM PRESSURE OR JOINT AGAINST NON-CURRENT CARRYING METAL PARTS, USE FRICTION TAPE FOR ADDITIONAL PROTECTION.

ALL WIRING IN PANELBOARDS, CENTERS AND GUTTERS SHALL BE NEATLY ARRANGED. WIRE SHALL BE HELD BUNDLED BY TY-RAPS. WIRES SHALL BE CONNECTED TO CIRCUIT BREAKERS, SWITCHES AND OTHER DEVICES PERPENDICULAR TO TERMINAL LUGS.

LIGHTING AND POWER CIRCUITS SHALL BE IDENTIFIED BY PANEL LETTER AND CIRCUIT NUMBER WITH BRADY WRAPAROUND CLOTH WIRE MARKERS AT ALL TERMINATIONS AND JUNCTIONS.

ALL BRANCH CIRCUIT AND FEEDER CONDUCTORS SHALL BE COLOR- CODED TO CONFORM TO THE EXISTING COLOR CODES.

SOLID CONDUCTORS SHALL LOOP TIGHTLY AND COMPLETELY AROUND TERMINAL SCREWS ON ALL WIRING DEVICES.

CONDUIT RACEWAYS:

CONDUIT SYSTEMS SHALL BE RIGID GALVANIZED METAL, INTERMEDIATE METAL CONDUIT (IMC), ELECTRICAL METALLIC TUBING (EMT), RIGID ALUMINUM, NON-METALLIC FIBER OR AS SPECIFIED HEREIN OR AS INDICATED ON THE PLANS. ALL SYSTEMS SHALL BE CONTINUOUS.

RIGID STEEL CONDUIT SHALL BE HEAVY-WALLED, HOT-DIPPED, GALVANIZED OR SHERARIZED. USE RIGID STEEL CONDUIT IN CONCRETE SLABS, IN GRADE, IN EXPOSED LOCATIONS SUCH AS TUNNELS AND EQUIPMENT ROOMS, WHERE EXPOSED TO WEATHER AND WHERE BURIED IN EARTH. SCHEDULE 40 PVC NON-METALLIC CONDUIT MAY BE USED BURIED IN EARTH MINIMUM 24" BELOW GRADE. ALL CONDUIT EXTENDED UNDER DRIVEWAYS OR AREAS OF VEHICULAR USAGE SHALL BE GALVANIZED HEAVY WALL STEEL. CONDUIT OR SCHEDULE 80 PVC NON-METALLIC CONDUIT, MINIMUM 30" BELOW GRADE. STEEL CONDUIT INSTALLED UNDERGROUND SHALL BE ENCASED IN TWO INCH MINIMUM, CONCRETE ENVELOPE OR COMPLETELY COVERED WITH HALF-LAPPED #50 SCOTCH-WRAP TOP OF UNDERGROUND CONDUITS SHALL NOT BE LESS THAN 24". PVC ELECTRICAL CONDUIT, UL LISTED MAY BE USED FOR UNDERGROUND SECTIONS OF LIGHTING CIRCUITS AND FEEDER RACEWAYS. ALL NON-METALLIC CONDUITS SHALL HAVE BOND WIRES, EXCEPT WHEN FEEDING SERVICES.

IMC SHALL BE ZINC COATED STEEL TUBING. IMC MAY BE USED WHERE RIGID STEEL IS PERMITTED.

EMT SHALL BE ZINC-COATED. EMT MAY BE USED IN FURRED SPACES, IN METAL OR WOOD STUD WALLS IN EITHER EXPOSED OR CONCEALED FASHION AND WHERE NOT SUBJECT TO DAMAGE EXCEPT FOR BRANCH CIRCUITS AND FEEDERS OVER 100A. EMT SHALL BE REMEAD AFTER CUTTING AND SHALL BE MADE TO BUTT IN THE CENTER OF THE COUPLING.

FLEXIBLE CONDUIT SHALL BE USED IN MINIMUM LENGTHS TO CONNECT TO MOTORS, RECESSED FIXTURES, TRANSFORMERS AND EQUIPMENT SUBJECT TO VIBRATION. IN EXTERIOR AND WET LOCATIONS, USE ANACONDA TYPE VIA FLEXIBLE CONDUIT WITH APPLETON OR T & B WATER TIGHT CONNECTORS. FLEXIBLE CONDUIT CONNECTORS SHALL BE COMPRESSION OR CLAMP TYPE; SCREW ON TYPE NOT PERMITTED.

WHERE EXPOSED, INSTALL CONDUIT PARALLEL TO WALLS AND PARTITIONS; DO NOT CROSS WINDOW OPENINGS.

WHERE SUSPENDED CEILING OCCURS, RUN CONDUIT CONCEALED ABOVE FURRED CEILING AND IN WALLS.

ALL CONDUIT STUBBED-UP THROUGH ROOF SHALL BE FLASHED WITH A TYPE OF FLASHING APPROVED BY MANUFACTURER OF ROOFING MATERIALS AND INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

CONDUIT SHALL BE FIRMLY FASTENED WITHIN 3 FEET OF EACH OUTLET BOX, JUNCTION BOX, CABINET OR FITTING AND SHALL BE SUPPORTED AT LEAST EVERY 10 FEET.

CONDUIT FITTINGS:

EMT OR THREADLESS RIGID SHALL BE COMPRESSION TYPE, MACHINE STEEL INSULATED THROAT, APPLETON, RACO, T & B, OR TOMIC INSULATED TAP-ON. SET SCREW FITTINGS WILL NOT BE PERMITTED.

PROVIDE DOUBLE LOCKNUTS AND BUSHINGS AT ALL RIGID CONDUIT TERMINATIONS EXCEPT AT THREADED HUBS. BUSHINGS SHALL BE O.Z. TYPE A, MOLDED BAKELITE EXCEPT FOR 2" CONDUIT AND LARGER SHALL BE O.Z. TYPE B OR BL WHERE GROUNDING IS REQUIRED.

GUTTER, PULLBOXES AND JUNCTION BOXES:

BOXES SHALL BE FABRICATED FROM CODE GAUGE STEEL WITHOUT KNOCKOUTS AND A MINIMUM 14 GAUGE FRONT COVER. FINISH SHALL BE GALVANIZED STEEL OR PHOSPHATE UNDERCOATING WITH 2 FINISH COATS; HAMMER GRAY OR BAKED ENAMEL.

JUNCTION BOXES SHOWN OUTSIDE, FLUSH OR SURFACE MOUNTED, SHALL BE WATER TIGHT, ALL WELDED CONSTRUCTION WITH NEOPRENE GASKETED SCREWED COVERS, NEMA TYPE III.

NAMEPLATES:

PROVIDE CONTRAST PLASTIC EMBOSING TAPE, ADHESIVE BACKED NAMEPLATES FOR ALL STARTERS AND DISCONNECT SWITCHES. PROVIDE LAMICOID NAMEPLATES FOR ALL DISTRIBUTION SWITCHES, BREAKERS, LIGHTING AND POWER PANELS; SIZE OF LETTERS SHALL BE A MINIMUM OF 3/16" HIGH.

FUSES:

FUSES SHALL BE HIGH-CAPACITY, CURRENT-LIMITING, LOW-PEAK OR DUAL ELEMENT AS INDICATED.

DUAL-ELEMENT FUSES SHALL BE USED FOR ALL MOTOR LOADS.

TYPE "R" FUSE SHALL BE USED FOR MOTOR LOADS AND WHERE INDICATED ON DRAWINGS.

FURNISH TO THE OWNER AT EACH SWITCHBOARD, 2 SETS OF SPARE FUSES FOR EACH SIZE USED BELOW 100 AMPS AND ONE SET FOR EACH SIZE 100 AMPS AND ABOVE.

ALL FUSES SHALL BE ON THE SAME MANUFACTURER.

FUSES AS SPECIFIED ON THE DRAWINGS ARE SELECTED TO PROVIDE COMPLIANCE WITH SECTION 110-9, 110-10 AND 230-98 OF THE NATIONAL ELECTRICAL CODE. SUBSTITUTION OF FUSES BY OTHER MANUFACTURER'S (BUSSMAN, ECONOMY FUSE OR SHAWMUT) WILL BE CONSIDERED WHEN SHORT CIRCUIT CALCULATIONS AND FUSE CURVES ARE PROVIDED TO THE ENGINEER FOR REVIEW. ADDITIONALLY, THE CONTRACTOR SHALL PROVIDE CALCULATIONS TO SHOW THE PROPOSED FUSES PROVIDE FOR A SELECTIVELY COORDINATED DESIGN.

OUTLETS:

OUTLET BOXES SHALL BE STANDARD GALVANIZED STEEL TYPE MINIMUM 1.5" DEEP, SINGLE OR GANG STYLE, OF SIZE TO ACCOMMODATE DEVICE NOTED AND INSTALLED IN ACCORDANCE WITH ARTICLE 370 OF THE NEC. HANDY BOXES AND SECTIONAL SWITCH BOXES WILL NOT BE PERMITTED.

BOXES EXPOSED OUTDOORS SHALL BE CAST FERROUS ALLOY, TYPE FS UNLETS WITH SCREW HUBS OR EQUAL.

BOXES SHALL BE SECURELY AND RIGIDLY FASTENED TO THE STRUCTURE UPON WHICH THEY ARE MOUNTED OR SECURELY AND RIGIDLY EMBEDDED IN CONCRETE OR MASONRY.

PROVIDE FIXTURE STUDS AND PLASTER RINGS AS REQUIRED TO BRING ALL OUTLETS TO WITHIN 1/8" OR LESS OF FINISHED SURFACE.

APPROVED MANUFACTURERS ARE: APPLETON, RACO, STEEL CITY OR BOWERS.

LIGHT SWITCHES: (COLOR SELECTION BY ARCH.)

HUBBELL #1221-I

20A SINGLE POLE

HUBBELL #1223-I

20A THREE WAY

MANUFACTURERS SHALL BE HUBBELL, BRYANT OR SIERRA.

RECEPTACLES:

HUBBELL #5362-I

20A/125V/DUPLEX

OR #5242 MOUNT WITH GROUND "U" SLOT DOWN FOR ISOLATED GROUND - HUBBELL #68300 (ORANGE)

FINISH WALL PLATES:

PLATES SHALL BE S = POSTSC MOOTH PLASTIC TO MATCH RECEPTACLE AND OF ONE MANUFACTURER; BRYANT, SIERRA OR APPROVED EQUAL. COLOR MUST BE SELECTED BY ARCH.

DEVICE PLATES SHALL BE INSTALLED SO AS TO COMPLETELY SEAT AGAINST THE WALL SURFACE.

3 SERVICE AND DISTRIBUTION:

LIGHTING PANELS:

LIGHTING PANELS SHALL BE CIRCUIT BREAKER TYPE. CABINETS SHALL HAVE DOORS FASTENED TO TRIM WITH CONCEALED HINGES AND BE PROVIDED WITH FLUSH TYPE COMBINATION LATCH AND LOCK; THREE KEYS FOR EACH. ALL PANELS SHALL BE KEVED ALIKE. CABINETS AND TRIMS SHALL BE FACTORY PAINTED TWO FINISH COATS AND SHALL BE FLUSH OR SURFACE MOUNTED, AS INDICATED. EACH CIRCUIT SHALL BE NUMBERED AND COMPLETELY IDENTIFIED BY MEANS OF A TYPEWRITTEN CARD PLACED IN DIRECTORY HOLDER ON INSIDE OF DOOR. ALL DIRECTORY HOLDERS SHALL BE SIX (6) INCHES WIDE. BEFORE INSTALLING, TIGHTEN ALL BOLTED CONNECTIONS THAT MAY HAVE BECOME LOOSE IN SHIPPING.

CABINETS SHALL BE WITHOUT KNOCKOUTS. ALL KNOCKOUTS SHALL BE CUT ON THE JOB.

STUB UP ON 3/4" CONDUIT INTO THE FURRED SPACE ABOVE FLUSH MOUNTED CABINETS FOR EACH TWO SPARE CIRCUITS OR SPACES; TO A MAXIMUM OF 5 CONDUITS.

ALL PANELS SHALL BE EQUIPPED WITH GROUND BUS.

ALL PANELBOARDS SHALL HAVE THE SIZE OF THE FEEDER AND CONDUIT STENCILED ON THE INSIDE OF THE DOOR. "DYMO" TAPE OR EQUIVALENT IS NOT ACCEPTABLE.

SAFETY (DISCONNECT) SWITCHES:

SHALL BE HEAVY DUTY TYPE WITH COVER INTERLOCKS. PROVIDE ALL DISCONNECT SWITCHES REQUIRED BY CODE. SWITCHES FOR MOTOR APPLICATIONS SHALL BE HORSEPOWER RATED.

SWITCHES LOCATED OUTSIDE THE BUILDING SHALL HAVE NEMA TYPE 3R ENCLOSURES.

FURNISH AND INSTALL THE PROPER SIZE FUSES (DETERMINED FROM FULL LOAD NAMEPLATE READINGS ON MOTORS AND COMPENSATED FOR AMBIENT TEMPERATURE) IN ALL SAFETY SWITCHES WHETHER THEY BE FURNISHED BY THIS CONTRACTOR OR OTHERS.

MOTOR WIRING:

ALL MOTORS WILL BE FURNISHED AND SET IN PLACE BY TRADE FURNISHED THE DRIVEN EQUIPMENT. FURNISH AND INSTALL ALL CONDUIT, WIRING, CIRCUIT PROTECTIVE DEVICES, SWITCHES AND SUCH OTHER APPURTENANCES NECESSARY TO COMPLETE CONNECTION OF ALL MOTORS AND CONTROLS. THIS SHALL INCLUDE THE HIGH AND LOW VOLTAGE CONTROL WIRING. MOTORS AND CONTROLS FOR MECHANICAL EQUIPMENT SHALL BE WIRED IN ACCORDANCE WITH MANUFACTURER'S WIRING DIAGRAMS.

CONNECTIONS TO MOTOR STARTERS AND CONTROLS SHALL BE MADE WITH CONDUIT. FINAL CONNECTIONS TO MOTORS ON ADJUSTABLE BASES OR MOTORS SUBJECT TO EXCESSIVE VIBRATION SHALL BE MADE WITH FLEXIBLE CONDUIT, EXCEPT FOR OUTDOOR INSTALLATION IN WHICH CASE SEAL-TITE NEOPRENE COVERED FLEXIBLE CONDUIT WITH SEAL-TITE FITTINGS OR TYPE "SO" CORD WITH RUBBER GLAND WATER-TITE CORD GRIPS SHALL BE USED, BUT ONLY TO THE EXTENT OF MINIMUM LENGTHS REQUIRED FOR A CASE GROUND. REFER TO AIR CONDITIONING SECTION FOR SPECIFIC CONTROLS, SWITCHES, THERMOSTATS, ETC., FURNISHED FOR INSTALLATION UNDER THIS SECTION.

VERIFY HORSEPOWER RATINGS AND FULL LOAD CURRENTS OF MOTORS BEING SUPPLIED BY OTHER TRADES. ANY DISCREPANCY BETWEEN ACTUAL FULL LOAD CURRENTS OF MOTORS DELIVERED TO THE JOB SITE AND STANDARD FULL LOAD CURRENTS OF SINGLE PHASE AND THREE PHASE SQUIRREL CAGE INDUCTION MOTORS, (HORSEPOWER RATING AS LISTED) SHALL BE REPORTED TO THE ARCHITECT FOR CORRECTION AND DECISION BEFORE ANY AFFECTED WORK IS DONE.

GROUNDING:

THE NEUTRAL CONDUCTORS AND ALL OTHER EXPOSED NON CURRENT CARRYING METAL PARTS AS REQUIRED BY CODE SHALL BE GROUNDED. GROUNDING BUSHINGS SHALL BE USED AS REQUIRED AND SHALL BE INSULATED TYPE BL OR APPROVED EQUAL. NO GROUNDING SHALL BE MADE TO GAS PIPING. WHERE EQUIPMENT OR DEVICES ARE SERVED BY NON-METALLIC DUCTS, ENCLOSURES SHALL BE GROUNDED BY MEANS OF A CODE SIZE BARE OR GREEN INSULATED EQUIPMENT GROUND WIRE INSTALLED IN THE DUCT WITH THE CURRENT CARRYING CONDUCTORS AND BE BONDED SECURELY IN EACH CABINET TERMINATING THE GROUND WIRE. COPPER JUMPERS SHALL BRIDGE FLEXIBLE CONDUIT AND BE INSTALLED IN THE CONDUIT. ALL SERVICE GROUNDS SHALL BE IN ACCORDANCE WITH THE UFER GROUND.

4 LIGHTING:

LIGHTING FIXTURES:

FIXTURES SHALL BE FURNISHED COMPLETE WITH LAMPS OF PROPER WATTAGE AND BE UL LISTED IN ACCORDANCE WITH LIGHTING FIXTURE SCHEDULE. PROVIDE ALL FITTINGS, HANGERS, SUPPORTS, PLASTER FRAMES AND OTHER NECESSARY APPURTENANCE. FIXTURES SHOWN IN FIXTURE SCHEDULE WITH SAME LETTER DESIGNATION SHALL BE OF ONE MANUFACTURER AND BE IDENTICAL IN DESIGN AND APPEARANCE.

ALL FLUORESCENT FIXTURES SHALL BE UL APPROVED AND HAVE PROTECTED BALLASTS, UL CLASS P RATED CBM APPROVED, ETL TESTED.

FIXTURE MANUFACTURER SHALL PROVIDED THE PROPER BALLAST WITH THE FIXTURE TO PERMIT CONTINUOUS OPERATION WITHIN THE TEMPERATURE CONDITION OF THE INSTALLATION LOCATION.

VERIFY THE TYPE AND CONSTRUCTION OF ALL CEILINGS BEFORE SUBMITTING SHOP DRAWINGS OR ORDERING FIXTURES TO DETERMINE COMPATIBILITY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION WITH THE CEILING SUPPLIER AND MODIFICATION NECESSARY FOR PROPER INSTALLATION OF THE FIXTURES WITHIN OR ON THE CEILINGS.

INCANDESCENT FIXTURES SHALL BE UL LISTED FOR THE APPLICATION AND BE PROVIDED WITH JUNCTION BOXES APPROVED FOR THROUGH WIRING. FLUSH OR RECESSED INCANDESCENT FIXTURES SHALL HAVE THERMAL PROTECTION AND SHALL BE IDENTIFIED AS THERMALLY PROTECTED.

LAMPS:

FLUORESCENT LAMPS SHALL BE T-8, RAPID-START, UNLESS OTHERWISE NOTED. ALL INCANDESCENT LAMPS SHALL BE 130 VOLTS UNLESS OTHERWISE SPECIFIED.

APPROVED MANUFACTURERS ARE: GENERAL ELECTRIC, SYLVANIA OR PHILLIPS.

LIGHTING FIXTURE INSTALLATION:

FIXTURES SHALL BE WIRED COMPLETE WITH COLOR-CODED WIRES TO INDICATED POLARITY. WHITE FIXTURE WIRE SHALL BE CONNECTED TO THE SHELL TERMINALS OF SOCKETS AND CONNECTED TO THE NEUTRAL WIRE OF THE LIGHTING SYSTEM.

INSTALL AND CONNECT LIGHTING FIXTURES ON ALL DESIGNATED OUTLETS IN BUILDING. NON-DESIGNATED OUTLETS SHALL BE EQUIPPED WITH FIXTURES SIMILAR TO LIKE AREAS.

ALL FIXTURES SHALL BE TESTED BEFORE AND AFTER INSTALLATION AND SHALL SHOW FREE OF GROUNDS, SHORTS, ETC.

ALL FIXTURES AND FIXTURE SUPPORTS SHALL BE CLEANED, PAINTED WHERE NECESSARY AND LEFT IN FIRST CLASS OPERATING CONDITION UPON COMPLETION OF THE WORK. THIS CONTRACTOR SHALL MAKE GOOD ALL BREAKAGE OF LAMPS, GLASS AND FIXTURE BOWLS OR OTHER DAMAGE OR ARRANGE FOR REPLACEMENT WITH THE ARCHITECT.

ALL FIXTURES SHALL BE PROPERLY SUPPORTED FROM CEILING STRUCTURE.


















































































COMPLETE THE CONNECTION OF ALL FIXTURES TO THE BUILDING WIRING AT THE OUTLET FOR FIXTURES. CIRCUIT WIRES FOR FLUORESCENT FIXTURES THAT RUN THROUGH THE RACEWAYS OF SAID FIXTURES SHALL BE TYPE THHN, RHH, OR MTW. MINIMUM SIZE SHALL BE #12.

ALL FLUORESCENT FIXTURES RECESSED IN THE CEILING OR IN A GRID CEILING SHALL BE PROVIDED WITH EARTHQUAKE CLIPS.

END OF SECTION

ELECTRICAL/ SPECIAL SYSTEM SYMBOLS

NOT ALL SYMBOLS MAY APPLY.

	• FLUORESCENT SURFACE MOUNTED FIXTURE. LETTER OR NOTE INDICATES TYPE.		• INDICATES CIRCUIT IN CONDUIT CONCEALED IN WALL OR CEILING SPACE.
	• 2'x4' FLUORESCENT LIGHT FIXTURE (LETTER OR NOTE INDICATES TYPE)		• INDICATES HOMERUN TO PANELBOARD OR AS NOTED. HASH MARKS INDICATES NUMBER OF CONDUCTORS. IF NO HASH MARKS PROVIDE 2 CONDUCTORS #12 AWG. MINIMUM CONDUIT 3/4" MINIMUM.
	• INDICATES NL & EMERGENCY LIGHT FIXTURE. BALLAST TO BE CONNECTED TO UNSWITCHED CONDUCTORS WITH BATTERY BACK-UP TO BE BOONE #550 (OR EQUAL), TYPICAL OF SHADED FIXTURES.		PUBLIC ADDRESS/INTERCOM SYMBOLS
	• 2'x2' FLUORESCENT LIGHT FIXTURE (LETTER OR NOTE INDICATES TYPE)		• CEILING SPEAKER.
	• RECESSED DOWNLIGHT, SUPERScript INDICATES TYPE. SHADED INDICATES BATTERY BACK-UP TO BE PROVIDED.		• WALL MOUNTED VOLUME CONTROL. MOUNT AT +48" A.F.F.
	• EMERGENCY EXIT SIGN. CONNECT TO UNSWITCHED CONDUCTORS WITH BATTERY BACK UP. FACES & MOUNTING TO BE FIELD VERIFIED WITH LOCAL AUTHORITY. AUDIBLE AND VISIBLE ANNUNCIATION IN EMERGENCY MODE TIED TO FIRE/ALARM.		• EXTERIOR INTERCOM HORN, WEATHER PROOF.
	• WALL MOUNTED LIGHTING FIXTURE; SUPERScript INDICATES TYPE:		• SPEAKER/DIGITAL CLOCK COMBINATION. 'A' DENOTES ANALOG CLOCK.
	• POLE MOUNTED LIGHTING FIXTURE; SUPERScript INDICATES TYPE:		• ADMIN. CONTROL CONSOLE. MOUNT AT +18" A.F.F.
	• DUPLEX RECEPTACLE, NEMA 5-20R, 18" A.F.F., UNLESS NOTED OTHERWISE.		• VOICE OUTLET, MOUNTED AT +18" A.F.F. U.N.O. PROVIDE 3/4" CONDUIT STUBBED UP TO ACCESSIBLE CEILING SPACE.
	• DUPLEX RECEPTACLE, NEMA 5-20R, MTD. 6" ABOVE COUNTER BACK SPLASH OR PER ADA AND ARCHITECT, OR U.N.O.		• VOICE AND DATA OUTLET, MOUNTED AT +18" A.F.F. U.N.O. PROVIDE 3/4" CONDUIT STUBBED UP TO ACCESSIBLE CEILING SPACE U.N.O.
	• 1/2 SWITCHED DUPLEX RECEPTACLE.		• VOICE AND DATA OUTLET, MOUNTED AT +18" A.F.F. U.N.O. PROVIDE (2)-3/4" CONDUIT STUBBED UP TO ACCESSIBLE CEILING SPACE U.N.O. PROVIDE (1) 3/4" ONLY WHEN VENDOR IS SIMILAR FOR TELEPHONE AND DATA SYSTEMS.
	• FOURPLEX RECEPTACLE, NEMA 5-20R, 18" A.F.F., U.N.O.		• VOICE AND/OR DATA OUTLET MOUNTED IN FLOORBOX WITH FLUSH TYPE BUSHED COMPLETE WITH CARPET FLANGE IN CARPETED AREAS. STEEL CITY #64-CST.
	• WALL MOUNTED DUPLEX RECEPTACLE IN DESIGNATED CIRCUIT: 20R, 120V, 3 WIRE GROUNDED, 5-20R, MTD. 0" +18" A.F.F. (U.N.O.), "HUBBEL" #5362-1, OR EQUAL.		• TELEPHONE OUTLET, FLOOR MOUNTED.
	• WALL MOUNTED DUPLEX RECEPTACLE WITH GROUNDED FAULT CIRCUIT INTERRUPTER (GFI). 20A, 125V, 3 WIRE GROUNDED, NEMA 5-20R, MTD. 0" +18" A.F.F. (U.N.O.), "HUBBEL" #5362-1, OR EQUAL & SHALL BE ON ALL RECEPT. WITHIN 6" OF SINKS.		• T.V. OUTLET 0" +18" U.N.O.
	• EXISTING RECEPTACLE OUTLET TO REMAIN-NO CHANGES MADE OR RECYCUT AS INDICATED ON PLAN.		• FLUSH MOUNTED WALL SPEAKER.
	• ALL ISOLATED GROUND RECEPTACLE TO HAVE ORANGE COVER OR ISOLATED GROUND SYMBOL. PROVIDE (1) NEUTRAL, (1) GROUND, & (1) ISOLATED GROUND. PROVIDE I.G. RECEPTACLE WHEN PANEL SCHEDULE(S) INDICATE ISOLATED GROUND WIRES ON CIRCUIT(S).		• CLOCK RECEPTACLE.
	• FLOOR BOX FLUSH MOUNTED IN FLOOR BOX WITH DUPLEX RECEPTACLE (20A, 125V, 3W, GROUNDED) NEMA 5-20R WITH CARPET FLANGE IN CARPETED AREAS. STEEL-CITY #64-S2/64-CST.		• WALL MOUNTED CALL STATION.
	• FLOOR BOX FLUSH MOUNTED IN FLOOR BOX WITH QUAD-PLX RECEPTACLE (20A, 125V, 3W, GROUNDED) NEMA 5-20R WITH CARPET FLANGE IN CARPETED AREAS. STEEL-CITY #64-S2/64.		FIRE ALARM SYMBOLS
	• FLUSH FLOOR BOX WITH TWO DUPLEX RECEPTACLE, NEMA 5-20R.		• MANUAL PULL STATION. MOUNT AT +48" A.F.F.
	• SPECIAL OUTLET, VERIFY NEMA CONFIGURATION WITH EQUIP.		• CHIME/STROBE. MOUNT AT +80" A.F.F.
	• JUNCTION BOX, SIZE PER N.E.C.		• EXTERIOR WEATHER-PROOF HORN.
	• JUNCTION BOX IN ACCESSIBLE LOCATION WITH FLEXIBLE CONDUIT CONNECTION TO LIGHTING FIXTURE OR EQUIPMENT AS NOTED.		• HORN/STROBE. MOUNT AT +80" A.F.F.
	• SINGLE POLE, SINGLE THROW 20A. ROCKER LIGHT SWITCH.		• STROBE. MOUNT AT +80" A.F.F.
	• DOUBLE POLE, SINGLE THROW 20A. ROCKER LIGHT SWITCH.		• IONIZATION SMOKE DETECTOR.
	• THREE-WAY, 20A. ROCKER LIGHT SWITCH.		• DUCT SMOKE DETECTOR. PREC. #650-660, OR EQUAL. FINISHED AND CONNECTED BY ELECTRICAL WORKMANSHIP WITH MECHANICAL.
	• FOUR-WAY, 20A. ROCKER LIGHT SWITCH.		• SMOKE FIRE DAMPER.
	• NONCODELESS SLIDE TYPE DIMMER SWITCH FOR 1500W U.N.O. PROVIDE FLUORESCENT DIMMING BALLASTS TO FLUORESCENT FIXTURES SHOWN CONTROLLED WITH DIMMER(S). FLUORESCENT DIMMERS TO BE RATED FOR 1500W @ 120V VOLT AND 2200W @ 277 VOLT.		• FLOW SWITCH.
	• HP. RATED MANUAL MOTOR STARTERS WITH THERMAL OVERLOADS (WEATHERPROOF WHERE OUTSIDE).		• TAMPERS SWITCH.
	• MOTOR (SIZE AS INDICATED IN DRAWINGS)		• HEAT DETECTOR. CEILING MOUNTED.
	• 120/208V PANELBOARD, FLUSH MOUNTED. PROVIDE (2) 3/4" SPARE CONDUITS STUBBED INTO ACCESSIBLE CEILING SPACE.		• MAGNETIC DOOR HOLDER.
	• 120/208V PANELBOARD, SURFACE MOUNTED.		• ANSUL (KITCHEN HOOD SYSTEM).
	• 277/480V PANELBOARD, FLUSH MOUNTED. PROVIDE (2) 3/4" SPARE CONDUITS STUBBED INTO ACCESSIBLE CEILING SPACE.		• FIRE ALARM CONTROL PANEL.
	• 277/480V PANELBOARD, SURFACE MOUNTED.		• FIRE ALARM ANNUNCIATOR PANEL.
	• DISCONNECT SWITCH, SIZE AND POLES AS SHOWN (1A, 30/3), FUSED WITH BUSSMAN, LPWK TYPE U.N.O.	SECURITY SYSTEMS SYMBOLS	
	• TELEPHONE HOMERUN TO CABINET, 3/4"C.		• PORT.
	• STUB-OUT ABOVE CEILING, INSTALL INSULATED BUSHING TYPE AS REQUIRED.		• THERMOSTAT CONTACT FOR FREEZERS.
	• EQUIPMENT CONNECTION		• S-ZONE KEY PAD MOUNTED AT +48" A.F.F.
	• INDICATES CIRCUIT IN CONDUIT CONCEALED IN OR UNDER FLR. CONSTRUCTION OR BELOW GRADE.		• MASTER KEY PAD MOUNTED AT +48" A.F.F.
			• CARD READER. MOUNT AT +48" A.F.F.
			• MOTION DETECTOR, MTD. ANGLE.
			• MOTION DETECTOR, 360° ANGLE.
			• DOOR CONTACT/ROLL-UP DOOR CONTACT.
		SOUND SYSTEM SYMBOLS	
			• WALL MOUNTED MIC. JACK.
			• FLOOR MOUNTED MIC. JACK.
			• SURFACE MOUNTED SPEAKER CAB.
		MISCELLANEOUS SYMBOLS	
			• TIME CLOCK. REFER TO ONE-LINE DIAGRAM.

FIRE ALARM NOTES

GENERAL:

1) SCOPE OF WORK: THIS CONTRACT INCLUDES THE INSTALLATION, TERMINATION AND TESTING OF FIRE ALARM DEVICES REQUIRED FOR THE PROTECTION OF EMBRY-RIDDLE AERONAUTICAL UNIVERSITY F8 HANGAR EQUIPMENT STORAGE ADDITION.

2) ALL NEW CONTROL PANEL MODULES, DEVICES, WIRE AND CABLE SHALL BE FURNISHED, INSTALLED, TERMINATED AND PROGRAMMED BY COPPERSTATE FIRE PROTECTION. ALL NEW SPECIAL BACKBOXES SHALL BE FURNISHED BY COPPERSTATE FIRE PROTECTION.

3) ALL NEW BACKBOXES, AND CONDUIT SHALL BE FURNISHED, AND INSTALLED BY THE ELECTRICAL CONTRACTOR. ALL NEW SPECIAL BACKBOXES SHALL BE INSTALLED BY THE ELECTRICAL CONTRACTOR.

4) AFTER INSTALLATION IS COMPLETE, COPPERSTATE FIRE PROTECTION SHALL TEST ALL NEW DEVICES FOR ALARM AND TROUBLE CONDITIONS, AND VERIFY PROPER PROGRAMMING OF THE CONTROL PANEL.

5) DURING CONSTRUCTION THE SHOP DRAWINGS SHALL BE REDLINED TO SHOW ACTUAL INSTALLED LOCATIONS, WIRE ROUTING AND OTHER APPLICABLE CHANGES. REDLINED DRAWINGS SHALL REMAIN ONSITE UNTIL FINAL INSPECTION IS COMPLETE. RECORD DRAWINGS SHALL BE ISSUED AFTER COMPLETION OF ALL WORK.

6) EXCLUSIONS:

A) 120VAC DEDICATED CIRCUIT TO THE FIRE ALARM CONTROL PANELS AND AUXILIARY POWER SUPPLIES

B) INSTALLATION OF ANY CONDUIT OR WIRE MOLD (INCLUDING BACKBOXES, J-BOXES, UNDERGROUND, STUB-UPS, MISC.)

C) FURNISHING, INSTALLATION, POWERING OF DUCT DETECTORS

D) SHUTDOWN INTERCONNECTION TO ELEVATOR CONTROL SYSTEM

E) SHUTDOWN INTERCONNECTION OF HVAC SYSTEM IF APPLICABLE

F) INTERCONNECTION WIRING FROM TELEPHONE BOARD TO FACP

G) BOND, AVAILABLE UPON REQUEST

LIGHTNING/SURGE PROTECTION:

1) LIGHTNING SURGE PROTECTION SHALL BE INSTALLED ON ALL CIRCUITS WHICH ENTER AND EXIT THE BUILDINGS PER NEC 70 SECTION 800-47, IF REQUIRED.

2) USE AWG #12 SOLID WIRE TO CONNECT THE LIGHTNING ARRESTOR UNIT TO EARTH GROUND.

CONDUIT/WIRE:

1) WIRING COLOR CODE SHALL BE MAINTAINED THROUGH THE INSTALLATION.

2) ANY SHUTDOWN (I.E. HVAC) THAT EXCEEDS THE CONTACT RATINGS OF THE CONTROL RELAY, MUST BE INTERFACED BETWEEN THE RELAY AND THE UNIT BEING SHUTDOWN, WITH A HEAVY DUTY POWER RELAY RATED AT SUFFICIENT CURRENT CAPACITY, PROVIDED BY CONTRACTOR RESPONSIBLE FOR WIRING THE SHUTDOWNS.

3) ALL NEW CONDUIT AND FITTINGS (COMPRESSION TYPE U.N.O.) SHALL BE MINIMUM 3/4"Ø AND CONFORM TO CURRENT FEDERAL SPECIFICATIONS.

4) FASTENINGS: SUPPORT CONDUITS AT INTERVALS NOT TO EXCEED 10 FEET, NOT LESS THAN TWO SUPPORTS IN ANY SINGLE RUN. USE APPROVED CLAMPS, HANGERS, OR RACKS; PERFORATED HANGER IRON WILL NOT BE ACCEPTABLE. USE APPROVED INSERTS, EXPANSION ANCHORS, OR TOGGLE BOLTS TO SECURE SUPPORTS TO MASONRY, WOOD SCREWS OR LAG SCREWS FOR FRAME CONSTRUCTION; AND MACHINE SCREWS OR BOLTS FOR STEEL CONSTRUCTION.

5) ALL JUNCTION BOXES, PULL BOXES AND OTHER TYPE BOXES, SHALL BE PAINTED RED OR LABELED "FA" TO INDICATE FIRE ALARM CABLE AND ALLOW EASY IDENTIFICATION FOR MAINTENANCE.

6) MANNER OF INSTALLATION: THE CONDUIT INSTALLATION SHALL BE INCONSPICUOUS AND CONCEALED WHERE PRACTICABLE IN FINISHED AREAS. WHERE CONDUIT IS CONCEALED AS IN ATTIC SPACES, ETC., EXPOSED CONDUIT SHALL BE RUN PARALLEL WITH BUILDING LINES. INSERT ELECTRICAL METALLIC TUBING FULL DEPTH IN EACH FITTING. CLEAR HOT WATER AND HEATING PIPING NOT LESS THAN 6 INCHES.

7) DO NOT DEVIATE FROM CONDUIT RUNS AS SHOWN ON FLOOR PLANS WITHOUT PRIOR APPROVAL FROM COPPERSTATE FIRE PROTECTION. ADDITIONAL COSTS RESULTING FROM UNAPPROVED CONDUIT RUN DEVIATIONS SHALL BE THE SOLE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR.

8) FPL CABLE MAY BE USED PER NEC 760 WITH THE FOLLOWING AMENDMENTS:

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9) FPL CABLE INSTALLED UNDERGROUND AND ENTERING OR LEAVING THE BUILDING SHALL BE WEST PENN "AQUASEAL" OR APPROVED EQUAL.

PRIMARY POWER:

1) THE FIRE ALARM CONTROL PANEL SHALL RECEIVE 120VAC POWER VIA A DEDICATED FUSED DISCONNECT CIRCUIT LOCATED AT A MAIN ELECTRICAL PANEL. THIS CIRCUIT SHALL BE IDENTIFIED AND LOCKED PER NEC TO, ALL NEW 120VAC POWER SHALL COME FROM EXISTING ELECTRICAL DISTRIBUTION PANELS THAT HAVE EITHER AN EXISTING 1P-15A SPARE CIRCUIT OR AN OPENING TO PROVIDE A NEW 1P-15A BREAKER. IN THE EVENT THAT AN EXISTING MAIN DISTRIBUTION PANEL CAN NOT SUPPORT EITHER PREVIOUS SITUATIONS, A NEW DEPENDENT FUSED SWITCH SHALL BE INSTALLED WITH POWER COMING FROM AFTER THE MAIN POWER DISTRIBUTION PANEL AND BUILDING SERVICES.

GROUNDING CONNECTIONS:

1) THE ENTIRE CONDUIT SYSTEM INCLUDING ALL NON-CURRENT CARRYING METAL SHALL BE GROUNDING AS REQUIRED BY NEC.

2) SIZES OF GROUNDING CONDUCTOR AND CONDUCTOR ENCLOSURE: SIZES SHALL BE IN ACCORDANCE WITH NEC REQUIREMENTS.

3) POINT OF ATTACHMENT: FIRE ALARM SYSTEM OR COMMON GROUNDING CONDUCTOR SHALL BE BONDED IN CONDUIT TO THE EXISTING BUILDING GROUND.

EMBRY-RIDDLEBLDG F8

SEQUENCE OF CONTROLS MATRIX

EXISTING FIRELITE MS-5UD

INPUTS AND ACTIONS

SMOKE DETECTOR

MANUAL PULL STATION

WATER FLOW FOR AREA

TAMPER SWITCH

FACP CPU FAILURE

BATTERY FAULT

GROUND FAULT

OPEN CIRCUIT

LOSS OF PRIMARY POWER

MISSING DEVICE

DIRTY SMOKE DETECTOR

OPERATE ALL AREA OF EVACUATION SIGNALS

SOUND PIEZO AT FACP AND FAAP

INDICATE DEVICE LOCATION AT THE FACP

INDICATE DEVICE LOCATION AT FAAP

SEND ALARM SIGNAL TO OFFSITE MONITORING LOCATION

SEND TROUBLE SIGNAL TO OFFSITE MONITORING LOCATION

SEND SUPERVISORY SIGNAL TO OFFSITE MONITORING LOCATION

OUTPUTS & CONTROLS

120VAC DEDICATED CIRCUIT TO THE FIRE ALARM CONTROL PANELS AND AUXILIARY POWER SUPPLIES

INSTALLATION OF ANY CONDUIT OR WIRE MOLD (INCLUDING BACKBOXES, J-BOXES, UNDERGROUND, STUB-UPS, MISC.)

FURNISHING, INSTALLATION, POWERING OF DUCT DETECTORS

SHUTDOWN INTERCONNECTION TO ELEVATOR CONTROL SYSTEM

SHUTDOWN INTERCONNECTION OF HVAC SYSTEM IF APPLICABLE

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3

HORN ONLY INSTALLATION DETAIL

NOTE:

* = COLOR (W-WHITE OR R-RED)

K SUFFIX = OUTDOOR

H*

MOUNTING PLATE

4 SQUARE BOX DEEP

TURN ROTARY SWITCH TO THE DESIRED SOUND PATTERN POSITION

1 = TEMP HORN HIGH
2 = TEMP HORN MED
3 = TEMP HORN LOW
4 = NORM HORN HIGH
5 = NORM HORN MED
6 = NORM HORN LOW

INPUT FROM FACP OR PREVIOUS DEVICE

OUTPUT TO NEXT DEVICE OR EOL

1

2

3

4

5

6

3

HORN ONLY INSTALLATION DETAIL

1

FIRE ALARM LAYOUT

SCALE: 1/8" = 1'-0"

SCOPE OF WORK

STORAGE 104

STORAGE 103

HANGAR 102

WORKSHOP 100

RESTROOM 101

EX

H.B.

H.B.

C

NW

1

1

0

1

2

4

8

16

NORTH

3

HORN ONLY INSTALLATION DETAIL

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RESTROOM 101

EX

H.B.

H.B.

C

NW

1

1

0

1

2

4

8

16

NORTH

3

HORN ONLY INSTALLATION DETAIL

1

FIRE ALARM LAYOUT

SCALE: 1/8" = 1'-0"

SCOPE OF WORK

STORAGE 104

STORAGE 103

HANGAR 102

WORKSHOP 100

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RESTROOM 10