This addendum provides information to clarify or adjust construction items which may affect any or all trade contractors. The original documents for the referenced project are amended as noted in this addendum and made part of said documents and shall govern the work covered by the Form of Proposal. All work to be in strict accordance with the terms, stipulations and conditions of contract documents.

**BID DATE:**
CONTRACTORS SHALL NOTE THE BID DATE HAS CHANGED SEE PART 1 FOR ADDITIONAL INFORMATION

**SUMMARY OF ATTACHMENTS**

1. Drawings:
   a. C001 – Site Logistics Plan
   b. C201 – Vehicular Site Plan
   c. C202 – Site Details
   d. C401 – Stormwater Pollution Prevention Plan
   e. C402 – Stormwater Pollution Prevention Plan Details
   f. C403 – Stormwater Pollution Prevention Plan Notes
   g. S-090 – Foundation Plans
   h. S-100 – Basement Plan
   i. S-101 – Ground Tier Plan
   j. S-511 – Interior Foundation Wall Details
   k. S-512 – Interior Foundation Wall Details
   l. S-530 – Post-Tension Beam Schedule and Details
   m. S-550 – CIP Column Schedule
   n. S-571 – Stair/Elevator Details
   o. S-572 – Stair/Elevator Details
   p. LS001 – Life Safety Plans
   q. A101 – Ground Tier Plan
   r. A102 – Second Tier Plan
   s. A103 – Third Tier Plan
   t. A104 – Top Tier Plan
   u. A201 – Exterior Elevations
   v. A311 – Wall Sections
   w. A630 – Section Details
   x. A631 – Section Details
   y. A632 – Section Details
   z. A633 – Section Details
   aa. A701 – Stair #1 Enlarged Plans and Details
   bb. A702 – Stair #1 and Elevator Sections
   cc. AG601 – Sign Schedule and Details
   dd. M201 – Mechanical Plans
   ee. M701 – Mechanical Schedules and Details
   ff. E201 – Ground Tier Lighting Plan
   gg. E202 – Second Tier Lighting Plan
   hh. E301 – Ground Tier Power Plan
ii. E302 – Second Tier Power Plan
jj. E304 – Top Tier Power Plan
kk. E401 – Enlarged Power Plans
ll. E601 – Electrical Power Distribution Diagram
mm. E-701- Electrical Schedules

2. Specifications
   a. DOCUMENT 004300 – BID FORM SUPPLEMENTS (BID-LD) - REVISED
   b. SECTION 042113 – BRICK MASONRY
   c. SECTION 054000 – COLD FORMED METAL FRAMING
   d. SECTION 057500 – DECORATIVE FORMED METAL
   e. SECTION 107114 – ALUMINUM TRELIS
   f. SECTION 142400 – HYDRAULIC ELEVATORS

PART 1 – CONTRACTOR QUESTIONS and ADDITIONAL CLARIFICATIONS (in no particular order)

1. BID DATE: The Bid Date has been changed and shall be as follows:
   August 16, 2018 @ 11:00 A.M. EDT

   The location for receipt of bids remains:
   Purchasing Conference Room
   Service & Stores Building
   3401 N. Tillotson Avenue
   Muncie, Indiana 47306

2. DOCUMENT 00 43 00 – BID FORM SUPPLEMENTS (BID-LD) – REVISED
   a. Contractors shall utilize attached Document 00 43 00 – Bid Form Supplements (Bid-LD) – Revised, for submittal of bid proposals.
   b. Bid Date on Page 1 has been changed to August 16, 2018.

3. CONTRACTOR PARKING
   a. Contractors may purchase up to 50 parking permits from St. Francis Parish on the NE corner of New York and Riverside
      i. Price: $10/month per space
      ii. Availability: Monday thru Friday until 5:00 PM each day
      iii. Limitations: Parking will not be available on Ash Wednesday, Good Friday, All Saints Day, and other special events when provided with 48 hours notice.

4. COMMENT: On plan A212 there are “Exit Only” and “Entry Only” letters. They don't appear to be with the rest of the sign specs. Are we to cover these in our pricing, and if so can you provide details / specs for the lettering? Please advise
   RESPONSE: Dimensional sign letters have been added into specification section 101400. Reference drawings for signage dimensions and specifications for additional information regarding connection requirements.

PART 2 – LANDSCAPE SPECIFICATIONS

1. SECTION 321400 – UNIT PAVING
   a. Revise specification section 321400, 2.3, A, 1, b to read:
   b. Thickness:
      1) Gauged to 2-1/2 inches
      2) Gauged to 3 inches in heavy duty areas
PART 3 – ARCHITECTURAL SPECIFICATIONS

1. ADD: 054000 COLD-FORMED METAL FRAMING
2. ADD: 057500 DECORATIVE FORMED METAL
3. SECTION 101400 – SIGNAGE
   a. Change Clearance Bars material from stainless steel to PVC (painted silver).
   b. 1.2 SUMMARY
      ADD: 5. Dimensional Characters (D-Signs).
   c. 2.1 B. Manufacturers:
      ADD: 3. Manufacturers of D-signs:
         a. APCO Graphics, Inc.
         b. ASI Sign Systems, Inc.
         c. Britten Studios.
         d. Henry Graphics.
         e. Impact Signs, Inc.
         f. Signs + Decal Corp., Brooklyn, NY
         g. Takeform, Medina, NY
         h. Vomar.
   c. 2.2 MATERIALS
      ADD: L. Dimensional Characters (D-Signs):

      1. Aluminum Castings: Provide aluminum castings of alloy and temper
         recommended by sign manufacturer for casting process used and for type of
         use and finish indicated. Finish shall be color anodic finish, integrally colored
         or electrolytically deposited color coating, 0.018 mm or thicker in color
         specified on schedule, with a satin mechanical finish.
         Characters shall have smooth flat faces, sharp corners and precisely
         formed lines and profiles, free from pits scale, sand holes and other
         defects. Cast lugs into back of characters and tap to receive
         threaded mounting studs.

4. ADD: 107114 ALUMINUM TRELLIS
   (Referred to as Horizontal Projecting Overhead Canopy on Drawings)
5. ADD: 142400 HYDRAULIC ELEVATORS
   a. Contractors shall utilize the attached Hydraulic Elevator specification in preparation of
      bids.
   b. Contractors shall note revisions to drawings related to the inclusion of a hydraulic
      elevator including the addition of an Elevator Machine Room and related mechanical
      electrical and revisions.
6. DELETE: 142123.16 MACHINE ROOM-LESS ELECTRIC TRACTION PASSENGER
   ELEVATORS

PART 4 – CIVIL DRAWINGS

1. Sheet C001 Site Logistics Plan
   a. Revised for coordination with Stormwater Pollution Prevention Plan, sheet C401.

2. Sheet C201 Vehicular Site Plan
a. Added trail signs.

3. Sheet C202 Site Details
   a. Added trail sign detail.

4. Sheet C401 Stormwater Pollution Prevention Plan
   a. Revised to coordinate with sheet C001 Site Logistics Plan and Indiana Department of Environmental Management stormwater review comments.

5. Sheet C402 Stormwater Pollution Prevention Plan Details
   a. Revised to coordinate with Indiana Department of Environmental Management stormwater review comments.

6. Sheet C403 Stormwater Pollution Prevention Plan Notes
   a. Revised to coordinate with sheet C001 Site Logistics Plan and Indiana Department of Environmental Management stormwater review comments.

PART 5 – STRUCTURAL DRAWINGS

1. Sheet S-090 Foundation Plan
   a. Revised foundation system beneath Basement Tier. See revised sheet.
   b. Revised foundation schedule. See revised sheet.

2. Sheet S-100 Basement Plan
   a. Combined Basement Tier slab and matt foundation into one structural element.
   b. Revised Sheet Notes 14 and 15. See revised sheet.
   c. Added Sheet Notes 18, 19 and 20. See revised sheet.
   d. Added details 2/S-100, 3/S-100, and 4/S-100. See revised sheet.

3. Sheet S-101 Ground Tier Plan
   a. Adjustments to the floor elevations at the west end of the garage. See revised sheet.

4. Sheet S-102 Second Tier Plan (not reissued)
   a. Minor post-tensioning placement adjustments between column lines 2 & 3.

5. Sheet S-511 Interior Foundation Wall Details

6. Sheet S-512 Interior Foundation Wall Details

7. Sheet S-530 Post-Tensioned Beam Schedule and Details
   a. Revised items in the beam schedules. See revised sheet.

8. Sheet S-550 CIP Column Schedule

9. Sheet S-571 Stair/Elevator Details
   b. Revised reinforcing in Details 2 and 12. See revised sheet.
10. **Sheet S-572 Stair/Elevator Details**  

**PART 6 – ARCHITECTURAL DRAWINGS**

1. **Sheet LS001**  
a. Add two-hour rated room 113A.

2. **Sheet A101**  
a. Revise keynote #16 regarding mock up panels. Add two locations of keynote #16 along column line 1.  
   b. Add two-hour rated ELEVATOR MECHANICAL room #113A.  
   c. Add room names and numbers to plan.  
   d. Revise keynote 31. Keynote now indicates “CAST IN PLACE CONCRETE PIT VAULT AS INDICATED ON STRUCTURAL. 10’x10’x10’ INTERIOR DIMENSIONS. GRATING BASIS OF DESIGN: MCNICHOLS’S MCNICHOLS BAR GRATING, WELDED GW-200, 19-W-4 SPACING, 2" X 3/16" RECTANGULAR BAR WITH SERRATED SURFACE OR COMPARABLE PRODUCT FROM AMICO OR HENDRICK ARCHITECTURAL.”

3. **Sheets A102, 103, and 104**  
a. Add room names and numbers to plan.

4. **Sheet A201**  
a. Revise keynote #13 regarding mock up panels. Add two locations of keynote #13 on detail 2/A201 and 3/A201.

5. **Sheet A311**  
a. Revise concrete roof slab on details 1 and 4.

6. **Sheet A610 (not reissued)**  
a. Add new door #113A.  
   i. Door Width – 3’-0”  
   ii. Door Height – 7’-0”  
   iii. Door Thickness – 1-3/4”  
   iv. Door Type – F  
   v. Door Material – HM  
   vi. Frame Type – 2  
   vii. Frame Material – HM  
   viii. Head Detail – 4/A610  
   ix. Jamb Detail – 3/A610  
   x. Fire Rating – 90 MIN.  
   xi. Hardware Set – HW 3  
   b. Revise door number #113 to #113B.

7. **Sheet A620 (not reissued)**  
a. On detail 4, revise “MTL 1” designation to “GL1” in both panels of door 100.

8. **Sheet A630**  
a. On details 1, 2, and 4, revise granite veneer note.
9. Sheet A631  
   a. On details 2, 5, and 8, add note reading, “PRESSURE TREATED 1X2, WITHIN TREL LIS, AT 12” O.C. RUNNING VERTICAL FOR FULL LENGTH OF TREL LIS. ATTACH TO TREL LIS WITH STAINLESS STEEL TIES AT 12” O.C. ”  
   b. On details 1 and 2, revise granite veneer note.

10. Sheet A632  
   a. Revise concrete roof slab on detail 12.

11. Sheet A633  
   a. On details 2 and 5, revise notes regarding aluminum panel system to metal plate wall panel.  
   b. On detail 1, revise granite veneer note.

12. Sheet A634 (not reissued)  
   a. On details 1, 2, 3, and 4, revise keynoteS reading, "COMPOSITE ALUMINUM PANEL SYSTEM ON 3/4" EXTERIOR SHEATHING. PANEL FINISH: METAL FINISH COLOR A." to read, "METAL PLATE WALL PANEL SYSTEM ON 3/4" EXTERIOR SHEATHING. PANEL FINISH: METAL FINISH COLOR A.”

13. Sheet A701  
   a. Revise keynote 2. Keynote now indicates “VERTICALS: CUSTOM FABRICATED METAL PLATE WALL PANEL SYSTEM, SUPPORTED FROM INTERNAL STEEL TUBE ANCHORED TO STRUCTURE. METAL FINISH COLOR A.”  
   b. Revise keynote 25. Keynote now indicates “ELEVATOR SUMP PUMP PIT WITH REMOVEABLE GRATING. BASIS OF DESIGN: MCNICHOLS BAR GRATING, WELDED GW-200, 19-W-4 SPACING, 2" X 3/16" RECTANGULAR BAR WITH SERRATED SURFACE OR COMPARABLE PRODUCT FROM AMICO OR HENDRICK ARCHITECTURAL. REFERENCE STRUCTURAL DRAWINGS FOR ADDITIONAL INFORMATION.”  
   c. Added note to Enlarged Plans 1, 2 and 3 “FINAL LOCATION OF SOUTH SHAFT WALL TO BE COORDINATED WITH ELEVATOR MANUFACTURER.”  
   d. North shaft wall location coordinated with structural drawings.

14. Sheet A702  
   a. Add pit ladder dimensions to 2/A702.  
   b. Delete dimensions on detail 2.

15. Sheet AG-601 Sign Schedule and Details  
   a. Revised material for the clearance bars from stainless steel to PVC (painted silver).

16. Sheet AG-701 Sign Mounting Details (not reissued)  
   a. Revised reference in stainless steel clearance bars to PVC in detail 1/AG-701.

PART 7 – HVAC DRAWINGS  
1. SHEET M201: MECHANICAL PLANS
See revised sheet, added drain pan detail callout.
See revised sheet for revisions at the new elevator machine room.

2. SHEET M701: MECHANICAL SCHEDULES AND DETAILS
See revised sheet, added drain pan detail #3.
See revised sheet for additional mechanical equipment serving the new elevator machine room.

PART 8 – ELECTRICAL DRAWINGS
1. SHEET E201: GROUND TIER LIGHTING PLAN
See revised sheet for revisions at the new elevator machine room and adjacent equipment room.

2. SHEET E202: SECOND TIER LIGHTING PLAN
See revised sheet for revisions at former elevator machine room and adjacent equipment room.

3. SHEET E301: GROUND TIER POWER PLAN
See revised sheet for revisions at the new elevator machine room and adjacent equipment room.
See revised sheet for revisions to storage room adjacent to elevator.
See revised sheet for revisions to Communications Wiring Schedule and communication outlet numbering.

4. SHEET E302: SECOND TIER POWER PLAN
See revised sheet for revisions at former elevator machine room and adjacent equipment room.

5. SHEET E304: TOP TIER POWER PLAN
See revised sheet for revisions at mechanical equipment room adjacent to elevator.

6. SHEET E401: ENLARGED POWER PLANS
See revised sheet for revisions at the new elevator machine room.

7. SHEET E601: ELECTRICAL POWER DISTRIBUTION DIAGRAM
See revised sheet for revisions to elevator feeder.

8. SHEET E701: ELECTRICAL SCHEDULES
See revised sheet for revisions to Panelboard 1HN1 schedule.
See revised sheet for revisions to Panelboard 1LN1 schedule.
See revised sheet for revisions to Panelboard 1HLS1 schedule.
See revised sheet for revisions to Panelboard 1HEQ1 schedule.
See revised sheet for revisions to Panelboard 1LEQ1 schedule.

PART 9 – SUBSTITUTION REQUESTS
1. COMMENT: Metalwerks Sunshades product data has been submitted requesting approval as an approved substitution for the sunshades.
RESPONSE: Metalwerks Sunshades are an approved manufacturer for the aluminum trellis system. The structural steel sizes and connections indicated in the drawings are required to be installed as an integral part of the aluminum trellis system. Reference drawings for component sizes of trellis.

2. COMMENT: Larson by Alucoil product data has been submitted requesting approval as an approved substitution for the metal soffit panels.
RESPONSE: Larson by Alucoil is an approved manufacturer for the metal soffit panels.
End of Addendum
DOCUMENT 00 43 00
BID FORM SUPPLEMENTS (BID-LD) - REVISED

This form must be submitted with the Bid along with additional copies as requested in the Project Manual.

To: Ball State University Board of Trustees
    Ball State University
    Muncie, IN 47306

Project: New York Avenue Parking Structure

BSU Project No. 2018-014.01 XP

Date: August 16, 2018

Submitted by: (Bidder - please print the full name of your Proprietorship, Partnership, or Corporation
(full address)

In accordance with Document 00 21 14 - Instructions to Bidders (AIA A701) and Document 00 22 13 - Supplementary Instructions to Bidders (BSU A701), we include the Bid Form Supplements Appendices listed below. The information provided shall be considered an integral part of the Bid Form.

These Appendices are as follows:

Appendix A Receipt of Addenda/Project Completion and Liquidated Damages: If applicable, acknowledge receipt of all Addenda and fill in or acknowledge Completion time/Project Schedule, and acknowledge liquidated damages statement.

Appendix B Alternatives: When used, include the Cost variation to the Bid Price applicable to the Work described in the Contract Documents.

Appendix C Unit Prices: When used, include a listing of unit prices specifically requested by the Contract Documents.

Appendix D Principal Subcontractors: When used, include the names of all Primary Subcontractors and the portions of the Work they will perform.

Appendix E Supplementary General Construction Information: When used, list the requested Supplementary General Construction Information.

Appendix F Supplementary Mechanical Information: When used, list the requested Supplementary Mechanical Information.

Appendix G Supplementary Electrical Information: When used, list the requested Supplementary Electrical Information.

Appendix H Supplementary Telecommunication Information: When used, list the requested Supplementary Telecommunication Information.
SUBMITTAL SCHEDULE OF APPENDICES

a. All bidders shall submit with their Bid the following Appendices:
   APPENDIX A – Receipt of Addenda/Project Completion/Liquidated Damages
   APPENDIX B – Alternatives
   APPENDIX C – Unit Prices
   APPENDIX D – Principal Subcontractors

b. The Low bidder, and the second and third bidders if requested, shall execute and submit to the Owner the remaining SUBCONTRACTOR AND MATERIAL QUESTIONNAIRES.

Submit to the Owner: Finance Office, 2000 West University Avenue, Muncie, Indiana, 47306; the following appendices within forty-eight (48) hours after date and time for receiving bids:

   APPENDIX E – Supplementary General Construction Information
   APPENDIX F – Supplementary Mechanical Information
   APPENDIX G – Supplementary Electrical Information
   APPENDIX H – Supplementary Telecommunication Information

BID FORM SUPPLEMENTS SIGNATURE(S)

(Bidder - please print the full name of your Proprietorship, Partnership, or Corporation)

________________________________________
(Authorized signing officer)

________________________________________
(Title of Person Signing)

ACKNOWLEDGEMENT

STATE OF __________________________________ ss: (seal)
COUNTY OF __________________________________

________________________________________ being duly sworn, deposes and says that he/she is
________________________________________ of the above __________________________________ and that the
(Title) __________________________________ (Name of Organization)

statements contained in the foregoing Bid Form Supplements are true and correct.

Subscribed and sworn to before me this ____________ day of ____________, _________.

________________________________________
(Notary Public)

My Commission Expires: ______________________

County of Residence: ______________________

Ball State University Document 00 43 00 – BID FORM SUPPLEMENTS (BID) - REVISED
Only project specific modifications approved by Ball State University, Facilities Planning & Management shall be mad to this Document.

Document Origination Date: June 1, 2009
Document Revision Date: October 12, 2016
APPENDIX A - RECEIPT OF ADDENDA/PROJECT COMPLETION

1. ADDENDA

The Bidder acknowledges receipt of the following Addenda:

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2. PROJECT COMPLETION

If this Bid is accepted, we will:

Commence procurement and mobilization upon Notification of Award, anticipated to be the 27th day of August, 2018 and
Substantially Complete the Work by the 19th day of July, 2019.

*You must include in your proposal a detailed work schedule showing how you intend to meet the project completion dates, including key milestones for major underground utilities, foundations, superstructure, precast and glazing.*

3. LIQUIDATED DAMAGES

The Bidder has read Paragraph 2, Appendix A, Bid Form Supplements, Document 00 43 00 and understands the Contract Documents requirements for project schedule and provisions for liquidated damages as set forth in the Supplementary Conditions (Document 00 73 13), Paragraph 9.11 of Article 9.

(Initialed by signing officer)
APPENDIX B - ALTERNATIVES

The following amounts shall be added to or deducted from the Base Bid Sum. Refer to Section **012300 - Alternates**: Schedule of Alternates.

Alternate No. 1 – Paint Underside of Parking Decks

Paint underside of exposed cast-in-place concrete parking decks, including beams, for levels 2, 3 and 4.

(Add) (Deduct) $ ________________

Alternate No. 2 – Basement Detention Basin

Construct the basement detention basin, including foundation walls, slab on grade related footings, ramp, lighting, pumping package and power. (This Alternate is for informational purposes only, and shall be awarded in association with the Base Bid)

(Add) (Deduct) $ ________________

Alternate No. 3 – Legal Drain Relocation

Intercept and relocate existing legal drain. (This Alternate is for informational purposes only, and shall be awarded in association with the Base Bid)

(Add) (Deduct) $ ________________

Alternate No. 4 – Cold-Applied Waterproofing

Apply cold-applied waterproofing in lieu of integral waterproofing admixture at walls below grade, where waterproofing is indicated on the structural drawings.

(Add) (Deduct) $ ________________
APPENDIX C - UNIT PRICES

The following are Unit Prices for specific portions of the Work as listed, and are applicable to authorized variations from the Contract Documents. Refer to Section 012200 – Unit Prices: Unit Price Schedule.

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<th>ITEM OF WORK</th>
<th>UNIT OF MEASUREMENT</th>
<th>UNIT VALUE</th>
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<tbody>
<tr>
<td>Engineering Fill – Furnish and installation of engineered fill.</td>
<td>Cubic Yard (CY)</td>
<td>$</td>
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<tr>
<td>Crack Repair – Rout, clean, prime and seal 500 lineal feet of cracks.</td>
<td>Lump Sum (LS)</td>
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<tr>
<td>Lean Concrete Fill – Utilize lean concrete with compressive strength of 2000 psi as a substitute for satisfactory soil material.</td>
<td>Cubic Yard (CY)</td>
<td>$</td>
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**APPENDIX D - PRINCIPAL SUBCONTRACTORS**

A. The following Work will be performed (or provided) by subcontractors and their performance of the Work will be coordinated by us:

B. The Bidder will make no changes to this list after submission, without a written request by the bidder and approval by the Owner.

C. Provide additional copies of this page as needed for a complete listing.

D. Indicate YES/NO if Subcontractor is required to be pre-qualified (contract value greater than $300,000). If yes, indicate certification expiration date.

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APPENDIX E – SUPPLEMENTARY GENERAL CONSTRUCTION INFORMATION

A. The following Work will be performed (or provided) by subcontractors and their performance of the Work will be coordinated by us:

B. We submit the following list of manufacturers (or fabricators) of materials, applications, and specialties. All such materials, appliances, and specialties to be of such characteristics, design and construction will meet the requirements of the Construction Documents. The Bidder will make no changes to this list after submission, without a written request by the bidder and approval by the Owner.

C. Provide additional copies of this page as needed for a complete listing.

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APPENDIX F - SUPPLEMENTARY MECHANICAL INFORMATION

A. The following Work will be performed (or provided) by subcontractors and their performance of the Work will be coordinated by us:

B. We submit the following list of manufactures (or fabricators) of materials, applications, and specialties. All such materials, appliances, and specialties to be of such characteristics, design and construction will meet the requirements of the Construction Documents. The Bidder will make no changes to this list after submission, without a written request by the bidder and approval by the Owner.

C. Provide additional copies of this page as needed for a complete listing.

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APPENDIX G – SUPPLEMENTARY ELECTRICAL INFORMATION

A. The following Work will be performed (or provided) by subcontractors and their performance of the Work will be coordinated by us:

B. We submit the following list of manufactures (or fabricators) of materials, applications, and specialties. All such materials, appliances, and specialties to be of such characteristics, design and construction will meet the requirements of the Construction Documents. The Bidder will make no changes to this list after submission, without a written request by the bidder and approval by the Owner.

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APPENDIX H – SUPPLEMENTARY TELECOMMUNICATION INFORMATION

A. The following Work will be performed (or provided) by subcontractors and their performance of the Work will be coordinated by us:

B. We submit the following list of manufactures (or fabricators) of materials, applications, and specialties. All such materials, appliances, and specialties to be of such characteristics, design and construction will meet the requirements of the Construction Documents. The Bidder will make no changes to this list after submission, without a written request by the bidder and approval by the Owner.

C. Provide additional copies of this page as needed for a complete listing.

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SECTION 042113 - BRICK MASONRY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Face brick.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.
B. Samples: For each type and color of brick and colored mortar.

1.3 QUALITY ASSURANCE

A. Masonry Standard: Comply with ACI 530.1/ASCE 6/TMS 602 unless modified by requirements in the Contract Documents.

1.4 PROJECT CONDITIONS

A. Cold-Weather Requirements: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Remove and replace unit masonry damaged by frost or by freezing conditions. Comply with cold-weather construction requirements contained in ACI 530.1/ASCE 6/TMS 602.

   1. Cold-Weather Cleaning: Use liquid cleaning methods only when air temperature is 40 deg F and higher and will remain so until masonry has dried, but not less than seven days after completing cleaning.

PART 2 - PRODUCTS

2.1 MASONRY UNITS, GENERAL

A. Defective Units: Referenced masonry unit standards may allow a certain percentage of units to contain chips, cracks, or other defects exceeding limits stated in the standard. Do not use units where such defects will be exposed in the completed Work.

2.2 BRICK

A. General: Provide shapes indicated and as follows.
1. For ends of sills and caps and for similar applications that would otherwise expose unfinished brick surfaces, provide units without cores or frogs and with exposed surfaces finished.
2. Provide special shapes for applications where shapes produced by sawing would result in sawed surfaces being exposed to view.

B. Face Brick: Facing brick complying with ASTM C 216.
   1. Products: Subject to compliance with requirements, provide one of the following:
      a. Modular Commodore Full Vel. A, manufactured by The Belden Brick Company (Basis of Design)
      b. Tuscan Series, Sunset Flash Modular, manufactured by Glen-Gery Brick
   2. Size: 3 5/8" x 2 1/4" x 7 5/8"

2.3 MORTAR MATERIALS

A. Portland Cement: ASTM C 150, Type I or II, except Type III may be used for cold-weather construction. Provide natural color or white cement as required to produce mortar color indicated.

B. Hydrated Lime: ASTM C 207, Type S.

C. Portland Cement-Lime Mix: Packaged blend of portland cement complying with ASTM C 150, Type I or III, and hydrated lime complying with ASTM C 207.
   1. Products: Subject to compliance with requirements, provide one of the following:
      a. Essroc, Italcementi Group; Capitol PCL Blend or Saylor's Plus.
      b. Lafarge North America; Eaglebond.
      c. Lehigh Cement Company; Lehigh Custom Color Portland/Lime Cement.

D. Mortar Pigments: Natural and synthetic iron oxides and chromium oxides, compounded for use in mortar mixes. Use only pigments with a record of satisfactory performance in stone masonry mortar.
   1. Products: Subject to compliance with requirements, provide one of the following:
      a. Davis Colors; True Tone Mortar Colors.
      b. Lanxess Corporation; Bayferrox Iron Oxide Pigments.
      c. Solomon Colors; SGS Mortar Colors.

E. Aggregate for Mortar: ASTM C 144.
   1. White-Mortar Aggregates: Natural white sand or crushed white stone.
   2. Colored-Mortar Aggregates: Natural sand or crushed stone of color necessary to produce required mortar color.

F. Cold-Weather Admixture: Nonchloride, noncorrosive, accelerating admixture complying with ASTM C 494/C 494M, Type C, and recommended by manufacturer for use in masonry mortar of composition indicated.
2.4 TIES AND ANCHORS

A. Materials: Provide ties and anchors specified in this article that are made from materials that comply with the following unless otherwise indicated:


B. Wire Ties, General: Unless otherwise indicated, size wire ties to extend at least halfway through veneer but with at least 5/8-inch cover on outside face. Outer ends of wires are bent 90 degrees and extend 2 inches parallel to face of veneer.

C. Adjustable Masonry-Veneer Anchors:

1. General: Provide anchors that allow vertical adjustment but resist a 100-lbf load in both tension and compression perpendicular to plane of wall without deforming or developing play in excess of 1/16 inch.
2. Fabricate sheet metal anchor sections and other sheet metal parts from 0.078-inch-thick, stainless steel sheet.
3. Fabricate wire ties from 0.187-inch-diameter, stainless steel wire unless otherwise indicated.
4. Fabricate wire connector sections from 0.187-inch-diameter, stainless steel wire.

2.5 EMBEDDED FLASHING MATERIALS

A. Flexible Flashing: Use the following unless otherwise indicated:

1. **Rubberized-Asphalt Flashing**: Composite flashing product consisting of a pliable, adhesive rubberized-asphalt compound, bonded to a high-density, cross-laminated polyethylene film to produce an overall thickness of not less than 0.040 inch (1.02 mm).
   
   a. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
      1) Carlisle Coatings & Waterproofing; CCW-705-TWF Thru-Wall Flashing.
      2) Dur-O-Wal, a Dayton Superior Company; Dur-O-Barrier-44.
      4) Heckmann Building Products Inc.; No. 82 Rubberized-Asphalt Thru-Wall Flashing.

B. Adhesives, Primers, and Seam Tapes for Flashings: Flashing manufacturer's standard products or products recommended by flashing manufacturer for bonding flashing sheets to each other and to substrates.

2.6 MISCELLANEOUS MASONRY ACCESSORIES

A. Compressible Filler: Premolded filler strips complying with ASTM D 1056, Grade 2A1; compressible up to 35 percent; formulated from neoprene.

B. Bond-Breaker Strips: Asphalt-saturated, organic roofing felt complying with ASTM D 226, Type I (No. 15 asphalt felt).
C. Weep/Vent Products: Use the following unless otherwise indicated:

1. Mesh Weep Holes/Vents: Free-draining mesh; made from polyethylene strands, full width of head joint and 2 inches (50 mm) high by thickness of stone masonry; in color selected from manufacturer’s standard.

   a. Products: Subject to compliance with requirements, provide one of the following:

      1) CavClear/Archovations, Inc.; CavClear Weep Vents.
      2) Mortar Net USA, Ltd.; Mortar Net Weep Vents.

D. Cavity Drainage Material: Free-draining mesh, made from polymer strands that will not degrade within the wall cavity.

1. Provide one of the following configurations:

   a. Strips, full-depth of cavity and 10 inches (250 mm) wide, with dovetail shaped notches 7 inches (175 mm) deep that prevent mesh from being clogged with mortar droppings.

2. Products: Subject to compliance with requirements, provide one of the following:

   a. CavClear/Archovations, Inc.; CavClear Masonry Mat.
   b. Dur-O-Wal, a Dayton Superior Company; Polytite MortarStop.
   c. Mortar Net USA, Ltd.; Mortar Net.

2.7 MORTAR MIXES

A. General: Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, antifreeze compounds, or other admixtures unless otherwise indicated.

1. Do not use calcium chloride in mortar.
2. Use portland cement-lime mortar unless otherwise indicated.
3. Add cold-weather admixture (if used) at same rate for all mortar that will be exposed to view, regardless of weather conditions, to ensure that mortar color is consistent.

B. Preblended, Dry Mortar Mix: Furnish dry mortar ingredients in form of a preblended mix. Measure quantities by weight to ensure accurate proportions, and thoroughly blend ingredients before delivering to Project site.

C. Mortar for Unit Masonry: Comply with ASTM C 270, Proportion Specification. Provide Type N unless another type is indicated.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Use full-size units without cutting if possible. If cutting is required to provide a continuous pattern or to fit adjoining construction, cut units with motor-driven saws; provide clean, sharp, unchipped edges. Allow units to dry before laying unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed.
B. Select and arrange units for exposed unit masonry to produce a uniform blend of colors and textures.

C. Wetting of Brick: Wet brick before laying if initial rate of absorption exceeds per minute when tested per ASTM C 67. Allow units to absorb water so they are damp but not wet at time of laying.

3.2 TOLERANCES

A. Dimensions and Locations of Elements:
   1. For dimensions in cross section or elevation do not vary by more than plus 1/2 inch or minus 1/4 inch.
   2. For location of elements in plan do not vary from that indicated by more than plus or minus 1/2 inch.
   3. For location of elements in elevation do not vary from that indicated by more than plus or minus 1/4 inch in a story height or 1/2 inch total.

B. Lines and Levels:
   1. For bed joints and top surfaces of bearing walls do not vary from level by more than 1/4 inch in 10 feet, or 1/2 inch maximum.
   2. For vertical lines and surfaces do not vary from plumb by more than 1/4 inch in 10 feet, 3/8 inch in 20 feet, or 1/2 inch maximum.
   3. For conspicuous vertical lines, such as external corners, door jambs, reveals, and expansion and control joints, do not vary from plumb by more than 1/8 inch in 10 feet, 1/4 inch in 20 feet, or 1/2 inch maximum.
   4. For lines and surfaces do not vary from straight by more than 1/4 inch in 10 feet, 3/8 inch in 20 feet, or 1/2 inch maximum.

C. Joints:
   1. For bed joints, do not vary from thickness indicated by more than plus or minus 1/8 inch, with a maximum thickness limited to 1/2 inch; do not vary from bed-joint thickness of adjacent courses by more than 1/8 inch.
   2. For exposed head joints, do not vary from thickness indicated by more than plus or minus 1/8 inch.

3.3 LAYING MASONRY WALLS

A. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement-type joints, returns, and offsets. Avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at other locations.

B. Built-in Work: As construction progresses, build in items specified in this and other Sections. Fill in solidly with masonry around built-in items.

C. Fill space between steel frames and masonry solidly with mortar unless otherwise indicated.
3.4 MORTAR BEDDING AND JOINTING

A. Lay hollow brick as follows:
   1. With face shells fully bedded in mortar and with head joints of depth equal to bed joints.
   2. With entire units, including areas under cells, fully bedded in mortar at starting course on footings.

B. Lay solid masonry units with completely filled bed and head joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not deeply furrow bed joints or slush head joints.

C. Tool exposed joints slightly concave when thumbprint hard, using a jointer larger than joint thickness unless otherwise indicated.

3.5 ANCHORING MASONRY VENEERS

A. Anchor masonry veneers to unit masonry with wire anchors unless otherwise indicated. Connect anchors to masonry joint reinforcement with vertical rods inserted through anchors and through eyes of masonry joint reinforcement projecting from unit masonry.

B. Embed veneer anchors in mortar joints of masonry veneer at least halfway, but not less than 1-1/2 inches, through stone masonry and with at least a 5/8-inch cover on exterior face.

C. Space anchors not more than 16 inches o.c. vertically and 24 inches o.c. horizontally. Install additional anchors within 12 inches of openings, sealant joints, and perimeter at intervals not exceeding 12 inches.

3.6 FLASHING, WEEP HOLES, CAVITY DRAINAGE, AND VENTS

A. General: Install embedded flashing and weep holes in masonry at shelf angles, lintels, ledges, other obstructions to downward flow of water in wall, and where indicated.

B. Install flashing as follows unless otherwise indicated:
   1. Prepare masonry surfaces so they are smooth and free from projections that could puncture flashing. Where flashing is within mortar joint, place through-wall flashing on sloping bed of mortar and cover with mortar. Before covering with mortar, seal penetrations in flashing with adhesive, sealant, or tape as recommended by flashing manufacturer.

C. Install weep holes in head joints in exterior wythes of first course of masonry immediately above embedded flashing and as follows:
   1. Use specified weep/vent products to form weep holes.
   2. Space weep holes 24 inches o.c. unless otherwise indicated.

D. Place cavity drainage material in cavities to comply with configuration requirements for cavity drainage material in “Miscellaneous Masonry Accessories” Article.
E. Install vents in head joints in exterior wythes at spacing indicated. Use specified weep/vent products to form vents.

3.7 CLEANING

A. In-Progress Cleaning: Clean unit masonry as work progresses by dry brushing to remove mortar fins and smears before tooling joints.

B. Final Cleaning: After mortar is thoroughly set and cured, clean exposed masonry as follows:
   1. Protect adjacent surfaces from contact with cleaner.
   2. Wet wall surfaces with water before applying cleaners; remove cleaners promptly by rinsing surfaces thoroughly with clear water.

END OF SECTION 042113
SECTION 054000 - COLD-FORMED METAL FRAMING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:
   1. Exterior non-load-bearing wall framing.
   2. Ceiling joist framing.

B. Related Requirements:
   1. Section 055000 "Metal Fabrications" for miscellaneous steel shapes, masonry shelf angles, and connections used with cold-formed metal framing.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product including installation drawings.

1.4 QUALITY ASSURANCE

A. Reference Standards:

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

   1. All Steel & Gypsum Products
   2. Clark Dietrich
   3. Craco Manufacturing, Inc..
   4. Custom Stud
   5. MarinoWARE
   6. MBA Building Supplies
   7. Nuconsteel, A Nucor Company
2.2 PERFORMANCE REQUIREMENTS

A. Structural Performance: Provide cold-formed steel framing capable of withstanding design loads within limits and under conditions indicated.

1. Design Loads: As indicated on Drawings.
2. Deflection Limits: Design framing systems to withstand design loads without deflections greater than the following:
   a. Exterior Non-Load-Bearing Framing: Horizontal deflection of 1/240 of the wall height.
   b. Ceiling Joist Framing: Vertical deflection of 1/240 of the span for live loads and 1/240 for total loads of the span.

3. Design framing systems to provide for movement of framing members located outside the insulated building envelope without damage or overstressing, sheathing failure, connection failure, undue strain on fasteners and anchors, or other detrimental effects when subject to a maximum ambient temperature change of 120 deg F.

B. Cold-Formed Steel Framing Standards: Unless more stringent requirements are indicated, framing shall comply with AISI S100, AISI S200, and the following:

2. Wall Studs: AISI S211.

2.3 COLD-FORMED STEEL FRAMING MATERIALS

A. Steel Sheet: ASTM A 1003/A 1003M, Structural Grade, Type H, metallic coated, of grade and coating designation as follows:

1. Grade: As required by structural performance.
2. Coating: G90.

2.4 EXTERIOR NON-LOAD-BEARING WALL FRAMING

A. Steel Studs: Manufacturer’s standard C-shaped steel studs, of web depths indicated, punched, with stiffened flanges, and as follows:

1. Minimum Base-Metal Thickness: As indicated on drawings.

B. Steel Track: Manufacturer's standard U-shaped steel track, of web depths indicated, unpunched, with unstiffened flanges, and as follows:

1. Minimum Base-Metal Thickness: As indicated on drawings.

C. Single Deflection Track: Manufacturer's single, deep-leg, U-shaped steel track; unpunched, with unstiffened flanges, of web depth to contain studs while allowing free vertical movement, with flanges designed to support horizontal loads and transfer them to the primary structure, and as follows:

1. Minimum Base-Metal Thickness: As indicated on drawings.
D. Drift Clips: Manufacturer's standard bypass or head clips, capable of isolating wall stud from upward and downward vertical displacement and lateral drift of primary structure through positive mechanical attachment to stud web and structure.

2.5 CEILING JOIST FRAMING

A. Steel Ceiling Joists: Manufacturer's standard C-shaped steel sections, of web depths indicated, punched with standard holes, with stiffened flanges, and as follows:
1. Minimum Base-Metal Thickness: As indicated on drawings.

2.6 SOFFIT FRAMING

A. Exterior Soffit Frame: Manufacturer's standard C-shaped steel sections, of web depths indicated, with stiffened flanges, and as follows:
1. Minimum Base-Metal Thickness: As indicated on drawings.

2.7 FRAMING ACCESSORIES

A. Fabricate steel-framing accessories from ASTM A 1003/A 1003M, Structural Grade, Type H, metallic coated steel sheet, of same grade and coating designation used for framing members.

B. Provide accessories of manufacturer's standard thickness and configuration, unless otherwise indicated, as follows:
1. Supplementary framing.
2. Bracing, bridging, and solid blocking.
3. Anchor clips.

2.8 ANCHORS, CLIPS, AND FASTENERS

A. Steel Shapes and Clips: ASTM A 36/A 36M, zinc coated by hot-dip process according to ASTM A 123/A 123M

B. Fasteners for Metal Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel members to substrates.

2.9 MISCELLANEOUS MATERIALS

A. Galvanizing Repair Paint: ASTM A 780/A 780M.

B. Sealer Gaskets: Closed-cell neoprene foam, 1/8 inch thick, selected from manufacturer's standard widths to match width of bottom track or rim track members as required.
PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, conditions, and abutting structural framing for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

A. Install cold-formed steel framing according to AISI S200, AISI S202, and manufacturer's written instructions unless more stringent requirements are indicated.

B. Install cold-formed steel framing and accessories plumb, square, and true to line, and with connections securely fastened.
   1. Cut framing members by sawing or shearing; do not torch cut.

C. Install supplementary framing, and blocking to support fixtures, equipment services, heavy trim, or similar construction.

D. Install temporary bracing and supports to secure framing and support loads equal to those for which structure was designed. Maintain braces and supports in place, undisturbed, until entire integrated supporting structure has been completed and permanent connections to framing are secured.

E. Do not bridge building expansion joints with cold-formed steel framing. Independently frame both sides of joints.

3.3 EXTERIOR NON-LOAD-BEARING WALL INSTALLATION

A. Install continuous tracks sized to match studs. Align tracks accurately and securely anchor to supporting structure.

B. Set studs plumb, except as needed for diagonal bracing or required for nonplumb walls or warped surfaces and similar requirements.

C. Isolate non-load-bearing steel framing from building structure to prevent transfer of vertical loads while providing lateral support.
   1. Install single deep-leg deflection tracks and anchor to building structure.

D. Install miscellaneous framing and connections, including stud kickers, web stiffeners, clip angles, continuous angles, anchors, and fasteners, to provide a complete and stable wall-framing system.
3.4 ERECTION TOLERANCES

A. Install cold-formed steel framing level, plumb, and true to line to a maximum allowable tolerance variation of 1/8 inch in 10 feet and as follows:

1. Space individual framing members no more than plus or minus 1/8 inch from plan location. Cumulative error shall not exceed minimum fastening requirements of sheathing or other finishing materials.

3.5 REPAIRS AND PROTECTION

A. Galvanizing Repairs: Prepare and repair damaged galvanized coatings on fabricated and installed cold-formed steel framing with galvanized repair paint according to ASTM A 780/A 780M and manufacturer's written instructions.

B. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer, that ensure that cold-formed steel framing is without damage or deterioration at time of Substantial Completion.

END OF SECTION 054000
SECTION 057500 - DECORATIVE FORMED METAL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:
   1. Exterior perforated metal panels.

B. Related Requirements:
   1. Section 055000 "Metal Fabrications"
   2. Section 076200 "Sheet Metal Flashing and Trim" for items made of formed metal for flashings and trim.

1.3 COORDINATION

A. Coordinate installation of anchorages for decorative formed metal items. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver items to Project site in time for installation.

B. Coordinate installation of decorative formed metal with adjacent construction to ensure that wall assemblies, flashings, trim, and joint sealants, are protected against damage from the effects of weather, age, corrosion, and other causes of deterioration.

1.4 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.5 ACTION SUBMITTALS

A. Product Data: For each type of product, including finishing materials.

B. Shop Drawings: Show fabrication and installation details for decorative formed metal.
   1. Include plans, elevations, component details, and attachment details.
   2. Indicate materials and profiles of each decorative formed metal member, fittings, joinery, finishes, fasteners, anchorages, and accessory items.
C. Samples for Verification: For each type of exposed finish required, prepared on 12-inch-square Samples of metal of same thickness, perforation pattern and material indicated for the Work. Sample to include formed edges per system design.

1.6 QUALITY ASSURANCE
A. Fabricator Qualifications: A firm experienced in producing decorative formed metal similar to that indicated for this Project and with a record of successful in-service performance as well as sufficient production capacity to produce required units.

1.7 DELIVERY, STORAGE, AND HANDLING
A. Deliver decorative formed metal products wrapped in protective coverings and strapped together in suitable packs or in heavy-duty cartons. Remove protective coverings before they stain or bond to finished surfaces.
B. Store products on elevated platforms in a dry location.

1.8 FIELD CONDITIONS
A. Field Measurements: Verify actual locations of walls, columns, beams, and other construction contiguous with decorative formed metal by field measurements before fabrication and indicate measurements on Shop Drawings.

1.9 WARRANTY
A. Warranty: Manufacturer agrees to repair or replace components of metal panels that fail in materials or workmanship within specified warranty period.
   1. Warranty Period: One year from date of Substantial Completion.
B. Special Finish Warranty: Standard form in which manufacturer agrees to repair finishes or replace aluminum that shows evidence of deterioration of factory-applied finishes within specified warranty period.
   1. Deterioration includes, but is not limited to, the following:
      a. Color fading more than 5 Hunter units when tested according to ASTM D2244.
      b. Chalking in excess of a No. 8 rating when tested according to ASTM D4214.
      c. Cracking, checking, peeling, or failure of paint to adhere to bare metal
   2. Warranty Period: 10 years from date of Substantial Completion.
PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Structural Performance: Decorative formed metal items, including anchors and connections, shall withstand the effects of gravity loads and the following loads and stresses without exceeding the allowable design working stress of materials involved and without exhibiting permanent deformation in any components:

1. Wind Loads on Exterior Items: As indicated on Drawings.

B. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes acting on exterior metal fabrications by preventing buckling, opening of joints, overstressing of components, failure of connections, and other detrimental effects.

1. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.

2.2 SHEET METAL

A. General: Fabricate products from sheet metal without pitting, seam marks, roller marks, stains, discolorations, or other imperfections where exposed to view on finished units.

B. Aluminum Sheet: Flat sheet complying with ASTM B 209, alloy and temper recommended by aluminum producer and finisher for type of use and finish indicated, and with strength and durability properties of not less than Alloy 5005-H32.

2.3 MISCELLANEOUS MATERIALS

A. Fasteners: Fabricated from same basic metal and alloy as fastened metal unless otherwise indicated. Do not use metals that are incompatible with materials joined.

1. Provide concealed fasteners for interconnecting decorative formed metal items and for attaching them to other work unless exposed fasteners are unavoidable or are the standard fastening method.

B. Structural Anchors: For applications indicated to comply with certain design loads, provide fastener systems with working capacity greater than or equal to the design load, according to an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC193.

C. Anchor Materials:


D. Isolation Coating: Manufacturer's standard bituminous paint.

2.4 PAINTS AND COATINGS

A. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187/D 1187M.
2.5 FABRICATION, GENERAL

A. Shop Assembly: Preassemble decorative formed metal items in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation.

B. Coordinate dimensions and attachment methods of decorative formed metal items with those of adjoining construction to produce integrated assemblies with closely fitting joints and with edges and surfaces aligned unless otherwise indicated.

C. Form metal to profiles indicated, in maximum lengths to minimize joints. Produce flat, flush surfaces without cracking or grain separation at bends. Fold back exposed edges of unsupported sheet metal to form a 1/2-inch-wide hem on the concealed side.

D. Increase metal thickness or reinforce with concealed stiffeners, backing materials, or both, as needed to provide surface flatness equivalent to stretcher-leveled standard of flatness and sufficient strength for indicated use.
   1. Support joints with concealed stiffeners as needed to hold exposed faces of adjoining sheets in flush alignment.

E. Build in straps, plates, and brackets as needed to support and anchor fabricated items to adjoining construction. Reinforce decorative formed metal items as needed to attach and support other construction.

F. Provide support framing, mounting and attachment clips, splice sleeves, fasteners, and accessories needed to install decorative formed metal items.

2.6 PERFORATED METAL PANELS

A. Basis-of-Design Manufacturer: Subject to compliance with requirements, provide product manufactured by Hendrick Architectural or a comparable product by one of the following:
   1. Ametco Manufacturing Corporation
   2. McNichols Co., Inc.
   3. Metalwerks

B. Material:
   1. Aluminum: To ASTM B209
      a. Thickness: .190” min.
      b. Sheet Size: 4’ x 10’
      c. Shape: Formed panel edges per design details
      d. Finish: Fluoropolymer Finish
   2. Perforations:
      a. Custom Pattern:
         1) Square: 3” x 3” holes, 50% open area, straight
   3. Panel Margins: 1.25” min. margins all 4 sides

2.7 GENERAL FINISH REQUIREMENTS

A. Complete mechanical finishes of flat sheet metal surfaces before fabrication where possible. After fabrication, finish all joints, bends, abrasions, and other surface blemishes to match sheet finish.
B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

C. Apply organic and anodic finishes to formed metal after fabrication unless otherwise indicated.

D. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

2.8 ALUMINUM FINISHES

A. High-Performance Organic Finish: Two-coat fluoropolymer finish complying with AAMA 2605 and containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.


PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of decorative formed metal.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Locate and place decorative formed metal items level and plumb and in alignment with adjacent construction. Perform cutting, drilling, and fitting required to install decorative formed metal.

1. Do not cut or abrade finishes that cannot be completely restored in the field. Return items with such finishes to the shop for required alterations, followed by complete refinishing, or provide new units as required.

B. Use concealed anchorages where possible. Provide brass or lead washers fitted to screws where needed to protect metal surfaces and to make a weathertight connection.

C. Form tight joints with exposed connections accurately fitted together.

D. Corrosion Protection: Apply bituminous paint or other permanent separation materials on concealed surfaces where metals would otherwise be in direct contact with substrate materials that are incompatible or could result in corrosion or deterioration of either material or finish.
3.3 ADJUSTING AND CLEANING

A. Unless otherwise indicated, clean metals by washing thoroughly with water and soap, rinsing with clean water, and drying with soft cloths.

B. Restore finishes damaged during installation and construction period so no evidence remains of correction work. Return items that cannot be refinished in the field to the shop; make required alterations and refinish entire unit or provide new units.

3.4 PROTECTION

A. Protect finishes of decorative formed metal items from damage during construction period. Remove temporary protective coverings at time of Substantial Completion.

END OF SECTION 057500
SECTION 107114 – ALUMINUM TRELLIS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS
A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY
A. Section Includes:
   1. Exterior aluminum trellis

B. Related Requirements:
   1. Section 055000 “Metal Fabrications”
   2. Section 076200 "Sheet Metal Flashing and Trim" for items made of formed metal for flashings and trim.

1.3 COORDINATION
A. Coordinate installation of anchorage for aluminum trellis system. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver items to Project site in time for installation.

B. Coordinate installation of aluminum trellis system with adjacent construction to ensure that wall assemblies, flashings, trim, and joint sealants, are protected against damage from the effects of weather, age, corrosion, and other causes of deterioration.

1.4 PREINSTALLATION MEETINGS
A. Preinstallation Conference: Conduct conference at Project site.

1.5 ACTION SUBMITTALS
A. Product Data: For each type of product, including finishing materials.

B. Shop Drawings: Show fabrication and installation details for aluminum trellis system.
   1. Include plans, elevations, component details, and attachment details.
   2. Indicate materials and profiles of each aluminum trellis member, fittings, joinery, finishes, fasteners, anchorages, and accessory items.
C. Structural calculations: Submit comprehensive analysis of design loads, dead, live, snow, wind and thermal movements. Calculations shall be stamped and signed by a professional engineer registered in the jurisdiction where the project is located.

D. Samples for Verification: For each type of exposed finish required, prepared on 12-inch-square Samples of metal of same thickness and material indicated for the Work.

1.6 QUALITY ASSURANCE

A. Fabricator Qualifications: A firm experienced in producing aluminum trellis system similar to that indicated for this Project and with a record of successful in-service performance as well as sufficient production capacity to produce required units.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver decorative aluminum trellis system wrapped in protective coverings and strapped together in suitable packs or in heavy-duty cartons. Remove protective coverings before they stain or bond to finished surfaces.

B. Store products on elevated platforms in a dry location.

1.8 FIELD CONDITIONS

A. Field Measurements: Verify actual locations of walls, columns, beams, and other construction contiguous with aluminum trellis system by field measurements before fabrication and indicate measurements on Shop Drawings.

1.9 WARRANTY

A. Warranty: Manufacturer agrees to repair or replace components of trellis system that fail in materials or workmanship within specified warranty period.

1. Warranty Period: One year from date of Substantial Completion.

B. Special Finish Warranty: Standard form in which manufacturer agrees to repair finishes or replace aluminum that shows evidence of deterioration of factory-applied finishes within specified warranty period.

1. Deterioration includes, but is not limited to, the following:

   a. Color fading more than 5 Hunter units when tested according to ASTM D2244.
   b. Chalking in excess of a No. 8 rating when tested according to ASTM D4214.
   c. Cracking, checking, peeling, or failure of paint to adhere to bare metal

2. Warranty Period: 20 years from date of Substantial Completion.
PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Structural Performance: Trellis system, including anchors and connections, shall withstand the effects of gravity loads and the following loads and stresses without exceeding the allowable design working stress of materials involved and without exhibiting permanent deformation in any components:

1. Wind Loads on Exterior Items: As indicated on Drawings.
2. Snow Loads on Exterior Items: As indicated on Drawings
3. Live Loads on Exterior Items: As indicated on Drawings

B. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes acting on exterior metal fabrications by preventing buckling, opening of joints, overstressing of components, failure of connections, and other detrimental effects.

1. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.

2.2 MATERIALS

A. General: Fabricate products from metal without pitting, seam marks, roller marks, stains, discolorations, or other imperfections where exposed to view on finished units.

B. Compliance with applicable ASTM Standards, including, but not limited to:

1. ASTM B 221 - Aluminum – Alloy Extruded Bars, Rods, Wire, Shapes and Tubes
2. ASTM B 429 – Aluminum – Alloy Extruded Structural Pipe and Tube
3. ASTM B 483 – Aluminum & Aluminum Alloy Drawn Tubes for General Purpose Applications

C. Aluminum: Alloy and temper recommended by aluminum producer and finisher for type of use and finish indicated and with not less than the strength and durability properties of the alloy and temper designated below for each aluminum form required.

2. Extruded Bar and Shapes: ASTM B 221, 6063-T5/T52.

2.3 COMPONENTS

A. Rafters, Beams, and Posts: Extruded tubing sizes, as indicated on the drawings.

B. Fittings: Elbows, Tee-shapes, wall brackets, escutcheons; machined aluminum.

C. Splice Connectors: Concealed spigot; machined aluminum.

2.4 MISCELLANEOUS MATERIALS
A. Welding Electrodes and Filler Metal: Provide type and alloy of filler metal and electrodes as recommended by producer of metal to be welded and as required for color match, strength, and compatibility in fabricated items.

B. Fasteners for Anchoring Trellis Components to Other Construction: Select fasteners of the type, grade, and class required to produce connections that are suitable for anchoring trellis to other types of construction indicated and capable of withstanding design loadings.

1. All fasteners fabricated from type 304 stainless steel.

C. Fasteners for Interconnecting Trellis Components: Use fasteners of same basic metal as the fastened metal, unless otherwise indicated. Do not use metals that are corrosive or incompatible with materials joined.

1. Provide concealed fasteners for interconnection of trellis components and for their attachment to other work, except where otherwise indicated.

D. Isolation Coating: Manufacturer's standard bituminous paint.

2.5 PAINTS AND COATINGS

A. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187/D 1187M.

2.6 FABRICATION, GENERAL

A. Shop Assembly: Preassemble trellis system in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation.

B. Coordinate dimensions and attachment methods of trellis system with those of adjoining construction to produce integrated assemblies with closely fitting joints and with edges and surfaces aligned unless otherwise indicated.

C. Supply components required for secure anchorage of the trellis system.

D. Grind exposed welds smooth and flush with adjacent surfaces.

E. Make exposed joints butt tight, flush and hairline.

F. Provide caps or matching profile fittings at exposed ends. Finish to match trellis system.

G. Accurately form components required for anchorage of trellis components to each other and to building structure.

H. Provide weepholes or other means for evacuation of entrapped water in hollow section of trellis members.

I. Fabricate joints that will be exposed to weather in a manner to exclude water.
J. Close exposed ends of trellis members by use of manufacturer’s standard prefabricated end fittings.

2.7 FABRICATORS
A. Basis-of-Design Manufacturer: Subject to compliance with requirements, provide product manufactured by Metalwerks or a comparable product by one of the following:
   1. AGS, Inc.
   2. CRL Architectural Products & Services
   3. Hansen Architectural Systems

2.8 GENERAL FINISH REQUIREMENTS
A. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
B. Apply organic and anodic finishes to metal after fabrication unless otherwise indicated.
C. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

2.9 ALUMINUM FINISHES
A. High-Performance Organic Finish: Two-coat fluoropolymer finish complying with AAMA 2605 and containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.

PART 3 - EXECUTION

3.1 EXAMINATION
A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of trellis system.
B. Proceed with installation only after unsatisfactory conditions have been corrected.
C. Coordinate setting drawings, diagrams, templates, instructions, and directions for installation of anchorages, such as sleeves, concrete inserts, anchor bolts, and miscellaneous items having integral anchors that are to be embedded in concrete as masonry construction. Coordinate delivery of such items to project site.
D. Confirm that unfinished concealed aluminum in contact with dissimilar metals, cementitious materials, masonry, and wood has been treated with a protective coating as specified in Part 2 of this specification section.

3.2 INSTALLATION

A. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installation of trellis system. Set trellis system accurately in location, alignment, and elevation, measured from established lines and levels and free from rack.

1. Do not cut or abrade finishes that cannot be completely restored in the field. Return items with such finishes to the shop for required alterations, followed by complete refinishing, or provide new units as required.

B. Field welding: Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals. Field welding will not be permitted unless shown and approved in shop drawings, in concealed locations.

1. At exposed connections, finish exposed welds and surfaces smooth and blended so that no roughness shows after finishing and contour of welded surface matches those adjacent.

C. Adjust trellis systems prior to anchoring to ensure matching alignment at abutting joints. Provide concealed fittings unless otherwise approved by Owner.

D. Anchor trellis component ends into concrete and masonry with flanges connected to rail ends and anchored into wall construction with post-installed anchors and bolts. Grout cells as specified under concrete unit masonry.

E. Corrosion Protection: Apply bituminous paint or other permanent separation materials on concealed surfaces where metals would otherwise be in direct contact with substrate materials that are incompatible or could result in corrosion or deterioration of either material or finish.

3.3 ADJUSTING AND CLEANING

A. Unless otherwise indicated, clean metals by washing thoroughly with water and soap, rinsing with clean water, and drying with soft cloths.

B. Restore finishes damaged during installation and construction period so no evidence remains of correction work. Return items that cannot be refinished in the field to the shop; make required alterations and refinish entire unit or provide new units.

3.4 PROTECTION

A. Protect finishes of trellis system from damage during construction period. Remove temporary protective coverings at time of Substantial Completion.

END OF SECTION 107114
SECTION 142400 – HYDRAULIC ELEVATORS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes the following:
   1. Hydraulic service elevator with nonproprietary controls.

B. This Section includes a hydraulic service elevator and the following:
   1. Pit Ladder
   2. Fire Department Key Retrieval Box

C. Related Requirements:
   1. Section 033000 "Cast-in-Place Concrete" for setting sleeves, inserts, and anchoring devices in concrete.
   2. Section 042000 "Unit Masonry" for setting sleeves, inserts, and anchoring devices in masonry and for grouting elevator entrance frames installed in masonry walls.
   3. Section 055000 "Metal Fabrications" for the following:
      a. Attachment plates and angle brackets for supporting guide-rail brackets.
      b. Hoist beams.
      c. Structural-steel shapes for subsills.
      d. Pit ladders.
      e. Cants made from steel sheet in hoistways.
   4. Division 26 Sections for electrical service for elevators to and including fused disconnect switches at machine room door, transfer switch and connection from auxiliary controls in transfer switch to controller.
   5. Division 27 Section “Communications Copper Horizontal Cabling” for telephone service for elevator.
   6. Division 28 Section “Fire Alarm System” for smoke detection in elevator lobbies to initiate emergency recall operation and heat detectors in shaft and machine room to disconnect power from elevator equipment and for connection to elevator controllers.

1.3 DEFINITIONS

A. Definitions in ASME A17.1/CSA B44 apply to work of this Section.

B. Defective Elevator Work: Operation or control system failure, including excessive malfunctions; performances below specified ratings; excessive wear; unusually deterioration or aging of materials or finishes; unsafe conditions; need for excessive maintenance; abnormal noise or vibration; and similar unusual, unexpected, and unsatisfactory conditions.
C. Manufacturer: An entity furnishing material, but shall also include an entity installing said material at the Project site, whether the same or different entity. Within this specification, manufacturer and installer are synonymous, may be used interchangeably, and indicate the same entity.

D. Nonproprietary Controls: Controls that do not require licensed, exclusive or proprietary knowledge, tools, or equipment to install, service and/or maintain in any way, and that are not protected by secrecy, patent, trademark, or copyright against free competition to install, service, or maintain.

E. Service Elevator: A passenger elevator that is also used to carry freight.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.
   1. Include capacities, sizes, performances, operations, safety features, finishes, and similar information.
   2. Include Product Data for car enclosures, hoistway entrances, and operation, control, and signal systems.

B. Shop Drawings:
   1. Include plans, elevations, sections, and large-scale details indicating service at each landing, machine room layout, coordination with building structure, relationships with other construction, and locations of equipment and signals. Shop drawings must include layout of the elevator within the elevator shaft as drawn and detailed on the construction documents to allow for full coordination.
      a. Confirm final shaft dimensions for location of shaft walls, pit depth and overhead clearances
      b. Include details for required cants in the elevator shaft.
   2. Include large-scale layout of car-control station.
   3. Indicate maximum dynamic and static loads imposed on building structure at points of support, and maximum and average power demands.
   4. Indicate variations from specified requirements

C. Supplemental Items: Manuals, tools, equipment, etc. to service and/or maintain elevator controls.

D. Samples for Initial Selection: For each type of exposed finish involving color selection.

E. Samples for Verification: For exposed car, hoistway door and frame, and signal equipment finishes; 3-inch-square Samples of sheet materials; and 4-inch lengths of running trim members.

F. Manufacturer Certificates: Signed by elevator manufacturer certifying that hoistway, pit, and machine room layout and dimensions, as shown on Drawings, and electrical service, as shown and specified, are adequate for elevator system being provided. Manufacturer also certifies the following:
   1. Manufacturer shall make available, to the Owner and Owner's elevator service contractor, maintenance, adjustment, and repair training for the scope of the Work of this Section.
   2. Manufacturer shall provide the scope of Work of this Section with nonproprietary, serviceable, and maintainable control systems.
3. Manufacturer shall make available for purchase, to the Owner and Owner's elevator service contractor, all replacement parts, assemblies, and technical support from the OEM distributor.
4. Manufacturer shall provide, to the Owner and Owner's elevator service contractor, replacement parts list, including current pricing available to the open market.
5. Manufacturer shall provide record electrical and mechanical drawings, circuit diagrams, installation, maintenance, and repair manuals.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.
B. Manufacturer Certificates: Signed by elevator manufacturer certifying that hoistway and pit layout and dimensions, as indicated on Drawings, and electrical service as shown and specified, are adequate for elevator system being provided. Manufacturer also certifies the following:
   1. Alternate (non-OEM) equipment can be utilized for replacement without patent and/or non-standard, sole-sourced design restrictions.
   2. Manufacturer shall make available, to the Owner and Owner's elevator service contractor, maintenance, adjustment, and repair training for the scope of the Work of this Section.
   3. Manufacturer shall provide the scope of Work of this Section with nonproprietary, serviceable, and maintainable control systems.
   4. Manufacturer shall make available for purchase, to the Owner and Owner's elevator service contractor, all replacement parts, assemblies, and technical support from the OEM distributor.
   5. Manufacturer shall provide, to the Owner and Owner's elevator service contractor, replacement parts list, including current pricing available to the open market.
   6. Manufacturer shall provide record electrical and mechanical drawings, circuit diagrams, installation, maintenance, and repair manuals.
C. Operation and Maintenance Data: For elevators to include in emergency, operation, and maintenance manuals.
   1. In addition to items specified in Division 01 Section "Operation and Maintenance Data," include diagnostic and repair information available to manufacturer's and Installer's maintenance personnel.
D. Inspection and Acceptance Certificates and Operating Permits: As required by authorities having jurisdiction for normal, unrestricted elevator use.
E. Warranty: For special warranty.

1.6 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For elevators to include in emergency, operation, and maintenance manuals.
1. In addition to items specified in Section 01 78 23 "Operation and Maintenance Data," include diagnostic and repair information available to manufacturer's and Installer's maintenance personnel.

1.7 QUALITY ASSURANCE

A. Installer Qualifications: Elevator manufacturer or manufacturer's authorized representative who is trained and approved for installation of units required for this Project and who has completed elevator installations similar in material, design, and extent to that indicated for this Project and with a record of successful in-service performance.

B. Manufacturer Qualifications: An approved, experienced manufacturer of engineering and manufacturing elevators of the type required for this Project.

1. Manufacturer shall be willing to sell replacement materials and provide technical support service at a published price to Installer, Owner, and Owner's maintenance service contractor.

2. Manufacturer shall make available all materials, installation, maintenance, and adjustment support to Installer, Owner, and Owner's maintenance service contractor.

C. Product Options: Information on Drawings and in Specifications establishes requirements for aesthetic effects and performance characteristics of elevator(s). Aesthetic effects are indicated by dimensions and arrangements as they relate to pit, hoistway and machine room requirements and to adjoining construction.

1. Do not revise intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If revisions are proposed, submit comprehensive explanatory data to Architect for review.

2. Physical, electrical and mechanical characteristics of elevator specified for this Project are based on "Basis of Design" manufacturer's and product's requirements as indicated in Contract Documents. Contractor utilizing one of the other listed, acceptable manufacturers shall coordinate all changes to the Project required by use of that equipment on this Project. All coordination with and changes to Contract Documents, including but not limited to hoistway, pit, machine room, building electrical system and building mechanical system shall be included in Contractor's bid. All costs shall be borne by Contractor responsible for this Section. No additional costs to Owner or other contractors will be accepted.

D. Source Limitations: Obtain elevators through one source from a single manufacturer.

1. Provide major elevator components, including pump-and-tank units, plunger cylinder assemblies, controllers, signal fixtures, door operators, car frames, cabs, and entrances, manufactured by a single manufacturer.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle materials, components, and equipment in manufacturer's protective packaging.

B. Store materials, components, and equipment off of ground, under cover, and in a dry location.

C. Handle according to manufacturer's written recommendations to prevent damage, deterioration, or soiling.
1.9 COORDINATION

A. Coordinate installation of inserts, sleeves, block outs, elevator equipment with integral anchors, and other items that are embedded in concrete or masonry for elevator equipment. Furnish templates, inserts, sleeves, elevator equipment with integral anchors, and installation instructions and deliver to Project site in time for installation.

B. Coordinate sequence of elevator installation with other work to avoid delaying the Work.

C. Coordinate locations and dimensions of work specified in other Sections relating to the hydraulic elevator including pit ladder; sumps and floor drains in pits; entrance subsills; cants in the shaft, electrical service; and electrical outlets, lights, and switches in hoistways, pits and machine rooms.

1. Include all components to install a functionally working, complete elevator in the pit, hoistway and machine room indicated in Drawings. Costs resulting from pit, hoistway or machine room dimensional changes to accommodate elevator manufacturer's equipment shall be borne by the Contractor responsible for this Section.

1.10 WARRANTY

A. Manufacturer's Special Warranty: Manufacturer agrees to repair, restore, or replace elevator work that fails in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, operation or control system failure, including excessive malfunctions; performances below specified ratings; excessive wear; unusual deterioration or aging of materials or finishes; unsafe conditions; need for excessive maintenance; abnormal noise or vibration; and similar unusual, unexpected, and unsatisfactory conditions.

2. Warranty Period: Two years from date of Substantial Completion.

1.11 MAINTENANCE SERVICE

A. Initial Maintenance Service: Beginning at Substantial Completion, provide two year's full maintenance service by skilled employees of elevator Installer. Include monthly preventive maintenance, repair or replacement of worn or defective components, lubrication, cleaning, and adjusting as required for proper elevator operation at rated speed and capacity. Provide parts and supplies same as those used in the manufacture and installation of original equipment.

1. Perform maintenance, including emergency callback service, during normal working hours.

2. Include 24-hour-per-day, 7-day-per-week emergency callback service.
   a. Response Time: Two hours or less.

3. Perform all required life safety and safety testing during warranty period. File documents with Authorities Having Jurisdiction and designated Owner's Representative.

PART 2 - PRODUCTS

2.1 MANUFACTURERS/INSTALLERS

A. Manufacturer/Installers: Subject to compliance with requirements, provide hydraulic elevator manufactured/installed by one of the following:
1. American Elevator, Inc.
2. Mid-America Elevator Co., Inc.
3. Murphy Elevator Company
4. Otis Elevator Company
5. ThyssenKrupp Elevator Company
6. Schindler Elevator Corporation
7. Canton Elevator, Inc.
8. Elevator Equipment Corp

B. Elevator equipment shall comply with applicable codes and regulations.

C. Source Limitations: Obtain elevators from single manufacturer.

1. Major elevator components, including driving machines, controllers, signal fixtures, door operators, car frames, cars, and entrances, shall be manufactured by single manufacturer.

2.2 PERFORMANCE REQUIREMENTS

A. Regulatory Requirements: In addition to local governing regulations, ascertain seismic risk zone and comply with applicable provisions in ASME A17.1, "Safety Code for Elevators and Escalators."

1. NFPA Code: Comply with applicable NFPA codes, and specifically with sections relating to electrical work and elevators.
2. Fire Resistance of Entrances: Comply with NFPA No. 80, and provide unit bearing UL labels with 30-min. temperature rise on labels.
3. Permits: Costs for permits, permit fees, and inspection fees for temporary and final operation are the responsibility of the elevator installer.


C. Fire-Rated Hoistway Entrance Assemblies: Door and frame assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire-protection ratings indicated, based on testing at as close to neutral pressure as possible according to NFPA 252 or UL 10B.

D. Electrical characteristics of Project are as indicated in Electrical Documents. Contractor coordinate all changes required by use of that equipment on this Project. All coordination with and changes to electrical system shall be included in Base Bid. All costs shall be borne by this Contractor. No additional costs to Owner or other contractors will be accepted.

1. If requirements other than those indicated in Contract Documents are utilized, provide complete wiring schematic for coordination of this equipment with building electrical system, equipment connections, and coordination of operation of this equipment. Additional installation costs shall be included in Base Bid of Contractor for this Section.

2.3 ELEVATORS

A. Elevator System, General: Provide manufacturer's standard elevator systems. Where components are not otherwise indicated, provide standard components, published by
manufacturer as included in standard pre-engineered elevator systems and as required for a complete system.

1. All equipment, including controls, shall be non-proprietary such that at least two of the listed companies can compete for the maintenance contract. Any tools required for adjustment, service or maintenance shall be included and furnished to Owner at no additional cost. No tool shall require triggering, re-charging or refreshing of its memory.

2. Provide manufacturer’s standard guide rail system.

3. Provide code-compliant pit ladder.

B. Elevator Description:

1. Type: Holeless, beside-the-car, telescoping hydraulic, dual cylinder (twin post).
   a. Staging: Two or three stage as required to accommodate overall travel
   b. At Elevator Contractor’s option, utilization of a holeless, beside-the-car, roped hydraulic, dual cylinder elevator may be substituted.

2. Quantity of Elevators: 1

3. Rated Load: 4000 lb minimum
   a. Service – stretcher compliant

4. Rated Speed: 150 fpm.

5. Landings: 4 (Parking Garage Levels 1 thru 4)

6. Operation System: Single automatic
   a. Elevator Controls Corp.
   b. GAL Manufacturing Corp.
   c. Motion Control Engineering (MCE)

7. Basis of Design Electrical Connection: 480V
   a. Full Load Amps: 24A, maximum
   b. Accelerating Amps: 50A, Maximum

8. Basis of Design Mechanical Requirements:
   a. Control Output: 7,000 Btu, maximum

9. Auxiliary Operations:
   a. Emergency Generator standby
   b. Nuisance-call cancel.
   c. Automatic operation of lights and ventilation fans.

10. Car Enclosures:
    a. Inside Width: Not less than 66 inches, nor more than 72 inches from side wall to side wall.
    b. Inside Depth: Not less than 88 inches, nor more than 99 inches from back wall to front wall (return panels).
    c. Inside Height: Not less than 96 inches to underside of ceiling.
    d. Front Walls (Return Panels): Satin stainless steel, No. 4 finish.
    e. Car Fixtures: Satin stainless steel, No. 4 finish.
    f. Rear Wall: Glass-backed, utilizing clear safety glazing
    g. Side and Rear Wall Panels: Satin stainless steel, No. 4 finish.
    h. Reveals: Satin stainless steel, No. 4 finish.
    i. Door Faces (Interior): Satin stainless steel, No. 4 finish.
    j. Door Sills: Nickel silver.
    k. Ceiling: Satin stainless steel, No. 4 finish. With LED lighting.
    l. Handrails: 1/2 by 2 inches rectangular satin stainless steel, No. 4 finish at sides and rear of car.
    m. Floor prepared to receive ceramic tile.
    n. Floor Thickness, Including Setting Materials: 1/2” above subfloor.

11. Hoistway Entrances:
    a. Width: 54 inches.
b. Height: 84 inches.
c. Type: Single-speed LH side sliding.
d. Frames: Satin stainless steel, No. 4 finish,
e. Doors: Satin stainless steel, No. 4 finish.
f. Sills: Nickel silver.

13. Additional Requirements:
   a. Provide inspection certificate in each car, mounted under acrylic cover with frame made from satin stainless steel, No. 4 finish
   b. Provide hooks for protective pads and one complete set(s) of full-height protective pads.
   c. Key Box.
   d. Furnish and install pit ladder.

C. Provide rough-in for Owner-provided security camera inside car enclosure: coordinate model number and location during submittals.

2.4 SYSTEMS AND COMPONENTS

A. General: Provide manufacturer's standard elevator systems. Where components are not otherwise indicated, provide standard components published by manufacturer as included in standard pre-engineered elevator systems and as required for complete system.

B. Pump Units: Positive-displacement type with a maximum of 10 percent variation between no load and full load and with minimum pulsations.
   1. Pump shall be submersible type with submersible squirrel-cage induction motor, and shall be suspended inside oil tank from vibration isolation mounts.
   2. Motor shall have solid-state starting.

C. Tank Heater: Provide tank heater in hydraulic oil reservoir.

D. Hydraulic Silencers: System shall have hydraulic silencer containing pulsation-absorbing material in blowout-proof housing at pump unit.

E. Piping: Provide size, type, and weight piping required by Code and recommended by manufacturer, and provide flexible connectors to minimize sound and vibration transmissions from power unit.
   1. Cylinder units shall be connected with dielectric couplings.

F. Hydraulic Fluid: Elevator manufacturer's standard fire-resistant fluid with additives as needed to prevent oxidation of fluid, corrosion of cylinder and other components, and other adverse effects.

G. Inserts: Furnish required concrete and masonry inserts and similar anchorage devices for installing guide rails, machinery, and other components of elevator work. Device installation is specified in another Section.
   1. Provide elevator guide rail vibration isolators as recommended and provided by Mason Industries, Inc.

H. Car Frame and Platform: Welded steel units.

I. Guides: Roller guides; polymer-coated, non-lubricated sliding guides; or sliding guides with guide-rail lubricators. Provide guides at top and bottom of car and counterweight.
J. Machine Beams: Provide steel framing to support elevator hoisting machine and deflector sheaves from the building structure. Comply with Section 055000 "Metal Fabrications" for materials and fabrication.

2.5 OPERATION SYSTEMS

A. General: Provide control system #PHC by Motion Control Engineering (or equivalent by listed manufacturers below) as required to provide automatic operation of the type indicated, and defined in the Code as "Operations".
   1. Manufacturers: Provide non-proprietary microprocessor control system by one of the following listed. Substitutions will not be considered.
      a. GAL Manufacturing Corp.
      b. Motion Control Engineering (MCE).
      c. Elevator Controls Corporation.

B. Single-Car Auxiliary Operations: In addition to primary operation system features, provide the following operational features for elevators where indicated:
   1. Emergency Standby-Powered Lowering: When power fails, car is lowered to the lowest floor, opens its doors, and shuts down. System shall be connected to emergency generator.
   2. Automatic Dispatching of Loaded Car: When car load exceeds 80 percent of rated capacity, doors start closing.
   3. Nuisance Call Cancel: When car calls exceed a preset number while car load is less than a predetermined weight, all car calls are canceled. Preset number of calls and predetermined weight can be adjusted.
   4. Automatic Operation of Lights and Fan: When elevator is stopped and unoccupied with doors closed, lighting and cab displays are de-energized after five minutes and are re-energized before car doors open. Ventilation fan shall remain powered for continuous operation.

C. Keyswitch Operation: Push buttons are activated and deactivated by security keyswitches at hall push-button stations. Key is removable in either position.

D. Car-to-Lobby Feature: Feature, activated by keyswitch at main lobby, that causes all car to return immediately to lobby and open doors for inspection. On deactivation by keyswitch, calls registered before keyswitch activation are completed and normal operation is resumed.

2.6 DOOR REOPENING DEVICES

A. Infrared Array: Provide door reopening device with uniform array of 36 or more microprocessor-controlled, infrared light beams projecting across car entrance. Interruption of one or more light beams shall cause doors to stop and reopen.

B. Nudging Feature: After car doors are prevented from closing for predetermined adjustable time, through activating door reopening device, a loud buzzer shall sound and doors shall begin to close at reduced kinetic energy.

2.7 CAR ENCLOSURES

A. General: Provide enameled or powder-coated steel car enclosures to receive removable wall panels, with car roof, access doors, power door operators, and ventilation.
1. Provide standard railings complying with ASME A17.1/CSA B44 on car tops where required by ASME A17.1/CSA B44.

B. Materials and Finishes: Manufacturer's standards, but not less than the following:
   1. Subfloor: Exterior, C-C Plugged grade plywood, not less than 7/8-inch nominal thickness.
   2. Floor Finish: Ceramic tile
   4. Fabricate car with recesses and cutouts for signal equipment.
   5. Fabricate car door frame integrally with front wall of car.
   6. Stainless-Steel Doors: Flush, hollow-metal construction; fabricated from stainless-steel sheet or by laminating stainless-steel sheet to exposed faces and edges of enameled or powder-coated steel doors using adhesive that fully bonds metal to metal without telegraphing or oil-canning.
   7. Sight Guards: Provide sight guards on car doors.
   8. Sills: Extruded or machined metal, with grooved surface, 1/4 inch thick.
   9. Stainless Steel Metal Ceiling: Flush panels, with four low-voltage LED downlights in each panel. Align ceiling panel joints with joints between wall panels.
   10. Ventilation Fan Efficiency: Not less than 3.0 cfm/W.

2.8 HOISTWAY ENTRANCES

A. Hoistway Entrance Assemblies: Manufacturer's standard horizontal-sliding, door-and-frame hoistway entrances complete with track systems, hardware, sills, and accessories. Frame size and profile shall accommodate hoistway wall construction.
   1. Where metal panel walls are indicated, frames shall extend to permit termination of metal wall panel materials.

B. Fire-Rated Hoistway Entrance Assemblies: Door and frame assemblies shall comply with NFPA 80 and be listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction based on testing at as close-to-neutral pressure as possible according to NFPA 252.
   1. Fire-Protection Rating: 1-1/2 hours with 30-minute temperature rise of 450 deg F.

C. Materials and Fabrication: Manufacturer's standards, but not less than the following:
   2. Star of Life Symbol: Identify emergency elevators with star of life symbol, not less than 3 inches high, on both jambs of hoistway door frames.
   3. Stainless-Steel Doors: Flush, hollow-metal construction; fabricated from stainless-steel sheet or by laminating stainless-steel sheet to exposed faces and edges of enameled or powder-coated steel doors using adhesive that fully bonds metal to metal without telegraphing or oil-canning.
   5. Sills: Extruded or machined metal, with grooved surface, 1/4 inch thick.
   6. Nonshrink, Nonmetallic Grout: Factory-packaged, non-staining, noncorrosive, nongaseous grout complying with ASTM C 1107/C 1107M.

2.9 SIGNAL EQUIPMENT

A. General: Provide vandal resistant hall-call and car-call buttons that light when activated and remain lit until call has been fulfilled. Provide lighted elements illuminated with LEDs.
B. Car-Control Stations: Provide manufacturer's standard recessed car control stations. Mount in return panel adjacent to car door, unless otherwise indicated.

1. Mark buttons and switches with standard identification for required use or function that complies with ASME A17.1. Use both tactile symbols and Braille.
2. Provide "No Smoking" sign matching car control station, either integral with car control station or mounted adjacent to it, with text and graphics as required by authorities having jurisdiction.
3. Engrave faceplate with "Operating Certificate on File with Physical Plant Operation."
   a. Confirm copy with Owner during submittals.
4. Provide vandal-resistant type buttons/operating fixtures.

C. Emergency Communication System: Provide system that complies with ASME A17.1 and the U.S. Architectural & Transportation Barriers Compliance Board's "Americans with Disabilities Act (ADA), Accessibility Guidelines for Buildings and Facilities (ADAAG)." On activation, system dials preprogrammed number of monitoring station and identifies elevator location to monitoring station. System provides two-way voice communication without using a handset and provides visible signals that indicate when system has been activated and when monitoring station has responded. System is contained in flush-mounted cabinet, with identification, instructions for use, and battery backup power supply.

D. Firefighters’ Two-Way Telephone Communication Service: Provide proper communication jack and engraving in each car and required conductors in traveling cable for firefighters’ two-way telephone communication service specified in Division 28 Section "Fire Detection and Alarm."

E. Car Position Indicator: Provide illuminated, digital-type car position indicator, located above car door or above car-control station. Also, provide audible signal to indicate to passengers that car is either stopping at or passing each of the floors served.
   1. Include travel direction arrows if not provided in car-control station.

F. Hall Push-Button Stations: Provide one hall push-button station at each landing.
   1. Provide manufacturer's standard vandal-resistant, wall-mounted units.
   2. Provide units with flat faceplate for mounting with body of unit recessed in wall.
   3. Equip units with buttons for calling elevator and for indicating desired direction of travel.
   4. Key switches shall accommodate specified Best cores; Owner will provide final cores

G. Hall Lanterns: Units with illuminated arrows; but provide single arrow at terminal landings. Provide one of the following:
   1. Manufacturer’s standard wall-mounted units, for mounting above entrance frames.

H. Hall Annunciator: With each hall lantern, provide audible signals indicating car arrival and direction of travel. Signals sound once for up and twice for down.
   1. At manufacturer's option, audible signals may be placed on cars.

I. Hall Position Indicators: Provide illuminated, digital-display-type position indicators, located above hoistway entrance at ground floor. Provide units with flat faceplate and with body of unit recessed in wall.
1. Integrate ground-floor hall lanterns with hall position indicators.

J. Standby Power Elevator Selector Switches: Provide switches, as required by ASME A17.1, where indicated. Adjacent to switches, provide illuminated signal that indicates when normal power supply has failed. For each elevator, provide illuminated signals that indicate when they are operational and when they are at the designated emergency return level with doors open.

K. Emergency Pictorial Signs: Fabricate from materials matching hall push-button stations, with text and graphics as required by authorities having jurisdiction, indicating that in case of fire, elevators are out of service and exits should be used instead. Provide one sign at each hall push-button station unless otherwise indicated.

2.10 FIRE DEPARTMENT KEY RETRIEVAL BOX:

A. Provide hinged lockable secure box for keys in accordance with local fire department policy.
   1. Product: Manufacturer’s standard box, keyed as required by the Muncie Fire Department.

2.11 FINISH MATERIALS

A. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, commercial steel, Type B, exposed, matte finish.

B. Hot-Rolled Steel Sheet: ASTM A 1011/A 1011M, commercial steel, Type B, pickled.

C. Stainless-Steel Sheet: ASTM A 240/A 240M, Type 304.

D. Textured Stainless-Steel Sheet: ASTM A 240/A 240M, Type 304 with embossed texture rolled into exposed surface.
   1. Metal surface is satin polished after texturing.

E. Stainless-Steel Bars: ASTM A 276, Type 304.

F. Stainless-Steel Tubing: ASTM A 554, Grade MT 304.

G. Aluminum Extrusions: ASTM B 221, Alloy 6063.


PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine elevator areas, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work. Examine hoistways, hoistway openings, and pits as constructed; verify critical dimensions; and examine supporting structure and other conditions under which elevator work is to be installed.

B. Prepare written report, endorsed by Installer, listing dimensional discrepancies conditions detrimental to performance or indicating that dimensions and conditions were found to be satisfactory.
C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Comply with manufacturer's written instructions.

B. Install cylinders plumb and accurately located for elevator car position and travel. Anchor securely in place, supported at pit floor and braced at intervals as needed to maintain alignment. Anchor cylinder guides at spacing needed to maintain alignment and avoid overstressing guides.

C. Welded Construction: Provide welded connections for installing elevator work where bolted connections are not required for subsequent removal or for normal operation, adjustment, inspection, maintenance, and replacement of worn parts. Comply with AWS standards for workmanship and for qualifications of welding operators.

D. Install piping above floor, where possible. Where not possible, install piping in Schedule 40 PVC pipe casing assembled with solvent-cemented fittings
   1. Piping is intended to be routed overhead from remote machine room.

E. Lubricate operating parts of systems, including ropes, as recommended by manufacturers.

F. Alignment: Coordinate installation of hoistway entrances with installation of elevator guide rails for accurate alignment of entrances with car. Where possible, delay final adjustment of sills and doors until car is operable in shaft. Reduce clearances to minimum, safe, workable dimension at each landing.

G. Leveling Tolerance: 1/4 inch, up or down, regardless of load and travel direction.

H. Set sills flush with finished floor surface at landing. Fill space under sill solidly with nonshrink, nonmetallic grout.

I. Locate hall signal equipment for elevators as follows unless otherwise indicated:
   1. Place hall lanterns either above or beside each hoistway entrance.
   2. Mount hall lanterns at a minimum of 72 inches above finished floor.

3.3 PROTECTION

A. Temporary Use: Is not permitted.
   1. Use of passenger elevators during construction is prohibited.
   2. Provide car with temporary enclosure, either within finished car or in place of finished car, to protect finishes from damage.
   3. Provide strippable protective film on entrance and car doors and frames.
   4. Provide padded wood bumpers on entrance door frames covering jambs and frame faces.
   5. Provide other protective coverings, barriers, devices, signs, and procedures as needed to protect elevator and elevator equipment.
   6. Do not load elevators beyond their rated weight capacity.
3.4 Field Quality Control

A. Acceptance Testing: On completion of elevator installation and before permitting elevator use (either temporary or permanent), perform acceptance tests as required and recommended by ASME A17.1/CSA B44 and by governing regulations and agencies.

B. Operating Test: Load elevator to rated capacity and operate continuously for 30 minutes over full travel distance, stopping at each level and proceeding immediately to the next. Record temperature rise of elevator machine during 30-minute test period. Record failure to perform as required.

C. Advise Owner, Architect, and authorities having jurisdiction in advance of dates and times that tests are to be performed on elevators.

3.5 Demonstration

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to operate, adjust, and maintain elevator(s).

B. Check operation of elevator with Owner's personnel present before date of Substantial Completion and again not more than one month before end of warranty period. Determine that operation systems and devices are functioning properly.

C. Check operation of each elevator with Owner's personnel present not more than one month before end of warranty period. Determine that operation systems and devices are functioning properly.

END OF SECTION 142400
MOUNTABLE CONCRETE CURB AND GUTTER

MAINTAIN FLOWLINE FINISH GRADE OF PAVEMENT ADJACENT PAVEMENT OR PATCH AS NECESSARY, SEE PLANS.

8" 2'-5"

1'-2" 7"

1 1/2" 12" LONG #5 DOWELS @ 24" O.C.

1/2" EXPANSION JOINT

4,000 PSI/CIP CONCRETE

EXISTING BENCH CURB ON BOTH SIDES OF SERVICE DRIVE. TIE INTO OVER 3' TRANSITION EACH SIDE.

HEAVY DUTY CONCRETE PAVEMENT, REFER TO DETAIL 3/SD4.1 FOR CALLS IN INDIANA CALL TOLL FREE}

BALL STATE UNIVERSITY

NEW YORK AVE. PARKING STRUCTURE

Bsu Project #: 2018 -014.01 XP

1 BID / PERMIT 07/06/18

Site Details Addendum #32 08/08/18
SEEDING SHALL BE PROVIDED AS NOTED IN SPECIFICATIONS FOR ALL DISTURBED AREAS PER IDEM AND MUNCIE REQUIREMENTS. EROSION CONTROL BLANKETS ARE REQUIRED FOR SLOPES GREATER THAN 4:1.

COORDINATE CONSTRUCTION SEQUENCING WITH BALL STATE UNIVERSITY PRIOR TO CONSTRUCTION COMMENCEMENT. SEE SHEET C001 FOR ADDITIONAL INFORMATION.

NEW YORK AVE. PARKING STRUCTURE
BALL STATE UNIVERSITY
BSU PROJECT # 2018-014.01 XP

PERF #100
No. Description Date
1 BID / PERMIT 07/06/18
NOTES:
1. Place an adequate number of SlopeGard 3 rolls or equivalent along edge to provide complete protection. Ends should overlap about 12 inches.
2. Inspect silt barrier device before and after rain events, and weekly throughout the rainy season. During extended rain events, inspect at least once every 24 hours.
3. Remove and properly dispose of accumulated silt and debris to allow for proper function of device.

PROTECTION EDGE FOR CALLS IN INDIANA
CALL TOLL FREE
BALL STATE UNIVERSITY
NEW YORK AVE. PARKING STRUCTURE
No. Description Date
JML EBI 150437-20020 692
BSU PROJECT # 2018 - 014.01 XP

T 317.917.4474
N
Rundell Ernstberger Associates
618 East Market Street
Indianapolis, IN 46202
Tel: 317.263.0127

Walker Consultants
6602 E. 75th St., Suite 210
Indianapolis, IN 46250
Tel: 317.842.6890

Cripe
3939 Priority Way South Drive, Suite 200
Indianapolis, IN 46240
Tel: 317.844.6777

© Paul I. Cripe, Inc.
1. GROUND TIER PLAN

2. GROUND TIER ENLARGED PLAN
NOTES:

1. PROVIDE BENTONITE WATERSTOP.
2. CONCENTRATE DRY SLURRY TO GROOVE AT THE RATE OF 1.5 LB / SQ YD. FILL GROOVE WITH COVE SEALANT - CIP WALL PAC AND PACK TIGHTLY.
3. 1 1/2" 1'-0" NOTE 3
4. 1'-0" NOTE 2
5. 1 1/2" NOTE 1
6. BOTH SIDES @ 7/S XYPEX SYSTEM ON INTO CIP BEAM #4 @ 2' 0" OC. EXTEND 2' 0" DOWEL @ 0" OC VERT - 511
7. SLAB CONTROL JOINT WHERE XYPEX IS PROVIDED
8. SLAB CONSTRUCTION JOINT WHERE XYPEX IS PROVIDED
9. INTERIOR CMU WALL/BEAM DETAIL
10. VERTICAL WALL CONSTRUCTION JOINT WHERE XYPEX IS PROVIDED
11. WALL DETAIL WHERE XYPEX IS PROVIDED
12. TYP WALL/FOOTING REINFORCING SPLICES
13. CIP / PT SLAB TO TRANSITION FOUNDATION WALL DETAIL
14. INTERIOR FOUNDATION WALL DETAIL
15. INTERIOR FOUNDATION WALL DETAIL (ALTERNATE)

SI SSD 0.05.01 XP
### CIP Column Schedule

<table>
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<th>Column Name</th>
<th>C1</th>
<th>C2</th>
<th>C3</th>
<th>C4</th>
<th>C5</th>
<th>C6</th>
<th>C7</th>
<th>C8</th>
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</thead>
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<td>8/8/18</td>
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<td></td>
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<td></td>
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</tr>
</tbody>
</table>

#### Column Notes:

1. **CN1.** See Sheet S-001 & S-002 for General Notes.
3. **CN3.** All Column Ties are #4 Ties unless noted. Locate Ties as follows:
   - A. At 10" OC Typical UN.
   - B. Provide (3) Ties @ 4" OC at Top of Column (@ or above top level) & Bottom of Column (@ Foundation).
   - C. See Details on S-551 for Additional Ties.
   - D. Closed Ties must continue through Beam/Column Joint. U-Bands will not be accepted.
   - E. Circular Ties @ 8" OC for Circular Columns.
   - F. At 8" OC for Column Mark C7.
4. **CN4.** For Additional Embedded Items, i.e. Conduit, Lighting Connection, Drain Lines, etc. Coordinate with Other Trades.
5. **CN5.** For Column Dowels at Foundation see 6/S-551.
6. **CN6.** Columns may or may not extend above floor elevation, see Structural Details. Coordinate with Electrical Drawings for Columns to be Extended for Light Poles and for Anchor Bolt Requirements.
7. **CN7.** More than one bar shown side by side shall be considered bundled bars. Bundled bars are groups of parallel reinforcing bars. No more than four, bundled in contact to act as a unit. Lap Splices are not allowed for bundled bars and mechanical splices must be used. See 8/S-551.
8. **CN8.** Lap Splices shall not be used for columns supporting offset floors due to ramps. Mechanical Splices must be used. See Detail 9/S-551.
9. **CN9.** Extend Reinforcing Minimum Class "B" Lap Splice above floor line or below bottom of beam as required.
10. **CN10.** Columns that terminate above the floor shall stop 4'-0" UN. See Plan for location.
11. **CN11.** Column Strength shall be 7,000 PSI where shaded as in Schedule. Column Strength shall be 5,000 PSI where column is not shaded in Schedule.
GENERAL NOTES - NEW WORK PLANS

A. REFER TO SHEET G001 FOR PROJECT GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS.
B. REFER TO INTERIOR ELEVATIONS FOR WALL-MOUNTED ITEMS.
C. REFER TO ENLARGED PLANS FOR WALL TYPES NOT SHOWN ON NEW WORK PLANS.
D. REFER TO PARTITION SCHEDULE FOR PARTITION ASSEMBLY DESIGNS.
E. REFER TO LIFE SAFETY PLANS FOR FIRE AND SMOKE PARTITION LOCATIONS.

LABELED "HOLD" SHALL BE EXACTLY AS INDICATED AND NO MORE OR NO LESS.

I. WHERE PARTITIONS OF DIFFERENT THICKNESSES MEET, MAINTAIN A FLUSH SURFACE ON THE
J. SEAL ALL MECHANICAL, ELECTRICAL, AND PLUMBING PENETRATIONS THROUGH PARTITIONS.

K. PAINT EXPOSED DOWNSPOUTS AND STANDPIPES. REFERENCE PLUMBING FOR LOCATIONS
AND EXTENT OF PIPES.

NEW YORK AVE. PARKING STRUCTURE
BOLLING STATE UNIVERSITY
BSU PROJECT # 2016-01A.01 XP

ISSUANCES

VISUAL SHEET

A102
GENERAL NOTES - NEW WORK PLANS

A. REFER TO SECTION PLANS TO CONFIRM LOCATIONS, DIMENSIONS, AND MATERIALS.

B. REFER TO DISCIPLINE-SPECIFIC DRAWINGS (STRUCTURAL, MECHANICAL, ELECTRICAL, ETC.)

C. ALL DIMENSIONS ARE TO FINISH FACE UNLESS NOTED OTHERWISE.

D. REFER TO PARTITION SCHEDULE FOR PARTITION ASSEMBLY DESIGNS.

E. REFER TO LIFE SAFETY PLANS FOR FIRE AND SMOKE PARTITION LOCATIONS.

F. DIMENSIONS LABELED "MIN" OR "CLEAR" SHALL NOT BE LESS THAN INDICATED.

G. REFER TO PARTITION SCHEDULE FOR PARTITION ASSEMBLY DESIGNS.

H. SEAL ALL MECHANICAL, ELECTRICAL, AND PLUMBING PENETRATIONS THROUGH PARTITIONS.

KEYNOTES - FLOOR PLANS

1. CUSTOM FABRICATED METAL PANEL SYSTEM, SUPPORTED FROM INTERNAL STEEL TUBE ANCHORED TO STRUCTURE.

2. EXPOSED CONCRETE COLUMN. REFERENCE STRUCTURAL DRAWINGS FOR ADDITIONAL INFORMATION.

3. NOT USED.

4. PRECAST CONCRETE SPANDREL PANEL WITH SIMULATED INDIANA LIMESTONE FINISH.

5. PAINTED BOLLARD. REFERENCE STRUCTURAL DRAWINGS FOR ADDITIONAL INFORMATION.

6. ALUMINUM CURTAINWALL GLAZING SYSTEM. 7-1/2" DEEP X 2-1/2" FACE. BUTT-GLAZED, EXCEPT AS INDICATED. LOW-IRON CLEAR GLAZING. LAMINATED WHERE INDICATED.

7. METAL PLATE WALL PANEL SYSTEM ATTACHED TO PRECAST CONCRETE PANELS.

8. OUTLINE INDICATES EXTENT OF MOCK-UP PANEL.

9. METAL PANEL

10. BIKE RACK. REFERENCE LANDSCAPE DRAWINGS FOR ADDITIONAL INFORMATION.

11. POURED-IN-PLACE CONCRETE CRASH WALL.

12. ROOF DRAIN. REFERENCE DETAIL 13/A632 FOR ADDITIONAL INFORMATION.

13. OVERFLOW ROOF DRAIN. REFERENCE DETAIL 13/A632 FOR ADDITIONAL INFORMATION.

14. VERTICAL EXPANSION JOINT.

15. METAL PLATE WALL PANEL SYSTEM ATTACHED TO PRECAST CONCRETE PANELS.

16. OUTLINE INDICATES EXTENT OF MOCK-UP PANEL.

17. METAL PANEL

18. SCREENWALL

19. CABLE TRELLIS PATTERN 3" SQUARE 50% OPENING. SEE DETAILS. METAL FINISH COLOR A.

20. METAL PANEL

21. SCREENWALL

22. CABLE TRELLIS

23. OUTLINE INDICATES EXTENT OF MOCK-UP PANEL.
GENERAL NOTES - NEW WORK PLANS

A. REFER TO SHEET G001 FOR PROJECT GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS.

B. REFER TO DISCIPLINE-SPECIFIC DRAWINGS (STRUCTURAL, MECHANICAL, ELECTRICAL, PLUMBING, TECHNOLOGY, CIVIL, LANDSCAPING) FOR ADDITIONAL INFORMATION.

C. ALL DIMENSIONS ARE TO FINISH FACE UNLESS NOTED OTHERWISE.

D. REFER TO INTERIOR ELEVATIONS FOR WALL-MOUNTED ITEMS.

E. REFER TO ENLARGED PLANS FOR WALL TYPES NOT SHOWN ON NEW WORK PLANS.

F. REFER TO PARTITION SCHEDULE FOR PARTITION ASSEMBLY DESIGNS.

G. REFER TO LIFE SAFETY PLANS FOR FIRE AND SMOKE PARTITION LOCATIONS.

H. WHERE PARTITIONS OF DIFFERENT THICKNESSES MEET, MAINTAIN A FLUSH SURFACE ON THE FINISH FACE.

I. PAINT EXPOSED DOWNSPOUTS AND STANDPIPES. REFERENCE PLUMBING FOR LOCATIONS.

I. REFER TO SHEET G001 FOR PROJECT GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS.

J. REFER TO DISCIPLINE-SPECIFIC DRAWINGS (STRUCTURAL, MECHANICAL, ELECTRICAL, PLUMBING, TECHNOLOGY, CIVIL, LANDSCAPING) FOR ADDITIONAL INFORMATION.

K. ALL DIMENSIONS ARE TO FINISH FACE UNLESS NOTED OTHERWISE.

L. REFER TO INTERIOR ELEVATIONS FOR WALL-MOUNTED ITEMS.

M. REFER TO ENLARGED PLANS FOR WALL TYPES NOT SHOWN ON NEW WORK PLANS.

N. REFER TO PARTITION SCHEDULE FOR PARTITION ASSEMBLY DESIGNS.

O. REFER TO LIFE SAFETY PLANS FOR FIRE AND SMOKE PARTITION LOCATIONS.

P. WHERE PARTITIONS OF DIFFERENT THICKNESSES MEET, MAINTAIN A FLUSH SURFACE ON THE FINISH FACE.

Q. PAINT EXPOSED DOWNSPOUTS AND STANDPIPES. REFERENCE PLUMBING FOR LOCATIONS.
GENERAL NOTES - FINISH COLORS

A. METAL FINISH COLOR A - BASIS OF DESIGN: DURANAR-SILVER SHADOW
B. METAL FINISH COLOR B - BASIS OF DESIGN: WOOD (ALPOLIC-TIMBER BAMBOO)

1. PRECAST CONCRETE PANEL WITH MODULAR THIN BRICK RUNNING BOND CAST INTO FACE OF PANEL.
2. PRECAST PANEL, FLUSH WITH FACE OF BRICK BELOW AND ABOVE, 8" HIGH NOM. INDIANA BUFF COLOR.

34' (957' - 1"
3. COURSED GRANITE VENEER. FINISH: ROCK-FACE. RANDOM COURSE LENGTHS.

4. ELEVATION - EAST (NEW YORK AVENUE)

5. ALUMINUM CURTAINWALL GLAZING SYSTEM. 8-1/4" DEEP X 2-1/2" FACE. BUTT-GLAZED, EXCEPT AS INDICATED. METAL FINISH COLOR A. LOW-IRON CLEAR GLAZING. LAMINATED WHERE INDICATED.

6. SUPPORTED FROM CURTAINWALL SYSTEM. METAL FINISH COLOR A.

7. ALUMINUM FASCIA & SOFFIT SYSTEM. METAL FINISH COLOR A.

8. VERTICALS: CUSTOM FABRICATED METAL PLATE WALL PANEL SYSTEM,

9. SIMULATED BAND COURSE W/ LIMESTONE-LIKE FINISH CAST INTO FACE OF GROUND TIER

10. USED TO CLAD CONCRETE FOUNDATION WHERE GRADE IS LOWER THAN LEVEL (WEST) (933' - 1"

11. OUTLINE INDICATES EXTENT OF MOCK-UP PANEL.

12. HORIZONTAL OR VERTICAL PANEL JOINT OR REVEAL IN METAL WALL PANEL SYSTEM.

13. SIMULATED WALL COPING W/ LIMESTONE-LIKE FINISH CAST INTO TOP EDGE OF GROUND TIER

14. CAST ANODIZED ALUMINUM LETTERS, 1'-4" TALL, INDIVIDUALLY MOUNTED TO LEADING EDGE OF TUBE STRUCTURE BELOW. BASIS OF DESIGN DETAILS. METAL FINISH COLOR A.

15. CUSTOM FABRICATED BENCH. 24" DEEP X 72" LONG X 18" SEAT HEIGHT.

16. EXTERIOR ALUMINUM/GLASS SWING DOOR. METAL FINISH COLOR A, WITH SEE ENLARGED ELEVATIONS FOR DIMENSIONS. BASIS OF DESIGN: HENDRICK'S METAL CANOPY. METAL FINISH COLOR A.

17. PREFINISHED STEEL BIKE RACK. 3'-0" O.C. MOUNT TO FLOOR SLAB. METAL FINISH COLOR A.

18. PRECISION FABRICATED METAL PLATE WALL PANEL SYSTEM, SUPPORTED FROM CURTAINWALL SYSTEM. METAL FINISH COLOR A.

19. CUSTOM FABRICATED METAL PLATE WALL PANEL SYSTEM.

20. DURANAR-SILVER SHADOW METAL FINISH COLOR A.

21. T 317.917.4474

22. 212 W 10th Street, Suite A

23. 6602 E. 75th St., Suite 210

24. 3939 Priority Way South Drive, Suite 200

25. 201 South Capitol Ave, Suite 310

26. Loftus Engineering, Inc.

27. Rundell Ernstberger Associates

28. 618 East Market Street

29. tel: 317.842.6890

30. www.thinkchamplin.com

31. No. NOTE

32. 1 PRECAST CONCRETE PANEL WITH MODULAR THIN BRICK RUNNING BOND CAST INTO FACE OF PANEL.

33. PRECAST PANEL, FLUSH WITH FACE OF BRICK BELOW AND ABOVE, 8" HIGH NOM. INDIANA BUFF COLOR.

34. COURSED GRANITE VENEER. FINISH: ROCK-FACE. RANDOM COURSE LENGTHS.
NOTE: EXPOSED STEEL TO BE PRECAST CONCRETE PANEL WITH MODULAR THIN BRICK INSET, CAST INTO PERFORATED METAL PANEL.

8" x 4" x 1/2" STEEL ANGLE CONTINUOUS WELDED TO SIMULATED INDIANA LIMESTONE FINISH.

NOTE: STRUCTURAL STEEL TO BE 8" x 4" x 1/2" STEEL ANGLE CONTINUOUS WELDED TO SIMULATED INDIANA LIMESTONE FINISH.

STEEL PLATE - 1/2" x 8" X 10" EMBED IN PRECAST CONCRETE PANEL.

- 5")

PRESSURE TREATED 1X2, WITHIN TRELLIS, AT 12" O.C. RUNNING VERTICALLY FOR FULL LENGTH OF STRUCTURE AND BUILDING ENVELOPE.

NOTE: STRUCTURAL STEEL TO BE VERTICAL FOR FULL LENGTH OF STRUCTURE AND BUILDING ENVELOPE.

GROWING VEGETATION.

NOTE: STRUCTURAL STEEL TO BE GROWING VEGETATION.

ADDITIONAL INFORMATION.

PRESSURE TREATED 1X2, WITHIN TRELLIS, AT 12" O.C. RUNNING VERTICALLY FOR FULL LENGTH OF STRUCTURE AND BUILDING ENVELOPE.

NOTE: STRUCTURAL STEEL TO BE GROWING VEGETATION.

ADDITIONAL INFORMATION.

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NOTE: STRUCTURAL STEEL TO BE GROWING VEGETATION.

ADDITIONAL INFORMATION.

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NOTE: STRUCTURAL STEEL TO BE GROWING VEGETATION.

ADDITIONAL INFORMATION.

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NOTE: STRUCTURAL STEEL TO BE GROWING VEGETATION.

ADDITIONAL INFORMATION.

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NOTE: STRUCTURAL STEEL TO BE GROWING VEGETATION.

ADDITIONAL INFORMATION.

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NOTE: STRUCTURAL STEEL TO BE GROWING VEGETATION.

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NOTE: STRUCTURAL STEEL TO BE GROWING VEGETATION.

ADDITIONAL INFORMATION.

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NOTE: STRUCTURAL STEEL TO BE GROWING VEGETATION.

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ADDITIONAL INFORMATION.

PRESSURE TREATED 1X2, WITHIN TRELLIS, AT 12" O.C. RUNNING VERTICALLY FOR FULL LENGTH OF STRUCTURE AND BUILDING ENVELOPE.

NOTE: STRUCTURAL STEEL TO BE GROWING VEGETATION.

ADDITIONAL INFORMATION.
CONCRETE BEAM BEYOND. REFERENCE STRUCTURAL DRAWINGS FOR ADDITIONAL INFORMATION.

CONCRETE SLAB WITH WASH. REFERENCE STRUCTURAL DRAWINGS FOR ADDITIONAL INFORMATION.

PRECAST CONCRETE PANEL WITH MODULAR THIN BRICK INSET, CAST INTO FACE OF PANEL. REFERENCE ELEVATIONS FOR BRICK.

BACKER ROD AND SEALANT - 1/8" THICKNESS MINIMUM, TYP.

PRECAST CONCRETE PANEL WITH MODULAR THIN BRICK INSET, CAST INTO FACE OF PANEL. REFERENCE ELEVATIONS FOR BRICK.

LOUVER ATTACHMENTS PER INSTALLATION. REFERENCE MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION.

OUTER FRAME: HSS 6X3X3/8 STRUCTURAL STEEL TUBE WRAPPED IN EXTRUDED ALUMINUM WRAP - 4" WIDE BY 8" HIGH.

DRY SEAL JOINT PER MANUFACTURER'S RECOMMENDED INSTALLATION. REFERENCE MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION.

MECHANICAL DUCTWORK. REFERENCE COLUMN BEYOND METAL PLATE WALL PANEL SYSTEM ENCLOSURE WITH DRY SEAL JOINT SYSTEM. REFERENCE STRUCTURAL DRAWINGS FOR ADDITIONAL INFORMATION.

METAL PLATE WALL PANEL SYSTEM ENCLOSURE WITH DRY SEAL JOINT SYSTEM. REFERENCE STRUCTURAL DRAWINGS FOR ADDITIONAL INFORMATION.

BALL STATE UNIVERSITY
BISU PROJECT # 2018 – 014.01 XP

NEW YORK AVE. PARKING STRUCTURE

ISSUANCES

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A633
MECHANICAL PLAN

GROUND TIER - MECHANICAL PLAN

DETENTION BASIN - MECHANICAL PLAN

SECOND TIER - ENLARGED ELEV. ROOM MECHANICAL PLAN

TOP TIER - ENLARGED STAIR MECHANICAL PLAN

TOP TIER - ENLARGED LOBBY MECHANICAL PLAN

PLAN NOTES:
- All double wall condenser piping to be insulated with 1" PURthane Wrap and 6" fiberglass blanket.
- Condensing unit to be mounted on floor, not adjacent to a wall.
- Condenser return line to be routed from condenser, through the wall, and down to the main drain.
GROUND TIER - LIGHTING

PLAN NOTES:
- Install an exterior light fixture at each entrance/exit location.
- Locate lighting fixtures to provide even illumination around the perimeter.
- Ensure all light fixtures are at least 4 feet above the ground.
- Surface mount light fixtures to the bottom of the structure.
- Elevator supplier.

SURFACE MOUNT LIGHT FIXTURE TO BOTTOM OF BEAM.

ELEVATOR SUPPLIER.

LOCATE LIGHT FIXTURES IN ELEVATOR PIT AS DIRECTED BY COLUMN. SEE DETAILS #6 AND #9 ON SHEET E501.

SURFACE MOUNT LINEAR LIGHT FIXTURES VERTICALLY ON WALL. SEE DETAIL #3 ON SHEET E502.

SURFACE MOUNT LINEAR LIGHT FIXTURE VERTICALLY ON COLUMN. SEE DETAILS #8 AND #9 ON SHEET E501.

INSTALL LIGHTING CIRCUIT CONDUITS IN BLOCK-OUTS IN SHEET E701.

LIGHT FIXTURE.

POWER PLAN ON SHEET E401 AND RELAY SCHEDULES ON LIGHTING RELAYS 'LR-1', 'LR-2' AND 'LR-3'; SEE ENLARGED MOUNTING HEIGHT AND LOCATION IN FIELD.

9'-0" A.F.F. TO BOTTOM OF FIXTURE. COORDINATE EXACT BOTTOM OF EXIT SIGN.

WALL MOUNT EXIT SIGN TO FACE OF STRUCTURE AT 6" ABOVE DOOR FRAME TO COLUMN. SEE DETAILS #7 AND #9 ON SHEET E501.

WALL MOUNT EXIT SIGN AT 6" ABOVE DOOR FRAME TO COLUMN. SEE DETAILS #5 AND #9 ON SHEET E501.

SURFACE MOUNT LIGHT FIXTURE TO BOTTOM OF STRUCTURE WALL.

TO LIGHTING RELAY 'LR-1' LOCATED IN ELECTRICAL 112. SEE ABOVE. SEE DETAIL #4 ON SHEET E502.
1. SECOND TIER - LIGHTING
PROVIDE FIRE ALARM SYSTEM CEILING MOUNTED HEAT DETECTOR AND INTERLOCK WITH ELEVATOR FOR RECALL.

PROVIDE MINI-DOME SECURITY CAMERA MOUNTED ON SHORT PIPE DROP FROM DECK ABOVE. MOUNT WITH BOTTOM AT +9- FEET ABOVE DECK. TYPICAL OF SECURITY CAMERAS ON THIS TIER. SEE DETAIL #5 ON SHEET T501.

PROVIDE ELECTRIC VEHICLE (EV) CHARGING STATION.

PROVIDE 3/4" C WITH (2) #10 AWG AND (1) #10 AWG GND.

PROVIDE 2-1/2-INCH RMC BACKBONE CONDUIT INSTALLED TIGHT TO UNDERSIDE OF SECOND FLOOR SUPPORTING BEAMS FOR COMMUNICATIONS SECURITY CAMERA AND WIRELESS ACCESS POINT FEEDS.

NOTE NOT USED.

NOTE NOT USED.

NOTE NOT USED.

PROVIDE PULL BOX FOR TELECOMMUNICATIONS CABLING AT INTERSECTION OF BACKBONE CONDUITS. SEE DETAIL #5 ON SHEET T501.

PROVIDE ON-GENERATOR POWER INTERCONNECTION WITH ELEVATOR CONTROLS. COORDINATE REQUIREMENTS AND CONNECTIONS WITH CONTRACTOR RESPONSIBLE FOR PROVIDING ELEVATOR.
PLAN NOTED:

1. All communications shall be per detail in Schedule 9.
2. Provide the connections as shown. See Sheet 9 for cable identification.
3. Provide fire alarm system as shown. See Sheet 9 for location.
4. Provide fire alarm system as shown. See Sheet 9 for location.
5. Provide fire alarm system as shown. See Sheet 9 for location.
6. Provide fire alarm system as shown. See Sheet 9 for location.
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14. Provide fire alarm system as shown. See Sheet 9 for location.
15. Provide fire alarm system as shown. See Sheet 9 for location.

PROVIDE FIRE ALARM SYSTEM CEILING MOUNTED HEAT DETECTOR AND INTERLOCK WITH ELEVATOR FOR RECALL.

PROVIDE FIRE ALARM SYSTEM CEILING MOUNTED SMOKE DETECTOR AT TOP OF ELEVATOR SHAFT AND INTERLOCK WITH ELEVATOR FOR RECALL.

PROVIDE MINI-DOME SECURITY CAMERA MOUNTED ON ARM MOUNT ATTACHED TO LIGHT POLE. MOUNT WITH BOTTOM AT +10-FEET ABOVE DECK. TYPICAL OF SECURITY CAMERAS ON THIS TIER. SEE DETAIL #6 ON SHEET E901. PROVIDE CONDUIT TO CAMERA PULL BOX ON THIRD TIER.

PROVIDE (1) 3/4" C WITH (2) #10 AWG CU CONDUCTORS AND (1) #10 AWG CU GND.

PROVIDE BULLET STYLE, WALL MOUNTED, VARI-FOCAL SECURITY CAMERA MOUNTED TO UNDERSIDE OF STAIR ROOF OVERHANG.

PROVIDE JUNCTION BOX FOR FEED TO ROOF CONDUCTOR HEAT TRACE. HEAT TRACE PROVIDED BY DIVISION 23; COORDINATE EXACT LOCATION OF JUNCTION BOX AND CONNECTION WITH CONTRACTOR RESPONSIBLE FOR DIVISION 23.

COMMUNICATIONS WIRING SCHEDULE - TOP TIER

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TOP TIER - POWER
ENLARGED POWER PLAN - MDF & ELECTRICAL ROOM

ENLARGED POWER PLAN - GENERATOR ROOM

PLAN NOTES:
- PROVIDE HEAVY DUTY, 3P-200A FUSED DISCONNECT FOR ELEVATOR DRIVING MACHINERY. FUSE AT 125A. PROVIDE
- PROVIDE (2) #10AWG AND (1) #10AWG GND. FOR HEATER.
- PROVIDE 1-INCH CONDUIT WITH 3-SETS OF CONTROL WIRING PAIRS FOR:  FACP CONNECTION TO METASYS PANEL.
- PROVIDE CONNECTION TO CONDENSING UNIT GT-AC-2. SEE SHEET E301.
- PROVIDE CONNECTION TO CONDENSING UNIT GT-AC-3. SEE SHEET E301.
- PROVIDE CONNECTION TO ELEVATOR CAR.
- PROVIDE CONNECTION TO ELEVATOR CAR LIGHTING. FUSE AT 20A. PROVIDE
- PROVIDE 1-INCH CONDUIT WITH CONTROL WIRING PAIR ROUTING.
- PROVIDE 1-INCH CONDUIT WITH DATA CABLING.
- PROVIDE 1-INCH CONDUIT TO IDF 141 WITH DATA CABLING.
- PROVIDE (1) PAIR TROUBLE, (1) PAIR SUPERVISORY. BSU WILL TERMINATE WIRING AT METASYS PANEL.
- PROVIDE CONNECTION TO SUMP PUMPS BELOW. SEE SHEET E301 FOR SUMP PUMP LOCATIONS. SEE SUMPC PUMP PIT DETAIL ON SHEET T501.
- PROVIDE CONNECTION TO FLOATS AND CONTROLS. SEE ELECTRICAL MONITORING, SEE DETAIL #3 ON SHEET T501. PROVIDE (1)
- CABINET. COORDINATE ELEVATION WITH EQUIPMENT ROUTING.
- PROVIDE RECEPTACLE MOUNTED IN BACK OF IDF EQUIPMENT CABLE FEEDS TO SUMP PUMPS BELOW. SEE SHEET E301 FOR SLEEVED OPENING THROUGH FLOOR BELOW PANEL FOR POWER DISTRIBUTION DIAGRAM ON SHEET E601 FOR LINE CONNECTIONS TO FLOATS AND CONTROLS. SEE ELECTRICAL POWER DISTRIBUTION DIAGRAM ON SHEET E601 FOR LINE CONNECTIONS TO DIVISION 22; DIVISION 26 CONTRACTOR RESPONSIBLE FOR DIVISION 22; DIVISION 26 SUMP PUMP CONTROL PANEL FURNISHED AND INSTALLED BY WALKER Consultants.
- PROVIDE (2) #10AWG AND (1) #10AWG GND. FOR HEATER.
- PROVIDE (2) #10AWG AND (1) #10AWG GND. FOR HEATER.
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