DOCUMENT 00 91 13.1 – ADDENDUM TWO

1.1 PROJECT INFORMATION

Project Name: Rinard Orchid Greenhouse Expansion

Owner: Ball State University

Owner Project Number: 2020-033.01 GH1

Architect: arcDESIGN, PC

Architect Project Number: 20125

date of Addendum: March 19, 2021

1.2 NOTICE TO BIDDERS

This Addendum is issued to all registered plan holders pursuant to the Instructions to Bidders and Conditions of the Contract. This Addendum serves to clarify, revise, and supersede information in the Project Manual, Drawings, and previously issued Addenda. Portions of the Addendum affecting the Contract Documents will be incorporated into the Contract by enumeration of the Addendum in the Owner/Contractor Agreement.

The Bidder shall acknowledge receipt of this Addendum in the appropriate space on the Bid Form.

The date for receipt of bids is unchanged by this Addendum, at same time and location.

Bid Date: March 25, 2021

1.3 ATTACHMENTS

This Addendum includes the following attached Documents and Specification Sections:
Section 00 43 00 bid form supplements, dated 02.18.2021, (reissued).
Section 00 91 13.2 Addendum Two, dated 03.19.2021, (new).

This Addendum includes the following attached Sheets:

Civil Sheet C101-Existing Conditions and Demolition Plan, Dated 02.18.2021, (reissued).
Civil Sheet C201-Vehicular Site Plan, dated 02.18.2021, (reissued).
Civil Sheet C301.1-Grading Plan ALT, dated 02.18.2021, (reissued).
Civil Sheet C301-Grading Plan, dated 02.18.2021, (reissued).
Civil Sheet C401.1-Stormwater Pollution Prevention Plan ALT, dated 02.18.2021, (reissued).
Civil Sheet C401-Stormwater Pollution Prevention Plan, dated 02.18.2021, (reissued).
Civil Sheet C402-Stormwater Pollution Prevention Details, dated 02.18.2021, (reissued).
Civil Sheet C403-Stormwater Pollution Prevention Notes, dated 02.18.2021, (reissued).
Civil Sheet C502-Utility Details, dated 02.18.2021, (reissued).
Landscape Sheet LS00 Site Details, 02.18.2021, (reissued).
Electrical Sheet E102 First Floor Power & Systems Plan, dated 02.18.2021 (reissued).

1.4 REVISIONS TO PREVIOUS ADDENDA

N/A

1.5 REVISIONS TO DIVISION 00 PROCUREMENT REQUIREMENTS AND CONTRACTING REQUIREMENTS

Section 00 43 00 bid form supplements, dated 02.18.2021, (reissued).
Section 00 91 13.2 Addendum Two, dated 03.19.2021, (new).

1.6 REVISIONS TO DIVISION 01 GENERAL REQUIREMENTS

None.

1.7 REVISIONS TO DIVISIONS 02 - 49 SPECIFICATION SECTIONS

Section 08 71 00 – Door Hardware, (reissued).
  Hardware Group No. 03: Delete the surface closer.
  Hardware Group No. 04: Delete the surface closer.
  Hardware Group No. 09: Delete the surface closer.
Section 27 15 43 - Faceplates and Connectors, (not reissued).
Delete Paragraph 1.1.B.2 (CATV Termination) in its entirety.
Delete Paragraph 2.2 (CATV Termination) in its entirety.
Delete Paragraph 3.2 (CATV Termination) in its entirety.
Paragraph 2.6.A: Verbiage of this section shall change as follows: “Contractor shall provide the quantity of audio visual faceplates and inserts required by the contract drawings for the project. A minimum of 6 audio visual inserts and 1 HDMI insert shall be provided at each faceplate.”

Section 27 15 13 - Copper Horizontal Cabling.
Paragraph 3.4.B: Change “… e.g. File name FS317data.flw contains all data tests fed from IDF 317. File name FS406data.flw contains all data tests fed from IDF 406.” To read as follows “… e.g. File name FS105data.flw contains all data tests fed from IDF 105”.

Section 31 22 00: Article 3.03: In areas to be excavated, remove sod layer, remove and stockpile topsoil on site, at location designated by the Owner.

Section 31 23 16.13: Paragraph 3.02-D: Electrical power demolition/removal on site is by the Contractor. Utility relocations shall be coordinated with the Owner.

Section 31 23 23: Section makes several references to a “Geotechnical Report” or “Geotechnical Engineering Investigation report”. Paragraph 3.03-H cites the Geotechnical Report for the Foundational Sciences Building. There is no geotechnical report for this project.

Section 33 05 13: Paragraph 1.03-I: Delete reference to the Geotechnical Report for the Health Professions Building.

Section 33 14 16: Article 2.04 and Paragraphs 3.05-C, D, E: There is no fire hydrant installation in this project.

Section 33 41 00: Paragraph 1.04-C: Delete reference to the Geotechnical Report for Foundational Sciences Building.

Section 33 42 11: Paragraph 1.04-L: Delete reference to the Geotechnical Report for Foundational Sciences Building.

1.8 REVISIONS TO DRAWING SHEETS

Sheet L110 – Site Layout Plan ALTERNATE No. 1, dated 02.18.201, (not reissued).
Drawing ADD ALTERNATE #2: Replace title “ADD ALTERNATE #2: WALKWAY ACCESS W/ OUTDOOR CLASSROOM PLAN” with “ADD ALTERNATE #4: WALKWAY ACCESS W/ OUTDOOR CLASSROOM PLAN”.

Sheet L500 - Site Details, 02.18.2021, (reissued).
Adjusted size of the perforated pipe behind the retaining wall.
Sheet C101 – EXISTING CONDITIONS AND DEMOLITION PLAN, dated 02.18.2021, (reissued)
Clarify text for keynotes 3, 6, and 20.
Clarify keynotes 6, 7, and 11.
Clarify dimension on 8.
Add keynote 21.

Sheet C201 – VEHICULAR SITE PLAN, dated 02.18.2021, (reissued)
Clarify parking dimensions.
Clarify text for keynotes 3 and 7.
Clarify keynote 3.
Add details for asphalt pavement, traffic striping, accessible parking space and accessible parking signs.

Sheet C301 – GRADING PLAN, dated 02.18.2021, (reissued)
Revised plain view scale for readability of grades.
Revise threshold elevation to 947.94.
Clarify additional grades on west side of dry creek bed.
Clarify walk grades north of building addition.
Clarify walk grades south of building addition.

Sheet C301.1 GRADING PLAN ALT, dated 02.18.2021, (reissued)
Revised plain view scale for readability of grades.
Revise threshold elevation to 947.94.
Clarify additional grades on west side of dry creek bed.
Clarify walk grades north of building addition.
Clarify walk grades south of building addition.

Sheet C401 – STORMWATER POLLUTION PREVENTION PLAN, dated 02.18.2021, (reissued)
Revise erosion control blanket extents.
Add end section riprap.

Sheet C401.1 - STORMWATER POLLUTION PREVENTION PLAN – ALT, dated 02.18.2021, (reissued)
Revise erosion control blanket extents.
Add end section riprap.

Sheet C402 - STORMWATER POLLUTION PREVENTION DETAILS, dated 02.18.2021, (reissued)
Add detail for end section riprap.
Add details for erosion control blanket.
Add note to See landscape plans for tree protection plan and details.
Sheet C403 - STORMWATER POLLUTION PREVENTION NOTES, dated 02.18.2021, (reissued)
Remove notes not required for projects less than 1 acre in area.

Sheet C501 – UTILITY PLAN, dated 02.18.2021, (reissued)
Revise storm invert elevations, size and slope.
Revise electric route to aligned with electric plans.
Revise text for keynotes 7, 8, 9, 12, 13, 14, and 16.
Add keynotes 18, 19, 20 and 21.

Sheet C502 – UTILITY DETAILS, dated 02.18.2021, (reissued)
Revise Cistern Tank Connection detail
Add inlet detail.
Add end section detail.

Add note that all exposed CMU above grade and 1 course min. below grade shall be “Decorative CMU”.

Updated Foundation details.

Sheet A650 – Window & Door Details, dated 02.18.2021, (reissued).
Updated door frame details.

Updated solar panel layout.

Sheet A701 – Section Details, dated 02.18.2021, (reissued).
Updated Foundation details.

Sheet E102 - First Floor Power & Systems Plan, dated 02.18.2021 (reissued).

1.9 RESPONSES/CLARIFICATIONS TO CONTRACTOR QUESTIONS

“Drawing sheet A650 details 1A – 1C, 2A – 2B implies that there will be metal stud framing at door and window frame openings. This is in conflict with the exterior and interior wall types identified on sheets A010 and A011 that show all wood stud framing. Also, there is no specification section provided for metal stud framing. Please confirm that there is no metal studs required on this project.”

Response: There is no metal stud wall framing in the project. The details mentioned have been corrected.
The panel layout on Sheet A161 shows 28 panels in portrait. PSG’s design showed 40 panels oriented in landscape. Is the 40-panel design still what’s called for?

**Response:** The correct orientation is a 40-panel design in landscape orientation. Refer to Sheet A161 revision in addendum for accurate layout.

1.10 APPROVED SUBSTITUTION REQUESTS

08 11 13 – Hollow Metal Doors and Frames  
Approved Manufacturer: Metal Products Inc. (MPI)

08 14 16 – Flush Wood Doors  
Approved Manufacturer: Oshkosh Door Company

07 54 19 – PVC Roof Membrane  
Approved Manufacturer: Flex Membrane International

29 31 11 – Fire Alarm System  
Approved Manufacturer: Siemens, with the following provisions:

The fire alarm system (all manufacturers) needs to communicate with our campus BACnet system, with all device points addressable. It should communicate device specific alarm and trouble information to the campus system. There is an existing Johnson Controls panel in Mechanical Room 105, on the east wall near the door.

Provide the following alarm outputs for individual points to BSU centralized Campus displays BACnet system (Johnson Metasys):

1. All General alarms.
2. Trouble.
3. Supervisory Alarms.

No system printer is required.

**END OF DOCUMENT 00 91 13.1**
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:   Ball State University  
           Rinard Orchid Greenhouse Expansion

BSU Project No.  2020-033.01 GH1

Date:      March 25, 2021

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**: If applicable, acknowledge receipt of all Addenda and fill in or acknowledge Completion time/Project Schedule.

Appendix B  **Alternates**: 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
   APPENDIX B – Alternates
   **APPENDIX B.1 – Evaluation Matrix for Greenhouse Manufacturers**
   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 statements contained in the foregoing Bid Form Supplements are true and correct.

Subscribed and sworn to before me this __________ day of __________ , __________ .

______________________________________________________________
My Commission Expires: ______________________
County of Residence: ______________________

Notary Public
1. ADDENDA

The Bidder acknowledges receipt of the following Addenda:

Addendum No.   Dated  
Addendum No.   Dated  
Addendum No.   Dated  
Addendum No.   Dated  
Addendum No.   Dated  

2. PROJECT COMPLETION

If this Bid is accepted, we will:

Commence on site work on the  day of , 20  and
Substantially Complete the Work by the  day of , 20 .
APPENDIX B - ALTERNATES

The following amounts shall be added to or deducted from the Base Bid Sum. Refer to Section 01 23 00 - Alternates: Schedule of Alternates.

A. Alternate No. 1 – Informational Pricing for Various Greenhouse Manufacturers

1a. Winandy:
   (Add) (Deduct) $ ____________________

1b. National Greenhouse Company:
   (Add) (Deduct) $ ____________________

1c. Rough Brothers:
   (Add) (Deduct) $ ____________________

B. Alternate No. 2 – Deduct 12' Bay of Greenhouse Construction

2a. Winandy:
   (Add) (Deduct) $ ____________________

2b. National Greenhouse Company:
   (Add) (Deduct) $ ____________________

2c. Rough Brothers:
   (Add) (Deduct) $ ____________________
C. Alternate No. 3 – Replace Greenhouse Roofing Materials

3a. Winandy:
(Add) (Deduct) $ __________________

3b. National Greenhouse Company:
(Add) (Deduct) $ __________________

3c. Rough Brothers:
(Add) (Deduct) $ __________________

D. Alternate No. 4 – Provide Outdoor Classroom

(Add) (Deduct) $ __________________

E. Alternate No. 5 – Provide Cistern

(Add) (Deduct) $ __________________
### Alternate 1

Provide the following information from the Greenhouse Manufacturers listed, regarding systems and materials proposed at the time of Bidding. The information provided shall be utilized to evaluate the proposals for each manufacturer. The Greenhouse Manufacturer shall provide systems in compliance with Section 13 43 13.

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Cooling System Description / Manufacturer</th>
<th>Roof Glazing Manufacturer / Product</th>
<th>Fog System Manufacturer / Model</th>
<th>Number of Expansion Projects of Similar Scope and Complexity</th>
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<td>Winandy Greenhouse Company</td>
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<td>National Greenhouse Company</td>
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<td>Rough Brothers</td>
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<td>Other (Name)</td>
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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 01 22 00 – Unit Prices: Unit Price Schedule.

<table>
<thead>
<tr>
<th>ITEM OF WORK</th>
<th>UNIT OF MEASUREMENT</th>
<th>UNIT VALUE</th>
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<tbody>
<tr>
<td>Not Applicable</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.

<table>
<thead>
<tr>
<th>WORK SUBJECT</th>
<th>SUBCONTRACTOR</th>
<th>Pre-Qualified</th>
<th>Pre-Qualification Certification Expiration Date</th>
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<tr>
<td>Demolition</td>
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<tr>
<td>Concrete</td>
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<td>Masonry</td>
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<td>Structural Steel</td>
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<td>Miscellaneous Steel / Stairs</td>
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<td>Carpentry</td>
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<td>Waterproofing</td>
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<td>Air and Moisture Barriers</td>
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<tr>
<td>Roofing</td>
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<thead>
<tr>
<th>Aluminum Entrances, Storefronts, Curtainwall, and Windows</th>
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<tbody>
<tr>
<td>Gypsum Board Assemblies and Ceilings</td>
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<tr>
<td>Carpet and Resilient Flooring</td>
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<td>Plumbing</td>
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<td>HVAC</td>
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<td>Electrical</td>
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<td>Telecommunications, Data, and Electronic Security</td>
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<td>Sitework</td>
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<tr>
<td>Plastic-Laminate Casework and Millwork</td>
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<td>Photovoltaic Systems</td>
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<td>Glazed Structures</td>
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<tr>
<td>Fire Alarm Systems</td>
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</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>ITEM</th>
<th>SUBCONTRACTOR</th>
<th>MANUFACTURER/SUPPLIER</th>
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<tbody>
<tr>
<td>Division 03 Cast-in-Place Concrete</td>
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<td>Division 04 Unit Masonry</td>
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<td>Division 05 Structural Steel</td>
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<td>Division 05/09 Cold-Formed Metal Framing</td>
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<td>Division 05 Metal Fabrications</td>
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<td>Division 06 Carpentry</td>
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<td>Division 07 Waterproofing</td>
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<td>Division 07 Thermal Insulation</td>
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<td>Division 07 Air and Moisture Barriers</td>
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<td>Division 07 Fiber Cement Siding</td>
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<td>Division 07 Roofing</td>
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<td>Division 07 Joint Sealers</td>
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<td>Division 08 Doors, Frames, and Hardware</td>
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<td>Division 08 Aluminum Entrances, Storefront, and Glazing</td>
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<td>Division</td>
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<td>09</td>
<td>Gypsum Board Assemblies</td>
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<td>Tiling (Ceramic)</td>
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<td>Carpet Tiles</td>
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<td>Acoustical Panel Ceilings and Baffles</td>
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<td>09</td>
<td>Painting</td>
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<td>10</td>
<td>Toilet Partitions and Accessories</td>
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<td>12</td>
<td>Plastic-Laminate Casework and Millwork</td>
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<td>31</td>
<td>Earthwork</td>
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<td>32</td>
<td>Concrete Paving</td>
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<td>Asphalt Paving</td>
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<td>33</td>
<td>Site Utilities</td>
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<td>33</td>
<td>Utility Vaults</td>
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</tbody>
</table>
APPENDIX F - SUPPLEMENTARY MECHANICAL INFORMATION

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

<table>
<thead>
<tr>
<th>ITEM</th>
<th>SUBCONTRACTOR</th>
<th>MANUFACTURER/SUPPLIER</th>
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<tbody>
<tr>
<td>Division 22 Insulation</td>
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<td>Division 22 Valves</td>
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<td>Division 22 Domestic Water Pumps</td>
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<td>Division 22 Sanitary Piping</td>
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<td>Division 22 Plumbing Fixtures</td>
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<td>Division 22 Plumbing Specialties</td>
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<td>Division 23 Insulation</td>
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<td>Division 23 Instrumentation and Controls</td>
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<td>Division 23 HVAC Piping</td>
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<td>Division 23 Identification for Piping and Equipment</td>
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<td>Division 23 Testing, Adjusting, and Balancing</td>
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<td>Division 23 Hydronic Pumps and Accessories</td>
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<td>Division 23 Ductwork</td>
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<td>Division 23 Prefabricated Insulated Duct</td>
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<td>Division 23 HVAC Fans</td>
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<td>Division 23 Power Ventilators</td>
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<td>Division 23 VAV Terminal Units</td>
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<td>Division 23 Air Handler Units</td>
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<tr>
<td>Division 23 Electric Terminal Heating Units</td>
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<td>Division 33 Underground Hydronic Piping</td>
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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.

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

<table>
<thead>
<tr>
<th>ITEM</th>
<th>SUBCONTRACTOR</th>
<th>MANUFACTURER/SUPPLIER</th>
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<tbody>
<tr>
<td>Division 26 Switchboards</td>
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<td>Division 26 Panelboards</td>
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<td>Division 26 Motor Control Centers</td>
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<td>Division 26 Enclosed Switches and Circuit Breakers</td>
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<td>Division 26 Wiring Devices</td>
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<td>Division 26 Fuses</td>
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<td>Division 26 Disconnect Switches</td>
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<td>Division 26 Contactors</td>
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<td>Division 26 Variable Frequency Drives</td>
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<td>Division 26 Surge Protection Devices</td>
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<td>Division 26 Interior Lighting Fixtures (indicate for each fixture type)</td>
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(continued on next page)
| Division 26 Exterior Lighting Fixtures and Poles (indicate for each fixture type) |
| Division 26 Lighting Control Devices |
| Division 26 Emergency Lighting |
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 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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<tbody>
<tr>
<td>Division 27 Cameras for Audio/Visual Systems</td>
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<td>Division 27 Hangers and Supports for Communications Systems</td>
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<td>Division 27 Surface Raceways for Communications Systems</td>
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<td>Division 27 Communications Cabinets, Racks, Frames, and Enclosures</td>
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<td>Division 27 Communications Copper Backbone Cabling</td>
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<td>Division 27 Communications Optical Fiber Backbone Cabling</td>
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<td>Division 27 Distributed A/V Communications Systems</td>
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<td>Division 28 Power Sources for Electronic Security and Safety</td>
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<td>Division 28 Uninterruptable Power Supply</td>
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<td>Division 28 Safety and Security Network Communication Equipment</td>
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<td>Division 28 Integrated Credential Readers and Entry Management</td>
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<td>Division 28 Fire Protection and Alarm</td>
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SECTION 08 71 00 – DOOR HARDWARE

GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

A. Section includes:

1. Mechanical and electrified door hardware for:
   a. Swinging doors.

2. Electronic access control system components, including:
   a. Electronic access control devices.

3. Field verification, preparation and modification of existing doors and frames to receive new door hardware.

4. The intent of the hardware specification is to specify the hardware for interior and exterior doors, and to establish a type, continuity, and standard of quality. However, it is the door hardware supplier’s responsibility to thoroughly review existing conditions, schedules, specifications, drawings, and other Contract Documents to verify the suitability of the hardware specified.

B. Exclusions: Unless specifically listed in hardware sets, hardware is not specified in this section for:

   1. Windows
   2. Cabinets (casework), including locks in cabinets
   3. Signage
   4. Toilet accessories
   5. Overhead doors

C. Related Sections:

   1. Division 01 Section “Alternates” for alternates affecting this section.
   2. Division 07 Section “Joint Sealants” for sealant requirements applicable to threshold installation specified in this section.
   3. Division 09 sections for touchup, finishing or refinishing of existing openings modified by this section.
   4. Division 26 sections for connections to electrical power system and for low-voltage wiring.
5. Division 28 sections for coordination with other components of electronic access control system.

1.03 REFERENCES

A. UL - Underwriters Laboratories
   1. UL 10B - Fire Test of Door Assemblies
   2. UL 10C - Positive Pressure Test of Fire Door Assemblies
   3. UL 1784 - Air Leakage Tests of Door Assemblies
   4. UL 305 - Panic Hardware

B. DHI - Door and Hardware Institute
   1. Sequence and Format for the Hardware Schedule
   2. Recommended Locations for Builders Hardware
   3. Key Systems and Nomenclature

C. ANSI - American National Standards Institute
   1. ANSI/BHMA A156.1 - A156.29, and ANSI/BHMA A156.31 - Standards for Hardware and Specialties

1.04 SUBMITTALS

A. General:
   1. Submit in accordance with Conditions of Contract and Division 01 requirements.
   2. Highlight, encircle, or otherwise specifically identify on submittals deviations from Contract Documents, issues of incompatibility or other issues which may detrimentally affect the Work.
   3. Prior to forwarding submittal, comply with procedures for verifying existing door and frame compatibility for new hardware, as specified in PART 3, “EXAMINATION” article, herein.

B. Action Submittals:
   1. Product Data: Technical product data for each item of door hardware, installation instructions, maintenance of operating parts and finish, and other information necessary to show compliance with requirements.
   2. Riser and Wiring Diagrams: After final approval of hardware schedule, submit details of electrified door hardware, indicating:
      a. Wiring Diagrams: For power, signal, and control wiring and including:
         1) Details of interface of electrified door hardware and building safety and security systems.
         2) Schematic diagram of systems that interface with electrified door hardware.
         3) Point-to-point wiring.
         4) Risers.
3. Samples for Verification: If requested by Architect, submit production sample or sample installations of each type of exposed hardware unit in finish indicated, and tagged with full description for coordination with schedule.
   a. Samples will be returned to supplier. Units that are acceptable to Architect may, after final check of operations, be incorporated into Work, within limitations of key coordination requirements.

4. Door Hardware Schedule: Submit schedule with hardware sets in vertical format as illustrated by Sequence of Format for the Hardware Schedule as published by the Door and Hardware Institute. Indicate complete designations of each item required for each door or opening, include:
   a. Door Index: include door number, heading number, and Architects hardware set number.
   b. Opening Lock Function Spreadsheet: List locking device and function for each opening.
   c. Quantity, type, style, function, size, and finish of each hardware item.
   d. Name and manufacturer of each item.
   e. Fastenings and other pertinent information.
   f. Location of each hardware set cross-referenced to indications on Drawings.
   g. Explanation of all abbreviations, symbols, and codes contained in schedule.
   h. Mounting locations for hardware.
   i. Door and frame sizes and materials.
   j. Name and phone number for local manufacturer’s representative for each product.
   k. Operational Description of openings with any electrified hardware (locks, exits, electromagnetic locks, electric strikes, automatic operators, door position switches, magnetic holders or closer/holder units, and access control components). Operational description should include operational descriptions for: egress, ingress (access), and fire/smoke alarm connections.
   l. Submittal Sequence: Submit door hardware schedule concurrent with submissions of Product Data, Samples, and Shop Drawings. Coordinate submission of door hardware schedule with scheduling requirements of other work to facilitate fabrication of other work that is critical in Project construction schedule.

5. Key Schedule:
   a. After Keying Conference, provide keying schedule listing levels of keying as well as explanation of key system's function, key symbols used and door numbers controlled.
   b. Use ANSI/BHMA A156.28 “Recommended Practices for Keying Systems” as guideline for nomenclature, definitions, and approach for selecting optimal keying system.
   c. Provide 3 copies of keying schedule for review prepared and detailed in accordance with referenced DHI publication. Include schematic keying diagram and index each key to unique door designations.
   d. Index keying schedule by door number, keyset, hardware heading number, cross keying instructions, and special key stamping instructions.
   e. Provide one complete bitting list of key cuts and one key system schematic illustrating system usage and expansion.
      1) Forward bitting list, key cuts and key system schematic directly to Owner, by means as directed by Owner.
   f. Prepare key schedule by or under supervision of supplier, detailing Owner’s final keying instructions for locks.
6. Templates: After final approval of hardware schedule, provide templates for doors, frames and other work specified to be factory or shop prepared for door hardware installation.

C. Informational Submittals:

1. Qualification Data: For Supplier, Installer and Architectural Hardware Consultant.
2. Product data for electrified door hardware:
   a. Certify that door hardware approved for use on types and sizes of labeled fire-rated doors complies with listed fire-rated door assemblies.

3. Certificates of Compliance:
   a. UL listings for fire-rated hardware and installation instructions if requested by Architect or Authority Having Jurisdiction.
   b. Installer Training Meeting Certification: Letter of compliance, signed by Contractor, attesting to completion of installer training meeting specified in “QUALITY ASSURANCE” article, herein.
   c. Electrified Hardware Coordination Conference Certification: Letter of compliance, signed by Contractor, attesting to completion of electrified hardware coordination conference, specified in “QUALITY ASSURANCE” article, herein.

4. Warranty: Special warranty specified in this Section.

D. Closeout Submittals:

1. Operations and Maintenance Data: Provide in accordance with Division 01 and include:
   a. Complete information on care, maintenance, and adjustment; data on repair and replacement parts, and information on preservation of finishes.
   b. Catalog pages for each product.
   c. Factory order acknowledgement numbers (for warranty and service)
   d. Name, address, and phone number of local representative for each manufacturer.
   e. Parts list for each product.
   f. Final approved hardware schedule, edited to reflect conditions as-installed.
   g. Final keying schedule
   h. Copies of floor plans with keying nomenclature
   i. As-installed wiring diagrams for each opening connected to power, both low voltage and 110 volts.
   j. Copy of warranties including appropriate reference numbers for manufacturers to identify project.

1.05 QUALITY ASSURANCE

A. Requirements of Regulatory Agencies:

1. Furnish finish hardware to comply with the requirements of laws, codes, ordinances, and regulations of the governmental authorities having jurisdiction where such requirements exceed the requirements of the Specifications.
2. Furnish finish hardware to comply with the requirements of the regulations for public building accommodations for physically handicapped persons of the governmental authority having jurisdiction and to comply with Americans with Disabilities Act.

3. Provide hardware for fire rated openings in compliance with NFPA 80 and state and local building code requirements. Provide only hardware that has been tested and listed by UL for types and sizes of doors required and complies with requirements of door and door frame labels.

B. Supplier:

1. Mechanical Hardware
   a. Shall be an established firm dealing in contract builders’ hardware. Distributor must have adequate inventory, qualified personnel on staff and be located within 100 miles of the project. The distributor must be a factory-authorized dealer for all materials required. The supplier shall be or have in employment an Architectural Hardware Consultant (AHC).
   b. Door Hardware distributor/supplier listed on the Bid Form shall be a factory authorized distributor for the hardware specified. This requirement will not be allowed to be met by a non-factory authorized dealer subcontracting to a factory authorized dealer. Any submitted bid that attempts to circumvent this requirement will be considered non-response and will be removed from consideration.

2. Electrified Hardware:
   a. Shall be an experienced door hardware supplier who has completed projects with electrified door hardware similar in material, design, and extent to that indicated for this project, whose work has resulted in construction with a record of successful in-service performance, and who is acceptable to manufacturer of primary materials. The supplier must be a factory-authorized distributor for all materials required.
   b. Shall prepare data for electrified door hardware, including shop drawings, based on testing and engineering analysis of manufacturer’s standard units in assemblies similar to those indicated for this project.
   c. Shall have experience in providing consulting services for electrified door hardware installations.

C. Installer Qualifications:

1. Qualified tradesmen, skilled in application of commercial grade hardware with record of successful in-service performance for installing door hardware similar in quantity, type, and quality to that indicated for this Project.

D. Architectural Hardware Consultant Qualifications: Person who is experienced in providing consulting services for door hardware installations that are comparable in material, design, and extent to that indicated for this Project and meets these requirements:
   1. For door hardware, DHI-certified, Architectural Hardware Consultant (AHC).
   2. Can provide installation and technical data to Architect and other related subcontractors.
   3. Can inspect and verify components are in working order upon completion of installation.
   5. Capable of coordinating installation of electrified hardware with Architect and electrical engineers.
E. Single Source Responsibility: Obtain each type of door hardware from single manufacturer.

F. Fire-Rated Door Openings: Provide door hardware for fire-rated openings that complies with NFPA 80 and requirements of authorities having jurisdiction. Provide only items of door hardware that are listed products tested by Underwriters Laboratories, Intertek Testing Services, or other testing and inspecting organizations acceptable to authorities having jurisdiction for use on types and sizes of doors indicated, based on testing at positive pressure and according to NFPA 252 or UL 10C and in compliance with requirements of fire-rated door and door frame labels.

G. Electrified Door Hardware: Listed and labeled as defined in NFPA 70, Article 100, by testing agency acceptable to authorities having jurisdiction.

H. Accessibility Requirements: For door hardware on doors in an accessible route, comply with governing accessibility regulations cited in “REFERENCES” article, herein.

I. Keying Conference
   1. Incorporate keying conference decisions into final keying schedule after reviewing door hardware keying system including:
      a. Function of building, flow of traffic, purpose of each area, degree of security required, and plans for future expansion.
      b. Preliminary key system schematic diagram.
      c. Requirements for key control system.
      d. Requirements for access control.
      e. Address for delivery of keys.

J. Pre-installation Conference
   1. Review and finalize construction schedule and verify availability of materials, Installer’s personnel, equipment, and facilities needed to make progress and avoid delays.
   2. Inspect and discuss preparatory work performed by other trades.
   3. Inspect and discuss electrical roughing-in for electrified door hardware.
   4. Review sequence of operation for each type of electrified door hardware.
   5. Review required testing, inspecting, and certifying procedures.

K. Coordination Conferences:
   1. Installation Coordination Conference: Prior to hardware installation, schedule and hold meeting to review questions or concerns related to proper installation and adjustment of door hardware.
   2. Electrified Hardware Coordination Conference: Prior to ordering electrified hardware, schedule and hold meeting to coordinate door hardware with security, electrical, doors and frames, and other related suppliers.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Inventory door hardware on receipt and provide secure lock-up for hardware delivered to Project site.
B. Tag each item or package separately with identification coordinated with final door hardware schedule, and include installation instructions, templates, and necessary fasteners with each item or package.

1. Deliver each article of hardware in manufacturer’s original packaging.

C. Project Conditions:

1. Maintain manufacturer-recommended environmental conditions throughout storage and installation periods.
2. Provide secure lock-up for door hardware delivered to Project. Control handling and installation of hardware items so that completion of Work will not be delayed by hardware losses both before and after installation.

D. Protection and Damage:

1. Promptly replace products damaged during shipping.
2. Handle hardware in manner to avoid damage, marring, or scratching. Correct, replace or repair products damaged during Work.
3. Protect products against malfunction due to paint, solvent, cleanser, or any chemical agent.

1.07 COORDINATION

A. Coordinate layout and installation of floor-recessed door hardware with floor construction. Cast anchoring inserts into concrete.

B. Installation Templates: Distribute for doors, frames, and other work specified to be factory or shop prepared. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing door hardware to comply with indicated requirements.

C. Security: Coordinate installation of door hardware, access control, and keying with Owner’s security consultant.

D. Electrical System Roughing-In: Coordinate layout and installation of electrified door hardware with connections to power supplies and building safety and security systems.

E. Existing Openings: Where existing doors, frames and/or hardware are to remain, field verify existing functions, conditions and preparations and coordinate to suit opening conditions and to provide proper door operation.

1.08 WARRANTY

A. Warranty: Manufacturer’s standard form in which manufacturer agrees to repair or replace components of door hardware that fail in materials or workmanship within specified warranty period.

1. Warranty Period: Beginning from date of Substantial Completion, for durations indicated.

a. Closers:
   1) Mechanical: 30 years.
b. Automatic Operators: 2 years.

c. Exit Devices:
   1) Mechanical: 3 years.
   2) Electrified: 1 year.

d. Locksets:
   1) Mechanical: 3 years

e. Continuous Hinges: Lifetime warranty.

f. Key Blanks: Lifetime

2. Warranty does not cover damage or faulty operation due to improper installation, improper use or abuse.

1.09 MAINTENANCE

A. Maintenance Tools: Furnish complete set of special tools required for maintenance and adjustment of hardware, including changing of cylinders.

PRODUCTS

2.01 MANUFACTURERS

A. The Owner requires use of certain products for their unique characteristics and project suitability to insure continuity of existing and future performance and maintenance standards. After investigating available product offerings, the Awarding Authority has elected to prepare proprietary specifications. These products are specified with the notation: “No Substitute.”

1. Where ”No Substitute” is noted, submittals and substitution requests for other products will not be considered.

B. Approval of manufacturers and/or products other than those listed as “Scheduled Manufacturer” or “Acceptable Manufacturers” in the individual article for the product category shall be in accordance with QUALITY ASSURANCE article, herein.

C. Approval of products from manufacturers indicated in “Acceptable Manufacturers” is contingent upon those products providing all functions and features and meeting all requirements of scheduled manufacturer’s product.

D. Where specified hardware is not adaptable to finished shape or size of members requiring hardware, furnish suitable types having same operation and quality as type specified, subject to Architect's approval.

2.02 MATERIALS

A. Fasteners
DOOR HARDWARE
Rinard Orchid Greenhouse Expansion
Muncie, IN
BSU# 2020-033.01 GH1

1. Provide hardware manufactured to conform to published templates, generally prepared for machine screw installation.
2. Furnish screws for installation with each hardware item. Finish exposed (exposed under any condition) screws to match hardware finish, or, if exposed in surfaces of other work, to match finish of this other work including prepared for paint surfaces to receive painted finish.
3. Provide concealed fasteners for hardware units exposed when door is closed except when no standard units of type specified are available with concealed fasteners. Do not use thru-bolts for installation where bolt head or nut on opposite face is exposed in other work unless thru-bolts are required to fasten hardware securely. Review door specification and advise Architect if thru-bolts are required.
4. Install hardware with fasteners provided by hardware manufacturer.

B. Modification and Preparation of Existing Doors: Where existing door hardware is indicated to be removed and reinstalled.

1. Provide necessary fillers, Dutchmen, reinforcements, and fasteners, compatible with existing materials, as required for mounting new opening hardware and to cover existing door and frame preparations.
2. Use materials which match materials of adjacent modified areas.
3. When modifying existing fire-rated openings, provide materials permitted by NFPA 80 as required to maintain fire-rating.

C. Provide screws, bolts, expansion shields, drop plates and other devices necessary for hardware installation.

1. Where fasteners are exposed to view: Finish to match adjacent door hardware material.

D. Cable and Connectors: Hardwired Electronic Access Control Lockset and Exit Device Trim:

1. Data: 24AWG, 4 conductor shielded, Belden 9843, 9841 or comparable.
2. DC Power: 18 AWG, 2 conductor, Belden 8760 or comparable.
3. Provide type of data and DC power cabling required by access control device manufacturer for this installation.
4. Where scheduled in the hardware sets, provide each item of electrified hardware and wire harnesses with sufficient number and wire gauge with standardized Molex plug connectors to accommodate electric function of specified hardware. Provide Molex connectors that plug directly into connectors from harnesses, electric locking and power transfer devices. Provide through-door wire harness for each electrified locking device installed in a door and wire harness for each electrified hinge, electrified continuous hinge, electrified pivot, and electric power transfer for connection to power supplies.

2.03 HINGES

A. Manufacturers and Products:

2. Acceptable Manufacturers and Products: Hager BB series (ECBB series not approved), Bommer BB5000.
B. Requirements:

1. Provide hinges conforming to ANSI/BHMA A156.1.
2. 1-3/4 inch (44 mm) thick doors, up to and including 36 inches (914 mm) wide:
   a. Exterior: Standard weight, bronze or stainless steel, 4-1/2 inches (114 mm) high
   b. Interior: Standard weight, steel, 4-1/2 inches (114 mm) high
3. 1-3/4 inch (44 mm) thick doors over 36 inches (914 mm) wide:
   a. Exterior: Heavy weight, bronze/stainless steel, 5 inches (127 mm) high
   b. Interior: Heavy weight, steel, 5 inches (127 mm) high
4. 2 inches or thicker doors:
   a. Exterior: Heavy weight, bronze or stainless steel, 5 inches (127 mm) high
   b. Interior: Heavy weight, steel, 5 inches (127 mm) high
5. Provide three hinges per door leaf for doors 90 inches (2286 mm) or less in height, and one additional hinge for each 30 inches (762 mm) of additional door height.
6. Where new hinges are specified for existing doors or existing frames, provide new hinges of identical size to hinge preparation present in existing door or existing frame.
7. Hinge Pins: Except as otherwise indicated, provide hinge pins as follows:
   a. Steel Hinges: Steel pins
   b. Non-Ferrous Hinges: Stainless steel pins
   c. Out-Swinging Exterior Doors: Non-removable pins
   d. Out-Swinging Interior Lockable Doors: Non-removable pins
   e. Interior Non-Lockable Doors: Non-rising pins
8. Width of hinges: 4-1/2 inches (114 mm) at 1-3/4 inch (44 mm) thick doors, and 5 inches (127 mm) at 2 inches (51 mm) or thicker doors. Adjust hinge width as required for door, frame, and wall conditions to allow proper degree of opening.

2.04 CONTINUOUS HINGES

A. Aluminum Geared

1. Manufacturers:
   a. Scheduled Manufacturer: Ives.

2. Requirements:
   a. Provide aluminum geared continuous hinges conforming to ANSI/BHMA A156.26, Grade 1.
   b. Provide aluminum geared continuous hinges, where specified in the hardware sets, fabricated from 6063-T6 aluminum.
   c. Provide split nylon bearings at each hinge knuckle for quiet, smooth, self-lubricating operation.
d. Provide hinges capable of supporting door weights up to 450 pounds, and successfully tested for 1,500,000 cycles.

e. On fire-rated doors, provide aluminum geared continuous hinges that are classified for use on rated doors by testing agency acceptable to authority having jurisdiction.

f. Provide aluminum geared continuous hinges with electrified option scheduled in the hardware sets. Provide with sufficient number and wire gage to accommodate electric function of specified hardware.

g. Install hinges with fasteners supplied by manufacturer.

h. Provide hinges 1 inch (25 mm) shorter in length than nominal height of door, unless otherwise noted or door details require shorter length and with symmetrical hole pattern.

2.05 ELECTRIC POWER TRANSFER

A. Manufacturers:
   a. Scheduled Manufacturer: Von Duprin EPT-10.

B. Provide power transfer with electrified options as scheduled in the hardware sets. Provide with number and gage of wires sufficient to accommodate electric function of specified hardware.

C. Locate electric power transfer per manufacturer’s template and UL requirements, unless interference with operation of door or other hardware items.

2.06 MORTISE LOCKS

A. Manufacturers and Products:

B. Requirements:
   1. Provide mortise locks conforming to ANSI/BHMA A156.13 Series 1000, Grade 1, and UL Listed for 3 hour fire doors.
   2. Indicators: Where specified, provide indicator window measuring a minimum 2 inch x 1/2 inch with 180 degree visibility. Provide messages color-coded with full text and/or symbols, as scheduled, for easy visibility.
      a. Outside Occupancy Indicator: Provide indicator above cylinder or emergency release for visibility while operating the lock that identifies an occupied/unoccupied status of the lock or latch.
   3. Provide locks manufactured from heavy gauge steel, containing components of steel with a zinc dichromate plating for corrosion resistance.
   4. Provide lock case that is multi-function and field reversible for handing without opening case. Cylinders: Refer to “KEYING” article, herein.
   5. Verify lock functions with owner prior to ordering.
6. Provide locks with standard 2-3/4 inches (70 mm) backset with full 3/4 inch (19 mm) throw stainless steel mechanical anti-friction latchbolt. Provide deadbolt with full 1 inch (25 mm) throw, constructed of stainless steel.

7. Provide standard ASA strikes unless extended lip strikes are necessary to protect trim.

8. Provide electrified options as scheduled in the hardware sets. Where scheduled, provide switches and sensors integrated into the locks and latches.

9. Lever Trim: Solid brass, bronze, or stainless steel, cast or forged in design specified, with wrought roses and external lever spring cages. Provide thru-bolted levers with 2-piece spindles.
   a. Lever Design: Schlage 17A
   b. Tactile Warning (Knurling): Where required by authority having jurisdiction. Provide on levers on exterior (secure side) of doors serving rooms considered to be hazardous.

2.07 EXIT DEVICES

A. Manufacturers and Products:

   2. Acceptable Manufacturers and Products: No Substitutions

B. Requirements:

   1. Provide exit devices tested to ANSI/BHMA A156.3 Grade 1 and UL listed for Panic Exit or Fire Exit Hardware.
   2. Cylinders: Refer to “KEYING” article, herein.
   3. Verify exit device functions with owner prior to ordering.
   4. Provide touchpad type exit devices, fabricated of brass, bronze, stainless steel, or aluminum, plated to standard architectural finishes to match balance of door hardware.
   5. Touchpad must extend a minimum of one half of door width. No plastic inserts are allowed in touchpads.
   6. Provide exit devices with deadlatching feature for security and for future addition of alarm kits and/or other electrified requirements.
   7. Provide flush end caps for exit devices.
   8. Provide exit devices with manufacturer’s approved strikes.
   9. Provide exit devices cut to door width and height. Install exit devices at height recommended by exit device manufacturer, allowable by governing building codes, and approved by Architect.
   10. Mount mechanism case flush on face of doors, or provide spacers to fill gaps behind devices. Where glass trim or molding projects off face of door, provide glass bead kits.
   11. Provide cylinder or hex-key dogging as specified at non fire-rated openings.
   12. Provide dogging indicators (CDSI/HDSI) for visible indication of dogging status.
   13. Removable Mullions: 2 inches (51 mm) x 3 inches (76 mm) steel tube. Where scheduled as keyed removable mullion, provide type that can be removed by use of a keyed cylinder, which is self-locking when re-installed.
   14. Provide factory drilled weep holes for exit devices used in full exterior application, highly corrosive areas, and where noted in hardware sets.
   15. Provide electrified options as scheduled.
   16. Provide exit devices with optional trim designs to match other lever and pull designs used on the project.
a. Tactile Warning (Knurling): Where required by authority having jurisdiction. Provide on levers on exterior (secure side) of doors serving rooms considered to be hazardous.

2.08 POWER SUPPLIES

A. Manufacturers and Products:
   1. Scheduled Manufacturer and Product: Schlage or Von Duprin PS900 series
   2. Acceptable Manufacturers and Products No Substitutions

B. Requirements:
   1. Provide power supplies, recommended and approved by manufacturer of electrified locking component, for operation of electrified locks, electrified exit devices, magnetic locks, electric strikes, and other components requiring power supply.
   2. Provide appropriate quantity and size of power supplies necessary for proper operation of electrified locking components as recommended by manufacturer of electrified locking components with consideration for each electrified component using power supply, location of power supply, and approved wiring diagrams. Locate power supplies as directed by Architect.
   3. Provide appropriate option boards for power supplies necessary for proper operation of the electrified locking components as recommended by the manufacturer of the electrified locking components with consideration for each electrified component used in the system.
   4. Provide regulated and filtered 24 VDC power supply and UL class 2 listed.
   5. Options:
      a. Provide power supply, where specified, with internal capability of charging sealed backup batteries 24 VDC, in addition to operating DC load.
      b. Provide sealed batteries for battery back-up at each power supply where specified.
      c. Provide keyed power supply cabinet.
   6. Provide power supply in an enclosure, complete, and requiring 120VAC to fused input.
   7. Provide power supply with emergency release terminals, where specified, that allow release of all devices upon activation of fire alarm system complete with fire alarm input for initiating “no delay” exiting mode.

2.09 CYLINDERS AND KEYING

A. Manufacturers:
   1. Scheduled Manufacturer: BEST
   2. Acceptable Manufacturers: No Substitution

B. Requirements:
   1. Owner to Provide and install cores, cylinders, and keys.
2.10 DOOR CLOSERS

A. Manufacturers and Products:


B. Requirements:

1. Provide door closers conforming to ANSI/BHMA A156.4 Grade 1 requirements by BHMA certified independent testing laboratory. ISO 9000 certify closers. Stamp units with date of manufacture code.
2. Provide door closers with fully hydraulic, full rack and pinion action with high strength cast iron cylinder, and full complement bearings at shaft.
3. Cylinder Body: 1-1/2 inch (38 mm) diameter with 3/4 inch (19 mm) diameter double heat-treated pinion journal.
4. Hydraulic Fluid: Fireproof, passing requirements of UL10C, and requiring no seasonal closer adjustment for temperatures ranging from 120 degrees F to -30 degrees F.
5. Spring Power: Continuously adjustable over full range of closer sizes, and providing reduced opening force as required by accessibility codes and standards.
6. Hydraulic Regulation: By tamper-proof, non-critical valves, with separate adjustment for latch speed, general speed, and backcheck.
7. Provide closers with solid forged steel main arms and factory assembled heavy-duty forged forearms for parallel arm closers.
8. Pressure Relief Valve (PRV) Technology: Not permitted.
9. Finish for Closer Cylinders, Arms, Adapter Plates, and Metal Covers: Powder coating finish which has been certified to exceed 100 hours salt spray testing as described in ANSI Standard A156.4 and ASTM B117, or has special rust inhibitor (SRI).
10. Provide special templates, drop plates, mounting brackets, or adapters for arms as required for details, overhead stops, and other door hardware items interfering with closer mounting.

2.11 ELECTRO-HYDRAULIC AUTOMATIC OPERATORS

A. Manufacturers and Products:

2. Acceptable Manufacturers and Products: No Substitutions

B. Requirements:

1. Provide low energy automatic operator units with hydraulic closer complying with ANSI/BHMA A156.19.
2. Hydraulic Fluid: Fireproof, passing requirements of UL10C, and requiring no seasonal closer adjustment for temperatures ranging from 120 degrees F to -30 degrees F.
3. Provide units with conventional door closer opening and closing forces unless power operator motor is activated. Provide door closer assembly with adjustable spring size, back-check, and opening and closing speed adjustment valves to control door
4. Provide units with on/off switch for manual operation, motor start up delay, vestibule interface delay, electric lock delay, and door hold open delay.
5. Provide units with conventional door closer opening and closing forces unless power operator motor is activated. Provide door closer assembly with adjustable spring size, back-check valve, sweep valve, latch valve to control door.
6. Provide drop plates, brackets, or adapters for arms as required for details.
7. Provide hard-wired actuator switches for operation as specified.
8. Provide weather-resistant actuators at exterior applications.
9. Provide key switches with LED’s, recommended and approved by manufacturer of automatic operator as required for function described in operation description of hardware group below. Cylinders: Refer to “KEYING” article, herein.
10. Provide complete assemblies of controls, switches, power supplies, relays, and parts/material recommended and approved by manufacturer of automatic operator for each individual leaf. Actuators control both doors simultaneously at pairs. Sequence operation of exterior and vestibule doors with automatic operators to allow ingress or egress through both sets of openings as directed by Architect. Locate actuators, key switches, and other controls as directed by Architect.
11. Provide units with vestibule inputs that allow sequencing operation of two units, and SPDT relay for interfacing with latching or locking devices.

2.12 DOOR TRIM

A. Manufacturers:
   1. Scheduled Manufacturer: Ives.

B. Requirements:
   1. Provide push plates 4 inches (102 mm) wide by 16 inches (406 mm) high by 0.050 inch (1 mm) thick and beveled 4 edges. Where width of door stile prevents use of 4 inches (102 mm) wide plate, adjust width to fit.
   2. Provide push bars of solid bar stock, diameter and length as scheduled. Provide push bars of sufficient length to span from center to center of each stile. Where required, mount back to back with pull.
   3. Provide offset pulls of solid bar stock, diameter and length as scheduled. Where required, mount back to back with push bar.
   4. Provide flush pulls as scheduled. Where required, provide back-to-back mounted model.
   5. Provide pulls of solid bar stock, diameter and length as scheduled. Where required, mount back to back with push bar.
   6. Provide pull plates 4 inches (102 mm) wide by 16 inches (406 mm) high by 0.050 inch (1 mm) thick, beveled 4 edges, and prepped for pull. Where width of door stile prevents use of 4 inches (102 mm) wide plate, adjust width to fit.
   7. Provide wire pulls of solid bar stock, diameter and length as scheduled.
   8. Provide decorative pulls as scheduled. Where required, mount back to back with pull.

2.13 PROTECTION PLATES

A. Manufacturers:
1. Scheduled Manufacturer: Ives.

B. Requirements:

1. Provide kick plates, mop plates, and armor plates minimum of 0.050 inch (1 mm) thick, beveled four edges as scheduled. Furnish with sheet metal or wood screws, finished to match plates.
2. Sizes of plates:
   a. Kick Plates: 10 inches (254 mm) high by 2 inches (51 mm) less width of door on single doors, 1 inch (25 mm) less width of door on pairs
   b. Mop Plates: 4 inches (102 mm) high by 2 inches (51 mm) less width of door on single doors, 1 inch (25 mm) less width of door on pairs
   c. Armor Plates: 36 inches (914 mm) high by 2 inches (51 mm) less width of door on single doors, 1 inch (25 mm) less width of door on pairs

2.14 DOOR STOPS AND HOLDERS

A. Manufacturers:

1. Scheduled Manufacturer: Ives.

B. Provide door stops at each door leaf:

1. Provide wall stops wherever possible. Provide convex type where mortise type locks are used and concave type where cylindrical type locks are used.
2. Where a wall stop cannot be used, provide universal floor stops for low or high rise options.
3. Where wall or floor stop cannot be used, provide medium duty surface mounted overhead stop.

2.15 THRESHOLDS, SEALS, DOOR SWEEPS, AUTOMATIC DOOR BOTTOMS, AND GASKETING

A. Manufacturers:


B. Requirements:

1. Provide thresholds, weather-stripping (including door sweeps, seals, and astragals) and gasketing systems (including smoke, sound, and light) as specified and per architectural details. Match finish of other items.
2. Smoke- and Draft-Control Door Assemblies: Where smoke- and draft-control door assemblies are required, provide door hardware that meets requirements of assemblies tested according to UL 1784 and installed in compliance with NFPA 105.
3. Size of thresholds:
   a. Saddle Thresholds: 1/2 inch (13 mm) high by jamb width by door width
   b. Bumper Seal Thresholds: 1/2 inch (13 mm) high by 5 inches (127 mm) wide by door width
4. Provide door sweeps, seals, astragals, and auto door bottoms only of type where resilient or flexible seal strip is easily replaceable and readily available.

2.16 SILENCERS

A. Manufacturers:
   1. Scheduled Manufacturer: Ives.

B. Requirements:
   1. Provide "push-in" type silencers for hollow metal or wood frames.
   2. Provide one silencer per 30 inches (762 mm) of height on each single frame, and two for each pair frame.
   3. Omit where gasketing is specified.

2.17 DOOR POSITION SWITCHES

A. Manufacturers:
   1. Scheduled Manufacturer: Schlage.

B. Requirements:
   1. Provide recessed or surface mounted type door position switches as specified.
   2. Coordinate door and frame preparations with door and frame suppliers. If switches are being used with magnetic locking device, provide minimum of 4 inches between switch and magnetic locking device.

2.18 FINISHES

A. Provide finish for each item as indicated in the sets.

EXECUTION

3.01 EXAMINATION

A. Prior to installation of hardware, examine doors and frames, with Installer present, for compliance with requirements for installation tolerances, labeled fire-rated door assembly construction, wall and floor construction, and other conditions affecting performance.

B. Field verify existing doors and frames receiving new hardware and existing conditions receiving new openings. Verify that new hardware is compatible with existing door and frame preparation and existing conditions.
C. Examine roughing-in for electrical power systems to verify actual locations of wiring connections before electrified door hardware installation.

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

3.02 PREPARATION

A. Where on-site modification of doors and frames is required:

   1. Carefully remove existing door hardware and components being reused. Clean, protect, tag, and store in accordance with storage and handling requirements specified herein.
   2. Field modify and prepare existing door and frame for new hardware being installed.
   3. When modifications are exposed to view, use concealed fasteners, when possible.
   4. Prepare hardware locations and reinstall in accordance with installation requirements for new door hardware and with:

      a. Steel Doors and Frames: For surface applied door hardware, drill and tap doors and frames according to ANSI/SDI A250.6.
      b. Wood Doors: DHI WDHS.5 "Recommended Hardware Reinforcement Locations for Mineral Core Wood Flush Doors."
      c. Doors in rated assemblies: NFPA 80 for restrictions on on-site door hardware preparation.

3.03 INSTALLATION

A. Mount door hardware units at heights to comply with the following, unless otherwise indicated or required to comply with governing regulations.

   2. Custom Steel Doors and Frames: HMMA 831.

B. Install each hardware item in compliance with manufacturer’s instructions and recommendations, using only fasteners provided by manufacturer.

C. Do not install surface mounted items until finishes have been completed on substrate. Protect all installed hardware during painting.

D. Set units level, plumb and true to line and location. Adjust and reinforce attachment substrate as necessary for proper installation and operation.

E. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards.

F. Install operating parts so they move freely and smoothly without binding, sticking, or excessive clearance.
G. Hinges: Install types and in quantities indicated in door hardware schedule but not fewer than quantity recommended by manufacturer for application indicated or one hinge for every 30 inches (750 mm) of door height, whichever is more stringent, unless other equivalent means of support for door, such as spring hinges or pivots, are provided.

H. Lock Cylinders: Install construction cores to secure building and areas during construction period.
   1. Replace construction cores with permanent cores as indicated in keying section.

I. Wiring: Coordinate with Division 26, ELECTRICAL sections for:
   1. Conduit, junction boxes and wire pulls.
   2. Connections to and from power supplies to electrified hardware.
   3. Connections to fire/smoke alarm system and smoke evacuation system.
   4. Connection of wire to door position switches and wire runs to central room or area, as directed by Architect.
   5. Testing and labeling wires with Architect’s opening number.

J. Key Control System: Tag keys and place them on markers and hooks in key control system cabinet, as determined by final keying schedule.

K. Door Closers: Mount closers on room side of corridor doors, inside of exterior doors, and stair side of stairway doors from corridors. Mount closers so they are not visible in corridors, lobbies and other public spaces unless approved by Architect.

L. Closer/ Holders: Mount closer/holders on room side of corridor doors, inside of exterior doors, and stair side of stairway doors.

M. Power Supplies: Locate power supplies as indicated or, if not indicated, above accessible ceilings or in equipment room, or alternate location as directed by Architect.

N. Thresholds: Set thresholds in full bed of sealant complying with requirements specified in Division 07 Section "Joint Sealants."

O. Stops: Provide floor stops for doors unless wall or other type stops are indicated in door hardware schedule. Do not mount floor stops where they may impede traffic or present tripping hazard.

P. Perimeter Gasketing: Apply to head and jamb, forming seal between door and frame.

Q. Meeting Stile Gasketing: Fasten to meeting stiles, forming seal when doors are closed.

R. Door Bottoms: Apply to bottom of door, forming seal with threshold when door is closed.

3.04 FIELD QUALITY CONTROL

A. Architectural Hardware Consultant: Engage qualified independent Architectural Hardware Consultant to perform inspections and to prepare inspection reports.
1. Architectural Hardware Consultant will inspect door hardware and state in each report whether installed work complies with or deviates from requirements, including whether door hardware is properly installed and adjusted.

3.05 FIELD INSPECTIONS:

A. Fire Door Assembly Inspection and Testing: Provide functional testing and inspection of fire door assemblies in accordance with NFPA 80-2007/2010. Inspections shall be performed by individuals certified by Intertek as a Fire Door Assembly Inspector, using reporting forms provided by the Door and Hardware Institute (DHI). Alternatively, inspections may be performed by individuals acceptable to the Architect, who have knowledge and understanding of the operating components of the applicable door type, and who have experience in preparing written reports of testing and inspection results.

1. Schedule fire door assembly inspection within 90 days of Substantial Completion of the Project.
2. Submit a signed, written final report as specified in Paragraph 1.4: Submittals.
3. Contractor shall correct all deficiencies and schedule a reinspection of fire door assemblies which were noted as deficient on the inspection report.
4. Inspector shall reinspect fire door assemblies after repairs are made.
5. Additional reinspections which are required due to incomplete repairs will be performed by the inspector at the expense of the Contractor.

3.06 ADJUSTING

A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.

1. Door Closers: Adjust sweep period to comply with accessibility requirements and requirements of authorities having jurisdiction.

B. Occupancy Adjustment: Approximately three to six months after date of Substantial Completion, Installer’s Architectural Hardware Consultant must examine and readjust each item of door hardware, including adjusting operating forces, as necessary to ensure function of doors and door hardware.

3.07 CLEANING AND PROTECTION

A. Clean adjacent surfaces soiled by door hardware installation.

B. Clean operating items as necessary to restore proper function and finish.

C. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of Substantial Completion.
3.08 DEMONSTRATION

A. Provide training for Owner’s maintenance personnel to adjust, operate, and maintain door hardware and door hardware finishes. Refer to Division 01 Section “Demonstration and Training.”

3.09 DOOR HARDWARE SCHEDULE

A. Hardware items are referenced in the following hardware. Refer to the above-specifications for special features, options, cylinders/keying, and other requirements.

B. Hardware Sets:

HARDWARE GROUP NO. 01
FOR USE ON DOOR #(S):
101

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HARDWARE GROUP NO. 02
FOR USE ON DOOR #(S):
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*FOR USE ON DOOR #/(S):*

106A

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*WEATHERSTRIP BY DOOR/FRAME MANUFACTURER*

**HARDWARE GROUP NO. 04**

*FOR USE ON DOOR #/(S):*

100

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*WEATHERSTRIP BY DOOR/FRAME MANUFACTURER*
**HARDWARE GROUP NO. 05**

*FOR USE ON DOOR #(#(S):*

109B 106

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WEATHERSTRIP BY DOOR/FRAME MANUFACTURER
HARDWARE GROUP NO. 06

FOR USE ON DOOR #109A

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OPERATION: VALID CREDENTIAL OR ACCESS CONTROL TIME ZONE RETRACTS ALLOWING ENTRY AND ACTIVATING EXTERIOR ACTUATOR. PRESSING EXTERIOR ACTUATOR WHEN ACTIVE, CYCLES AUTO OPERATOR. INTERIOR ACTUATOR ACTIVE AT ALL TIMES. PRESSING INTERIOR ACTUATOR RETRACTS LATCH AND CYCLES AUTO OPERATOR. FREE EGRESS AT ALL TIMES.

HARDWARE GROUP NO. 07

FOR USE ON DOOR #110

PROVIDE EACH OPENING WITH THE FOLLOWING:

<table>
<thead>
<tr>
<th>QTY</th>
<th>DESCRIPTION</th>
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</tr>
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<tbody>
<tr>
<td>3</td>
<td>HINGE</td>
<td>5BB1 4.5 X 4.5</td>
<td>652</td>
<td>IVE</td>
</tr>
<tr>
<td>1</td>
<td>PRIVACY LOCK</td>
<td>L9040 17A L583-363 L283-722</td>
<td>626</td>
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</tr>
<tr>
<td>1</td>
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<td>4040XP REG OR PA AS REQ</td>
<td>689</td>
<td>LCN</td>
</tr>
<tr>
<td>1</td>
<td>KICK PLATE</td>
<td>8400 10&quot; X 1 1/2&quot; LDW B-CS</td>
<td>630</td>
<td>IVE</td>
</tr>
<tr>
<td>1</td>
<td>WALL STOP</td>
<td>WS401/402CVX</td>
<td>626</td>
<td>IVE</td>
</tr>
<tr>
<td>1</td>
<td>GASKETING</td>
<td>488SCL PSA</td>
<td>CL</td>
<td>ZER</td>
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### HARDWARE GROUP NO. 08

**FOR USE ON DOOR #(#S):**

113

**PROVIDE EACH OPENING WITH THE FOLLOWING:**

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<td>1</td>
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<td>09-904NH XB11-720 XQ11-948</td>
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<td>8190HD 10&quot; O</td>
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<td>1</td>
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<tr>
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<td>THRESHOLD</td>
<td>655A-223</td>
<td>A</td>
<td>ZER</td>
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WEATHERSTRIP BY DOOR/FRAME MANUFACTURER

### HARDWARE GROUP NO. 09

**FOR USE ON DOOR #(#S):**

113A

**PROVIDE EACH OPENING WITH THE FOLLOWING:**

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<td>8190HD 10&quot; O</td>
<td>630</td>
<td>IVE</td>
</tr>
<tr>
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<td>4040XP REG OR PA AS REQ</td>
<td>689</td>
<td>LCN</td>
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<td>WS401/402CVX</td>
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<td>IVE</td>
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<td>39A</td>
<td>A</td>
<td>ZER</td>
</tr>
<tr>
<td>3</td>
<td>SILENCER</td>
<td>SR64</td>
<td>GRY</td>
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### HARDWARE GROUP NO. 10

**FOR USE ON DOOR #(#S):**

111

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<tr>
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<td></td>
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<td>8190HD 10&quot; O</td>
<td>630</td>
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<td>OFFICE W/SIM RETRACT</td>
<td>L9056BDC 17A</td>
<td>626</td>
<td>SCH</td>
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<td>WS401/402CVX</td>
<td>626</td>
<td>IVE</td>
</tr>
<tr>
<td>1</td>
<td>GASKETING</td>
<td>488SCL PSA</td>
<td>CL</td>
<td>ZER</td>
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### HARDWARE GROUP NO. 11

**FOR USE ON DOOR #(#S):**

112

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<td>5BB1 4.5 X 4.5</td>
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<td>CORE</td>
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### HARDWARE GROUP NO. 12

**FOR USE ON DOOR #(#S):**

113B

**PROVIDE EACH OPENING WITH THE FOLLOWING:**

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<td>STOREROOM LOCK</td>
<td>L9080BDC 17A</td>
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<td>4040XP SCUSH SRI</td>
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**WEATHERSTRIP BY DOOR/FRAME MANUFACTURER**

### HARDWARE GROUP NO. 13

**FOR USE ON DOOR #(#S):**

113C

**PROVIDE EACH OPENING WITH THE FOLLOWING:**

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<tr>
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<td>LCN</td>
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**WEATHERSTRIP BY DOOR/FRAME MANUFACTURER**
HARDWARE GROUP NO. 14

FOR USE ON DOOR #(S): 00

PROVIDE EACH OPENING WITH THE FOLLOWING:

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<td>EA RIM CYLINDER</td>
<td>AS REQUIRED [BY OWNER]</td>
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<tr>
<td></td>
<td>1 BALANCE OF HARDWARE BY DOOR SUPPLIER</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

END OF SECTION
BALL STATE UNIVERSITY
2600 W UNIVERSITY AVENUE MUNCIE, IN 47303

RINARD ORCHID GREENHOUSE
2600 W UNIVERSITY AVENUE MUNCIE, IN 47303

DATE: 02.18.2021
100% CONSTRUCTION DOCUMENTS

FOR CALLS IN INDIANA
CALL TOLL FREE
PIC Number: 150437-20140

3939 PRIORITY WAY SOUTH DRIVE, SUITE 200
INDIANAPOLIS, INDIANA 46240
317.844.6777 T | www.cripe.biz

STATE OF
RESTATEMENT

PE 19900434
JOHN ZANETTE

VEHICULAR SITE PLAN

C201
C301.1
CAUTION

LOCATIONS OF ALL EXISTING UNDERGROUND UTILITIES SHOWN ON THIS PLAN ARE BASED UPON ABOVE GROUND EVIDENCE (INCLUDING, BUT NOT LIMITED TO, MANHOLES, INLETS, VALVES, AND MARKS MADE UPON THE GROUND BY OTHERS) AND ARE SPECULATIVE IN NATURE. THERE MAY ALSO BE OTHER EXISTING UNDERGROUND UTILITIES FOR WHICH THERE IS NO ABOVE GROUND EVIDENCE OR FOR WHICH NO ABOVE GROUND EVIDENCE WAS OBSERVED.

THE EXACT LOCATIONS OF SAID EXISTING UNDERGROUND UTILITIES SHOULD BE VERIFIED BY THE CONTRACTOR PRIOR TO ANY AND ALL CONSTRUCTION.
**CONCRETE PAVEMENT**

**DRAWING NUMBER:**

**DRAWING TITLE:**

**DRAWN BY:**

**DATE:**

**SCALE:**

**NOTES:**

1. Control joints, expansion joints and edges of sidewalks indicated as 1'-0" thick.
2. Provide expansion joints at intersection with another sidewalk, between 3'-0" and 3'-3".
3. Refer to plan drawings for locations of control and expansion joints.
4. Positive drainage

**CONCRETE STAIRS, 3 RISERS**

**SCALE:**

**CONCRETE RETAINING WALL ALONG STAIRS**

**SCALE:**

**CONCRETE PAVEMENT**

**SCALE:**
ABOVE GRADE WOODEN CISTERN AS GUTTER/SCUPPER INTO CISTERN. DOWNSPOUT SYSTEM AND TIE INDICATED BY DASHED LINE. REPLACE A310 ROOF PLAN

3/16" = 1'-0"

1/4" = 1'-0"

REF: 1A / A161

2 1/2" / 1'-0"

1" / FT TAPERED

REF. P-SERIES

SLOPE 1:12

SLOPE 1:12

MIN. Edge of SUMP IS THE ZERO - LEVEL 0" POINT

1' - 0" 1 1/2" SLOPE

- SERIES FOR TYPE.

REFERENCE P-SERIES FOR TYPE.

GENERAL NOTES: ROOF PLAN

A. REFER TO A011 FOR ALL ROOF TYPE DESIGNATIONS.

B. REFER TO STRUCTURAL DRAWINGS FOR SLOPES.

10 ROOF TIE-OFF ANCHOR. COORDINATE LOCATIONS AND ANCHORAGE DETAILS WITH STRUCTURAL DRAWINGS.

8 ROOF MOUNTED PHOTOVOLTAIC PANELS. REFER TO ELECTRICAL SERIES DRAWINGS FOR ADDITIONAL INFORMATION.

7 METAL COPING SYSTEM.

6 CONTINUOUS METAL FASCIA. MATCH COLOR OF METAL STANDING SEAM ROOF.

5 CONTINUOUS SNOW RAIL, MATCH COLOR OF METAL STANDING SEAM ROOF.

4 CONTINUOUS BUILT-IN GUTTER, REFER TO DETAILS FOR ADDITIONAL INFORMATION.

3 ROOF DRAIN & SUMP. REFER TO P-SERIES & DETAIL 1C/ A161

2 MECHANICAL EQUIPMENT, REFER TO M-SERIES DRAWINGS FOR MORE INFORMATION.

1 OPERABLE GREENHOUSE WINDOWS BY GREENHOUSE MANUFACTURER.

9 HIDDEN LINE INDICATING LOWER ROOF EXTENDING BELOW UPPER ROOF OVERHANG.

ROOF PLAN NOTES - FLOOR PLAN

ASSEMBLY, REF. P-SERIES

OVERFLOW DRAIN COLLAR

ADJUSTABLE OVERFLOW PENETRATION.

OVERFLOW DRAIN

ROOF DRAIN & SUMP PERIMETER

TAPERED INSULATION

TAPERED INSULATION FOR ROOF SLOPE

BEGINNING POINT FOR THE CALCULATION OF EDGE OF SUMP

BEGINNING OF ROOF DRAIN ASSEMBLY, REF. P-SERIES & DETAIL 1C/ A161

METAL LADDERS. PROVIDE ANCHORS AS REQ'D

METAL STANDING SEAM ROOF.

ROOFING SYSTEM

PIPE INSULATION EXTEND 2'-0" BELOW ROOF DECK,

CONTINUE SAME SLOPE AS NOTED STRUCTURAL DRAWINGS.

SCREEN WALL MOUNTED TO ROOFTOP UNIT.

CONSTRUCTION DRIP EDGE ON ROOFING INTERFACE.

METAL LADDER. ADJUSTABLE OVERFLOW SYSTEM

PIPING SYSTEM

1" / FT TAPERED

REF. P-SERIES

ROOF ACCESS SECTION

1C

ROOF DRAIN WITH ADJACENT OVERFLOW DRAIN - PLAN

1B

1D

ROOF PLAN

ROOF ACCESS SECTION

METAL LADDERS. PROVIDE ANCHORS AS REQ'D

ROOFING SYSTEM

METAL COPING SYSTEM.

METAL LADDERS. MATCH COLOR OF METAL STANDING SEAM ROOF.