MU HEALTH CARE
UNIVERSITY OF MISSOURI - COLUMBIA
FOR THE CURATORS OF THE UNIVERSITY OF MISSOURI

SPECIALTY PHARMACY RENOVATION
1601 OLD 63 S COLUMBIA,
MO 65201
ISSUED FOR CONSTRUCTION
JULY 29, 2020
PN: 125262

CONTRACT DRAWINGS

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<th>Sheet List - ARCH</th>
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<td>PD101</td>
<td>PLUMBING DEMOLITION PLAN</td>
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<td><strong>Sheet List - ELEC</strong></td>
<td><strong>Sheet List - ARCH</strong></td>
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<td><strong>Sheet</strong></td>
<td><strong>Sheet Name</strong></td>
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<tr>
<td>LS001</td>
<td>LIFE SAFETY AND BUILDING ANALYSIS</td>
<td>A001</td>
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<td>LS002</td>
<td>LIFE SAFETY FLOOR PLAN</td>
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<td>A001</td>
<td>ARCHITECTURAL LEGEND, ABBREVIATIONS &amp; GENERAL NOTES</td>
<td>AD100</td>
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<td>A002</td>
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<td>AD101</td>
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<td>A101</td>
<td>GROUND LEVEL FLOOR PLAN</td>
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<td>A103</td>
<td>ENLARGED PLANS &amp; SECTIONS</td>
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<td>A105</td>
<td>LOADING DOCK AND EQUIPMENT PAD</td>
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</tr>
<tr>
<td>A107</td>
<td>ENLARGED PLANS &amp; DETAILS</td>
<td></td>
</tr>
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<td></td>
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</tbody>
</table>

07/29/20

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_____________________________________
SIGNATURE

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_____________________________________
SIGNATURE
## 1. Applicable Codes and Standards

<table>
<thead>
<tr>
<th>Code/Standard</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IFC</td>
<td>International Fire Code 2018</td>
</tr>
</tbody>
</table>

## 2. Type of Construction (IBC 601)

<table>
<thead>
<tr>
<th>Building Element</th>
<th>Non-Bearing Exterior Wall IIB</th>
<th>0 HR</th>
<th>Non-Bearing Interior Wall IIB</th>
<th>0 HR</th>
<th>Bearing Interior Wall IIB</th>
<th>0 HR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exterior Wall</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interior Wall</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Load Bearing Wall</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## 3. Classification of Occupancy

<table>
<thead>
<tr>
<th>Classification</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business</td>
<td>Group B</td>
</tr>
<tr>
<td>Office</td>
<td>Group S-1</td>
</tr>
<tr>
<td>Warehouse</td>
<td>Group F-1</td>
</tr>
</tbody>
</table>

## 4. Classification of Areas

<table>
<thead>
<tr>
<th>Area Function of Space</th>
<th>Area Description</th>
<th>Per Square Foot (SF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Office</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Warehouse</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## 5. Multiple Occupancies (IBC 505)

<table>
<thead>
<tr>
<th>Occupancy</th>
<th>Restricting Occupancy</th>
<th>Actual Floor Area (SF)</th>
<th>Restricting Occupancy Per Square Foot (SF/Person)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Office</td>
<td>Warehouse</td>
<td>16,588</td>
<td></td>
</tr>
<tr>
<td>Warehouse</td>
<td>Office</td>
<td>92,000</td>
<td></td>
</tr>
</tbody>
</table>

## 6. Building Allowable Area - Nonseparated (IBC 508)

<table>
<thead>
<tr>
<th>Component</th>
<th>Area (SF)</th>
<th>Occupant Load</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wood Shop</td>
<td>1736.34</td>
<td>100</td>
</tr>
</tbody>
</table>

## 7. Minimum Egress Widths (IBC 1020.3)

<table>
<thead>
<tr>
<th>Egress Component</th>
<th>Minimum Width (IN)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Circulation</td>
<td>6</td>
</tr>
<tr>
<td>Storage</td>
<td>2</td>
</tr>
</tbody>
</table>

## 8. Minimum Enclosure and Exit Separation Distances (IBC 1020.4)

<table>
<thead>
<tr>
<th>Egress Component</th>
<th>Entrance Width (FT)</th>
<th>Exit Width (FT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Circulation</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

## 9. Fire Alarm Requirements (IBC 607)

<table>
<thead>
<tr>
<th>Area</th>
<th>Function of Space</th>
<th>Occupant Load</th>
<th>Fire Alarm Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## 10. Occupant Load Calculations (IBC 1004.1.1)

<table>
<thead>
<tr>
<th>Area</th>
<th>Function of Space</th>
<th>Occupant Load</th>
<th>Fire Alarm Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
GENERAL NOTES:
1. REFER TO ARCHITECTURAL LEGEND FOR ADDITIONAL INFORMATION REGARDING SYMBOLS AND
   ABBREVIATIONS.
2. REFER TO THE ELECTRICAL LIGHTING PLANS FOR LOCATION OF EXIT SIGNS AND EMERGENCY
   LIGHTING.

1 HR FIRE BARRIER (NEW)
E_FE:BR
- E_FE: EXISTING FIRE EXTINGUISHER RELOCATED
- BR: BRACKET MOUNTED E_FE:BR

EXIT PATH
COMMON PATH OF TRAVEL
DISTANCE TO EGRESS PATH
TERMINATION POINT
EXIT DOOR

PORTABLE FIRE EXTINGUISHERS
- FE:BR: FIRE EXTINGUISHER PROVIDED AND INSTALLED BY OWNER
- E_FE:BR: EXISTING FIRE EXTINGUISHER RELOCATED

SCALE FOR MICROFILMING
Inches Millimeters
1 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 1/16

ISSUED FOR CONSTRUCTION

BURNS
MCDONNELL
425 South Beale St
St Louis, MO 63102
Phone (314) 682-1500
Fax (314) 682-1600
Burns & McDonnell
Professional Architectural Corporation
MO Certificate of Authority #000089
Professional Engineering Corporation
MO Certificate of Authority #000165
Date Prepared:

KEYPLAN

ISSUED FOR
CONSTRUCTION
0 7/29/20
JLH TMH

LIFE SAFETY FLOOR PLAN
LS002

SCALE IN FEET
0 4' 8' 16'
NORTH
1.2 SUBMITTALS

1.2 QUALITY ASSURANCE

A. Provide cementitious underlayment.

G. Restoration: Restore finishes of patched areas.

F. Security: Provide adequate protection against accidental trespassing. Secure project after work hours.

D. Occupied Spaces: Do not close or obstruct other occupied or used spaces or facilities without the written permission of the Owner and authorities having jurisdiction. If woodwork involved.

B. Restore damaged finishes. Clean and protect work from damage.

C. Preservative Treatment: Nonpressure method, exterior type, AWPA N1

B. Standards: Architectural Woodwork Institute (AWI) 'Architectural Woodwork Standards.'

D. Interior Solid Surfacing Material Countertops:

3. Pour Depth: Average 1/4 inch to 1-1/2 inches.

2. Compressive Strength: 4200 psi or higher.

1. Type: Low-alkali, cement-based, self-leveling underlayment.


3. Application: Disconnection, capping, and removal of utilities.


1. Laminate: High pressure decorative laminate, NEMA LD-3.


4. Face: Match existing.


FOR SECTION 03 54 13

SECTION 03 54 13

SECTION 03 54 13

SECTION 03 54 13

SECTION 03 54 13

PART 2 PRODUCTS

1.1 SUMMARY

1.1 SUMMARY

1.3 QUALITY ASSURANCE

3.1 INSTALLATION

PART 3 EXECUTION

PART 1 GENERAL

PART 2 PRODUCTS

PART 1 GENERAL

PART 3 EXECUTION

PART 1 GENERAL

PART 2 PRODUCTS

PART 1 GENERAL

PART 2 PRODUCTS

PART 1 GENERAL

PART 2 PRODUCTS

PART 1 GENERAL

PART 2 PRODUCTS

PART 1 GENERAL

PART 2 PRODUCTS

PART 1 GENERAL

PART 2 PRODUCTS

PART 1 GENERAL
1. REMOVE AND RELOCATE EXISTING DOOR AND FRAME TO LOCATION INDICATED ON SHEET A101.
2. REMOVE AND RELOCATE EXISTING BRACKET MOUNTED FIRE EXTINGUISHER TO LOCATION INDICATED ON SHEET A101.
3. CUT OPENING IN WALL FOR NEW DOOR.
4. ALL EXISTING FOOD, BEVERAGE, AND CATERING EQUIPMENT IN RESTAURANT SHALL BE MOVED TO LOCATION INDICATED ON SHEET A101.
5. REMOVE AND DISPOSE OF EXISTING FLOORING.
6. REFER TO MECHANICAL, ELECTRICAL, AND STRUCTURAL DRAWINGS FOR ADDITIONAL DEMOLITION INFORMATION AND COORDINATION.
7. PROVIDE TEMPORARY BARRICADES AND OTHER PROTECTION REQUIRED TO PREVENT INJURY TO PEOPLE AND DAMAGE TO ADJACENT BUILDING AREAS TO REMAIN OPERATIONAL AT ALL TIMES.
8. DEMOLISH FOR UNDER FLOOR DRAIN.
9. DIMENSIONS AND LOCATIONS OF FLOOR AREA BEING DEMOLISHED FOR UNDER FLOOR DRAIN.
10. CUT OPENING IN WALL FOR NEW DOOR.
11. ALL EXISTING FOOD, BEVERAGE, AND CATERING EQUIPMENT IN RESTAURANT SHALL BE MOVED TO LOCATION INDICATED ON SHEET A101.
12. REMOVE AND DISPOSE OF EXISTING FLOORING.
13. REFER TO MECHANICAL, ELECTRICAL, AND STRUCTURAL DRAWINGS FOR ADDITIONAL DEMOLITION INFORMATION AND COORDINATION.
GENERAL REFLECTED CEILING PLAN DEMOLITION NOTES:

1. SEE GENERAL NOTES ON DEMOLITION PLANS.
2. EXISTING CONDITIONS SHOWN ON DRAWINGS ARE FOR INFORMATIONAL PURPOSES ONLY The Contractor shall field verify all existing conditions shown on drawings. Refer to all architectural, mechanical, electrical, plumbing, and structural drawings for additional information.
3. DEMOLISH CEILING FINISHES & FIXTURES AT AREAS OF WALL DEMOLITION UNLESS NOTED OTHERWISE.
4. ALL CEILINGS, LIGHTING, SPEAKERS, ETC. SHALL BE REMOVED IN ALL AREAS SHOWN TO RECEIVE A NEW CEILING ON THE REFLECTED CEILING PLAN.
5. PRIOR TO COMMENCEMENT WITH ANY DEMOLITION WORK, CONTRACTOR SHALL IDENTIFY ALL ELECTRICAL CIRCUITS SERVICING THE AREA INVOLVED WITH THIS DEMOLITION. THOSE CIRCUITS SHALL THEN BE LOCKED OUT AND TAGGED OUT IF THEY DO NOT SERVICE ANY OF THE REMAINING BUILDING. THOSE CIRCUITS WHICH ARE IDENTIFIED TO SERVICE BOTH THE AREA TO BE DEMOLISHED AND THE REMAINING BUILDING SHALL BE SPLIT SO AS TO KILL ALL ELECTRICAL POWER TO THE AREA TO BE DEMOLISHED WHILE MAINTAINING POWER TO THE REMAINDER OF THE BUILDING.
6. ALL SPRINKLER HEADS TO REMAIN ACTIVE AT ALL TIMES. CUT AWAY GYPSUM CEILINGS AND ACOUSTICAL CEILING TILE AROUND ALL SPRINKLER HEADS. COORDINATE WORK BETWEEN DISCIPLINES.

REFLECTED CEILING PLAN DEMOLITION KEYED NOTES

1. DEMO EXISTING ACT CEILING AS REQUIRED. REMOVE AND REPLACE LIGHTING AND MECHANICAL AS INDICATED ON ELECTRICAL AND MECHANICAL DRAWINGS.
2. ADDITIONAL DEMO MAY BE REQUIRED FOR HVAC DUCT RELLOCATION. COORDINATE WITH MECHANICAL CONTRACTOR.
3. DEMO OF WALL FOR NEW DUCTWORK PENETRATION. COORDINATE WITH MECHANICAL DRAWINGS.

SCALE FOR MICROFILMING

Inches Millimeters

1" = 1'-0"
### Room Finish Schedule

<table>
<thead>
<tr>
<th>Room</th>
<th>Type</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Office</td>
<td>Open Office</td>
<td>66X60</td>
</tr>
<tr>
<td>Office</td>
<td>Open Office</td>
<td>66X36</td>
</tr>
<tr>
<td>Office</td>
<td>Open Office</td>
<td>66X30</td>
</tr>
</tbody>
</table>

### Door and Frame Schedule

<table>
<thead>
<tr>
<th>Door</th>
<th>Frame</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Office</td>
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<td>66X60</td>
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<tr>
<td>Office</td>
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<td>66X36</td>
</tr>
<tr>
<td>Office</td>
<td>Open Office</td>
<td>66X30</td>
</tr>
</tbody>
</table>

### General Notes
- Provide acoustical and firestop details for walls and floors.
- Provide a 2x4" x 4" metal or composite panel for wall and ceiling assemblies.
- Provide acoustical and firestop details for partitions.

### Manufacturer Specifications
- Refer to Electrical Drawings for doors requiring locks, strikes, emergency crash bars, card readers, etc.
- Provide and Install Kawneer Tri-Fab@ 400 Framing System.
- Use Type "X" 5/8" Gypsum Board for all new construction unless noted otherwise.
- Refer to Life Safety Drawings for fire rated walls.
- Ceiling heights as required.
- Provide and install Armstrong Non-Tegular Ceiling System.
- Provide and install Acrovyn Wall Protection System.

### Construction Details
- Provide and install BMcD project: CP201291 125262.
- Provide and install BMcD project: CP201291 125262.
- Provide and install BMcD project: CP201291 125262.

### General Floor Plan Notes
- Provide and install ceiling tiles, 1008 A, 1008 A-0, 1008 A-1.
- Provide and install BMcD project: CP201291 125262.
- Provide and install BMcD project: CP201291 125262.
SMALL ROUNDOVER 3/4" PARTICLEBOARD WITH HPDL FINISH L1

4" WIRE BRUSHED CHROME SINK & PLUMBING RE: MEP PLANS

PULL:

DOOR :

CASE :

3/4" WHITE MELAMINE WITH PVC EDGEBAND TO MATCH L1

REMOVABLE DRAWER FRONT:

3/4" PARTICLEBOARD WITH HPDL FINISH L1, ATTACH TO CABINET SIDE W/BULLDOG CATCH.

BACK:

1/4" WHITE MELAMINE

COUNTERTOP:

3/4" SOLID SURFACE - FINISH SS1

TOEKICK :

VINYL BASE BY OTHERS

WRAP AROUND HINGE MODEL 454, 455 & 456

INDUSTRIAL FIVE KNUCKLE BAER 450 SERIES HINGE :

DULL CHROME FINISH

2'-0" 2'-0" 3'-0" 3'-0" 3'-8" 3'-8" 3'-5" 3'-5" 1'-5" 1'-5" 1'-8" 1'-8" 2'-9" 2'-9" 5'-6" + @ WOMEN

3'-4" 3'-4" 4'-4" 4'-4" 5'-1/2" 5'-1/2" 3'-6" 3'-6" 2'-0" 2'-0" 3'-9" 3'-9" 3'-10" 3'-10" 3'-11" 3'-11" MAX.

1'-2" 1'-2" 1'-3" 1'-3" 1'-4" 1'-4" 1'-5" 1'-5" 1'-6" 1'-6" 1'-7" 1'-7" 1'-8" 1'-8" 1'-9" 1'-9" MAX.

5'-10" + @ MEN 5'-10" + @ MEN

ISSUED FOR CONSTRUCTION

BURNS & MCKONAN

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COLUMBIA, MISSOURI

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Professional Architectural Corporation

MO Certificate of Authority #000089

Professional Engineering Corporation

MO Certificate of Authority #000165

Date Prepared:

07/29/20

J. HERDLER

T. HEIDMANN

SUPEF;

V. MUIRER

PROJECT

H. FEEBEEF

PROJ.

REV.

ISSUED FOR CONSTRUCTION

ENLARGED PLANS & SECTIONS

0 7/29/20 JLH TMH
REFLECTED CEILING PLAN LEGEND:

- 2X2 LED RECESSED DIMMABLE FIXTURE
- 2X4 LED RECESSED DIMMABLE FIXTURE
- 2X4 DIMMABLE LED TROFFER W/ ENCLOSED LENS

RETURN AIR
SUPPLY AIR

REFLECTED CEILING PLAN KEYED NOTES

PROVIDE DOUBLE NESTED 3 5/8 METAL STUD AT 24 GAUGE FOR LATERAL BRACING

GENERAL NOTES:
REFER TO ELECTRICAL DRAWINGS FOR EXIT SIGNAGE, EMERGENCY LIGHTING, AND EXTERIOR WALLPACK LIGHTING LOCATIONS.
1. MATERIALS:
   a. Reinforced concrete shall be performed and placed in accordance with:
      1. Code of Concrete Practice
      2. Generation
   b. The concrete shall conform to the requirements of the manufacturer, with:
      1. Minimum compressive strength shall be determined by the test of compressive strength
      2. Local construction codes

2. FOUNDATIONS:
   a. The site shall be prepared and graded in accordance with:
      1. Existing conditions
      2. Local codes
      3. Contractor shall verify and adjust the accuracy of the grading.

3. CONSTRUCTION:
   a. Reinforcement shall be installed in accordance with:
      1. Design intent
      2. Manufacturer instructions

4. FINISH:
   a. Concrete shall be finished in accordance with:
      1. Local codes
      2. Manufacturer instructions
      3. Contractor shall verify and adjust the accuracy of the finish.

5. JOINTS:
   a. Joint details shall be installed in accordance with:
      1. Local codes
      2. Manufacturer instructions
      3. Contractor shall verify and adjust the accuracy of the joint details.

6. REFINEMENT:
   a. All concrete shall be refined in accordance with:
      1. Local codes
      2. Manufacturer instructions
      3. Contractor shall verify and adjust the accuracy of the refinement.

7. GENERAL:
   a. All equipment shall be installed in accordance with:
      1. Manufacturer instructions
      2. Local codes
      3. Contractor shall verify and adjust the accuracy of the installation.

8. EQUIPMENT PAD AND LOADING DOCK:
   a. All equipment pads shall be installed in accordance with:
      1. Manufacturer instructions
      2. Local codes
      3. Contractor shall verify and adjust the accuracy of the installation.

9. CONCRETE:
   a. Concrete shall be placed in accordance with:
      1. Local codes
      2. Manufacturer instructions
      3. Contractor shall verify and adjust the accuracy of the placement.

10. SCAFFOLDS:
    a. Scaffolds shall be installed in accordance with:
       1. Local codes
       2. Manufacturer instructions
       3. Contractor shall verify and adjust the accuracy of the scaffold installation.

11. SAFETY:
    a. Safety measures shall be implemented in accordance with:
       1. Local codes
       2. Manufacturer instructions
       3. Contractor shall verify and adjust the accuracy of the safety measures.

12. INSPECTION:
    a. Inspections shall be performed in accordance with:
       1. Local codes
       2. Manufacturer instructions
       3. Contractor shall verify and adjust the accuracy of the inspections.

13. QUALITY CONTROL:
    a. Quality control measures shall be implemented in accordance with:
       1. Local codes
       2. Manufacturer instructions
       3. Contractor shall verify and adjust the accuracy of the quality control measures.

14. ENVIRONMENTAL:
    a. Environmental measures shall be implemented in accordance with:
       1. Local codes
       2. Manufacturer instructions
       3. Contractor shall verify and adjust the accuracy of the environmental measures.

15. DOCUMENTATION:
    a. Documentation shall be maintained in accordance with:
       1. Local codes
       2. Manufacturer instructions
       3. Contractor shall verify and adjust the accuracy of the documentation.

16. COMPLIANCE:
    a. Compliance with all codes and standards shall be verified and adjusted as necessary.

17. COMMISSIONING:
    a. Commissioning shall be performed in accordance with:
       1. Local codes
       2. Manufacturer instructions
       3. Contractor shall verify and adjust the accuracy of the commissioning.

18. CLEANUP:
    a. Clean-up shall be performed in accordance with:
       1. Local codes
       2. Manufacturer instructions
       3. Contractor shall verify and adjust the accuracy of the clean-up.

19. STORAGE:
    a. Storage shall be implemented in accordance with:
       1. Local codes
       2. Manufacturer instructions
       3. Contractor shall verify and adjust the accuracy of the storage.

20. ARCHIVES:
    a. Archives shall be maintained in accordance with:
       1. Local codes
       2. Manufacturer instructions
       3. Contractor shall verify and adjust the accuracy of the archives.

21. SIGNATURES:
    a. Signatures shall be verified and adjusted as necessary.

22. APPROVALS:
    a. Approvals shall be obtained in accordance with:
       1. Local codes
       2. Manufacturer instructions
       3. Contractor shall verify and adjust the accuracy of the approvals.

23. TESTING:
    a. Testing shall be performed in accordance with:
       1. Local codes
       2. Manufacturer instructions
       3. Contractor shall verify and adjust the accuracy of the testing.

24. INSPECTION:
    a. Inspections shall be performed in accordance with:
       1. Local codes
       2. Manufacturer instructions
       3. Contractor shall verify and adjust the accuracy of the inspections.

25. COMPLIANCE:
    a. Compliance with all codes and standards shall be verified and adjusted as necessary.

26. SYSTEMS:
    a. Systems shall be implemented in accordance with:
       1. Local codes
       2. Manufacturer instructions
       3. Contractor shall verify and adjust the accuracy of the systems.

27. TESTING:
    a. Testing shall be performed in accordance with:
       1. Local codes
       2. Manufacturer instructions
       3. Contractor shall verify and adjust the accuracy of the testing.

28. COMPLIANCE:
    a. Compliance with all codes and standards shall be verified and adjusted as necessary.

29. DOCUMENTATION:
    a. Documentation shall be maintained in accordance with:
       1. Local codes
       2. Manufacturer instructions
       3. Contractor shall verify and adjust the accuracy of the documentation.

30. SIGNATURES:
    a. Signatures shall be verified and adjusted as necessary.

31. APPROVALS:
    a. Approvals shall be obtained in accordance with:
       1. Local codes
       2. Manufacturer instructions
       3. Contractor shall verify and adjust the accuracy of the approvals.

32. TESTING:
    a. Testing shall be performed in accordance with:
       1. Local codes
       2. Manufacturer instructions
       3. Contractor shall verify and adjust the accuracy of the testing.

33. COMPLIANCE:
    a. Compliance with all codes and standards shall be verified and adjusted as necessary.

34. DOCUMENTATION:
    a. Documentation shall be maintained in accordance with:
       1. Local codes
       2. Manufacturer instructions
       3. Contractor shall verify and adjust the accuracy of the documentation.

35. SIGNATURES:
    a. Signatures shall be verified and adjusted as necessary.

36. APPROVALS:
    a. Approvals shall be obtained in accordance with:
       1. Local codes
       2. Manufacturer instructions
       3. Contractor shall verify and adjust the accuracy of the approvals.

37. TESTING:
    a. Testing shall be performed in accordance with:
       1. Local codes
       2. Manufacturer instructions
       3. Contractor shall verify and adjust the accuracy of the testing.

38. COMPLIANCE:
    a. Compliance with all codes and standards shall be verified and adjusted as necessary.

39. DOCUMENTATION:
    a. Documentation shall be maintained in accordance with:
       1. Local codes
       2. Manufacturer instructions
       3. Contractor shall verify and adjust the accuracy of the documentation.

40. SIGNATURES:
    a. Signatures shall be verified and adjusted as necessary.

41. APPROVALS:
    a. Approvals shall be obtained in accordance with:
       1. Local codes
       2. Manufacturer instructions
       3. Contractor shall verify and adjust the accuracy of the approvals.

42. TESTING:
    a. Testing shall be performed in accordance with:
       1. Local codes
       2. Manufacturer instructions
       3. Contractor shall verify and adjust the accuracy of the testing.

43. COMPLIANCE:
    a. Compliance with all codes and standards shall be verified and adjusted as necessary.

44. DOCUMENTATION:
    a. Documentation shall be maintained in accordance with:
       1. Local codes
       2. Manufacturer instructions
       3. Contractor shall verify and adjust the accuracy of the documentation.

45. SIGNATURES:
    a. Signatures shall be verified and adjusted as necessary.

46. APPROVALS:
    a. Approvals shall be obtained in accordance with:
       1. Local codes
       2. Manufacturer instructions
       3. Contractor shall verify and adjust the accuracy of the approvals.

47. TESTING:
    a. Testing shall be performed in accordance with:
       1. Local codes
       2. Manufacturer instructions
       3. Contractor shall verify and adjust the accuracy of the testing.

48. COMPLIANCE:
    a. Compliance with all codes and standards shall be verified and adjusted as necessary.
NOTE: ALL VAPOR BARRIER ON EXISTING INSULATION SHALL BE REMOVED PRIOR TO INSTALLATION OF NEW INSULATION.

1. PROVIDE AND INSTALL WMP-VR-R FIBERGLASS INSULATION FACING MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY LAMTEC MANUFACTURING CO. OR APPROVED EQUAL.

2. THICKNESS: 9 1/4" R-30.

3. INSULATION FASTENERS: ANCHOR ADHESIVE: PRODUCT WITH DEMONSTRATED CAPABILITY TO BOND INSULATION ANCHORS SECURELY TO SUBSTRATES WITHOUT DAMAGING INSULATION, FASTENERS, OR SUBSTRATES.

4. ACCESSORIES: ADHESIVE FOR BONDING INSULATION: PRODUCT COMPATIBLE WITH INSULATION AND AIR AND WATER BARRIER MATERIALS, AND WITH DEMONSTRATED CAPABILITY TO BOND INSULATION SECURELY TO SUBSTRATES WITHOUT DAMAGING INSULATION AND SUBSTRATES.

5. INSTALLATION GENERAL: COMPLY WITH INSULATION MANUFACTURER'S WRITTEN INSTRUCTIONS APPLICABLE TO PRODUCTS AND APPLICATIONS.

6. INSTALL INSULATION THAT IS UNDAMAGED, DRY, AND UNSOILED AND THAT HAS NOT BEEN LEFT EXPOSED TO ICE, RAIN, OR SNOW AT ANY TIME.

7. EXTEND INSULATION TO ENVELOP ENTIRE AREA TO BE INSULATED.

8. PROVIDE SIZES TO FIT APPLICATIONS AND SELECT FROM MANUFACTURER'S STANDARD THICKNESSES, WIDTHS, AND LENGTHS. APPLY SINGLE LAYER OF INSULATION UNITS UNLESS MULTIPLE LAYERS ARE OTHERWISE SHOWN OR REQUIRED TO MAKE UP TOTAL THICKNESS OR TO ACHIEVE R-VALUE.

9. PROVIDE CONTINUOUS 1" X 20GA STEEL BANDING (PTD. WHITE) AT 30" O.C. TO SECURE INSULATION IN PLACE.

10. TAPE JOINTS IN INSULATION AND EACH END WITH MANUFACTURER'S RECOMMENDED SEAM TAPE.

NOTE: ALL VAPOR BARRIER ON EXISTING INSULATION SHALL BE REMOVED PRIOR TO INSTALLATION OF NEW INSULATION.
FIRE PROTECTION

THICK MINERAL WOOL WITH ASJ, AND ALUMINUM MINIMUM WALL WITH AIR DUCT ACCESSORIES

DOMESTIC WATER PIPING

ALL DUCTWORK SUPPORTS SHALL COMPLY WITH SMACNA; ALL PIPING SUPPORTS SHALL COMPLY WITH ANSI/MSS.

AND EQUIPMENT LOCATIONS ARE ACCEPTABLE TO ACCOMMODATE EXISTING CONDITIONS PROVIDED THAT THE

AND VERIFIED.

ALL WORK SHALL COMPLY WITH THE CODES LISTED ON G100.

COPPER TUBE AND FITTINGS ACCORDING TO ASTM B828 OR CDA'S "COPPER TUBE HANDBOOK."

COORDINATE WITH OTHER SERVICES OCCUPYING THAT SPACE. DO NOT BLOCK REQUIRED ACCESS SPACE FOR

ROOMS, AND IS WITHIN 6' 11" SQUARE OR RECTANGULAR TO

ENSURE A COMPLETE AND TIGHT FIT OVER SURFACES TO BE COVERED.

OR SCRAPS ABUTTING EACH OTHER.

INSTALL ALL NECESSARY PIPE HANGERS AND SADDLES TO PROPERLY SUPPORT ALL PIPING. HANGERS SHALL SUIT

METAL PIPE 1.25" MALLEABLE –

TERMINATIONS, AND ALL OTHER APPURTENANCES (WITH EXCEPTION TO THE CONTROLLERS AND

IN ACCORDANCE WITH RECOGNIZED INDUSTRY PRACTICES. INSULATION MUST COMPLY WITH NFPA 90A.

PROVIDE REINFORCED BLOCKING AND HEAVY GAGE STUDS IN WALL WHERE HUMIDIFIER IS INSTALLED. INSTALL PER

GLASS FIBER (RIGID): MINERAL OR GLASS FIBERS BONDED WITH A THERMOSETTING RESIN. COMPLY WITH

AND IN ACCORDANCE WITH RECOGNIZED INDUSTRY PRACTICES. INSULATION MUST COMPLY WITH NFPA 90A.

PAINT AND EMBOSSED AS REQUIRED.

GLASS FIBER (RIGID): MINERAL OR GLASS FIBERS BONDED WITH A THERMOSETTING RESIN. COMPLY WITH

APPLIED FSK/ASJ JACKET. ACCEPTABLE MANUFACTURERS: CERTAINTEED,

HUB HEAVY DUTY COUPLINGS, NEOPRENE SLEEVE GASKET, ASTM C

HUB 4100 SIX-AND SEVEN-PART 29, Foil Skrims, Kraft Jacket (C. F. S. HUB),

APPLIED VINYL JACKET OR TYPE III WITH

D. APPLICATIONS: WET, DRY, OR EXPOSED. C. APPLICATIONS: WET, DRY, OR EXPOSED.

REMOVABLE FOR

F. MECHANICAL INSTALLATIONS: USE OF MOPP TO HUB SPECIFICATIONS.
**STRAP HANGERS**

**TRAPEZE HANGERS**

60" MAX.

**REINFORCEMENT MAY BE USED FOR ATTACHMENT IF IT QUALIFIES FOR BOTH DUTIES DO NOT EXCEED ALLOWABLE LOAD LIMITS**

ONE HALF-ROUND MAY BE USED IF DUCT SHAPE IS MAINTAINED.

24" DIA. MAX. 50" DIA. MAX.

**LOAD RATED FASTENERS**

HANGER STRAPS

HANGER RODS, WIRES OR STRAPS

BAND OF SAME SIZE AS HANGER STRAP

NUTS

HANGERS MUST NOT DEFORM DUCT SHAPE UNLESS FOOT OF STRAP IS PLACED UNDER A BOTTOM REINFORCEMENT.

SCREWS MAY BE OMITTED IF HANGER LOOPS SECURE WIRE STRAP ALTERNATE LOCATION (VERIFY UPPER TRAPEZE LOAD CAPACITY)

ANGLES BAND STRAP OR ANGLE ROD SIZE BOLT (S) FOR LOAD

1" MIN.

45° BOOT WITH DAMPER, WHERE INDICATED.

SUPPLY DUCT INSULATED FLEXIBLE DUCT (MAX LENGTH = 5 FEET)

DIFFUSER DAMPER SECTION (WHERE SCHEDULED OR SPECIFIED)

T-BAR CEILING SUPPLY DIFFUSER

90° FLEXIBLE METAL ELBOW

DRAW BAND

BALANCING DAMPER WITH LOCKING QUADRANT. SEE NOTE 2.

EXTERNALLY INSULATE ELBOW AND DIFFUSER INTERMEDIATE SUPPORT SEE NOTE 1 PROVIDE INTERMEDIATE SUPPORT, WHERE REQUIRED, TO PREVENT SAGGING AND KINKS AND TO KEEP FLEXIBLE DUCTWORK OFF SURROUNDING OBJECTS. 1" MINIMUM STRAPS, NOT WIRES.

PROVIDE 2" DUCT EXTENSION TO ALLOW OPERATION OF DAMPER WITHOUT DAMAGE TO INSULATION.

NOTES:

1. TYPICAL FOR ALL RETURN GRILLES OR REGISTERS WHICH ARE NOT DUCTED.

2. DO NOT INSTALL ON RA GRILLES IN OPEN OFFICE AREA.

3. INCREASE PAD THICKNESS AS REQUIRED TO ACHIEVE REQUIRED TRAP DEPTH (4" MINIMUM)

4. TAKEOFF ON BOTH SIDES OR SINGLE SIDE AS REQUIRED BY PLANS.

SEE SMACNA MANUAL FOR TAP-IN DETAILS.

SCALE FOR MICROFILMING

INCHES MILLIMETERS

1 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 7

NOT TO SCALE

DUCT & PIPE HANGERS

RECTANGULAR DUCT, SEE PLAN FOR SIZE

ROUND DUCT, SEE PLAN FOR SIZE

VAULTED DUCT, MIN. PLAN FOR SIZE

UNIT DRAIN PADS

EQUIP DRAIN PITCH (1/8" PER FOOT) TYPW "M" COPPER (TYP.) 2" MIN SIZE, SLOPE TO DRAIN BASE

HAND-TIGHT CLEANOUT PLUG

RETURN BEND (CLOSED)

UNIT DRAIN PADS

INCREASE PAD THICKNESS AS REQUIRED TO ACHIEVE REQUIRED TRAP DEPTH (4" MINIMUM)

PITCH PLATE (S) FOR TRAPS, 1/8" COPPER (TYP.)

UNIT DRAIN DRAIN BASE

UNIT DRAIN PADS

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SEE SMACNA MANUAL FOR TAP-IN DETAILS.
### BASIS OF DESIGN

- **DUCT SIZE IN 24x16**
- **ELECTRIC SPACE DESIGN RELATIVE HUMIDITY % 40**
- **SPACE DESIGN TEMPERATURE F 70**
- **MINIMUM SUPPLY AIR TEMPERATURE F 55**
- **AIRFLOW CFM 2100**
- **WATER FLOW GPM 0.4**
- **MAX ABSORPTION DISTANCE IN 7.8**
- **HUMIDIFICATION RATE LB/HR 30**

### NOTES:

1. **INCLUDE LOW AMBIENT TEMPERATURE OPERATING KIT.**

2. **PROVIDE HOT GAS REHEAT COIL WITH MODULATING CONTROL VALVE.**

3. **CASING AND BASE FRAME SHALL BE DOUBLE WALLED, FOAM INSULATED.**

4. **REFRIGERATION CIRCUITS SHALL BE INDEPENDENT WITH CAPACITY CONTROL USING ECM COMPRESSOR MOTORS**

5. **UNIT SHALL OPERATE ON DISCHARGE TEMPERATURE AND HUMIDITY CONTROL**

6. **PROVIDE BAROMETRIC RELIEF DAMPER SYSTEM.**

7. **PROVIDE WITH DOWNFLOW CURB WITH SIDE HORIZONTAL DISCHARGE.**

8. **PROVIDE WITH FIELD INSTALLED DUCT MOUNTED HIGH LIMIT HUMIDITY ALARM AND OVER-TEMPERATURE ALARM.**

9. **MAKES RUNOUT AND DUCT CONNECTION TO AIR DEVICE SAME SIZE AS NOTED DIFFUSER NECK SIZE.**

10. **FURNISH DEVICES WITH A FRAME COMPATIBLE WITH THE CEILING TO WHICH THE DEVICE IS MOUNTED.**

11. **FURNISH ROUND-TO-SQUARE TRANSITION AS REQUIRED BY DUCT CONNECTION SIZE.**

12. **REFER TO PLAN FOR NECK SIZE AND AIRFLOW.**

13. **PROVIDE WITH MANUFACTURER STANDARDS DIGITAL CONTROL AND REMOTE MOUNTED THERMOSTAT.**

14. **ACCESSIBLE WIRING CONNECTIONS.**

15. **PROVIDE WITH CONNECTIONS TO SYSTEM.**

16. **PROVIDE WITH CONDENSATE PUMP.**

### AHU-3 2380 250 5 80 67 57.6 57.6 97.2 62.2 92.1 TRANE YSC090A 3ELA0000

### AHU-2 1700 100 5 80 67 56.5 56.5 76.8 66.2 105.5 TRANE 4YCC3060 A3096AB

### AHU-1 1470 250 5 80 67 57.5 57.5 84 61.1 99.8 TRANE YCC060F3M0B H

### MARK DESCRIPTION ROOMS SERVED ALTITUDE (FT)

- **AHU-4 NAT GAS 2100 46.7 78.8 72.9 MOD 79 82 44 AAON RN-008-8-0 -EB09-32B 1244 ALL**
- **AHU-4 2100 79.7 67.3 53.3 52.3 92.1 58.8 95 R-410A 1-DIGITAL SCROLL 1 0.75 46.7 72**
- **CU-01 AC-01 HERMETICALLY SEALED R-410A 55 1 94.7 0.38 208 1 L G LSU120HSV5 75 1**
- **MARK SERVICE COMPRESSOR TYPE REFRIGERANT**
- **MARK**
- **MARK**
- **MARK**

### CONDENSING UNIT SCHEDULE

### ELECTRIC HEATING COIL SCHEDULE

### ELECTRIC DUCT HEATER SCHEDULE
NOTES:

1. SEE DRAWING P-01 FOR LEGEND, ABBREVIATIONS & GENERAL NOTES.

2. VERIFY LOCATION OF ALL EXISTING UTILITIES AND TIE-IN POINTS PRIOR TO CONSTRUCTION. REFER TO EXAMINATION NOTES ON ARCHITECTURAL DRAWING PRIOR TO DEMOLITION.

1. VERIFY HOLES FOR NEW UNDERGROUND DRAIN. LOCATE ALL EXISTING UTILITIES AND TIE-IN POINTS PRIOR TO DEMOLITION.

NOTES:

1. VERIFY HOLES FOR NEW UNDERGROUND DRAIN. LOCATE ALL EXISTING UTILITIES AND TIE-IN POINTS PRIOR TO DEMOLITION.

2. FIELD VERIFY LOCATION OF ALL EXISTING UTILITIES AND TIE-IN POINTS PRIOR TO CONSTRUCTION. REFER TO EXAMINATION NOTES ON ARCHITECTURAL DRAWING PRIOR TO SAWCUTTING.

1. VERIFY HOLES FOR NEW UNDERGROUND DRAIN. LOCATE ALL EXISTING UTILITIES AND TIE-IN POINTS PRIOR TO DEMOLITION.
GENERAL NOTES:

1. REFER TO SHEET E-001 FOR ELECTRICAL LEGEND, ABBREVIATIONS AND GENERAL NOTES.

2. ALL DEMOLISHED LIGHTS ARE TO BE CLEANED AND SAFELY STORED. FIXTURE SHALL BE USED IN NEW LIGHTING LAYOUT. ANY DEMOLISHED LIGHTS NOT USED IN THE NEW LIGHTING LAYOUT ARE TO RETURNED TO MIZZOU PHARMACY. SEE SHEET E-001 FOR MORE INFORMATION.

3. ALL DEMOLISHED OCCUPATION SENSORS ARE TO BE CLEANED AND SAFELY STORED. OCCUPATION SENSORS ARE TO BE REINSTALLED. SEE SHEET E-001 FOR MORE INFORMATION.

4. IF AN ELECTRICAL CIRCUIT LIES BOTH IN AND OUT OF THE PROJECT SOW AREA, REMOVE ALL FIXTURES IN THE PROJECT SOW AREA. ANY FIXTURES THAT LIE ALONG THE PROJECT SOW AREA WALL ABOUNDING TO THE FIXTURES OUTSIDE OF THE PROJECT SOW AREA.

5. FIELD VERIFY THE LOCATION AND SOURCING OF POWER OF ALL FIXTURES PRIOR TO CONSTRUCTION.

6. SEE SHEET ED601 FOR DEMOLITION PANEL SCHEDULE.

7. IF A FIXTURE IN THE PROJECT SOW AREA IS SUPPLIED FROM AN AREA OUTSIDE OF THE PROJECT SOW AREA, REMOVE THE FIXTURE AND ALL SUPPORTS, CONDUCTORS, AND CONDUITS TO THE SOURCE BREAKER FOR DEMOLITION. IF NO OTHER FIXTURES ARE ON THE CIRCUIT, CONTINUE DEMOLITION TO SOURCE BREAKER AND LABEL OCPD AS SPARE.

SCALE IN FEET

0 4' 8' 16'

LEGEND:

EQUIPMENT TO BE DEMOLISHED.
## ELECTRICAL DEMOLITION PANELBOARD SCHEDULE

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<th>CKT NO.</th>
<th>TRIP AMPS</th>
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<td>WORKSTATION POWER</td>
<td>2#12, #13 GND, 3/4&quot; C</td>
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### ORIGINAL NOTES:
1. SEE SHEET E-001 FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES.
2. PANEL SCHEDULE INFORMATION IS BASED ON DATA GATHERED FROM THE SITE. VERIFY ALL CIRCUIT INFORMATION, INCLUDING SPARES/SPACES, PRIOR TO CONSTRUCTION.

### KEYS:
- DEVICES ASSOCIATED WITH INDICATED BREAKER SHALL REMAIN.
- DEVICES AND CONDUCTORS INSIDE THE PROJECT AREA ASSOCIATED WITH INDICATED BREAKER SHALL BE DEMOLISHED.
CONSTRUCTION

1. REFER TO SHEET E-001 FOR LEGEND, ABBREVIATIONS, AND FOR GENERAL NOTES.
2. REFER TO SHEET E-001 FOR MOUNTING HEIGHT.
3. A SINGLE CIRCUIT CALLED OUT IN THE MIDDLE OF A CLOSED ROOM INDICATES THAT ALL LIGHTS IN THAT ROOM SHALL BE POWERED FROM THE INDICATED CIRCUIT.
4. ALL EXTERIOR FIXTURES WILL BE POWERED FROM A LOCAL LIGHTING CONTACTOR WHICH IS CONTROLLED BY A PHOTOCELL FURNISHED AND INSTALLED BY ELECTRICAL CONTRACTOR. SEE DETAIL 1 FOR MORE INFORMATION. PHOTOCELL TO BE MOUNTED ON ROOF OF BUILDING FACING NORTH.
5. COORDINATE ALL CONDUIT ROUTING WITH THE MECHANICAL CONTRACTOR.
6. FIXTURES INSTALLED IN OPEN OFFICE 1002 ARE TO BE CONTROLLED FROM EXISTING LIGHTING CONTROLS.

GENERAL NOTES:

1. SEE SHEET E-001 FOR LEGEND, ABBREVIATIONS, AND FOR GENERAL NOTES.
2. REFER TO SHEET E-001 FOR MOUNTING HEIGHT.
3. A SINGLE CIRCUIT CALLED OUT IN THE MIDDLE OF A CLOSED ROOM INDICATES THAT ALL LIGHTS IN THAT ROOM SHALL BE POWERED FROM THE INDICATED CIRCUIT.
4. ALL EXTERIOR FIXTURES WILL BE POWERED FROM A LOCAL LIGHTING CONTACTOR WHICH IS CONTROLLED BY A PHOTOCELL FURNISHED AND INSTALLED BY ELECTRICAL CONTRACTOR. SEE DETAIL 1 FOR MORE INFORMATION. PHOTOCELL TO BE MOUNTED ON ROOF OF BUILDING FACING NORTH.
5. COORDINATE ALL CONDUIT ROUTING WITH THE MECHANICAL CONTRACTOR.
6. FIXTURES INSTALLED IN OPEN OFFICE 1002 ARE TO BE CONTROLLED FROM EXISTING LIGHTING CONTROLS.
1. SEE SHEET E-001 FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES.
2. REFER TO SHEET E-001 FOR MOUNTING HEIGHT.
3. REFER TO SHEET E-001 FOR SCHEDULE INFORMATION.
4. A SINGLE CIRCUIT CALLED OUT IN THE MIDDLE OF A CLOSED ROOM INDICATES THAT ALL RECEPTACLES IN THAT ROOM SHALL BE POWERED FROM THAT CIRCUIT ONLY.
5. COORDINATE ALL CONDUIT ROUTING WITH THE MECHANICAL CONTRACTOR.
6. ALL FIRE ALARM DEVICES ARE TO BE POWERED FROM FACP LOCATED IN ELECTRICAL ROOM 1005C.

KEYED NOTES:
1. FURNISH AND INSTALL RECESSED JUNCTION BOX TO POWER FURNITURE WHIPS.
2. ATS TO BE FURNISHED BY THE OWNER AND INSTALLED BY THE CONTRACTOR.
3. CHANGE PANELBOARD'S NAMING CONVENTION FROM FRONT TO DP-1.
4. GENERATOR ANNUNCIATOR PANEL TO BE INSTALLED BY ELECTRICAL CONTRACTOR. GENERATOR ANNUNCIATOR FEED TO BE ROUTED TO GENERATOR THROUGH 1" CONDUIT IN ELECTRICAL ROOM 1005C. REFER TO KEYED NOTE 5 ON SHEET E-401 FOR FURTHER INFORMATION.
5. AC-1 TO BE POWERED FROM CU-1. REFER TO SPLIT SYSTEM CUTSHEET WIRING DIAGRAM FOR MORE CIRCUIT INFORMATION AND FIELD ROUTING REQUIREMENTS.
6. INSTALL POWER POLE TO CONNECT PARTITION TO WALL. ROUTE POWER THROUGH WALL TO RECEPTACLES.
GENERAL NOTES:
1. SEE SHEET E-001 FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES.
2. REFER TO SHEET E-001 FOR MOUNTING HEIGHT.
3. OWNER TO PROVIDE ALL SECURITY DEVICES AND DEVICE CABLES. ELECTRICAL CONTRACTOR SHALL ROUTE ALL SECURITY DEVICES AND PULL ALL SECURITY CABLES. OWNER WILL INSTALL AND TERMINATE ALL SECURITY DEVICES.
4. OWNER TO PROVIDE ALL DATA DEVICES AND CABLES. ELECTRICAL CONTRACTOR SHALL ROUTE ALL DATA DEVICES AND PULL ALL DATA CABLES. OWNER WILL INSTALL AND TERMINATE ALL DATA DEVICES.
5. PRIOR TO INSTALLATION, COORDINATE SECURITY DEVICES LOCATION WITH ALL SECURITY CONTRACTORS.
6. COORDINATE ALL SECURITY ROUTING WITH THE AHU MECHANICAL CONTRACTOR.
7. ALL SECURITY AND DATA DEVICE CABLES ARE TO BE ROUTED THROUGH 3/4" EMT CONDUIT TO COMM ROOM 1006.
8. ALL FIRE ALARM DEVICES ARE TO BE POWERED FROM FACU LOCATED IN ELECTRICAL ROOM 1006A.

KEYED NOTES:
- PROVIDE 1/4" C FOR JUNCTION BOX DATA DROPS.
- INSTALL DUCTsmoke detector on supply and return air ducts for AHU 4.
- ROUTE DDATA TO INSTRUMENTATION THROUGH METAL FRAME INSIDE EMT CONDUIT.
- INSTALL POWER/AUX TO CONNECT PARTITION TO WALL. ROUTE DATA THROUGH WALL TO RECEPTACLES.

THE FIRE ALARM SCOPE OF WORK CONTAINED HEREIN INCLUDES COMPLETE DESIGN AND INSTALLATION OF A FIRE ALARM SYSTEM MODIFICATION FOR MODIFIED SPACES. CONTRACTOR SHALL SUBMIT A SHOP DRAWING PACKAGE FOR OWNER REVIEW PRIOR TO PROCEEDING WITH WORK. REFER TO DESIGN CRITERIA, GENERAL FIRE ALARM NOTES, AND FACU FUNCTIONAL MATRIX ON SHEET E-001.

ENSURE SYSTEM DEVICES ADDITIONS ARE COMPATIBLE WITH EXISTING FACILITY FIRE ALARM SYSTEM.

SCALE IN FEET
0 4'
8'
16'
24'
32'
40'
GENERAL NOTES:
1. SEE SHEET E-001 FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES.
2. REFER TO SHEET E-001 FOR MOUNTING HEIGHT.
3. REFER TO SHEET E-001 FOR DETAILS AND PANEL SCHEDULE INFORMATION.

KEYED NOTES:
1. INSTALL UNISTRUT RACK TO SUPPORT ATS. UNISTRUT RACK MUST BE BOUNDED TO THE GROUND RING AROUND THE GENERATOR.
2. ROUTE WIRING FOR COPPER CONDUCTOR BETWEEN GROUNDING DEVICES.
3. REFER TO SHEET E-001 FOR MOUNTING HEIGHT.
4. REFER TO SHEET E-001 FOR DETAILS AND PANEL SCHEDULE INFORMATION.
5. ROUTE #4/0AWG BARE COPPER CONDUCTOR BETWEEN GROUNDING DEVICES. WHEN UNDERGROUND ENSURE IT IS A MINIMUM OF 30" BELOW GRADE.
6. ROUTE ONE 4" SCHEDULE 40 PVC CONDUIT AND ONE 1" SCHEDULE 40 PVC FROM GENERATOR TO THE EXTERIOR WALL OF THE BUILDING A MINIMUM OF 24" BELOW GRADE. WHEN AT THE EXTERIOR WALL TRANSITION TO RGS CONDUIT AND ROUTE UP THE SIDE OF THE BUILDING AND ENTER THE ATS FROM BELOW. THE 1" CONDUIT SHALL BE USED TO ROUTE SIGNAL WIRES FROM THE ATS TO THE GENERATOR.
7. ROUTE TWO 1" SCHEDULE 40 PVC CONDUIT FROM THE GENERATOR TO THE EXTERIOR WALL OF THE BUILDING A MINIMUM OF 24" BELOW GRADE. WHEN AT THE EXTERIOR WALL TRANSITION TO RGS CONDUIT AND ROUTE THE CONDUITS UP THE SIDE OF THE BUILDING. PENETRATE THE SIDE OF THE BUILDING WHEN THE CONDUITS ARE 8' AFF. ONE OF THE 1" CONDUITS WILL BE USED TO SUPPLY POWER TO THE GENERATOR'S CHARGING AND HEATER CIRCUIT. THE SECOND 1" CONDUIT WILL BE USED TO ROUTE SIGNAL WIRES FROM THE ATS TO THE GENERATOR.
8. ROUTE TWO 4" CONDUITS FROM THE SIDE OF THE ATS TO THE EXTERIOR WALL OF THE BUILDING A MINIMUM OF 24" BELOW GRADE. WHEN AT THE EXTERIOR WALL TRANSITION TO RGS CONDUIT AND ROUTE THE CONDUITS UP THE SIDE OF THE BUILDING. PENETRATE THE SIDE OF THE BUILDING WHEN THE CONDUITS ARE 8' AFF. ONE 4" CONDUIT SHALL BE USED TO SUPPLY POWER FROM MDP TO ATS. THE SECOND 4" CONDUIT SHALL BE USED TO ROUTE POWER FROM ATS TO GEN PANEL LOCATED IN ROOM SHIPPING AND RECEIVING 1004.
9. POWER THE GENERATOR BATTERY FROM GEN PANEL, CIRCUIT 15. POWER GENERATOR REACTOR FROM GEN PANEL, CIRCUIT 43. REFER TO PANEL SCHEDULE GEN PANEL LOCATED ON SHEET E-601 FOR MORE INFORMATION.
10. GENERATOR IS TO BE OWNER FURNISHED AND INSTALLED BY THE CONTRACTOR. COORDINATE CONDUIT STUB UP LOCATIONS WITH VENDOR DRAWINGS OF PROVIDED ATS AND GENERATOR.
### General Notes:
1. See Sheet E-001 for legend, abbreviations, and general notes.

### Equipment Data Schedule

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Controller</th>
<th>Encl. Type</th>
<th>Furnished By</th>
<th>Installed By</th>
<th>Type</th>
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### Electrical

- **Controller Type**: CFVNR - Combination Full Voltage Non-Reversing/FDS
- **Furnishings**: 08 - Openings
- **Equipment**: 11 - Equipment
- **Special Construction**: 12 - Furnishings
- **Plumbing**: 13 - Special Construction
- **HVAC**: 14 - Furnishings
- **Integrated Controls**: 15 - Furnishings
- **Electrical**: 16 - Furnishings

### Electrical Accessories

- **Accessories**: AUX - Auxiliary Contacts
- **Controller Type**: LC - Local Lighting Controller
- **Furnishings**: PG - Pilot Light
- **Special Construction**: PR - Pilot Light

### Disconnect Types

- **Disconnect**: CB - Circuit Breaker
- **Disconnect**: NFDS - Non-Fused Disconnect Switch
- **Disconnect**: EDH - Enclosed Disconnect Switch
- **Disconnect**: AHU - Enclosed Disconnect Switch
- **Disconnect**: TAG - Enclosed Disconnect Switch

### Disconnect Details

- **Size**: SAFETY DISCONNECT SWITCH
- **Rating**: AMP RATING
- **CIRCUIT BREAKER FRAME**: AMP RATING
- **FUSE**: AMP RATING
- **CIRCUIT BREAKER TRIP**: AMP RATING
- **CIRCUIT BREAKER**: SIZE

### Electrical Details

- **OCPD**: Switch AMP RATING
- **Fuse AMP RATING**: CIRCUIT BREAKER TRIP
- **CIRCUIT BREAKER FRAME**: SIZE
- **FUSE**: AMP RATING
- **CIRCUIT BREAKER TRIP**: AMP RATING
- **CIRCUIT BREAKER**: SIZE
GENERAL NOTES:
1. REFER TO SHEET E-001 FOR ELECTRICAL LEGEND, ABBREVIATIONS AND GENERAL NOTES.
2. SEE SHEET E-601 FOR PANELBOARD SCHEDULES.
3. ELECTRICAL SUBCONTRACTOR SHALL PERFORM ARC FLASH STUDY, LABEL NEW EQUIPMENT AND APPLY ARC FLASH LABELS. SUBCONTRACTOR SHALL COLLECT ALL EXISTING MOTOR PROTECTION SETTINGS, MOTOR SIZES, ETC. THAT WILL BE REQUIRED TO PERFORM THE ARC FLASH STUDY.

EXISTING SERVICE FEEDERS TO REMAIN. EXISTING FEEDERS GOING BACK TO POLE TRANSFORMERS.

SCALE FOR MICROFILMING

NO. DATE DESCRIPTION BY CKD

CP201291125262

OF SHEET SHEETS

PROJECT MU CONTRACT

REV. DRAWING FILE

OLD COKE BUILDING ONE LINE

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A WORK INCLUDED

1. WORK UNDER THE ELECTRICAL CONTRACT SHALL INCLUDE ALL LABOR, MATERIALS, EQUIPMENT, PLANT AND SERVICES AND ADMINISTRATIVE TASKS REQUIRED TO COMPLETE AND MAKE ORGANIC THE WORK ELECTRICAL WORK SHOWN ON THE DRAWINGS AND SPECIFICATIONS. WORK ITEMS ARE LISTED AS A RESULT OF THEIR FUNCTION OR EFFECT ON THE WORK ITSELF AND ARE NOT INCLUDED AS A RESULT OF THEIR FUNCTION ON ANOTHER TRADE.

   a. PREPARE AND SUBMIT SHOP DRAWINGS, SCHEDULES AND ILLUSTRATIONS TO THE OWNER.
   b. PROVIDE TRANSMISSION AND DISTRIBUTION AND MICROFILM AND PHOTOGRAPHS ON CD OR DVD AND CENTRALIZED IN A SECURITY LOCKED LOCATION.
   c. PROVIDE SPACE FOR WIRING, FEEDING, AND FLEXIBLE CONDUIT SYSTEMS IN ACCORDANCE WITH THE CODES, REGULATIONS AND STANDARDS.
   d. PROVIDE LEGIBLE, CLEAN, AND CLEAR DRAWINGS OF THE WORK TO SAFELY PROMOTE AND CONTINUALLY OPERATE.
   e. PROVIDE IDENTIFICATION LABELS, TAGS, CHARTS AND DIAGRAMS.
   f. ILLUSTRATE ALL CUTTING, DRILLING, DRILLING, DRILLING AND PATCHING OF OR INSTALLED OR RECENTLY INSTALLED CONSTRUCTION REQUIRED TO THE WORK.
   g. PROVIDE ANY SUPPORTING, FOUNDATIONS, STRUCTURAL FRAMES SUPPORTS, AND BASES FOR CONCRETE WORK.
   h. PROVIDE CONSTRUCTION DRAWINGS, OPERATING MAINTENANCE INSTRUCTIONS AND MANUALS
   i. PROVIDE INSTALLATION OF ALL FIELD TYPE DH

2. SUBMITTALS

1. ALL SUBMITTALS

   a. SUBMITTED ON COMPLETION OF THE WORK, THE SUBMITTALS ARE IN THE FORM OF PDF FILES VIA EMAIL OR IN THE FORM OF HARD COPY BOUND IN THE SAME ORDER AS THE DRAWINGS AND SCHEDULES. ALL DRAWINGS AND SCHEDULES FOR ALL ADDITIONAL EQUIPMENT, WORK AND RELATED MATERIALS ARE TO BE CONSIDERED A PART OF THE CONTRACT.


2. CUTTING AND PATCHING

   a. ILLUSTRATE ALL CUTTING, DRILLING, DRILLING, DRILLING AND PATCHING FOR REQUIRED FOR THE WORK.

   b. CUTTING OF ALL PANELS, CABINETS, ETC. SHALL BE PROPERLY IDENTIFIED WITH NAMEPLATES SECURELY FASTENED TO THE PANELS, CABINETS, ETC. THROUGH THE USE OF NUTS AND BOLTS.

   c. CUTTING OF BEAMS, FLOORS OR WALLS FOR PIPING OR CONDUIT SHALL BE DONE AS APPROVED AND SUBMITTED AS REQUIRED.

   d. CUTTING OF BEAMS, FLOORS OR WALLS FOR PIPING OR CONDUIT SHALL BE DONE AS APPROVED AND SUBMITTED AS REQUIRED.

   e. MINIMUM SIZE NAMEPLATES SHALL BE THREE INCHES LONG WITH 1/4 INCH LETTERING.

   f. CLOSURE OR SHUT OFF OF THE SYSTEM SHALL BE MADE TO THE WORK INDICATED IN THE DRAWINGS.

   g. CUTTING OR SOLDERING OF WIRE INSERTS INTO THE SYSTEM SHALL BE CONDUCTED AS REQUIRED.

   h. EXPANSION BOLTS, HANGERS AND OTHER APPARATUS SHALL BE FABRICATED AND SECURED IN A SAFE MANNER.

3. SAFETY SWITCHES AND FUSES

   a. SAFETY SWITCH ENCLOSURES SHALL BE NEMA 1, FACTORY FINISHED, FOR INTERIOR INSTALLATION.

   b. SAFETY SWITCH ENCLOSURES SHALL BE NEMA 1, FACTORY FINISHED, FOR INTERIOR INSTALLATION.

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ELECTRICAL SPECIFICATIONS

ARC FLASH / COORDINATION STUDY

FAULT CURRENT STUDY:
1. Calculate the maximum available short circuit current, in amperes, per symmetrical at each circuit breaker position of the electrical power distribution system. The calculation shall be for a current immediately after initiation and for a three-phase bolted short circuit at each of the followings:
   a. Distribution Panelboard
   b. Branch Circuit Panelboards
2. Study electrical distribution system from normal and alternate power sources throughout electrical distribution system for project. Include studies of system operating communications and alternate operations that could result in maximum fault conditions.
3. Calculate momentary and interrupting duties on the basis of maximum available fault current.
5. Study report:
   a. Show calculated duty ratios and equipment interrupting ratings (1 cycle) fault currents on electrical distribution system diagram.
   b. For equipment with a main breaker, calculate the arc flash incident energy levels at the line side of the main breaker.
6. Equipment evaluation report:
   a. For device and equipment ratios for symmetrical fault current, apply multiplication factors based on the coordination to 1 cycle symmetrical fault current
   b. Verify adequacy of panel boards at a maximum three phase bolted fault currents.
7. Coordination of protective devices, interrupting withstand time or electrical minimum current circuit breaker, determine that interrupting protection ratings are equal to the minimum time calculated using a symmetrical fault current
   c. Identify areas within arc flash incident energy in the system and provide scenarios for situation where protection failure.
   d. Provide arc flash labels in accordance with IEEE 1584/NFPA 1956 and comprehensive fault calculation for all power distribution equipment in the scope of work. Ensure equipment marked for arc flash protection, such as current transformers, voltage terminations, busbars, bus ducts, and cable terminations. Similarly, equipment labels shall use the incident energy, incident energy during a worst case scenario equipment with a flash protection label. Equipment shall be marked for each phase of electrical connection.
   e. Provide software generated arc flash calculation tables in Excel format.
8. Coordination study:
   b. Calculate the maximum and minimum 1/2 cycle short circuit currents.
9. Conduct coordination:
   a. Verify adequacy of panel boards at minimum three phase bolted fault currents.
   b. Coordinate minimum and maximum fault current for a time equivalent to the tripping time of the protective device used to protect the cable. Include in the study the minimum and maximum fault current calculated using a symmetrical fault current.
   c. Cooperate with IEEE 321 and IEEE 322 recommendations for fault currents and time intervals.
   d. Conductor protection: Protect cables against damage from fault currents according to IEEE P-595, IEEE P-582, and IEEE P-362. Design and use insulation and heat-resistant equipment that equipment withstands the maximum short circuit current for a time equivalent to the tripping time of the protective device used to protect the cable. Include in the study the minimum and maximum fault current calculated using a symmetrical fault current for each section.
10. Coordination study report:
    a. Executive summary, methods and standard uses for calculations, assumptions, and details of fault current contribution to electrical utility (if applicable).
    b. Table format of settings selected for overcurrent protective devices.
    c.设备表
    d. Current transformer design ratings, using time, inverse time, and instantaneous settings.
    e. Coordination curve prepared to demonstrate settings of overcurrent protective devices.
    f. Coordination curve prepared to demonstrate settings of overcurrent protective devices.
11. Completed data sheets for setting of overcurrent protective devices.
12. Provide software-generated complete project folder and all supporting files such as CAD, library, data blocks, files for scenarios etc.

Burns & McDonnell
Professional Architectural Corporation
MO Certificate of Authority #000089
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Date Prepared: 07/29/20

Old 63s Warehouse
University of Missouri Healthcare
Columbia, Missouri

MU Specialty Pharmacy Renovation
Electrical Specification 2/2

CP201291125262
rev.drawing file
0 of sheet sheets
125262_E_Central.rvt
1. Reorient local sprinkler area according to new wall layout. Adjust sprinkler heads in areas impacted by fabrication and/or demolition. New locations may result in the installation of new sprinkler piping and/or sprinkler heads. New heads shall be installed in accordance with the adopted building code limits and standards of the building.