CONTRACTOR GENERAL CONDITIONS NOTES

1. The承包商将不得将合同下的任何工作分包给任何一家未被指定的分包商，除非这些分包商在合同中特别指明。合同下的所有工作将由承包商亲自完成，任何分包商不得将任何分包工作转包给第三方。

2. 在工程收尾期间，承包商将负责清理现场，包括清理所有临时设施和材料。工地应按照合同要求进行恢复，以使其恢复到开工前的状态。

3. 所有承包商不得在工程现场内吸烟，不得制造或存储任何危险品。

4. 所有承包商在施工期间应遵守所有适用的法规和安全规定，包括但不限于环境保护和职业安全健康法规。

5. 所有承包商应为所有工地工人提供适当的安全设备和防护措施。所有工地工人都必须佩戴安全帽和安全鞋。

6. 在工程进行期间，承包商应负责保持工地的清洁和秩序，包括清理所有施工垃圾。

7. 所有承包商应负责维护所有工地设施，包括水、电、气和通讯设备。

8. 在工程进行期间，承包商应负责所有工地的安全保卫，包括监控和巡逻。

9. 在工程进行期间，承包商应负责所有工地的保险，包括但不限于财产保险和工人保险。

10. 在工程进行期间，承包商应负责所有工地的防火和防爆措施，包括配置足够的灭火器材和制定防火预案。

11. 在工程进行期间，承包商应负责所有工地的环境保护，包括防止噪音和粉尘污染。

12. 在工程进行期间，承包商应负责所有工地的公共安全，包括防止盗窃和暴力事件。

13. 在工程进行期间，承包商应负责所有工地的事故报告和处理，包括及时报告事故并采取必要的整改措施。

14. 在工程进行期间，承包商应负责所有工地的法律和行政事务，包括遵守所有法规和行政命令。

15. 在工程进行期间，承包商应负责所有工地的信用和财务事务，包括及时支付所有工人工资和材料供应商的款项。

16. 在工程进行期间，承包商应负责所有工地的记录和档案事务，包括及时记录和归档所有工地文件和资料。

17. 所有承包商应遵守所有工地的管理规定，包括遵守工地守则和工地规则。

18. 所有承包商应遵守所有工地的健康和安全规定，包括遵守工地安全守则和安全设备规定。

19. 所有承包商应遵守所有工地的环境保护规定，包括遵守工地环保守则和环保设备规定。

20. 所有承包商应遵守所有工地的公共安全规定，包括遵守工地安全守则和安全设备规定。

21. 所有承包商应遵守所有工地的信用和财务规定，包括遵守工地信用守则和财务设备规定。

22. 所有承包商应遵守所有工地的记录和档案规定，包括遵守工地记录守则和档案设备规定。

23. 所有承包商应遵守所有工地的管理规定，包括遵守工地管理守则和管理设备规定。

24. 所有承包商应遵守所有工地的健康和安全规定，包括遵守工地健康守则和安全设备规定。

25. 所有承包商应遵守所有工地的环境保护规定，包括遵守工地环保守则和环保设备规定。

26. 所有承包商应遵守所有工地的公共安全规定，包括遵守工地安全守则和安全设备规定。

27. 所有承包商应遵守所有工地的信用和财务规定，包括遵守工地信用守则和财务设备规定。

28. 所有承包商应遵守所有工地的记录和档案规定，包括遵守工地记录守则和档案设备规定。

29. 所有承包商应遵守所有工地的管理规定，包括遵守工地管理守则和管理设备规定。

30. 所有承包商应遵守所有工地的健康和安全规定，包括遵守工地健康守则和安全设备规定。

31. 所有承包商应遵守所有工地的环境保护规定，包括遵守工地环保守则和环保设备规定。

32. 所有承包商应遵守所有工地的公共安全规定，包括遵守工地安全守则和安全设备规定。

33. 所有承包商应遵守所有工地的信用和财务规定，包括遵守工地信用守则和财务设备规定。

34. 所有承包商应遵守所有工地的记录和档案规定，包括遵守工地记录守则和档案设备规定。

35. 所有承包商应遵守所有工地的管理规定，包括遵守工地管理守则和管理设备规定。

36. 所有承包商应遵守所有工地的健康和安全规定，包括遵守工地健康守则和安全设备规定。

37. 所有承包商应遵守所有工地的环境保护规定，包括遵守工地环保守则和环保设备规定。

38. 所有承包商应遵守所有工地的公共安全规定，包括遵守工地安全守则和安全设备规定。

39. 所有承包商应遵守所有工地的信用和财务规定，包括遵守工地信用守则和财务设备规定。

40. 所有承包商应遵守所有工地的记录和档案规定，包括遵守工地记录守则和档案设备规定。

41. 所有承包商应遵守所有工地的管理规定，包括遵守工地管理守则和管理设备规定。

42. 所有承包商应遵守所有工地的健康和安全规定，包括遵守工地健康守则和安全设备规定。

43. 所有承包商应遵守所有工地的环境保护规定，包括遵守工地环保守则和环保设备规定。

44. 所有承包商应遵守所有工地的公共安全规定，包括遵守工地安全守则和安全设备规定。

45. 所有承包商应遵守所有工地的信用和财务规定，包括遵守工地信用守则和财务设备规定。

46. 所有承包商应遵守所有工地的记录和档案规定，包括遵守工地记录守则和档案设备规定。

47. 所有承包商应遵守所有工地的管理规定，包括遵守工地管理守则和管理设备规定。

48. 所有承包商应遵守所有工地的健康和安全规定，包括遵守工地健康守则和安全设备规定。

49. 所有承包商应遵守所有工地的环境保护规定，包括遵守工地环保守则和环保设备规定。

50. 所有承包商应遵守所有工地的公共安全规定，包括遵守工地安全守则和安全设备规定。
1. Patch and repairs (all as required) to create a monolithic smooth finish. Remove damaged/stained VCT flooring.
2. New 30"W x 72"L x 30"H metal lab table with 1" epoxy resin top.
3. New 36"H metal casework with 1" epoxy resin top.
4. New 36"H metal undermount sink. See AE7-01-01 for more information.
5. New VCT flooring.
6. Patch and repairs (where required) to create a monolithic smooth finish, then patch and repair walls as required to create a monolithic smooth finish.
7. New subfloor and wall base, excess grout, etc. to be removed as required to create a monolithic smooth finish. Patch and repair ceiling where lights have been removed as required to create a monolithic smooth finish.
8. New cabinets.
9. New upper cabinets to remain.
10. New lower cabinets to remain.
11. New millwork in its entirety.
12. New plumbing fixtures and caps supplied and installed by contractor per architectural drawing for more information.
13. New electrical fixtures, supplied and installed by contractor per electrical drawing for more information.

EXISTING TO BE DEMOLISHED:
- Existing existing VCT flooring.
- Existing existing cabinets.
- Existing existing millwork.
- Existing existing plumbing fixtures.
- Existing existing electrical fixtures.

ARCHITECTURAL KEYED NOTES:
- See AE7-01-01 for reflected ceiling plan
- See AC1-01-01 for reflected ceiling plan
- See AE1-01-07 for door and finish schedules
- See electrical and mechanical drawings for more information
- See AE1-L1-01 for more information

LEGEND:
- Existing
- Existing to be removed
- Existing to remain
- New

AREA OF WORK:
- Detriot, MI 48202
- Wayne State University
- 5047 Gulien Mall
- Detroit, MI 48202
**ARCHITECTURAL RCP GENERAL NOTES:**

1. SEE ELECTRICAL DRAWING FOR LIGHT FIXTURE LOCATION, LIGHTING SIZES AND ADDITIONAL RCP DETAILS.
2. ALL NOSING TO BE DESTROYED INSOCEous UNLESS NOTED OTHERWISE.

**ARCHITECTURAL DEMOLITION NOTES:**

1. REMOVE EXISTING LOCK SET.
2. REMOVE EXISTING SHELVING, CASE WORK AND MOUNTED RESIN SINK. SEE AE7-01-01 FOR MORE INFORMATION.
3. REMOVE EXISTING LATCH SET.
4. REMOVE EXISTING SHELVING, CASE WORK AND METAL HAND SINK WITH METAL BASE CABINET AND SPLASH GUARD. SEE AE7-01-01 AND MECHANICAL DRAWINGS FOR MORE INFORMATION.

**PROCEDURE**

1. INSTALL New metal Hand SINK with metal base cabinet and splash guard. See AE7-01-01 and mechanical drawings for more information.
2. INSTALL new cementitious polyurethane substrate to receive new finish, feather down mortar at door so the hallways floor is level with the existing hallway floor.
3. INSTALL new metal doors with a JAMB.
4. INSTALL new metal casework with 1" epoxy finish. Install new metal hand sink with metal base cabinet and splash guard. See AE7-01-01 and mechanical drawings for more information.
5. INSTALL New metal casework with 1" epoxy finish. Install new metal hand sink with metal base cabinet and splash guard. See AE7-01-01 and mechanical drawings for more information.
6. INSTALL new metal doors with a JAMB.
7. DEMOLISH EXISTING LIGHTING, REQUIRED TO ACHIEVE A SMOOTH CLEAN GLUE, GROUT, ETC. TO BE REMOVED AS MORE DEMOLITION INFORMATION.) SEE ELECTRICAL AND MECHANICAL DRAWINGS FOR DEMOLITION KEYED NOTES:

**ARCHITECTURAL KEYED NOTES:**

1. DEMOLISH EXISTING LIGHTING.
2. REMOVE EXISTING SHELVING, CASE WORK AND MOUNTED RESIN SINK. SEE AE7-01-01 FOR MORE INFORMATION.
3. REMOVE EXISTING LATCH SET.
4. DEMOLISH EXISTING LIGHTING, REQUIRED TO ACHIEVE A SMOOTH CLEAN GLUE, GROUT, ETC. TO BE REMOVED AS MORE DEMOLITION INFORMATION.) SEE ELECTRICAL AND MECHANICAL DRAWINGS FOR DEMOLITION KEYED NOTES:

**LEGEND:**

- EXISTING TO REMAIN
- EXISTING TO BE DEMOLISHED
- DRAWING only
- EXISTING EXTERIOR BOARD DOORS

**AREA OF WORK:**

- NORTH

**LEVEL FIVE (ALTERNATE #1) PLANS**

**DATE:**

01/20/15

**PROJECT #:**

AE1-05-01

**DRAWN BY:**

T. WALKER

**DESIGNED BY:**

T. WALKER

**PROJECT MANAGER:**

S. HAHN

**QUALCHECK:**

O. WAGNER / D. RUTKOWSKI
GENERAL NOTES:

1. SEE SHEETS AE1-R1-01 AND AE5-01-01 FOR DETAILS AND ADDITIONAL INFORMATION ON GREENHOUSE RENOVATION.

2. REFER TO THE REFERENCE DRAWINGS INCLUDED AS PART OF THIS SET FOR CURRENT GREENHOUSE CONDITIONS AND DETAILS.

3. GREENHOUSE ROOMS 6162, 6170, 6178 AND 6180 TO RECEIVE NEW GREENHOUSE GLAZING SYSTEM INSTALLED IN EXISTING PANEL STRUCTURE (SEE PROJECT SPECIFICATIONS FOR PERFORMANCE REQUIREMENTS AND ADDITIONAL INFORMATION).

4. GLAZING SUPPLIER/CONTRACTOR TO SUPPLY ARCHITECT WITH ALL APPLICABLE DETAILS PRIOR TO FABRICATION.

5. SEE EL1-06-01 FOR LIGHTING LAYOUT.
NOTE:
1. ALL EXISTING STEEL STRUCTURAL FRAMING TO REMAIN.
2. FINAL LOCATION OF NEW HVAC UNITS BASED ON EXISTING DUCTS TO BE REWORKED.

EXISTING ROOF OPENING AND EQUIPMENT SUPPORT FRAME

TYPICAL PREFAB EQUIPMENT SUPPORT DETAIL

TYPICAL PREFAB ROOF CURB DETAIL
MECHANICAL NOTICE/NOTES:
1. REMOVE SINK TO EXISTINGצליח MARK.
2. REMOVE EXISTING EXHAUST DUCTWORK.
3. REMOVE EXISTING SINKS TO EXISTING SINK MARK.
4. REMOVE PIPING TO EXISTING WATER SUPPLY MARK.
5. REMOVE ALL WATER SUPPLY AND SANITARY PIPING TO EXISTING WATER SUPPLY MARK.
6. REMOVE EXISTING SINKS AND ASSOCIATED PIPING.
7. REMOVE PIPING TO EXISTING WATER SUPPLY MARK.
8. REMOVE ALL WATER SUPPLY AND SANITARY PIPING TO EXISTING WATER SUPPLY MARK.
9. REMOVE ALL PIPING TO EXISTING WATER SUPPLY MARK.
10. REMOVE ALL WATER SUPPLY AND SANITARY PIPING TO EXISTING WATER SUPPLY MARK.
11. REMOVE ALL PIPING TO EXISTING WATER SUPPLY MARK.
12. REMOVE ALL WATER SUPPLY AND SANITARY PIPING TO EXISTING WATER SUPPLY MARK.
13. REMOVE ALL PIPING TO EXISTING WATER SUPPLY MARK.

NEW WORK PLAN-SUITE 5155

MECHANICAL NOTICE/NOTES:
1. INSTALL 2 10X6 SINKS AS POLICY REMAINS.
2. INSTALL 1 10X6 SINK AS POLICY REMAINS.
3. INSTALL 2 10X6 SINKS AS POLICY REMAINS.
4. INSTALL 1 10X6 SINK AS POLICY REMAINS.
5. INSTALL 2 10X6 SINKS AS POLICY REMAINS.
6. INSTALL 1 10X6 SINK AS POLICY REMAINS.
7. INSTALL 2 10X6 SINKS AS POLICY REMAINS.
8. INSTALL 1 10X6 SINK AS POLICY REMAINS.

DEMOLITION PLAN-SUITE 5155

MECHANICAL NOTICE/NOTES:
1. REMOVE ALL PIPING TO EXISTING WATER SUPPLY MARK.
2. REMOVE ALL WATER SUPPLY AND SANITARY PIPING TO EXISTING WATER SUPPLY MARK.
3. REMOVE ALL PIPING TO EXISTING WATER SUPPLY MARK.
4. REMOVE ALL WATER SUPPLY AND SANITARY PIPING TO EXISTING WATER SUPPLY MARK.
5. REMOVE ALL PIPING TO EXISTING WATER SUPPLY MARK.
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11. REMOVE ALL PIPING TO EXISTING WATER SUPPLY MARK.
12. REMOVE ALL WATER SUPPLY AND SANITARY PIPING TO EXISTING WATER SUPPLY MARK.
MECHANICAL KEYSED NOTES:

1. REMOVE EXISTING HEATING THERMOSTAT (DDC) REMOVE EXISTING EVAP. COOLING THERMOSTAT, ABANDON WIRING IN EXISTING EXHAUST DUCT TO BE REMOVED. NECESSARY TO MAKE CONNECTIONS TO THE NEW ROOFTOP UNIT.

2. EXTEND 1/2" STEAM AND 1/2" COND. LINES UP TO HUMIDIFIER HD-9.

3. NEW HIGH LIMIT THERMOSTAT. NEW COOLING THERMOSTAT.

4. RETURN AIR DUCT UP TO RTU, TRANSITION AS REQUIRED.

5. REMOVE EXISTING DUCT UP TO RTU, TRANSITION AS REQUIRED.

6. NEW COOLING THERMOSTAT.

7. NEW RETURN DUCT.

8. NEW WALLS.

9. REMOVE EXISTING HEATING THERMOSTAT, ABANDON WIRING IN EXISTING TO REMAIN. REMOVE EXISTING EVAP. COOLING THERMOSTAT, ABANDON WIRING IN EXISTING TO BE DEMOLISHED.

NEEDED TO MAKE CONNECTIONS TO THE NEW ROOFTOP UNIT.

10. RETURN AIR DUCT UP TO RTU, TRANSITION AS REQUIRED.

11. REMOVE EXISTING HVAC MANIFOLD AND RETURN DUCT.

12. BRANCH LINES.

NEW RETURN AIR DUCT UP TO RTU, TRANSITION AS REQUIRED.

30"X18" RETURN AIR REGISTER TITUS MODEL 350RL OR EQUAL.

LEVEL 6 DEMOLITION PLAN

LEVEL 6 NEW WORK AREA PLAN

LEVEL 6 MECahnical Floor Plans

Demolition & New Work

Wayne State University
5047 Gullen Mall
Detroit, MI 48202
MECHANICAL KEYED NOTES:

1. REMOVE 20"X14" AIR DUCT DOWN TO A NEW RETURN AIR DUCTING SYSTEM.
2. REMOVE EXISTING EVAPORATIVE COOLER. REMOVE COLD WATER ON THE ROOF AND CAP OFF. CUT AND CAP CONDENSATE (DRAIN) LINE AT THE ROOF LEVEL.
3. REMOVE PORTION OF EXISTING SUPPLY DUCT (RECTANGULAR) TO MAKE CONNECTION TO THE NEW SUPPLY AIR DUCTING SYSTEM.
4. REMOVE EXISTING GREENHOUSE EXHAUST FAN AND ALL ASSOCIATED ELECTRICAL WIRING.

LEGEND:

- EXISTING TO BE REMOVED
- EXISTING TO REMAIN

NOTE:

1. SEE NOTE #7 ABOVE FOR DUCT TRAY SUPPORT LOCATIONS
2. MODEL No. MIFAB DSA10 OR EQUAL DUCT SUPPORT
### ROOFTOP PACKAGE UNIT SCHEDULE

<table>
<thead>
<tr>
<th>SHEET NUMBER</th>
<th>SHEET TITLE</th>
<th>DRAWN BY</th>
<th>PROJECT MANAGER</th>
<th>QUALCHECK</th>
<th>DESIGNED</th>
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<tr>
<td>137378.001</td>
<td></td>
<td>S. HAHN</td>
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</tbody>
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### EXHAUST FAN SCHEDULE

| NAME | AREA DEFC. | LOCATION | TYPE | SCF | HP | CFM | CMHR | RMPH | SPEED | MOTOR | MOTOR CIRCUIT | MOTOR LOCATION | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW | ROW 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CONSTANT VOLUME ROOFTOP CONTROL DIAGRAM

NOTE:
1. ALL CONTROLS, NOT INCLUDING THOSE PROVIDED BY THE UNIT MANUFACTURER, SHALL BE BY SIEMENS.
2. DISCONNECT SWITCH SHALL MEET ALL REQUIREMENTS OF ELECTRICAL SPECIFICATIONS.

ABBREVIATIONS:
- RELIEF AIR
- OUTSIDE AIR
- RETURN AIR
- REFRIERANT SUCTION
- REFRIERANT LIQUID
- NORMALLY OPEN
- NORMALLY CLOSED
- MOTOR
- HOT GAS BYPASS
- DIFFERENTIAL PRESSURE SWITCH
- TEMPERATURE TRANSMITTER
- ZONE THERMOSTAT
- ABBEY, J. WALKER
- M. PETTIT
- D. RUTKOWSKI
- D. DAHLKE
- S. HAHN
- M. HUSSAIN
- REV 1
- SCALE: NONE
GENERAL ELECTRICAL NOTES

1. INSPECTION: PROVIDE INSPECTION REPORTS FOR ALL MATERIALS AND EQUIPMENT FOR USE IN THE INSTALLATION TO MEET MANUFACTURER'S AND CODE REQUIREMENTS.

2. CORRECTIVE ACTION: CORRECT ALL DEFICIENCIES TO MEET CODE REQUIREMENTS.

3. ELECTRICAL CONTRACTOR: AT NO TIME SHOULD A PORTION OF ALL TRADES INSTALL A COMPLETE PROJECT. ELECTRICAL WORK SHALL BE PERFORMED IN A MANNER THAT WILL NOT CAUSE INTERFERENCE TO OTHER TRADES. WORK SHALL BE DONE IN A PROFESSIONAL MANNER IN ACCORDANCE WITH CODE REQUIREMENTS. PROVIDE CONSTRUCTION PLANS AND SPECIFICATIONS. ADEQUATE ACCESS TO ELECTRICAL INSTALLATION AT ALL TIMES.

4. SCHEDULE: PROVIDE SCHEDULES FOR ELECTRICAL CONTRACTOR TO USE IN THE INSTALLATION.

5. CORRECTIVE ACTION: CORRECT ALL DEFICIENCIES TO MEET CODE REQUIREMENTS.

6. WORK FORM: PROVIDE COMPLETE AND ACCURATE WORK FORMS.

7. ELECTRICAL CONTRACTOR: AT NO TIME SHOULD A PORTION OF ALL TRADES INSTALL A COMPLETE PROJECT. ELECTRICAL WORK SHALL BE PERFORMED IN A MANNER THAT WILL NOT CAUSE INTERFERENCE TO OTHER TRADES. WORK SHALL BE DONE IN A PROFESSIONAL MANNER IN ACCORDANCE WITH CODE REQUIREMENTS. PROVIDE CONSTRUCTION PLANS AND SPECIFICATIONS. ADEQUATE ACCESS TO ELECTRICAL INSTALLATION AT ALL TIMES.

8. SCHEDULE: PROVIDE SCHEDULES FOR ELECTRICAL CONTRACTOR TO USE IN THE INSTALLATION.

9. CORRECTIVE ACTION: CORRECT ALL DEFICIENCIES TO MEET CODE REQUIREMENTS.

10. WORK FORM: PROVIDE COMPLETE AND ACCURATE WORK FORMS.

11. ELECTRICAL CONTRACTOR: AT NO TIME SHOULD A PORTION OF ALL TRADES INSTALL A COMPLETE PROJECT. ELECTRICAL WORK SHALL BE PERFORMED IN A MANNER THAT WILL NOT CAUSE INTERFERENCE TO OTHER TRADES. WORK SHALL BE DONE IN A PROFESSIONAL MANNER IN ACCORDANCE WITH CODE REQUIREMENTS. PROVIDE CONSTRUCTION PLANS AND SPECIFICATIONS. ADEQUATE ACCESS TO ELECTRICAL INSTALLATION AT ALL TIMES.

12. SCHEDULE: PROVIDE SCHEDULES FOR ELECTRICAL CONTRACTOR TO USE IN THE INSTALLATION.

13. CORRECTIVE ACTION: CORRECT ALL DEFICIENCIES TO MEET CODE REQUIREMENTS.

14. WORK FORM: PROVIDE COMPLETE AND ACCURATE WORK FORMS.

GENERAL DEMOLITION NOTES

1. WORK FORM: PROVIDE COMPLETE DISCONNECTS FOR ALL ELECTRICAL SHUTDOWN PRIOR TO DISCONNECT TO PROVIDE SAFETY TO CONSTRUCTION PERSONNEL AND TO COMPLY WITH CODE REQUIREMENTS, MANUFACTURER'S AND VENDOR'S INSTRUCTIONS.

2. CORRECTIVE ACTION: CORRECT ALL DEFICIENCIES TO MEET CODE REQUIREMENTS.

3. ELECTRICAL CONTRACTOR: AT NO TIME SHOULD A PORTION OF ALL TRADES INSTALL A COMPLETE PROJECT. ELECTRICAL WORK SHALL BE PERFORMED IN A MANNER THAT WILL NOT CAUSE INTERFERENCE TO OTHER TRADES. WORK SHALL BE DONE IN A PROFESSIONAL MANNER IN ACCORDANCE WITH CODE REQUIREMENTS. PROVIDE CONSTRUCTION PLANS AND SPECIFICATIONS. ADEQUATE ACCESS TO ELECTRICAL INSTALLATION AT ALL TIMES.

4. SCHEDULE: PROVIDE SCHEDULES FOR ELECTRICAL CONTRACTOR TO USE IN THE INSTALLATION.

5. CORRECTIVE ACTION: CORRECT ALL DEFICIENCIES TO MEET CODE REQUIREMENTS.

6. WORK FORM: PROVIDE COMPLETE AND ACCURATE WORK FORMS.

7. ELECTRICAL CONTRACTOR: AT NO TIME SHOULD A PORTION OF ALL TRADES INSTALL A COMPLETE PROJECT. ELECTRICAL WORK SHALL BE PERFORMED IN A MANNER THAT WILL NOT CAUSE INTERFERENCE TO OTHER TRADES. WORK SHALL BE DONE IN A PROFESSIONAL MANNER IN ACCORDANCE WITH CODE REQUIREMENTS. PROVIDE CONSTRUCTION PLANS AND SPECIFICATIONS. ADEQUATE ACCESS TO ELECTRICAL INSTALLATION AT ALL TIMES.

8. SCHEDULE: PROVIDE SCHEDULES FOR ELECTRICAL CONTRACTOR TO USE IN THE INSTALLATION.

9. CORRECTIVE ACTION: CORRECT ALL DEFICIENCIES TO MEET CODE REQUIREMENTS.

10. WORK FORM: PROVIDE COMPLETE AND ACCURATE WORK FORMS.

GENERAL LIGHTING NOTES

1. LIGHTING: PROVIDE COMPLETE DISCONNECTS FOR ALL ELECTRICAL SHUTDOWN PRIOR TO DISCONNECT TO PROVIDE SAFETY TO CONSTRUCTION PERSONNEL AND TO COMPLY WITH CODE REQUIREMENTS, MANUFACTURER'S AND VENDOR'S INSTRUCTIONS.

2. CORRECTIVE ACTION: CORRECT ALL DEFICIENCIES TO MEET CODE REQUIREMENTS.

3. ELECTRICAL CONTRACTOR: AT NO TIME SHOULD A PORTION OF ALL TRADES INSTALL A COMPLETE PROJECT. ELECTRICAL WORK SHALL BE PERFORMED IN A MANNER THAT WILL NOT CAUSE INTERFERENCE TO OTHER TRADES. WORK SHALL BE DONE IN A PROFESSIONAL MANNER IN ACCORDANCE WITH CODE REQUIREMENTS. PROVIDE CONSTRUCTION PLANS AND SPECIFICATIONS. ADEQUATE ACCESS TO ELECTRICAL INSTALLATION AT ALL TIMES.

4. SCHEDULE: PROVIDE SCHEDULES FOR ELECTRICAL CONTRACTOR TO USE IN THE INSTALLATION.

5. CORRECTIVE ACTION: CORRECT ALL DEFICIENCIES TO MEET CODE REQUIREMENTS.

6. WORK FORM: PROVIDE COMPLETE AND ACCURATE WORK FORMS.
KEY NOTES:

1. DISCONNECT AND REMOVE THE FOOT SWITCH TO MATCH EXISTING. MOUNT ABOVE THE COUNTER, DEPENDENT ON DISCONNECT LOCATION. IF NOT MOUNTABLE ABOVE THE COUNTER, MOUNT HORIZONTAL TO MATCH EXISTING. ALTERNATIVES ARE TO REMOVE OR RELocate THE FOOT SWITCH.

2. DISCONNECT AND REMOVE THE DUPLEX OUTLET TO MATCH EXISTING. AVAILABLE CIRCUIT BREAKERS IN PANEL "RG-2G". PROVIDE ELECTRICAL WORK SAFE PRACTICE STROBES AND NOTIFICATION DEVICES SHALL BE AT LEAST 15dB.(NFPA 72), THE NATIONAL ELECTRICAL CODE, AND SHALL MEET NFPA, CODES, AND SHALL BE AS RECOMMENDED BY THE FIRE ALARM EQUIPMENT MANUFACTURER.

3. DISCONNECT AND REMOVE THE BOX AND CONDUIT AND WIRE BACK TO THE RECEPTACLE ALONG WITH THE SWITCHES, BACK BOXES BACK TO POWER SOURCE. NOTIFICATION DEVICES SHALL BE AT LEAST 15dB. COLOR CODING SHALL FOLLOW LINEWEIGHT LEGEND, ABBREVIATION AND SYMBOLS ARE USED FOR ELECTRICAL WORK, AND SHALL BE AS RECOMMENDED BY THE NATIONAL FIRE PROTECTION ASSOCIATION. ALARM USE. COLOR CODING SHALL FOLLOW BASE FINISH, IF REQUIRED.

4. DISCONNECT AND REMOVE THE CumBER CLAMPING MECHANISM. COLOR CODING SHALL FOLLOW BASE FINISH, IF REQUIRED.

5. DISCONNECT AND REMOVE THE PIPE TO MATCH EXISTING. MOUNT 6" ABOVE THE COUNTER. CIRCUIT TO CIRCUIT BREAKERS. AVAILABLE CIRCUIT BREAKERS IN PANEL "RG-2G".

6. PROVIDE ELECTRICAL WORK SAFE PRACTICE STROBES AND NOTIFICATION DEVICES SHALL BE AT LEAST 15dB.(NFPA 72), THE NATIONAL ELECTRICAL CODE, AND SHALL MEET NFPA, CODES, AND SHALL BE AS RECOMMENDED BY THE FIRE ALARM EQUIPMENT MANUFACTURER.
GENERAL NOTES:
1. VERIFY TO BE USED FOR ELECTRICAL, PLUMBING, MECHANICAL AND POST-CONSTRUCTION. LINENUMERALS IN BLUE FOR ELECTRICAL, GREEN FOR PLUMBING, RED FOR MECHANICAL.
2. **(E)**: INDICATES EXISTING TO REMAIN.
3. PROVIDE ELECTRICAL WORK SAFETY PRACTICE (OSHA) TO BE UTILIZED.
4. ATTACH ALL PLANS TO ROOMS AND TO WALLS OR ATTACHMENTS TO ANY WALLS IMPACTED BY THIS PROJECT.

KEY NOTES:
1. REPLACE EXISTING LAMPS WITH A NEW, 150WATT 120VAC LAMPSUX VARIOUS LAMPS AND LUMINAIRES.
2. INSTALL FLEXIBLE BENT JACKET OR Pvc FLEXIBLE BENT JACKET WITH THE EXISTING BOX.
3. INSTALL A CONDUCTION RESISTOR IN THE EXISTING BOX; CONNECT TO THE EXISTING VAMPS.
4. EXISTING EXISTING CIRCUIT TO THE NEW LIGHTING.
5. INSTALL A NEW LIGHTING FIXTURE IN THE EXISTING BOX; CONNECT TO THE EXISTING VAMPS.
6. INSTALL A NEW LIGHTING FIXTURE IN THE EXISTING BOX; CONNECT TO THE EXISTING VAMPS.

KEY PLAN:
- **(E)** - INDICATES EXISTING TO REMAIN.
- **(E)** - INDICATES EXISTING TO REMAIN.
- **(E)** - INDICATES EXISTING TO REMAIN.

LINESHED LEGEND:
- **(E)**: TRASH TO BE REMOVED OR TRASHED.
- **(E)**: EXISTING ITEMS TO REMAIN.
- **(E)**: NEW ITEMS.

LEVEL FIVE
ELECTRICAL FLOOR PLANS
DEMOLITION & NEW WORK
EP1-05-01
NEW WORK FLOOR PLAN - LIGHTING - SUITE 5155

NEW WORK FLOOR PLAN - POWER AND AUXILIARY SYSTEMS - SUITE 5155

DEMO FLOOR PLAN - SUITE 5155

GENERAL NOTES:
1. REFER TO SHEET E0-00-01 FOR ELECTRICAL LINEWEIGHT LEGEND, ABBREVIATION AND SYMBOLS.
2. REFER TO SHEET E0-00-02 FOR ELECTRICAL GENERAL LEGEND, ABBREVIATION AND SYMBOLS.
3. KEY PLAN (E) - INDICATES EXISTING TO REMAIN.
4. KEY PLAN (ALTERNATE) - INDICATES EXISTING TO BE REMOVED OR RELOCATED.
5. KEY PLAN (EXISTING) - INDICATES EXISTING ITEMS TO REMAIN.
6. KEY PLAN (NEW) - INDICATES NEW ITEMS.

KEY NOTES:
1. INSTALL A NEW GFCI RECEPTACLE IN THE NEAREST 120V POWER SOURCE, AND ENSURE THAT ALL VOLTAGE POTENTIALS ARE CONNECTED TO THE SAME PANEL. REFER TO THE MECHANICAL PLANS FOR THE LOCATION OF THE EXHAUST FAN.
2. INSTALL A NEW WIREWAY TO MATCH EXISTING POWER OUTLET LABELING. REFER TO SHEET E0-00-01 FOR ELECTRICAL DOCUMENTATION REVOLUTION UPDATES AND SHEET E0-00-02 FOR ELECTRICAL GENERAL LEGEND, ABBREVIATION AND SYMBOLS.
3. INSTALL NEW CONDUIT AND WIRING FOR POWER FROM THE NEAREST 120V POWER SOURCE, AND ENSURE THAT ALL VOLTAGE POTENTIALS ARE CONNECTED TO THE SAME PANEL. REFER TO THE MECHANICAL PLANS FOR THE LOCATION OF THE EXHAUST FAN.
4. INSTALL NEW WIREWAY AND CONNECT TO THE EXISTING VESTIBULE MANUAL STARTER FOR EXHAUST FAN, EF-20. 
5. DISCONNECT AND REMOVE THE EXISTING VESTIBULE MANUFACTURER PANEL RP-15. REFER TO THE MECHANICAL PLANS AND DISCONNECT AND REMOVE RECEPTACLE FROM THE EXHAUST FAN PANEL.
6. DISCONNECT AND REMOVE THE LUMINAIRES ALONG WITH THE ASSOCIATED CONDUIT AND WIRING FROM THE EXHAUST FAN PANEL.
7. DISCONNECT AND REMOVE THE EXISTING LUMINAIRES ALONG WITH THE ASSOCIATED CONDUIT AND WIRING FROM THE EXHAUST FAN PANEL. RETAIN BACK BOX AND WIRING FOR RE-USE.
8. DISCONNECT AND REMOVE RECEPTACLE FROM THE NEAREST 120V POWER SOURCE, AND ENSURE THAT ALL VOLTAGE POTENTIALS ARE CONNECTED TO THE SAME PANEL. REFER TO THE MECHANICAL PLANS FOR THE LOCATION OF THE EXHAUST FAN.

INSTALLATION AND FINAL TERMINATIONS SHALL BE BY WSU SECURITY CONTRACTOR.

WEIGHT LEGEND:
- EXISTING ITEMS TO REMAIN
- NEW ITEMS
- REMOVED ITEMS
- EXISTING ITEMS TO BE REMOVED OR RELOCATED

DISCONNECT AND REMOVE THE EXISTING VESTIBULE MANUFACTURER PANEL RP-15. REFER TO THE MECHANICAL PLANS AND DISCONNECT AND REMOVE RECEPTACLE FROM THE EXHAUST FAN PANEL.

WIREWAY. LEAVE WIRING IN PLACE FOR RE-USE.

LEVEL FIVE (ALTERNATE #1)
ELECTRICAL FLOOR PLANS
DEMO & NEW WORK

EP1-05-02
GENERAL NOTES:
1. REMOVE EXISTING CIRCUIT BREAKERS AND WIRING FROM ALL PANELS. INSTALL 20A-1P CIRCUIT BREAKERS IN PANEL BACK BOX FOR RE-USE.
2. PROVIDED TO AVOID SWITCHING OF VARIOUS CURRICULUMS.
3. INSTALL 20A-1P CIRCUIT BREAKERS IN PANEL BACK BOX FOR RE-USE.
4. INSTALL 20A-1P CIRCUIT BREAKERS IN PANEL BACK BOX FOR RE-USE.
5. INSTALL 20A-1P CIRCUIT BREAKERS IN PANEL BACK BOX FOR RE-USE.
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76. INSTALL 20A-1P CIRCUIT BREAKERS IN PANEL BACK BOX FOR RE-USE.
GENERAL NOTES:
1. REFER TO SHEET E0-00-01 FOR ELECTRICAL LEGEND, ABBREVIATION AND SYMBOLS.
2. SHEET E0-00-02 FOR ELECTRICAL GENERAL NOTES.
3. KEY NOTES:
1. INSTALL A FUSIBLE SWITCH FUSE UNIT WITH FUSES AS SHOWN. UNIT SHALL BE COMPATIBLE WITH THE EXISTING GENERAL ELECTRIC 8000 LINE MOTOR CONTROL CENTER.
2. REFER TO SHEET E0-00-01 FOR THE BRANCH WIRING SCHEDULE.
3. PROVIDE ELECTRICAL WORK SAFE PRACTICE (EWSP); POWER OUTLET LABELING. DOCUMENTATION REVISION UPDATES AND UPDATE ALL PANEL SCHEDULES ON ALL PANELS AFFECTED BY THIS PROJECT.
4. REFER TO SHEET E0-00-01 FOR ELECTRICAL LEGEND, ABBREVIATION AND SYMBOLS.

KEY NOTES:
1. (E) - INDICATES EXISTING TO REMAIN.

ONE LINE DIAGRAM:

1. DISCONNECT AND REMOVE THE FUSIBLE SWITCH FUSE UNIT ALONG WITH THE CONTACTOR AND HEATER. RETAIN COMPARTMENT FOR RE-USE.
2. REFER TO SHEET E0-00-01 FOR ELECTRICAL LEGEND, ABBREVIATION AND SYMBOLS.
3. PROVIDE ELECTRICAL WORK SAFE PRACTICE (EWSP); POWER OUTLET LABELING. DOCUMENTATION REVISION UPDATES AND UPDATE ALL PANEL SCHEDULES ON ALL PANELS AFFECTED BY THIS PROJECT.
4. REFER TO SHEET E0-00-01 FOR THE BRANCH WIRING SCHEDULE.
**GENERAL NOTES:**

1. REFER TO SHEET E0-00-01 FOR ELECTRICAL LEGEND, ABBREVIATION AND SYMBOLS AND SHEET E0-00-02 FOR ELECTRICAL GENERAL NOTES.

2. (E) - INDICATES EXISTING TO REMAIN.

3. PROVIDE ELECTRICAL WORK SAFE PRACTICE (EWSP); POWER OUTLET LABELING. DOCUMENTATION REVISION UPDATES AND UPDATE ALL PANEL SCHEDULES ON ALL PANELS AFFECTED BY THIS PROJECT.

4. REFER TO SHEET EL7-00-01 FOR THE LUMINAIRES SCHEDULE.

**KEY NOTES:**

1. INSTALL A NEW WALL MOUNTED DIMMING SWITCH IN THE EXISTING BACK BOX. DIMMING SWITCH SHALL BE MANUFACTURED BY LEVITON, CAT # AWSMT - EAW, 277V, 1385W OR APPROVED EQUAL, CONNECT TO THE EXISTING CIRCUIT.

2. INSTALL A CEILING MOUNTED OCCUPANCY SENSOR MANUFACTURED BY COOPER CONTROLS, GREENGATE OR APPROVED EQUAL. THE SENSOR SHALL BE A MICROSET DUAL TECHNOLOGY LINE VOLTAGE SENSOR, CAT # OAC-DT-2000-MV OR APPROVED EQUAL.

3. EXTEND THE EXISTING CIRCUIT WITH NEW CONDUITS AND WIRE, TO THE NEW LUMINAIRES.

4. SEE SHEET AC1-01-01 FOR NEW LUMINAIRES LOCATIONS.

**LINEWEIGHT LEGEND:**

- **NEW ITEMS.**
- **ITEMS TO BE REMOVED OR RELocATED.**
- **EXISTING ITEMS TO REMAIN.**

**EQUIPMENT ROOM**

**MICROSCOPY**

**NEW WORK FLOOR PLAN - LIGHTING - MICROSCOPY**

**DESTRUCTION KEY NOTES:**

1. DISCONNECT AND REMOVE THE LUMINAIRES IN THE ROOM ALONG WITH THE WALL PLATE AND BACK BOX. INSTALL NEW WIRE AND WIRE IS THE EXISTING CIRCUIT FOR NEW LUMINAIRES.
KEY NOTES:

1. INSTALL THE NEW LUMIGROW PRO 325 HV LUMINAIRES ALONG WITH THE SWITCH. RETAIN BLANK PLATE.

2. DISCONNECT AND REMOVE THE TIME CLOCK AND CONDUIT AND WIRE BACK TO THE JUNCTION BOX ON THE WALL. RETAIN THE PANEL AND / OR JUNCTION BOX ON THE WALL, WITH NEW CONDUIT AND WIRE, TO THE PANEL. LABEL CIRCUIT BREAKERS AS EQUAL ON THE EXISTING UNISTRUT CHANNEL IN THE LOCATION OF THE OLD FIXTURES, WHERE AFFECTED BY THIS PROJECT.

3. DISCONNECT AND REMOVE THE METAL HALIDE LUMINAIRES ALONG WITH CONDUIT AND WIRE TO THE JUNCTION BOX ON THE WALL. RETAIN THE PANEL AND / OR JUNCTION BOX ON THE WALL, WITH NEW CONDUIT AND WIRE, TO THE PANEL. LABEL CIRCUIT BREAKERS AS EQUAL ON THE EXISTING UNISTRUT CHANNEL IN THE LOCATION OF THE OLD FIXTURES, WHERE AFFECTED BY THIS PROJECT.

4. DISCONNECT AND REMOVE THE FLUORESCENT LUMINAIRES. EXTEND THE EXISTING CIRCUIT WITH NEW LUMINAIRES. UNISTRUT NOT SHOWN FOR HARDWARE. EXTEND EXISTING CIRCUITS, FROM THE PANEL TO THE PANEL, LABEL CIRCUIT BREAKERS AS EQUAL ON THE EXISTING UNISTRUT CHANNEL IN THE LOCATION OF THE OLD FIXTURES, WHERE AFFECTED BY THIS PROJECT.

5. DISCONNECT AND REMOVE THE TIME CLOCK AND CONDUIT AND WIRE BACK TO THE JUNCTION BOX ON THE WALL. RETAIN THE PANEL AND / OR JUNCTION BOX ON THE WALL, WITH NEW CONDUIT AND WIRE, TO THE PANEL. LABEL CIRCUIT BREAKERS AS EQUAL ON THE EXISTING UNISTRUT CHANNEL IN THE LOCATION OF THE OLD FIXTURES, WHERE AFFECTED BY THIS PROJECT.

6. DISCONNECT AND REMOVE THE FLUORESCENT LUMINAIRES. EXTEND THE EXISTING CIRCUIT WITH NEW LUMINAIRES. UNISTRUT NOT SHOWN FOR HARDWARE. EXTEND EXISTING CIRCUITS, FROM THE PANEL TO THE PANEL, LABEL CIRCUIT BREAKERS AS EQUAL ON THE EXISTING UNISTRUT CHANNEL IN THE LOCATION OF THE OLD FIXTURES, WHERE AFFECTED BY THIS PROJECT.

7. DISCONNECT AND REMOVE THE FLUORESCENT LUMINAIRES. EXTEND THE EXISTING CIRCUIT WITH NEW LUMINAIRES. UNISTRUT NOT SHOWN FOR HARDWARE. EXTEND EXISTING CIRCUITS, FROM THE PANEL TO THE PANEL, LABEL CIRCUIT BREAKERS AS EQUAL ON THE EXISTING UNISTRUT CHANNEL IN THE LOCATION OF THE OLD FIXTURES, WHERE AFFECTED BY THIS PROJECT.

8. DISCONNECT AND REMOVE THE FLUORESCENT LUMINAIRES. EXTEND THE EXISTING CIRCUIT WITH NEW LUMINAIRES. UNISTRUT NOT SHOWN FOR HARDWARE. EXTEND EXISTING CIRCUITS, FROM THE PANEL TO THE PANEL, LABEL CIRCUIT BREAKERS AS EQUAL ON THE EXISTING UNISTRUT CHANNEL IN THE LOCATION OF THE OLD FIXTURES, WHERE AFFECTED BY THIS PROJECT.

GENERAL NOTES:

1. REFER TO SHEET EL1-06-01 FOR THE LUMINAIRE LEGEND, ABBREVIATION AND SYMBOLS REFER TO SHEET E0-00-01 FOR ELECTRICAL GENERAL LEGEND, ABBREVIATION AND SYMBOLS.

2. DISCONNECT AND REMOVE THE TIME CLOCK AND CONDUIT AND WIRE FOR RE-USE. LUMINAIRES ALONG WITH THE SWITCH. RETAIN BLANK PLATE.

3. DISCONNECT AND REMOVE THE FLUORESCENT LUMINAIRES FOR REUSE.

4. UNISTRUT CHANNEL, JUNCTION BOX AND WIRING ASSOCIATED CONDUIT AND WIRE.

5. PROVIDE ELECTRICAL WORK SAFE PRACTICE INSTALLATION IN REPAIR WHEN REPAIR IS AFFECTED BY THIS PROJECT. REFER TO SHEET EL1-00-01 FOR THE LUMINAIRE SCHEDULE.

6. DISCONNECT AND REMOVE THE METAL HALIDE LUMINAIRES.

7. EXTEND THE EXISTING CIRCUIT WITH NEW LUMINAIRES. UNISTRUT NOT SHOWN FOR HARDWARE. EXTEND EXISTING CIRCUITS, FROM THE PANEL TO THE PANEL, LABEL CIRCUIT BREAKERS AS EQUAL ON THE EXISTING UNISTRUT CHANNEL IN THE LOCATION OF THE OLD FIXTURES, WHERE AFFECTED BY THIS PROJECT.

8. DISCONNECT AND REMOVE THE TIME CLOCK AND CONDUIT AND WIRE FOR RE-USE. LUMINAIRES ALONG WITH THE SWITCH. RETAIN BLANK PLATE.

9. DISCONNECT AND REMOVE THE METAL HALIDE LUMINAIRES.

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11. DISCONNECT AND REMOVE THE FLUORESCENT LUMINAIRES.

12. UNISTRUT CHANNEL, JUNCTION BOX AND WIRING ASSOCIATED CONDUIT AND WIRE.

13. DISCONNECT AND REMOVE THE TIME CLOCK AND CONDUIT AND WIRE FOR RE-USE. LUMINAIRES ALONG WITH THE SWITCH. RETAIN BLANK PLATE.

14. DISCONNECT AND REMOVE THE METAL HALIDE LUMINAIRES.

15. EXTEND THE EXISTING CIRCUIT WITH NEW LUMINAIRES. UNISTRUT NOT SHOWN FOR HARDWARE. EXTEND EXISTING CIRCUITS, FROM THE PANEL TO THE PANEL, LABEL CIRCUIT BREAKERS AS EQUAL ON THE EXISTING UNISTRUT CHANNEL IN THE LOCATION OF THE OLD FIXTURES, WHERE AFFECTED BY THIS PROJECT.

16. DISCONNECT AND REMOVE THE FLUORESCENT LUMINAIRES.

17. UNISTRUT CHANNEL, JUNCTION BOX AND WIRING ASSOCIATED CONDUIT AND WIRE.

18. DISCONNECT AND REMOVE THE TIME CLOCK AND CONDUIT AND WIRE FOR RE-USE. LUMINAIRES ALONG WITH THE SWITCH. RETAIN BLANK PLATE.

19. DISCONNECT AND REMOVE THE METAL HALIDE LUMINAIRES.

20. EXTEND THE EXISTING CIRCUIT WITH NEW LUMINAIRES. UNISTRUT NOT SHOWN FOR HARDWARE. EXTEND EXISTING CIRCUITS, FROM THE PANEL TO THE PANEL, LABEL CIRCUIT BREAKERS AS EQUAL ON THE EXISTING UNISTRUT CHANNEL IN THE LOCATION OF THE OLD FIXTURES, WHERE AFFECTED BY THIS PROJECT.

21. DISCONNECT AND REMOVE THE FLUORESCENT LUMINAIRES.

22. UNISTRUT CHANNEL, JUNCTION BOX AND WIRING ASSOCIATED CONDUIT AND WIRE.

23. DISCONNECT AND REMOVE THE TIME CLOCK AND CONDUIT AND WIRE FOR RE-USE. LUMINAIRES ALONG WITH THE SWITCH. RETAIN BLANK PLATE.

24. DISCONNECT AND REMOVE THE METAL HALIDE LUMINAIRES.

25. EXTEND THE EXISTING CIRCUIT WITH NEW LUMINAIRES. UNISTRUT NOT SHOWN FOR HARDWARE. EXTEND EXISTING CIRCUITS, FROM THE PANEL TO THE PANEL, LABEL CIRCUIT BREAKERS AS EQUAL ON THE EXISTING UNISTRUT CHANNEL IN THE LOCATION OF THE OLD FIXTURES, WHERE AFFECTED BY THIS PROJECT.

26. DISCONNECT AND REMOVE THE FLUORESCENT LUMINAIRES.

27. UNISTRUT CHANNEL, JUNCTION BOX AND WIRING ASSOCIATED CONDUIT AND WIRE.

28. DISCONNECT AND REMOVE THE TIME CLOCK AND CONDUIT AND WIRE FOR RE-USE. LUMINAIRES ALONG WITH THE SWITCH. RETAIN BLANK PLATE.

29. DISCONNECT AND REMOVE THE METAL HALIDE LUMINAIRES.

30. EXTEND THE EXISTING CIRCUIT WITH NEW LUMINAIRES. UNISTRUT NOT SHOWN FOR HARDWARE. EXTEND EXISTING CIRCUITS, FROM THE PANEL TO THE PANEL, LABEL CIRCUIT BREAKERS AS EQUAL ON THE EXISTING UNISTRUT CHANNEL IN THE LOCATION OF THE OLD FIXTURES, WHERE AFFECTED BY THIS PROJECT.

31. DISCONNECT AND REMOVE THE FLUORESCENT LUMINAIRES.

32. UNISTRUT CHANNEL, JUNCTION BOX AND WIRING ASSOCIATED CONDUIT AND WIRE.
# LUMINAIRE SCHEDULE

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Lumens</th>
<th>Voltage</th>
<th>Manufacturer</th>
<th>Catalog Number</th>
<th>Model / Series</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1A</td>
<td>277.5W LED luminaire 277V low profile housing of extruded aluminum frame with interlock component ends plate</td>
<td>277.5W</td>
<td>277V</td>
<td>Luminaire</td>
<td>42000-0000-1-15</td>
<td>4200</td>
<td>COORDINATE THE CEILING PLACED WITH THE ARCHITECTURAL TRIM, PROVIDE ALL ACCESSORIES NECESSARY FOR A CLEAN AND COMPLETE INSTALLATION. SURFACE MOUNTED.</td>
</tr>
<tr>
<td>1A</td>
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<td>277V</td>
<td>Luminaire</td>
<td>42000-0000-1-15</td>
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</tr>
<tr>
<td>2D</td>
<td>LIGHT WATTAGE, SPREAD-POWER (LOW) GLASS, POLISHED ALUMINUM, POLISHED ALUMINUM, ALUMINUM, AND ALUMINUM FOR FUTURISTIC ELECTRONIC PANELS, FOR USE IN LUMINARIES, WITH INTERLOCK COMPONENTS.</td>
<td>500W</td>
<td>500V</td>
<td>Luminaire</td>
<td>42000-0000-1-15</td>
<td>5000</td>
<td>COORDINATE THE CEILING PLACED WITH THE ARCHITECTURAL TRIM, PROVIDE ALL ACCESSORIES NECESSARY FOR A CLEAN AND COMPLETE INSTALLATION. INCLUDE THE LUMINAIRE SWINGARM LUMINAIRE MANAGEMENT SERVICE.</td>
</tr>
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<td>LIGHT WATTAGE, SPREAD-POWER (LOW) GLASS, POLISHED ALUMINUM, POLISHED ALUMINUM, ALUMINUM, AND ALUMINUM FOR FUTURISTIC ELECTRONIC PANELS, FOR USE IN LUMINARIES, WITH INTERLOCK COMPONENTS.</td>
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</table>

Wayne State University
5047 Gulen Mall
Detroit, MI 48202

1/27/14

M. Sabapathy
Project Manager

J. Jassal
Architectural Engineer

D. Rutkowski
Electrical Engineer

10/16/14
90% Owner Review

10/31/14
90% Owner Review Update

11/14/14
Final Owner Review

12/10/14
100% Owner Review

1/20/15
BID
INSTRUCTION NOTES:
1. ONLY USE WIRE FOR ALN/FLN AS SPECIFIED ON AGAC DRAWING, ANY OTHER BUILDING AUTOMATION CABLES
2. CONTROLLERS MUST BE DAISY-CHAINED WHEN RUNNING 192 K BAUD OR FASTER.
3. REFER TO CONTROLLERS' WIRING SPECIFICATION DRAWINGS FOR SPECIFIC WIRING DETAILS.
4. SHIELD WIRES TO FLN TRUNK MUST BE TERMINATED AT BOTH ENDS.
5. FLN WIRING SHALL BE DAISY CHAINED ONLY.
6. 32 TECs ON ONE FLN TRUNK ADDRESS 0-31
7. POWER TRUNK V/GROUND MUST BE USED WHEN TECs REQUIRE EARTH GROUND.

REVISION HISTORY

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INSTALLATION NOTES:

1. All wiring to meet requirements of standard wiring specifications drawings.
2. Terminate device neutrals on neutral block located in panel.

NOTE:
- Grounded power trunks
- Ground earth terminal of tech to XPNL earth ground
- Do not ground secondary of 24V power trunks

CONTROLLER POWER WIRING

REVOLUTION HISTORY

SIEMENS

WSU Bio Science
Detroit, MI

45470 Commeres Ctr. Dr
Plymouth, MI 48170
USA
PHONE: 734.463.0000
FAX: 698.815.0140

TYPICAL PANEL WIRING

PNL
900 — ELECTRICAL INSTALLATION AND WIRING FOR HVAC TEMPERATURE AND LAB CONTROLS

PART 1 — GENERAL

1.1 RELATED DOCUMENTS

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

B. Division 23, Common Work Results for mechanical requirements applies to this section and will require the contractor participation on the Above Ceiling Coordination Program.

1.2 GENERAL INFORMATION

A. This specification section shall include all electrical responsibilities required for the installation & wiring of all temperature controls, as outlined on job plans, specification and temperature control drawings. Specifically, this contractor shall provide pricing direct to those general or mechanical contractors (bid to prime on project) contractors bidding this work, and will be responsible for installation & wiring of all automatic temperature control devices furnished by Siemens Building Technologies as outlined below and as may be required per the project plans & specifications.

B. Siemens Building Technologies, Inc. will provide the following equipment for the building automation system as shown in the temperature control drawings Bill of Material to include but not limited to:

1. Terminal Equipment Controllers (TEC's)
2. Auxiliary TEC power panels
3. Room Temperature Sensors
4. Damper actuators
5. Relays
6. Low Voltage Transformers

The Electrical Installation & Wiring Contractor (EIC) shall be responsible for installation of all preceding devices as applicable to this project. This list shall not be considered complete and all bids should refer to temperature control drawings for specific equipment quantities and locations.

C. During the bidding process, the EIC shall address all questions relative to the Siemens temperature control drawings in writing (RFI) through the tier of bidding contractors. Siemens shall respond in writing through the tier of bidding contractors.

D. EIC shall install all control equipment provided by Siemens. The EIC shall furnish, install, and terminate all necessary wiring, conduit, hangers, etc, to provide a complete control system installation. All controls to be installed and adjusted by a Siemens qualified electrician in the full time employ of the EIC.

E. The EIC must have full time project superintendent who shall attend all construction meetings after notification that their services are required on site.

F. Upon completion of all installation and wiring by the EIC, Siemens Building Technologies will conduct verification of point to point wiring and any pneumatic tubing. The EIC will be responsible to make any necessary wiring corrections. At the completion of the point to point verification, approval shall be made by the Owner’s Construction Inspection Department and Siemens Building Technologies, Inc.

G. Upon approval by the Owner’s Construction Inspection Department, Siemens shall program all DDC panels, create necessary graphics and provide any interface between the building automation system and the campus environmental control system.

H. Upon completion of the aforementioned, a performance test shall be conducted as specified in the commissioning section of this specification.

I. Upon a successful conclusion of the final checkout, performance test and the Owner’s acceptance, the EIC will receive a standard warranty (12 months) for labor and material installed by the EIC and labor only for equipment supplied by others.

J. Siemens assumes the manufacturer’s warranty for all equipment supplied to the EIC for installation on this project.

K. Siemens services to include the following: Design engineering labor required to interface with WSU and the consulting engineer to design the temperature control system. Supervision of the EIC installation and final checkout and approval.

L. Equipment provided by others may require specific cable type and terminations. It is up to EIC to provide cable and terminations needed for a complete working system.

1.3 DEFINITIONS

A. DDC: Direct digital control.
B. I/O: Input/output.
C. BACnet: A control network technology platform for designing and implementing interoperable control devices and networks.
D. MS/TP: Master slave/token passing.
E. FC: Personal computer.
F. PID: Proportional integral plus derivative.
G. RTD: Resistance temperature detector.
1.4 PRODUCTS & SERVICES PROVIDED BY OTHERS

A. Mechanical Contractor: Installation of flow switches, temperature or thermocouple sensor wells, gage taps, pressure sensor pipe taps, flow valves & tubing into pipe pressure taps and variable frequency drives.

B. Electrical Contractor: Provide 120/208 VAC power to all DDC panels, wire power to all VFD’s. Furnish & install 4" x 4" trough above all control panels. Furnish & install conduit up maximum ten feet from all 4" x 4" troughs. Installation of required nipples between electrical panels and through.

C. Sheetmetal Contractor: Installing all terminal units, airflow stations and dampers.

1.5 PRODUCTS INSTALLED BY THE EMC BUT NOT FURNISHED UNDER THIS SECTION

A. Connect control components, as shown on the plans, factory supplied as part of equipment controlled.

1.6 RELATED SECTIONS

A. Division 23 – General Mechanical Requirements.

B. Division 23 – Instrumentation and controls for HVAC.

C. Division 23 – Indoor Air Handling Units.

D. Division 23 – Air Terminal Units.

E. Division 23 – Testing and Balancing for HVAC.

F. Division 23 – Commissioning of HVAC.

G. Division 26 – Electrical Work.

H. Standard Specifications and Codes: In addition to the requirements shown or specified, comply with the following applicable standard specifications, codes or ordinances:

2. UL – Underwriter’s Laboratories.

O. Include all items of labor and material required to comply with such standards, codes or ordinances in accordance with the contract documents. Where quantities, sizes, or other requirements indicated on the drawings or herein specified are in excess of the standard or code requirements, the specification and drawings shall govern.

1.7 QUALIFICATIONS FOR THE EMC

A. Controls Installation Contractor: The EMC’s will be pre approved by WSU prior to bidding this project.

1.8 QUALITY ASSURANCE

A. Installer Qualifications: EMC contractor must be able to provide references, upon request, for similar projects (in size & scope) that were completed satisfactorily, in Michigan. Project names, owner contacts and companies who awarded this work to you shall all be provided upon request to WSU and/or the AE of record. EMC contractor must be prepared to submit a minimum of three (3) satisfactorily completed projects, annually, for the past five (5) years.

B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

C. Comply with ASHRAE 135 for DDC system components.

1.9 SEQUENCING AND SCHEDULING

A. Sequence work to ensure installation of components is complimentary to installation of similar components in other systems.

B. Coordinate work with other Contractors and subcontractors to ensure system is completed and commissioned by the date of substantial completion.

C. Coordinate installation of system components with installation of mechanical systems equipment such as air handling units and air terminal units.

1.10 WARRANTY

A. Provide as per project general conditions.

1.11 CONTROL WIRING

A. The EMC is required to use the cable below. Refer to temperature control drawing ABAC Building Automation Cable Specification Catalog. If a wire type is required that is not referenced on the ABAC sheet then it is up to the EMC to provide the appropriate wire for the application.

B. The EMC is required to tag all wiring. Wiring that is used for DDC control points should be tagged with abbreviated DDC point name from control submittal. If wire is to be demo’d make sure the wire is labeled "spare" or "not in use".

1.12 INSTALLATION

A. Refer to project plans and DDC temperature control drawings for control wiring required and equipment locations.

B. Install control devices per installation requirements of control device. Before installing, always refer to local codes.
1.1 ELECTRICAL WIRING INSTALLATION BY THE EMIC (Project Plans and Specifications Prevail)

A. Furnish and install all wiring and interlock wiring as specified and as shown on the project plans. Use DDC temperature control drawings. Connect controls in accordance with DDC temperature control drawings.

B. Installation minimum requirements:
   1. Mechanical Room & Penthouse Areas: All EMT up to ten feet, then exposed plenum I/O point wiring.
   2. TEC Space Sensors: All cables furnished by Siemens, installed within wall construction without EMT.
   3. Other Space Sensors: I/O point wire in EMT for all non-accessible walls, approved plenum open wire in accessible walls.
   5. Ceiling Returns (non-accessible) and all other inaccessible areas: All wiring in EMT.
   6. Power and low voltage wiring shall not be run in the same conduit.

ON-SITE TESTING

A. Provide Owner-approved operation and acceptance testing of the complete system. The following shall witness the performance test:

   1. The EMIC - Electrical (controls) installation & wiring contractor
   2. The equipment manufacturers representative
   3. The Owner's agent
   4. The Owner
   5. Architect/Engineer

B. Field Test: When installation of the system is complete, all systems shall be tested to their sequence of operation including all safety circuits.

END OF SECTION 26 0900
### TXM1 TERMINATION TABLES

1. **All TXM1 terminals (measuring, neutral, relay, supply) are connected in the plug-in I/O module, not in the terminal bus.**

#### TXM1.8D, TXM1.16D

<table>
<thead>
<tr>
<th>I/O POINT</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
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<tr>
<td>SYSTEM NEUTRAL</td>
<td>(-)</td>
<td>1</td>
<td>3</td>
<td>5</td>
<td>7</td>
<td>9</td>
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<tr>
<td>DIGITAL INPUT</td>
<td>(+)</td>
<td>2</td>
<td>4</td>
<td>6</td>
<td>8</td>
<td>10</td>
</tr>
</tbody>
</table>

1. **Neutral can be connected to any neutral terminal on same module and several can share same neutral terminal.**

#### TXM1.16D

<table>
<thead>
<tr>
<th>I/O POINT</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
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<th>(7)</th>
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1. **No pulse accumulator**

#### TXM1.BU, TXM1.BU-ML

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1. **24V AC/DC Actuator Supply**

#### TXM1.BX, TXM1.BX-ML

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1. **24V DC Sensor Supply**

1. **-20 mA OUTPUT AVAILABLE ON POINTS 5-8 ONLY.**
2. **24V DC ONLY AVAILABLE WITH BUS CONNECTOR MODULE (BCM) POWERED EXTERNALLY BY DC SUPPLY.**
3. **May power external sensors 0.6mA (25mA) or 1.2mA (50mA) per termination up to 2.4mA (100mA) maximum for all terminations.**

#### TXM1.6R, TXM1.6R-M

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<tr>
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</table>

1. **Commons are not internally connected.**

---

**REVISION HISTORY**

**SIEMENS**

Siemens Industry, Inc.
Building Technologies Division

WSU Bio Science
Detroit, MI

45470 Commerce Ctr Dr
Plymouth Twp, MI 48170
USA
PHONE: 734-693-9000
FAX: 800.867.0749

01/09/16
01/09/16

TX-I/O Termination Spec. 2
Reference Only
This drawing is for reference only. This drawing must be used only to add additional detail to what is being provided by the engineer of record. Not all terminations, wire pulls or interlocks are shown in these diagrams as this will be dependent on the equipment purchased by others. Once equipment submittals are secured, the final drawings will reflect all work necessary to provide a full and functioning control system as outlined in the plans and spec. It is the bidders responsibility to review all contract documents provided by engineer of record to ensure that a complete scope is bid. Quantity of items and location of devices/panels that are not clearly spelled out in the drawings must be field verified to ensure that the project is properly bid. It is assumed that the bidder of the temperature controls electrical installation is knowledgeable in such work and requires minimal guidance. Siemens assumes no responsibility or risk for bidders not fully understanding the scope or extent of the work required.

REVISION HISTORY

GSU Bio Science
Detroit, MI
0
002A

GREEN HOUSE CONTROL SYSTEM
LOCATION: GREEN HOUSE LABS
SERV: GREEN HOUSES

1. GREEN HOUSE CONTROL SYSTEM

INSTALLATION NOTES:
1. ALL EQUIPMENT/START-UP PROVIDED BY MECHANICAL CONTRACTOR.
2. REFERENCES CONTRACT DOCUMENTS FOR QUANTITIES AND LOCATIONS.
3. LOCATE AS SHOWN ON FLOOR PLANS/CONTRACT DOCUMENTS.

REFERENCE ONLY

ROOF TOP UNIT NOTES:
ROOF TOP UNIT TO BE INTEGRATED VIA BACNET MS/TP.
ROOF TOP UNIT MANUFACTURER WILL PROGRAM THE UNIT TO MEET THE DESIGN INTENT.
DCC WILL CYCLE UNIT ON AND OFF PER A TIME OF DAY SCHEDULE.
DCC WILL MONITOR ALL TRAVEL ROOF TOP POINTS VIA BACNET MS/TP.
Reference Only
This drawing is for reference only. This drawing must be used only to add additional detail to what is being provided by the engineer of record. Not all terminations, wire pulls or interlocks are shown in these diagrams as this will be dependent on the equipment purchased by others. Once equipment submittals are secured, the final drawings will reflect all work necessary to provide a full and functioning control system as outlined in the plans and spec. It is the bidder's responsibility to review all contract documents provided by engineer of record to ensure that a complete scope is bid. Quantity of items and location of devices/panels that are not clearly spelled out in the drawings must be field verified to ensure that the project is properly bid. It is assumed that the bidder of the temperature controls electrical installation is knowledgeable in such work and requires minimal guidance. Siemens assumes no responsibility or risk for bidders not fully understanding the scope or extent of the work required.

VAV BOX INSTALLED BY MECHANICAL CONTRACTOR WITH 3 TO 5 STRAIGHT DUCT DIAMETERS UPSTREAM OF BOX TO PROVIDE PROPER FLOW SENSING.

TEC-1 TO BE MOUNTED IN MANUFACTURER SUPPLIED CONTROLLER ENCLOSURE.

REFER TO TEC SCHEDULE FOR 24 VAC POWER AND HP/IP TRUNKS.

MOUNT ACTUATOR WITH DAMPER IN FULL OPEN POSITION. VERIFY TEC-1 AND ACTUATOR REQUIREMENT WITH THE BOX MANUFACTURER.

LOCATE AS SHOWN ON FLOOR PLANS/CONTRACT DOCUMENTS.

FOR 2-WIRE RS-485 COMMUNICATIONS, ONLY THE SIGNAL (+,-) TERMINATIONS ARE USED. THE COMMON REFERENCE WIRE IS NOT USED.

MOUNT THE POWER SUPPLY TO THE OUTSIDE OF ENCLOSURE.

REFER TO TEC SCHEDULE FOR VAV/CV BOX SIZES AND FLOW SETTINGS.

VLOUTAGE INPUT 24 Vac

DEVICE

<table>
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Siemens Industry, Inc.
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49470 Commerce Ctr. Dr
Plymouth Twp., MI 48170
USA
PHONE: 734-468-3800
FAX: 800.816.0740

WSU Bio Science
Detroit, MI

VAV W/ HW REHEAT CONTROL
Reference Only

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