ADDENDUM NO. 2

To the Drawings and Project Manual dated 1 April 2019 for

MIDWESTERN STATE UNIVERSITY
RENOVATIONS TO
J.S. BRIDWELL HALL
3410 Taft Boulevard
Wichita Falls, Texas

Notice to Proposers:

This Addendum will be considered a part of the Contract Documents for the above referenced project as though it had been issued at the same time and incorporated integrally therewith. Where provisions of the following supplementary data differ from those in the original Contract Documents, this Addendum shall govern and take precedence.

Proposers are hereby notified that they shall make any necessary adjustments in their estimates on account of this Addendum. It will be construed that such Proposer’s Competitive Sealed Proposal is submitted with full knowledge of all modifications and supplementary data specified herein.

Item 1 - AD#2: To the Project Manual Section 00400, Proposal Form.

Delete: The Proposal Form included in the Project Manual.

Add: The Proposal Form attached with this Addendum. A section was added for the Proposer to provide a base bid amount.

Item 2 - AD#2: To the Drawings, Sheet “A705”, “Second Floor Furniture Plan”.

Delete: In “Classroom 209”, the notation “Furniture relocated from Ferguson 203”.

Add: As clarification, the furniture for this space (provided by the Owner) will be relocated from another building on Campus or purchased as new furniture.

Item 3 - AD#2: To the Drawings, Sheet “AD101”, “First Floor Plan - Demolition”.

Add: In “Dressing Room & Locker Room 106L”, an existing exhaust duct and wall cap are being removed and replaced with new ductwork and wall cap as part of this Contract (refer to Item #8 and the Mechanical Drawings included in this Addendum). In conjunction with this work, a portion of the existing exterior north wall will need to be removed at the existing penetration and will need to be increased in size to accommodate the new ductwork.

Add: As clarification to keynote #2 indicated in “Reception 101”, “Office 101A”, “Film Sort & Viewing 106C”, “Toilet 106K”, “Dressing Room & Locker Room 106L”, “Toilet 106N”, “Workroom 201B”, and “Office 308H”, the existing ceiling and lights are to remain. Some ceilings may require patching with matching ceiling materials – refer to the “Reflected Ceiling Plans” for more information. The floor finishes and wall base may still need to be removed – refer to the “Finish Schedule” in Section 099900 for more information. In some locations, new HVAC
diffusers & grilles may be installed – refer to the Reflected Ceiling & Mechanical Plans for more information.

**ITEM 4 - AD#2**: To the Drawings, Sheet “P101b”, “First Floor Medical Gas Demolition Plan”; and Sheet “A101”, “First Floor Plan – New”.

**ADD**: As clarification, there are existing medical gas lines (compressed air, vacuum outlets, etc.) that are being removed as part of this Project. All wall penetrations, voids, and former outlet box locations shall be infilled with matching wall material (most are drywalls) and finished as per the **FINISH SCHEDULE** in Section 099900 in the Project Manual.

**ITEM 5 - AD#2**: To the Project Manual Section 099900, **FINISH SCHEDULE**.

**DELETE**: On page 099900-1 under “Copier/Workroom & Reception 106C”, the indication of ceiling finish “4A” (new 2x2 suspended acoustical ceiling).

**ADD**: The ceiling finish for this space shall be “4C” (existing ceiling to remain).

**ITEM 6 - AD#2**: To the Drawings and Project Manual, Section 011000, **SUMMARY**, Parts 1.7, 1.8, and 1.9.

**ADD**: As clarification, the Building will not be occupied starting on August 1, except for use by the General Contractor and MSU Maintenance Personnel. Most of the existing equipment in the Building will be removed by MSU prior to the commencement of work. If any equipment remains, the GC may have to move it to do the work, however it is the intent of the Owner to have the equipment removed from the Building. Making noise in the building to do the work will not be an issue for MSU and no phasing of the work will be needed.

**ADD**: There will be approximately six (6) existing parking spaces adjacent to the Building available for Contractor vehicle parking. All other vehicles will be required to park in Lot 6 and walking to the Building/work site will be necessary.

**ITEM 7 - AD#2**: To the Project Manual Section 232113, **HYDRONIC PIPING**.

**DELETE**: The Section in its entirety.

**ADD**: Section 232113, **HYDRONIC PIPING**, included as a part of this Addendum.

**ADD**: As clarification, on page 232113-5, Part 2.5, only products manufactured by Taco are acceptable for use as Air Control Devices on this project.

**ITEM 8 - AD#2**: To the Drawings and Cover Sheet, “Sheet Index”.

**DELETE**: All Mechanical (“M”), Electrical (“E”), and Plumbing (“P”) Sheets.

**ADD**: Replacement Mechanical (“M”), Electrical (“E”), and Plumbing (“P”) Sheets, included as a part of this Addendum. Several issues from the Owner drawing review and questions at the first Pre-Bid Conference have been addressed on these Drawings.

**ADD**: As clarification, Sheet “M6.2” has been added to the Mechanical Drawings and Construction Documents tp depict an added Mechanical detail.

**ADD**: As clarification, Sheets “TO.1”, “TO.2”, “T1.1”, “T1.2”, “T1.3” “T2.1”, “T2.2” and “T2.3” have been added to the Electrical Drawings and Construction Documents. These drawings were added to help clarify the scope of work included in Alternate #4, Information Technology Infrastructure Upgrades.

**ITEM 9 - AD#2**: To the Drawings and Project Manual.

**ADD**: As clarification for informational purposes, the existing under slab piping is PVC. Also, the existing concrete floor slab is **NOT** a post-tensioned slab.

**ADD**: As clarification to the “Demolition Plans” and supplemental information to Item #6 above, MSU will be removing several items from the Building and the GC will **NOT** be responsible for their removal. In “Dental Clinic 107A”, all existing Dental Operatories (i.e. Dental chairs, Patient service cabinets, overhead light fixtures), Operatory Chairs, and Dental Vacuum System will be removed by MSU and this space shall be a “shell” (except for the existing ceiling) at the time for commencement of work. X-Ray units and equipment in the “106” spaces and in “Radiology 205”, “Radiology 207”, “Radiology 209” and “Radiology 211” will be removed by MSU – the GC will **NOT** be removing any X-Ray related equipment/units. The Lockers in “X-Ray 106L” will also be removed by MSU.

END OF ADDENDUM NO. 2
REQUEST FOR COMPETITIVE SEALED PROPOSALS
FOR
MIDWESTERN STATE UNIVERSITY
RENOVATIONS TO J.S. BRIDWELL HALL
WICHITA FALLS, TEXAS

PURCHASING & CONTRACT MANAGEMENT DEPARTMENT
3410 TAFT BLVD, DANIEL BUILDING, ROOM 200
WICHITA FALLS, TX 76308

Proposals are to be sent via email or hand delivered to:
Tracy Nichols, Director of Purchasing & Contract Management
3410 Taft Blvd, Daniel Building, Room 200
Wichita Falls, TX 76308
Email: tracy.nichols@msutexas.edu
Phone: 940-397-4110

The undersigned, having examined the Drawings, Specifications and related Documents, the site of the proposed Work, being familiar with all of the conditions relating to the construction of the proposed project, including the availability of materials and labor, hereby proposes to furnish all labor, materials, services, equipment and appliances required in connection with or incidental to the construction of each item listed below in strict accordance with the following Specifications and Drawings:


<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>COVER SHEET</th>
<th>Dated</th>
</tr>
</thead>
<tbody>
<tr>
<td>STRUCTURAL</td>
<td>S101, S201, S301</td>
<td>April 1, 2019</td>
</tr>
<tr>
<td>DEMOLITION &amp;</td>
<td>AD101, AD102, AD103, A101, A102, A103, A301, A401, A501, A701, A702, A703, A704, A705, A706, QF101</td>
<td>April 1, 2019</td>
</tr>
<tr>
<td>ARCHITECTURAL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MECHANICAL</td>
<td>M0.1, M0.2, M1.1, M1.2, M1.3, M2.1, M2.2, M2.3, M6.1, M6.2</td>
<td>April 1, 2019</td>
</tr>
<tr>
<td>ELECTRICAL</td>
<td>E0.1, E1.1, E1.2, E1.3, E2.1, E2.2, E2.3, E3.1, E3.2, E3.3, TO.1, TO.2, TO.Q, T1.2, T1.3, T2.1, T2.2, T2.3</td>
<td>April 1, 2019</td>
</tr>
<tr>
<td>PLUMBING</td>
<td>P001, P100, P101a, P101b, P102a, P102b, P103a, P103b, P200, P201, P202, P203, P301</td>
<td>April 1, 2019</td>
</tr>
</tbody>
</table>

BASE BID PROPOSAL:

1. For the Renovations to J.S. Bridwell Hall for Midwestern State University - BASE BID amount of:

______________________________________________________ Dollars ($______________________).

COMPLETION DATE: The Proposer/Contractor acknowledges that they must perform under their construction schedule to benefit Midwestern State University. Provide total number of days required to complete the work. The Contractor shall compile and maintain a project schedule through the duration of the project.

THE PROJECT SHALL BE COMPLETED NO LATER THAN APRIL 1, 2020.

Number of Days: _______________________

ALTERNATES (As described in Section 012300): The following are proposed alternates to the Base Proposal. The Alternates offer additional cost for the work described in the Alternate Section of the Project Manual. Each Alternate shall include all cost, including overhead and profit, and may be accepted or rejected independently of each other. Circle "ADD" or "DELETE", whichever best describes your proposal.

ALTERNATE #1: On the first floor, the existing "Lecture Hall 108" will be converted to "Kinesiology Lab 108"; the existing "Classroom 109" will be converted to "Kinesiology Equipment Storage 109". Refer to the Drawings for more information.

ADD or DELETE: $ ____________________________

ALTERNATE #2: On the second floor, existing Classrooms and Break Room will be converted into a larger "Classroom 204" and "Computer Lab/Classroom 208". Refer to the Drawings for more information.

ADD or DELETE: $ ____________________________

ALTERNATE #3A: On the third floor, existing Office Spaces will be converted into "Science Lab 308A" and "Science Workroom/Storage 308D". This Alternate will create the spaces and provide finishes and Mechanical/Electrical/Plumbing Rough In only.

ADD or DELETE: $ ____________________________

ALTERNATE #3B: Provide the Specified Science Equipment (Reference Section 123480 of the Project Manual). Refer to the Drawings for more information.

ADD or DELETE: $ ____________________________

ALTERNATE #3C: Provide Mechanical/Electrical/Plumbing Finish out of the spaces and for the Science Equipment. The scope of work with this Alternate will occur in conjunction with the acceptance of Alternate #3B. Refer to the Drawings for more information.

ADD or DELETE: $ ____________________________

ALTERNATE #4: Provide new Information Technology Infrastructure Upgrades. Refer to the Electrical Drawings for more information.

ADD or DELETE: $ ____________________________
UNIT PRICES: The following unit prices shall be submitted by the Proposer for the purpose of establishing the sums to be added to or deducted from the contract amount on the account of an increase or decrease in quantity of the following items:

<table>
<thead>
<tr>
<th>ITEM</th>
<th>UNIT</th>
<th>WHEN ADDED</th>
<th>WHEN DEDUCTED</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Painting</td>
<td>Sq Ft</td>
<td>$__________</td>
<td>$____________</td>
</tr>
<tr>
<td>B. Acoustical Ceiling Tiles</td>
<td>Sq Ft</td>
<td>$__________</td>
<td>$____________</td>
</tr>
</tbody>
</table>

SUBSTITUTIONS: The undersigned warrants to the Owner and the Architect by submitting this proposal, that he and all his suppliers and sub-contractors have used the items specified in the Project Manual and as indicated on the Drawings and that each has read and understands the paragraph entitled SUBSTITUTIONS in SECTION 01600 – PRODUCT REQUIREMENTS, in the Project Manual.

EXTRA WORK: The undersigned agrees that, should any change in the work, or extra work, be ordered, where the unit prices set out above are not applicable, the following applicable percentage shall be added to material and labor cost to cover overhead and profit. The contractor acknowledges that these percentages will be a determinant in the award of the contract.

A. Allowance of the Contractor for overhead and profit for extra work performed by the Contractor's own forces:

    ______________ %

B. Allowances to the Contractor for overhead and profit for extra work performed by a sub-contractor and supervised by the Contractor:

    ______________ %

GUARANTEE: The undersigned furnish herewith guarantee total of base proposal lump sum amount and attaches same to the proposal for the period of sixty (60) days after the schedule closing time for the receipt of the proposals, and that if this proposal is accepted, the undersigned will enter into a formal contract (prepared by the Owner) and that the required performance bond and payment bond will be given. In the event of the withdrawal of this proposal within the period stipulated above, or the failure of the undersigned to enter into a contract and give the required bond within ten (10) days after the undersigned had received notice of the acceptance of this proposal, the undersigned shall be liable to the Owner for the full amount of the guarantee as liquidated damages to the Owner on account of the default of the undersigned.

WAGE SCALE: The undersigned acknowledges the Wage Scale as published in accordance with VCS 5159A and payment of wages in accordance with this scale and statutes are a condition of the contract.

ADDENDA: The undersigned hereby acknowledges receipt of the following listed Addenda to the Drawings and Specifications, all of the provisions and requirements of which Addenda have been taken into consideration in the preparation of the foregoing proposal.
FELONY CONVICTION NOTICE

Senate Bill 1 passed by the State of Texas Legislators, Section 44.034, Notification of Criminal History Subsection (a) states a person or business entity that enters into a contract with a school district must give advance notice to the district if the person or owner or operator of the business entity has been convicted of a felony. The notice must include a general description of the conduct resulting in the conviction of a felony.

Subsection (b) states “a school district may terminate a contract with a person or business entity if the district determines that the person or business entity failed to give notice as required by Subsection (a) or misrepresented the conduct resulting in the conviction. The district must compensate the person or business entity for services performed before the termination of the contract”.

This notice is not required of a publicly held corporation.

I, the undersigned agent for the firm named below, certify that the information concerning notification of felony conviction has been reviewed by me and the following information furnished is true to the best of my knowledge.

Sub Contractor / Vendor’s Name: _________________________________________________________

Authorized company Official’s Name: (Please Print) ___________________________________

A. My firm is not owned by anyone who has been convicted of a felony nor listed as a sexual predator.

Signature of Company Official: _______________________________________________________

Felony: No____ Yes____ Details of Conviction: _______________________________

Sexual Predator: No____ Yes____ Details of Conviction: _________________________

B. My firm employees the following individual(s) who has/have not been convicted of a felony or identified as a sexual predator. (Provide a complete list of all employees that will be associated with this project. Provide additional pages as required.)

Signature of Company Official: _______________________________________________________

• Name of Employee: ___________________________________________________________

Felony: No____ Yes____ Details of Conviction: _______________________________

Sexual Predator: No____ Yes____ Details of Conviction: _________________________

• Name of Employee: __________________________________________________________

Felony: No____ Yes____ Details of Conviction: _______________________________

Sexual Predator: No____ Yes____ Details of Conviction: _________________________
CERTIFICATION SHEET

All specifications and terms of the Proposal have been read.

Our company accepts the specifications and conditions unless otherwise accepted in writing to the Purchasing Agent, Midwestern State University, 3410 Taft Blvd, Wichita Falls, Texas.

COMPANY NAME:  
MAILING ADDRESS:  
City:  
State:  
Zip:  
Telephone:  
Fax:  
Date:  

NAME OF REPRESENTATIVE AUTHORIZED TO SIGN FOR BIDDER:

(Please Print) ___________________________________ (Please Sign) ___________________________________

In order for a proposal to be considered, the following information must be provided. Failure to complete will result in rejection of the Proposal.

As defined by Texas House 620, a “nonresident bidder” means a bidder whose principal place of business is not in Texas, but excludes a contractor whose ultimate parent company or majority owner has its principal place of business in Texas.

I certify that my company is a “resident bidder”:

SIGNATURE: ___________________________________ DATE: ____________________

IF YOU QUALIFY AS A “nonresident bidder”, you must furnish the following information:

What is your resident state? (The state your principal place of business is located.)

City ___________________________________ State ____________________________ Zip Code ____________________________

Name of Company ____________________________ Address ____________________________

(a) Does your “residence state” require bidders whose principal place of business is in Texas to underbid bidders whose residence state is the same as yours by a prescribed amount or percentage to receive a comparable contract? “Residence state” means that state in which the principal place of business is located.

YES ` NO `

(b) What is that amount or percentage? __________________%

I certify that the above information is correct.

Signature ___________________________________ Title ____________________________

(Please Print Name)

This page must be completed and submitted with proposal.
Proposals are to be sent via email or hand delivered to:
Tracy Nichols, Director of Purchasing & Contract Management
3410 Taft Blvd, Daniel Building, Room 200
Wichita Falls, TX 76308
Email: tracy.nichols@msutexas.edu
Phone: 940-397-4110

PROPOSE TO PROVIDE AND STATEMENT OF NONCOLLUSION

I / we propose to provide the merchandise and/or services proposed within this document and if awarded the proposal, do agree to abide by all conditions of the proposal. Furthermore, the undersigned affirms that they are truly authorized to execute this contract, that this company, corporation, firm, partnership or individual has not prepared this proposal in collusion with any other Proposer, and that the contents of this proposal as to prices, terms or conditions of said proposal have not been communicated by the undersigned or any employee or agent to any other person engaged in this type of business prior to the official opening of this bid.

Vendor Name

Vendor Address

Signature of Company Representative

Printed Name of Company Representative

Date

This page must be completed and submitted with proposal.
RESPECTFULLY SUBMITTED

CORPORATIONS ONLY FILL IN THE FOLLOWING:  PROPOSIERS (OTHER THAN CORPORATIONS)
FILL IN THE FOLLOWING:

<table>
<thead>
<tr>
<th>(Legal name of Corporation)</th>
<th>(Legal name of Proposing Firm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(State of Incorporation)</td>
<td>(Address)</td>
</tr>
<tr>
<td>(Address)</td>
<td></td>
</tr>
<tr>
<td>(Typed name of Officer)</td>
<td>(Typed name of Officer)</td>
</tr>
<tr>
<td>(Signature of Officer)</td>
<td>(Signature of Officer)</td>
</tr>
<tr>
<td>(Title of Officer)</td>
<td>(Title of Officer)</td>
</tr>
<tr>
<td>(Date)</td>
<td>(Date)</td>
</tr>
</tbody>
</table>

WITNESS:

<table>
<thead>
<tr>
<th>(Name of Witness typed in)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Signature of Witness)</td>
</tr>
<tr>
<td>(Address of Witness)</td>
</tr>
<tr>
<td>(Date)</td>
</tr>
</tbody>
</table>

(Signature of Proposer, including corporation officer, must be witnessed and proposal dated to be valid)
SECTION 232113 – HYDRONIC PIPING

PART 1 - GENERAL

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

1.2 SUMMARY
A. This Section includes pipe and fitting materials, joining methods, special-duty valves, and specialties for the following:
   1. Hot-water heating piping.
B. Related Sections include the following:
   1. Section 232123 "Hydronic Pumps" for pumps, motors, and accessories for hydronic piping.

1.3 PERFORMANCE REQUIREMENTS
A. Hydronic piping components and installation shall be capable of withstanding the following minimum working pressure and temperature:
   1. Hot-Water Heating Piping: 30 psig at 180 deg F.

1.4 ACTION SUBMITTALS
A. Product Data: For each type of the following:
   1. Valves. Include flow and pressure drop curves based on manufacturer's testing for calibrated-orifice balancing valves and automatic flow-control valves.
   2. Air control devices.
   4. Hydronic specialties.
B. Shop Drawings: Detail, at 1/8 scale, the piping layout, fabrication of pipe anchors, hangers, supports for multiple pipes, alignment guides, expansion joints and loops, and attachments of the same to the building structure. Detail location of anchors, alignment guides, and expansion joints and loops.

1.5 INFORMATIONAL SUBMITTALS
A. Qualification Data: For Installer.
B. Welding certificates.
C. Field quality-control test reports.

1.6 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For air control devices, hydronic specialties, and special-duty valves to include in emergency, operation, and maintenance manuals.

1.7 MAINTENANCE MATERIAL SUBMITTALS

A. Differential Pressure Meter: For each type of balancing valve and automatic flow control valve, include flowmeter, probes, hoses, flow charts, and carrying case.

1.8 QUALITY ASSURANCE

A. Steel Support Welding: Qualify processes and operators according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."

B. Welding: Qualify processes and operators according to ASME Boiler and Pressure Vessel Code: Section IX.
   1. Comply with provisions in ASME B31 Series, "Code for Pressure Piping."
   2. Certify that each welder has passed AWS qualification tests for welding processes involved and that certification is current.

C. ASME Compliance: Comply with ASME B31.9, "Building Services Piping," for materials, products, and installation. Safety valves and pressure vessels shall bear the appropriate ASME label. Fabricate and stamp air separators and expansion tanks to comply with ASME Boiler and Pressure Vessel Code: Section VIII, Division 1.

PART 2 - PRODUCTS

2.1 COPPER TUBE AND FITTINGS

A. Annealed-Temper Copper Tubing: ASTM B 88, Type K.

B. Wrought-Copper Fittings: ASME B16.22.
   1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
   2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   3. Basis-of-Design Product: Subject to compliance with requirements, provide a comparable product by one of the following:
      a. Anvil International, Inc.
      b. S. P. Fittings; a division of Star Pipe Products.
      c. Victaulic Company.

C. Wrought-Copper Unions: ASME B16.22.
2.2 STEEL PIPE AND FITTINGS

A. Steel Pipe: ASTM A 53/A 53M, black steel with plain ends; type, grade, and wall thickness as indicated in Part 3 "Piping Applications" Article.

B. Cast-Iron Threaded Fittings: ASME B16.4; Classes 125 and 250 as indicated in Part 3 "Piping Applications" Article.


E. Cast-Iron Pipe Flanges and Flanged Fittings: ASME B16.1, Classes 25, 125, and 250; raised ground face, and bolt holes spot faced as indicated in Part 3 "Piping Applications" Article.

F. Wrought-Steel Fittings: ASTM A 234/A 234M, wall thickness to match adjoining pipe.

G. Wrought Cast- and Forged-Steel Flanges and Flanged Fittings: ASME B16.5, including bolts, nuts, and gaskets of the following material group, end connections, and facings:

2. End Connections: Butt welding.
3. Facings: Raised face.

H. Steel Pipe Nipples: ASTM A 733, made of same materials and wall thicknesses as pipe in which they are installed.

2.3 JOINING MATERIALS

A. Pipe-Flange Gasket Materials: Suitable for chemical and thermal conditions of piping system contents.

1. ASME B16.21, nonmetallic, flat, asbestos free, 1/8-inch (3.2-mm) maximum thickness unless thickness or specific material is indicated.

   a. Full-Face Type: For flat-face, Class 125, cast-iron and cast-bronze flanges.
   b. Narrow-Face Type: For raised-face, Class 250, cast-iron and steel flanges.

B. Flange Bolts and Nuts: ASME B18.2.1, carbon steel, unless otherwise indicated.

C. Brazing Filler Metals: AWS A5.8, BCuP Series, copper-phosphorus alloys for joining copper with copper; or BAg-1, silver alloy for joining copper with bronze or steel.


E. Gasket Material: Thickness, material, and type suitable for fluid to be handled and working temperatures and pressures.
2.4 DIELECTRIC FITTINGS

A. General Requirements: Assembly of copper alloy and ferrous materials with separating nonconductive insulating material. Include end connections compatible with pipes to be joined.

B. Dielectric Unions:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

   b. Central Plastics Company.
   d. Jomar International Ltd.
   e. Matco-Norca, Inc.
   g. Watts Regulator Co.; a division of Watts Water Technologies, Inc.
   h. Wilkins; a Zurn company.

2. Description:

   b. Pressure Rating: 125 psig minimum at 180 deg F.
   c. End Connections: Solder-joint copper alloy and threaded ferrous.

C. Dielectric Flanges:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

   b. Central Plastics Company.
   c. Matco-Norca, Inc.
   d. Watts Regulator Co.; a division of Watts Water Technologies, Inc.
   e. Wilkins; a Zurn company.

2. Description:

   b. Factory-fabricated, bolted, companion-flange assembly.
   c. Pressure Rating: 125 psig minimum at 180 deg F.
   d. End Connections: Solder-joint copper alloy and threaded ferrous; threaded solder-joint copper alloy and threaded ferrous.

D. Dielectric-Flange Insulating Kits:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

   a. Advance Products & Systems, Inc.
   b. Calpico, Inc.
   c. Central Plastics Company.
2. Description:
   a. Nonconducting materials for field assembly of companion flanges.
   b. Pressure Rating: 150 psig.
   c. Gasket: Neoprene or phenolic.
   d. Bolt Sleeves: Phenolic or polyethylene.
   e. Washers: Phenolic with steel backing washers.

E. Dielectric Nipples:
   1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
      a. Elster Perfection.
      b. Grinnell Mechanical Products.
      c. Matco-Norca, Inc.
      d. Precision Plumbing Products, Inc.
      e. Victaulic Company.
   2. Description:
      a. Standard: IAPMO PS 66
      b. Electroplated steel nipple. complying with ASTM F 1545.
      c. Pressure Rating: 125 psig at 180 deg F.
      d. End Connections: Male threaded or grooved.
      e. Lining: Inert and noncorrosive, propylene.

2.5 AIR CONTROL DEVICES

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

B. Manufacturer: Subject to compliance with requirements, provide products by Taco.

C. Manual Air Vents:
   1. Body: Bronze.
   2. Internal Parts: Nonferrous.
   3. Operator: Screwdriver or thumbscrew.
   4. Inlet Connection: NPS 1/2.
   7. Maximum Operating Temperature: 225 deg F.

D. Automatic Air Vents:
   1. Body: Bronze or cast iron.
   2. Internal Parts: Nonferrous.
   4. Inlet Connection: NPS 1/2.
7. Maximum Operating Temperature: 240 deg F.

E. Bladder-Type Expansion Tanks:
   1. Tank: Welded steel, rated for 125-psig working pressure and 375 deg F maximum operating temperature. Factory test with taps fabricated and supports installed and labeled according to ASME Boiler and Pressure Vessel Code: Section VIII, Division 1.
   2. Bladder: Securely sealed into tank to separate air charge from system water to maintain required expansion capacity.

F. In-Line Air Separators:
   1. Tank: One-piece cast iron with an integral weir constructed to decelerate system flow to maximize air separation.
   3. Maximum Operating Temperature: Up to 300 deg F.

2.6 HYDRONIC PIPING SPECIALTIES

A. Y- Pattern Strainers:
   1. Body: ASTM A 126, Class B, cast iron with bolted cover and bottom drain connection.
   2. End Connections: Threaded ends for NPS 2 and smaller; flanged ends for NPS 2-1/2 and larger.
   3. Strainer Screen: 40-mesh startup strainer, and perforated stainless-steel basket with 50 percent free area.

B. Stainless-Steel Bellow, Flexible Connectors:
   2. End Connections: Threaded or flanged to match equipment connected.
   4. CWP Rating: 150 psig.
   5. Maximum Operating Temperature: 250 deg F.

PART 3 - EXECUTION

3.1 PIPING APPLICATIONS

A. Hot-water heating piping, aboveground, NPS 2 and smaller, shall be any of the following:
   1. Type L, drawn-temper copper tubing, wrought-copper fittings, and brazed joints.
   2. Schedule 40 steel pipe; Class 150, malleable-iron fittings; cast-iron flanges and flange fittings; and threaded joints.

B. Hot-water heating piping, aboveground, NPS 2-1/2 and larger, shall be any of the following:
   1. Schedule 40 steel pipe, wrought-steel fittings and wrought-cast or forged-steel flanges and flange fittings, and welded and flanged joints.
C. Blowdown-Drain Piping: Same materials and joining methods as for piping specified for the service in which blowdown drain is installed.

D. Air-Vent Piping:
   1. Inlet: Same as service where installed with metal-to-plastic transition fittings for plastic piping systems according to the piping manufacturer's written instructions.
   2. Outlet: Type K, annealed-temper copper tubing with soldered or flared joints.

E. Safety-Valve-Inlet and -Outlet Piping for Hot-Water Piping: Same materials and joining methods as for piping specified for the service in which safety valve is installed with metal-to-plastic transition fittings for plastic piping systems according to the piping manufacturer's written instructions.

3.2 VALVE APPLICATIONS

A. Install shutoff-duty valves at each branch connection to supply mains, and at supply connection to each piece of equipment.

B. Install calibrated-orifice, balancing valves in the return pipe of each heating or cooling terminal.

C. Install check valves at each pump discharge and elsewhere as required to control flow direction.

D. Install safety valves at hot-water generators and elsewhere as required by ASME Boiler and Pressure Vessel Code. Install drip-pan elbow on safety-valve outlet and pipe without valves to the outdoors; and pipe drain to nearest floor drain or as indicated on Drawings. Comply with ASME Boiler and Pressure Vessel Code: Section VIII, Division 1, for installation requirements.

E. Install pressure-reducing valves at makeup-water connection to regulate system fill pressure.

3.3 PIPING INSTALLATIONS

A. Drawing plans, schematics, and diagrams indicate general location and arrangement of piping systems. Indicate piping locations and arrangements if such were used to size pipe and calculate friction loss, expansion, pump sizing, and other design considerations. Install piping as indicated unless deviations to layout are approved on Coordination Drawings.

B. Install piping in concealed locations, unless otherwise indicated and except in equipment rooms and service areas.

C. Install piping indicated to be exposed and piping in equipment rooms and service areas at right angles or parallel to building walls. Diagonal runs are prohibited unless specifically indicated otherwise.

D. Install piping above accessible ceilings to allow sufficient space for ceiling panel removal.

E. Install piping to permit valve servicing.

F. Install piping at indicated slopes.

G. Install piping free of sags and bends.

H. Install fittings for changes in direction and branch connections.
I. Install piping to allow application of insulation.

J. Select system components with pressure rating equal to or greater than system operating pressure.

K. Install groups of pipes parallel to each other, spaced to permit applying insulation and servicing of valves.

L. Install drains, consisting of a tee fitting, NPS 3/4 ball valve, and short NPS 3/4 threaded nipple with cap, at low points in piping system mains and elsewhere as required for system drainage.

M. Install piping at a uniform grade of 0.2 percent upward in direction of flow.

N. Reduce pipe sizes using eccentric reducer fitting installed with level side up.

O. Install branch connections to mains using mechanically formed tee fittings in main pipe, with the branch connected to the bottom of the main pipe. For up-feed risers, connect the branch to the top of the main pipe.

P. Install unions in piping, NPS 2 and smaller, adjacent to valves, at final connections of equipment, and elsewhere as indicated.

Q. Install flanges in piping, NPS 2-1/2 and larger, at final connections of equipment and elsewhere as indicated.

R. Install strainers on inlet side of each control valve, pressure-reducing valve, solenoid valve, in-line pump, and elsewhere as indicated. Install NPS 3/4 nipple and ball valve in blowdown connection of strainers NPS 2 and larger. Match size of strainer blowoff connection for strainers smaller than NPS 2.

S. Identify piping as specified in Section 230553 "Identification for HVAC Piping and Equipment."

T. Install sleeves for piping penetrations of walls, ceilings, and floors.

U. Install sleeve seals for piping penetrations of concrete walls and slabs.

V. Install escutcheons for piping penetrations of walls, ceilings, and floors.

3.4 HANGERS AND SUPPORTS

A. Hanger, support, and anchor devices are specified in Section 230529 "Hangers and Supports for HVAC Piping and Equipment." Comply with the following requirements for maximum spacing of supports.

3.5 PIPE JOINT CONSTRUCTION

A. Ream ends of pipes and tubes and remove burrs. Bevel plain ends of steel pipe.

B. Remove scale, slag, dirt, and debris from inside and outside of pipe and fittings before assembly.

D. Threaded Joints: Thread pipe with tapered pipe threads according to ASME B1.20.1. Cut threads full and clean using sharp dies. Ream threaded pipe ends to remove burrs and restore full ID. Join pipe fittings and valves as follows:

1. Apply appropriate tape or thread compound to external pipe threads unless dry seal threading is specified.
2. Damaged Threads: Do not use pipe or pipe fittings with threads that are corroded or damaged. Do not use pipe sections that have cracked or open welds.


F. Flanged Joints: Select appropriate gasket material, size, type, and thickness for service application. Install gasket concentrically positioned. Use suitable lubricants on bolt threads.

3.6 HYDRONIC SPECIALTIES INSTALLATION

A. Install manual air vents at high points in piping, at heat-transfer coils, and elsewhere as required for system air venting.

B. Install automatic air vents at high points of system piping in mechanical equipment rooms only. Manual vents at heat-transfer coils and elsewhere as required for air venting.

C. Install piping from boiler air outlet, air separator, or air purger to expansion tank with a 2 percent upward slope toward tank.

D. Install in-line air separators in pump suction. Install drain valve on air separators NPS 2 and larger.

E. Install expansion tanks on the floor. Vent and purge air from hydronic system, and ensure tank is properly charged with air to suit system Project requirements.

3.7 TERMINAL EQUIPMENT CONNECTIONS

A. Sizes for supply and return piping connections shall be the same as or larger than equipment connections.

B. Install control valves in accessible locations close to connected equipment.

C. Install ports for pressure gages and thermometers at coil inlet and outlet connections.

3.8 CHEMICAL TREATMENT

A. Fill system with fresh water and add liquid alkaline compound with emulsifying agents and detergents to remove grease and petroleum products from piping. Circulate solution for a minimum of 24 hours, drain, clean strainer screens, and refill with fresh water.

B. Add initial chemical treatment and maintain water quality in ranges noted above for the first year of operation.
3.9 FIELD QUALITY CONTROL

A. Prepare hydronic piping according to ASME B31.9 and as follows:
   1. Leave joints, including welds, uninsulated and exposed for examination during test.
   2. Provide temporary restraints for expansion joints that cannot sustain reactions due to test pressure. If temporary restraints are impractical, isolate expansion joints from testing.
   3. Flush hydronic piping systems with clean water; then remove and clean or replace strainer screens.
   4. Isolate equipment from piping. If a valve is used to isolate equipment, its closure shall be capable of sealing against test pressure without damage to valve. Install blinds in flanged joints to isolate equipment.
   5. Install safety valve, set at a pressure no more than one-third higher than test pressure, to protect against damage by expanding liquid or other source of overpressure during test.

B. Perform the following tests on hydronic piping:
   1. Use ambient temperature water as a testing medium unless there is risk of damage due to freezing. Another liquid that is safe for workers and compatible with piping may be used.
   2. While filling system, use vents installed at high points of system to release air. Use drains installed at low points for complete draining of test liquid.
   3. Isolate expansion tanks and determine that hydronic system is full of water.
   4. Subject piping system to hydrostatic test pressure that is not less than 1.5 times the system's working pressure. Test pressure shall not exceed maximum pressure for any vessel, pump, valve, or other component in system under test. Verify that stress due to pressure at bottom of vertical runs does not exceed 90 percent of specified minimum yield strength or 1.7 times "SE" value in Appendix A in ASME B31.9, "Building Services Piping."
   5. After hydrostatic test pressure has been applied for at least 10 minutes, examine piping, joints, and connections for leakage. Eliminate leaks by tightening, repairing, or replacing components, and repeat hydrostatic test until there are no leaks.
   6. Prepare written report of testing.

C. Perform the following before operating the system:
   1. Open manual valves fully.
   2. Inspect pumps for proper rotation.
   3. Set makeup pressure-reducing valves for required system pressure.
   4. Inspect air vents at high points of system and determine if all are installed and operating freely (automatic type), or bleed air completely (manual type).
   5. Set temperature controls so all coils are calling for full flow.
   6. Inspect and set operating temperatures of hydronic equipment, such as boilers, chillers, cooling towers, to specified values.
   7. Verify lubrication of motors and bearings.

END OF SECTION
### WATER HEATED VAV BOX SCHEDULE

<table>
<thead>
<tr>
<th>Model</th>
<th>Type</th>
<th>Make/Model</th>
<th>Design Temp</th>
<th>Min Temp</th>
<th>Max Temp</th>
<th>Beta</th>
<th>Spd</th>
<th>Rise Time</th>
<th>Volts</th>
<th>HP</th>
</tr>
</thead>
<tbody>
<tr>
<td>35-106</td>
<td>VAV</td>
<td>2500.41</td>
<td>2100</td>
<td>1800</td>
<td>2400</td>
<td>2.5</td>
<td>2.4</td>
<td>10</td>
<td>120</td>
<td>0.75</td>
</tr>
<tr>
<td>35-106</td>
<td>VAV</td>
<td>2500.41</td>
<td>2100</td>
<td>1800</td>
<td>2400</td>
<td>2.5</td>
<td>2.4</td>
<td>10</td>
<td>120</td>
<td>0.75</td>
</tr>
</tbody>
</table>

### DX MINI SPLIT SYSTEM HEAT PUMP SCHEDULE

<table>
<thead>
<tr>
<th>Model</th>
<th>Type</th>
<th>Make/Model</th>
<th>Design Temp</th>
<th>Min Temp</th>
<th>Max Temp</th>
<th>Beta</th>
<th>Spd</th>
<th>Rise Time</th>
<th>Volts</th>
<th>HP</th>
</tr>
</thead>
<tbody>
<tr>
<td>DX100-01</td>
<td>VAV</td>
<td>2500.41</td>
<td>2100</td>
<td>1800</td>
<td>2400</td>
<td>2.5</td>
<td>2.4</td>
<td>10</td>
<td>120</td>
<td>0.75</td>
</tr>
</tbody>
</table>

### AIR DEVICE SCHEDULE

<table>
<thead>
<tr>
<th>Model</th>
<th>Series</th>
<th>Make/Model</th>
<th>Design Temp</th>
<th>Min Temp</th>
<th>Max Temp</th>
<th>Beta</th>
<th>Spd</th>
<th>Rise Time</th>
<th>Volts</th>
<th>HP</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>1</td>
<td>2500.41</td>
<td>2100</td>
<td>1800</td>
<td>2400</td>
<td>2.5</td>
<td>2.4</td>
<td>10</td>
<td>120</td>
<td>0.75</td>
</tr>
</tbody>
</table>

### EXHAUST FAN SCHEDULE

<table>
<thead>
<tr>
<th>Model</th>
<th>Series</th>
<th>Make/Model</th>
<th>Design Temp</th>
<th>Min Temp</th>
<th>Max Temp</th>
<th>Beta</th>
<th>Spd</th>
<th>Rise Time</th>
<th>Volts</th>
<th>HP</th>
</tr>
</thead>
<tbody>
<tr>
<td>E1</td>
<td>2</td>
<td>2500.41</td>
<td>2100</td>
<td>1800</td>
<td>2400</td>
<td>2.5</td>
<td>2.4</td>
<td>10</td>
<td>120</td>
<td>0.75</td>
</tr>
</tbody>
</table>

### LOUVER SCHEDULE

<table>
<thead>
<tr>
<th>Model</th>
<th>Series</th>
<th>Make/Model</th>
<th>Design Temp</th>
<th>Min Temp</th>
<th>Max Temp</th>
<th>Beta</th>
<th>Spd</th>
<th>Rise Time</th>
<th>Volts</th>
<th>HP</th>
</tr>
</thead>
<tbody>
<tr>
<td>L1</td>
<td>3</td>
<td>2500.41</td>
<td>2100</td>
<td>1800</td>
<td>2400</td>
<td>2.5</td>
<td>2.4</td>
<td>10</td>
<td>120</td>
<td>0.75</td>
</tr>
</tbody>
</table>

---

1. **Note:** All data is subject to change. Always refer to the latest manufacturer specifications.
2. All units are designed and manufactured by *manufacturer name*.
3. *VAV* stands for Variable Air Volume.
4. *Design Temp* refers to the design temperature for which the equipment is rated.
5. *Min Temp* and *Max Temp* indicate the minimum and maximum temperatures the equipment can handle.
6. *Beta* is a coefficient used in the equation for heat transfer.
7. *Spd* refers to the speed of the equipment in revolutions per minute (RPM).
8. *Rise Time* is the time it takes for the equipment to reach its max output.
9. *Volts* is the electrical voltage used by the equipment.
10. *HP* stands for Horsepower, which represents the output power of the equipment.
TYPICAL SUSPENDED IN-LINE EXHAUST FAN
**ELECTRICAL DEMOLITION NOTES**

1. **Project Information**:
   - Project Name: Renovation of A.S. Brewhall Hall
   - Location: Wichita Falls, Texas
   - Client: Midwestern State University
   - Contractor: [Name]
   - Supervisor: [Name]
   - Design Firm: Harper Perkins Architects
   - MEP Firm: Summit
   - Date: 05/17/19

2. **Electrical Components**:
   - **Receptacles**: Remove all J-boxes, receptacles, switches, and wiring. Abandon all surface-mounted wiring and cables for replacement.
   - **Conduit**: Remove conduit sections and connections for replacement. Prepare for relocation during construction.
   - **Electrical Panelboards**: Replace all panels and unit breakers as required. Prepare for unit removal and relocation. Obtain complete panel schedule from MSU before removing units.
   - **Data Drops**: Replace data drops as required. Provide receptacle layout as shown on electrical floor plans.
   - **Walls and Ceilings**: Remove all wiring, conduits, and components unless noted otherwise. Protect all existing equipment to remain. New wiring and conduits for replacement.
   - **Lighting**: Remove all ceiling lights and prepare for installation of new lighting during construction.
   - **Ceilings**: Remove all ceiling tiles and prepare for installation of new ceiling systems.
   - **Walls**: Remove all wall surfaces and prepare for installation of new wall systems.

3. **Walls and Ceilings**
   - Remove all ceiling tiles, false ceilings, and wall coverings to prepare for new systems.
   - Prepare for installation of new ceiling systems and wall systems.

4. **Interior Walls**
   - Remove all interior walls unless noted otherwise.
   - Prepare for installation of new wall systems.

5. **Windows**
   - Remove all windows and prepare for installation of new systems.

6. **Roofs**
   - Remove all roof components and prepare for installation of new systems.

7. **Final Receptacle Layout**
   - Final layout of receptacles is shown on the electrical floor plans. Provide complete receptacle layout as shown.

8. **Miscellaneous**
   - Verify with MSU representative status of alternates prior to any demolition or construction.
   - All projectors, speakers, plumbing, heating, and other systems shall be protected or removed as required.
   - Provide plan views of ceiling systems with locations of conduits, panels, and other components.

**Drawing Information**

- **Scale**: 1/8" = 1'-0"
- **Drawing 8144 Series 1300-00**
- **Revision Date**: 05/17/19
- **Drawn By**: NJH
- **Expiry Date**: 25 August 2019

**Website**

- [Harper Perkins Architects](http://www.harperperkins.com)
- [Summit](http://www.summitmep.com)
ELECTRICAL DEMOLITION NOTES

1. EXISTING LIGHTING SHALL BE REMOVED IN THE AREAS WHERE NEW LIGHTING IS TO BE INSTALLED. ANY LIGHTING NOT REMOVED SHALL BE RE-CONNECTED TO A LIGHTING CIRCUIT DURING CONSTRUCTION.

2. REMOVE ALL J-BOXES, RECEPTACLES, SWITCHES, WIRE AND CABLES AS INDICATED ON THE ELECTRICAL FLOOR PLANS FOR AREAS OF WORK. ALL ELECTRICAL TO ABOVE CEILING SPACE FOR RECEPTACLES DISCOVERED IN FIELD OR TO REMAIN; PROTECT OR UPGRADE TO QUADS. CONTRACTOR SHALL PROVIDE RECEPTACLE LAYOUT AS SHOWN ON ELECTRICAL FLOOR PLANS FOR AREAS OF WORK.

3. ALL ABANDONED SURFACE-MOUNTED WIRING AND CABLES FOR ANY DEMOLITION OR CONSTRUCTION. (TYPICAL) REMOVE ALL ELECTRICAL TO ABOVE CEILING. PREPARE FOR RE-CONNECTION.

4. INTERCOM, PHONE, CLOCK AND OTHER AUXILIARY SYSTEMS SHALL BE DISCONNECTED AND REMOVED FROM THE BUILDING. CONTRACTOR SHALL PATCH OR REPAIR ANY DAMAGE LEFT AFTER REMOVAL OF THESE SYSTEMS.

5. PROTECT ALL EXISTING EQUIPMENT TO REMAIN.

6. ALL PROJECTORS, SPEAKERS, PODIUMS, A/V EQUIPMENT, AND DATA PORTS. TAKEN, THEN DEMO (4) IF ALTERNATE #2 IS TAKEN, THEN REPLACE IF ALTERNATE #2 IS NOT TAKEN. EXISTING "CLEAN POWER UNIT" NOTED:

EXISTING NETWORK RACK
EXISTING PANEL "2C"
EXISTING PANEL "2D"
EXISTING PANEL "2A"
EXISTING XFMR "T4"
EXISTING XFMR "T2"

NOTE:

FOR MORE INFORMATION.

ALL ELECTRICAL TO ABOVE CEILING USE IN NEW ROOMS. REFER TO ELECTRICAL PLANS FOR AREA OF WORK.

VERIFY WITH MSU REPRESENTATIVE STATUS OF ALTERNATES PRIOR TO ANY DEMOLITION OR CONSTRUCTION.

(mail this) AIA ARCHITECTS · PROGRAMMERS · PLANNERS

E-MAIL: office@harperperkins.com
VOICE: 940.767.1421
FAX: 940.397.0273
WICHITA FALLS, TEXAS   76302-3599
4724 OLD JACKSBORO HIGHWAY
HARPER PERKINS ARCHITECTS, INC.


18833.00

GLENDA G. RAMSEY #15203
EXPIRES:  25 AUGUST 2019
DATE SIGNED: 17 MAY 2019

ARCHITECTS · PROGRAMMERS · PLANNERS

www.summitmep.com
Fort Worth, Texas 76102
Suite 500
1300 Summit Avenue

- 8'. WORK IN SOME AREAS DEPENDS UPON ACCEPTED ALTERNATES.

7. FINAL LAYOUT OF RECEPTACLES IS SHOWN ON THE ELECTRICAL FLOOR PLANS. ALL ELECTRICAL TO ABOVE CEILING IS TO BE DEMOLISHED. REMOVE ALL ELECTRICAL CONDUCTORS BACK TO PANELBOARD.

FOR MORE INFORMATION.
ELECTRICAL DEMOLITION NOTES

1. EXISTING LIGHTING SHALL BE REMOVED IN THE AREAS WHERE NEW LIGHTING IS TO BE INSTALLED. ANY LIGHTING NOT REMOVED SHALL REMAIN, UNLESS NOTED OTHERWISE.

2. REMOVE ALL J-BOXES, RECEPTACLES, SWITCHES, WIRE AND FRENCH DOORS. CONTRACTOR SHALL PATCH OR TEXTURE AND REPAIR WALLS, CEILINGS, FLOORS AND OTHER SURFACES TO MATCH EXISTING EQUIPMENT REMOVED DURING DEMOLITION SHALL BE RETURNED TO ORIGINAL CONDITION.

3. ALL ABANDONED SURFACE-MOUNTED WIRING AND CABLES FOR AREAS OF WORK.

4. CONTRACTOR SHALL PAINT, PATCH, TEXTURE AND REPAIR WALLS, FLOORS AND OTHER SURFACES TO MATCH EXISTING.

5. PROTECT ALL EXISTING EQUIPMENT TO REMAIN.

6. ALL PROJECTORS, SPEAKERS, PODIUMS, A/V EQUIPMENT, AND DATA CONNECTIONS INDICATED TO BE REMOVED DURING DEMOLITION SHALL BE RETURNED TO ORIGINAL CONDITION.

7. FINAL LAYOUT OF RECEPTACLES IS SHOWN ON THE ELECTRICAL FLOOR PLANS. DEMOLITION PLANS SHOW APPROXIMATE LOCATIONS OF SOME BUT NOT ALL EXISTING RECEPTACLES TO EITHER REMAIN OR BE REMOVED DURING DEMOLITION. CONTRACTOR SHALL PROVIDE RECEPTACLE LAYOUT AS SHOWN ON ELECTRICAL FLOOR PLANS. DEMOLISH, PROTECT OR UPGRADE TO QUADS. CONTRACTOR SHALL PREPARE FOR RE- CONNECTION.

8. WORK IN SOME AREAS DEPENDS UPON ACCEPTED ALTERNATES.

9. RESPONSIBILITY TO PROVIDE CORRECTED BLUEPRINTS TO ELECTRICAL CONTRACTOR OF ANY COMPONENTS ARE REMOVED.

10. IF ALTERNATE #3 IS NOT TAKEN, THEN DASHED BOX SHALL BE INCLUDED AS PART OF ALTERNATE #3.

NOTE: NEW WORK WITHIN THE SHADED AREA TO BE DEMOLISHED.
NEW WORK WITHIN THE DASHED BOX SHALL BE INCLUDED AS PART OF ALTERNATE #3.

1. INSTALL FLOOR BOXES WITH CONDUIT. WIRING IS NOT TO BE INCLUDED AS PART OF ALTERNATE #3.

NOTE: NEW WORK WITHIN THE DASHED BOX SHALL BE INCLUDED AS PART OF ALTERNATE #3.

2 ARE ON THE ROOF.
**Lighting Fixture Schedule**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Shown in Plan. Only serum to provide lighting for adjacent areas.</td>
</tr>
<tr>
<td>2.</td>
<td>Provide all mounting hardware and accessories required for mounting.</td>
</tr>
<tr>
<td>3.</td>
<td>Schedule notes:</td>
</tr>
</tbody>
</table>
| 4.   | Provide battery...

**Lighting General Notes**

- Provide all required mounting hardware and accessories.
- Schedule notes...
- Provide battery...
- Provide all required components.
LIGHTING CONTROL GENERAL NOTE:

The lighting control system is intended for use in the new construction and includes the following features:

1. All emergency battery packs for decorative fixtures are to turn on/off with programming installed in the event of a power loss. Refer to emergency lighting controls detail.

2. Contractor shall coordinate with AVL system installer to verify compatibility of control hardware and software with the AVL system.

3. Contractor shall coordinate with owner to program basic scenes as desired by the primary owner interface with lighting controls shall be located in the meeting rooms.

4. Daylighting is exempt "DE".

5. Work in some areas depends upon accepted alternates.

6. All exterior parking lot, site, and landscape lighting, and building and room/ back of house shall turn all exterior parking lot, site and landscape lighting, and building and room/ back of house.

G C SHALL PROVIDE (1) YEAR FROM SUBMISSION OF COMMISSIONING REPORT A SERVICE REPORT TO THE OWNER INDICATING THAT ALL LIGHTING CONTROL SYSTEMS HAVE BEEN SYSTEM STARTUP FOR LIGHTING CONTROL SYSTEM.

CONTRACTOR SHALL ENSURE THAT CONTROL HARDWARE AND SOFTWARE ARE CALIBRATED, AND PROVIDE PARTITION SENSORS IN MEETING ROOMS FOR MOVABLE PARTITION.

AVL SYSTEM WILL HAVE IPADS PROVIDED BY THE AVL INSTALLER. PROVIDE TIME BASED CONTROLS ENABLED POWER

(1) YEAR FROM SUBMISSION OF COMMISSIONING REPORT A SERVICE REPORT TO THE OWNER INDICATING THAT ALL LIGHTING CONTROL SYSTEMS HAVE BEEN SYSTEM STARTUP FOR LIGHTING CONTROL SYSTEM.

CONTRACTOR SHALL ENSURE THAT CONTROL HARDWARE AND SOFTWARE ARE CALIBRATED, AND PROVIDE PARTITION SENSORS IN MEETING ROOMS FOR MOVABLE PARTITION.

AVL SYSTEM WILL HAVE IPADS PROVIDED BY THE AVL INSTALLER. PROVIDE TIME BASED CONTROLS ENABLED POWER

IN PLAN VIEW

WHEN SHOWN WALL SWITCH

EXAMPLE SHOWS LINE VOLTAGE OCCUPANCY SENSOR WITH ONE TYPE A2 LIGHT FIXTURE AND (1) TYPE AE ON CIRCUIT 10 2A 120/208V 3 PHASE 4 WIRE IN ROOM 220 240V 3 PHASE 4 WIRE IN ROOM 220 240V 3 PHASE 4 WIRE IN ROOM 220 240V 3 PHASE 4 WIRE IN ROOM 220 240V 3 PHASE 4 WIRE IN ROOM.

EXAMPLE SHOWS OCCUPANCY SENSOR WITH ONE TYPE "DT". OCCUPANCY SENSORS SHALL BE DUAL TECHNOLOGY (TYPE "DT"). EXAMPLE SHOWS ROOM WITH (2) TYPE A2 LIGHT FIXTURES AND (1) TYPE AE LIGHT FIXTURE ON CIRCUIT 10 2A 120/208V 3 PHASE 4 WIRE IN ROOM 220 240V 3 PHASE 4 WIRE IN ROOM 220 240V 3 PHASE 4 WIRE IN ROOM 220 240V 3 PHASE 4 WIRE IN ROOM.

SUCCESSFUL INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS.

INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS.

INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS.

INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS.

INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS.

INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS.
NOTES:

1. PROVIDE 3/4" AC GRADE PLYWOOD ON ALL WALLS FROM 6" TO 8' OF DATA DROPS.

2. PROVIDE TWO RAIL POST KIT AND EXTENDED BATTERY SYSTEM.

3. PROVIDE AND INSTALL (4) DATA DROPS TO SINGLE MULTI-OUTLET FACEPLATE.

4. PROVIDE AND INSTALL (5) NEW DATA DROPS AT 18" AFF.

5. PROVIDE AND INSTALL (1) DATA DROP ABOVE CEILING WITH 6 FT COIL FOR CEILING MOUNTED PROJECTOR.

6. PROVIDE AND INSTALL DATA DROP FOR TELEVISION. COORDINATE EXACT LOCATION WITH ARCHITECT.

7. PROVIDE AND INSTALL (2) CAT6 OSP OUTDOOR CABLE DATA DROPS VIA BOTTOM-FEED ONLY WEATHER-TIGHT ENCLOSURE VENTEV.

DATA SYMBOL LEGEND

A. PROVIDE CONDUIT AND BUSHINGS WITH FIRESTOP AT 10' AFF FOR FIBER ENDPOINTS (OFFICES, ETC.).

B. PROVIDE 4’ ADDITIONAL MSU TECHNOLOGY INFRASTRUCTURE REQUIREMENTS

1. PROVIDE HILTI SPEEDSLEEVE AT 10' AFF FOR DATA ABOVE CEILING.

2. PROVIDE AND INSTALL 42U STEEL 24 OR MAX HD6-XX POST RACK WITH VERTICAL CABLE MANAGERS AND PATCH PANEL.

3. PROVIDE AND INSTALL (4) DATA DROPS TO SINGLE MULTI-OUTLET FACEPLATE.

4. PROVIDE AND INSTALL (1) DATA DROP ABOVE CEILING WITH 6 FT COIL FOR CEILING MOUNTED PROJECTOR.

5. PROVIDE 3/4" AC GRADE PLYWOOD ON ALL WALLS FROM 6" TO 8' OF DATA DROPS.

6. PROVIDE 2" DROPS TO TERMINATE AT TELE/COMM ON THAT FLOOR.

7. PROVIDE ALL DATA DROPS ON EACH FLOOR TO TERMINATE AT TELE/COMM ON THAT FLOOR.

8. PROVIDE ALL DATA DROPS SHALL HAVE A JUNCTION BOX WITH 1" ENT TO ACCESSIBLE CEILING SPACE. MULTIPLE DROPS MAY SHARE ENT.

9. MULTIPLE DATA DROPS SHOWN AT A SINGLE LOCATION SHALL TERMINATE IN A SINGLE MULTI-OUTLET FACEPLATE.

10. PROVIDE AND INSTALL (4) DATA DROPS TO SINGLE MULTI-OUTLET FACEPLATE.

11. PROVIDE AND INSTALL (5) NEW DATA DROPS AT 18" AFF.

12. PROVIDE NEW CONNECTORS AND FACEPLATES.

13. PROVIDE 4" PROVIDE AND INSTALL (4) DATA DROPS TO SINGLE MULTI-OUTLET FACEPLATE.

14. PROVIDE EXISTING DATA DROP. REMOVE EXISTING CABLE AND CONNECTORS BACK TO SOURCE. PROVIDE AND INSTALL NEW DATA DROP IN EXISTING LOCATION.

15. PROVIDE AND INSTALL NEW DATA DROP AT 18" AFF.

16. PROVIDE AND INSTALL DATA DROP FOR TELEVISION. COORDINATE EXACT LOCATION WITH ARCHITECT.

17. PROVIDE AND INSTALL (2) CAT6 OSP OUTDOOR CABLE DATA DROPS VIA BOTTOM-FEED ONLY WEATHER-TIGHT ENCLOSURE VENTEV.

18. PROVIDE AND INSTALL (2) DATA DROPS FOR WALL MOUNTED WIRELESS ACCESS POINT. MATCH EXISTING HEIGHT. REPLACE WIRE WHERE EXISTING; PROVIDE NEW OTHERWISE.

19. PROVIDE NEW CONNECTORS AND FACEPLATES.

20. PROVIDE 4144 N. CENTRAL EXPWY

21. PROVIDE 02, AND A WHITE SINGLE GANG 4-F(XX), -XX PART NUMBERS.

22. PROVIDE CONDUIT AND BUSHINGS WITH FIRESTOP AT 12' AFF FOR FIBER CABLE.

23. PROVIDE AND INSTALL (4) DATA DROPS TO SINGLE MULTI-OUTLET FACEPLATE.

24. PROVIDE AND INSTALL (1) DATA DROP ABOVE CEILING WITH 6 FT COIL FOR CEILING MOUNTED PROJECTOR.

25. PROVIDE AND INSTALL DATA DROP FOR TELEVISION. COORDINATE EXACT LOCATION WITH ARCHITECT.
PROVIDE A DOUBLE GANG BOX WITH A SINGLE GANG REDUCER PLATE. PROVIDE BUSHINGS TO PROTECT CABLE.

PROVE A 6' SERVICE LOOP OF CABLING IN A FIGURE 8'. COIL UP ABOVE CEILING SPACE AT WIRELESS BOX.

PROVIDE A TWO PORT PLENUM-GRADE FACEPLATE 8-PIN RJ-45 MODULAR CONNECTOR BLANK MODULAR INSERT MDF-A17, 18 EQUIPMENT ROOM PATCH PANEL IDENTIFICATION PORT IDENTIFIER MDF-A19, 20 DIVISION OF TECHNOLOGY 814-HELP

PROVIDE CADDY CAT16HPE FOR BUNDLES LESS THAN 15 CABLES PROVIDE CADDY CAT32HPE FOR BUNDLES EXCEEDING 15 CABLES

NO SCALE

PROVIDE AND INSTALL HORIZONTAL CABLE MANAGERS WILL BE SPECIFIED BY MSU IT. PROVIDE AND INSTALL FIBER BACKBONE PROVIDE AND INSTALL 6" ELEVATION RUNWAY KIT PROVIDE AND INSTALL RADIUS CABLE TRANSITION WHERE DISTANCE IS GREATER THAN 6" PROVIDE AND INSTALL CABLE LADDER RUNWAY QUAD 120V 20A DEDICATED ISOLATED GROUND RECEPTACLE PROVIDE AND INSTALL CAT6 DATA TERMINATION PORTS/ PATCH PANELS (CONSULT MSU FOR QUANTITY) PROVIDE AND INSTALL POWER STRIP WITH (1) REAR FACING RECEPTACLES PROVIDE AND INSTALL 24 PORT CAT6 AV DEVICE PANEL PROVIDE AND INSTALL 24 PORT CAT6 WAP DEVICE PANEL INSTALL 48 PORT SWITCHES (EXISTING TO BE RELOCATED BY MSU) PROVIDE AND INSTALL UPS PROVIDE AND INSTALL 12" VERTICAL WIRE MANAGER CEILING PROVIDE AND INSTALL SIEMON RS3-07-S WITH VERTICAL WIRE MANAGERS. PROVIDE AND INSTALL RACK BLANKS SIEMON PNL-BLNK-X BLANKS. SUFFIX DESIGNATOR IS 1, 2, 3, OR 4 DEPENDING ON U-HEIGHT. (NUMBER OF REQUIRED BLANKS AND SIZE OF BLANKS WILL BE SPECIFIED BY MSU IT.)

ALL HORIZONTAL CABLING TO BE INSTALLED ACCORDING TO ALL REQUIRED SIEMON CAT6 CERTIFICATION REQUIREMENTS AND INDUSTRY STANDARDS. CABLING IS TO FOLLOW HALLWAYS AND LEAVE HALLWAYS ONLY WHEN ENDING AT REQUIRED LOCATION. CABLE PATHWAYS ARE NOT TO CROSS LIGHT FIXTURES, BALLASTS OR ELECTROMECHANICAL DEVICES SUCH AS AIR HANDLERS ABOVE CEILING. CABLING TO BE SUPPORTED VIA CABLE TRAY DOWN HALLWAYS, AND J-HOOKS WHERE NECESSARY. WHEN CABLE LEAVES THE TRAY TO LAND AT THE REQUIRED AREA. CABLE TRAYS ARE TO BE OF SIEMON ROUTEIT TRAYS AND ASSOCIATED HARDWARE, Sized ACCORDING TO SIEMON CABLE FILL GUIDELINES. SERVICE LOOPS WILL BE OBSERVED AT ALL DROPS AND MDF/IDFs OF 6'.

ALL REQUIRED CABLING TO BE INSTALLED ACCORDING TO ALL REQUIRED SIEMON CAT6 CERTIFICATION REQUIREMENTS AND INDUSTRY STANDARDS. CABLING IS TO FOLLOW HALLWAYS AND LEAVE HALLWAYS ONLY WHEN ENDING AT REQUIRED LOCATION. CABLE PATHWAYS ARE NOT TO CROSS LIGHT FIXTURES, BALLASTS OR ELECTROMECHANICAL DEVICES SUCH AS AIR HANDLERS ABOVE CEILING. CABLING TO BE SUPPORTED VIA CABLE TRAY DOWN HALLWAYS, AND J-HOOKS WHERE NECESSARY. WHEN CABLE LEAVES THE TRAY TO LAND AT THE REQUIRED AREA. CABLE TRAYS ARE TO BE OF SIEMON ROUTEIT TRAYS AND ASSOCIATED HARDWARE, Sized ACCORDING TO SIEMON CABLE FILL GUIDELINES. SERVICE LOOPS WILL BE OBSERVED AT ALL DROPS AND MDF/IDFs OF 6'.

1. DO NOT EXCEED 40% FILL RATIO
2. SPACE J-HOOKS 4' TO 5' AT VARIABLE DISTANCES
3. DO NOT USE PLASTIC CABLE SUPPORTS.

WALL OUTLET: 1" CONDUIT TO 4"x4" J-BOX.

PROVIDE AND INSTALL CADDY ANGLE BRACKET #181066 PROVIDE THREADED ROD MOUNT AS HIGH AS POSSIBLE CEILING

MAXIMUM 18" SEPARATION

PROVIDE J-HOOK CABLE SUPPORT EVERY 4' TO 5' VARYING THE DISTANCES.

PROVIDE PLASTIC BUSHINGS ON CONDUIT SLEEVE. FIRE STOP AND SEAL AS SPECIFIED.

WALL OUTLET: 1" CONDUIT TO 4"x4" J-BOX.

3. DO NOT USE PLASTIC CABLE SUPPORTS.

PROVIDE AND INSTALL HORIZONTAL WIRE MANAGER SIEMON RS3-RWM-2. NUMBER OF REQUIRED HORIZONTAL CABLE MANAGERS WILL BE SPECIFIED BY MSU IT.
4. OTHER EXISTING DATA DEVICES DISCOVERED IN FIELD AND NOT
3. EXISTING DEVICES MARKED "D" SHALL BE DEMOLISHED. OTHERWISE,
2. RELOCATE EXISTING WAPS AS NECESSARY TO MATCH NEW LAYOUT.
1. REMOVE ALL DATA CABLES AND SUPPORTING HARDWARE PER NEC.

TECHNOLOGY DEMOLITION NOTES:

1. PATCH AND REPAIR WALL.
2. REPLACE WITH NEW. WHERE DEVICES ARE NOT BEING REPLACED, PROVIDE ADDITIONAL "LIKE KIND" WAPS PER MSU IT THROUGHOUT
3. DO NOT ABANDON CABLES ABOVE CEILING.

4 PROVIDE AND INSTALL (4) DATA DROPS TO SINGLE MULTI-OUTLET FACEPLATE.
5 PROVIDE AND INSTALL NEW DATA DROP AT 18" AFF.
6 PROVIDE AND INSTALL (5) NEW DATA DROPS AT 18" AFF.
7 PROVIDE AND INSTALL (2) DATA DROPS ABOVE CEILING WITH 6 FT COIL FOR CEILING MOUNTED WIRELESS ACCESS POINT.
8 PROVIDE AND INSTALL EXTERIOR WAP. PROVIDE AND INSTALL (2) CAT6 OSP OUTDOOR CABLE DATA DROPS VIA BOTTOM-FEED ONLY WEATHER-TIGHT ENCLOSURE VENTEV
9 PROVIDE FLAT JACKS AT PATCH PANELS. PROVIDE ANGLED JACKS AT ENDPOINTS (OFFICES, ETC.). PROVIDE SUBMITTALS TO ARCHITECT FOR APPROVAL PRIOR TO
10 PROVIDE CLASSES "B" CABLES BACK TO SOURCE.
11 REMOVE ALL DATA CABLES AND SUPPORTING HARDWARE PER NEC. DO NOT ABANDON CABLES ABOVE CEILING.
12 KEEP UNUSED WAPE WIRING HOOKED TO WALL AS DEMOLISHED. OTHERWISE, REPLACE WITH NEW. WAPE DEVICES ARE NOT BEING REPLACED. PATCH AND REPAIR WALL.
13 LOCATE NEW DATA DROPS WITHIN 18" HORIZONTALLY AND AT SAME HEIGHT OF EXISTING NEARBY RECEPTACLE.
14 ALL DATA DROPS SHALL HAVE A JUNCTION BOX WITH 1" ENT TO ACCESSIBLE CEILING SPACE. MULTIPLE DROPS MAY SHARE ENT.
15 ALL DATA DROPS SHALL BE GAS FRACTION ALUMINUM. HORIZONTAL WIRING TEST RESULTS SHOWING PASSING TEST RESULTS IN COMPLIANCE WITH SIEMON CAT6 CERTIFICATION STANDARDS WILL BE PROVIDED TO MSU IT UPON TERMINATION OF COPPER PLANT.
16 ALL HORIZONTAL COPPER PLANT WIRING IS TO BE SIEMON SYSTEM CAT6 PLENUM CABLE. CABLES SERVICING DATA SHALL BE BLUE AND CABLES SERVICING ANALOG/
4. OTHER EXISTING DATA DEVICES DISCOVERED IN FIELD AND NOT SHOWN ON PLANS ARE EXISTING TO BE RE-PULLED; CONSIDER AS CAUSED BY RELOCATION.

5. LOCATE NEW DATA DROPS WITHIN 18" HORIZONTALLY AND AT SAME HEIGHT OF EXISTING NEARBY RECEPTACLE.

6. ALL HORIZONTAL COPPER PLANT WIRING IS TO BE SIEMON SYSTEM CAT6 PLENUM CABLE. CABLES SERVICING DATA SHALL BE BLUE AND CABLES SERVICING ANALOG/PHONE SHALL BE BROWN.

7. PROVIDE FLAT JACKS AT PATCH PANELS. PROVIDE ANGLED JACKS AT ENDPOINTS (OFFICES, ETC.). PROVIDE SUBMITTALS TO ARCHITECT FOR APPROVAL PRIOR TO PURCHASE.

TRENCH GUIDELINES:

1. RECONNECT ALL DATA CABLES AND SUPPORTING HARDWARE PER NEC. DO NOT ABANDON CABLES ABOVE CEILING.

2. INCLUD EXISTING WAPS OR NECESSARY TO MATCH NEW LAYOUT. PROVIDE SUBMITTALS TO ARCHITECT FOR APPROVAL PRIOR TO PURCHASE.

3. PROVIDE AND INSTALL (5) NEW DATA DROPS AT 18" AFF.

TYPE "E". CONTRACTOR TO ALLOW FOR (5) PER FLOOR.

4. OTHER EXISTING DATA DEVICES DISCOVERED IN FIELD AND NOT SHOWN ON PLANS ARE EXISTING TO BE RE-PULLED; CONSIDER AS CAUSED BY RELOCATION.

5. LOCATE NEW DATA DROPS WITHIN 18" HORIZONTALLY AND AT SAME HEIGHT OF EXISTING NEARBY RECEPTACLE.

6. ALL HORIZONTAL COPPER PLANT WIRING IS TO BE SIEMON SYSTEM CAT6 PLENUM CABLE. CABLES SERVICING DATA SHALL BE BLUE AND CABLES SERVICING ANALOG/PHONE SHALL BE BROWN.

7. PROVIDE FLAT JACKS AT PATCH PANELS. PROVIDE ANGLED JACKS AT ENDPOINTS (OFFICES, ETC.). PROVIDE SUBMITTALS TO ARCHITECT FOR APPROVAL PRIOR TO PURCHASE.
Addendum #1

1. PROVIDE FLAT JACKS AT PATCH PANELS. PROVIDE ANGLED JACKS AT ENDPOINTS (OFFICES, ETC.). PROVIDE SUBMITTALS TO ARCHITECT FOR APPROVAL PRIOR TO TERMINATION OF COPPER PLANT.

2. PROVIDE AND INSTALL (4) DATA DROPS TO SINGLE MULTI-OUTLET FACEPLATE.

3. ALL HORIZONTAL COPPER PLANT WIRING IS TO BE SIEMON SYSTEM CAT6 PLENUM CABLE. CABLES SERVING DATA SHALL BE BLUE AND CABLES SERVING ANALOG/VIDEO SHALL BE WHITE. HORIZONTAL WIRING TEST RESULTS SHOWING PASSING TEST RESULTS IN COMPLIANCE WITH SIEMON CAT6 CERTIFICATION STANDARDS WILL BE PROVIDED TO MSU IT UPON TERMINATION OF COPPER PLANT.

4. OTHER EXISTING DATA DEVICES DISCOVERED IN FIELD AND NOT SHOWN ON PLANS ARE EXISTING TO BE RE-PULLED; CONSIDER AS REQUIRED OR APPROPRIATE PER CONTRACTOR.

5. DEMOLISH DATA PORT IN ITS ENTIRETY. REMOVE CABLING BACK TO SOURCE. REPAIR WALL AND PAINT TO MATCH.

6. PROVIDE NEW CONNECTORS AND FACEPLATES.

7. PROVIDE AND INSTALL DATA DROP FOR TELEVISION. COORDINATE EXACT LOCATION WITH ARCHITECT.

8. PROVIDE AND INSTALL (2) DATA DROPS ABOVE CEILING WITH 6 FT COIL FOR CEILING MOUNTED WIRELESS ACCESS POINT.

9. PROVIDE AND INSTALL (2) DATA DROPS FOR WALL MOUNTED WIRELESS ACCESS POINT. MATCH EXISTING HEIGHT. REPLACE WIRE WHERE EXISTING; PROVIDE NEW OTHERWISE.

10. PROVIDE AND INSTALL DATA DROP FOR TV. COORDINATE EXACT LOCATION WITH ARCHITECT.

11. PROVIDE AND INSTALL (2) CAT6 OSP OUTDOOR CABLE DATA DROPS VIA BOTTOM-FEED ONLY WEATHER-TIGHT ENCLOSURE VENTEV CV12106LO-NH. PROVIDE 24" COILED CABLE WITH RJ-45 CONNECTORS. MATCH EXISTING HEIGHT; COORDINATE EXACT LOCATION WITH ARCHITECT. REPLACE WIRE WHERE EXISTING; PROVIDE NEW OTHERWISE.

12. PROVIDE AND INSTALL (2) DATA DROPS ABOVE CEILING WITH 6 FT COIL FOR CEILING MOUNTED WIRELESS ACCESS POINT.

13. PROVIDE AND INSTALL (2) DATA DROPS FOR WALL MOUNTED WIRELESS ACCESS POINT. MATCH EXISTING HEIGHT. REPLACE WIRE WHERE EXISTING; PROVIDE NEW OTHERWISE.

14. PROVIDE AND INSTALL (5) NEW DATA DROPS AT 18" AFF.

15. PROVIDE AND INSTALL NEW DATA DROP AT 18" AFF.

DATA SYMBOL LEGEND

- SYMBOL DESCRIPTION
- PROVIDE AND INSTALL (2) DATA DROPS ABOVE CEILING WITH 6 FT COIL FOR CEILING MOUNTED WIRELESS ACCESS POINT.
- PROVIDE AND INSTALL (2) DATA DROPS FOR WALL MOUNTED WIRELESS ACCESS POINT. MATCH EXISTING HEIGHT. REPLACE WIRE WHERE EXISTING; PROVIDE NEW OTHERWISE.
- PROVIDE AND INSTALL DATA DROP FOR TV. COORDINATE EXACT LOCATION WITH ARCHITECT.
- PROVIDE AND INSTALL DATA DROP FOR TELEVISION. COORDINATE EXACT LOCATION WITH ARCHITECT.
- PROVIDE AND INSTALL DATA DROP FOR WIRELESS ACCESS POINT. MATCH EXISTING HEIGHT. REPLACE WIRE WHERE EXISTING; PROVIDE NEW OTHERWISE.
- PROVIDE AND INSTALL DATA DROP FOR TV. COORDINATE EXACT LOCATION WITH ARCHITECT.
- PROVIDE AND INSTALL DATA DROP FOR WIRELESS ACCESS POINT. MATCH EXISTING HEIGHT. REPLACE WIRE WHERE EXISTING; PROVIDE NEW OTHERWISE.
- PROVIDE AND INSTALL DATA DROP FOR TV. COORDINATE EXACT LOCATION WITH ARCHITECT.
- PROVIDE AND INSTALL DATA DROP FOR WIRELESS ACCESS POINT. MATCH EXISTING HEIGHT. REPLACE WIRE WHERE EXISTING; PROVIDE NEW OTHERWISE.
- PROVIDE AND INSTALL DATA DROP FOR TV. COORDINATE EXACT LOCATION WITH ARCHITECT.
- PROVIDE AND INSTALL DATA DROP FOR WIRELESS ACCESS POINT. MATCH EXISTING HEIGHT. REPLACE WIRE WHERE EXISTING; PROVIDE NEW OTHERWISE.
- PROVIDE AND INSTALL DATA DROP FOR TV. COORDINATE EXACT LOCATION WITH ARCHITECT.
- PROVIDE AND INSTALL DATA DROP FOR WIRELESS ACCESS POINT. MATCH EXISTING HEIGHT. REPLACE WIRE WHERE EXISTING; PROVIDE NEW OTHERWISE.
- PROVIDE AND INSTALL DATA DROP FOR TV. COORDINATE EXACT LOCATION WITH ARCHITECT.
- PROVIDE AND INSTALL DATA DROP FOR WIRELESS ACCESS POINT. MATCH EXISTING HEIGHT. REPLACE WIRE WHERE EXISTING; PROVIDE NEW OTHERWISE.
- PROVIDE AND INSTALL DATA DROP FOR TV. COORDINATE EXACT LOCATION WITH ARCHITECT.
- PROVIDE AND INSTALL DATA DROP FOR WIRELESS ACCESS POINT. MATCH EXISTING HEIGHT. REPLACE WIRE WHERE EXISTING; PROVIDE NEW OTHERWISE.
- PROVIDE AND INSTALL DATA DROP FOR TV. COORDINATE EXACT LOCATION WITH ARCHITECT.
- PROVIDE AND INSTALL DATA DROP FOR WIRELESS ACCESS POINT. MATCH EXISTING HEIGHT. REPLACE WIRE WHERE EXISTING; PROVIDE NEW OTHERWISE.
- PROVIDE AND INSTALL DATA DROP FOR TV. COORDINATE EXACT LOCATION WITH ARCHITECT.
- PROVIDE AND INSTALL DATA DROP FOR WIRELESS ACCESS POINT. MATCH EXISTING HEIGHT. REPLACE WIRE WHERE EXISTING; PROVIDE NEW OTHERWISE.
- PROVIDE AND INSTALL DATA DROP FOR TV. COORDINATE EXACT LOCATION WITH ARCHITECT.
- PROVIDE AND INSTALL DATA DROP FOR WIRELESS ACCESS POINT. MATCH EXISTING HEIGHT. REPLACE WIRE WHERE EXISTING; PROVIDE NEW OTHERWISE.
- PROVIDE AND INSTALL DATA DROP FOR TV. COORDINATE EXACT LOCATION WITH ARCHITECT.
- PROVIDE AND INSTALL DATA DROP FOR WIRELESS ACCESS POINT. MATCH EXISTING HEIGHT. REPLACE WIRE WHERE EXISTING; PROVIDE NEW OTHERWISE.
- PROVIDE AND INSTALL DATA DROP FOR TV. COORDINATE EXACT LOCATION WITH ARCHITECT.
- PROVIDE AND INSTALL DATA DROP FOR WIRELESS ACCESS POINT. MATCH EXISTING HEIGHT. REPLACE WIRE WHERE EXISTING; PROVIDE NEW OTHERWISE.
- PROVIDE AND INSTALL DATA DROP FOR TV. COORDINATE EXACT LOCATION WITH ARCHITECT.
- PROVIDE AND INSTALL DATA DROP FOR WIRELESS ACCESS POINT. MATCH EXISTING HEIGHT. REPLACE WIRE WHERE EXISTING; PROVIDE NEW OTHERWISE.
- PROVIDE AND INSTALL DATA DROP FOR TV. COORDINATE EXACT LOCATION WITH ARCHITECT.
- PROVIDE AND INSTALL DATA DROP FOR WIRELESS ACCESS POINT. MATCH EXISTING HEIGHT. REPLACE WIRE WHERE EXISTING; PROVIDE NEW OTHERWISE.
- PROVIDE AND INSTALL DATA DROP FOR TV. COORDINATE EXACT LOCATION WITH ARCHITECT.
- PROVIDE AND INSTALL DATA DROP FOR WIRELESS ACCESS POINT. MATCH EXISTING HEIGHT. REPLACE WIRE WHERE EXISTING; PROVIDE NEW OTHERWISE.
- PROVIDE AND INSTALL DATA DROP FOR TV. COORDINATE EXACT LOCATION WITH ARCHITECT.
- PROVIDE AND INSTALL DATA DROP FOR WIRELESS ACCESS POINT. MATCH EXISTING HEIGHT. REPLACE WIRE WHERE EXISTING; PROVIDE NEW OTHERWISE.
- PROVIDE AND INSTALL DATA DROP FOR TV. COORDINATE EXACT LOCATION WITH ARCHITECT.
- PROVIDE AND INSTALL DATA DROP FOR WIRELESS ACCESS POINT. MATCH EXISTING HEIGHT. REPLACE WIRE WHERE EXISTING; PROVIDE NEW OTHERWISE.
- PROVIDE AND INSTALL DATA DROP FOR TV. COORDINATE EXACT LOCATION WITH ARCHITECT.
- PROVIDE AND INSTALL DATA DROP FOR WIRELESS ACCESS POINT. MATCH EXISTING HEIGHT. REPLACE WIRE WHERE EXISTING; PROVIDE NEW OTHERWISE.
- PROVIDE AND INSTALL DATA DROP FOR TV. COORDINATE EXACT LOCATION WITH ARCHITECT.
- PROVIDE AND INSTALL DATA DROP FOR WIRELESS ACCESS POINT. MATCH EXISTING HEIGHT. REPLACE WIRE WHERE EXISTING; PROVIDE NEW OTHERWISE.
- PROVIDE AND INSTALL DATA DROP FOR TV. COORDINATE EXACT LOCATION WITH ARCHITECT.
- PROVIDE AND INSTALL DATA DROP FOR WIRELESS ACCESS POINT. MATCH EXISTING HEIGHT. REPLACE WIRE WHERE EXISTING; PROVIDE NEW OTHERWISE.
- PROVIDE AND INSTALL DATA DROP FOR TV. COORDINATE EXACT LOCATION WITH ARCHITECT.
- PROVIDE AND INSTALL DATA DROP FOR WIRELESS ACCESS POINT. MATCH EXISTING HEIGHT. REPLACE WIRE WHERE EXISTING; PROVIDE NEW OTHERWISE.
- PROVIDE AND INSTALL DATA DROP FOR TV. COORDINATE EXACT LOCATION WITH ARCHITECT.
- PROVIDE AND INSTALL DATA DROP FOR WIRELESS ACCESS POINT. MATCH EXISTING HEIGHT. REPLACE WIRE WHERE EXISTING; PROVIDE NEW OTHERWISE.
- PROVIDE AND INSTALL DATA DROP FOR TV. COORDINATE EXACT LOCATION WITH ARCHITECT.
- PROVIDE AND INSTALL DATA DROP FOR WIRELESS ACCESS POINT. MATCH EXISTING HEIGHT. REPLACE WIRE WHERE EXISTING; PROVIDE NEW OTHERWISE.
- PROVIDE AND INSTALL DATA DROP FOR TV. COORDINATE EXACT LOCATION WITH ARCHITECT.
- PROVIDE AND INSTALL DATA DROP FOR WIRELESS ACCESS POINT. MATCH EXISTING HEIGHT. REPLACE WIRE WHERE EXISTING; PROVIDE NEW OTHERWISE.
- PROVIDE AND INSTALL DATA DROP FOR TV. COORDINATE EXACT LOCATION WITH ARCHITECT.
- PROVIDE AND INSTALL DATA DROP FOR WIRELESS ACCESS POINT. MATCH EXISTING HEIGHT. REPLACE WIRE WHERE EXISTING; PROVIDE NEW OTHERWISE.
- PROVIDE AND INSTALL DATA DROP FOR TV. COORDINATE EXACT LOCATION WITH ARCHITECT.
- PROVIDE AND INSTALL DATA DROP FOR WIRELESS ACCESS POINT. MATCH EXISTING HEIGHT. REPLACE WIRE WHERE EXISTING; PROVIDE NEW OTHERWISE.
- PROVIDE AND INSTALL DATA DROP FOR TV. COORDINATE EXACT LOCATION WITH ARCHITECT.
- PROVIDE AND INSTALL DATA DROP FOR WIRELESS ACCESS POINT. MATCH EXISTING HEIGHT. REPLACE WIRE WHERE EXISTING; PROVIDE NEW OTHERWISE.
- PROVIDE AND INSTALL DATA DROP FOR TV. COORDINATE EXACT LOCATION WITH ARCHITECT.
- PROVIDE AND INSTALL DATA DROP FOR WIRELESS ACCESS POINT. MATCH EXISTING HEIGHT. REPLACE WIRE WHERE EXISTING; PROVIDE NEW OTHERWISE.
- PROVIDE AND INSTALL DATA DROP FOR TV. COORDINATE EXACT LOCATION WITH ARCHITECT.
- PROVIDE AND INSTALL DATA DROP FOR WIRELESS ACCESS POINT. MATCH EXISTING HEIGHT. REPLACE WIRE WHERE EXISTING; PROVIDE NEW OTHERWISE.
- PROVIDE AND INSTALL DATA DROP FOR TV. COORDINATE EXACT LOCATION WITH ARCHITECT.
- PROVIDE AND INSTALL DATA DROP FOR WIRELESS ACCESS POINT. MATCH EXISTING HEIGHT. REPLACE WIRE WHERE EXISTING; PROVIDE NEW OTHERWISE.
- PROVIDE AND INSTALL DATA DROP FOR TV. COORDINATE EXACT LOCATION WITH ARCHITECT.
- PROVIDE AND INSTALL DATA DROP FOR WIRELESS ACCESS POINT. MATCH EXISTING HEIGHT. REPLACE WIRE WHERE EXISTING; PROVIDE NEW OTHERWISE.
- PROVIDE AND INSTALL DATA DROP FOR TV. COORDINATE EXACT LOCATION WITH ARCHITECT.
- PROVIDE AND INSTALL DATA DROP FOR WIRELESS ACCESS POINT. MATCH EXISTING HEIGHT. REPLACE WIRE WHERE EXISTING; PROVIDE NEW OTHERWISE.
- PROVIDE AND INSTALL DATA DROP FOR TV. COORDINATE EXACT LOCATION WITH ARCHITECT.
- PROVIDE AND INSTALL DATA DROP FOR WIRELESS ACCESS POINT. MATCH EXISTING HEIGHT. REPLACE WIRE WHERE EXISTING; PROVIDE NEW OTHERWISE.
- PROVIDE AND INSTALL DATA DROP FOR TV. COORDINATE EXACT LOCATION WITH ARCHITECT.
- PROVIDE AND INSTALL DATA DROP FOR WIRELESS ACCESS POINT. MATCH EXISTING HEIGHT. REPLACE WIRE WHERE EXISTING; PROVIDE NEW OTHERWISE.
- PROVIDE AND INSTALL DATA DROP FOR TV. COORDINATE EXACT LOCATION WITH ARCHITECT.
- PROVIDE AND INSTALL DATA DROP FOR WIRELESS ACCESS POINT. MATCH EXISTING HEIGHT. REPLACE WIRE WHERE EXISTING; PROVIDE NEW OTHERWISE.
- PROVIDE AND INSTALL DATA DROP FOR TV. COORDINATE EXACT LOCATION WITH ARCHITECT.
- PROVIDE AND INSTALL DATA DROP FOR WIRELESS ACCESS POINT. MATCH EXISTING HEIGHT. REPLACE WIRE WHERE EXISTING; PROVIDE NEW OTHERWISE.
- PROVIDE AND INSTALL DATA DROP FOR TV. COORDINATE EXACT LOCATION WITH ARCHITECT.
- PROVIDE AND INSTALL DATA DROP FOR WIRELESS ACCESS POINT. MATCH EXISTING HEIGHT. REPLACE WIRE WHERE EXISTING; PROVIDE NEW OTHERWISE.
1. All existing data devices shall be removed and replaced.

2. Electrical contractor to provide all conduits with all connecting conduits, except where noted.

3. Electrical contractor to provide all conduits with 200 US Type NM-B and plastic bushings.

4. Other existing data devices discovered in field and not shown on plans are existing to be replaced.

TECHNOLOGY GENERAL NOTES:

- All cabling to Tele/Comm room on same floor.
- Pull cords and plastic bushings. Shown on plans are existing to be re-pulled; consider as new when replacing.
- All cables to be replaced with new cables throughout entire building.
- Route all cables to near/below floor box.

DATA SYMBOL LEGEND:

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>E</td>
<td>Existing equipment</td>
</tr>
<tr>
<td>N</td>
<td>New equipment</td>
</tr>
<tr>
<td>WAP</td>
<td>Data drop for wireless access point</td>
</tr>
<tr>
<td>WAPW</td>
<td>Two data drops for wall mounted wireless access point</td>
</tr>
</tbody>
</table>

NEW SHEET.
NOTES:

TDM CIRCUITS SHALL BE WHITE. HORIZONTAL WIRING TEST RESULTS SHOWING PASSING TEST RESULTS IN COMPLIANCE WITH SIEMON CAT6 CERTIFICATION STANDARDS.

4. LOCATE NEW DATA DROPS WITHIN 18" HORIZONTALLY AND AT SAME HEIGHT OF EXISTING NEARBY RECEPTACLE.

3. ALL DATA DROPS SHALL HAVE A JUNCTION BOX WITH 1" ENT TO ACCESSIBLE CEILING SPACE. MULTIPLE DROPS MAY SHARE ENT.

2. PROVIDE NEW FACEPLATES AT ALL LOCATIONS. COORDINATE KEYSTONE AND FACEPLATE FINISHES WITH ARCHITECT.

1. PROVIDE NEW CONNECTORS AND FACEPLATES.

DATA SYMBOL LEGEND

<table>
<thead>
<tr>
<th>SYMBOL</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>PROVIDE AND INSTALL NEW DATA DROP AT 18&quot; AFF.</td>
</tr>
<tr>
<td>N5</td>
<td>PROVIDE AND INSTALL (5) NEW DATA DROPS AT 18&quot; AFF.</td>
</tr>
<tr>
<td>P</td>
<td>PROVIDE AND INSTALL (1) DATA DROP ABOVE CEILING WITH 6 FT COIL FOR CEILING MOUNTED PROJECTOR.</td>
</tr>
<tr>
<td>WAP</td>
<td>PROVIDE AND INSTALL (2) DATA DROPS ABOVE CEILING WITH 6 FT COIL FOR CEILING MOUNTED WIRELESS ACCESS POINT.</td>
</tr>
<tr>
<td>WAPE</td>
<td>EXTERIOR WAP. PROVIDE AND INSTALL (2) CAT6 OSP OUTDOOR CABLE DATA DROPS VIA BOTTOM-FEED ONLY WEATHER-TIGHT ENCLOSURE VENTEV</td>
</tr>
<tr>
<td>CN</td>
<td>PROVIDE AND INSTALL NEW DATA DROP IN EXISTING LOCATION.</td>
</tr>
<tr>
<td>CA</td>
<td>PROVIDE AND INSTALL NEW DATA DROP WITHIN 18&quot; HORIZONTALLY AND AT SAME HEIGHT OF EXISTING NEARBY RECEPTACLE.</td>
</tr>
<tr>
<td>CAE</td>
<td>PROVIDE AND INSTALL NEW DATA DROP IN EXISTING LOCATION AND TERMINATE AT TELE/COMM ON THAT FLOOR.</td>
</tr>
<tr>
<td>CM</td>
<td>PROVIDE AND INSTALL NEW DATA DROP IN EXISTING LOCATION AND TERMINATE AT TELE/COMM ON THAT FLOOR.</td>
</tr>
<tr>
<td>CC</td>
<td>PROVIDE AND INSTALL NEW DATA DROP IN EXISTING LOCATION AND TERMINATE AT TELE/COMM ON THAT FLOOR.</td>
</tr>
<tr>
<td>C</td>
<td>PROVIDE AND INSTALL NEW DATA DROP IN EXISTING LOCATION AND TERMINATE AT TELE/COMM ON THAT FLOOR.</td>
</tr>
<tr>
<td>C2</td>
<td>PROVIDE AND INSTALL NEW DATA DROP IN EXISTING LOCATION AND TERMINATE AT TELE/COMM ON THAT FLOOR.</td>
</tr>
<tr>
<td>CN5</td>
<td>PROVIDE AND INSTALL (5) NEW DATA DROPS AT 18&quot; AFF.</td>
</tr>
<tr>
<td>WPA</td>
<td>PROVIDE AND INSTALL (2) DATA DROPS FOR WALL MOUNTED WIRELESS ACCESS POINT. MATCH EXISTING HEIGHT. REPLACE WIRE WHERE EXISTING.</td>
</tr>
</tbody>
</table>

See Note on T1.2 for Clarification.
NEW WORK WITHIN THE

Addendum #1

1. All existing data cabling shall be removed and replaced with brand new cables through entire building. Route connections to ensure conduit placement does not compromise with brand new cables certification standards.

2. Electrical contractor to provide all conduits with 200 lb pull cords and plastic bushings. Connections to ensure conduit placement does not compromise with brand new cables certification standards.

3. Electrical contractor to provide all cables with all data drops on each floor to terminate at tele/comm on that floor.

4. Other existing data devices discovered in field and not associated with the location of other needs. Another existing data device to provide number in field and notify Contractor to coordinate with Architect to resolve.

5. Locate new data drops within 18" horizontally and at same height of existing nearby receptacle.

NOTES:

- New connectors and faceplates.
- Not replace data drops.
- If alternate #3 is taken, then do not replace data drops.

DATA SYMBOL LEGEND

<table>
<thead>
<tr>
<th>TYPE</th>
<th>SYMBOL</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>D</td>
<td>DEMOLISH DATA PORT IN ITS ENTIRETY. REMOVE CABLING BACK TO SOURCE. REPAIR WALL AND PAINT TO MATCH.</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>PROVIDE AND INSTALL NEW DATA DROP AT 18&quot; AFF.</td>
<td></td>
</tr>
<tr>
<td>N5</td>
<td>PROVIDE AND INSTALL (5) NEW DATA DROPS AT 18&quot; AFF.</td>
<td></td>
</tr>
<tr>
<td>P</td>
<td>PROVIDE AND INSTALL (1) DATA DROP ABOVE CEILING WITH 6 FT COIL FOR CEILING MOUNTED PROJECTOR.</td>
<td></td>
</tr>
<tr>
<td>TV</td>
<td>PROVIDE AND INSTALL DATA DROP FOR TELEVISION. COORDINATE EXACT LOCATION WITH ARCHITECT.</td>
<td></td>
</tr>
</tbody>
</table>

DATA SHEET DRAWN AT A SINGLE LOCATION SHALL TERMINATE IN CERTAINITY FLOAT/ATTACHMENTS.

All data drops shown to terminate at one location do not necessarily mean they will be terminated at the exact location shown.

Provide new faceplates at all locations. Coordinate keystone and faceplate finishes with architect.

Provide flat jack at patch panels. Provide angled jack at receptacles (offices, etc.). Provide a schedule to architect for approval prior to installation.

Multple data drops shown at a single location shall terminate in a single multi-outlet faceplate.

NOTES: