

## SCHEDULE A: SCOPE OF WORK

Customer hereby acknowledges and agrees that the scope of work shall be limited to, and ESCO shall only perform, the following:

### BUILDING AUTOMATION SYSTEM

A Schneider Electric Building Automation System (BAS) is to be installed at the facilities listed below. The Schneider Electric system will include control and monitoring parameters as outlined below for each facility. The BAS will be controllable from a central workstation located on the customer's WAN/LAN (See Schedule F of contract), and a desktop computer will be supplied by ESCO (owned by customer), which will provide continuous access to the system with a user-friendly graphical Windows interface. A web enabled interface will also be included to provide web access to the system for up to 7 simultaneous users. Control zones will be programmed for temperature setup and temperature setback (as stated in Section II-H of contract), along with unoccupied dew point setup monitoring, and optimized schedules. Permanent scheduling, holiday scheduling, and temporary scheduling capabilities for each control zone will be provided.

ESCO will provide site-specific on-site training for BAS operation. This includes, but is not limited to, system architecture, controller and override panel operation, service tool usage, control drawings, device replacement, product overview and demonstration, logging on and off, system passwords, screen layout, software toolbars and menus, graphic page navigation and use, scheduling (regular, temporary, and special), and basic troubleshooting.

The facilities included are:

#### Crystal City Campus

##### Del Rio Campus:

- Administration (Del Rio Building)
- Main Building (Student Center)
- SRSU Administration
- SRSU Technical Services
- SRSU Academic Building
- SRSU Faculty Office Building

##### Eagle Pass Campus:

- Administration Building
- Bermea Building A
- SRRGC Building B
- Library & Class Room Building C
- SRRGC Building D
- Technical Building E

##### Uvalde Campus:

- 01 – Anderson Building
- 03 – E. P. Richarz Building
- 05 – Auto/Body Building
- 06 – Garner Science Building
- 09 – Kincaid Building
- 10 – Tate Fine Arts Building
- 11 – Espinosa Building
- 12 – J. Richarz Admin Building
- 13 – LaForge Hall
- 14 – Will C. Miller Library
- 15 – Maintenance Building
- 17 – Miller Building
- 18 – Matthews Student Center
- 19 – Memorial Building
- 20 – Fly Building
- 21 – Wagner Building
- 22 – Welding Building
- 23 – Witt Building
- 26 – Wildlife/Aviation Building
- 29 – Transportation Building
- 30 – Daycare Center
- 31 – Kirchner & Powers Child Development Center
- 33 – Art Building

At the following facilities, the existing control systems will remain in place; temperature setpoints will be adjusted and occupancy schedules will be optimized to ensure optimal energy usage:

**Uvalde Campus:**

- 24 – Flores Building
- 25 – SRSU Rio Grande Building

**CRYSTAL CITY CAMPUS –**

A Schneider Electric BAS is to be installed with direct digital controls on the VVT heat pump air handling units and VAV boxes and communicating network thermostats will be installed on the remaining split system heat pump units. Communication to the central workstation will be provided through the customer's wide area network. Control parameters are as follows:

**VVT Heat Pump Air Handling Unit (2)**

| <i>Control Points</i>   | <i>Monitoring Points</i>  |
|---|---|
| <ul style="list-style-type: none"> <li>▪ Compressor Command(s)</li> <li>▪ Reversing Valve Command(s)</li> <li>▪ Auxiliary Heating Command(s)</li> <li>▪ Supply Fan Command</li> <li>▪ Bypass Damper Position</li> </ul> | <ul style="list-style-type: none"> <li>▪ Supply Air Static Pressure</li> <li>▪ Supply Air Temperature</li> <li>▪ Suction Line Temperature</li> <li>▪ Supply Fan Status</li> </ul> |

**VAV Boxes (12)**

| <i>Control Points</i>   | <i>Monitoring Points</i>   |
|---|--|
| <ul style="list-style-type: none"> <li>▪ Damper Position</li> </ul> | <ul style="list-style-type: none"> <li>▪ Space Temperature</li> <li>▪ Space Temperature Setpoint Adj.</li> <li>▪ Space Override</li> </ul> |

**Split System Heat Pump Unit (3)**

| <i>Control Points</i>   | <i>Monitoring Points</i>  |
|---|---|
| <ul style="list-style-type: none"> <li>▪ Compressor Command(s)</li> <li>▪ Reversing Valve Command(s)</li> <li>▪ Auxiliary Heating Command(s)</li> <li>▪ Supply Fan Command</li> </ul> | <ul style="list-style-type: none"> <li>▪ Space Temperature</li> <li>▪ Space Temperature Setpoint Adj.</li> <li>▪ Space Override</li> <li>▪ Supply Fan Status</li> <li>▪ Supply Air Temperature</li> </ul> |

**Miscellaneous**

| <i>Control Points</i>                                    | <i>Monitoring Points</i>  |
|--|---|
| <ul style="list-style-type: none"> <li>▪ None</li> </ul> | <ul style="list-style-type: none"> <li>▪ Outside Air Temperature</li> <li>▪ Space Humidity**</li> </ul> |

\*\* - Space Humidity will be strategically placed to monitor dew point setup in zoned areas and will be determined by ESCO.

**DEL RIO CAMPUS – ADMINISTRATION (DEL RIO BUILDING)**

A Schneider Electric BAS is to be installed with communicating network thermostats on the split system heat pump units. Communication to the central workstation will be provided through the customer's wide area network. Control parameters are as follows:

**Split System Heat Pump Unit (4)**

| <i>Control Points</i>   | <i>Monitoring Points</i>  |
|---|---|
| <ul style="list-style-type: none"> <li>▪ Compressor Command(s)</li> <li>▪ Reversing Valve Command(s)</li> <li>▪ Auxiliary Heating Command(s)</li> <li>▪ Supply Fan Command</li> </ul> | <ul style="list-style-type: none"> <li>▪ Space Temperature</li> <li>▪ Space Temperature Setpoint Adj.</li> <li>▪ Space Override</li> <li>▪ Supply Fan Status</li> <li>▪ Supply Air Temperature</li> </ul> |

**Miscellaneous**

| <i>Control Points</i>                                    | <i>Monitoring Points</i>  |
|--|---|
| <ul style="list-style-type: none"> <li>▪ None</li> </ul> | <ul style="list-style-type: none"> <li>▪ Outside Air Temperature</li> <li>▪ Space Humidity**</li> </ul> |

\*\* - Space Humidity will be strategically placed to monitor dew point setup in zoned areas and will be determined by ESCO.

**DEL RIO CAMPUS – MAIN BUILDING (STUDENT CENTER)**

A Schneider Electric BAS is to be installed with communicating network thermostats on the split system DX units. Communication to the central workstation will be provided through the customer's wide area network. Control parameters are as follows:

**Split System DX Units (4)**

| <i>Control Points</i>   | <i>Monitoring Points</i>  |
|---|---|
| <ul style="list-style-type: none"> <li>▪ Compressor Command(s)</li> <li>▪ Heating Command(s)</li> <li>▪ Supply Fan Command</li> </ul> | <ul style="list-style-type: none"> <li>▪ Space Temperature</li> <li>▪ Space Temperature Setpoint Adj.</li> <li>▪ Space Override</li> <li>▪ Supply Fan Status</li> <li>▪ Supply Air Temperature</li> </ul> |

**Cooling Only Split System DX Units (2)**

| <i>Control Points</i>  | <i>Monitoring Points</i>  |
|--|---|
| <ul style="list-style-type: none"> <li>▪ Compressor Command</li> <li>▪ Supply Fan Command</li> </ul> | <ul style="list-style-type: none"> <li>▪ Space Temperature</li> <li>▪ Space Temperature Setpoint Adj.</li> <li>▪ Space Override</li> <li>▪ Supply Fan Status</li> <li>▪ Supply Air Temperature</li> </ul> |

**Miscellaneous**

| <i>Control Points</i>                                    | <i>Monitoring Points</i>   |
|--|--|
| <ul style="list-style-type: none"> <li>▪ None</li> </ul> | <ul style="list-style-type: none"> <li>▪ Server Room Temperature</li> <li>▪ Outside Air Temperature</li> <li>▪ Space Humidity**</li> </ul> |

\*\* - Space Humidity will be strategically placed to monitor dew point setup in zoned areas and will be determined by ESCO.

**DEL RIO CAMPUS – SRSU ADMINISTRATION**

A Schneider Electric BAS is to be installed with communicating network thermostats on the split system heat pump units. Communication to the central workstation will be provided through the customer's wide area network. Control parameters are as follows:

**Split System Heat Pump Unit (2)**

| <i>Control Points</i>   | <i>Monitoring Points</i>  |
|---|---|
| <ul style="list-style-type: none"> <li>▪ Compressor Command(s)</li> <li>▪ Reversing Valve Command(s)</li> <li>▪ Auxiliary Heating Command(s)</li> <li>▪ Supply Fan Command</li> </ul> | <ul style="list-style-type: none"> <li>▪ Space Temperature</li> <li>▪ Space Temperature Setpoint Adj.</li> <li>▪ Space Override</li> <li>▪ Supply Fan Status</li> <li>▪ Supply Air Temperature</li> </ul> |

**Miscellaneous**

| <i>Control Points</i>                                    | <i>Monitoring Points</i>  |
|--|---|
| <ul style="list-style-type: none"> <li>▪ None</li> </ul> | <ul style="list-style-type: none"> <li>▪ Outside Air Temperature</li> <li>▪ Space Humidity**</li> </ul> |

\*\* - Space Humidity will be strategically placed to monitor dew point setup in zoned areas and will be determined by ESCO.

**DEL RIO CAMPUS – SRSU TECHNICAL SERVICES**

A Schneider Electric BAS is to be installed with communicating network thermostats on the roof top heat pump units. Communication to the central workstation will be provided through the customer's wide area network. Control parameters are as follows:

**Roof Top Heat Pump Unit (4)**

| <i>Control Points</i>   | <i>Monitoring Points</i>  |
|---|---|
| <ul style="list-style-type: none"> <li>▪ Compressor Command(s)</li> <li>▪ Reversing Valve Command(s)</li> <li>▪ Auxiliary Heating Command(s)</li> <li>▪ Supply Fan Command</li> </ul> | <ul style="list-style-type: none"> <li>▪ Space Temperature</li> <li>▪ Space Temperature Setpoint Adj.</li> <li>▪ Space Override</li> <li>▪ Supply Fan Status</li> <li>▪ Supply Air Temperature</li> </ul> |

**Miscellaneous**

| <i>Control Points</i>                                    | <i>Monitoring Points</i>  |
|--|---|
| <ul style="list-style-type: none"> <li>▪ None</li> </ul> | <ul style="list-style-type: none"> <li>▪ Outside Air Temperature</li> <li>▪ Space Humidity**</li> </ul> |

\*\* - Space Humidity will be strategically placed to monitor dew point setup in zoned areas and will be determined by ESCO.

**DEL RIO CAMPUS – SRSU ACADEMIC BUILDING**

A Schneider Electric BAS is to be installed with communicating network thermostats on the roof top heat pump units. Communication to the central workstation will be provided through the customer's wide area network. Control parameters are as follows:

**Roof Top Heat Pump Units (8)**

| <i>Control Points</i>   | <i>Monitoring Points</i>  |
|---|---|
| <ul style="list-style-type: none"> <li>▪ Compressor Command(s)</li> <li>▪ Reversing Valve Command(s)</li> <li>▪ Auxiliary Heating Command(s)</li> <li>▪ Supply Fan Command</li> </ul> | <ul style="list-style-type: none"> <li>▪ Space Temperature</li> <li>▪ Space Temperature Setpoint Adj.</li> <li>▪ Space Override</li> <li>▪ Supply Fan Status</li> <li>▪ Supply Air Temperature</li> </ul> |

**Roof Top Heat Pump Unit (1)**

| <i>Control Points</i>   | <i>Monitoring Points</i>   |
|---|--|
| <ul style="list-style-type: none"> <li>▪ Compressor Command(s)</li> <li>▪ Reversing Valve Command(s)</li> <li>▪ Auxiliary Heating Command(s)</li> <li>▪ Supply Fan Command</li> </ul> | <ul style="list-style-type: none"> <li>▪ Space Temperature*</li> <li>▪ Supply Fan Status</li> <li>▪ Supply Air Temperature</li> </ul> <p style="margin-left: 40px;">* serves corridor, adjust and override excluded.</p> |

**Miscellaneous**

| <i>Control Points</i>                                    | <i>Monitoring Points</i>  |
|--|---|
| <ul style="list-style-type: none"> <li>▪ None</li> </ul> | <ul style="list-style-type: none"> <li>▪ Outside Air Temperature</li> <li>▪ Space Humidity**</li> </ul> |

\*\* - Space Humidity will be strategically placed to monitor dew point setup in zoned areas and will be determined by ESCO.

**DEL RIO CAMPUS – SRSU ACADEMIC BUILDING**

A Schneider Electric BAS is to be installed with communicating network thermostats on the roof top heat pump units. Communication to the central workstation will be provided through the customer's wide area network. Control parameters are as follows:

**Roof Top Heat Pump Units (3)**

| <i>Control Points</i>   | <i>Monitoring Points</i>  |
|---|---|
| <ul style="list-style-type: none"> <li>▪ Compressor Command(s)</li> <li>▪ Reversing Valve Command(s)</li> <li>▪ Auxiliary Heating Command(s)</li> <li>▪ Supply Fan Command</li> </ul> | <ul style="list-style-type: none"> <li>▪ Space Temperature</li> <li>▪ Space Temperature Setpoint Adj.</li> <li>▪ Space Override</li> <li>▪ Supply Fan Status</li> <li>▪ Supply Air Temperature</li> </ul> |

**Miscellaneous**

| <i>Control Points</i>                                    | <i>Monitoring Points</i>  |
|--|---|
| <ul style="list-style-type: none"> <li>▪ None</li> </ul> | <ul style="list-style-type: none"> <li>▪ Outside Air Temperature</li> <li>▪ Space Humidity**</li> </ul> |

\*\* - Space Humidity will be strategically placed to monitor dew point setup in zoned areas and will be determined by ESCO.

**EAGLE PASS CAMPUS – ADMINISTRATION BUILDING**

A Schneider Electric BAS is to be installed with communicating network thermostats on the split system heat pump units. Communication to the central workstation will be provided through the customer's wide area network. Control parameters are as follows:

**Split System Heat Pump Units (2)**

| <i>Control Points</i>   | <i>Monitoring Points</i>  |
|---|---|
| <ul style="list-style-type: none"> <li>▪ Compressor Command(s)</li> <li>▪ Reversing Valve Command(s)</li> <li>▪ Auxiliary Heating Command(s)</li> <li>▪ Supply Fan Command</li> </ul> | <ul style="list-style-type: none"> <li>▪ Space Temperature (average of remote temperature sensors)</li> <li>▪ Space Override (one at each averaging temperature sensor)</li> <li>▪ Supply Fan Status</li> <li>▪ Supply Air Temperature</li> </ul> |

**Miscellaneous**

| <i>Control Points</i>                                    | <i>Monitoring Points</i>  |
|--|---|
| <ul style="list-style-type: none"> <li>▪ None</li> </ul> | <ul style="list-style-type: none"> <li>▪ Outside Air Temperature</li> <li>▪ Space Humidity**</li> </ul> |

\*\* - Space Humidity will be strategically placed to monitor dew point setup in zoned areas and will be determined by ESCO.

**EAGLE PASS CAMPUS – BERMEA BUILDING A**

A Schneider Electric BAS is to be installed with communicating network thermostats on the split system heat pump units. Communication to the central workstation will be provided through the customer's wide area network. Control parameters are as follows:

**Split System Heat Pump Units (3)**

| <i>Control Points</i>   | <i>Monitoring Points</i>  |
|---|---|
| <ul style="list-style-type: none"> <li>▪ Compressor Command(s)</li> <li>▪ Reversing Valve Command(s)</li> <li>▪ Auxiliary Heating Command(s)</li> <li>▪ Supply Fan Command</li> </ul> | <ul style="list-style-type: none"> <li>▪ Space Temperature (average of remote temperature sensors)</li> <li>▪ Space Override (one at each averaging temperature sensor)</li> <li>▪ Supply Fan Status</li> <li>▪ Supply Air Temperature</li> </ul> |

**Miscellaneous**

| <i>Control Points</i>                                    | <i>Monitoring Points</i>  |
|--|---|
| <ul style="list-style-type: none"> <li>▪ None</li> </ul> | <ul style="list-style-type: none"> <li>▪ Outside Air Temperature</li> <li>▪ Space Humidity**</li> </ul> |

\*\* - Space Humidity will be strategically placed to monitor dew point setup in zoned areas and will be determined by ESCO.

**EAGLE PASS CAMPUS – SRRGC BUILDING B**

A Schneider Electric BAS is to be installed with communicating network thermostats on the split system heat pump units. Communication to the central workstation will be provided through the customer's wide area network. Control parameters are as follows:

**Split System Heat Pump Units (3)**

| <i>Control Points</i>   | <i>Monitoring Points</i>  |
|---|---|
| <ul style="list-style-type: none"> <li>▪ Compressor Command(s)</li> <li>▪ Reversing Valve Command(s)</li> <li>▪ Auxiliary Heating Command(s)</li> <li>▪ Supply Fan Command</li> </ul> | <ul style="list-style-type: none"> <li>▪ Space Temperature (average of remote temperature sensors)</li> <li>▪ Space Override (one at each averaging temperature sensor)</li> <li>▪ Supply Fan Status</li> <li>▪ Supply Air Temperature</li> </ul> |

**Miscellaneous**

| <i>Control Points</i>                                    | <i>Monitoring Points</i>   |
|--|--|
| <ul style="list-style-type: none"> <li>▪ None</li> </ul> | <ul style="list-style-type: none"> <li>▪ Space Humidity**</li> </ul> |

\*\* - Space Humidity will be strategically placed to monitor dew point setup in zoned areas and will be determined by ESCO.

**EAGLE PASS CAMPUS – LIBRARY & CLASS ROOM BUILDING C**

A Schneider Electric BAS is to be installed with communicating network thermostats on the roof top heat pump unit and split system heat pump units. Communication to the central workstation will be provided through the customer’s wide area network. Control parameters are as follows:

**Roof Top Heat Pump Units (1)**

| <i>Control Points</i>   | <i>Monitoring Points</i>  |
|---|---|
| <ul style="list-style-type: none"> <li>▪ Compressor Command(s)</li> <li>▪ Reversing Valve Command(s)</li> <li>▪ Auxiliary Heating Command(s)</li> <li>▪ Supply Fan Command</li> </ul> | <ul style="list-style-type: none"> <li>▪ Space Temperature (average of remote temperature sensors)</li> <li>▪ Space Override (one at each averaging temperature sensor)</li> <li>▪ Supply Fan Status</li> <li>▪ Supply Air Temperature</li> </ul> |

**Split System Heat Pump Units (3)**

| <i>Control Points</i>   | <i>Monitoring Points</i>  |
|---|---|
| <ul style="list-style-type: none"> <li>▪ Compressor Command(s)</li> <li>▪ Reversing Valve Command(s)</li> <li>▪ Auxiliary Heating Command(s)</li> <li>▪ Supply Fan Command</li> </ul> | <ul style="list-style-type: none"> <li>▪ Space Temperature (average of remote temperature sensors)</li> <li>▪ Space Override (one at each averaging temperature sensor)</li> <li>▪ Supply Fan Status</li> <li>▪ Supply Air Temperature</li> </ul> |

**Miscellaneous**

| <i>Control Points</i>                                    | <i>Monitoring Points</i>  |
|--|---|
| <ul style="list-style-type: none"> <li>▪ None</li> </ul> | <ul style="list-style-type: none"> <li>▪ Outside Air Temperature</li> <li>▪ Space Humidity**</li> </ul> |

\*\* - Space Humidity will be strategically placed to monitor dew point setup in zoned areas and will be determined by ESCO.

**EAGLE PASS CAMPUS – SRRGC BUILDING D**

A Schneider Electric BAS is to be installed with communicating network thermostats on the split system heat pump units. Communication to the central workstation will be provided through the customer’s wide area network. Control parameters are as follows:

**Split System Heat Pump Units (2)**

| <i>Control Points</i>   | <i>Monitoring Points</i>  |
|---|---|
| <ul style="list-style-type: none"> <li>▪ Compressor Command(s)</li> <li>▪ Reversing Valve Command(s)</li> <li>▪ Auxiliary Heating Command(s)</li> <li>▪ Supply Fan Command</li> </ul> | <ul style="list-style-type: none"> <li>▪ Space Temperature (average of remote temperature sensors)</li> <li>▪ Space Override (one at each averaging temperature sensor)</li> <li>▪ Supply Fan Status</li> <li>▪ Supply Air Temperature</li> </ul> |

**Miscellaneous**

| <i>Control Points</i>                                    | <i>Monitoring Points</i>   |
|--|--|
| <ul style="list-style-type: none"> <li>▪ None</li> </ul> | <ul style="list-style-type: none"> <li>▪ Space Humidity**</li> </ul> |

\*\* - Space Humidity will be strategically placed to monitor dew point setup in zoned areas and will be determined by ESCO.

**EAGLE PASS CAMPUS – TECHNICAL BUILDING E**

A Schneider Electric BAS is to be installed with communicating network thermostats on the roof top heat pump units, split system heat pump units, split system DX unit, and infrared radiant heaters. Communication to the central workstation will be provided through the customer's wide area network. Control parameters are as follows:

**Roof Top Heat Pump Units (2)**

| <i>Control Points</i>   | <i>Monitoring Points</i>  |
|---|---|
| <ul style="list-style-type: none"> <li>▪ Compressor Command(s)</li> <li>▪ Reversing Valve Command(s)</li> <li>▪ Auxiliary Heating Command(s)</li> <li>▪ Supply Fan Command</li> </ul> | <ul style="list-style-type: none"> <li>▪ Space Temperature</li> <li>▪ Space Temperature Setpoint Adj.</li> <li>▪ Space Override</li> <li>▪ Supply Fan Status</li> <li>▪ Supply Air Temperature</li> </ul> |

**Split System Heat Pump Units (2)**

| <i>Control Points</i>   | <i>Monitoring Points</i>  |
|---|---|
| <ul style="list-style-type: none"> <li>▪ Compressor Command(s)</li> <li>▪ Reversing Valve Command(s)</li> <li>▪ Auxiliary Heating Command(s)</li> <li>▪ Supply Fan Command</li> </ul> | <ul style="list-style-type: none"> <li>▪ Space Temperature<br/>(average of remote temperature sensors)</li> <li>▪ Space Override<br/>(one at each averaging temperature sensor)</li> <li>▪ Supply Fan Status</li> <li>▪ Supply Air Temperature</li> </ul> |

**Split System Heat Pump Units (1)**

| <i>Control Points</i>   | <i>Monitoring Points</i>  |
|---|---|
| <ul style="list-style-type: none"> <li>▪ Compressor Command(s)</li> <li>▪ Reversing Valve Command(s)</li> <li>▪ Auxiliary Heating Command(s)</li> <li>▪ Supply Fan Command</li> </ul> | <ul style="list-style-type: none"> <li>▪ Space Temperature</li> <li>▪ Space Temperature Setpoint Adj.</li> <li>▪ Space Override</li> <li>▪ Supply Fan Status</li> <li>▪ Supply Air Temperature</li> </ul> |

**Split System DX Unit (1)**

| <i>Control Points</i>  | <i>Monitoring Points</i>  |
|--|---|
| <ul style="list-style-type: none"> <li>▪ Cooling Command(s)</li> <li>▪ Heating Command(s)</li> <li>▪ Supply Fan Command</li> </ul> | <ul style="list-style-type: none"> <li>▪ Space Temperature</li> <li>▪ Space Temperature Setpoint Adj.</li> <li>▪ Space Override</li> <li>▪ Supply Fan Status</li> <li>▪ Supply Air Temperature</li> </ul> |

**Infrared Radiant Heaters (1)\***

| <i>Control Points</i>  | <i>Monitoring Points</i>   |
|--|--|
| <ul style="list-style-type: none"> <li>▪ Heating Command(s)</li> </ul> | <ul style="list-style-type: none"> <li>▪ Space Temperature<br/>(average of remote temperature sensors)</li> <li>▪ Space Temperature Setpoint Adj.</li> <li>▪ Space Override</li> </ul> |

\* - (6) infrared radiant heaters to be controlled by (1) communicating network thermostats.



**Miscellaneous**

| <i>Control Points</i>   | <i>Monitoring Points</i>  |
|---|---|
| <ul style="list-style-type: none"> <li>▪ Exhaust Fan Enable/Disable*</li> </ul> | <ul style="list-style-type: none"> <li>▪ Outside Air Temperature</li> <li>▪ Space Humidity**</li> </ul> |

\* - Exhaust Fans will be grouped (zoned) to match schedules of units and will be determined by ESCO.

\*\* - Space Humidity will be strategically placed to monitor dew point setup in zoned areas and will be determined by ESCO.

**UVALDE CAMPUS – ANDERSON BUILDING**

A Schneider Electric BAS is to be installed with communicating network thermostats on the roof top and split system heat pump units. Communication to the central workstation will be provided through the customer's wide area network. Control parameters are as follows:

**Roof Top Heat Pump Units (1)**

| <i>Control Points</i>   | <i>Monitoring Points</i>  |
|---|---|
| <ul style="list-style-type: none"> <li>▪ Compressor Command(s)</li> <li>▪ Reversing Valve Command(s)</li> <li>▪ Auxiliary Heating Command(s)</li> <li>▪ Supply Fan Command</li> </ul> | <ul style="list-style-type: none"> <li>▪ Space Temperature</li> <li>▪ Space Temperature Setpoint Adj.</li> <li>▪ Space Override</li> <li>▪ Supply Fan Status</li> <li>▪ Supply Air Temperature</li> </ul> |

**Split System Heat Pump Units (4)**

| <i>Control Points</i>   | <i>Monitoring Points</i>  |
|---|---|
| <ul style="list-style-type: none"> <li>▪ Compressor Command(s)</li> <li>▪ Reversing Valve Command(s)</li> <li>▪ Auxiliary Heating Command(s)</li> <li>▪ Supply Fan Command</li> </ul> | <ul style="list-style-type: none"> <li>▪ Space Temperature</li> <li>▪ Space Temperature Setpoint Adj.</li> <li>▪ Space Override</li> <li>▪ Supply Fan Status</li> <li>▪ Supply Air Temperature</li> </ul> |

**Miscellaneous**

| <i>Control Points</i>                                    | <i>Monitoring Points</i>  |
|--|---|
| <ul style="list-style-type: none"> <li>▪ None</li> </ul> | <ul style="list-style-type: none"> <li>▪ Outside Air Temperature</li> <li>▪ Space Humidity**</li> </ul> |

\*\* - Space Humidity will be strategically placed to monitor dew point setup in zoned areas and will be determined by ESCO.

**UVALDE CAMPUS – E.P. RICHARZ BUILDING**

A Schneider Electric BAS is to be installed with communicating network thermostats on the roof top and split system heat pump units. Communication to the central workstation will be provided through the customer's wide area network. Control parameters are as follows:

**Roof Top Heat Pump Units (3)**

| <i>Control Points</i>   | <i>Monitoring Points</i>  |
|---|---|
| <ul style="list-style-type: none"> <li>▪ Compressor Command(s)</li> <li>▪ Reversing Valve Command(s)</li> <li>▪ Auxiliary Heating Command(s)</li> <li>▪ Supply Fan Command</li> </ul> | <ul style="list-style-type: none"> <li>▪ Space Temperature</li> <li>▪ Space Temperature Setpoint Adj.</li> <li>▪ Space Override</li> <li>▪ Supply Fan Status</li> <li>▪ Supply Air Temperature</li> </ul> |

**Split System Heat Pump Units (1)**

| <i>Control Points</i>   | <i>Monitoring Points</i>  |
|---|---|
| <ul style="list-style-type: none"> <li>▪ Compressor Command(s)</li> <li>▪ Reversing Valve Command(s)</li> <li>▪ Auxiliary Heating Command(s)</li> <li>▪ Supply Fan Command</li> </ul> | <ul style="list-style-type: none"> <li>▪ Space Temperature</li> <li>▪ Space Temperature Setpoint Adj.</li> <li>▪ Space Override</li> <li>▪ Supply Fan Status</li> <li>▪ Supply Air Temperature</li> </ul> |

**Miscellaneous**

| <i>Control Points</i>                                    | <i>Monitoring Points</i>  |
|--|---|
| <ul style="list-style-type: none"> <li>▪ None</li> </ul> | <ul style="list-style-type: none"> <li>▪ Outside Air Temperature</li> <li>▪ Space Humidity**</li> </ul> |

\*\* - Space Humidity will be strategically placed to monitor dew point setup in zoned areas and will be determined by ESCO.

**UVALDE CAMPUS – AUTO/BODY BUILDING**

A Schneider Electric BAS is to be installed with a communicating network thermostat on the gas fired unit heater. Communication to the central workstation will be provided through the customer's wide area network. Control parameters are as follows:

**Gas Fired Unit Heater (1)**

| <i>Control Points</i>  | <i>Monitoring Points</i>   |
|--|--|
| <ul style="list-style-type: none"> <li>▪ Heating Command(s)</li> </ul> | <ul style="list-style-type: none"> <li>▪ Space Temperature</li> <li>▪ Space Temperature Setpoint Adj.</li> <li>▪ Space Override</li> </ul> |

**UVALDE CAMPUS – GARNER SCIENCE BUILDING**

A Schneider Electric BAS is to be installed with communicating network thermostats on the roof top heat pump units and split system DX unit. Communication to the central workstation will be provided through the customer's wide area network. Control parameters are as follows:

**Roof Top Heat Pump Units (10)**

| <i>Control Points</i>   | <i>Monitoring Points</i>  |
|---|---|
| <ul style="list-style-type: none"> <li>▪ Compressor Command(s)</li> <li>▪ Reversing Valve Command(s)</li> <li>▪ Auxiliary Heating Command(s)</li> <li>▪ Supply Fan Command</li> </ul> | <ul style="list-style-type: none"> <li>▪ Space Temperature</li> <li>▪ Space Temperature Setpoint Adj.</li> <li>▪ Space Override</li> <li>▪ Supply Fan Status</li> <li>▪ Supply Air Temperature</li> </ul> |

**Split System DX Unit (1)**

| <i>Control Points</i>  | <i>Monitoring Points</i>  |
|--|---|
| <ul style="list-style-type: none"> <li>▪ Cooling Command(s)</li> <li>▪ Supply Fan Command</li> </ul> | <ul style="list-style-type: none"> <li>▪ Space Temperature</li> <li>▪ Space Temperature Setpoint Adj.</li> <li>▪ Space Override</li> <li>▪ Supply Fan Status</li> <li>▪ Supply Air Temperature</li> </ul> |

**Miscellaneous**

| <i>Control Points</i>   | <i>Monitoring Points</i>  |
|---|---|
| <ul style="list-style-type: none"> <li>▪ Exhaust Fan Enable/Disable*</li> </ul> | <ul style="list-style-type: none"> <li>▪ Outside Air Temperature</li> <li>▪ Space Humidity**</li> </ul> |

\* - Exhaust Fans will be grouped (zoned) to match schedules of units and will be determined by ESCO.

\*\* - Space Humidity will be strategically placed to monitor dew point setup in zoned areas and will be determined by ESCO.

**UVALDE CAMPUS – KINCAID BUILDING**

A Schneider Electric BAS is to be installed with communicating network thermostats on the split system heat pump units. Communication to the central workstation will be provided through the customer's wide area network. Control parameters are as follows:

**Split System Heat Pump Units (5)**

| <i>Control Points</i>   | <i>Monitoring Points</i>  |
|---|---|
| <ul style="list-style-type: none"> <li>▪ Compressor Command(s)</li> <li>▪ Reversing Valve Command(s)</li> <li>▪ Auxiliary Heating Command(s)</li> <li>▪ Supply Fan Command</li> </ul> | <ul style="list-style-type: none"> <li>▪ Space Temperature</li> <li>▪ Space Temperature Setpoint Adj.</li> <li>▪ Space Override</li> <li>▪ Supply Fan Status</li> <li>▪ Supply Air Temperature</li> </ul> |

**Miscellaneous**

| <i>Control Points</i>   | <i>Monitoring Points</i>  |
|---|---|
| <ul style="list-style-type: none"> <li>▪ Exhaust Fan Enable/Disable*</li> </ul> | <ul style="list-style-type: none"> <li>▪ Outside Air Temperature</li> <li>▪ Space Humidity**</li> </ul> |

\* - Exhaust Fans will be grouped (zoned) to match schedules of units and will be determined by ESCO.

\*\* - Space Humidity will be strategically placed to monitor dew point setup in zoned areas and will be determined by ESCO.

**UVALDE CAMPUS – TATE FINE ARTS BUILDING**

A Schneider Electric BAS is to be installed with communicating network thermostats on the split system heat pump units. Communication to the central workstation will be provided through the customer's wide area network. Control parameters are as follows:

**Split System Heat Pump Units (7)**

| <i>Control Points</i>   | <i>Monitoring Points</i>  |
|---|---|
| <ul style="list-style-type: none"> <li>▪ Compressor Command(s)</li> <li>▪ Reversing Valve Command(s)</li> <li>▪ Auxiliary Heating Command(s)</li> <li>▪ Supply Fan Command</li> </ul> | <ul style="list-style-type: none"> <li>▪ Space Temperature</li> <li>▪ Space Temperature Setpoint Adj.</li> <li>▪ Space Override</li> <li>▪ Supply Fan Status</li> <li>▪ Supply Air Temperature</li> </ul> |

**Miscellaneous**

| <i>Control Points</i>                                    | <i>Monitoring Points</i>  |
|--|---|
| <ul style="list-style-type: none"> <li>▪ None</li> </ul> | <ul style="list-style-type: none"> <li>▪ Outside Air Temperature</li> <li>▪ Space Humidity**</li> </ul> |

\*\* - Space Humidity will be strategically placed to monitor dew point setup in zoned areas and will be determined by ESCO.

**UVALDE CAMPUS – ESPINOSA BUILDING**

A Schneider Electric BAS is to be installed with communicating network thermostats on the split system heat pump units. Communication to the central workstation will be provided through the customer's wide area network. Control parameters are as follows:

**Split System Heat Pump Units (6)**

| <i>Control Points</i>   | <i>Monitoring Points</i>  |
|---|---|
| <ul style="list-style-type: none"> <li>▪ Compressor Command(s)</li> <li>▪ Reversing Valve Command(s)</li> <li>▪ Auxiliary Heating Command(s)</li> <li>▪ Supply Fan Command</li> </ul> | <ul style="list-style-type: none"> <li>▪ Space Temperature</li> <li>▪ Space Temperature Setpoint Adj.</li> <li>▪ Space Override</li> <li>▪ Supply Fan Status</li> <li>▪ Supply Air Temperature</li> </ul> |

**Miscellaneous**

| <i>Control Points</i>                                    | <i>Monitoring Points</i>  |
|--|---|
| <ul style="list-style-type: none"> <li>▪ None</li> </ul> | <ul style="list-style-type: none"> <li>▪ Outside Air Temperature</li> <li>▪ Space Humidity**</li> </ul> |

\*\* - Space Humidity will be strategically placed to monitor dew point setup in zoned areas and will be determined by ESCO.

**UVALDE CAMPUS – J. RICHARZ ADMIN BUILDING**

A Schneider Electric BAS is to be installed with communicating network thermostats on the split system heat pump units. Communication to the central workstation will be provided through the customer's wide area network. Control parameters are as follows:

**Split System Heat Pump Units (5)**

| <i>Control Points</i>   | <i>Monitoring Points</i>  |
|---|---|
| <ul style="list-style-type: none"> <li>▪ Compressor Command(s)</li> <li>▪ Reversing Valve Command(s)</li> <li>▪ Auxiliary Heating Command(s)</li> <li>▪ Supply Fan Command</li> </ul> | <ul style="list-style-type: none"> <li>▪ Space Temperature</li> <li>▪ Space Temperature Setpoint Adj.</li> <li>▪ Space Override</li> <li>▪ Supply Fan Status</li> <li>▪ Supply Air Temperature</li> </ul> |

**Miscellaneous**

| <i>Control Points</i>                                    | <i>Monitoring Points</i>  |
|--|---|
| <ul style="list-style-type: none"> <li>▪ None</li> </ul> | <ul style="list-style-type: none"> <li>▪ Outside Air Temperature</li> <li>▪ Space Humidity**</li> </ul> |

\*\* - Space Humidity will be strategically placed to monitor dew point setup in zoned areas and will be determined by ESCO.

**UVALDE CAMPUS – LAFORGE HALL**

A Schneider Electric BAS is to be installed with communicating network thermostats on the roof top DX and heat pump units, the gas fired furnaces, and the gas fired unit heaters. Communication to the central workstation will be provided through the customer's wide area network. Control parameters are as follows:

**Roof Top Heat Pump Units (4)**

| <i>Control Points</i>   | <i>Monitoring Points</i>  |
|---|---|
| <ul style="list-style-type: none"> <li>▪ Compressor Command(s)</li> <li>▪ Reversing Valve Command(s)</li> <li>▪ Auxiliary Heating Command(s)</li> <li>▪ Supply Fan Command</li> </ul> | <ul style="list-style-type: none"> <li>▪ Space Temperature</li> <li>▪ Space Temperature Setpoint Adj.</li> <li>▪ Space Override</li> <li>▪ Supply Fan Status</li> <li>▪ Supply Air Temperature</li> </ul> |

**Roof Top DX Units (3)**

| <i>Control Points</i>  | <i>Monitoring Points</i>  |
|--|---|
| <ul style="list-style-type: none"> <li>▪ Cooling Command(s)</li> <li>▪ Heating Command(s)</li> <li>▪ Supply Fan Command</li> </ul> | <ul style="list-style-type: none"> <li>▪ Space Temperature</li> <li>▪ Space Temperature Setpoint Adj.</li> <li>▪ Space Override</li> <li>▪ Supply Fan Status</li> <li>▪ Supply Air Temperature</li> </ul> |

**Gas Fired Furnaces (2)**

| <i>Control Points</i>  | <i>Monitoring Points</i>   |
|--|--|
| <ul style="list-style-type: none"> <li>▪ Heating Command(s)</li> <li>▪ Supply Fan Command</li> </ul> | <ul style="list-style-type: none"> <li>▪ Space Temperature</li> <li>▪ Space Temperature Setpoint Adj.</li> <li>▪ Space Override</li> </ul> |

**Gas Fired Unit Heaters (2)**

| <i>Control Points</i>  | <i>Monitoring Points</i>   |
|--|--|
| <ul style="list-style-type: none"> <li>▪ Heating Command(s)</li> </ul> | <ul style="list-style-type: none"> <li>▪ Space Temperature</li> <li>▪ Space Temperature Setpoint Adj.</li> <li>▪ Space Override</li> </ul> |

**Miscellaneous**

| <i>Control Points</i>                                    | <i>Monitoring Points</i>  |
|--|---|
| <ul style="list-style-type: none"> <li>▪ None</li> </ul> | <ul style="list-style-type: none"> <li>▪ Outside Air Temperature</li> <li>▪ Space Humidity**</li> </ul> |

\*\* - Space Humidity will be strategically placed to monitor dew point setup in zoned areas and will be determined by ESCO.

**UVALDE CAMPUS – WILL C. MILLER LIBRARY**

A Schneider Electric BAS is to be installed with communicating network thermostats on the split system heat pump units. Communication to the central workstation will be provided through the customer's wide area network. Control parameters are as follows:

**Split System Heat Pump Units (7)**

| <i>Control Points</i>   | <i>Monitoring Points</i>  |
|---|---|
| <ul style="list-style-type: none"> <li>▪ Compressor Command(s)</li> <li>▪ Reversing Valve Command(s)</li> <li>▪ Auxiliary Heating Command(s)</li> <li>▪ Supply Fan Command</li> </ul> | <ul style="list-style-type: none"> <li>▪ Space Temperature</li> <li>▪ Space Temperature Setpoint Adj.</li> <li>▪ Space Override</li> <li>▪ Supply Fan Status</li> <li>▪ Supply Air Temperature</li> </ul> |

**Miscellaneous**

| <i>Control Points</i>                                    | <i>Monitoring Points</i>  |
|--|---|
| <ul style="list-style-type: none"> <li>▪ None</li> </ul> | <ul style="list-style-type: none"> <li>▪ Server/Telecomm Room Temperature</li> <li>▪ Outside Air Temperature</li> <li>▪ Space Humidity**</li> </ul> |

\*\* - Space Humidity will be strategically placed to monitor dew point setup in zoned areas and will be determined by ESCO.

**UVALDE CAMPUS – MAINTENANCE BUILDING**

A Schneider Electric BAS is to be installed with communicating network thermostats on the split system heat pump unit and infrared radiant heaters. The gas furnace serving the paint shop is excluded from this scope of work. Communication to the central workstation will be provided through the customer’s wide area network. Control parameters are as follows:

**Split System Heat Pump Units (1)**

| <i>Control Points</i>   | <i>Monitoring Points</i>  |
|---|---|
| <ul style="list-style-type: none"> <li>▪ Compressor Command(s)</li> <li>▪ Reversing Valve Command(s)</li> <li>▪ Auxiliary Heating Command(s)</li> <li>▪ Supply Fan Command</li> </ul> | <ul style="list-style-type: none"> <li>▪ Space Temperature</li> <li>▪ Space Temperature Setpoint Adj.</li> <li>▪ Space Override</li> <li>▪ Supply Fan Status</li> <li>▪ Supply Air Temperature</li> </ul> |

**Infrared Radiant Heaters (3)\***

| <i>Control Points</i>  | <i>Monitoring Points</i>   |
|--|--|
| <ul style="list-style-type: none"> <li>▪ Heating Command(s)</li> </ul> | <ul style="list-style-type: none"> <li>▪ Space Temperature (average of remote temperature sensors)</li> <li>▪ Space Temperature Setpoint Adj.</li> <li>▪ Space Override</li> </ul> |

\* - (12) infrared radiant heaters to be controlled by (3) communicating network thermostats.

**Miscellaneous**

| <i>Control Points</i>                                    | <i>Monitoring Points</i>  |
|--|---|
| <ul style="list-style-type: none"> <li>▪ None</li> </ul> | <ul style="list-style-type: none"> <li>▪ Outside Air Temperature</li> <li>▪ Space Humidity**</li> </ul> |

\*\* - Space Humidity will be strategically placed to monitor dew point setup in zoned areas and will be determined by ESCO.

**UVALDE CAMPUS – MILLER BUILDING**

A Schneider Electric BAS is to be installed with communicating network thermostats on the roof top heat pump unite, split system heat pump units and infrared radiant heaters. Communication to the central workstation will be provided through the customer’s wide area network. Control parameters are as follows:

**Roof Top Heat Pump Units (6)**

| <i>Control Points</i>   | <i>Monitoring Points</i>   |
|---|--|
| <ul style="list-style-type: none"> <li>▪ Compressor Command(s)</li> <li>▪ Reversing Valve Command(s)</li> <li>▪ Auxiliary Heating Command(s)</li> <li>▪ Supply Fan Command</li> </ul> | <ul style="list-style-type: none"> <li>▪ Space Temperature</li> <li>▪ Space Temperature Setpoint Adj</li> <li>▪ Space Override</li> <li>▪ Supply Fan Status</li> <li>▪ Supply Air Temperature</li> </ul> |

**Split System Heat Pump Units (4)**

| <i>Control Points</i>   | <i>Monitoring Points</i>  |
|---|---|
| <ul style="list-style-type: none"> <li>▪ Compressor Command(s)</li> <li>▪ Reversing Valve Command(s)</li> <li>▪ Auxiliary Heating Command(s)</li> <li>▪ Supply Fan Command</li> </ul> | <ul style="list-style-type: none"> <li>▪ Space Temperature</li> <li>▪ Space Temperature Setpoint Adj.</li> <li>▪ Space Override</li> <li>▪ Supply Fan Status</li> <li>▪ Supply Air Temperature</li> </ul> |

**Gas Fired Unit Heaters (3)\***

| <i>Control Points</i>  | <i>Monitoring Points</i>   |
|--|--|
| <ul style="list-style-type: none"> <li>▪ Heating Command(s)</li> </ul> | <ul style="list-style-type: none"> <li>▪ Space Temperature</li> <li>▪ Space Temperature Setpoint Adj.</li> <li>▪ Space Override</li> </ul> |

\* - (5) gas fired unit heaters to be controlled by (3) communicating network thermostats.

**Miscellaneous**

| <i>Control Points</i>                                    | <i>Monitoring Points</i>  |
|--|---|
| <ul style="list-style-type: none"> <li>▪ None</li> </ul> | <ul style="list-style-type: none"> <li>▪ Outside Air Temperature</li> <li>▪ Space Humidity**</li> </ul> |

\*\* - Space Humidity will be strategically placed to monitor dew point setup in zoned areas and will be determined by ESCO.

**UVALDE CAMPUS – MATTHEWS STUDENT CENTER**

A Schneider Electric BAS is to be installed with direct digital controls on the air handler serving the cafeteria and communicating network thermostats on the remaining split system heat pump units and split system DX unit. Communication to the central workstation will be provided through the customer's wide area network. Control parameters are as follows:

**Cafeteria Packaged Unit** *(points dependent on final mechanical design)*

This unit is being installed by the Mechanical Scope of Work, and will include a LON interface. This unit will be integrated into the BAS, and all necessary available points\* that would depict control and monitoring as shown in other portions of campus.

\*To be determined by final mechanical design and final automation engineering design. (up to forty network points.)

**Split System DX Unit (1)**

| <i>Control Points</i>  | <i>Monitoring Points</i>  |
|--|---|
| <ul style="list-style-type: none"> <li>▪ Cooling Command(s)</li> <li>▪ Heating Command(s)</li> <li>▪ Supply Fan Command</li> </ul> | <ul style="list-style-type: none"> <li>▪ Space Temperature</li> <li>▪ Space Temperature Setpoint Adj.</li> <li>▪ Space Override</li> <li>▪ Supply Fan Status</li> <li>▪ Supply Air Temperature</li> </ul> |

**Split System Heat Pump Units (6)**

| <i>Control Points</i>   | <i>Monitoring Points</i>  |
|---|---|
| <ul style="list-style-type: none"> <li>▪ Compressor Command(s)</li> <li>▪ Reversing Valve Command(s)</li> <li>▪ Auxiliary Heating Command(s)</li> <li>▪ Supply Fan Command</li> </ul> | <ul style="list-style-type: none"> <li>▪ Space Temperature</li> <li>▪ Space Temperature Setpoint Adj.</li> <li>▪ Space Override</li> <li>▪ Supply Fan Status</li> <li>▪ Supply Air Temperature</li> </ul> |

**Banquet Hall Split System Heat Pump Units (2)\***

| <i>Control Points</i>  | <i>Monitoring Points</i>   |
|--|--|
| <ul style="list-style-type: none"> <li>▪ Compressor Command(s)</li> <li>▪ Reversing Valve Command(s)</li> <li>▪ Auxiliary Heating Command(s)</li> <li>▪ Supply Fan Command</li> <li>▪ Outside Air Damper Position</li> </ul> | <ul style="list-style-type: none"> <li>▪ Space Temperature</li> <li>▪ Space Temperature Setpoint Adj.</li> <li>▪ Space Override</li> <li>▪ Supply Fan Status</li> <li>▪ Supply Air Temperature</li> <li>▪ Space CO2</li> </ul> |

\* - Units will be installed by Mechanical Scope of Work. Points listed subject to change, based on final mechanical design.

**Miscellaneous**

| <i>Control Points</i>                                    | <i>Monitoring Points</i>  |
|--|---|
| <ul style="list-style-type: none"> <li>▪ None</li> </ul> | <ul style="list-style-type: none"> <li>▪ Outside Air Temperature</li> <li>▪ Space Humidity**</li> </ul> |

\*\* - Space Humidity will be strategically placed to monitor dew point setup in zoned areas and will be determined by ESCO.

**UVALDE CAMPUS – MEMORIAL BUILDING**

A Schneider Electric BAS is to be installed with enable/disable control of the pool heating and ventilation unit and pool hot water pump, and communicating network thermostats on the remaining split system heat pump units. Communication to the central workstation will be provided through the customer’s wide area network. Control parameters are as follows:

**Enable/Disable Control**

| <i>Control Points</i>   | <i>Monitoring Points</i>   |
|---|--|
| <ul style="list-style-type: none"> <li>▪ H&amp;V Unit Enable/Disable</li> <li>▪ Hot Water Pump Command</li> </ul> | <ul style="list-style-type: none"> <li>▪ Space Temperature</li> <li>▪ Space Override</li> <li>▪ Hot Water Pump Status</li> </ul> |

**Split System Heat Pump Units (3)**

| <i>Control Points</i>   | <i>Monitoring Points</i>  |
|---|---|
| <ul style="list-style-type: none"> <li>▪ Compressor Command(s)</li> <li>▪ Reversing Valve Command(s)</li> <li>▪ Auxiliary Heating Command(s)</li> <li>▪ Supply Fan Command</li> </ul> | <ul style="list-style-type: none"> <li>▪ Space Temperature</li> <li>▪ Space Temperature Setpoint Adj.</li> <li>▪ Space Override</li> <li>▪ Supply Fan Status</li> <li>▪ Supply Air Temperature</li> </ul> |

**Miscellaneous**

| <i>Control Points</i>   | <i>Monitoring Points</i>  |
|---|---|
| <ul style="list-style-type: none"> <li>▪ Exhaust Fan Enable/Disable*</li> </ul> | <ul style="list-style-type: none"> <li>▪ Outside Air Temperature</li> <li>▪ Space Humidity**</li> </ul> |

\* - Exhaust Fans will be grouped (zoned) to match schedules of units and will be determined by ESCO.



\*\* - Space Humidity will be strategically placed to monitor dew point setup in zoned areas and will be determined by ESCO.

#### UVALDE CAMPUS – FLY BUILDING

A Schneider Electric BAS is to be installed with communicating network thermostats on the split system heat pump units. Communication to the central workstation will be provided through the customer's wide area network. Control parameters are as follows:

##### Split System Heat Pump Units (5)

| <i>Control Points</i>   | <i>Monitoring Points</i>  |
|---|---|
| <ul style="list-style-type: none"> <li>▪ Compressor Command(s)</li> <li>▪ Reversing Valve Command(s)</li> <li>▪ Auxiliary Heating Command(s)</li> <li>▪ Supply Fan Command</li> </ul> | <ul style="list-style-type: none"> <li>▪ Space Temperature</li> <li>▪ Space Temperature Setpoint Adj.</li> <li>▪ Space Override</li> <li>▪ Supply Fan Status</li> <li>▪ Supply Air Temperature</li> </ul> |

##### Miscellaneous

| <i>Control Points</i>                                    | <i>Monitoring Points</i>  |
|--|---|
| <ul style="list-style-type: none"> <li>▪ None</li> </ul> | <ul style="list-style-type: none"> <li>▪ Outside Air Temperature</li> <li>▪ Space Humidity**</li> </ul> |

\*\* - Space Humidity will be strategically placed to monitor dew point setup in zoned areas and will be determined by ESCO.

#### UVALDE CAMPUS – WAGNER BUILDING

A Schneider Electric BAS is to be installed with communicating network thermostats on the roof top and split system heat pump units. Communication to the central workstation will be provided through the customer's wide area network. Control parameters are as follows:

##### Roof Top Heat Pump Units (3)

| <i>Control Points</i>   | <i>Monitoring Points</i>  |
|---|---|
| <ul style="list-style-type: none"> <li>▪ Compressor Command(s)</li> <li>▪ Reversing Valve Command(s)</li> <li>▪ Auxiliary Heating Command(s)</li> <li>▪ Supply Fan Command</li> </ul> | <ul style="list-style-type: none"> <li>▪ Space Temperature</li> <li>▪ Space Temperature Setpoint Adj.</li> <li>▪ Space Override</li> <li>▪ Supply Fan Status</li> <li>▪ Supply Air Temperature</li> </ul> |

##### Split System Heat Pump Units (3)

| <i>Control Points</i>   | <i>Monitoring Points</i>  |
|---|---|
| <ul style="list-style-type: none"> <li>▪ Compressor Command(s)</li> <li>▪ Reversing Valve Command(s)</li> <li>▪ Auxiliary Heating Command(s)</li> <li>▪ Supply Fan Command</li> </ul> | <ul style="list-style-type: none"> <li>▪ Space Temperature</li> <li>▪ Space Temperature Setpoint Adj.</li> <li>▪ Space Override</li> <li>▪ Supply Fan Status</li> <li>▪ Supply Air Temperature</li> </ul> |

##### Split System DX Units (1)

| <i>Control Points</i>  | <i>Monitoring Points</i>  |
|--|---|
| <ul style="list-style-type: none"> <li>▪ Cooling Command(s)</li> <li>▪ Heating Command(s)</li> <li>▪ Supply Fan Command</li> </ul> | <ul style="list-style-type: none"> <li>▪ Space Temperature</li> <li>▪ Space Temperature Setpoint Adj.</li> <li>▪ Space Override</li> <li>▪ Supply Fan Status</li> <li>▪ Supply Air Temperature</li> </ul> |

**Miscellaneous**

| <i>Control Points</i>                                    | <i>Monitoring Points</i>   |
|--|--|
| <ul style="list-style-type: none"> <li>▪ None</li> </ul> | <ul style="list-style-type: none"> <li>▪ Server Room Temperature (2)</li> <li>▪ Outside Air Temperature</li> <li>▪ Space Humidity**</li> </ul> |

\*\* - Space Humidity will be strategically placed to monitor dew point setup in zoned areas and will be determined by ESCO.

**UVALDE CAMPUS – WELDING BUILDING**

A Schneider Electric BAS is to be installed with communicating network thermostats on the roof top heat pump unite, split system heat pump units and infrared radiant heaters. Communication to the central workstation will be provided through the customer's wide area network. Control parameters are as follows:

**Roof Top Heat Pump Units (2)**

| <i>Control Points</i>   | <i>Monitoring Points</i>  |
|---|---|
| <ul style="list-style-type: none"> <li>▪ Compressor Command(s)</li> <li>▪ Reversing Valve Command(s)</li> <li>▪ Auxiliary Heating Command(s)</li> <li>▪ Supply Fan Command</li> </ul> | <ul style="list-style-type: none"> <li>▪ Space Temperature</li> <li>▪ Space Temperature Setpoint Adj.</li> <li>▪ Space Override</li> <li>▪ Supply Fan Status</li> <li>▪ Supply Air Temperature</li> </ul> |

**Gas Fired Unit Heaters (3)\***

| <i>Control Points</i>  | <i>Monitoring Points</i>   |
|--|--|
| <ul style="list-style-type: none"> <li>▪ Heating Command(s)</li> </ul> | <ul style="list-style-type: none"> <li>▪ Space Temperature</li> <li>▪ Space Temperature Setpoint Adj.</li> <li>▪ Space Override</li> </ul> |

\* - (5) gas fired unit heaters to be controlled by (2) communicating network thermostats.

**Miscellaneous**

| <i>Control Points</i>                                    | <i>Monitoring Points</i>  |
|--|---|
| <ul style="list-style-type: none"> <li>▪ None</li> </ul> | <ul style="list-style-type: none"> <li>▪ Outside Air Temperature</li> <li>▪ Space Humidity**</li> </ul> |

\*\* - Space Humidity will be strategically placed to monitor dew point setup in zoned areas and will be determined by ESCO.

**UVALDE CAMPUS – WITT BUILDING**

A Schneider Electric BAS is to be installed with direct digital controls on the VVT heat pump air handling units and VAV boxes. Communication to the central workstation will be provided through the customer's wide area network. Control parameters are as follows:

**VVT Heat Pump Air Handling Units (2)**

| <i>Control Points</i>   | <i>Monitoring Points</i>  |
|---|---|
| <ul style="list-style-type: none"> <li>▪ Compressor Command(s)</li> <li>▪ Reversing Valve Command(s)</li> <li>▪ Auxiliary Heating Command(s)</li> <li>▪ Supply Fan Command</li> <li>▪ Bypass Damper Position</li> </ul> | <ul style="list-style-type: none"> <li>▪ Supply Air Static Pressure</li> <li>▪ Supply Air Temperature</li> <li>▪ Suction Line Temperature</li> <li>▪ Supply Fan Status</li> </ul> |

**VAV Boxes (12)**

| <i>Control Points</i>   | <i>Monitoring Points</i>   |
|---|--|
| <ul style="list-style-type: none"> <li>▪ Damper Position</li> </ul> | <ul style="list-style-type: none"> <li>▪ Space Temperature</li> <li>▪ Space Temperature Setpoint Adj.</li> <li>▪ Space Override</li> </ul> |

**Miscellaneous**

| <i>Control Points</i>                                    | <i>Monitoring Points</i>  |
|--|---|
| <ul style="list-style-type: none"> <li>▪ None</li> </ul> | <ul style="list-style-type: none"> <li>▪ Outside Air Temperature</li> <li>▪ Space Humidity**</li> </ul> |

\*\* - Space Humidity will be strategically placed to monitor dew point setup in zoned areas and will be determined by ESCO.

**UVALDE CAMPUS – WILDLIFE/AVIATION BUILDING**

A Schneider Electric BAS is to be installed with direct digital controls on the VVT heat pump air handling unit and VAV boxes and a communicating network thermostat will be installed on the remaining split system heat pump unit. Communication to the central workstation will be provided through the customer's wide area network. Control parameters are as follows:

**VVT Heat Pump Air Handling Unit (1)**

| <i>Control Points</i>   | <i>Monitoring Points</i>  |
|---|---|
| <ul style="list-style-type: none"> <li>▪ Compressor Command(s)</li> <li>▪ Reversing Valve Command(s)</li> <li>▪ Auxiliary Heating Command(s)</li> <li>▪ Supply Fan Command</li> <li>▪ Bypass Damper Position</li> </ul> | <ul style="list-style-type: none"> <li>▪ Supply Air Static Pressure</li> <li>▪ Supply Air Temperature</li> <li>▪ Suction Line Temperature</li> <li>▪ Supply Fan Status</li> </ul> |

**VAV Boxes (5)**

| <i>Control Points</i>   | <i>Monitoring Points</i>   |
|---|--|
| <ul style="list-style-type: none"> <li>▪ Damper Position</li> </ul> | <ul style="list-style-type: none"> <li>▪ Space Temperature</li> <li>▪ Space Temperature Setpoint Adj.</li> <li>▪ Space Override</li> </ul> |

**Split System Heat Pump Unit (1)**

| <i>Control Points</i>   | <i>Monitoring Points</i>  |
|---|---|
| <ul style="list-style-type: none"> <li>▪ Compressor Command(s)</li> <li>▪ Reversing Valve Command(s)</li> <li>▪ Auxiliary Heating Command(s)</li> <li>▪ Supply Fan Command</li> </ul> | <ul style="list-style-type: none"> <li>▪ Space Temperature</li> <li>▪ Space Temperature Setpoint Adj.</li> <li>▪ Space Override</li> <li>▪ Supply Fan Status</li> <li>▪ Supply Air Temperature</li> </ul> |

**Miscellaneous**

| <i>Control Points</i>                                    | <i>Monitoring Points</i>  |
|--|---|
| <ul style="list-style-type: none"> <li>▪ None</li> </ul> | <ul style="list-style-type: none"> <li>▪ Outside Air Temperature</li> <li>▪ Space Humidity**</li> </ul> |

\*\* - Space Humidity will be strategically placed to monitor dew point setup in zoned areas and will be determined by ESCO.

**UVALDE CAMPUS – TRANSPORTATION BUILDING**

A Schneider Electric BAS is to be installed with communicating network thermostats on the split

system heat pump unit and infrared radiant heaters. Communication to the central workstation will be provided through the customer's wide area network. Control parameters are as follows:

#### **Split System Heat Pump Units (1)**

| <i>Control Points</i>   | <i>Monitoring Points</i>   |
|---|--|
| <ul style="list-style-type: none"> <li>▪ Compressor Command(s)</li> <li>▪ Reversing Valve Command(s)</li> <li>▪ Auxiliary Heating Command(s)</li> <li>▪ Supply Fan Command</li> </ul> | <ul style="list-style-type: none"> <li>▪ Space Temperature</li> <li>▪ Space Temperature Setpoint Adj.</li> <li>▪ Space Override</li> </ul> |

#### **Infrared Radiant Heaters (2)\***

| <i>Control Points</i>  | <i>Monitoring Points</i>   |
|--|--|
| <ul style="list-style-type: none"> <li>▪ Heating Command(s)</li> </ul> | <ul style="list-style-type: none"> <li>▪ Space Temperature</li> <li>▪ Space Temperature Setpoint Adj.</li> <li>▪ Space Override</li> </ul> |

\* - (4) gas fired unit heaters to be controlled by (2) communicating network thermostats.

#### **Miscellaneous**

| <i>Control Points</i>                                    | <i>Monitoring Points</i>  |
|--|---|
| <ul style="list-style-type: none"> <li>▪ None</li> </ul> | <ul style="list-style-type: none"> <li>▪ Outside Air Temperature</li> <li>▪ Space Humidity**</li> </ul> |

\*\* - Space Humidity will be strategically placed to monitor dew point setup in zoned areas and will be determined by ESCO.

#### **UVALDE CAMPUS – DAYCARE CENTER**

A Schneider Electric BAS is to be installed with communicating network thermostats on the split system heat pump unit. Communication to the central workstation will be provided through the customer's wide area network. Control parameters are as follows:

#### **Split System Heat Pump Unit (1)**

| <i>Control Points</i>   | <i>Monitoring Points</i>  |
|---|---|
| <ul style="list-style-type: none"> <li>▪ Compressor Command(s)</li> <li>▪ Reversing Valve Command(s)</li> <li>▪ Auxiliary Heating Command(s)</li> <li>▪ Supply Fan Command</li> </ul> | <ul style="list-style-type: none"> <li>▪ Space Temperature</li> <li>▪ Space Temperature Setpoint Adj.</li> <li>▪ Space Override</li> <li>▪ Supply Fan Status</li> <li>▪ Supply Air Temperature</li> </ul> |

#### **Miscellaneous**

| <i>Control Points</i>                                    | <i>Monitoring Points</i>  |
|--|---|
| <ul style="list-style-type: none"> <li>▪ None</li> </ul> | <ul style="list-style-type: none"> <li>▪ Outside Air Temperature</li> <li>▪ Space Humidity**</li> </ul> |

\*\* - Space Humidity will be strategically placed to monitor dew point setup in zoned areas and will be determined by ESCO.

#### **UVALDE CAMPUS – KIRCHNER & POWERS CHILD DEVELOPMENT CENTER**

A Schneider Electric BAS is to be installed with communicating network thermostats on the split system heat pump units. Communication to the central workstation will be provided through the customer's wide area network. Control parameters are as follows:

**Split System Heat Pump Units (3)**

| <i>Control Points</i>   | <i>Monitoring Points</i>  |
|---|---|
| <ul style="list-style-type: none"> <li>▪ Compressor Command(s)</li> <li>▪ Reversing Valve Command(s)</li> <li>▪ Auxiliary Heating Command(s)</li> <li>▪ Supply Fan Command</li> </ul> | <ul style="list-style-type: none"> <li>▪ Space Temperature</li> <li>▪ Space Temperature Setpoint Adj.</li> <li>▪ Space Override</li> <li>▪ Supply Fan Status</li> <li>▪ Supply Air Temperature</li> </ul> |

**Miscellaneous**

| <i>Control Points</i>                                    | <i>Monitoring Points</i>  |
|--|---|
| <ul style="list-style-type: none"> <li>▪ None</li> </ul> | <ul style="list-style-type: none"> <li>▪ Outside Air Temperature</li> <li>▪ Space Humidity**</li> </ul> |

\*\* - Space Humidity will be strategically placed to monitor dew point setup in zoned areas and will be determined by ESCO

**UVALDE CAMPUS – ART BUILDING**

A Schneider Electric BAS is to be installed with communicating network thermostats on the split system heat pump units. Communication to the central workstation will be provided through the customer's wide area network. Control parameters are as follows:

**Split System Heat Pump Units (2)**

| <i>Control Points</i>   | <i>Monitoring Points</i>  |
|---|---|
| <ul style="list-style-type: none"> <li>▪ Compressor Command(s)</li> <li>▪ Reversing Valve Command(s)</li> <li>▪ Auxiliary Heating Command(s)</li> <li>▪ Supply Fan Command</li> </ul> | <ul style="list-style-type: none"> <li>▪ Space Temperature</li> <li>▪ Space Temperature Setpoint Adj.</li> <li>▪ Space Override</li> <li>▪ Supply Fan Status</li> <li>▪ Supply Air Temperature</li> </ul> |

**Miscellaneous**

| <i>Control Points</i>                                    | <i>Monitoring Points</i>  |
|--|---|
| <ul style="list-style-type: none"> <li>▪ None</li> </ul> | <ul style="list-style-type: none"> <li>▪ Outside Air Temperature</li> <li>▪ Space Humidity**</li> </ul> |

\*\* - Space Humidity will be strategically placed to monitor dew point setup in zoned areas and will be determined by ESCO.

**BAS EXCLUSIONS**

The following items are excluded from ESCO's scope of work:

- Asbestos abatement of any kind.
- Air flow testing and balancing on HVAC equipment will not be included as part of the controls work.
- Repair of existing HVAC and control equipment beyond the Scope of Work is excluded. ESCO will reuse existing equipment for the execution of this contract, and assumes the equipment or devices are in good working order. Should the equipment or devices need repair or replacement, this will be the responsibility of the customer. ESCO will create an EDR (equipment deficiency report) to give customer written notification if such equipment or devices are found.
- ESCO will not add or control any window units via the building automation system.
- ESCO will not control any self-contained units (units with integral control, not for remote control) via the building automation system.
- Exhaust fans controlled by occupancy sensors or local switches and exhaust fans that do not exhaust to the exterior of the building will not be integrated with the building automation system.
- ESCO is not responsible for existing safeties on equipment or any life safety equipment. If ESCO is to replace a starter with a VFD, ESCO will tie-in existing safety circuit into the VFD safety circuit. ESCO will not be responsible for the functionality of the existing safety devices. Pre and post testing of these smoke, fire, and life safety systems will be the responsibility of the customer and the sequence will be provided to ESCO.
- Where life safety equipment utilizes compressed air (pneumatics), the source of the air, logic, and actuators will not be removed or modified within the execution of the project.
- ESCO will only control equipment and/or devices shown in the Scope of Work, unless devices are not suitable for automated control. Equipment and devices not in the Scope of Work are excluded.
- If equipment/devices controlled by the existing BAS are not in the Scope of Work, ESCO is not responsible for their functionality.
- Conduit will only be used from controller panels to the lower of a finished ceiling or 8' for all low voltage wiring, and shall be in compliance with local codes and authorities having jurisdiction.
- ESCO will make the final decision for controller selection, point configurations, and end devices selection based on current standards and engineering practices of ESCO.
- ESCO will not be responsible for any modification or extension of the existing WAN/LAN for execution of this project.
- ESCO will not be responsible for controlling the HVAC equipment located in buildings without WAN/LAN network communication. These buildings are excluded from the scope of work.
- Costs of providing access, access control, or security escorts not specified in the Scope of Work are excluded.
- Matching of paint color or ceiling tile color and pattern shall be limited by current commercial availability. Variations in replacement paint color and ceiling tile color due to age, wear, and dirt shall be minimized where possible. Similar or complementary tiles shall be provided where exact matches are not available. Custom paint colors and custom tiles are excluded.
- Any repair patching of existing walls, sheetrock, plaster, brick, wood, etc due to the removal of existing thermostats (for retrofit with DDC Sensor or new thermostat) will be performed by the owner.
- Unless specified in the controls scope or in the mechanical scope, the repair or replacement of non-functional actuators, dampers, and valves are the responsibility of the owner.
- Demolition of the existing BAS will be performed as needed to implement the new DDC system (reuse of enclosures, wire, and end devices will be determined by ESCO), the total demolition will be the responsibility of the owner, unless otherwise stated.

**LIGHTING**

Lighting will be upgraded in the following facilities as detailed below, improving overall efficiency. Light levels will be brought into compliance with Illuminating Engineering Society (IES) standards wherever possible.

- Crystal City Campus
- Del Rio Campus
  - Administration Building
  - Academic Building
  - SRSU Administration Building
  - SRSU Academic Building
  - SRSU Technical Services Building
  - SRSU Faculty Office Building
- Eagle Pass Campus
  - Administration Building
  - Bermea Building A
  - SRRGC Building B
  - Library & Class Room Building C
  - SRRGC Building D
  - Technical Building E
- Uvalde Campus
  - Anderson Building
  - E. P. Richarz Building
  - Auto/Body Building
  - Garner Science Building
  - Kincaid Building
  - Tate Fine Arts Building
  - Espinosa Building
  - J. Richarz Admin Building
  - LaForge Hall
  - Will C. Miller Library
  - Maintenance Building
  - Miller Building Educational Annex
  - Matthews Student Center
  - Memorial Building
  - Fly Building
  - Wagner Building
  - Welding Building
  - Witt Building
  - Flores Building
  - Wildlife/Aviation Building
  - Hubbard Hall
  - Garner Hall
  - Transportation Building
  - Lineman School Building

**CRYSTAL CITY CAMPUS**

We will perform the following:

- Retrofit existing 4' T8 fluorescent fixtures with high efficiency T8 lamps and electronic ballasts.
- Retrofit existing metal halide parking lot fixtures with high efficiency pulse start metal halide.

**DEL RIO CAMPUS**

We will perform the following:

**ADMINISTRATION BUILDING**

- Retrofit existing 4' T12 fluorescent fixtures with high efficiency T8 lamps and electronic ballasts.
- Retrofit existing 2' (U-tube) T12 fluorescent fixtures with high efficiency T8 lamps and electronic ballasts.

**ACADEMIC BUILDING**

- Retrofit existing 4' T8 fluorescent fixtures with high efficiency T8 lamps and electronic ballasts.
- Retrofit existing 2' (U-tube) T8 fluorescent fixtures with high efficiency T8 lamps and electronic ballasts.
- Retrofit incandescent signs with maintenance-free LEDs.

**SRSU ADMINISTRATION BUILDING**

- Retrofit existing 4' T12 fluorescent fixtures with high efficiency T8 lamps and electronic ballasts.
- Retrofit existing 4' T8 fluorescent fixtures with high efficiency T8 lamps and electronic ballasts.

**SRSU ACADEMIC BUILDING**

- Retrofit existing 4' T8 fluorescent fixtures with high efficiency T8 lamps and electronic ballasts.

**SRSU TECHNICAL SERVICES BUILDING**

- Retrofit existing 4' T8 fluorescent fixtures with high efficiency T8 lamps and electronic ballasts.

**SRSU FACULTY OFFICE BUILDING**

- Retrofit existing 4' T8 fluorescent fixtures with high efficiency T8 lamps and electronic ballasts.
- Retrofit existing metal halide parking lot fixtures with high efficiency pulse start metal halide.

**EAGLE PASS CAMPUS**

We will perform the following:

**ADMINISTRATION BUILDING**

- Retrofit existing 4' T8 fluorescent fixtures with high efficiency T8 lamps and electronic ballasts.

**BERMEA BUILDING A**

- Retrofit existing 4' T8 fluorescent fixtures with high efficiency T8 lamps and electronic ballasts.
- Retrofit incandescent signs with maintenance-free LEDs.



**SRRGC BUILDING B**

- Retrofit existing 4' T12 fluorescent fixtures with high efficiency T8 lamps and electronic ballasts.
- Retrofit existing 4' T8 fluorescent fixtures with high efficiency T8 lamps and electronic ballasts.
- Retrofit incandescent signs with maintenance-free LEDs.

**LIBRARY & CLASS ROOM BUILDING C**

- Retrofit existing 4' T12 fluorescent fixtures with high efficiency T8 lamps and electronic ballasts.
- Retrofit existing 4' T8 fluorescent fixtures with high efficiency T8 lamps and electronic ballasts.

**SRRGC BUILDING D**

- Retrofit existing 4' T8 fluorescent fixtures with high efficiency T8 lamps and electronic ballasts.

**TECHNICAL BUILDING E**

- Retrofit existing 4' T8 fluorescent fixtures with high efficiency T8 lamps and electronic ballasts.
- Replace existing metal halide fixtures with fluorescent high bay fixtures.
- Retrofit existing metal halide parking lot fixtures with high efficiency pulse start metal halide.

**UVALDE CAMPUS**

We will perform the following:

**ANDERSON BUILDING**

- Retrofit existing 4' T12 fluorescent fixtures with high efficiency T8 lamps and electronic ballasts.
- Retrofit existing 4' T8 fluorescent fixtures with high efficiency T8 lamps and electronic ballasts.
- Retrofit incandescent bulbs with compact fluorescent.

**RICHARZ BUILDING**

- Retrofit existing 4' T12 fluorescent fixtures with high efficiency T8 lamps and electronic ballasts.
- Retrofit incandescent bulbs with compact fluorescent.

**AUTO BODY SHOP**

- Retrofit existing 8' and 4' T12 fluorescent fixtures with high efficiency T8 lamps and electronic ballasts.
- Retrofit incandescent bulbs with compact fluorescent.

**GARNER SCIENCE BUILDING**

- Retrofit existing 4' T12 fluorescent fixtures with high efficiency T8 lamps and electronic ballasts.
- Retrofit incandescent bulbs with compact fluorescent.

**KINCAID BUILDING**

- Retrofit existing 4' T12 fluorescent fixtures with high efficiency T8 lamps and electronic ballasts.
- Retrofit incandescent bulbs with compact fluorescent.

**TATE FINE ARTS BUILDING**

- Retrofit existing 4' T12 fluorescent fixtures with high efficiency T8 lamps and electronic ballasts.
- Retrofit existing 4' T8 fluorescent fixtures with high efficiency T8 lamps and electronic ballasts.
- Retrofit incandescent bulbs with compact fluorescent.
- Replace existing 4' T12 surface mount fixtures with new recessed T8 fixtures in classrooms 1, 2, 3, 4, 5, 6, 7, 8, 9 and 10.

**ESPINOSA BUILDING**

- Retrofit existing 4' T12 fluorescent fixtures with high efficiency T8 lamps and electronic ballasts.
- Retrofit incandescent bulbs with compact fluorescent.

**RICHARZ ADMIN BUILDING**

- Retrofit existing 4' T12 fluorescent fixtures with high efficiency T8 lamps and electronic ballasts.
- Retrofit incandescent bulbs with compact fluorescent.

**LAFORGE HALL**

- Retrofit existing 4' T12 fluorescent fixtures with high efficiency T8 lamps and electronic ballasts.
- Retrofit existing 4' T8 fluorescent fixtures with high efficiency T8 lamps and electronic ballasts.
- Replace existing metal halide gym fixtures with fluorescent high bay fixtures.
- Retrofit incandescent bulbs with compact fluorescent.

**MILLER LIBRARY**

- Retrofit existing 4' T12 fluorescent fixtures with high efficiency T8 lamps and electronic ballasts.
- Retrofit existing 4' T8 fluorescent fixtures with high efficiency T8 lamps and electronic ballasts.
- Retrofit incandescent bulbs with compact fluorescent.
- Replace existing incandescent surface mount fixtures with new 2' T8 fixtures in the front areas of the first floor.

**MAINTENANCE BUILDING**

- Retrofit existing 4' T12 fluorescent fixtures with high efficiency T8 lamps and electronic ballasts.
- Replace existing metal halide fixtures with fluorescent fixtures.
- Retrofit incandescent bulbs with compact fluorescent.

**MILLER BUILDING**

- Retrofit existing 4' T12 fluorescent fixtures with high efficiency T8 lamps and electronic ballasts.
- Retrofit existing 4' T8 fluorescent fixtures with high efficiency T8 lamps and electronic ballasts.
- Replace existing metal halide fixtures with fluorescent high bay fixtures.
- Retrofit incandescent bulbs with compact fluorescent.

**MATTHEWS STUDENT CENTER**

- Retrofit existing 4' T12 fluorescent fixtures with high efficiency T8 lamps and electronic ballasts.
- Retrofit incandescent bulbs with compact fluorescent.

**PE MEMORIAL BUILDING**

- Retrofit existing 4' T12 fluorescent fixtures with high efficiency T8 lamps and electronic ballasts.
- Replace existing metal halide fixtures with fluorescent high bay fixtures.
- Retrofit incandescent bulbs with compact fluorescent.

**FLY BUILDING**

- Retrofit existing 4' T8 fluorescent fixtures with high efficiency T8 lamps and electronic ballasts.

**WAGNER BUILDING**

- Retrofit existing 4' T12 fluorescent fixtures with high efficiency T8 lamps and electronic ballasts.
- Retrofit incandescent bulbs with compact fluorescent.

**WELDING SHOP**

- Retrofit existing 8' and 4' T12 fluorescent fixtures with high efficiency T8 lamps and electronic ballasts.
- Retrofit incandescent bulbs with compact fluorescent.

**WITT BUILDING**

- Retrofit existing 4' T12 fluorescent fixtures with high efficiency T8 lamps and electronic ballasts.
- Retrofit existing 4' T8 fluorescent fixtures with high efficiency T8 lamps and electronic ballasts.
- Retrofit incandescent bulbs with compact fluorescent.

**FLORES BUILDING**

- Retrofit existing 4' T8 fluorescent fixtures with high efficiency T8 lamps and electronic ballasts.

**WILDLIFE MANAGEMENT BUILDING**

- Retrofit existing 4' T12 fluorescent fixtures with high efficiency T8 lamps and electronic ballasts.
- Retrofit existing 4' T8 fluorescent fixtures with high efficiency T8 lamps and electronic ballasts.

**HUBBARD HALL**

- Retrofit existing 4' T12 fluorescent fixtures with high efficiency T8 lamps and electronic ballasts.
- Retrofit incandescent bulbs with compact fluorescent.

**GARNER HALL**

- Retrofit existing 4' T8 fluorescent fixtures with high efficiency T8 lamps and electronic ballasts.
- Retrofit incandescent bulbs with compact fluorescent.

**TRANSPORTATION BUILDING**

- Retrofit existing 4' T12 fluorescent fixtures with high efficiency T8 lamps and electronic ballasts.
- Replace existing metal halide fixtures with fluorescent high bay fixtures.
- Retrofit incandescent bulbs with compact fluorescent.

**LINEMAN SCHOOL BUILDING**

- Retrofit existing 4' T8 fluorescent fixtures with high efficiency T8 lamps and electronic ballasts.

LIGHTING EXCLUSIONS

We will not retrofit the following:

- Exterior lighting (except F40/34 and U-tube fluorescent)
- Incandescent fixtures as follows
  - a. On dimmers
  - b. Where heat, fixture size, or photometrics prevent compact fluorescent application
  - c. With low burn hours
  - d. In decorative applications
- Circline fluorescents
- 1', 3', and 6' fluorescents
- HO and VHO fluorescents
- F48T12 (Instant Start Slimline) fluorescents
- 3" spread U-tube fluorescents
- High intensity discharge fixtures (except as noted above)
- Exit signs as follows
  - a. Fluorescent exits
  - b. Edge-lit signs
  - c. Incandescents which will not accommodate LED retrofit unit
- Abandoned fixtures
- Task lighting on modular furniture
- Black light and aquarium lighting

We will not replace emergency lighting battery backup units.

We will not replace missing, broken or yellowed fixture lenses.

Two stage switching (A/B circuit) multi-light output fluorescent fixtures will be converted to row-by-row switching

## MECHANICAL (HVAC) SYSTEM IMPROVEMENTS

### Replace Existing Split System Heat Pumps (4 @ Mathews Student Center, 2 @ Miller Library, 3 @ Tate Building)

- Replace existing split system heat pump condensing units and air handling units with new high efficiency Split System Heat Pumps in the same location.
- Disconnect existing electrical, ductwork, and refrigerant lines for reuse.
- Reconnect new unit to existing electrical, ductwork, and refrigerant lines.

### Replace Existing DX Split System with a Natural Gas Furnace with a New Packaged DX Unit with a Natural Gas Furnace (1 @ Mathews Student Center)

- Remove the existing DX split system condensing units (2) and air handling unit (1) with a natural gas furnace.
- Demo existing electrical back to its source
- Demo existing refrigerant lines back to ground level, cap and seal.
- Remove existing outside air ductwork.
- Pour new equipment pad for the new packaged unit adjacent to the Cafeteria Storage Area.
- Install new packaged unit on the new equipment pad
- Install new supply and return ductwork. Penetrate the wall through the wood transom and tie into the existing supply and return ductwork inside adjacent storage area.
- Seal all new or abandoned penetrations weather tight.
- Run new electrical from main distribution panel in adjacent storage room to the new packaged unit. Run a new gas line from the new unit to tie into the existing gas line.

### Replace Existing DX RTU with a Natural Gas Furnace with a New Packaged Heat Pump with Auxiliary Electric Heat (3 @ La Forge Hall)

- Replace existing DX RTU with a natural gas furnace with a new high efficiency heat pump RTU with auxiliary electric heat.
- Disconnect existing gas lines, cap and seal.
- Disconnect existing electrical for reuse.
- Reconnect new unit to existing electrical.

### Replace Existing Natural Gas Heating Units with New Natural Gas Heating Units (2 @ La Forge Hall)

- Replace existing ceiling hung natural gas unit heaters with new natural gas unit heaters.
- Demo existing electrical, ductwork, gas lines, and flues for reuse.
- Install new combustion air intakes for each new unit from the roof to the unit
- Reconnect new unit to existing electrical, ductwork, gas lines, and flues.

### Replace Existing Natural Gas Unit Heaters with New Natural Gas Unit Heaters (2 @ Welding Shop, 3 @ Auto Body Shop, and 1 @ Automotive Shop)

- Replace existing ceiling hung natural gas unit heaters with new natural gas unit heaters at the Welding Shop and the Automotive Shop. Replace existing ceiling hung natural gas unit heaters with three new infrared heaters in the Auto Body Shop.
- Demo existing electrical, gas lines, and flues as required for new installations.
- Reconnect new unit to existing electrical, ductwork, gas lines, and flues.

### MECHANICAL EXCLUSIONS

- Night/holiday work unless otherwise specified in the Scope of Work.
- Additional labor cost due to restriction of allowable work hours.
- Costs incurred due to lack of access to required areas or due to access to storage areas to which materials are to be delivered.
- Costs of providing access, access control, or security escorts not specified in the Scope of Work.

- Hazardous materials testing and abatement not specified in the Scope of Work.
- Materials and labor associated with modifications to existing systems and equipment not identified in these documents as included in the Scope of Work.
- Testing, adjusting, and balancing of existing systems not identified in these documents as included in the Scope of Work.
- Commissioning of existing systems not identified in these documents as included in the Scope of Work.
- Upgrading existing mechanical systems to provide ventilation rates in compliance with current Codes and Standards unless indicated herein to be included.
- Repair or replacement of ceiling beyond that required to accomplish the Scope of Work.
- Painting of floors, walls or ceilings beyond that required to match existing surfaces in the immediate work area.
- Waste disposal other than that required to accomplish the Scope of Work.
- Demolition of equipment, piping and accessories indicated herein to be abandoned in-place unless indicated herein to be included.
- The cost for utilities including natural or propane gas, fuel oil, electricity, potable or nonpotable water during the construction period.
- The cost for equipment and/or utilities to provide temporary heating or cooling of facilities during the construction period.
- Cost escalation of materials as a result of a delay in the construction schedule caused by Customer action or inaction.
- Inspection and permitting fees for agencies (state and/or federal) other than the local authority having jurisdiction.
- Fees for third party engineers acting as Customer's agent.
- As-built drawings will be provided. Drawings will be provided in digital (pdf) format on disk.
- Structural modifications not specified in the Scope of Work.
- Building envelope modifications not specified in the Scope of Work.
- Replacement of ductwork and diffusers not specified in the Scope of Work.
- Replacement of piping not specified in the Scope of Work.
- Ductwork and piping insulation not specified in the Scope of Work.
- Electrical systems not specified in the Scope of Work.
- Equipment replacement and their components not specified in the Scope of Work.

## PC POWER MANAGEMENT

Contractor is to provide Customer a total of one thousand, three hundred and ninety-nine (1,399) district licenses for installation of the Faronics PowerSave software. Customer network managers will self perform the installation and maintain the provided software on all active computing resources owned by Customer. Customer will provide Contractor access to computer use reports required for savings measurement and verification. The list of computers per campus is as follows:

|              |      |
|--------------|------|
| Crystal City | 99   |
| Del Rio      | 252  |
| Eagle        | 295  |
| Uvalde       | 753  |
| Total        | 1399 |

All affected computers will continue to function as is with no reduction in "In Use" time. All equipment and software is property of Customer and will remain so. Savings assume system-wide implementation and annual maintenance by Customer.

## POWER FACTOR CORRECTION

Buildings with a low power factor draw current from the utility power grid that does no useful work. Even though this current is not utilized, the utility company still must generate and transmit it, which causes distribution systems to be larger than necessary. Consequently, many utility companies include a penalty in their tariffs for power factor below a certain level.

Calculations indicate that SWTJC will achieve significant financial savings by installing power factor correcting capacitors at the main meter for the Uvalde campus. This is SWTJC only electric meter that is billed on power factor.

Schneider Electric will install power factor correcting capacitors for the main meter at the Uvalde campus.