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ADDENDUM NO. 04

PROJECT:	South Orangetown Central School District PHASE 1: 2022 BOND
CPL PROJECT NO.	14457.20
DATE:	November 17, 2023

Include this Addendum as part of the Contract Documents. It supplements portions of the original specifications and drawings, the extent of which shall remain, except as revised herein:

CLARIFICATIONS

1.1 All RFI's received prior to 11/17/23 have been answered and are attached for reference.

1.2 Pre-bid mtg question: Confirm CLE Corridor ceilings are non-ACM.
Response: Confirmed, abatement is not required for removal of corridor ceilings.

1.3 Pre-bid mtg question: Who provides the steel required for mounting the TZHS Scoreboard?
Response: Steel supports as shown on TZHS A300 are by GC. Scoreboard will be provided and installed by NEVCO.

CHANGES TO THE SPECIFICATIONS

2.1 Section 092116;
Part 2.3: Revise Item A to read:
A. Acoustic Insulation: ASTM C665; preformed glass fiber, friction fit type, unfaced. Thickness: To match partition thickness.
Part 2.3: Omit Item B.

2.2 After Section 024100: Add attached Section 028300-LEAD SAFE WORK PRACTICES

2.3 Section 087100; Part 3.6; Item G. Hardware Sets:
Omit CLE SET C7: Doors 404A & 404B do not exist.

2.4 After Section 236313: Add attached Section 236314 – CONDENSING UNITS

2.5 After Section 237413: Add attached Section 237416 – PACKAGED ROOFTOP UNITS

2.6 After Section 238126.13: Add attached Section 238129 – VRF SYSTEM

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CHANGES TO THE DRAWINGS

3.1 Drawing WOS HZ100: Replace with attached revised WOS HZ100

3.2 Drawing GEN S801: Replace with attached revised GEN S801

3.3 Drawing WOS A100: The (2) 3'-4" wide openings in the corridor wall at P.E.OFFICE are by the HZ Contractor, due to removal of Lead containing decorative block. Final location of openings to be coordinated with GC. Refer to attached revised Drawing WOS HZ100.

3.4 Drawing WOS A200: Replace with attached revised WOS A200

3.5 Drawing WOS A202: Replace with attached revised WOS A202

3.6 Drawing WOS A900: Replace with attached revised WOS A900

3.7 Drawing CLE A200: Replace with attached revised CLE A200

3.8 Drawing CLE A202: Replace with attached revised CLE A202

3.9 Drawing CLE A810: Replace with attached revised CLE A810

3.10 Drawing CLE A900: Replace with attached revised CLE A900

3.11 Drawing TZHS A100: Revise Keynotes as follows:
Keynote 2: BLEACHER SYSTEM TO BE REMOVED, SALVAGED & REINSTALLED BY OTHERS.
Keynote 3: WALL PADS TO BE REMOVED, SALVAGED & REINSTALLED BY OTHERS.

3.12 Drawing TZHS A200: Revise Keynotes as follows:
Keynote 1: RELOCATED BLEACHER SYSTEM BY OTHERS.
Keynote 3: NEW WALL PAD BY OTHERS. PATCH WALL PADS TO MATCH EXISTING ADJACENT.
Keynote 4: REINSTALLED SALVAGED WALL PADS BY OTHERS.

3.13 Drawing GEN H500: Replace with attached revised GEN H500

3.14 Drawing GEN H501: Replace with attached revised GEN H501

3.15 Drawing GEN H504: Replace with attached revised GEN H504

3.16 After Drawing GEN H504: Add Drawing GEN H505

3.17 Drawing GEN H800: Omit Detail 10

3.18 After Drawing GEN H800: Add Drawing GEN H801

3.19 Drawing WOS H101: Replace with attached revised WOS H101

3.20 Drawing WOS H111: Replace with attached revised WOS H111

3.21 Drawing WOS H112: Revise keynote 3 to say "REMOVE EXISTING ROOFTOP UNIT, CURB AND DISCONNECT DUCTWORK. PREPARE DUCTWORK FOR NEW UNIT.

3.22 Drawing WOS H201: Replace with attached revised WOS H201

3.23 Drawing WOS H204: Replace with attached revised WOS H204

3.24 Drawing WOS H211: Replace with attached revised WOS H211.

3.25 Drawing WOS H212: Revise keynote 1 to say "PROVIDE UNIT ON INSULATED CURB. RECONNECT TO DUCTWORK.

3.26 Drawing WOS H301: Replace with attached revised WOS H301

3.27 Drawing WOS H600: Replace with attached revised H600.

3.28 Drawing WOS H601: Replace with attached revised H601.

3.29 Drawing WOS H900: Replace with attached revised WOS H900.

3.30 Drawing WOS H901: Replace with attached revised WOS H901.

3.31 Drawing WOS H902: Replace with attached revised WOS H902.

3.32 CLE H205 – ADD KEYNOTE 7: PROVIDE 18 GA GALVANIZED PANEL TO COVER OPENING LEFT FROM DUCT REMOVALS AT THE STAGE, APPROXIMATELY 14X6, FIELD VERIFY EXACT SIZE, SECURE TO EXISTING CONTRUCTION AND PAINT TO MATCH EXISTING SURROUNDING. PAINT COLOR TO BE APPROVED BY ARCHITECT.

3.33 Drawing CLE H900: Replace with attached revised CLE H900.

3.34 Drawing CLE H901: Replace with attached revised CLE H901.

3.35 Drawing CLE E100, Key Notes: Add Key Note 4. Key note 4: At each window AC unit, disconnect and remove existing single receptacle, conduit, and wiring in its entirety back to source panel in the following rooms – 407,408,409,410,411. Turn off circuit breakers and label them as spare.

3.36 Drawing CLE E102, Key Notes: Add Key Note 5. Key note 5: At each window AC unit, disconnect and remove existing single receptacle, conduit, and wiring in its entirety back to source panel in the following rooms – 101A,101G,105,107,109,111,204,205,206,208. Turn off circuit breakers and label them as spare.

3.37 Drawing CLE E104, Key Notes: Add Key Note 5. Key note 5: At each window AC unit, disconnect and remove existing single receptacle, conduit, and wiring in its entirety back to source panel in the following rooms – 300C,301,301B. Turn off circuit breakers and label them as spare.

3.38 Drawing CLE E105, Key Notes: Add Key Note 4. Key note 4: At each window AC unit, disconnect and remove existing single receptacle, conduit, and wiring in its entirety back to source panel in the following rooms – 306,309,310,311. Turn off circuit breakers and label them as spare.

3.39 Drawing WOS E100, Key Notes: Add Key Note 5. Key note 5: At each window AC unit, disconnect and remove existing single receptacle, conduit, and wiring in its entirety back to source panel in the following rooms – 30,32. Turn off circuit breakers and label them as spare.

3.40 Drawing WOS E101, Key Notes: Add Key Note 6. Key note 6: At each window AC unit, disconnect and remove existing single receptacle, conduit, and wiring in its entirety back to source panel in the following rooms – 5,6,11B. Turn off circuit breakers and label them as spare.

3.41 Drawing WOS E102, Key Notes: Add Key Note 5. Key note 5: At each window AC unit, disconnect and remove existing single receptacle, conduit, and wiring in its entirety back to source panel in the following rooms – 1,102,M1,M2,M3. Turn off circuit breakers and label them as spare.

3.42 Drawing WOS E104, Key Notes: Add Key Note 4. Key note 4: At each window AC unit, disconnect and remove existing single receptacle, conduit, and wiring in its entirety back to source panel in the following rooms – 57,59,62. Turn off circuit breakers and label them as spare.

3.43 Drawing WOS E105, Key Notes: Add Key Note 5. Key note 5: At each window AC unit, disconnect and remove existing single receptacle, conduit, and wiring in its entirety back to source panel in the following rooms – 61,65,68,69,70,74. Turn off circuit breakers and label them as spare.

3.44 Drawing CLE-E900: Replace with attached revised CLE-E900.

3.45 Drawing CLE-E901: Replace with attached revised CLE-E901.

3.46 Drawing WOS-E107: Replace with attached revised WOS-E107.

3.47 Drawing WOS-E201: Replace with attached revised WOS-E201.

3.48 Drawing WOS-E211: Replace with attached revised WOS-E211.

3.49 Drawing WOS-E900: Replace with attached revised WOS-E900.

3.50 Drawing WOS-E901: Replace with attached revised WOS-E901.

3.51 Drawing WOS-E902: Replace with attached revised WOS-E902.

END OF ADDENDUM NO. 04

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REQUEST FOR INFORMATION

RFI #: 1
Date: 10/26/2023

SOCSD PHASE 1: 2022 BOND: 14457.20

Contractor Name: Joe lombardo Plumbing & Heating of Rockland Inc.

To: CLP Architecture Engineering Firm:

From: Joe Lombardo Plumbing & Heating of Rockland Inc.

WE REQUEST YOUR ATTENTION (OR CONFIRMATION) REGARDING THE FOLLOWING:

Subject: Acoustical Ceiling Tile Removal and Replacement Scope of Work

Location: Cottage Lane ES, William O Schaefer ES

Information is Requested By: Joseph Furtado joe@josephlombaro.com

MESSAGE: Drawing Gen-H000 HAVC Contractor General Notes "B" states it is the responsibility of contractor to remove and replace existing ceiling for performing demolition or new work within the ceiling. In addition, Multiple Contract Summary Section 01 1200-1.06 Section "A.1" list this scope of work. When you refer to Multiple Contract Summary Section 01 1200-1.05 Section "A.10" list this work to be performed by General Construction Contracting.

Demolition Contract Drawings CLE-A101, CLE-A102, CLE-A103, WOS-A100, WOS-A101, WOS-102 list ceiling demolition, but also list the demolition of Plaster Ceiling and Secondary Acoustic Ceiling Sytems.

Please advise if the scope of work to remove and replace ceilings is the responsibility of the General Construction Contract Work or the Mechanical Contract Work

Please see Addendum #1 (Issued 10/27/23) revised Multiple Contract Summary for clarification.

Contractors Name:

By: L.FASCIGLIONE Date: 10/31/23

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REQUEST FOR INFORMATION

RFI #: 2
Date: 10/30/2023

SOCSD PHASE 1: 2022 BOND: 14457.20

Contractor Name: Joe lombardo Plumbing & Heating of Rockland Inc.

To: CLP Architecture Engineering Firm:

From: Joe Lombardo Plumbing & Heating of Rockland Inc.

WE REQUEST YOUR ATTENTION (OR CONFIRMATION) REGARDING THE FOLLOWING:

Subject: EP-1 - LIBERTY 404 EJECTOR PUMP

Location: William O Schaefer ES - DRAWING P202

Information is Requested By: Joseph Furtado joe@josephlombaro.com

MESSAGE: Drawing P202 makes mention of EP-1, Liberty Ejector Pump.

No detail or note is provided showing the height the discharge piping is to be installed against the wall.

There is no specification for EP-1 other than what is mentioned on Drawing P000, Plumbing Equipment Schedule, EP-1

Please provide drawings on how EP-1 is to be installed via riser diagram and a detailed drawing.

See detail 3/P202 per Addendum 2.

MLS
11/02/2023

Contractors Name: Joseph Lombardo P&H of Rockland County

By: George Hoffmann Date:

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REQUEST FOR INFORMATION

RFI #: 3
Date: Nov 1 2023

SOCSD PHASE 1: 2022 BOND: 14457.20

Contractor Name: Joe Lombardo Plumbing & Heating of Rockland Inc.

To: CLP Architecture Engineering Firm:

From: Joe Lombardo Plumbing & Heating of Rockland Inc

WE REQUEST YOUR ATTENTION (OR CONFIRMATION) REGARDING THE FOLLOWING:

Subject: Flush Valves Discrepancie

Location: William O Schaefer Elementary School

Information is Requested By: Nico

MESSAGE: Contract Drawing P000 Plumbing Equipment and Fixture Schedule list WC - 1 & WC - 2 Flushometers Sloan Royal 111 , Plumbing Fixture Spec Sect : 224000 - 2.5 List Flush Valve as Sensor - Operated Flush Valve Hard wired. Please Advise on what is correct.
.

Manual Sloan Royal 111 is the correct flush valve.

MLS
11/02/2023

Contractors Name:

By: Date:

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REQUEST FOR INFORMATION

RFI #: 4 Revised
Date: Nov 7 2023

SOCSD PHASE 1: 2022 BOND: 14457.20

Contractor Name: Joe Lombardo Plumbing & Heating of Rockland Inc.

To: CLP Architecture Engineering Firm:

From: Joe Lombardo Plumbing & Heating of Rockland Inc

WE REQUEST YOUR ATTENTION (OR CONFIRMATION) REGARDING THE FOLLOWING:

Subject: Fin Tube Schedule

Location: William O Schaefer Elementary School & Cottage Lane Elementary School

Information is Requested By:

MESSAGE:
please provide a detail drawings for both schools (Hydronic Hook Up Assembly)

.
PLEASE SEE ADDENDUM #4
L.FASCIGLIONE 11/17/23

Contractors Name: Joe Lombardo Plumbing & Heating of Rockland Inc

By: Karen Panarella Date: 11/7/2023

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REQUEST FOR INFORMATION

RFI #: 1-10
Date: 10/26

SOCSD PHASE 1: 2022 BOND: 14457.20

Contractor Name: Bertussi Contracting Inc

To: Lisa Fasciglione Firm: CPL

From: Stephanie Weber - Bertussi Contracting

WE REQUEST YOUR ATTENTION (OR CONFIRMATION) REGARDING THE FOLLOWING:

Subject: Various

Location:

Information is Requested By: ASAP

MESSAGE:

Please see attached RFI's 1-10

Please see attached responses

Contractors Name:

By: L.FASCIGLIONE/ J.MASULA Date: 11/02/23

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South Orangetown Bid RFI's

1. We saw in the milestone schedule the work on the project is for 2024 and 2025. Please advise what work is 2024 and what work is 2025.
2. WOS drawings H302, note #5 (top middle of page – FT Cover-RM101). Should this be note #4? There is no actual note #5. Please advise.
3. WOS H202 shows controls being put in on Alt MC1 as a deduct. H302 shows FTR going in Alt MC 2 as a deduct. If both alternates MC1 and MC2 are taken as deducts, what work is to be included in the base bid? Please advise.
4. CLES drawings H101,H301,H103,H303,H104,H304,H105,H305 – Note # 1 clearly shows removal of UV's with the louvers and sleeves to remain. Note #3 shows to provide FTR and paint to match the wall. Is this by the GC or the MC? Please advise.
5. CLES drawings H101,H301,H103,H303,H104,H304,H105,H305 do no show to patch the louver of the wall or painting. Is the patching and painting to be included in the base bid and who is responsible the GC or the MC? Please advise.
6. CLES drawings H101,H301,H103,H303,H104,H304,H105,H305 if the deducts are taken, what work is to be done in the space? Please advise. CLES H306, note #1 shows UV's being removed but if Alts MC 1 & MC 2 are taken, what happens with the gap and hole in the walls where the UV's were located? Please advise.
7. CLES drawings H101,H301,H103,H303,H104,H304,H105,H305 show the removal of UV's that connect to cabinetry, but shows install FTR to match. How is that going to match? Please advise.
8. If Alts MC1 and MC 2 are taken, how is the FTR to be controlled? If we are correct, the UV's being removed is what controls the FTR. Please advise.
9. WOS Plumbing – Who is responsible for opening up the wall for the sink and toilet work? The PC or the GC? Please advise.
10. Plumbing – Who is responsible for any needed trenching for the sewage ejector and toilets? Please advise.

SOCSD PH 1: 2022 BOND
BERTUSSI RFI #1 - CPL RESPONSES - LF

1. Please refer to Addendum #1 - Revised Summary and Phasing Plans.

2. Please refer to Addendum #1.

3. Please reference the specifications and 500 series plans for MC-01.
MC-01 – Provide new full building controls and all associated components to system. Provide controls to all remaining equipment.
Base Bid – Provide controls and new head end for the new equipment.
MC-02 – if selected means contractor shall just provide piping to complete the heating loop.
Base Bid – provide piping and cover, paint cover to match existing wall.

4. Louver infill patching at UV removals is by GC. MC shall paint cover to match wall.

5. Louver infill patching at UV removals is by GC. MC shall paint cover to match wall.

6. MC-01 is only related to controls. MC-02 – if selected means contractor shall provide fin tube and cover to complete the heating loop.

7. Only paint color of the cover to the wall shall be matched. The new fin tube is base bid and is specified on the schedules page and updates in bid addendum No.1.

8. Please reference the H500's sheet for controls of all equipment.

9. Per Multiple Contract Summary - Req'd cutting and patching is by each contract unless otherwise called out. Additional wall cutting/patching is by the PC as req'd at WOS classroom sink and toilet locations.

10. Slab cutting and removal is by GC where shown on A series drawings. Trenching is by each contract. WOS Staff Lounge pump will be mtd. above floor underneath countertop and waste line runs along the adjacent storage room wall.

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REQUEST FOR INFORMATION

RFI #: 2
Date: 11/6/23

SOCSD PHASE 1: 2022 BOND: 14457.20

Contractor Name: Bertussi Contracting Inc

To: Lisa Fasciglione Firm: CPL

From: Stephanie Weber - Bertussi Contracting

WE REQUEST YOUR ATTENTION (OR CONFIRMATION) REGARDING THE FOLLOWING:

Subject: Various

Location:

Information is Requested By: ASAP

MESSAGE:

Please see attached RFI's

___ 11. FRAME DETAILS ON A900 ARE FOR NEW HM FRAMES, AS KEYED IN ON "DOOR SCHEDULE-NEW".

___ 12. COUNTERS AND METAL BRACKETS ARE BY THE CASEWORK MANUFACTURER. PLEASE SEE ADDENDUM #3

___ 13. COUNTERS AND METAL BRACKETS ARE BY THE CASEWORK MANUFACTURER. PLEASE SEE ADDENDUM #3

___ 14. END PANELS ARE BY THE CASEWORK MANUFACTURER. PLEASE SEE ADDENDUM #3

___ L.FASCIGLIONE 11/09/23

Contractors Name:

By: Date:

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South Orangetown Bid RFI’s

11. As the HM frames at WOD are existing to remain, there is a call for the existing frames to be filled with cement mortar at detail 5/A900, etc. Is the intent to fill existing HM frames with this grout or is this the existing condition where the HM frames are already filled with mortar? Please advise.
12. . There are situations where there are only counters at elevations. This happens in several interior elevations, 5/A701, 4/A702, 2/A702, 6/A703, etc. Are these counters to be furnished and installed by the districts casework manufacturer? Please advise.
13. At interior elevation 6/A703, there is a note (4) that says “provide HPL countertop” and no indication of (OFCI). Is the GC to furnish and install? Please advise.
14. Note (5) on interior elevation 6/A703 indicates casework end panels to be OFCI. As it clearly shows casework provided and installed by owner on a lot of other notes on other drawings, does the GC have to install these end panels? Please advise,

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REQUEST FOR INFORMATION

RFI #: 1
Date: 11/3/23

SOCSD PHASE 1: 2022 BOND: 14457.20

Contractor Name: UniMak LLC

To: CPL Firm:

From: Marija Trajkovska

WE REQUEST YOUR ATTENTION (OR CONFIRMATION) REGARDING THE FOLLOWING:

Subject: Page missing from the documents set

Location: S800, Detail 2 (missing page is A513)

Information is Requested By: Marija Trajkovska

MESSAGE: On page S801 Detail 2 refers to A513 regarding the reinforcing for the 3' Diameter 7' Deep Foundations. Please provide page A513 or advise on the reinforcing.

Please replace "A513" w/ "S804"
Refer to S804 for the reinforcing.

L.FASCIGLIONE 11/6/23

Contractors Name: UniMak LLC

By: Marija Trajkovska Date: 11/3/23

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REQUEST FOR INFORMATION

RFI #: 2
Date: 11/14/23

SOCSD PHASE 1: 2022 BOND: 14457.20

Contractor Name: UniMak LLC

To: CPL Firm:

From: Marija Trajkovska

WE REQUEST YOUR ATTENTION (OR CONFIRMATION) REGARDING THE FOLLOWING:

Subject: DIVISON 06 – WOOD, PLASTICS AND COMPOSITES

Location: 092116-2.3-B, 072100, WOS A702, WOS A703, WOS A200, WOS A201, WOS A202, CLE A600, CLE A601, CLE A701, CLE A702, CLE A500

Information is Requested By: Marija Trajkovska

MESSAGE: General Questions:

1. Sound isolation tape is in spec 092116-2.3-B, if it is to be utilized please elaborate as to where. PLEASE SEE ADDENDUM #4
2. There is reference to spec 072100 for insulation, however there isn't one in the spec book, please provide us with more information. PLEASE SEE ADDENDUM #4

William O Schaefer:

1. Are the existing walls masonry or sheetrock - example, 1/A702 WOS 1/A703? Same for all the classrooms on sheet A202, A201 and A200. EXISTING WALLS ARE MASONRY UNLESS OTHERWISE NOTED.

Cottage Lane ES:

1. Sheet A600, room #400, there is a height change for the ACT- please advise if it should be a gypsum board bulkhead or an axiom trim?
2. Please confirm the ceiling tile & grid in the corridors on A601 is ACT#1.
3. Existing walls, example, sheet A701, A702 are they masonry or gyp board?
4. Please advice if there any metal framing required on page A500?

Contractors Name: UniMak LLC

By: Marija Trajkovska Date: 11/14/23

CLE:
1. GYPSUM BOARD BULKHEAD. REFER TO DETAIL 3/A901.

2. YES, HOWEVER, CORRIDOR CEILING TILES SHOULD BE SALVAGED AND REINSTALLED WHERE POSSIBLE. REFER TO ADDENDUM #3.

3. EXIST. MUSIC RM WALLS ARE MTL STUD. RESOURCE ROOM & MAIN OFFICE EXIST. WALLS ARE MASONRY.

4. YES, REFER TO A501 FOR DETAILS

L.FASCIGLIONE 11/17/23

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REQUEST FOR INFORMATION

RFI #: 3
Date: 11/14/23

SOCSD PHASE 1: 2022 BOND: 14457.20

Contractor Name: UniMak LLC

To: CPL Firm:

From: Marija Trajkovska

WE REQUEST YOUR ATTENTION (OR CONFIRMATION) REGARDING THE FOLLOWING:

Subject: Missing Signage Schedule

Location: 101423 – PANEL SIGNAGE, CLE A900

Information is Requested By: Marija Trajkovska

MESSAGE:

Please provide a signage schedule for the following schools:
1. Cottage Lane ES
2. WOS
3. South Orangetown MS
4. Tappan Zee HS

Drawing CLE A900 only has ADA Sign Details for the restrooms, please provide further information such as schedule/scope.

CLE & WOS - PLEASE SEE ADDENDUM #4.
SOMS & TZHS - NO SIGNAGE REQUIRED.

L.FASCIGLIONE 11/17/23

Contractors Name: UniMak LLC

By: Marija Trajkovska Date: 11/14/23

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REQUEST FOR INFORMATION

RFI #: 4
Date: 11/16/23

SOCSD PHASE 1: 2022 BOND: 14457.20

Contractor Name: UniMak LLC

To: CPL Firm:

From: Marija Trajkovska

WE REQUEST YOUR ATTENTION (OR CONFIRMATION) REGARDING THE FOLLOWING:

Subject: Casework - GC contract

Location: Specifications:SECTION 123100, SECTION 123200
Drawings: CLE A701, CLE A702, CLE A800, WOS A701, WOS A702, WOS A703, WOS A800

Information is Requested By: Marija Trajkovska

MESSAGE:

Can you please clarify what casework is in the GC contract and which is excluded/omitted?
"CASEWORK PROVIDED AND INSTALLED
BY OTHERS. SHOWN FOR REFERENCE ONLY."

ALL CASEWORK IS PROVIDED AND INSTALLED BY THE CASEWORK MANUFACTURER (PURCHASED ON STATE CONTRACT). BLOCKING AND WALL BASE WHERE REQ'D ARE BY GC.

PLEASE REFER TO ADDENDUM #3 FOR CASEWORK REVISIONS.

L.FASCIGLIONE 11/16/23

Contractors Name: UniMak LLC

By: Marija Trajkovska Date: 11/16/23

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REQUEST FOR INFORMATION	RFI #: 5
	Date: 11/16/23

SOCSD PHASE 1: 2022 BOND: 14457.20

Contractor Name: UniMak LLC

To: CPL Firm:

From: Marija Trajkovska

WE REQUEST YOUR ATTENTION (OR CONFIRMATION) REGARDING THE FOLLOWING:

Subject: CLE Entry Canopy scope of work

Location: Drawings: CLE A500

Information is Requested By: Marija Trajkovska

MESSAGE:

Please clarify if the entry canopy existing and only the signage and skylights are being added?

CLE ENTRY CANOPY IS NEW WORK BY GC.
PLEASE REFER TO DRAWING CLE A501 AND STRUCTURAL DRAWINGS FOR DETAILS.

L.FASCIGLIONE 11/16/23

Contractors Name: UniMak LLC

By: Marija Trajkovska Date: 11/16/23

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REQUEST FOR INFORMATION

RFI #: 001
Date: 11/7/23

SOCSD PHASE 1: 2022 BOND: 14457.20

Contractor Name: ICON Construction Group, Inc.

To: Dennis Yorke Firm: Palombo Group

From: Anthony Monaco/ICON

WE REQUEST YOUR ATTENTION (OR CONFIRMATION) REGARDING THE FOLLOWING:

Subject: Casework by others (state contract)

Location: South Orangetown CSD

Information is Requested By: Anthony Monaco/ICON

MESSAGE: Please identify the casework scope that is not being provided and installed by others. There is specification 064100 Architectural Wood Casework, 123100 Manufactured metal casework, and 123200 Manufactured wood casework. There should clarity as to what will be provided by them and what the GC is responsible for. This separation leads to confusion and the playing field should be level for all bidders. If it is ONLY the plastic laminate casework and the metal casework on WOS A701, A702, A703, A800 and CLE A701, A702, A800 and EVERYTHING else belongs to the GC, please make it clear to all the bidders.

ALL CASEWORK TO BE PROVIDED AND INSTALLED BY OTHERS.
PLEASE REFER TO ADDENDUM #3.

L.FASCIGLIONE 11/09/23

Contractors Name: Anthony Monaco/ICON

By: Anthony Monaco/ICON Date: 11/7/23

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REQUEST FOR INFORMATION

RFI #: 1
Date: 11/15/23

SOCSD PHASE 1: 2022 BOND: 14457.20

Contractor Name: Mehl Electrical & Communications Contractor

To: Lisa J Fasciglione Firm: CPL

From: Cody Hover - Estimator

WE REQUEST YOUR ATTENTION (OR CONFIRMATION) REGARDING THE FOLLOWING:

Subject: South Orangetown CSD - William O Shaffer Wiremold

Location: William O Shaffer Elementary School

Information is Requested By: Cody Hover - Estimator

MESSAGE: Note 3 on drawing WOS E200 states new receptacles to be placed in wiremold at these locations, wiremold by others.

Typically, the EC will own the wiremold. We will need to run wire through the wiremold as well for the receptacles to get connected. Can you please clarify, what we need to provide and who owns furnishing of the wiremold?

The wiremold specs are on the T-series drawings, which will be BID and installed by the EC. So technically, the EC will own the wiremold, its just shown on different drawings.

J. Teeter
11/15/23

Contractors Name: _____

By: _____ Date: _____

CPL
50 Front St., Suite 202
Newburgh, NY 12550
CPLteam.com
800.274.9000 TEL

ARCHITECTURE
ENGINEERING
PLANNING
CPLteam.com

REQUEST FOR INFORMATION	RFI #:
	Date:

SOCSD PHASE 1: 2022 BOND: 14457.20

Contractor Name: Grace Contracting & Development LLC

To: _____ Firm: _____

From: _____

WE REQUEST YOUR ATTENTION (OR CONFIRMATION) REGARDING THE FOLLOWING:

Subject: Sub grade section detail

Location: _____

Information is Requested By: Vincent Fuoco

MESSAGE: Please provide a sub grade section detail for the pavilion work/

PLEASE REFER TO EXCAVATION & BACKFILL NOTES ON GEN S800, AND DRAWING GEN S801.
REVISED GEN S801 WILL BE INCLUDED IN ADDENDUM #4.

L.FASCIGLIONE 11/16/23

Contractors Name: _____

By: _____ Date: _____

CPL
50 Front St., Suite 202
Newburgh, NY 12550
CPLteam.com
800.274.9000 TEL

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CPLteam.com

REQUEST FOR INFORMATION

RFI #: 001
Date: 11.14.23

SOCSD PHASE 1: 2022 BOND: 14457.20

Contractor Name: Piazza Inc.

To: Lauren Tarsio Firm: CPL

From: Gus Carvajal

WE REQUEST YOUR ATTENTION (OR CONFIRMATION) REGARDING THE FOLLOWING:

Subject: Please provide signage schedule

Location:

Information is Requested By: ASAP

MESSAGE: REFER TO SIGNAGE SCHEDULE AS PART OF ADDENDUM #4

Contractors Name:

By: PERRY G. CROSSON - CPL Date: 11/16/2023

CPL
50 Front St., Suite 202
Newburgh, NY 12550
CPLteam.com
800.274.9000 TEL

ARCHITECTURE
ENGINEERING
PLANNING
CPLteam.com

REQUEST FOR INFORMATION

RFI #: 1
Date: 11/13/23

SOCSD PHASE 1: 2022 BOND: 14457.20

Contractor Name: **Renu Contracting**

To: **CPL** Firm: **GC**

From: **Renu - John Neal**

WE REQUEST YOUR ATTENTION (OR CONFIRMATION) REGARDING THE FOLLOWING:

Subject: **Door Schedule**

Location: **CLE - Cottage Lane ES**

Information is Requested By:

MESSAGE: **CLE, Tags 112, 114, 219 & 220:**

Are these (4) Door Tags New Frames Only by GC? Is someone else providing the Door, Hardware & Auto Operator?

Please refer to Addendum #5 to be issued early next week.

Please clarify Door Schedule Comment ("OFCI - DOOR, HW AND HC OPERATOR. PROVIDE NEW FRAME AS SCHEDULED")

Please refer to Addendum #5 to be issued early next week.

Please advise the hardware schedule in the specs does not include these (4) tags . Do we need to include electrical hardware for these tags?

Please refer to Addendum #5 to be issued early next week.

CLE, Tags 404A, 404B & 501:

Please confirm these tags only get hardware sets

Omit Doors 404A & 404B from the Hardware schedule - these do not exist.
Door 501: confirmed as hardware only.

L.FASCIGLIONE 11/17/23

Contractors Name:

By: Date:

CPL
50 Front St., Suite 202
Newburgh, NY 12550
CPLteam.com
800.274.9000 TEL

SECTION 028300

LEAD SAFE WORK PRACTICES

AT: SOUTH ORANGETOWN CSD –
PHASE 1: 2022 BOND WORK
WILLIAM O. SCHAEFER ELEMENTARY SCHOOL
SED#: 50-03-01-06-0-012-019
COTTAGE LANE ELEMENTARY SCHOOL
SED#: 50-03-01-06-0-010-022

OWNER: SOUTH ORANGETOWN CSD
160 VAN WYCK ROAD
BLAUVELT, NY 10913
PH. (845) 680-1000

CONSULTANT: QUALITY ENVIRONMENTAL SOLUTIONS
& TECHNOLOGIES, INC. (QUES&T)
1376 ROUTE 9
WAPPINGERS FALLS, NEW YORK 12590
PH. (845) 298-6031
FX. (845) 298-6251

PART 1 - GENERAL

1.1 DESCRIPTION/SCOPE OF WORK

A. The work covered by these specifications shall consist of furnishing all labor, materials, tools, and equipment necessary to control and mitigate potential lead-based paint (LBP) hazards during demolition/renovation activities pertaining to the ***South Orangetown CSD Phase I: 2022 Bond Work.***

The following is a detailed listing of identified Lead-based Paint(s) and/or Lead-containing Material(s), above the EPA action level of 1.0 mg/sq. cm.:

TABLE II: IDENTIFIED LEAD-BASED PAINT
WILLIAM O. SCHAEFER ELEMENTARY SCHOOL,
COTTAGE LANE ELEMENTARY SCHOOL,
& TAPPAN ZEE HIGH SCHOOL
(CONSTRUCTION AREAS)

Location	LBP Component	Substrate	Color	LBP Condition
William O. Schaefer Elementary School				
Hallway, Around Door to Aid's Office 38 & Adjacent Toilet Room	Lower Wall	Decorative Block	Tan	Intact
Note: Coordinate exact removal locations and full extent of removal with General Contractor for widening of doorway openings.				
Cottage Lane Elementary School				
NO LEAD BASED PAINTS IDENTIFIED IN RELATION TO THE SCOPE OF WORK				
Tappan Zee High School				
NO LEAD BASED PAINTS IDENTIFIED IN RELATION TO THE SCOPE OF WORK				

The work of this Contractor shall include the following, and shall be as required by specific work-related tasks and disturbance(s) of above-referenced Lead-based Paint(s) and/or Lead-containing Material(s), above the EPA action level of 1.0 mg/sq. cm:

1) Personnel air monitoring and analysis.

2) Waste characterization and classification.

3) Transportation/disposal off-site of LBP wastes/debris and lead-contaminated waste/debris generated from LBP disturbance(s).

B. Manual demolition, scraping and manual sanding of lead-based paint surfaces and power tool cleaning with dust collection systems shall be performed in conjunction with engineering and work practice controls meeting the requirements of 29 CFR 1926.62(e)(1).

C. Components with lead-based paint shall be removed intact to the extent practicable. A 6-mil polyethylene drop cloth shall be placed on either side of the component, prior to its removal, to catch any paint chips that may become dislodged. The component shall be wrapped in a layer of 6-mil polyethylene for movement to the disposal container. Follow proper disposal requirements. The area around the component removal shall be wet wiped and HEPA

vacuumed, including the tent enclosure. The polyethylene sheeting shall be carefully folded in on itself and placed in a 6-mil disposal bag. Containment debris shall be properly disposed of as lead-based waste.

D. Chemical stripping should be used for LBP removal on surfaces that will be subjected to welding, cutting or torch burning. No chemical strippers containing methylene chloride shall be used by the Contractor on this project. Abrasive blasting, heat stripping, uncontained hydroblasting, welding, cutting or torch burning shall not be performed on surfaces where LBP is present. Abrasive blasting, heat stripping, uncontained hydroblasting, welding, cutting or torch burning shall only be performed on bare metal substrate.

E. The Contractor's use of a subcontractor shall not relieve the Contractor of full responsibility for the work to be performed.

F. If available, the Contractor may submit exposure assessment data obtained within the last twelve (12) months from previous jobs conducted under similar conditions, control methods, work practices and environmental conditions to be used in this contract. Other objective data may be used to demonstrate that work activities in this contract will not result in occupational exposures to airborne lead that exceeds the PEL. The assessment shall include comparable lead concentrations in coating materials, work practices, engineering controls and rates of work.

G. Until the exposure assessment is performed, the Contractor must provide to his workers the following: Respiratory protection with a minimum protection factor of 10, personal protective clothing, lead-free change areas, hand washing/shower facilities, biological monitoring and training per 29 CFR 1926.62.

H. This Specification shall be used as a Guideline for the use of Contractors who complete the demolition/renovation activities pertaining to the ***South Orangetown CSD Phase I: 2022 Bond Work*** as detailed within Section #1.2 of this specification. The intent of this Specification is to remain in conformance with 29 CFR 1926.62 and to maintain an airborne concentration of lead-dust below the action level. This Specification is written in order to outline the worst-case scenario in regard to lead safe work practices. However, the work procedures section is written in a manner, which outlines the requirements that should be necessary, at a minimum, to maintain an airborne concentration of lead dust below the action level.

I. The Contractor shall ensure that any HVAC equipment intakes within and around the work areas are protected by shutting down the units and/or installing HEPA filters over the intake. The Contractor shall coordinate rebalancing of the HVAC equipment prior to installing the HEPA filters. The Contractor shall alter the size and extent of the isolation barriers as necessary due to weather conditions, functional space use and density of building occupants in the vicinity, as required.

1.2 REGULATIONS & REFERENCE STANDARDS

A. General Requirements

All work of this section shall be conducted in strict accordance with all applicable Federal, State and Local regulations.

Matters of interpretations of the standards and regulations shall be submitted to the appropriate agency for resolution before starting work. Where these requirements vary the most stringent shall apply.

B. Specific Requirements

1. American National Standards Institute (ANSI)

   a. ANSI Z9.2-79 – Fundamentals Governing the Design and Operation of Local Exhaust Systems.

   b. Z88.2-80 – Practice for Respiratory Protection.

2. Title X - U.S. Department of Housing and Urban Development "Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing."

3. Code of Federal Regulations (CFR)

   a. 29 CFR Part 1910.120 – Hazardous Waste Operations and Emergency Response.

   b. 29 CFR Part 1910.134 – Respiratory Protection.

   c. 29 CFR Part 1910.146 – Confined Space Entry Program.

   d. 29 CFR Part 1910.1025 – Lead.

   e. 29 CFR Part 1910.1200 – Hazard Communication.

   f. 29 CFR Part 1926.55 – Gases, Vapors, Fumes, Dusts and Mists.

   g. 29 CFR Part 1926.57 – Ventilation.

   h. 29 CFR Part 1926.62 – Lead (Construction Industry Standard).

   i. 40 CFR Part 260 – Hazardous Waste Management Systems: General.

   j. 40 CFR Part 261 – Identification and Listing of Hazardous Waste.

   k. 40 CFR Part 262 – Generators of Hazardous Wastes.

   l. 40 CFR Part 263 – Transporters of Hazardous Waste.

   m. 40 CFR Part 264 – Owners and Operators of Hazardous Waste Treatment, Storage & Disposal Facilities.

   n. 40 CFR Part 265 – Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage & Disposal Facilities.

   o. 40 CFR Part 268 – Land Disposal Restrictions.

   p. 40 CFR Part 745 – Lead; Requirements for Lead-Based Paint Activities in Child Occupied Facilities

   q. 40 CFR Part 745.90 – EPA's Renovation, Repair & Painting Rule.

r. 49 CFR Parts 170-178 – Department of Transportation Regulations.

4. New York Codes of Rules and Regulations (NYCRR)

a. 6 NYCRR Part 360 – Solid Waste Regulations.

b. 6 NYCRR Part 364 – Waste Transporter Permits.

c. 6 NYCRR Part 370-373 – Hazardous Waste Regulations.

d. 8 NYCRR Part 155 – Uniform Safety Standards for School Construction & Maintenance Projects.

5. Steel Structures Painting Council (SSPC)

a. SSPC-Guide 6 – Guide for Containing Debris Generated During Paint Removal Operations.

SSPC-Guide 7 – Guide for the Disposal of Lead-Contaminated Surface Preparation Debris.

Preparation Debris.

6. Underwriters Laboratories. Inc. (UL)

a. UL 586 – High Efficiency, Particulate Air Filter Units.

1.3 DEFINITIONS

A. Abatement
For the purposes of this Specification, the term abatement shall refer to any procedure that impacts lead-based paint on any surface. Procedures can include: paint removal; whole removal of the surface (i.e. window replacement): demolition of painted surfaces; and clean-up of paint debris.

B. Action Level
Employee exposure without regard to use of respirators, to an airborne concentration of lead of thirty (30) micrograms per cubic meter of air averaged over an 8-hour period. As used in this section, micrograms per cubic meter of air" refers to the action level. (Note: For longer exposure period lower action level is triggered).

C. Area Monitoring
Sampling of lead concentrations within the lead control area (work area) and inside the physical boundaries which is representative of the airborne lead concentrations that may reach the breathing zone of personnel potentially exposed to lead.

D. Physical Boundary
Area physically roped or partitioned off around a work area to limit unauthorized entry of personnel. As used in this section, "inside boundary" shall mean the same as "outside lead control area."

E. Change Rooms and Shower Facilities
Rooms within the designated physical boundary around the work area equipped with separate storage facilities for clean protective work clothing and equipment and for street clothes which prevent cross-contamination.

F. Decontamination Room
Room for removal of contaminated personal protective equipment (PPE).

G. Eight-Hour Time Weighted Average (TWA)
Airborne concentration of lead averaged over an 8-hour workday to which an employee is exposed.

H. High Efficiency Particulate Air (HEPA) Filter Equipment
HEPA filtered vacuuming equipment with a UL 586 filter system capable of collecting and retaining lead-contaminated paint dust. A high efficiency particulate filter means 99.97 percent efficient against 0.3 micron size particles.

I. Lead Control Area
A work area within which engineering controls are implemented to prevent the spread of lead dust, paint chips or debris from lead-containing paint removal operations. The lead control area is isolated by physical boundaries to prevent entry of unauthorized personnel.

J. Lead Permissible Exposure Limit (PEL)
Fifty (50) micrograms per cubic meter of air as an 8-hour time weighted average as determined by 29 CFR Part 1926.62. If an employee is exposed for more than 8 hours in a work day, the PEL shall be determined by the following formula:

PEL (micrograms/cubic meter of air) = 400/No. hrs worked per day

K. Personal Monitoring
Sampling of lead concentrations within the breathing zone of an employee to determine the 8-hour time weighted average concentration in accordance with 29 CFR Part 1926.62. Samples shall be representative of the employees work tasks. Breathing zone shall be considered an area within a hemisphere, forward of the shoulders with a radius of 6 to 9 inches and the center at the nose or mouth.

L. Wipe Sampling
Clearance testing procedures, which determine the amount of existing lead-based paint surface dust by atomic absorption spectroscopy analysis, or inductively coupled plasma emission spectrometry expressed in micrograms of lead.

1.4 QUALITY ASSURANCE

A. Qualifications

1. Contractor: Certification that the Contractor has prior experience on LBP activity projects similar in nature and extent to ensure the capability to perform the required work procedures in a satisfactory manner.

2. Competent Person: Certification that the Contractor's full-time onsite Competent Person meets the competent person requirements of 29 CFR Part 1926.62 and is experienced in administration and supervision of LBP activity projects, including work practices, protective measures for building and personnel, disposal procedures, etc. This person shall have completed a Contractor Supervisor LBP abatement course by an EPA Training Center or an equivalent certification course, and have had a minimum of 2 years on-the-job experience.

3. Testing Laboratory: The name, address, and telephone number of the independent testing laboratory selected to perform sampling and analysis for personal and area air samples

and wipe samples, and TCLP analysis of LBP wastes and debris. Documentation that the laboratory performing the analysis is an EPA National Lead Laboratory Accreditation Program (NLLAP) accredited laboratory and that it is listed proficient in the NIOSH/EPA Environmental Lead Proficiency Analytical Testing Program (ELPAT), and a New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP) certified laboratory. Certification shall include accreditation for heavy metal analysis, list of experience relevant to analysis of lead in air, and a Quality Assurance and Quality Control Program. Currently, the American Association for Laboratory Accreditation (ASLA) and the American Industrial Hygiene Association (AIHA) are the EPA recognized laboratory accreditors. Documentation shall include the date of accreditation or reaccreditation.

4. Blood Lead Testing Laboratory: The name, address and telephone number of the blood lead testing laboratory; the laboratory's listing by OSHA and the U.S. Public Health Service Center for Disease Control (CDC); and documentation that the laboratory certified in the state where the work site is located.

B. Respiratory Protection Devices
Manufacturer's certification of NIOSH for respiratory protection devices utilized on the site.

C. Cartridges, Filters, and Vacuum Systems
Manufacturer's certification of NIOSH approval of respirator cartridges (organic vapor, acid gas, mist, dust, high efficiency particulate); High Efficiency Particulate Air (HEPA) filtration capabilities for all cartridges, filters, and HEPA vacuum systems.

D. Medical Examination and Records
Certification that employees who are involved in LBP abatement work have received medical examinations and will receive continued medical surveillance, including biological monitoring, as required by 29 CFR Part 1926.62, 29 CFR Part 910.1200, 29 CFR Part 1910.120 and by the state and local regulations pertaining to such work. Records shall be retained, at Contractor expense, in accordance with 29 CFR Part 1910.20.

1. Provide medical surveillance to workers until exposure monitoring reveals that workers are not exposed on any day of the job to airborne lead at or above the Action Level of 30 ug/dL of blood. This consists of a blood test measuring the level of lead and zinc protoporphyrin by a licensed physician. Further testing and medical exams may be necessary depending on the results of initial blood tests and/or the initial exposure assessment.

E. Training
Training certification shall be provided prior to the start of work involving LBP abatement, for all of the Contractors' workers, supervisors and Competent Person. Training shall meet the requirements of 29 CFR Part 1926.62, 29 CFR Part 1926.59, 29 CFR Part 1910.1200, 29 CFR Part 1910.120 and 49 CFR 172, and that required by EPA or the state LBP course for the work to be performed. Training shall be provided prior to the time of job assignment and, at least, annually. The project specific training shall. at a minimum, include the following.

1. Specific nature of the operation, which could result in exposure to lead.

2. Purpose, proper selection, fitting, use and limitations of respirators.

3. Purpose and description of the medical surveillance program and the medical removal protection program, including information concerning the adverse health

effects associated with excessive exposure to lead (with particular attention to the adverse reproductive effects on both males and females and hazards to the fetus and additional precautions for employees who are pregnant.)

4. Relevant engineering controls and good work practices.

5. The contents of any compliance plan in effect.

6. Instructions to employees that chelating agents should not routinely be used to remove lead from their bodies and should not be used at all except under the direction of a licensed physician.

7. The employee's right of access to records under 29 CFR part 1910.20.

F. Respiratory Protection Program

1. Furnish each employee required to wear a negative pressure respirator or other appropriate type with a respirator fit test at the time of initial fitting and at least every 12 months thereafter as required by 29 CFR Part1910.134 and 29 CFR Part 1926.62.

2. Establish and implement a respiratory protection program as required by ANSI Z88.2, 29 CFR Part 1910.134 and 29 CFR Part 1926.62.

3. All workers are required to don an appropriate level of protection commensurate with the airborne concentrations of lead in which they are working. The level of protection will be determined by the Contractor, based on objective air monitoring data.

G. Licenses and Permits
Copies of licenses and permits as required by applicable Federal, state and local regulations shall be obtained before the start of the LBP project.

1.5 SUBMITTALS

A. The submittals shall be submitted in accordance with Specification Section 01300, Submittals.

B. Certifications
Prior to the start of work, submit required certifications, plans, programs, permits and licenses identified in Paragraph 1.5 of this specification section.

C. Equipment List
Prior to the start of work submit list of equipment items to be used in the work, including brand names, model, capacity, performance characteristics, quantities and other pertinent information.

D. Lead-Based Paint (LBP) Management Plan
The contractor shall prepare a detailed LBP Management Plan that identifies the work procedures, health and safety measures to be used in LBP work procedures; and that addresses spill prevention, containment and emergency response procedures. The plan shall address the methods to be undertaken to abate the lead to include the following key elements:

1. LBP containment methods to control employee exposure to lead at or below the permissible exposure limit and to ensure that airborne lead concentrations of 30 micrograms per cubic meter of air are not exceeded outside of the lead control area.

2. Training requirements as required by Federal, state and local regulations.

3. Unique problems associated with the LBP project.

4. Sketch of location, size and details of LBP control areas, decontamination rooms/areas, change rooms and shower facilities.

5. Eating, drinking, smoking, and rest room procedures.

6. Sequencing of LBP related work.

7. Personnel protective equipment and respiratory protection program, including controls.

8. Engineering controls, containment structures and safety measures.

9. Worker exposure assessment procedures.

10. Work Practice controls.

11. Housekeeping.

12. Hygiene facilities and practice.

13. Medical surveillance, including medical removal procedures.

14. Sampling, testing and analytical methods to include personnel air sampling requirements of 29 CFR Part 1926.62, wipe sampling of the surface where the LBP was removed and, when required, toxicity characteristic leaching procedure (TCLP) testing of the waste material in accordance with 40 CFR 261 and 6 NYCRR Part 371, and area air sampling required by the specifications. Procedures must include frequency, locations, sampling and analytical methods to be used.

E. Compliance Program
Contractor's Compliance Program prepared in accordance with 29 CFR Part 1926.62 (e) (2).

F. Waste Transporter and Disposal Facility Permits, and Disposal Documents.

1. Name, address and telephone number of 6 NYCRR Part 364 transporter who will be transporting the LBP wastes and debris and a copy of the transporter's 6 NYCRR Part 364 permit.

2. Name, address and telephone number of disposal facility accepting the LBP wastes and debris and a copy of the permit from the disposal facility documenting the facility is permitted to accept the wastes being delivered.

3. Copy of completed waste characterization (waste profile) forms for obtaining approval to dispose of the LBP wastes and liquid wastes at the disposal facility.
4. Copy of the approved waste characterization (waste profile) forms from the disposal facility indicating they are permitted to accept the wastes and will accept the wastes being delivered.

5. Example of completed transportation and disposal documents (i.e., bill of lading or hazardous waste manifest and land disposal restriction notification forms, as applicable) prior to shipment of wastes.

6. Copy of the completed and signed transportation and disposal documents at time of shipment for the disposal of LBP wastes and debris, liquid wastes and any other wastes generated, and copy signed by the disposal facility.

7. Copy of certificate of destruction for incinerated wastes, certificate of treatment and/or certificate of disposal, as applicable and associated tracking documents from the final disposal facility for disposal of the LBP wastes and debris.

G. Health and Safety Plan And Confined Space Entry Program
Contractor's written site specific Health and Safety Plan prepared in accordance with 29 CFR Part 1910.120 and Contractor's confined space entry program prepared in accordance with 29 CFR Part 1910.146. These documents are requested for information only and as documentation that they exist.

H. Sampling and Laboratory Analysis Reports
Submit field sampling logs for all personal and area air samples, wipe samples and waste samples taken, and submit copy of laboratory analysis reports and chain of custody records for all sample analysis.

I. Competent person certification per Section 3.5.B.

1.6 POSTED WARNINGS & NOTICES

The following regulations, warnings and notices shall be posted at the work site in accordance with 29 CFR Part 1926.62.

A. Regulations
A copy of applicable Federal, state, and local regulations shall be maintained at the work site.

B. Warning Signs
Warning signs shall be provided at approaches to LBP control areas. Signs shall be located at a distance from the LBP control areas that will allow personnel to read the sign and take the necessary protective actions required before entering the LBP control area. The signs shall comply with the requirements of 29 CFR Part 1926.62.

C. Worker Information
Right-to-know notices shall be placed in clearly visible areas of the work site in compliance with Federal, State and Local regulations.

D. Air Monitoring Results
Daily air monitoring results shall be prepared in order to be easily understood by the workers and shall be placed in a clearly visible area of the work site.

E. Emergency Telephone Numbers
A list of telephone numbers shall be posted at the site. The list shall include numbers of the local hospital, emergency squad, police and fire departments, Government and Contractor representatives who can be reached 24 hours per day and professional consultants directly involved in the project.

1.7 EQUIPMENT & MATERIALS

Sufficient quantities of health and safety materials required by 29 CFR Part 1926.62, and other materials and equipment needed to complete the project, shall be available and kept on the site.

A. Respirators

Air-purifying respirators shall be approved by NIOSH for use with dust, fumes and mists having permissible exposure limits less than 0.05 milligrams per cubic meter (i.e., have high-efficiency particulate air (HEPA) filters) and for other hazardous airborne contaminants that may be encountered, as determined by the Competent Person. The Contractor shall furnish, at no cost to personnel/employee, respirators to provide protection from airborne concentrations of lead. Respirators shall comply with the requirements of 29 CFR Part 1926.62 and shall be used in accordance with 29 CFR Part 1926.62, 29 CFR Part 1926.103 and 29 CFR Part 1910.134.

B. Respirator Cartridges

A sufficient supply of respirator cartridges shall be maintained at the work site to provide new cartridges to employees and authorized visitors, throughout the duration of the project. Cartridges shall be replaced according to the manufacturer's recommendations, when breathing becomes difficult, or if the cartridge becomes wet.

C. Protective Clothing

1. The Contractor shall furnish, at no cost to personnel/employee, equipment/ clothing for protection from airborne and waterborne LBP debris. An adequate supply of these items shall be available for worker and authorized visitor use. Workers and visitors shall not take protective clothing and equipment off the work site at any time. Protective clothing includes:

   a. Coveralls (Whole Body Protective Coverings): Full-body coveralls and head covers shall be worn by workers in the work area as necessary. Sleeves shall be secured at the wrist and pants legs at the ankle with tape. Permeable clothing shall be provided in heat-stress conditions. Where non-disposable coveralls are provided, these coveralls shall be cleaned after each wearing. Cleaning of coveralls and other non-disposable clothing shall be in accordance with the provisions for cleaning in 29 CFR Part 1926.62.

   b. Boots: Work boots with nonskid soles or impermeable work boot covers shall be worn by workers. Where required by OSHA, safety boots (steel toe or steel toe and shank) shall be worn. Paint the uppers of boots red with waterproof enamel. Do not allow boots to be removed from the work area for any reason after being contaminated with LBP debris. Dispose of boots as LBP contaminated waste at the end of the work.

   c. Gloves: Inner gloves, appropriate for items and hazards encountered and disposable outer work gloves shall be provided to each worker and shall be worn while the worker is in the work area. Glove material shall be appropriate for the specific chemical exposure. Gloves shall not be removed from the work area and shall be disposed of as LBP contaminated waste at the end of the work.

   d. Hard Hats: Head protection (hard hats) shall be provided as required by OSHA for workers and authorized visitors. Protective plastic-strap suspension hats shall be used. Hard hats shall be worn at all times that work is in progress. Hats shall remain in the work area until the project is completed. Hats shall be thoroughly cleaned, decontaminated and bagged before being removed from the work area at the end of the project.

   e. Eye Protection: Fog-proof goggles for personnel engaged in LBP operations shall be worn when the use of a full-face piece respirator is not required.

D. Negative Air Pressure System

When a LBP control area requires the use of an airtight containment barrier, a negative air pressure system shall be used and pressure differential recordings taken. LBP shall not be removed from the LBP control area until the proper engineer controls and HEPA filtration systems are in place.

1. HEPA Filter Requirements

The negative air pressure system shall be equipped with approved HEPA filters per UL 586. Negative air pressure equipment shall be equipped with new HEPA filters, and shall be sufficient to maintain a minimum pressure differential of minus 5 Pa (0.02 inch) of water column relative to adjacent, unsealed areas. Negative air pressure system minimum requirements are listed below.

a. The unit shall be capable of delivering its rated volume of air with a clean first stage filter, an intermediate filter and a primary HEPA filter in place.

b. The HEPA filter shall be certified as being capable of removing particles as small as 0.3 micrometers at a minimum efficiency of 99.97 percent.

c. The unit shall be capable of continuing to deliver no less than 70 percent of rated capacity when the HEPA filter is 70 percent full or measures 620 Pa (2.5 inches of water) static pressure differential on a magnehelic gauge.

d. The unit shall be equipped with a manometer-type negative pressure differential monitor with minor scale division of 0.02 inch of water and accuracy within plus or minus 1.0 percent. The manometer shall be calibrated daily as recommended by the manufacturer. Record manually manometer readings of the pressure differential between the LBP control area and adjacent unsealed areas at the beginning of each workday and every 2 working hours thereafter.

e. The unit shall be equipped with a means for the operator to easily interpret the readings in terms of the volumetric flow rate of air per minute moving through the machine at any given moment.

f. The unit shall be equipped with an electronic mechanism that automatically shuts the machine off in the event of a filter breech or absence of a filter.

g. The unit shall be equipped with an audible horn that sounds an alarm when the machine has shut itself off.

h. The unit shall be equipped with an automatic safety mechanism that prevents a worker from improperly inserting the main HEPA filter.

i. The unit shall be ducted through the containment barrier wall to the outside of the work area. The unit shall not be exhausted into any work area.

2. Number of Units Required

The air within the containment barrier shall be changed at least once every 15 minutes by a continuously operating negative air pressure system, until the LBP control area barrier is removed. Filters shall be replaced as necessary to maintain the efficiency of the system. A back-up unit shall be maintained onsite.

3. Auxiliary Generator

An auxiliary generator shall be provided with a capacity adequate to power a minimum of 50 percent of the negative air machines at any time during the work. When power fails, the generator controls shall automatically start the generator and switch the

negative air machine to generator power. The generator shall not present a carbon monoxide hazard to workers.

4. Discontinuing Negative Air Pressure System
The negative air pressure system shall not be shut down during LBP work unless authorized by the Owner's Consultant. At the completion of the LBP work procedures and disposal project, units shall be run until full cleanup has been completed and wipe clearance samples have been collected, analyzed and have passed final clearance testing requirements. Dismantling of the negative air pressure systems shall conform to the written decontamination procedures. Prefilters shall be removed and properly disposed. The intake to the machines shall be sealed with polyethylene to prevent environmental contamination.

E. Expendable Supplies

1. Polyethylene Sheet and Bags - General
Polyethylene sheet and bags shall be minimum 6-mil thick. Bags shall have pre-printed labels, and 5-inch (minimum) long plastic ties, pointed and looped to secure the filled bags. Polyethylene sheets shall be in roll sizes to minimize seams.

2. Polyethylene Sheet - Flame Resistant
Where a potential for fire exists, flame-resistant polyethylene sheets shall be provided. Polyethylene film shall conform to the requirements of NFPA 701.

3. Polyethylene Sheet - Reinforced
Reinforced polyethylene sheet shall be provided where high skin strength is required such as where it constitutes the only barrier between the LBP control area and the outdoor environment. The sheet stock shall consist of translucent, nylon-reinforced or woven-polyethylene thread laminated between two layers of polyethylene film. Film shall meet flame resistant standards of NFPA 701.

4. Tape and Adhesive Spray
Tape and adhesive shall be capable of sealing joints between polyethylene sheets and for attachment of polyethylene sheets to adjacent surfaces. After dry application, tape or adhesive shall retain adhesion when exposed to wet conditions, including amended water. Tape shall be minimum 2 inches wide, industrial strength.

5. Containers
DOT approved impermeable containers shall be used to receive and retain LBP waste and debris, and lead contaminated material until disposal. Containers shall be labeled in accordance with EPA, DOT and OSHA standards.

6. Chemicals
Chemicals, including caustics and paint strippers, shall be properly labeled and stored in leak-tight containers.

F. Vacuum Systems
HEPA filtered vacuum systems shall be used during LBP operations which generate dust. The systems shall be suitably sized for the project, and filters shall be capable of removing particles as small as 0.3 micrometers at a minimum efficiency of 99.97 percent.

G. Heat Blower Guns

Heat blower guns shall be flameless, electrical, paint-softener type with controls to limit temperature to 590 degrees C (1,100 degrees F). Heat blower shall be DI (non-grounded) 120 Vac, and shall be equipped with cone, fan, glass protector and spoon reflector nozzles.

H. Chemical Paint Strippers
Chemical paint strippers shall contain no methylene chloride.

I. Chemical Paint Stripper Neutralizer
Neutralizers for paint strippers shall be compatible with the substrate and suitable for use with the chemical stripper that has been applied to the surface.

1.8 STORAGE OF MATERIALS

Materials shall be stored in a place and manner, which protects them from damage and contamination. During periods of cold weather, plastic materials shall be protected from the cold. Regularly inspect materials to identify damaged or deteriorating items. Damaged or deteriorated items shall not be used and shall be removed from the site as soon as they are discovered. Stored materials shall not present a hazard or an inconvenience to workers, visitors and/or other employees.

PART 2 – PRODUCTS

(NOT APPLICABLE)

PART 3 – EXECUTION

3.1 WORK PROCEDURES

LBP work procedures and related work shall be performed in accordance with the U.S. Department of Housing and Urban Development "Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing" and the accepted Contractor's LBP Management Plan. Procedures and equipment required to limit occupational and environmental exposures to lead during LBP removal shall be in accordance with 29 CFR Part 1926.62 and as specified herein. LBP waste and debris, lead contaminated debris and personal protective clothing and equipment shall be disposed of in compliance with Federal, state, and local regulations.

A. Personnel Protection Procedures
Personnel shall wear and use protective clothing and equipment as specified and required by 29 CFR Part 1926.62 and 29 CFR Part 1910.120. Eating, smoking, drinking, chewing tobacco and chewing gum, and applying makeup shall not be permitted in the LBP control area. Personnel of trades not engaged in the LBP work procedures and disposal of LBP shall not be exposed at any time to airborne concentrations of lead equal to or in excess of 30 micrograms per cubic meter of air. Electrical service shall be disconnected when wet removal is performed, and temporary electrical service protected by a ground fault circuit interrupter shall be provided.

B. Safety and Health Procedures
The Competent Person shall be present on the work site throughout the LBP project to supervise, monitor and document the project's health and safety provisions. A daily log shall be maintained showing the results of sampling tests throughout the project area. LBP work being conducted within a LBP Control area where an airtight barrier is required shall be stopped if measured airborne lead concentrations, collected during LBP work procedures, exceed the pre- LBP work procedures airborne concentration levels.

C. Safety and Health Responsibilities

The Competent Person shall:

1. Verify that training meets applicable requirements.

2. Review and approve LBP Management Plan for conformance to the applicable referenced standards.

3. Inspect LBP removal work for conformance with the accepted LBP Management Plan.

4. Ensure that worker exposure air monitoring activities are in accordance with 29 CFR Part 1926.62.

5. Ensure work is performed in strict accordance with specifications.

6. Ensure hazardous exposure to personnel and to the environment are adequately controlled.

7. The Contractor's Competent Person shall be responsible for directing personal air monitoring.

8. The Owner's Consultant shall be responsible for directing area and final air/wipe testing.

D. Medical Surveillance Procedures

Medical surveillance shall be implemented in accordance with the accepted Contractor's LBP Management Plan, and shall comply with the requirements of 29 CFR Part 1926.62, including the provisions for biological monitoring, medical removal, protection and a physician's written opinion, signed by the physician performing the employee examination. The Contractor shall provide a copy of the written opinion for Contractor's employees prior to each employee's commencement of work.

E. Engineering Controls and Containment Structures

Engineering and work practice controls are the primary means of maintaining exposures to lead below the PEL. Paint removal and surface preparation activities must keep dust levels at a minimum. Torch cutting of surfaces with LBP will require appropriate personal protective equipment and exposure controls. Power tools must be equipped with vacuum shrouds including a high efficiency particulate air filtered vacuum system attached.

1. LBP Control Area

The LBP control area is where LBP work procedures occur and as such shall be considered contaminated. The LBP control area shall be isolated to prevent LBP containing dust or debris from passing into adjacent open areas. The control area shall be decontaminated at the completion of the LBP work procedure and disposal work.

2. Boundary Requirements.

Physical boundaries shall be provided around exterior LBP control areas by roping off the area indicated in the LBP Management Plan.

3. Control Barriers

The LBP control area shall be designated and separated from other outside areas with control barriers. The polyethylene sheeting shall have all openings masked and sealed. The LBP control area shall be erected according to the Contractors LBP Management

Plan. Polyethylene sheeting shall be mechanically supported, independent of duct tape or spray adhesive.

4. Masking and Sealing

   a. Exterior LBP control area requirements: Where the construction of a contained LBP control area is impractical or not required based on the method of lead work procedures, a roped-off perimeter shall be installed 20 feet from and around the area where the LBP handling procedures are performed and other requirements for LBP control areas shall be maintained. Personal monitoring of airborne concentrations shall be conducted in adjacent areas during the work shift, in accordance with 29 CFR Part 1926.62. Area air monitoring inside and outside of the roped-off perimeter shall be conducted as specified. Airborne concentrations shall not exceed specified levels.

5. Personnel Decontamination Unit
   Personnel decontamination units shall be provided when required for the LBP procedures. Materials fabricated or delivered to the site before the shop drawings have been returned to the Contractor will be subject to rejection by the Owner's Consultant. Specifications and drawings of portable prefab units, such as a trailer unit, if utilized, must be submitted for review and approval before start of construction. Submittal shall include, but not be limited to, a floor plan layout showing dimensions, materials, sizes, thickness, plumbing, and electrical outlets. Access between contaminated and uncontaminated areas shall be through an airlock. Access between any two rooms or room and trailer within the decontamination unit shall be through a plastic sheeting curtained doorway. A separate equipment decontamination unit shall be provided. Each work area shall have an emergency exit. The personnel decontamination unit's clean room shall be the only means of entrance and exit, except for emergencies, from the LBP control area. Materials shall exit the LBP control area through the equipment decontamination area.

6. Clean Room
   The clean room shall have only one exit to non-contaminated areas of the site. An airtight seal shall be constructed of polyethylene between the clean room and uncontaminated areas. Surfaces of the clean room shall be protected with sheet polyethylene. A temporary unit with a separate equipment decontamination locker room and a clean locker room shall be provided for personnel who are required to wear whole body protective clothing. One locker shall be provided in each locker room for each LBP worker, and each Contractor's representative. Lead-free personal clothing and shoes shall be kept in the clean locker. Hand wash station/showers shall be located between the equipment decontamination locker room and the clean locker room, and employees shall wash or shower before changing into personal clothes. An adequate supply of clean disposable towels shall be provided. LBP contaminated work clothing shall be cleaned. Clean rooms shall be physically attached to the LBP control area for areas inside the building but may be directly adjacent to the LBP control area outside of the building. Joint use of this space for other functions, such as offices, equipment storage, etc., is prohibited.

7. Hand Wash Station/Shower Room
   An operational shower and hand washing station shall be provided between the work area and the clean changing room. Workers shall wash and/or shower before entering the clean changing room. Shower room shall be separated from other rooms by air-tight walls fabricated from polyethylene sheeting. Water shall be hot and cold or warm. Shower heads/ controls, soap dish, continuing supply of soap, and clean towels shall be provided. The shower shall be maintained in a sanitary condition. Waste

water shall be pumped to drain and through waste water filters that meet state and/or local requirements. These filters shall be located inside the shower unit and filters shall be changed regularly. Spent filters shall be discarded as LBP contaminated waste.

8. Equipment Decontamination
The Equipment Decontamination Unit shall be used for removal of equipment and materials from the LBP control area, and shall include a wash room, holding room, and an enclosed walkway. The unit shall be constructed from wood framing material and polyethylene sheeting. Workers shall not enter or exit the LBP control area through the Equipment Decontamination Unit. A washdown station, consisting of an enclosed shower unit, shall be located in the work area outside the Wash Room. The washdown station shall be used to clean equipment, bags and containers. Bagged or containerized LBP wastes shall be passed from the work area and cleaned in the Wash Room. The Wash Room shall be separated from the work area by a polyethylene sheet flap. Wastewater shall be filtered and filters shall be changed as required for the shower unit and the Wash Room. Filters shall be disposed of as LBP contaminated wastes. The Holding Room shall be used as a drop location for bagged LBP passed from the Wash Room. This room shall be constructed so that bagged materials cannot be passed from the Wash Room through the Holding Room to the enclosed walkway. The walkway shall provide access to the Holding Room from outside the work area. The enclosed walkway shall be separated from the exterior by a single flap of polyethylene sheeting. The Contractor's equipment used for LBP work procedures shall be decontaminated prior to its removal outside of the lead control area. The decontamination water shall be containerized, the containers labeled, the liquid sampled and analyzed in the laboratory for lead, and properly disposed of off-site according to applicable Federal, State and Local regulations. See Paragraph 3.5.C.2.

9. Maintenance of Decontamination Units
Barriers and polyethylene sheeting shall be effectively sealed and taped. Containment barriers shall be visually inspected at the beginning of each work period. Damaged barriers and defects shall be immediately repaired upon discovery. Smoke testing methods shall be used to test effectiveness of barriers when directed by the Owner's Consultant.

10. LBP Control Area Exiting Procedures
Personnel exiting a LBP control area shall perform the following procedures and shall not leave the work place wearing any clothing or equipment worn during the work day:

a. HEPA vacuum all protective clothing before removing.

b. Remove protective clothing in the decontamination room and place this clothing in an approved impermeable disposal bag.

c. Wash or shower.

d. Change to clean clothes prior to leaving the physical boundary designated around the lead-contaminated work site.

F. Temporary Utilities

1. Temporary equipment as necessary to provide adequate power, light, heat, and water shall be installed, as needed, to accomplish the LBP operations properly and safely. The Contractor shall maintain the security and maintenance of the utility system in the

LBP control areas. In the event of a failure of any utility system, the Owner will not be responsible for any loss of time or other expense incurred by the Contractor. In addition to any site-specific temporary utility requirements, the Contractor shall provide:

a. Back-flow protection on all water connections is required. Fittings installed by the Contractor shall be removed after completion of work with no damage or alteration to existing water piping and equipment.

b. When applicable, heavy-duty abrasion-resistant hoses to provide water to each work area and decontamination area.

c. A hot water heater, if necessary, to provide warm water to the decontamination showers.

d. Electrical service to work areas. Electrical service shall comply with National Electric Code, State and Local requirements and UL standards. Warning signs shall be posted at power outlets, which are other than 110-120 volt power. Only grounded extension cords shall be used. Incandescent lamps and light fixtures shall be of adequate wattage to provide good illumination in LBP control areas.

e. Temporary heating units, when needed, that have been tested and labeled by UL, FM, or another recognized trade association related to the fuel being consumed. Forced air or fan type units shall not be utilized inside a work area. Units shall have tip-over protection.

f. Sufficient quantity of single-occupant, self-contained chemical toilets, properly vented and fully enclosed.

3.2 LEAD-BASED PAINT WORK PRACTICES (Use methods as applicable)

A. Component Removal:

Components shall be removed intact to the extent practicable. A 6-mil polyethylene drop cloth shall be placed on either side of the component, prior to its removal, to catch any paint chips that may become dislodged. The component shall be wrapped in a layer of 6-mil polyethylene for movement to the disposal container. Follow proper disposal requirements. The area around the component removal shall be wet wiped and HEPA vacuumed, including the tent enclosure. The polyethylene sheeting shall be carefully folded in on itself and placed in a 6-mil disposal bag. Containment debris shall be properly disposed of as lead-based waste.

Clearance will be performed as follows:

1. Visual Clearance - Determine that all required work has been completed.
   Look for settled dust, paint chips or debris in work area. If located, cleanings will commence until visual inspection locates no evidence of dust.

2. The Owner's Consultant shall perform Dust and/or Soil Sampling as outlined in the U.S. Department of Housing and Urban Development "Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing".

B. Chemical Stripping: Assumed Exposure (50 ug/m^3 - 500 ug/m^3)

Chemical stripping, using an agent approved by the Owner's Consultant, followed by wet scraping is the preferred method of abatement for areas where torch cutting, welding and/or other hot-work will affect building components coated with lead-based paint or lead

containing coatings. The specific stripping agent(s) proposed must be approved by the Owner. No chemical strippers containing methylene chloride shall be used by the Contractor on this project.

1. Horizontal surfaces directly below and at least 10' in a radial direction from the area where chemical stripping is to be performed shall be protected with 6-mil poly.

2. All LBP on specified surfaces shall be removed to the bare substrate. The job is not considered complete until the substrate is dry and free of paint, debris, and LBP residue.

3. LBP stripping agents shall be brushed or troweled on the designated surfaces, or otherwise applied in accordance with manufacturer's specifications. The minimum thickness of chemical stripping agent applied shall be 0.125 (1/8) inches or the manufacturer's recommendations.

4. Stripping agents shall not be applied to, nor be allowed to inadvertently penetrate, wood and/or other porous substrates.

5. The required dwell time for stripping will depend upon the ambient temperature, humidity, and thickness of LBP. If LBP is not completely removed following the initial application of stripper, a second application and wet scraping may be required.

6. Removed LBP shall not be deposited on the polyethylene containment surfaces, but shall be transferred directly into 6-mil polyethylene bags from the scraper. LBP shall be removed by wet scraping to the maximum extent feasible.
7. Any residue not removable by wet scraping shall be washed down to the bare metal substrate with a high-phosphate solution. LBP-contaminated wastewater shall be kept to a minimum using wet scrub brushes or sponges. These residues and disposable cleaning media shall also be directly transferred to the 6-mil polyethylene bags containing other LBP wastes. Free standing water shall be eliminated by use of a drying agent.

8. Clearance will be performed as follows:

   a. Visual Clearance - Determine that all required work has been completed.
   Look for settled dust, paint chips or debris in work area. If located, cleanings will commence until visual inspection locates no evidence of dust.

   b. The Owner’s Consultant shall perform Dust and/or Soil Sampling as outlined in the U.S. Department of Housing and Urban Development “Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing”.

C. Manual Demolition/Scraping/Cleaning: Assumed Exposure (50 ug/m^3 - 500 ug/m^3)

Manual demolition, scraping, manual sanding and power tool cleaning with dust collection systems shall be performed in conjunction with engineering and work practice controls meeting the requirements of 29 CFR 1926.62(e)(1).

Seal openings of HVAC ductwork and other penetrations (doors, windows, etc.) within the Control Area with two layers of 6-mil polyethylene sheeting. For work on vertical surfaces, place a layer of 6-mil polyethylene sheeting below the area prior to manual

demolition/scraping/ cleaning. The sheeting shall extend 5 ft. on either side of the work area, to catch any paint chips that may become dislodged.

Wet methods shall be used during manual scraping, manual sanding and power tool cleaning with dust collection systems. Local HEPA ventilation shall be utilized in conjunction with manual scraping, manual sanding and power tool cleaning with dust collection systems. In the case that local HEPA ventilation is not sufficient to control dust hazards, the Contractor shall be required to install engineering controls to meet requirements of Specification Section 1.8(D) "Negative Air Pressure System".

Removed LBP shall not be allowed to accumulate on surfaces within the Control Area, but shall be HEPA vacuumed or placed directly into 6-mil polyethylene bags. The Contractor shall maintain all surfaces as free as practicable of accumulated lead dust to prevent the dispersal of lead into the work place. LBP shall be removed by manual methods to the maximum extent feasible.

Debris shall be bagged in 6-mil polyethylene bags and secured in leak proof drums until TCLP testing is completed. Follow proper disposal requirements. The area around the surfaces subject to work shall be wet wiped and HEPA vacuumed, including the polyethylene sheeting. Upon clearance by the Owner's Consultant, the polyethylene sheeting shall be carefully folded in on itself and placed in a 6mil disposal bag. Containment debris shall be properly disposed of as lead-based waste.

Clearance will be performed as follows and as needed:

a. Visual Clearance – determine that all required work has been completed. Look for settled dust, paint chips or debris in work area. If located, cleanings will commence until visual inspection locates no evidence of dust.

b. The Owner's Consultant shall perform Dust and/or Soil Sampling as outlined in the U.S. Department of Housing and Urban Development "Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing".

D. Alternative Lead Work Procedures

1. Any Work Procedure other than the outline procedures above, shall be submitted to the Owner's Consultant for approval prior to the start of the project. As there are many different components in differing areas of the building(s), it is impractical to address every potential lead work procedure. The intent of alternative lead work procedures shall be to maintain compliance with 29 CFR 1926.62 and maintain airborne concentrations of lead dust below the Action Level of 30 ug/dL of air.

3.3 MONITORING & CLEARANCE SAMPLING

During the entire LBP removal and disposal operations, the Owner's Consultant shall be on-site directing the monitoring/sampling and inspecting the work to ensure that the health and safety requirements of this contract are satisfied.

A. Personnel Air Monitoring (Provided by the Contractor, as necessary)

1. Personnel air monitoring samples for airborne concentrations of lead shall be collected and analyzed in accordance with 29 CFR Part 1926.62. Results shall be reported in

micrograms per cubic meter of air. The Competent Person shall use personal air monitoring results to determine the effectiveness of engineering controls, the adequacy of PPE and to determine if proper work practices are being employed. The Owner's Consultant shall be notified if any personal air monitoring result equals or exceeds 30 micrograms per cubic meter of air. The Contractor shall take steps to reduce the concentration of lead in the air.

B. Area Air Monitoring (Provided by the Owner's Consultant, as requested)
Airborne concentrations of lead shall be collected and analyzed in the laboratory. Results shall be reported in micrograms per cubic meter of air.

1. Pre-LBP work
Pre- LBP work samples shall be collected in the following locations: I) inside the lead control area, one upwind of the LBP work and two downwind of the LBP work procedure activities; and 2) outside the physical boundary (roped off) area, one upwind of the LBP work and two downwind of the LBP work activities. A total of six (6) samples. If work is performed inside the building, similar numbers of samples are to be positioned inside and outside the LBP containment area.

2. LBP Work
The Competent Person shall collect area air samples on a daily basis during the duration of the LBP work. The samples shall be collected in the same location as the pre-work samples.

3. The area air samples shall be collected at 4 to 6 feet above grade, and using high volume air samplers.

4. The air samples shall be analyzed by NIOSH Method 7082 or method approved by Engineer.

5. Results
The Contractor shall have the results of the area air monitoring within 24 hours after completion of the sampling. Results shall be reported in micrograms per cubic meter of air.

6. Excessive Levels
Outdoor LBP work shall cease and the Owner's Consultant notified if measured airborne lead concentrations, collected during LBP activities, exceed the pre-work airborne concentration levels. The Contractor may be required to clean and re-sample the affected area, at no additional cost to the Owner, if directed by the Owner's Consultant. The Contractor shall correct the work practices and/or engineering controls and shall resume LBP work procedures at the direction of the Owner's Consultant.

C. Waste Sampling and Testing (Provided by the Contractor)

Sampling and testing of all waste, shall be in accordance with 40 CFR Part 261, 6 NYCRR Part 371 and SW-846, Chapter 9, Sampling Plan. See Paragraph 3.5.C of this specification section for waste sampling and analyses requirements.

D. Soil Sampling (Provided by the Owner, as requested)

1. If the Owner's Consultant or Owner's representative observes paint chips or LBP debris on the surface of the soil surrounding the work area during the LBP work procedures or at completion or if the Owner's Consultant or IH/ Owner's

Representative suspects potential contamination to the soil based on observed procedures and conditions during the work, the contractor shall pay for composite soil samples of the surface soil where designated by the Owner's Consultant and at a frequency specified by the Owner's Consultant. Two Background surface soil samples will be collected where directed by the Owner's Consultant. The samples shall be analyzed by an independent laboratory for lead on a total basis (by EPA Method 6010) and TCLP basis (Extraction Method 1311, analysis by EPA Method 6010).

2. Standard Soils Clearance samples shall be collected by the Owner's Consultant and paid for by the Owner. The samples shall be analyzed by an independent laboratory for lead on a total basis (by EPA Method 6010) and TCLP basis (Extraction Method 1311, analysis by EPA Method 6010).

3. If the analyses exceed the TCLP limit, the soil shall be treated as LBP contaminated waste, excavated and disposed of as a hazardous waste by the Contractor.

Clearance Level:

Soil: 400 microgram per gram

E. Dust/Wipe Sampling (Provided by the Owner, as necessary)

1. Dust/wipe samples shall be taken no sooner than 24 hours after abatement activities, including clean-up activities, have been completed.

2. Sampling for clearance criteria shall be performed as detailed in the HUD Guidance document. Appendices 13 and l4.

3. Failure to clear the work area and recleaning shall be the responsibility of the Contractor. The work area shall remain in place until satisfactory clearance has been achieved.

4. Analysis of Dust/Wipe samples for areas, which failed previous Dust/Wipe sampling, shall be reimbursed by the Contractor.

Clearance Levels:

Floors:	10 micrograms per square foot
Window Sills:	100 micrograms per square foot
Window Wells:	400 micrograms per square foot

3.4 ADJACENT AREAS

Damage to adjacent areas shall be repaired to the approval of the Owner.

3.5 CLEAN-UP & DISPOSAL

A. Cleanup

1. Daily
Surfaces in the LBP control area shall be maintained free of accumulations of paint chips, LBP debris, blasting debris and dust. Spread of dust and debris shall be restricted; waste shall not be distributed over the work area. Dry sweep or compressed

air shall not be used for cleanup. At the end of each shift, the area shall be cleaned of visible lead paint contamination by vacuuming with a HEPA filtered vacuum cleaner and wet wiping the area. LBP work procedures work shall cease during the cleanup.

2. At Completion of LBP work Procedure and a satisfactory visual inspection by the Engineer, a clean-up shall be performed by the Contractor. This clean-up includes removal of any contaminated material, equipment or debris including polyethylene sheeting from the work area. The polyethylene sheeting shall be sprayed or misted with water for dust control, construction debris removed and then the sheeting removed by folding it in upon itself.
   a. Lead-contaminated debris shall be containerized in accordance with paragraph 3.5.C.1, LBP Wastes and Lead-Contaminated Wastes. Waste bags shall not be overloaded, shall be securely sealed and stored in the designated area until disposal.

   b. Removal of surface polyethylene sheeting shall begin from top to bottom. Removal of floor polyethylene sheeting shall begin at the corners and folded in the middle to contain the dust. Polyethylene shall be disposed of as specified in Paragraph 3.5.C.l

   c. Cleaning Equipment. The Contractor shall decontaminate the lead abatement equipment and equipment used in the work area. The wastewater from cleaning shall be contained, sampled and disposed of as specified in Paragraph 3.5.C.2.

B. Certification

The Contractor shall certify in writing that the inside and outside the lead control area air monitoring samples are less than 30 micrograms per cubic meter of air, the respiratory protection for the employees was adequate, the work procedures were performed in accordance with 29 CFR Part 1926.62 and that there was no visible accumulations of lead-based paint and dust on the worksite. Do not remove warning signs at the lead control area or roped-off boundary signs prior to the Owner's Consultant's receipt of the Contractor's certification. Re-clean areas showing dust, residual paint chips. LBP debris and blasting debris.

Waste Storage, Sampling/Analysis and Disposal (Provided by the Contractor)

1. LBP Wastes and Lead-Contaminated Water

LBP waste, and lead-contaminated waste and debris shall be stored sampled and analyzed and disposed of as follows.

   a. The LBP waste and debris, lead contaminated personal protective equipment (PPE), clothing and waste polyethylene and lead-contaminated waste and debris shall be containerized in DOT approved containers (i.e.. 55 gallon drums, roll-off, etc.). If the waste is placed in roll-off(s), the roll off shall be lined with a minimum of 2 layers of'6-il polyethylene prior to placing any waste in it and covered with a liquid tight cover. Each container shall be labeled to identify the type of waste as defined in 49 CFR Part 172, 6 NYCRR Part 371 and 6 NYCRR Part 360 and with the date lead contaminated wastes were first put into the container.

   b. A representative sample of the container(s) of LBP wastes and lead-contaminated wastes and debris generated by the LBP activities shall be taken in accordance with SW-. 846, Chapter 9, Sampling Plan and analyzed in the laboratory for

TCLP lead by EPA Methods 1311 (extraction) and 6010 (analysis). If the wastes are placed in roll-off(s), four (4) composite samples per roll-off shall be taken for analysis. If the wastes are placed in *55* gallon drums, one composite sample for every ten (10) drums of wastes shall be taken for analysis. The laboratory analyses results shall dictate the proper method of disposal of the waste. A copy of the results shall be attached to the waste characterization (waste profile) form.

c. A waste characterization (waste profile) form shall be completed for the LBP waste and lead-contaminated waste and debris, and lead contaminated personal protective equipment and clothing (if containerized separately) and the forms submitted to Owner's Consultant for approval The Owner shall sign the forms. The Contractor shall process the forms and forward to the disposal facility for approval. The approved waste profile forms from the disposal facility shall be submitted to the Owner and Engineer prior to shipment of the wastes off-site.

d. The applicable waste transportation and disposal documents (i.e., hazardous waste manifest, bill of lading, non-hazardous waste manifest, land disposal restriction notification, etc.) shall be obtained and completed. An example of the completed waste transportation and disposal documents shall be submitted to Owner's Consultant for approval prior to shipment of the waste off-site.

e. Pick-up of hazardous wastes shall be made as needed to ensure that containers do not remain on the work site longer than 90 calendar days from the date affixed to each container. The Owner will assign an area for interim storage of waste-containing containers.

f. Lead contaminated personal protective equipment/ clothing, lead contaminated polyethylene, filters and debris, which cannot be sampled, shall be handled, stored, transported, and disposed of in the same manner as the LBP wastes and lead-contaminated wastes and debris, based on the sampling, laboratory analyses results and SW-846, Chapter 9, Sampling Plan calculations performed on the LBP wastes and lead-contaminated wastes and debris.

g. The LBP and lead contaminated wastes/ debris shall be handled, stored, transported and disposed of in accordance with 40 CFR Parts 260 to 265, 6 NYCRR Par 370 to 373, 6 NYCRR Part 364 and 6 NYCRR Part 360, as applicable. Additionally, the disposal shall be based on the sampling, laboratory analysis results and SW-846, Chapter 9, Sampling Plan calculations. Land disposal restriction notification shall be as required by 40 CFR Part 268 and 6 NYCRR Part 376.

2. Wastewater and Decontamination Water

a. Lead contaminated wastewater and decontamination water generated from the LBP work procedures shall be stored in DOT approved 55 gallon drums. Each drum shall be labeled to identify the type of waste as defined by 49 CFR Part 172, 6 NYCRR Part 371 and 6 NYCRR Part 360 and with the date lead contaminated liquid was first put into the drum.

b. A representative sample from the drum(s) of liquid wastes shall be taken in accordance with SW-846, Chapter 9, Sampling Plan and analyzed in the laboratory for total lead and total cadmium by EPA Method 200.7/6010. One composite sample for every ten (10) drums of liquid wastes shall be taken for analysis. The laboratory analyses results shall dictate the proper method of

disposal of the waste. A copy of the results shall be attached to the waste characterization (waste profile) form.

c. A waste characterization (waste profile) form shall be completed for the liquid wastes and other wastes being generated and submitted to Owner's Consultant for approval. The Owner shall sign the form(s). The Contractor shall process the form(s) and forward the forms to the disposal facility for approval. The approved waste profile form(s) from the disposal facility shall be submitted to the Owner and Engineer prior to shipment of the wastes off-site.

d. The applicable waste transportation and disposal documents (i.e., hazardous waste manifest, bill of lading, non-hazardous waste manifest, land disposal restriction notification, etc.) shall be obtained and completed. An example of the completed waste transportation and disposal documents shall be submitted to Owner's Consultant for approval prior to shipment of the waste off-site.

e. The lead contaminated wastewater and decontamination water shall be handled, stored, transported and disposed of in accordance with 40 CFR Parts 260 to 265, 6 NYCRR Part 370 to 373, 6 NYCRR Part 364 and 6 NYCRR Part 360 as applicable.

3. Waste Pick-Up and Disposal

a. Waste pick-up cannot be performed until all required submittals have been reviewed and approved by the Owner's Consultant. The Owner must be present at waste pick-up to sign the waste transportation documents and approve pick-up. No waste shall leave the site without approval and authorization by Owner.

b. Coordinate scheduling of waste pick-up and transportation with Owner's Consultant. Notify Engineer at least 48 hours ahead of when the waste pick-up will take place.

c. All wastes shall be properly disposed of off-site at an approved disposal facility. The wastes shall be transported by a transporter permitted to transport wastes per 6 NYCRR Part 364. The wastes shall be disposed of at a facility permitted to accept the waste being disposed of.

d. Submit copy of completed and signed transportation and disposal documents to Owner and Engineer at time of shipment and submit copy of document signed by the disposal facility.

e. Return or cause to be returned all waste manifests and bills of lading signed by the disposal facility within fifteen *(15)* days of removal from the project site.

f. Submit certification of destruction for all incinerated wastes and certificates of final treatment and/or final disposal, as applicable, for all wastes disposed of off-site.

g. All waste transportation and disposal must be conducted in accordance with all applicable State, Local and Federal regulations, all generator State regulations, all the State regulations where the wastes are transported through, and the disposal State regulations.

C. Payment for Disposal of Wastes

Payment for disposal of wastes will not be made until the following are received by the Owner:

1. A signed copy of the manifests
2. Bills of lading
3. Weight tickets, etc.
4. Certificate of final disposal, from the final treatment or disposal facility certifying the amount of lead containing wastes and debris delivered.

END OF SECTION 028300

Section 236414
Condensers/Condensing Units

Part 1 – General

Related Documents
General Description

A. This section includes the design, controls and installation requirements for air-cooled condensers / condensing units.

Quality Assurance

A. Unit shall be certified in accordance with UL Standard 1995/CSA C22.2 No. 236, Safety Standard for Heating and Cooling Equipment.

B. Unit and refrigeration system shall comply with ASHRAE 15, Safety Standard for Mechanical Refrigeration.

C. System Seasonal Energy Efficiency Ratio (SEER) shall be equal to or greater than prescribed by ASHRAE 90.1, Energy Efficient Design of New Buildings except Low-Rise Residential Buildings.

D. Unit shall be safety certified by ETL and be ETL US and ETL Canada listed. Unit nameplate shall include the ETL label.

Submittals

A. Product Data: Literature shall be provided that indicates dimensions, operating and shipping weights, capacities, ratings, factory supplied accessories, electrical characteristics, and connection requirements. Installation, Operation and Maintenance manual with startup requirements shall be provided.

B. Shop Drawings: Unit drawings shall be provided that indicate assembly, unit dimensions, clearances, and connection details. Wiring diagram shall be provided with details for both power and control systems and differentiate between factory installed and field installed wiring.

Delivery, Storage, and Handling

A. Unit shall be shipped with doors bolted shut to prevent damage during transport and thereafter while in storage awaiting installation.

B. Follow Installation, Operation and Maintenance manual instructions for rigging, moving, and unloading the unit at its final location.

C. Unit shall be stored in a clean, dry place protected from construction traffic in accordance with the Installation, Operation and Maintenance manual.

Warranty

A. Manufacturer shall provide a limited “parts only” warranty for a period of 12 months from the date of equipment startup or 18 months from the date of original equipment shipment from the factory, whichever is less. Warranty shall cover

material and workmanship that prove defective, within the specified warranty period, provided manufacturer's written instructions for installation, operation and maintenance have been followed. Warranty excludes parts associated with routine maintenance and refrigerant.

B. Compressors shall carry a 5 year warranty from date of original equipment shipment from the factory.

Part 2 - Products

Manufacturer

A. Products shall be provided by the following manufacturers:

1. AAON

2. Substitute equipment may be considered for approval that includes at a minimum:

a. R-410A refrigerant

b. Hinged access doors with lockable handles

c. Two-stage compressors with capacities of 100% and 67%

d. 2,500 hour salt spray tested exterior corrosion protection

e. Designed, engineered, and manufactured in the United States of America

f. All other provisions of the specifications must be satisfactorily addressed

Condensing Units

A. General Description

1. Unit shall be factory assembled and tested including leak testing of the coil and run testing of the completed unit. Run test report shall be supplied with the unit in the control compartment.

2. Unit shall have decals and tags to indicate lifting and rigging, service areas and caution areas for safety and to assist service personnel.

3. Unit components shall be labeled, including pipe stub outs, refrigeration system components and electrical and controls components.

4. Installation, Operation and Maintenance manual shall be supplied within the unit.

5. Laminated color-coded wiring diagram shall match factory installed wiring and shall be affixed to the interior of the control compartment's access door.

6. Unit nameplate shall be provided in two locations on the unit, affixed to the exterior of the unit and affixed to the interior of the control compartment's

access door.

B. Construction

1. Unit shall be completely factory assembled, piped, and wired and shipped in one section.
2. All cabinet walls, access doors, and roof shall be fabricated of G90 galvanized steel panels.
3. Unit shall be specifically designed for outdoor application.
4. Access to compressors and control components shall be through hinged access doors with quarter turn, lockable handles.
5. Exterior paint finish shall be capable of withstanding at least 2,500 hours, with no visible corrosive effects, when tested in a salt spray and fog atmosphere in accordance with ASTM B 117-95 test procedure.
6. Unit shall include forklift slots.

C. Electrical

1. Unit shall be provided with standard power block for connecting power to the unit.
2. Control circuit transformer and wiring shall provide 24 VAC control voltage from the line voltage provided to the unit.
3. Unit shall have a 5kAIC SCCR.
4. Unit shall be provided with factory installed and factory wired, non-fused disconnect switch.
5. Unit shall be provided with factory installed and factory wired 115V, 12 amp GFI outlet in the unit control panel.
6. Unit shall be provided with phase and brown out protection which shuts down all motors in the unit if the electrical phases are more than 10% out of balance on voltage, the voltage is more than 10% under design voltage, or on phase reversal.

D. Refrigeration System

1. Unit shall be provided with one independently circuited R-410A two-stage scroll compressor with thermal overload protection. Two-stage compressor shall include 2 stages of capacity control, 67% and 100%.
2. Each compressor shall be furnished with a crankcase heater.
3. Compressors shall be mounted in an isolated service compartment which can be

accessed without affecting unit operation. Lockable hinged access doors shall provide access to the compressors.

4. Compressors shall be isolated from the base pan with the compressor manufacturer's recommended rubber vibration isolators, to reduce any transmission of noise from the compressors into the building area.

5. Each refrigeration circuit shall be equipped with automatic reset low pressure and manual reset high pressure refrigerant safety controls, Schrader type service fittings on both the high pressure and low pressure sides, and service valves for liquid and suction connections. Liquid line filter driers shall be factory provided and installed. Field installed refrigerant circuits shall include the low side cooling components, refrigerant, thermal expansion valve, liquid line and insulated suction line.

6. Unit shall include a factory holding charge of R-410A refrigerant and oil. Adjusting the charge of the system will be required during installation.

7. Unit shall include 2 stages of capacity control.

8. Shall be equipped with a 5 minute off delay timer to prevent compressor short cycling.

9. Each refrigeration circuit shall be equipped with a liquid line sight glass.

10. Lead refrigeration circuit shall be equipped with flooded condenser low ambient head pressure control to allow operation down to 0°F. Option includes adjustable compressor lockout, low ambient control valve, check valve, and liquid line receiver.

11. Units shall be provided with a suction pressure transducer on the refrigeration circuit.

E. Fans

1. Condenser fan shall be horizontal discharge, axial flow, direct drive fans.

2. Condensing unit shall be provided with an electrically commutated motor (ECM) condenser fan, condenser head pressure controller, and discharge pressure transducers for modulating head pressure control to allow cooling operation down to 35°F. Fan motor shall be weather protected, single phase, direct drive, and totally enclosed air over (TEAO) with electronic protection.

F. Coils

1. Coils shall be designed for use with R-410A refrigerant. Coils shall be multi-pass and fabricated from aluminum microchannel tubes.

2. Coils shall be designed for a minimum of 10°F of refrigerant sub-cooling.

3. Coils shall be hydrogen leak tested.

G. Controls

1. Unit shall be provided with a terminal block for field installation of controls. Option shall include factory installed isolation relays.

Part 3 - Execution

Installation, Operation, and Maintenance

A. Installation, Operation and Maintenance manual shall be supplied with the unit.

B. Installing contractor shall install unit, including field installed components, in accordance with Installation, Operation and Maintenance manual instructions.

C. Start up and maintenance requirements shall be complied with to ensure safe and correct operation of the unit.

Section 237416
Packaged Rooftop Units / Outdoor Air Handling Units

Part 1 - General

1.01 Related Documents

1.02 General Description

A. This section includes the design, controls and installation requirements for packaged rooftop units / outdoor air handling units.

1.03 Quality Assurance

A. Packaged air-cooled condenser units shall be certified in accordance with ANSI/AHRI Standard 340/360 performance rating of commercial and industrial unitary air-conditioning and heat pump equipment.

B. Unit shall be certified in accordance with UL Standard 1995/CSA C22.2 No. 236, Safety Standard for Heating and Cooling Equipment.

C. Unit and refrigeration system shall comply with ASHRAE 15, Safety Standard for Mechanical Refrigeration.

D. Unit Seasonal Energy Efficiency Ratio (SEER) shall be equal to or greater that prescribed by ASHRAE 90.1, Energy Efficient Design of New Buildings except Low-Rise Residential Buildings.

E. Unit Energy Efficiency Ratio (EER) shall be equal to or greater that prescribed by ASHRAE 90.1, Energy Efficient Design of New Buildings except Low-Rise Residential Buildings.

F. Unit shall be safety certified by ETL and ETL US listed. Unit nameplate shall include the ETL/ETL Canada label.

1.04 Submittals

A. Product Data: Literature shall be provided that indicates dimensions, operating and shipping weights, capacities, ratings, fan performance, filter information, factory supplied accessories, electrical characteristics and connection requirements. Installation, Operation, and Maintenance manual with startup requirements shall be provided.

B. Shop Drawings: Unit drawings shall be provided that indicate assembly, unit dimensions, construction details, clearances and connection details. Computer generated fan curves for each fan shall be submitted with specific design operation point noted. Wiring diagram shall be provided with details for both power and control systems and differentiate between factory installed and field installed wiring.

1.05 Delivery, Storage, and Handling

A. Unit shall be shipped with doors screwed shut and outside air hood closed to prevent damage during transport and thereafter while in storage awaiting

installation.

B. Follow Installation, Operation, and Maintenance manual instructions for rigging, moving, and unloading the unit at its final location.

C. Unit shall be stored in a clean, dry place protected from construction traffic in accordance with the Installation, Operation, and Maintenance manual.

1.06 Warranty

A. Manufacturer shall provide a limited "parts only" warranty for a period of 12 months from the date of equipment startup or 18 months from the date of original equipment shipment from the factory, whichever is less. Warranty shall cover material and workmanship that prove defective, within the specified warranty period, provided manufacturer's written instructions for Installation, Operation, and maintenance have been followed. Warranty excludes parts associated with routine maintenance, such as belts and filters.

Part 2 - Products

2.01 Manufacturer

A. Products shall be provided by the following manufacturers:

1. AAON

2. Substitute equipment may be considered for approval that includes at a minimum:

a. R-410A refrigerant

b. Variable capacity compressor with 10-100% capacity control

c. Direct drive supply fans

d. Double wall cabinet construction

e. Insulation with a minimum R-value of 13

f. Stainless steel drain pans

2.02 Rooftop Units

A. General Description

1. Packaged rooftop unit shall include compressors, evaporator coils, filters, supply fans, dampers, air-cooled condenser coils, condenser fans, reheat coil, electric heaters, exhaust fans, energy recovery wheels, and unit controls.

2. Unit shall be factory assembled and tested including leak testing of the DX coils, pressure testing of the refrigeration circuit, and run testing of the completed unit. Run test report shall be supplied with the unit in the service compartment's literature pocket.

3. Unit shall have decals and tags to indicate lifting and rigging, service areas and caution areas for safety and to assist service personnel.

4. Unit components shall be labeled, including refrigeration system components, and electrical and controls components.

5. Estimated sound power levels (dB) shall be shown on the unit ratings sheet.

6. Installation, Operation, and Maintenance manual shall be supplied within the unit.

7. Laminated color-coded wiring diagram shall match factory installed wiring and shall be affixed to the interior of the control compartment's hinged access door.

8. Unit nameplate shall be provided in two locations on the unit, affixed to the exterior of the unit and affixed to the interior of the control compartment's hinged access door.

B. Construction

1. All cabinet walls, access doors, and roof shall be fabricated of double wall, impact resistant, rigid polyurethane foam panels.

2. Unit insulation shall have a minimum thermal resistance R-value of 13. Foam insulation shall have a minimum density of 2 pounds/cubic foot and shall be tested in accordance with ASTM D1929-11 for a minimum flash ignition temperature of 610°F.

3. Unit construction shall be double wall with G90 galvanized steel on both sides and a thermal break. Double wall construction with a thermal break prevents moisture accumulation on the insulation, provides a cleanable interior, reduces heat transfer through the panel, and prevents exterior condensation on the panel.

4. Unit shall be designed to reduce air leakage and infiltration through the cabinet. Cabinet leakage shall not exceed 1% of total airflow when tested at 3 times the minimum external static pressure provided in AHRI Standard 340/360. Panel deflection shall not exceed L/240 ratio at 125% of design static pressure, at a maximum 8 inches of positive or negative static pressure, to reduce air leakage. Deflection shall be measured at the midpoint of the panel height and width. Continuous sealing shall be included between panels and between access doors and openings to reduce air leakage. Piping and electrical conduit through cabinet panels shall include sealing to reduce air leakage.

5. Unit shall be designed to reduce air leakage and infiltration through the cabinet. Cabinet leakage shall not exceed 1% of total airflow when tested at 3 times the minimum external static pressure provided in AHRI Standard 210/240. Panel deflection shall not exceed L/240 ratio at 125% of design static pressure, at a maximum 8 inches of positive or negative static pressure, to reduce air leakage. Deflection shall be measured at the midpoint of the panel height and width.

Continuous sealing shall be included between panels and between access doors and openings to reduce air leakage. Piping and electrical conduit through cabinet panels shall include sealing to reduce air leakage.

6. Roof of the air tunnel shall be sloped to provide complete drainage. Cabinet shall have rain break overhangs above access doors.

7. Access to filters, dampers, cooling coils, reheat coil, heaters, energy recovery wheels, compressors, and electrical and controls components shall be through hinged access doors with quarter turn, zinc cast, lockable handles. Full length stainless steel piano hinges shall be included on the doors.

8. Exterior paint finish shall be capable of withstanding at least 2,500 hours, with no visible corrosive effects, when tested in a salt spray and fog atmosphere in accordance with ASTM B 117-95 test procedure.

9. Units with cooling coils shall include double sloped 304 stainless steel drain pans.

10. Unit shall be provided with base discharge and return air openings. All openings through the base pan of the unit shall have upturned flanges of at least 1/2 inch in height around the opening.

11. Unit shall include lifting lugs on the top of the unit.

12. Unit base pan shall be provided with 1/2 inch thick foam insulation.

C. Electrical

1. Unit shall have a 5kAIC SCCR.

2. Unit shall be provided with factory installed and factory wired, non-fused disconnect switch.

3. Air-source heat pump shall include a defrost cycle to prevent frost accumulation on the outdoor coil during heat pump heating operation. Defrost cycle shall begin when outdoor coil temperature is below a fixed setpoint and have a fixed 10 minute run time, or end when the outdoor coil temperature is above a fixed setpoint. Defrost timer, with 30/60/90 minute selectable defrost cycle interval time, shall be factory installed in the controls compartment. During defrost cycle all compressors shall energize, reversing valve shall de-energize, and auxiliary heat shall energize.

4. Unit shall be provided with a factory installed and factory wired 115V, 12 amp GFI outlet disconnect switch in the unit control panel.

5. Unit shall be provided with phase and brown out protection which shuts down all motors in the unit if the electrical phases are more than 10% out of balance on voltage, the voltage is more than 10% under design voltage or on phase

reversal.

D. Supply Fans

1. Unit shall include direct drive, unhoused, backward curved, plenum supply fans.
2. Blowers and motors shall be dynamically balance and mounted on rubber isolators.
3. Motors shall be premium efficiency ODP with ball bearings rated for 200,000 hours service with external lubrication points.
4. Variable frequency drives shall be factory wired and mounted in the unit. Fan motors shall be premium efficiency.

E. Exhaust Fans

1. Exhaust dampers shall be sized for 100% relief.
2. Fans and motors shall be dynamically balanced.
3. Unit shall include factory provided motorized relief dampers. The dampers shall be field installed.
4. Unit shall include barometric relief dampers.
5. Motors shall be premium efficiency ODP with ball bearings rated for 200,000 hours service with external lubrication points.
6. Access to exhaust fans shall be through double wall, hinged access doors with quarter turn lockable handles.
7. Unit shall include belt driven, unhoused, backward curved, plenum exhaust fans.
8. Variable frequency drives shall be factory wired and mounted in the unit. Fan motors shall be premium efficiency.

F. Cooling Coils

1. Evaporator Coils
   a. Coils shall be designed for use with R-410A refrigerant and constructed of copper tubes with aluminum fins mechanically bonded to the tubes and galvanized steel end casings. Fin design shall be sine wave rippled.
   b. Coil shall be standard capacity.
   c. Coils shall be 6 row high capacity.
   d. Coils shall be hydrogen or helium leak tested.
   e. Coils shall be furnished with factory installed expansion valves.

G. Refrigeration System

1. Unit shall be factory charged with R-410A refrigerant.

2. Compressors shall be scroll type with thermal overload protection and carry a 5 year non-prorated warranty, from the date of original equipment shipment from the factory.

3. Compressors shall be mounted in an isolated service compartment which can be accessed without affecting unit operation. Lockable hinged compressor access doors shall be fabricated of double wall, rigid polyurethane foam injected panels to prevent the transmission of noise outside the cabinet.

4. Compressors shall be isolated from the base pan with the compressor manufacturer's recommended rubber vibration isolators, to reduce any transmission of noise from the compressors into the building area.

5. Each refrigeration circuit shall be equipped with expansion valve type refrigerant flow control.

6. Each refrigeration circuit shall be equipped with automatic reset low pressure and manual reset high pressure refrigerant safety controls, Schrader type service fittings on both the high pressure and low pressure sides and a factory installed liquid line filter driers.

7. Unit shall include a variable capacity scroll compressor on the refrigeration circuit which shall be capable of modulation from 10-100% of its capacity.

8. Unit shall include a variable capacity scroll compressor on the lead refrigeration circuit which shall be capable of modulation from 10-100% of its capacity and a two-stage compressor on the lag circuit that shall modulate between two capacity settings, 67% and 100%.

9. Refrigeration circuit shall be provided with hot gas reheat coil, modulating valves, electronic controller, supply air temperature sensor and a control signal terminal which allow the unit to have a dehumidification mode of operation, which includes supply air temperature control to prevent supply air temperature swings and overcooling of the space.

10. Unit shall be configured as an air-source heat pump. Refrigeration circuit shall be equipped with a factory installed liquid line filter drier with check valve, reversing valve, accumulator, and expansion valves on both the indoor and outdoor coils. Reversing valve shall energize during the heat pump cooling mode of operation.

11. Refrigeration circuit shall be equipped with a liquid line sight glass.

12. Each refrigeration circuit shall be equipped with a liquid line sight glass.

13. Unit shall be provided with a fixed 55F compressor lockout.

14. Unit shall be provided with an adjustable compressor lockout.

15. Unit shall be provided with an adjustable compressor lockout for each compressor.

H. Condensers

1. Air-Cooled Condenser

a. Condenser fans shall be a vertical discharge, axial flow, direct drive fans.

b. Coils shall be designed for use with R-410A refrigerant. Coils shall be multi-pass and fabricated from aluminum microchannel tubes.

c. Heat pump outdoor coil shall be constructed of copper tubes with aluminum fins mechanically bonded to the tubes and aluminum end casings. Fin design shall be sine wave rippled.

d. Coils shall be designed for a minimum of 10°F of refrigerant sub-cooling.

e. Coils shall be hydrogen or helium leak tested.

f. Condenser fans shall be high efficiency electrically commutated motor driven with factory installed head pressure control module. Condenser airflow shall continuously modulate based on head pressure and cooling operation shall be allowed down to 35°F with adjustable compressor lockout.

I. Electric Heating

1. Unit shall include an electric heater consisting of electric heating coils, fuses and a high temperature limit switch, with capacities as shown on the plans.

2. Electric heating coils shall be located in the reheat position downstream of the cooling coil.

3. Electric heater shall have full modulation capacity controlled by an SCR (Silicon Controlled Rectifier). A 0-10 VDC heating control signal shall be field provided to control the amount of heating.

4. [Auxiliary electric heating capacity shall be sized to meet heating leaving air temperature setpoint when heat pump heating is in operation. Dual fuel auxiliary heating capacity shall be available for operation when heat pump heating is in operation. Unit shall include 1 stage of auxiliary electric heating capacity.] [Heat Pump - Auxiliary Heat Sizing]

5. [Emergency electric heating capacity shall be sized by determining the maximum electric heating capacity not to exceed the amp draw of all compressors and adding that electric heating capacity to the auxiliary electric

heating capacity. Auxiliary electric heating capacity shall be sized to meet heating leaving air temperature setpoint when heat pump heating is in operation. Unit shall include 1 stage of auxiliary electric heating capacity.] [Heat Pump - MCA Limited Heat Sizing]

6. [Emergency electric heating capacity shall be sized to meet heating leaving air temperature setpoint when heat pump heating is not in operation. Auxiliary electric heating capacity shall be sized to meet heating leaving air temperature setpoint when heat pump heating is in operation. Unit shall include 1 stage of auxiliary electric heating capacity.] [Heat Pump - Emergency Heat Sizing]

J. Filters

1. Unit shall include 4 inch thick, pleated panel filters with an ASHRAE MERV rating of 13, upstream of the cooling coil. Unit shall also include 2 inch thick, pleated panel pre filters with an ASHRAE MERV rating of 8, upstream of the 4 inch standard filters.

2. Unit shall include a clogged filter switch.

3. Unit shall include a Magnehelic gauge mounted in the controls compartment.

K. Outside Air/Economizer

1. Unit shall include 0-100% economizer consisting of a motor operated outside air damper and return air damper assembly constructed of extruded aluminum, hollow core, airfoil blades with rubber edge seals and aluminum end seals. Damper blades shall be gear driven and designed to have no more than 20 cfm of leakage per sq ft. at 4 in. w.g. air pressure differential across the damper. Low leakage dampers shall be Class 2 AMCA certified, in accordance with AMCA Standard 511. Damper assembly shall be controlled by spring return DDCactuator. Unit shall include outside air opening bird screen and outside air hood. Unit, except for horizontal series, shall also include barometric relief dampers.

L. Energy Recovery

1. Unit shall contain a factory mounted and tested energy recovery wheel. The energy recovery wheel shall be mounted in a rigid frame containing the wheel drive motor, drive belt, wheel seals and bearings. Frame shall slide out for service and removal from the cabinet.

2. The energy recovery component shall incorporate a rotary wheel in an insulated cassette frame complete with seals, drive motor and drive belt.

3. The energy recovery cassette shall be an Underwriters Laboratories Recognized Component for electrical and fire safety. The wheel drive motor shall be an Underwriters Laboratory Recognized Component and shall be mounted in the cassette frame and supplied with a service connector or junction box. Thermal

performance shall be certified by the manufacturer in accordance with ASHRAE Standard 84, Method of Testing Air-to-Air Heat Exchangers and AHRI Standard 1060, Rating Air-to-Air Energy Recovery Ventilation Equipment. Cassettes shall be listed in the AHRI Certified Products.

4. Unit shall include 2 inch thick, pleated panel outside air filters with an ASHRAE MERV rating of 8, upstream of the wheels.

5. Hinged service access doors shall allow access to the wheel.

6. Unit shall include energy recovery wheel rotation detection sensors and a set of normally open and normally closed contracts for field indication of wheel rotation.

a. Polymer Energy Recovery Wheels

1. Shall be provided with removable energy transfer matrix. Wheel frame construction shall be a welded hub, spoke and rim assembly of stainless, plated and/or coated steel and shall be self-supporting without matrix segments in place. Segments shall be removable without the use of tools to facilitate maintenance and cleaning. Wheel bearings shall be selected to provide an L-10 life in excess of 400,000 hours. Rim shall be continuous rolled stainless steel and the wheel shall be connected to the shaft by means of taper locks.

2. All diameter and perimeter seals shall be provided as part of the cassette assembly and shall be factory set. Drive belts of stretch urethane shall be provided for wheel rim drive.

3. Polymer Energy recovery wheel cassette shall carry a 5 year non-prorated warranty, from the date of original equipment shipment from the factory. The first 12 months from the date of equipment startup, or 18 months from the date of original equipment shipment from the factory, whichever is less, shall be covered under the standard AAON limited parts warranty. The remaining period of the warranty shall be covered by Airxchange. The 5-year warranty applies to all parts and components of the cassette, with the exception of the motor, which shall carry an 18 month warranty. Warranty shall cover material and workmanship that prove defective, within the specified warranty period, provided the Airxchange written instructions for installation, operation and maintenance have been followed. Warranty excludes parts associated with routine maintenance, such as belts. Refer to the Airxchange Energy Recovery Cassette Limited Warranty Certificate.

4. Total energy recovery wheels shall be coated with silica gel desiccant permanently bonded by a process without the use of binders or adhesives, which may degrade desiccant performance. The substrate shall be lightweight polymer and shall not degrade nor require additional coatings

for application in marine or coastal environments. Coated segments shall be washable with detergent or alkaline coil cleaner and water. Desiccant shall not dissolve nor deliquesce in the presence of water or high humidity.

M. Controls

N. Accessories

1. Unit shall be provided with a safety shutdown terminal block for field installation of a smoke detector which shuts off the unit's control circuit.

2.03 Curbs

A. [Curbs shall to be fully gasketed between the curb top and unit bottom with the curb providing full perimeter support, cross structure support and air seal for the unit. Curb gasket shall be furnished within the control compartment of the rooftop unit to be mounted on the curb immediately before mounting of the rooftop unit.]

B. [Knockdown curb (with duct support rails) shall be factory furnished for field assembly.]

C. [Solid bottom curb shall be factory assembled and fully lined with curb rated 1 inch fiberglass insulation and include a wood nailer strip. (Curb shall be adjustable up to 3/4 inch per foot to allow for sloped roof applications.)]

Part 3 - Execution

3.01 Installation, Operation, and Maintenance

A. Installation, Operation, and Maintenance manual shall be supplied with the unit.

B. Installing contractor shall install unit, including field installed components, in accordance with Installation, Operation, and Maintenance manual instructions.

C. Start up and maintenance requirements shall be complied with to ensure safe and correct operation of the unit.

Part 01 - General

1.01 Description

The HVAC System shall be a heat-recovery VRF systems. It shall consist of one or multiple outdoor units per refrigerant circuit, one or multiple indoor units, one or multiple refrigerant unit boxes and digital controls. The outdoor unit shall be a 208-230V/3-phase VR-II. Each of the indoor units shall be capable of changing its mode (heating, cooling) independently of other indoor units' modes.

1.02 Approved Manufacturers and models

A. Fujitsu shall be the Base of Design (BOD) using the Airstage VRF system.

1.03 Quality Assurance

A. The VRF system shall be manufactured in facilities registered to follow the International Standard Organization (ISO) ISO 9001 - Quality Management and ISO 14001 - Environmental Management Standards.

B. All outdoor and indoor units shall be listed under Electrical Testing Laboratories (ETL) and caries the ETL label.

C. ASHRAE Compliance:

1. Fabricate and label refrigeration system to comply with ASHRAE 15, "Safety Standard for Refrigeration Systems."
2. ASHRAE Compliance: Applicable requirements in ASHRAE 62.1, Section 4 - "Outdoor Air Quality," Section 5 - "Systems and Equipment," Section 6 - " Procedures," and Section 7 - "Construction and System Start-up."

D. ASHRAE/IESNA Compliance: Applicable requirements in ASHRAE/IESNA 90.1.

E. All wiring shall be in accordance with the National Electric Code (NEC).

1.04 Delivery, Storage, and handling

All outdoor units, indoor units, refrigerant branch units, controls, and piping components shall be stored and handled according to the manufacturer's recommendation.

1.05 Warranty

The outdoor units and indoor units shall be covered by a minimum of (1) year parts and (2) years compressor manufacturer's Limited Standard Warranty. The warranty shall only cover any defects in material or workmanship as long as the VRF system is used for human thermal comfort or other approved applications under normal use and service. Any repaired or replaced component or part shall be warranted for the remainder of the original Standard Limited Warranty period or thirty (30) days after shipment of replacement part, whichever is longer.

The Manufacturer shall offer a (10) year Extended Warranty. The outdoor units and indoor units shall qualify to receive the manufacturer's Extended Warranty when installed according to all the manufacturer's Qualified System requirements listed:

a) The system is designed using the VRF manufacturer system design software.
b) The system is installed for human thermal comfort or other manufacturer approved applications.
c) The system is installed by the VRF manufacturer trained and approved contractor.
d) The system is commissioned by the VRF manufacturer certified commissioning agent within 120 days of installation and start-up.
e) The commissioning agent shall submit full commissioning report(s) within 21 days of completing commissioning.
f) The VRF manufacturer shall issue an Extended Warranty Approval Letter indicating that all reports are complete and without errors.

1.06 Installer Training

Variable Refrigerant Flow system manufacturers vary in requirements. Contractor must verify requirements and complete installation training prior to installing the system. The contractor shall

comply with the specified manufacturer system installation requirements without change in cost to Owner. Equipment supplier must inspect installation at various stages to ensure proper installation.

Part 2 - Products – Outdoor Units

2.03 Outdoor Units – Heat-Recovery 208-230V/3-Phase

A. General

The VRF heat-recovery system components; outdoor unit(s), indoor unit(s), refrigerant branch unit(s) and control(s) system shall be made by the same manufacturer. If multiple outdoor units are to connect together, they shall be connected by the manufacturer specified branch kits based on the following list.

The outdoor units must have the following capabilities:

1. Each outdoor unit shall be capable of providing static pressure up to 0.32 in.WG to allow connection of discharge ductwork and to prevent discharge air short-circuiting.
2. Each of the outdoor units shall have only one inverter driven twin rotary compressor. The use of multiple compressors or other types of compressors is not allowed.
3. The system shall be able to provide heating during oil recovery. Oil recovery operation shall not last more than 6 minutes after the first oil recovery.
4. The system must defrost all circuits simultaneously in order to resume full heating more quickly. Defrost time shall not last more than 15 minutes. Partial defrost which may extend the no heating or reduced heating periods shall not be allowed.
5. The system refrigerant circuit shall be capable of having its indoor to outdoor units' connectable capacity as high as 150%.
6. The outdoor unit shall provide refrigerant pressure and temperature safety protection.
7. Systems greater than 24 tons shall be split into smaller systems to help comply with refrigerant limitation regulations.
8. The system shall be capable of connecting to a minimum of 3280 ft of triple refrigerant piping. Shorter piping length limitation shall not be acceptable.
9. The outdoor unit coil fins shall be coated with a blue corrosion resistance for longer service life.
10. The outdoor unit shall offer quite operation option.
11. The following shall be the number of condensers and separation tubes used for each size:

Outdoor Model		**Branch Kit**	
208-230V/3-Phase	**Units**	**Model**	**Quantity**
AOUA72TLBV	1	None	-
AOUA96TLBV	1	None	-
AOUA120TLBV	1	None	-
AOUA144TLBVG	2	UTP-CX567A	1
AOUA168TLBVG	2	UTP-CX567A	1
AOUA192TLBVG	2	UTP-CX567A	1
AOUA216TLBVG	2	UTP-CX567A	1
AOUA240TLBVG	2	UTP-CX567A	1
AOUA264TLBVG	3	UTP-CX567A	2
AOUA288TLBVG	3	UTP-CX567A	2

B. Outdoor Temperatures:

The heat-recovery outdoor unit shall be capable of operating in heating mode down to -4°F ambient temperature and cooling or simultaneous heating/cooling mode down to 14°F ambient temperature

without any additional low ambient control kits or controls. The selection of an alternate manufacturer shall deem the contractor responsible for any additional material, cost, and labor to meet low ambient operating condition and performance.

C. Compressor:

1. Each outdoor unit module shall be equipped with one inverter driven dual rotary compressor. The use of multiple compressors, scroll and/or non-inverter driven compressors, which cause inrush current (demand charges) and require larger wire sizing, shall not be allowed.
2. The compressor shall be equipped with automatic thermal overload protection.
3. The compressor shall be equipped with high and low pressure overload protection.
4. The compressor modulating capacity shall be between 17% and 100%.

D. Fan:

1. Each outdoor unit fan shall be equipped with at least one propeller type fan.
2. The fan motor shall be variable speed DC inverter driven.
3. The fan motors shall be electrically protected.
4. The fan(s) shall be enclosed within outdoor unit and shall be protected with metal grille.
5. The fan motor shall be factory set to 0 in.WG. In addition, it shall be capable of providing static pressure up to 0.32 in.WG to allow connection of discharge ductwork and to prevent discharge air short-circuiting.

E. Coil:

1. The outdoor unit shall have two outdoor coils. The unit shall be capable of regulating the flow of the refrigerant independently in each coil to improve part load operation. The use of a single outdoor unit coil shall not be acceptable.
2. The outdoor coil shall be of nonferrous construction with lanced or corrugated plate fins on copper tubing.
3. The coil fins shall have a factory applied corrosion resistant blue-fin finish.
4. The coil shall be protected with an integral metal guard.

F. Electrical Power:

1. The outdoor unit shall be powered by 208-230V/3-phase, 60 Hz.
2. The outdoor unit shall be able to operate satisfactorily within the 187 to 253 Voltage range.
3. The outdoor unit shall have built-in protection against single-phasing and reverse-phasing through electrical power.
4. Outdoor unit electronic circuits shall be electrically protected using fuses.

G. Control and Communication:

1. The outdoor unit shall be controlled by integral microprocessors.
2. The main control board shall have a four-digit seven-segment display along with mode/exit, select and enter buttons to enter function codes and obtain OU operating data (pressures, temperatures, EEV positions and compressor load details).
3. The outdoor unit shall have a specific function to verify only the number of indoor units connected to the outdoor unit. A second function shall register the indoor units to the outdoor units and verify connected capacity
4. The control circuit between the outdoor unit(s) and the different indoor units shall be completed using non-polar, 22-AWG, solid-core, twisted-pair, and shielded LonWorks communication cable to provide total integration of the system. The communication network shall be capable of extending up to a length of 11,800 ft of cable. Shorter cable length capability shall not be acceptable.

H. Unit Cabinet:

1. The outdoor unit casing(s) shall be fabricated of painted galvanized steel.

2.02 Refrigerant Branch Box -Single

A. General

The Refrigerant Branch Box shall be used to allow indoor units to operate in a heating or cooling mode independent from the rest of the heat-recovery system indoor unit operating mode. The unit shall be

mounted indoors, with access and service clearance provided for each controller. The Refrigerant Branch Box shall be connected to only one indoor unit or to multiple indoor units operating in the same mode. The maximum capacity of the Refrigerant Branch Box shall be equal to or greater than the total indoor units' capacity connected to it.

B. Unit Cabinet

1. The unit shall be made of galvanized sheet metal.
2. The unit shall have the flexibility of being mounted with the control box on either side or the top to ease installation.

C. Piping

1. The Refrigerant Branch Box shall connect to only two of the three heat-recovery pipes.
2. The indoor unit shall connect to the Refrigerant Branch Box using two pipes only.
3. The Refrigerant Branch Box built-in pipes shall have built-in reducers for each pipe to ease connecting to different piping sizes.

D. Electrical:

1. The Refrigerant Branch Box shall be powered by 208-230V/single-phase, 60 Hz.
2. The Refrigerant Branch Box shall be able to operate satisfactorily within the 187 to 253 Voltage range.
3. Refrigerant Branch Box electric circuits shall be electronically protected using fuses.
4.

2.03 Multi-Refrigerant Branch Box -Multiple

E. General

The Multi-Refrigerant Branch Box shall be used to allow up to four indoor connections to operate in a heating or cooling mode independent from the rest of the heat-recovery system indoor unit operating mode. The unit shall be mounted indoors, with access and service clearance provided for each controller. Each of the Multi-Refrigerant Branch Box connections shall be connected to only one indoor unit or to multiple indoor units operating in the same mode. The maximum capacity of the Multi-Refrigerant Branch Box branch shall be equal to or greater than the total indoor units' capacity connected to it.

F. Unit Cabinet

1. The unit shall be made of galvanized sheet metal.

G. Piping

1. The Multi-Refrigerant Branch Box shall connect to all three heat-recovery pipes.
2. The indoor unit shall connect to the Multi-Refrigerant Branch Box using two pipes only.
3. The Multi-Refrigerant Branch Box built-in pipes shall have built-in reducers for each pipe to ease connecting to different piping sizes.
4. Up to two Multi-Refrigerant Branch Box can be connected in series to provide a total of 8 refrigerant branches.
5. A minimum of three refrigerant branch per Multi-Refrigerant Branch Box must be used for proper system operation.

H. Electrical:

1. The Refrigerant Branch Box shall be powered by 208-230V/single-phase, 60 Hz.
2. The Refrigerant Branch Box shall be able to operate satisfactorily within the 187 to 253 Voltage range.
3. Refrigerant Branch Box electric circuits shall be electronically protected using fuses.

Part 03 - Product – Indoor Units

03.01 Indoor Units - Compact Cassette

A. General

The VRF Compact Cassette style indoor unit shall be designed to be recessed into different types of ceilings. The unit shall provide 4-way air distribution away from the unit. The air distribution shall be controlled by electronically controlled louvers. The return air shall be in the center of the unit and shall have a built-in filter. The indoor unit shall be factory assembled, wired and run tested. Contained within the unit shall be all factory wiring, piping, electronic modulating Electronic Expansion Valve

(EEV), high-lift condensate pump, and control circuit board and fan motor. The indoor unit shall have an Auto-restart function that allows the unit to resume operation after power interruption.

B. Unit Cabinet

1. The cabinet shall be designed to be recessed in a standard suspended ceiling square grid of 2 ft x 2 ft without any alterations.
2. The unit shall have provisions for a field installed filtered outside air intake.
3. Four-way grille shall be fixed to bottom of cabinet allowing two, three or four-way airflow using optional air-outlet shutter plates.
4. Each of the louvers shall be individually adjusted using remote controller.

C. Fan

1. The indoor fan shall be an assembly with a turbo fan direct driven by a single motor.
2. The indoor fan shall be statically and dynamically balanced to run on a motor with permanently lubricated bearings.
3. The indoor fan shall offer three (3) speeds, Low, Mid, and High.
4. The fan shall have a selectable Auto fan setting that will adjust the fan speed based on the difference between controller set-point and space temperature.
5. The indoor unit vanes shall have 4 fixed positions and a swing feature that shall be capable of automatically swinging the vanes up and down for uniform air distribution.
6. The indoor unit shall have an adjustable air outlet system offering 4-way, 3-way or 2-way airflow.
7. The indoor unit shall offer optional provisions for fresh air intake.

D. Filter:

1. Return air shall be filtered by means of a long-life washable filter.

E. Coil:

1. The indoor coil shall be of nonferrous construction with louvered fins on copper tubing.
2. The tubing shall have inner grooves for high efficiency heat exchange.
3. The coil fins shall have hydrophilic coating.
4. All tube joints shall be brazed with phos-copper or silver alloy.
5. The coils shall be pressure tested at the factory.

F. Drainage:

1. The unit shall be equipped with an integral insulated drain pan and condensate pump.
2. The unit shall be provided with an integral condensate lift mechanism that will be able to raise drain water at least 27 1/2” inches above the bottom of the unit.

G. Electrical:

1. The indoor unit shall be powered by 208-230V/single-phase, 60 Hz.
2. The indoor unit shall be able to operate satisfactorily within the 187 to 253 Voltage range.
3. Indoor unit electric circuits shall be electronically protected using fuses.

H. Controls:

1. This indoor unit shall use controls provided by the specified manufacturer to perform functions necessary to operate the system.
2. The indoor unit shall be equipped with Infrared wireless receiver that is compatible with the optional wireless remote controller.
3. The indoor unit shall offer an auxiliary-heat output and functionality. The indoor unit shall offer an option for the auxiliary-heat output to function while outdoor unit has an error.
4. The indoor unit shall offer fresh air intake fan control option.

2.07 Indoor Units - Cassette

A. General

The VRF Cassette style indoor unit shall be designed to be recessed into different types of ceilings. The unit shall provide 4-way air distribution away from the unit. The air distribution shall be controlled by electronically controlled louvers. The return air shall be in the center of the unit and shall have a built-in filter. The indoor unit shall be factory assembled, wired and run tested. Contained within the unit shall be all factory wiring, piping, electronic modulating Electronic Expansion Valve (EEV), high-lift condensate pump, and control circuit board and fan motor. The indoor unit shall have an Auto-restart function that allows the unit to resume operation after power interruption.

B. Unit Cabinet

1. The cabinet shall be designed to be recessed in a standard suspended ceiling square grid of 3 ft x 3 ft without any alterations.
2. The unit shall have provisions for a field installed filtered outside air intake.
3. Four-way grille shall be fixed to bottom of cabinet allowing two, three or four-way airflow using optional air-outlet shutter plates.
4. Each of the louvers shall be individually adjusted using remote controller.

C. Fan

1. The indoor fan shall be an assembly with a turbo fan direct driven by a single motor.
2. The indoor fan shall be statically and dynamically balanced to run on a motor with permanently lubricated bearings.
3. The indoor fan shall offer three (3) speeds, Low, Mid, and High.
4. The fan shall have a selectable Auto fan setting that will adjust the fan speed based on the difference between controller set-point and space temperature.
5. The indoor unit vanes shall have 4 fixed positions and a swing feature that shall be capable of automatically swinging the vanes up and down for uniform air distribution.
6. The indoor unit shall have an adjustable air outlet system offering 4-way, 3-way or 2-way airflow.
7. The indoor unit shall offer optional provisions for fresh air intake.

D. Filter:

1. Return air shall be filtered by means of a long-life washable filter.

E. Coil:

1. The indoor coil shall be of nonferrous construction with louvered fins on copper tubing.
2. The tubing shall have **inner grooves** for high efficiency heat exchange.
3. The coil fins shall have hydrophilic coating.
4. All tube joints shall be brazed with phos-copper or silver alloy.
5. The coils shall be pressure tested at the factory.

F. Drainage:

1. The unit shall be equipped with an integral insulated drain pan and condensate pump.
2. The unit shall be provided with an integral condensate lift mechanism that will be able to raise drain water at least 33 1/2” inches above the bottom of the unit.

G. Electrical:

1. The indoor unit shall be powered by 208-230V/single-phase, 60 Hz.
2. The indoor unit shall be able to operate satisfactorily within the 187 to 253 Voltage range.
3. Indoor unit electric circuits shall be electronically protected using fuses.

H. Controls:

1. This indoor unit shall use controls provided by the specified manufacturer to perform functions necessary to operate the system.
2. The indoor unit shall offer an auxiliary-heat output and functionality. The indoor unit shall offer an option for the auxiliary-heat output to function while outdoor unit has an error.
3. The indoor unit shall offer fresh air intake fan control option.

2.08 Indoor Units - Slim Duct

A. General

The VRF Slim Ducted style indoor unit shall be designed to be installed above ceiling or behind walls and shall be connected to ducting system. Contained within the unit shall be all factory wiring, piping, electronic modulating Electronic Expansion Valve (EEV), condensate pan, high-lift condensate pump, built-in removable filter, control circuit board and 2 or 3 fans and fan motor. The unit shall be capable of providing static pressure between 0 to 0.36 in.WG. The unit shall be less than 8 in. in height and shall require a ceiling vertical installation space of less than 10 in. The unit shall be suitable for use in plenums. The indoor unit shall have an Auto-restart function that allows the unit to resume operation after power interruption.

B. Unit Cabinet

1. The unit shall have a low profile to be installed in plenum space of 10 in or less in height.
2. The indoor unit shall be designed to be installed vertically. In this case, an external separate condensate pump shall be installed.
3. The unit shall have the capability of connecting to return air duct from the back or bottom of the unit.
4. The unit shall have provisions for factory supplied louvers that can be controlled using VRF manufacturer remote.

C. Fan

1. The indoor fan shall be an assembly with two or three fans direct driven by a single motor.
2. The indoor fan shall be statically and dynamically balanced to run on a motor with permanently lubricated bearings.
3. The unit shall be factory to a static pressure of 0 in.WG. In addition, the unit shall be capable of providing a static pressure up to 0.36 in.WG.
4. The indoor fan shall offer three (3) speeds, Low, Mid, and High.
5. The fan shall have a selectable Auto fan setting that will adjust the fan speed based on the difference between controller set-point and space temperature.
6. The unit shall have an auxiliary heat output with function control. The unit shall be capable of operating the auxiliary heat and fan based on ambient set point even when the outdoor unit produces error codes.
7. The unit shall offer the capability of preventing the fan from operating when the temperature is satisfied in heating mode.
8. The indoor unit shall offer provisions for fresh air intake.

D. Filter:

1. Return air shall be filtered by means of air filter.
2. The filter shall be adaptable to be mounted to the back or bottom of unit.
3. The filter construction shall include a Fungicide agent.

E. Coil:

1. The indoor coil shall be of nonferrous construction with louvered fins on copper tubing.
2. The tubing shall have inner grooves for high efficiency heat exchange.
3. The coil fins shall have hydrophilic coating.
4. All tube joints shall be brazed with phos-copper or silver alloy.
5. The coils shall be pressure tested at the factory.

F. Drainage:

1. The unit shall be equipped with an integral insulated drain pan and condensate pump.
2. The unit shall be provided with an integral condensate lift mechanism that will be able to raise drain water at least 33 1/2” inches above the bottom of the unit drain pan.

G. Electrical:

1. The indoor unit shall be powered by 208-230V/single-phase, 60 Hz.
2. The indoor unit shall be able to operate satisfactorily within the 187 to 253 Voltage range.
3. Indoor unit electric circuits shall be electronically protected using fuses.

H. Controls:

1. This indoor unit shall use controls provided by the specified manufacturer to perform functions necessary to operate the system.
2. For systems with required auxiliary heat, the indoor unit shall offer an auxiliary-heat output and functionality. The indoor unit shall offer an option for the auxiliary-heat output to function while outdoor unit has an error. No substitute to this functionality shall be allowed.
3. The indoor unit shall offer fresh air intake fan control option.

2.09 Indoor Units - Floor/Ceiling 12kBTU to 24kBTU

A. General

The VRF Floor/ceiling style indoor unit shall be designed to mount vertically on the floor or be suspended from the ceilings. The unit shall provide swinging air distribution in 2 directions away from the unit. The air distribution shall be controlled by electronically controlled louvers. The louvers shall close when the unit is not in operation. The indoor unit shall be factory assembled, wired and run tested. Contained within the unit shall be all factory wiring, piping, electronic modulating Electronic Expansion Valve (EEV), and control circuit board and fan motor. The indoor unit shall have an Auto-restart function that allows the unit to resume operation after power interruption.

B. Unit Cabinet

1. The cabinet shall be designed to be made out of durable plastic and can be installed on the floor or ceiling suspended.
2. Each of the louvers shall be individually adjusted using remote controller.

C. Fan

1. The indoor fan shall be an assembly with a high powered DC fan direct motor.
2. The indoor fan shall be statically and dynamically balanced to run on a motor with permanently lubricated bearings.
3. The indoor fan shall offer three (3) speeds, Low, Mid, and High.
4. The fan shall have a selectable Auto fan setting that will adjust the fan speed based on the difference between controller set-point and space temperature.
5. The indoor unit vanes shall be capable of swinging in two parallel directions to provide extensive and uniform air distribution.

D. Coil:

1. The indoor coil shall be of nonferrous construction with louvered fins on copper tubing.
2. The tubing shall have inner grooves for high efficiency heat exchange.
3. The coil fins shall have hydrophilic coating.
4. All tube joints shall be brazed with phos-copper or silver alloy.
5. The coils shall be pressure tested at the factory.
6. A condensate pan and drain shall be provided under the coil.

E. Drainage:

1. The unit shall provide a condensate outlet to connect to an external condensate pump.
2. The unit shall have an optional condensate lift mechanism that will be able to raise drain water at least 27” inches above the bottom of the unit drain pan.

F. Electrical:

1. The indoor unit shall be powered by 208-230V/single-phase, 60 Hz.
2. The indoor unit shall be able to operate satisfactorily within the 187 to 253 Voltage range.
3. Indoor unit electric circuits shall be electronically protected using fuses.

G. Controls:

1. This indoor unit shall use controls provided by the specified manufacturer to perform functions necessary to operate the system.
2. The indoor unit shall be equipped with Infrared wireless receiver that is compatible with the optional wireless remote controller.
3. For systems with required auxiliary heat, the indoor unit shall offer an auxiliary-heat output and functionality. The indoor unit shall offer an option for the auxiliary-heat output to function while outdoor unit has an error. No substitute to this functionality shall be allowed.

Part 04 - Product – Controls and Remotes

2.11 Remote Control – Simple Wired Remote without Operation Mode

A. General

The VRF Simple Wired Remote shall be capable of displaying settings and values and controlling a single group of indoor units. The group shall consist of up to 16 indoor units. This remote shall be small in size measuring 3” x 4-¾”. The screen shall be equipped with a back-lit display. The remote shall be equipped with buttons to facilitate its settings and display of information. The remote shall

connect to and be powered by the indoor unit using the manufacturer specified wiring. The remote shall not require any additional controls or equipment to facilitate its operation. The remote shall offer the following features:

1. Temperature settings in Fahrenheit and Celsius.
2. Back-lit display.
3. Automatic Change over (Heat/Cool) with a dead band.
4. Temperature set point adjustment, and fan speed.
5. Temperature sensing at the remote or at the indoor unit return air.
6. Additional features shall include: Clean filter reset, Error History.

2.23 Central Control – EDGE UTY-DSGYZ2 Controller with Internet Communication

A. General

The VRF Central touch controller shall be capable of viewing and controlling the operation of up to 400 indoor units from up to 16 refrigerant systems. In addition, the controller shall be capable of connecting up to 100 outdoor units. The controller shall be equipped with a 7.5” touch LCD color display. The controller shall be equipped with Ethernet port for TCP/IP network communication over LAN/WAN or the Internet. The controller shall be equipped with USB connection for exporting a variety of reports. No additional remotes, controls or equipment are required to facilitate its operation. The controller shall be powered by an integrated 100 -240VAC 50/60Hz power supply. The controller shall offer the following features:

1. Remote communication over the LAN/WAN or the internet.
2. Email of errors of indoor, outdoor, or touch controller to registered addresses.
3. Export of operation history or error history to USB.
4. Languages: English, Spanish, French, German, Chinese, Polish, and Russian.
5. Temperature settings in Fahrenheit and Celsius.
6. Individual and grouped indoor unit(s) Temperature set point adjustment, fan speed control, louver control, and remote control temperature set point range limitation.
7. External input for individual and grouped indoor unit(s) On/Off, emergency stop.
8. Up to 20 yearly schedules that can be applied to indoor units or their groups.
9. Registering of indoor units.
10. A minimum of three levels of user security access.
11. Up to 100 operation users and 5 administrative users can be set.
12. Management of remote control(s) individual function limitation.
13. Daylight savings time support.
14. Additional features shall include: defrost status display, room temperature, and Error history. It shall provide settings for the following features; Energy Saving Management, Economy mode setting, Day-Off mode, Clean filter reset, Anti-freeze setting, Test operation, Low Noise setting.
15. The controller shall offer an optional Energy Charge Apportionment and Subtenant billing add-on.

Part 3 - Piping:

A. It shall be insulated according to the manufacturer and applicable national and local codes.
B. Refrigerant piping shall meet ASTM B 280 of the ACR type that is authorized by the manufacturer.
C. The piping shall be factory cleaned with both ends capped to protect cleanliness of pipe interiors prior to shipping.
D. All piping shall be stored according to the manufacturer's instructions.
E. The piping shall be sized using the manufacturer system design software.
F. The piping shall be installed according to the manufacturer's installation instructions and national and local code requirements.
G. All pipe brazing must be done with Dry Nitrogen gas flowing through the piping.
H. A startup filter drier can be installed with R410A rated isolation ball valves with a valve-regulated bypass connection.
H. Headers shall be used to connect multiple indoor units.
I. Connecting the heat-recovery outdoor unit(s) refrigeration piping to one/multiple indoor units requires the use of the manufacturer's refrigerant branch box units, separation tubes, ranch kits, and. No alternate piping components are allowed.
J. I. The system shall be capable of operation with the outdoor unit being installed higher than the furthest indoor unit by a maximum of 164 ft. The system shall be capable of operation with the outdoor unit being installed below than the furthest indoor unit by a maximum of 131 ft. All piping lengths must be attainable without the need for line size changes.
K. The system shall be specified to operate with a total refrigerant piping length of up to 3280 ft. All piping lengths must be attainable without the need for line size changes or traps.
L. The connection between the outdoor unit and refrigerant branch units shall use 3-pipe refrigerant system design. To maximize system efficiency and reduce piping, the use of 2-pipe refrigerant system design shall not be allowed.
M. The use of refrigerant branch boxes with more than four refrigerant circuit outputs is not allowed.
N. Refrigerant branch boxes shall not be equipped with drain piping. The use of refrigerant branch boxes with drain piping shall be prohibited.
O. The outdoor unit shall have the capability of being piped from front and bottom. </VR2>

Part 4 - Commissioning:

Each VRF refrigerant system shall be commissioned using the manufacturer's specified procedure and software.

A. All VRF System Commissioning activities shall be completed by the manufacturer's certified VRF commissioning agent. The certified VRF commissioning agent shall be an employee of the VRF manufacturer or an employee of the manufacturer's VRF distributor or VRF representative.
B. The installing contractor shall be certified by the manufacturer to install the specified VRF system(s). Upon request, a copy of this certificate shall be presented as part of the VRF equipment submittal process.
C. Upon proper equipment start up by the contractor, following the manufacturers guidelines and specifications, an employee of the VRF manufacturer shall complete a review of the system performance and complete the following tasks:
D. Check and confirm all communication addressing of system components.
E. Check and confirm each indoor unit, individually, is properly piped and wired by commanding the indoor unit on, in either heat or cool mode and verifying proper response.
F. This process shall be digitally recorded and included as part of the close out documentation.
G. Electronically record a minimum of one-hour of operational data per refrigeration system.
H. Electronically record selector switch positions on all indoor and outdoor equipment.
I. The VRF manufacturer shall retain the electronically recorded data, collected during the start-up and equipment commissioning process, at a designated location within the US for future reference.
J. Upon completion of the VRF equipment Commissioning, the VRF manufacturer shall provide a formal report outlining the status of the system in electronic format. Contained within this report

shall be copies of all field inspection reports, required action items and status, Manufacturers design software As-Built, equipment model & serial numbers.

K. Completion of the Equipment VRF Commissioning process shall verify that the VRF system has been installed per the Engineer's design intent and complies with the VRF manufacturer's engineering and installation specifications related to the used equipment.

L. Compliance with federal, state and local codes as well as other authorities having jurisdictions are not part of this process and are the responsibility of the installing contractor.

ASBESTOS ABATEMENT GENERAL NOTES

ABATEMENT CONTRACTOR TO REMOVE AND DISPOSE OF BOTH ACM AND NON-ACM FLOOR TILES AND ASSOCIATED ACM MASTIC TO NON-ACM CONCRETE SUBSTRATE.
ABATEMENT CONTRACTOR TO REMOVE AND DISPOSE OF EXISTING WALL BASE.

(1) ABATEMENT CONTRACTOR TO REMOVE AND DISPOSE OF METAL SINK BASIN WITH ACM ANTI-SWEAT TAR, & NON-ACM BASE CABINET.

(2) ABATEMENT CONTRACTOR TO REMOVE EXISTING CARPET FLOORING (OVERTOP OF ACM FLOOR TILES)

(3) ABATEMENT CONTRACTOR TO REMOVE EXISTING 1'x1' VCT TILES (OVERTOP OF ACM FLOOR TILES)

(4) ABATEMENT CONTRACTOR TO REMOVE AND DISPOSE OF CMU WALL & LEAD CONTAINING DECORATIVE BLOCK AT NEW DOOR LOCATIONS. FINAL LOCATION TO BE COORDINATED WITH G.C.

1

GENERAL ASBESTOS DEMOLITION NOTES:

1. ALL DRAWINGS ARE A GRAPHIC REPRESENTATION OF APPROXIMATE LOCATIONS OF MATERIALS TO BE ABATED. IF THERE ARE ANY DISCREPANCIES WITH WHAT EXISTS TO WHAT IS INDICATED ON THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL REPORT SAID DISCREPANCIES TO THE ARCHITECT PRIOR TO SUBMITTING A BID. THE INTENT OF THIS PROJECT IS TO COMPLETELY REMOVE ASBESTOS CONTAINING MATERIALS INDICATED AND TO PROVIDE A CLEAN ACM FREE WORK AREA POST ABATEMENT.
2. ALL ABATEMENT PROCEDURES TO BE IN ACCORDANCE WITH STANDARDS SET FORTH BY NEW YORK STATE DEPARTMENT OF LABOR INDUSTRIAL CODE RULE 56 AND ALL APPLICABLE REGULATIONS.
3. THE CONTRACTOR SHALL PATCH TO MATCH ANY DISTURBED AREAS AND FINISHES AS A RESULT OF THEIR ABATEMENT WORK. ANY DAMAGE SHALL BE REPAIRED TO THE OWNER'S AND ARCHITECTS SATISFACTION AT NO ADDITIONAL COST TO THE OWNER.
4. THE CONTRACTOR SHALL COORDINATE THE LOCATION OF THE ASBESTOS DUMPSTER WITH THE OWNER.
5. THE CONTRACTOR MAY APPLY FOR PROJECT SPECIFIC VARIANCES. USE OF SUCH VARIANCES ARE SUBJECT TO APPROVAL BY THE OWNER AND ARCHITECT.

1 HZ100
TRUE NORTH

ASBESTOS ABATEMENT PLAN

1/16" = 1'-0"

11/17/2023 1:17:24 PM <project location> REVIT PROJECT FILES ON BIM360

CPL | Architecture Engineering Planning
50 Front Street Suite 202,
Newburgh, NY 12550
CPLeam.com

SOUTH ORANGETOWN Central School District
Capital Improvements Bond
Essential Infrastructure for Student Health, Safety and Success

PROJECT INFORMATION

Project Number
14457.20

Client Name
SOUTH ORANGETOWN CENTRAL SCHOOL DISTRICT

Project Name
PHASE 1: 2022 BOND

District Office Address
160 VAN WYCK RD.
BLAUVELT, NY 10913

SOUTH ORANGETOWN CSD
- [x] WILLIAM O. SCHAEFER SED#:50-03-01-06-0-012-019
- [ ] COTTAGE LANE ELEMENTARY SED#:50-03-01-06-0-010-022
- [ ] TAPPAN ZEE HIGH SCHOOL SED#:50-03-01-06-0-006-032
- [ ] WILLIAM O. SCHAEFER S&L SED#:50-03-01-06-0-012-020
- [ ] COTTAGE LANE S&L SED#: 50-03-01-06-0-010-023
- [ ] COTTAGE LANE LIBRARY S&L SED#: 50-03-01-06-8-023-002
- [ ] WOS OUTDOOR CLASSROOM SED#: 50-03-01-06-7-053-001
- [ ] SOMS OUTDOOR CLASSROOM SED#:50-03-01-06-7-056-001
- [ ] CLE OUTDOOR CLASSROOM SED#:50-03-01-06-7-054-001
- [ ] TDHS OUTDOOR CLASSROOM SED#:50-03-01-06-7-055-001

PROJECT ISSUE & REVISION SCHEDULE

No.	Date	Description
1	11/17/23	BID ADDENDUM #4

PROFESSIONAL STAMPS

NEW YORK STATE EDUCATION STATEMENT
IT IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW AND THE COMMISSIONER'S REGULATIONS FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED ARCHITECT, ENGINEER OR SURVEYOR, TO ALTER ANY ITEM IN ANY WAY. IF AN ITEM BEARING THE SEAL OF AN ARCHITECT, ENGINEER OR SURVEYOR IS ALTERED, THE ALTERING PARTY SHALL AFFIX TO THE ITEM THEIR SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE AND THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

SHEET INFORMATION

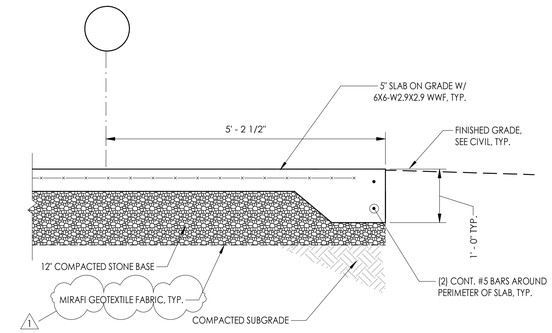
Issued	Scale
10/18/23	As indicated

Project Status
BID DOCUMENTS

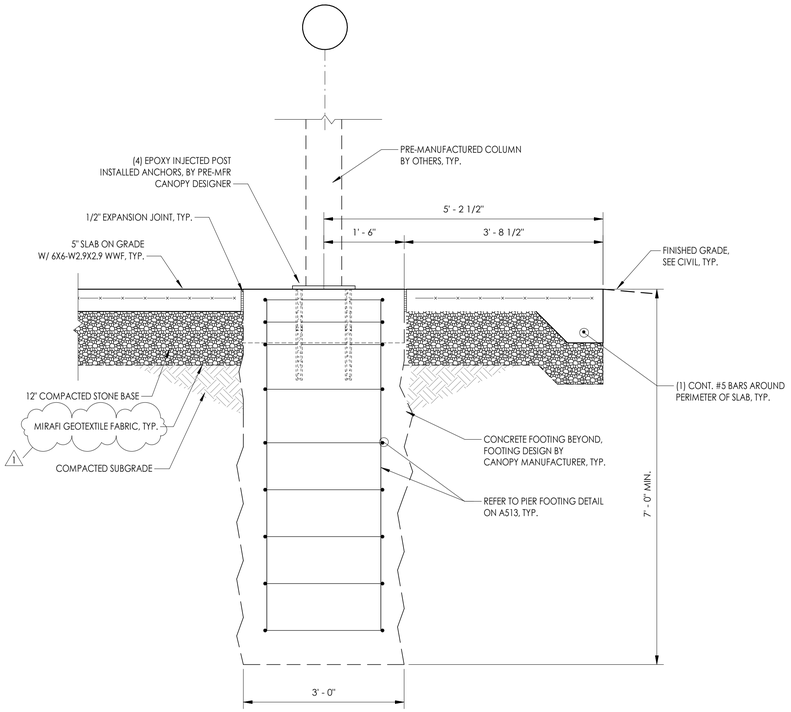
Drawn By	Checked By
CD	LT

Drawing Title
ASBESTOS ABATEMENT PLAN

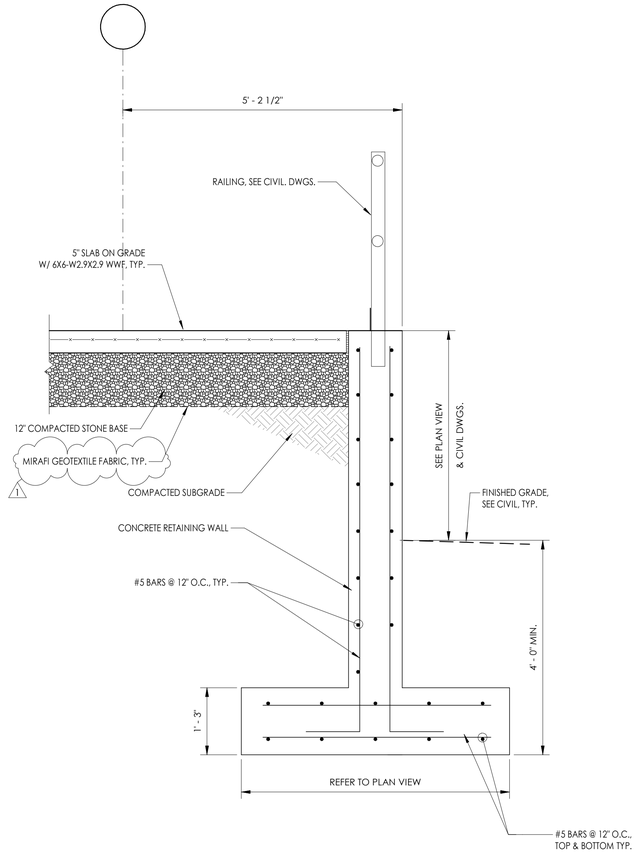
Drawing Number
WOS
HZ100



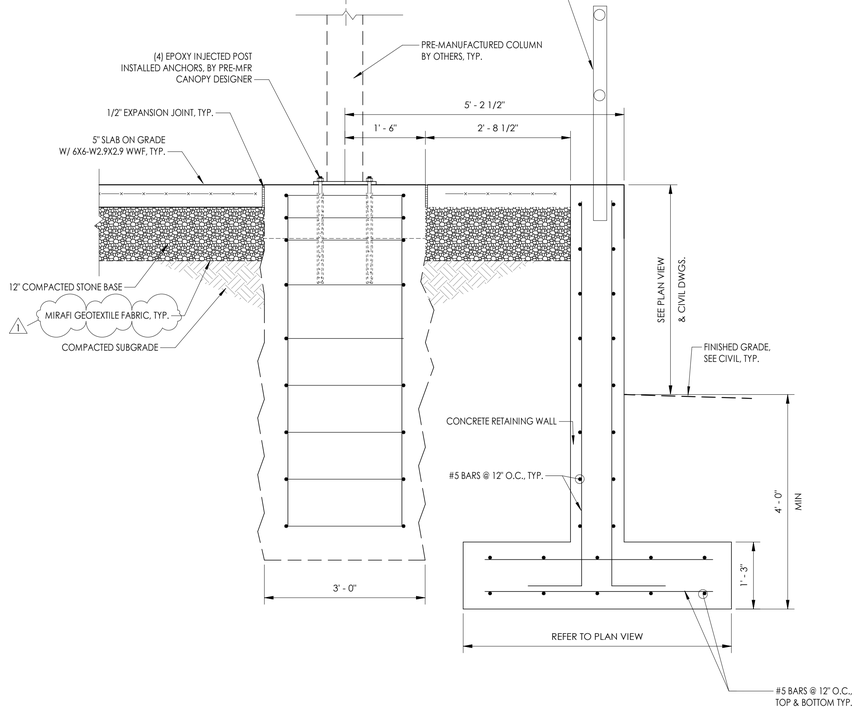
1 S801 **SECTION**
3/4" = 1'-0"



2 S801 **SECTION**
3/4" = 1'-0"



3 S801 **SECTION**
3/4" = 1'-0"



4 S801 **SECTION**
3/4" = 1'-0"

11/16/2023 3:24:06 PM <project location> REVIT PROJECT FILES ON BIM360

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Newburgh, NY 12550
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SOUTH ORANGETOWN Central School District
Capital Improvements Bond
Essential Infrastructure for Student Health, Safety and Success

PROJECT INFORMATION

Project Number
14457.20

Client Name
SOUTH ORANGETOWN CENTRAL SCHOOL DISTRICT

Project Name
PHASE 1: 2022 BOND

District Office Address
160 VAN WYCK RD.
BLAUVELT, NY 10913

SOUTH ORANGETOWN CSD
- ☐ WILLIAM O. SCHAEFER SED#:50-03-01-06-0-012-019
- ☐ COTTAGE LANE ELEMENTARY SED#:50-03-01-06-0-010-022
- ☐ WILLIAM O. SCHAEFER S&L SED#: 50-03-01-06-0-012-020
- ☐ COTTAGE LANE S&L SED#: 50-03-01-06-0-010-023
- ☐ COTTAGE LANE LIBRARY S&L SED#: 50-03-01-06-8-023-002
- ■ WOS OUTDOOR CLASSROOM SED#:50-03-01-06-7-053-001
- ■ SOMS OUTDOOR CLASSROOM SED#:50-03-01-06-7-056-001
- ■ CLE OUTDOOR CLASSROOM SED#:50-03-01-06-7-054-001
- ■ TZHS OUTDOOR CLASSROOM SED#:50-03-01-06-7-055-001
- ☐

PROJECT ISSUE & REVISION SCHEDULE

No.	Date	Description
1	11-17-23	BID ADDENDUM #04

PROFESSIONAL STAMPS

SHEET INFORMATION

Issued
10/18/2023

Scale
3/4" = 1'-0"

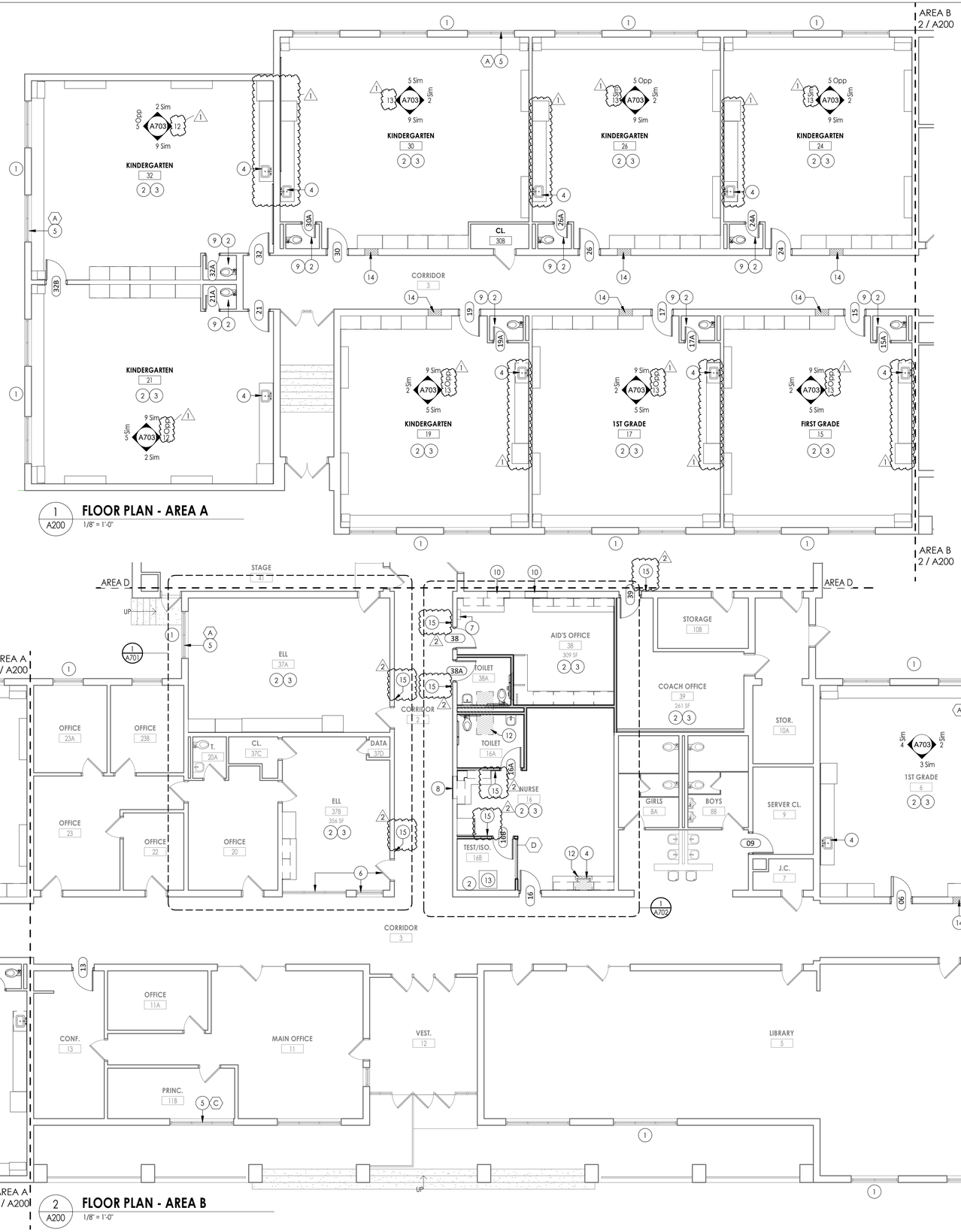
Project Status
BID DOCUMENTS

Drawn By
SAW

Checked By
JPR

Drawing Title
STRUCTURAL TYPICAL DETAILS

Drawing Number
GEN
S801



1 A200 **FLOOR PLAN - AREA A**
1/8" = 1'-0"

2 A200 **FLOOR PLAN - AREA B**
1/8" = 1'-0"

FLOOR PLAN GENERAL NOTES

1. ALL DRAWINGS ARE GRAPHIC REPRESENTATION OF APPROXIMATE LOCATIONS OF EXISTING AND NEW MATERIALS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY ALL CONDITIONS PRIOR TO COMMENCEMENT OF WORK.
2. THE CONTRACTOR IS RESPONSIBLE FOR DAMAGE TO ANY EXISTING FINISHES AND EQUIPMENT NOT REMOVED UNDER THE SCOPE OF WORK. ANY DAMAGE WILL BE REPAIRED TO THE OWNER/ARCHITECTS SATISFACTION AT NO COST TO THE OWNER.
3. WORK AREAS SHALL BE MAINTAINED AND ALL WORK AREAS SHALL BE LEFT BROOMED CLEAN AT END OF EACH DAY.
4. THE CONTRACTOR SHALL PROVIDE DUST CONTROL BARRIERS AT ALL AREAS OF CONSTRUCTION.
5. THE CONTRACTOR SHALL PATCH ALL SURFACES WHERE EXISTING MATERIALS HAVE BEEN DISTURBED TO MATCH AND BE FLUSH WITH ADJACENT CONSTRUCTION AT ALL FLOOR, WALL, AND CEILING LOCATIONS.
6. CONTRACTOR SHALL COORDINATE WITH OTHER TRADES FOR SEQUENCING OF WORK.

FLOOR PLAN KEY NOTES

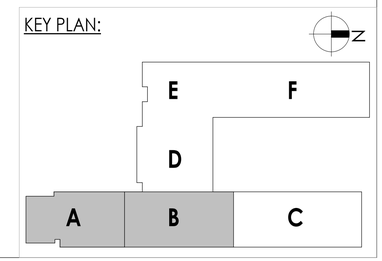
1. INFILL EXTERIOR MASONRY WALL AT DEMOLISHED UV LOCATIONS. REFER TO DETAIL 1/A810
2. NEW FLOORING & WALL BASE AS SPECIFIED, REFER TO I200 SHEETS.
3. NEW CASEWORK - REFER TO ELEVATIONS
4. NEW SINK BY PC
5. REPLACE WINDOW PANE WITH NEW GLAZING AT EXISTING AC REMOVAL
6. APPLY GRAPHIC PRIVACY FILM TO EXISTING GLAZING
7. EXISTING ELEC. PANEL TO REMAIN - REFER TO ELECTRICAL DWGS
8. INFILL DEMOLISHED DOOR OPENING W/ CMU WALL.
9. NEW TOILET BY PC
10. INFILL DEMOLISHED DOOR OPENING W/ CMU WALL TOOTH. IN NEW WORK TO EXISTING APPLY PROTECTIVE PADDING GYM SIDE TO MATCH EXISTING.
11. ALTERNATE 1/ GC-01: INFILL DEMOLISHED UV LOCATION WITH NEW CASEWORK AS SCHEDULED. REFER TO A800 FOR DETAILS.
12. INFILL CONCRETE FLOOR SLAB. REFER TO DETAIL 3/A810
13. NEW METAL FLOOR ACCESS HATCH TO MATCH EXISTING. FINISH FLOORING TO MATCH NEW ADJACENT.
14. INFILL FIRE RATED MASONRY WALL OPENING w/ MATERIALS TO MATCH EXISTING AS REQUIRED FROM THE REMOVAL OF EXISTING LOW AND HIGH AIR RELIEF GRILLES. REFER TO MECHANICAL DRAWINGS.
15. PROVIDE ADA ROOM SIGNAGE. REFER TO SHEET WOS A900.

FLOOR PLAN LEGEND

NOTE: THIS LEGEND MAY CONTAIN SYMBOLS THAT ARE NOT USED IN THIS PROJECT.

- DOOR — DOOR TARGET, SEE SCHEDULE
- W1 — WINDOW TARGET, SEE SCHEDULE
- 1 / A — COLUMN LINE IDENTIFICATION
- ROOM NAME / H1234.2 / 150 SF / 10'-0" x 10'-0" — ROOM TAG
- XXX — XXX — DENOTES CHANGE IN FLOOR MATERIAL
- 1 / A3.1 — SECTION MARK
- 2 / A701 — INTERIOR ELEVATION MARK
- 3 / A301 — EXTERIOR ELEVATION MARK
- 1 / A4.1 — DETAIL FOR REFERENCE MARK
- DENOTES FINISH FLOOR GRADE ELEVATION
- XXX — WALL TYPE SEE A/400

KEY PLAN:



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SOUTH ORANGETOWN Central School District
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Project Number
14457.20

Client Name
SOUTH ORANGETOWN CENTRAL SCHOOL DISTRICT

Project Name
PHASE 1: 2022 BOND

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160 VAN WYCK RD.
BLAUVELT, NY 10913

SOUTH ORANGETOWN CSD
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- WOS OUTDOOR CLASSROOM SED#: 50-03-01-06-7-053-001
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- CLE OUTDOOR CLASSROOM SED#:50-03-01-06-7-054-001
- TDHS OUTDOOR CLASSROOM SED#:50-03-01-06-7-055-001

PROJECT ISSUE & REVISION SCHEDULE

No.	Date	Description
1	11/09/23	BID ADDENDUM #3
2	11/17/23	BID ADDENDUM #4

PROFESSIONAL STAMPS

NEW YORK STATE EDUCATION STATEMENT
IT IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW AND THE COMMISSIONER'S REGULATIONS FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED ARCHITECT, ENGINEER OR LAND SURVEYOR TO ALTER AN ITEM IN ANY WAY. IF AN ITEM BEARING THE SEAL OF AN ARCHITECT, ENGINEER OR SURVEYOR IS ALTERED, THE ALTERING PARTY SHALL AFFIX TO THE ITEM THEIR SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE AND THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

SHEET INFORMATION

Issued
10/18/23

Scale
As indicated

Project Status
BID DOCUMENTS

Drawn By
LF

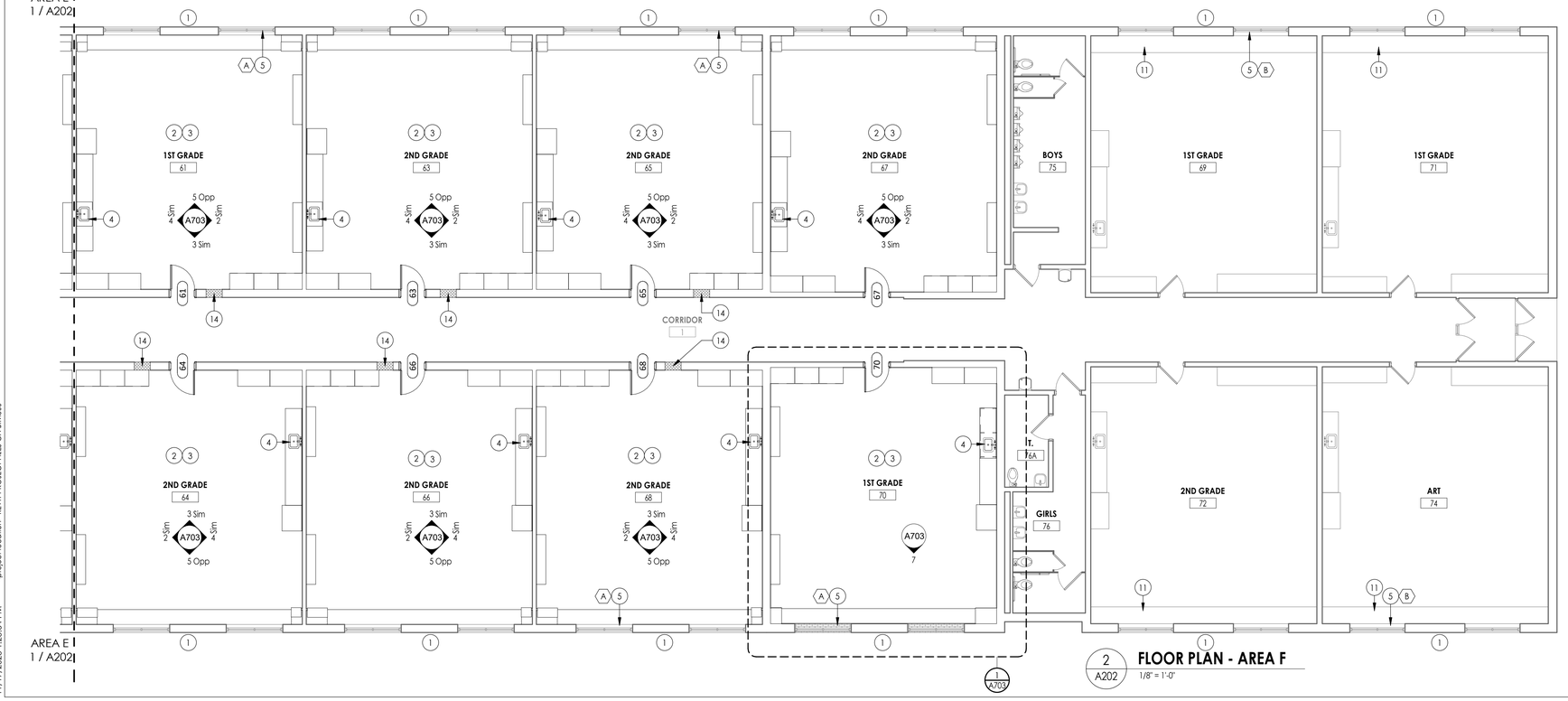
Checked By
LT

Drawing Title
NEW WORK PLAN - AREA A&B

Drawing Number
WOS
A200

11/15/2023 2:47:08 P.M. <project location> REVIT PROJECT FILES ON BIM360

1 A202 **FLOOR PLAN - AREA E**
1/8" = 1'-0"



2 A202 **FLOOR PLAN - AREA F**
1/8" = 1'-0"

1 A703

FLOOR PLAN GENERAL NOTES

1. ALL DRAWINGS ARE GRAPHIC REPRESENTATION OF APPROXIMATE LOCATIONS OF EXISTING AND NEW MATERIALS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY ALL CONDITIONS PRIOR TO COMMENCEMENT OF WORK.
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FLOOR PLAN KEY NOTES

1. INFILL EXTERIOR MASONRY WALL AT DEMOLISHED UV LOCATIONS. REFER TO DETAIL 1/A810
2. NEW FLOORING & WALL BASE AS SPECIFIED, REFER TO I200 SHEETS.
3. NEW CASEWORK - REFER TO ELEVATIONS
4. NEW SINK BY PC
5. REPLACE WINDOW PANE WITH NEW GLAZING AT EXISTING AC REMOVAL
6. APPLY GRAPHIC PRIVACY FILM TO EXISTING GLAZING
7. EXISTING ELEC. PANEL TO REMAIN - REFER TO ELECTRICAL DWGS
8. INFILL DEMOLISHED DOOR OPENING W/ CMU WALL.
9. NEW TOILET BY PC
10. INFILL DEMOLISHED DOOR OPENING W/ CMU WALL TOOTH. IN NEW WORK TO EXISTING APPLY PROTECTIVE PADDING GYM SIDE TO MATCH EXISTING.
11. ALTERNATE 1/ GC-01: INFILL DEMOLISHED UV LOCATION WITH NEW CASEWORK AS SCHEDULED. REFER TO A800 FOR DETAILS. (1)
12. INFILL CONCRETE FLOOR SLAB. REFER TO DETAIL 3/A810
13. NEW METAL FLOOR ACCESS HATCH TO MATCH EXISTING. FINISH FLOORING TO MATCH NEW ADJACENT.
14. INFILL FIRE RATED MASONRY WALL OPENING w/ MATERIALS TO MATCH EXISTING AS REQUIRED FROM THE REMOVAL OF EXISTING LOW AND HIGH AIR RELIEF GRILLES. REFER TO MECHANICAL DRAWINGS. (2)
15. PROVIDE ADA ROOM SIGNAGE. REFER TO SHEET WOS A900.

FLOOR PLAN LEGEND

NOTE: THIS LEGEND MAY CONTAIN SYMBOLS THAT ARE NOT USED IN THIS PROJECT.

- DOOR — DOOR TARGET, SEE SCHEDULE
- W1 — WINDOW TARGET, SEE SCHEDULE
- 1 / A — COLUMN LINE IDENTIFICATION
- ROOM NAME / H1234.2 / 150 SF / 10'-0" x 10'-0" — ROOM TAG
- XXX ← → XXX — DENOTES CHANGE IN FLOOR MATERIAL
- 1 / A3.1 — SECTION MARK
- 2 / A701 — INTERIOR ELEVATION MARK
- 3 / A301 — EXTERIOR ELEVATION MARK
- 1 / A4.1 — DETAIL FOR REFERENCE MARK
- DENOTES FINISH FLOOR GRADE ELEVATION
- XXX — WALL TYPE SEE A/400

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SOUTH ORANGETOWN Central School District
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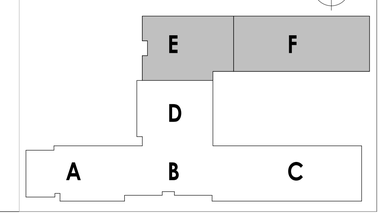
- WILLIAM O. SCHAEFER S&L SED#:50-03-01-06-0-012-020
- COTTAGE LANE S&L SED#: 50-03-01-06-0-010-023
- COTTAGE LANE LIBRARY S&L SED#: 50-03-01-06-8-023-002
- WOS OUTDOOR CLASSROOM SED#: 50-03-01-06-7-053-001
- SOMS OUTDOOR CLASSROOM SED#:50-03-01-06-7-056-001
- CLE OUTDOOR CLASSROOM SED#:50-03-01-06-7-054-001
- TDHS OUTDOOR CLASSROOM SED#:50-03-01-06-7-055-001

PROJECT ISSUE & REVISION SCHEDULE

No.	Date	Description
1	11/09/23	BID ADDENDUM #3
2	11/17/23	BID ADDENDUM #4

KEY PLAN:



PROFESSIONAL STAMPS

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SHEET INFORMATION

Issued
10/18/23

Scale
As indicated

Project Status
BID DOCUMENTS

Drawn By
LF

Checked By
LT

Drawing Title
NEW WORK PLAN - AREA E&F

Drawing Number
WOS
A202

11/17/2023 1:23:54 PM <project location> REVIT PROJECT FILES ON BIM360

DOOR SCHEDULE- NEW

DOOR			DOOR PANELS					DOOR FRAME					DOOR			
				TOTAL PANEL DIMENSIONS					FRAME DIMENSIONS							
DOOR NUMBER	FIRE RATING (MIN)	ROOM NUMBER/NAME	PANEL TYPE	WIDTH	HEIGHT	THICKNESS	UNDERCUT	FRAME TYPE	JAMB WIDTH	HEAD HEIGHT	FRAME DEPTH	FRAME FINISH	HEAD DTL	JAMB DTL	COMMENTS	DOOR NUMBER
FINISH FIRST FLOOR																
13	45	13 CONF.	PNL-N-WD	3'-0"	6'-10"	0'-1 3/4"	0'-0"	FRM-00HM1	0'-2"	0'-2"	0'-5 3/4"	PNT	6/A900	5/A900		13
16	45	16 NURSE	PNL-G-WD	3'-0"	7'-0"	0'-1 3/4"	0'-0"	FRM-00HM1	0'-2"	0'-2"	0'-5 3/4"	PNT	6/A900	5/A900		16
16A	-	16A TOILET	PNL-F-WD	3'-0"	7'-0"	0'-1 3/4"	0'-0"	FRM-00HM1	0'-2"	0'-2"	0'-5 3/4"	PNT	8/A900	7/A900		16A
16B	-	16B TEST/ISO.	PNL-F-WD	3'-0"	7'-0"	0'-1 3/4"	0'-0"	FRM-00HM1	0'-2"	0'-2"	0'-5 3/4"	PNT	8/A900	7/A900		16B
38	45	38 AID'S OFFICE	PNL-F-WD	3'-0"	7'-0"	0'-1 3/4"	0'-0"	FRM-00HM1	0'-2"	0'-2"	0'-5 3/4"	PNT	6/A900	5/A900		38
38A	45	38A TOILET	PNL-F-WD	3'-0"	7'-0"	0'-1 3/4"	0'-0"	FRM-00HM1	0'-2"	0'-2"	0'-5 3/4"	PNT	6/A900	5/A900		38A
39	-	39 COACH OFFICE	PNL-F-WD	3'-0"	7'-0"	0'-1 3/4"	0'-0"	FRM-00HM1	0'-2"	0'-2"	0'-5 3/4"	PNT	6/A900	5/A900		39
40	45	40 TOILET	PNL-F-WD	2'-8"	7'-0"	0'-1 3/4"	0'-0"	FRM-00HM1	0'-2"	0'-2"	1'-0 7/8"	PNT	4/A900	3/A900		40

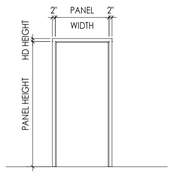
DOOR SCHEDULE- ETR FRAMES

DOOR			DOOR PANELS					DOOR FRAME		DOOR	
				TOTAL PANEL DIMENSIONS							
DOOR NUMBER	FIRE RATING (MIN)	ROOM NUMBER/NAME	PANEL TYPE	WIDTH	HEIGHT	THICKNESS	UNDERCUT	FRAME TYPE	FRAME FINISH	COMMENTS	DOOR NUMBER
FINISH FIRST FLOOR											
01	45	1 FIRST GRADE	PNL-N-WD	3'-0"	7'-0"	0'-1 3/4"	0'-0"	FRM-ETR	PNT		01
02	45	2 FIRST GRADE	PNL-N-WD	3'-0"	7'-0"	0'-1 3/4"	0'-0"	FRM-ETR	PNT		02
03	45	3 MAKERSPACE	PNL-N-WD	3'-0"	7'-0"	0'-1 3/4"	0'-0"	FRM-ETR	PNT		03
04	45	4 FIRST GRADE	PNL-N-WD	3'-0"	7'-0"	0'-1 3/4"	0'-0"	FRM-ETR	PNT		04
06	45	6 FIRST GRADE	PNL-N-WD	3'-0"	7'-0"	0'-4 1/256"	0'-0"	FRM-ETR	PNT		06
09	45	9 SERVER CL.	PNL-F-WD	3'-0"	7'-0"	0'-1 3/4"	0'-0"	FRM-ETR	PNT		09
15	45	15 FIRST GRADE	PNL-N-WD	3'-0"	7'-0"	0'-1 3/4"	0'-0"	FRM-ETR	PNT		15
15A	-	15A FIRST GRADE TOILET ROOM	PNL-V1-WD	2'-0"	7'-0"	0'-1 3/4"	0'-0"	FRM-ETR	PNT		15A
17	45	17 FIRST GRADE	PNL-N-WD	3'-0"	7'-0"	0'-1 3/4"	0'-0"	FRM-ETR	PNT		17
17A	-	17A FIRST GRADE TOILET ROOM	PNL-V1-WD	2'-0"	7'-0"	0'-1 3/4"	0'-0"	FRM-ETR	PNT		17A
19	45	19 FIRST GRADE	PNL-N-WD	3'-0"	7'-0"	0'-1 3/4"	0'-0"	FRM-ETR	PNT		19
19A	-	19A FIRST GRADE TOILET ROOM	PNL-V1-WD	2'-0"	7'-0"	0'-1 3/4"	0'-0"	FRM-ETR	PNT		19A
21	45	21 KINDERGARTEN	PNL-N-WD	3'-0"	7'-0"	0'-1 3/4"	0'-0"	FRM-ETR	PNT		21
21A	-	21A KINDERGARTEN TOILET ROOM	PNL-V1-WD	2'-0"	7'-0"	0'-1 3/4"	0'-0"	FRM-ETR	PNT		21A
24	45	24 KINDERGARTEN	PNL-N-WD	3'-0"	7'-0"	0'-1 3/4"	0'-0"	FRM-ETR	PNT		24
24A	-	24A KINDERGARTEN TOILET ROOM	PNL-V1-WD	2'-0"	7'-0"	0'-1 3/4"	0'-0"	FRM-ETR	PNT		24A
26	45	26 KINDERGARTEN	PNL-N-WD	3'-0"	7'-0"	0'-1 3/4"	0'-0"	FRM-ETR	PNT		26
26A	-	26A KINDERGARTEN TOILET ROOM	PNL-V1-WD	2'-0"	7'-0"	0'-1 3/4"	0'-0"	FRM-ETR	PNT		26A
30	45	30 KINDERGARTEN	PNL-N-WD	3'-0"	7'-0"	0'-1 3/4"	0'-0"	FRM-ETR	PNT		30
30A	-	30A KINDERGARTEN TOILET ROOM	PNL-V1-WD	2'-0"	7'-0"	0'-1 3/4"	0'-0"	FRM-ETR	PNT		30A
32	45	32 KINDERGARTEN	PNL-N-WD	3'-0"	7'-0"	0'-1 3/4"	0'-0"	FRM-ETR	PNT		32
32A	-	32A KINDERGARTEN TOILET ROOM	PNL-V1-WD	2'-0"	7'-0"	0'-1 3/4"	0'-0"	FRM-ETR	PNT		32A
32B	-	32 KINDERGARTEN	PNL-N-WD	3'-0"	7'-0"	0'-1 3/4"	0'-0"	FRM-ETR	PNT		32B
42	45	42 OFFICE	PNL-N-WD	2'-8"	7'-0"	0'-1 3/4"	0'-0"	FRM-ETR	PNT		42
50	45	50 J.C.	PNL-F-WD	3'-0"	7'-0"	0'-1 3/4"	0'-0"	FRM-ETR	PNT		50
52	45	52 CUSTODIAL	PNL-N-WD	3'-0"	7'-0"	0'-1 3/4"	0'-0"	FRM-ETR	PNT		52
57	45	57 SECOND GRADE	PNL-N-WD	3'-0"	7'-0"	0'-1 3/4"	0'-0"	FRM-ETR	PNT		57
59	45	59 SECOND GRADE	PNL-N-WD	3'-0"	7'-0"	0'-1 3/4"	0'-0"	FRM-ETR	PNT		59
61	45	61 FIRST GRADE	PNL-N-WD	3'-0"	7'-0"	0'-1 3/4"	0'-0"	FRM-ETR	PNT		61
62	45	62 MUSIC	PNL-N-WD	3'-0"	7'-0"	0'-1 3/4"	0'-0"	FRM-ETR	PNT		62
63	45	63 SECOND GRADE	PNL-N-WD	3'-0"	7'-0"	0'-1 3/4"	0'-0"	FRM-ETR	PNT		63
64	45	64 SECOND GRADE	PNL-N-WD	3'-0"	7'-0"	0'-1 3/4"	0'-0"	FRM-ETR	PNT		64
65	45	65 SECOND GRADE	PNL-N-WD	3'-0"	7'-0"	0'-1 3/4"	0'-0"	FRM-ETR	PNT		65
66	45	66 SECOND GRADE	PNL-N-WD	3'-0"	7'-0"	0'-1 3/4"	0'-0"	FRM-ETR	PNT		66
67	45	67 SECOND GRADE	PNL-N-WD	3'-0"	7'-0"	0'-1 3/4"	0'-0"	FRM-ETR	PNT		67
68	45	68 SECOND GRADE	PNL-N-WD	3'-0"	7'-0"	0'-1 3/4"	0'-0"	FRM-ETR	PNT		68
70	45	70 FIRST GRADE	PNL-N-WD	3'-0"	7'-0"	0'-1 3/4"	0'-0"	FRM-ETR	PNT		70
100	45	100 SPEC.ED.	PNL-N-WD	3'-0"	7'-0"	0'-1 3/4"	0'-0"	FRM-ETR	PNT		100
100A	-	100A SPEC.ED. TOILET ROOM	PNL-V1-WD	2'-0"	7'-0"	0'-1 3/4"	0'-0"	FRM-ETR	PNT		100A
104	45	104 KINDERGARTEN	PNL-N-WD	3'-0"	7'-0"	0'-1 3/4"	0'-0"	FRM-ETR	PNT		104
104A	-	104A KINDERGARTEN TOILET ROOM	PNL-V1-WD	2'-0"	7'-0"	0'-1 3/4"	0'-0"	FRM-ETR	PNT		104A
105	45	105 KINDERGARTEN	PNL-N-WD	3'-0"	7'-0"	0'-1 3/4"	0'-0"	FRM-ETR	PNT		105

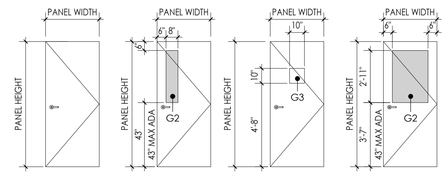
NOTE:
ALL EXISTING TO REMAIN FRAMES RECEIVING NEW DOORS TO BE PREPPED AND PAINTED.

SIGNAGE SCHEDULE

ROOM NAME/NUMBER	DOOR NUMBER	"TEXT"	TYPE	COMMENTS
TOILET 16A	16A	"GENDER NEUTRAL"	B	REFER TO PLAN FOR LOCATION
TEST/ISO. 16B	16B	"ISOLATION ROOM"	A	REFER TO PLAN FOR LOCATION
ELL 37A	EXISTING	"ROOM 37A"	A	REFER TO PLAN FOR LOCATION
ELL 37B	EXISTING	"ROOM 37B"	A	REFER TO PLAN FOR LOCATION
AID'S OFFICE 38	38	"AID'S OFFICE"	A	REFER TO PLAN FOR LOCATION
TOILET 38A	38A	"GENDER NEUTRAL"	B	REFER TO PLAN FOR LOCATION
COACH OFFICE 39	39	"ROOM 39"	A	REFER TO PLAN FOR LOCATION
STAFF LOUNGE 51	EXISTING	"STAFF LOUNGE"	A	REFER TO PLAN FOR LOCATION



DOOR FRAME TYPES
1/4" = 1'-0"



DOOR PANEL TYPES
1/4" = 1'-0"

DOOR AND FRAME NOTES

1. REFER TO A900S FOR DOOR & FRAME SCHEDULE
2. ALL FRAMES ARE TO RECEIVE FULL PERIMETER SEALANT. INTERIOR AND EXTERIOR
3. ALL DOOR AND WINDOW OPENING DIMENSIONS ARE TO BE VERIFIED IN FIELD AND COORDINATED WITH APPROVED SHOP DRAWINGS PRIOR TO FABRICATION.
4. SEE SCHEDULE FOR DOOR & FRAME MATERIAL

DOOR AND FRAME SCHEDULE LEGEND

NOTE: THIS LEGEND MAY CONTAIN SYMBOLS THAT ARE NOT USED IN THIS PROJECT.

DOOR OR FRAME MATERIAL

ACR	ACROVYN DOOR
ACR-L	ACROVYN LEAD LINED DOOR
ALUM	ALUMINUM
HM	HOLLOW METAL
HM-L	HOLLOW METAL LEAD LINED
IHM	INSULATED HOLLOW METAL
WD	WOOD
WD-L	WOOD LEAD LINED

DOOR OR FRAME FINISH

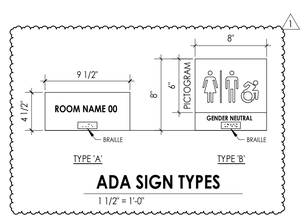
PTD	PAINT
ST	WOOD STAIN
DB	DARK BRONZE(ANODIZED)
SS	STAINLESS STEEL
BE	BAKED ENAMEL

GLAZING TYPES

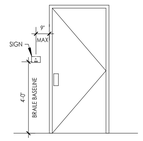
G1 - INSULATED GLAZING

G2 - FIRE RATED GLAZING

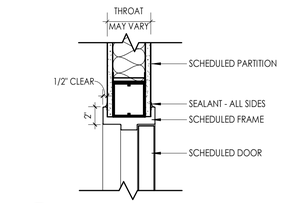
G3 - TEMPERED GLAZING



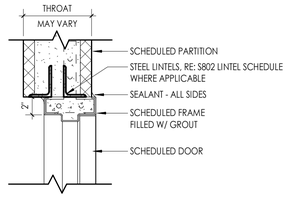
ADA SIGN TYPES
1 1/2" = 1'-0"



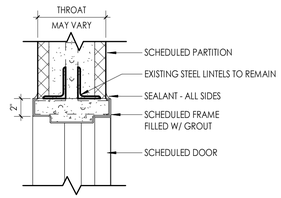
ADA SIGN LOCATION
1/4" = 1'-0"



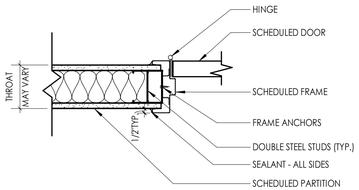
8 A900 **DOOR IN STUD - HEAD DETAIL**
1 1/2" = 1'-0"



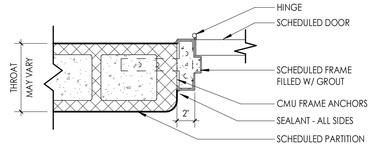
6 A900 **DOOR IN CMU - HEAD DETAIL**
1 1/2" = 1'-0"



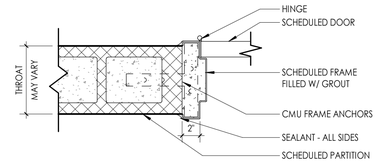
4 A900 **WRAPPED DOOR IN CMU - HEAD DETAIL**
1 1/2" = 1'-0"



7 A900 **DOOR IN STUD - JAMB DETAIL**
1 1/2" = 1'-0"



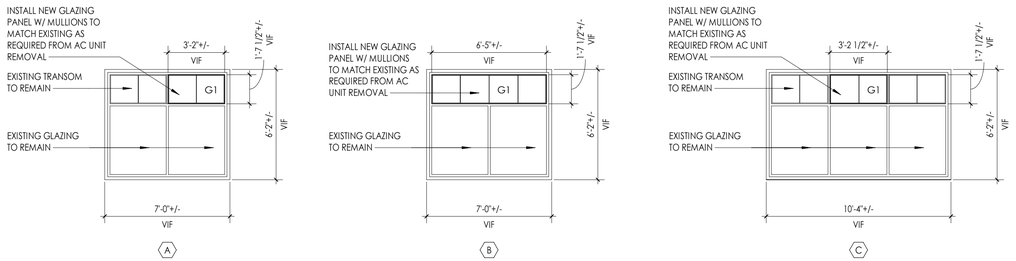
5 A900 **DOOR IN CMU - JAMB DETAIL**
1 1/2" = 1'-0"



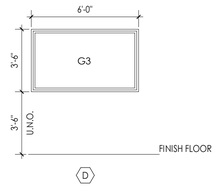
3 A900 **WRAPPED DOOR IN CMU - JAMB DETAIL**
1 1/2" = 1'-0"

WINDOW GENERAL NOTES

1. COORDINATE ALL FRAME SIZES, TRIM EXTRUSIONS AND SILLS WITH WALL SECTIONS AND DETAILS.
2. ALL FRAMES ARE TO RECEIVE FULL PERIMETER SEALANT. INTERIOR AND EXTERIOR
3. ALL DOOR AND WINDOW DIMENSIONS ARE TO BE VERIFIED IN FIELD PRIOR TO FABRICATION.
4. REFER TO DIMENSION PLANS AND WALL SECTIONS FOR MULLION LAYOUT DIMENSIONS.



2 A900 **WINDOW ELEVATIONS @ AC REMOVAL**
1/4" = 1'-0"



1 A900 **WINDOW TYPES**
1/4" = 1'-0"

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SOUTH ORANGETOWN Central School District
Capital Improvements Bond
Essential Infrastructure for Student Health, Safety and Success

PROJECT INFORMATION

Project Number
14457.20

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SOUTH ORANGETOWN CENTRAL SCHOOL DISTRICT

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160 VAN WYCK RD.
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- COTTAGE LANE S&L SED#: 50-03-01-06-0-010-023
- COTTAGE LANE LIBRARY S&L SED#: 50-03-01-06-8-023-002
- WOS OUTDOOR CLASSROOM SED#: 50-03-01-06-7-053-001
- SOMS OUTDOOR CLASSROOM SED#:50-03-01-06-7-056-001
- CLE OUTDOOR CLASSROOM SED#:50-03-01-06-7-054-001
- TDHS OUTDOOR CLASSROOM SED#:50-03-01-06-7-055-001

PROJECT ISSUE & REVISION SCHEDULE

No.	Date	Description
1	11/17/23	BID ADDENDUM #4

PROFESSIONAL STAMPS

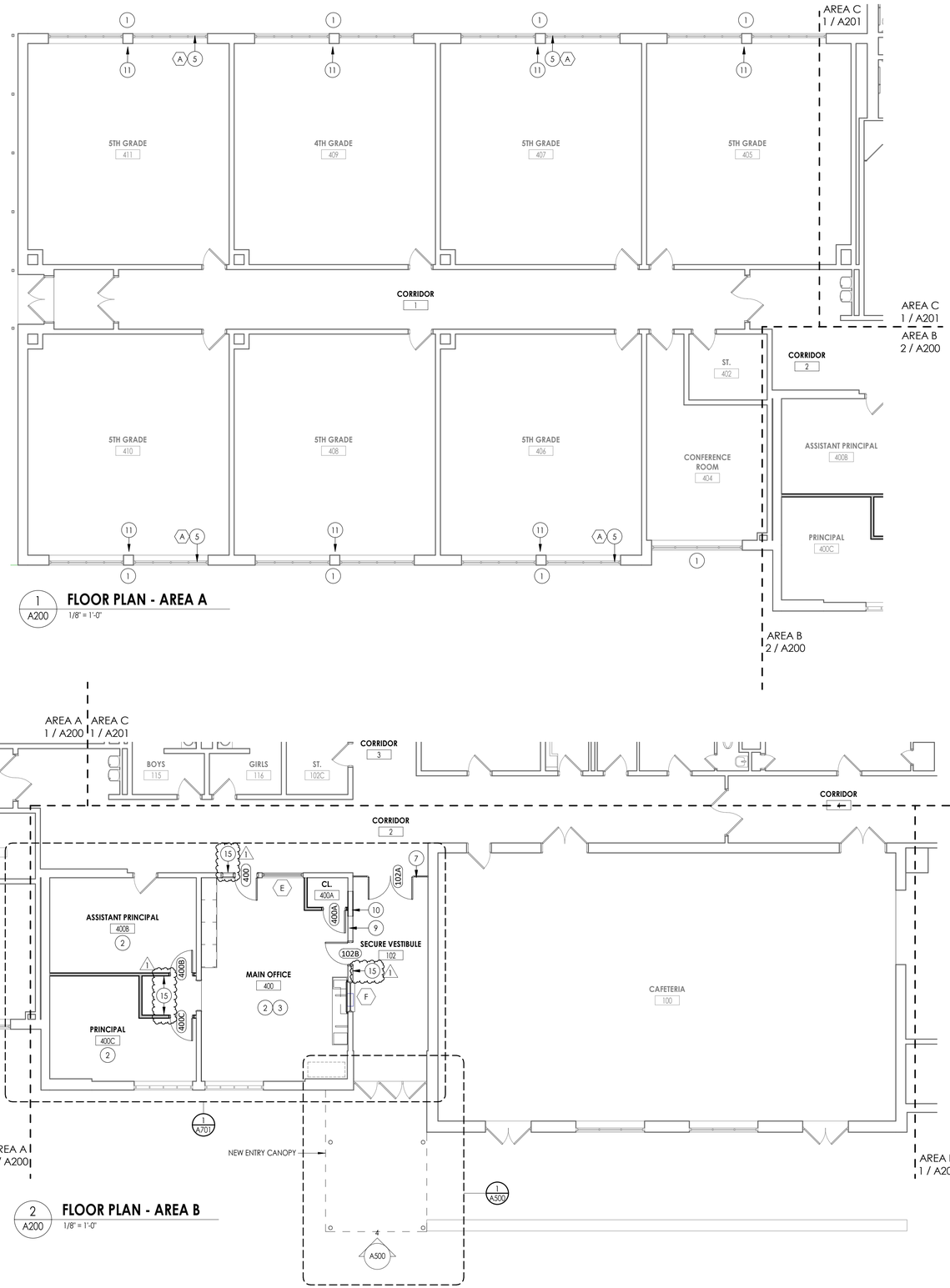
NEW YORK STATE EDUCATION STATEMENT

IT IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW AND THE COMMISSIONER'S REGULATIONS FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED ARCHITECT, ENGINEER OR LAND SURVEYOR, TO ALTER AN ITEM IN ANY WAY. IF AN ITEM BEARING THE SEAL OF AN ARCHITECT, ENGINEER OR SURVEYOR IS ALTERED, THE ALTERING PARTY SHALL AFFIX TO THE ITEM THEIR SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE AND THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

SHEET INFORMATION

Issued: 10/18/23
Scale: As indicated
Project Status: BID DOCUMENTS
Drawn By: LF
Checked By: LT
Drawing Title: DOOR & WINDOW SYSTEMS TYPES & SCHEDULES

Drawing Number
WOS
A900



1 A200 **FLOOR PLAN - AREA A**
1/8" = 1'-0"

2 A200 **FLOOR PLAN - AREA B**
1/8" = 1'-0"

FLOOR PLAN GENERAL NOTES

1. ALL DRAWINGS ARE GRAPHIC REPRESENTATION OF APPROXIMATE LOCATIONS OF EXISTING AND NEW MATERIALS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY ALL CONDITIONS PRIOR TO COMMENCEMENT OF WORK.
2. THE CONTRACTOR IS RESPONSIBLE FOR DAMAGE TO ANY EXISTING FINISHES AND EQUIPMENT NOT REMOVED UNDER THE SCOPE OF WORK. ANY DAMAGE WILL BE REPAIRED TO THE OWNER/ARCHITECTS SATISFACTION AT NO COST TO THE OWNER.
3. WORK AREAS SHALL BE MAINTAINED AND ALL WORK AREAS SHALL BE LEFT BROOMED CLEAN AT END OF EACH DAY.
4. THE CONTRACTOR SHALL PROVIDE DUST CONTROL BARRIERS AT ALL AREAS OF CONSTRUCTION.
5. THE CONTRACTOR SHALL PATCH ALL SURFACES WHERE EXISTING MATERIALS HAVE BEEN DISTURBED TO MATCH AND BE FLUSH WITH ADJACENT CONSTRUCTION AT ALL FLOOR, WALL, AND CEILING LOCATIONS.
6. CONTRACTOR SHALL COORDINATE WITH OTHER TRADES FOR SEQUENCING OF WORK.

FLOOR PLAN LEGEND

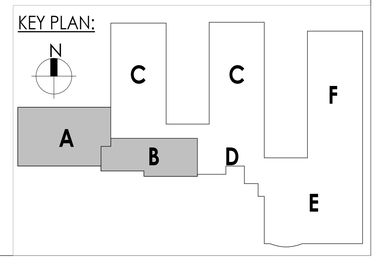
NOTE: THIS LEGEND MAY CONTAIN SYMBOLS THAT ARE NOT USED IN THIS PROJECT.

- DOOR — DOOR TARGET, SEE SCHEDULE
- W1 — WINDOW TARGET, SEE SCHEDULE
- 1 / A — COLUMN LINE IDENTIFICATION
- ROOM NAME / H1234.2 / 150 SF / 10'-0" x 10'-0" — ROOM TAG
- XXX ← × → XXX — DENOTES CHANGE IN FLOOR MATERIAL
- 1 / A3.1 — SECTION MARK
- 2 / A701 — INTERIOR ELEVATION MARK
- 3 / A301 — EXTERIOR ELEVATION MARK
- 1 / A4.1 — DETAIL FOR REFERENCE MARK
- DENOTES FINISH FLOOR GRADE ELEVATION
- XXX — WALL TYPE SEE A/400

FLOOR PLAN KEY NOTES

1. INFILL EXTERIOR MASONRY WALL AT DEMOLISHED UV LOCATIONS, REFER TO DETAIL 2/A810
2. NEW VCT FLOORING & WALL BASE, FULL EXTENT OF ROOM
3. NEW CASEWORK
4. NEW SINK - REFER TO PLUMBING
5. REPLACE WINDOW PANE W/ NEW GLAZING AT EXISTING AC OPENING
6. INFILL DEMOLISHED DOOR OPENING W/ STUD WALL
7. NEW STOREFRONT SYSTEM
8. NEW METAL PAN STAIR & HANDRAIL
9. FIRE RATED TRANSACTION WINDOW
10. INFILL DEMOLISHED DOOR OPENING W/ CMU WALL
11. ALTERNATE 2/ GC-02: INFILL DEMOLISHED UV LOCATION WITH NEW CASEWORK TO MATCH EXISTING. SEE DETAIL 5/A800
12. INFILL CONCRETE FLOOR SLAB. REFER TO DETAIL
13. PATCH WALL AS REQ'D AT DEMOLISHED SPLIT SYSTEM
14. INFILL DEMOLISHED FIRE SHUTTER OPENING W/ STUD WALL
15. PROVIDE ADA SIGNAGE. REFER TO CLE A900.

KEY PLAN:



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Newburgh, NY 12550
CPLteam.com

SOUTH ORANGETOWN Central School District
Capital Improvements Bond
Essential Infrastructure for Student Health, Safety and Success

PROJECT INFORMATION

Project Number
14457.20

Client Name
SOUTH ORANGETOWN CENTRAL SCHOOL DISTRICT

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- ☐ TDHS OUTDOOR CLASSROOM SED#:50-03-01-06-7-055-001

PROJECT ISSUE & REVISION SCHEDULE

No.	Date	Description
1	11/17/23	BID ADDENDUM #4

PROFESSIONAL STAMPS

SHEET INFORMATION

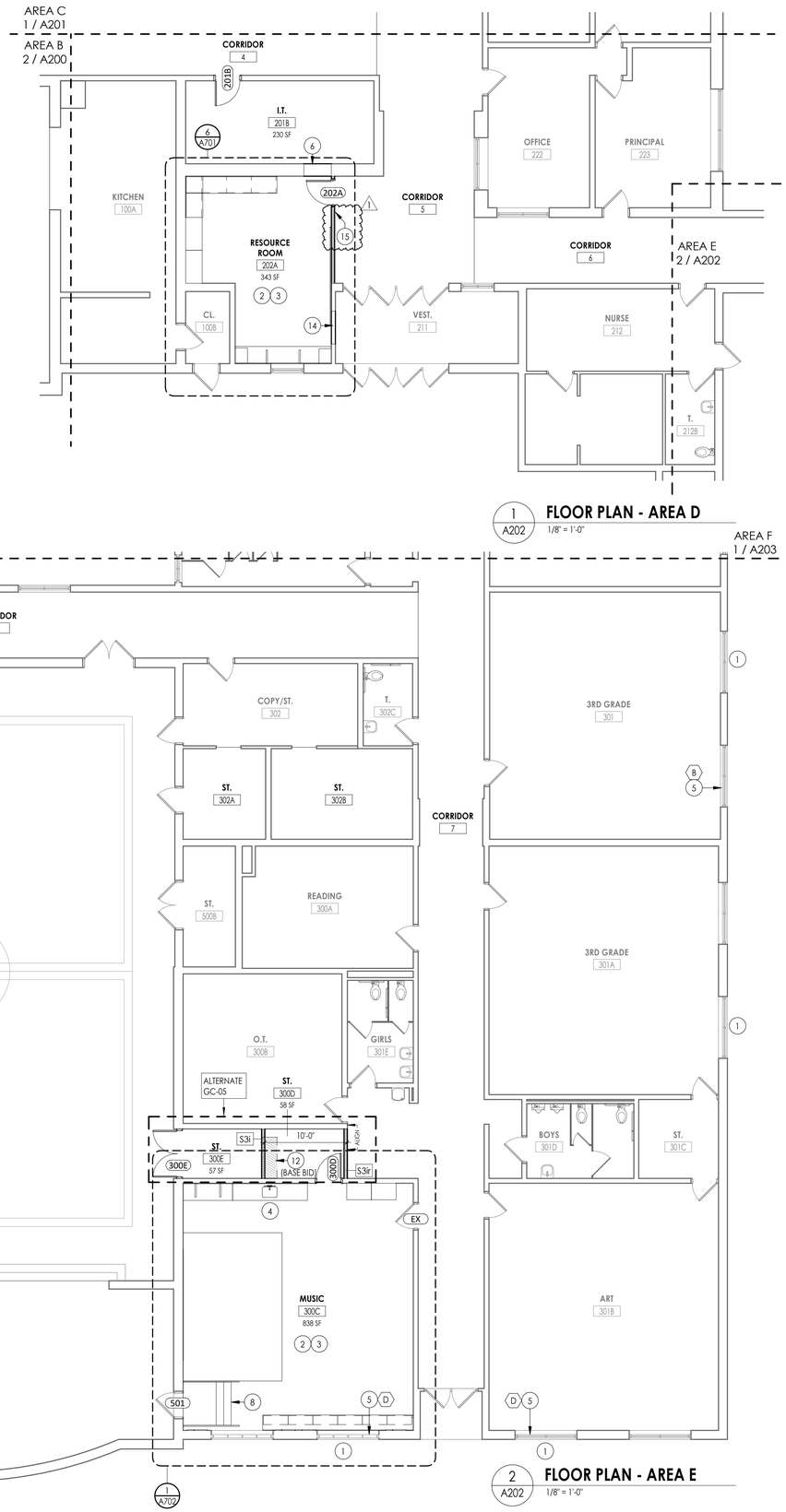
Issued	Scale
10/18/23	As indicated

Project Status
BID DOCUMENTS

Drawn By	Checked By
LF	LT

Drawing Title
NEW WORK PLAN - AREA A&B

Drawing Number
CLE
A200



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FLOOR PLAN LEGEND

NOTE: THIS LEGEND MAY CONTAIN SYMBOLS THAT ARE NOT USED IN THIS PROJECT.

- DOOR — DOOR TARGET, SEE SCHEDULE
- W1 — WINDOW TARGET, SEE SCHEDULE
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- XXX — XXX — DENOTES CHANGE IN FLOOR MATERIAL
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FLOOR PLAN KEY NOTES

1. INFILL EXTERIOR MASONRY WALL AT DEMOLISHED UV LOCATIONS. REFER TO DETAIL 2/A810
2. NEW VCT FLOORING & WALL BASE, FULL EXTENT OF ROOM
3. NEW CASEWORK
4. NEW SINK - REFER TO PLUMBING
5. REPLACE WINDOW PANE W/ NEW GLAZING AT EXISTING AC OPENING
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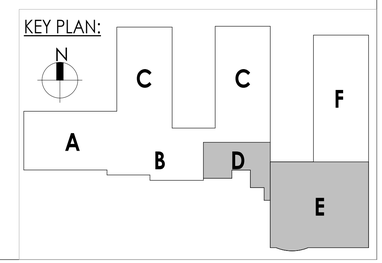
10. INFILL DEMOLISHED DOOR OPENING W/ CMU WALL
11. ALTERNATE 2/ GC-02: INFILL DEMOLISHED UV LOCATION WITH NEW CASEWORK TO MATCH EXISTING. SEE DETAIL 5/A800
12. INFILL CONCRETE FLOOR SLAB. REFER TO DETAIL
13. PATCH WALL AS REQ'D AT DEMOLISHED SPLIT SYSTEM
14. INFILL DEMOLISHED FIRE SHUTTER OPENING W/ STUD WALL
15. PROVIDE ADA SIGNAGE. REFER TO CLE A900. (1)

KEY PLAN:



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- [ ] COTTAGE LANE LIBRARY S&L SED#.: 50-03-01-06-8-023-002
- [ ] WOS OUTDOOR CLASSROOM SED#:50-03-01-06-7-053-001
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- [ ] CLE OUTDOOR CLASSROOM SED#:50-03-01-06-7-054-001
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PROJECT ISSUE & REVISION SCHEDULE

No.	Date	Description
1	11/17/23	BID ADDENDUM #4

PROFESSIONAL STAMPS

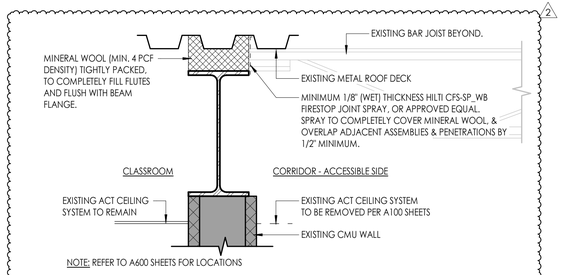
SHEET INFORMATION

Issued	Scale
10/18/23	As indicated
Project Status	
BID DOCUMENTS	
Drawn By	Checked By
LF	LT

Drawing Title
NEW WORK PLAN - AREA D&E

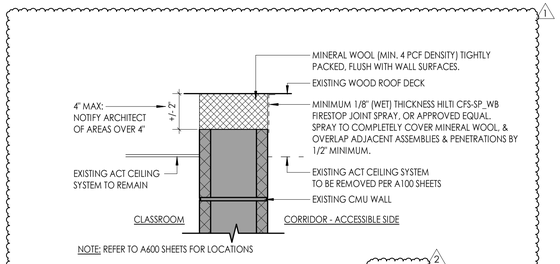
Drawing Number
CLE
A202

11/15/2023 2:42:59 PM <project location> REVIT PROJECT FILES ON BIM360



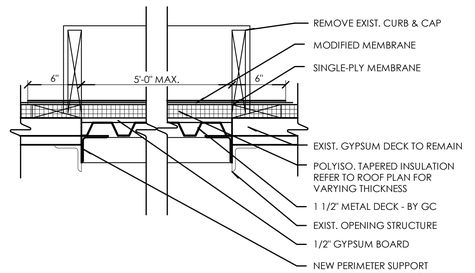
8 A810 **CORRIDOR WALL SMOKE SEAL DETAIL - AREA F**

1 1/2" = 1'-0"



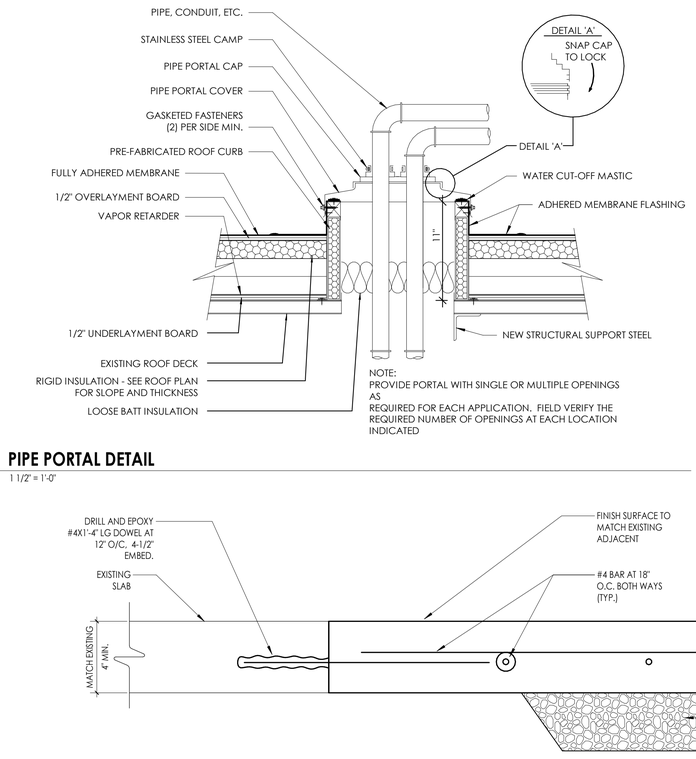
7 A810 **CORRIDOR WALL SMOKE SEAL DETAIL - AREA C**

1 1/2" = 1'-0"



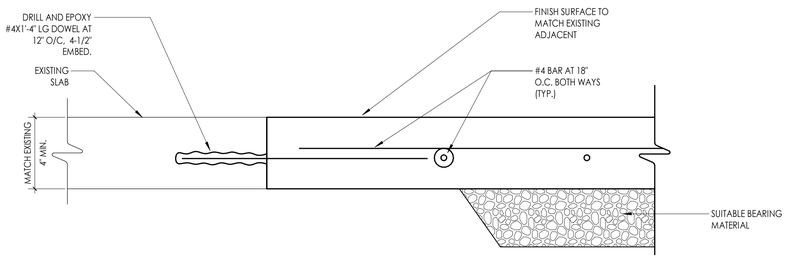
6 A810 **TYPICAL ROOF DECK INFILL DETAIL**

1 1/2" = 1'-0"



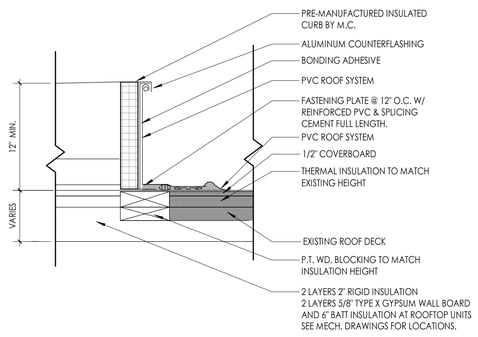
5 A810 **PIPE PORTAL DETAIL**

1 1/2" = 1'-0"



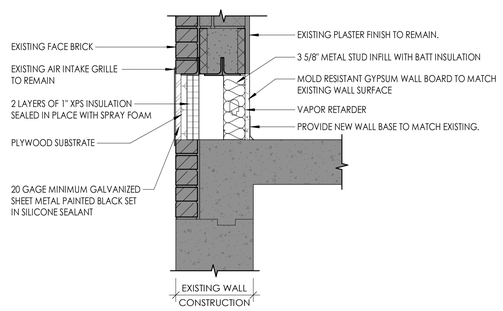
4 A810 **SLAB INFILL DETAIL**

3" = 1'-0"



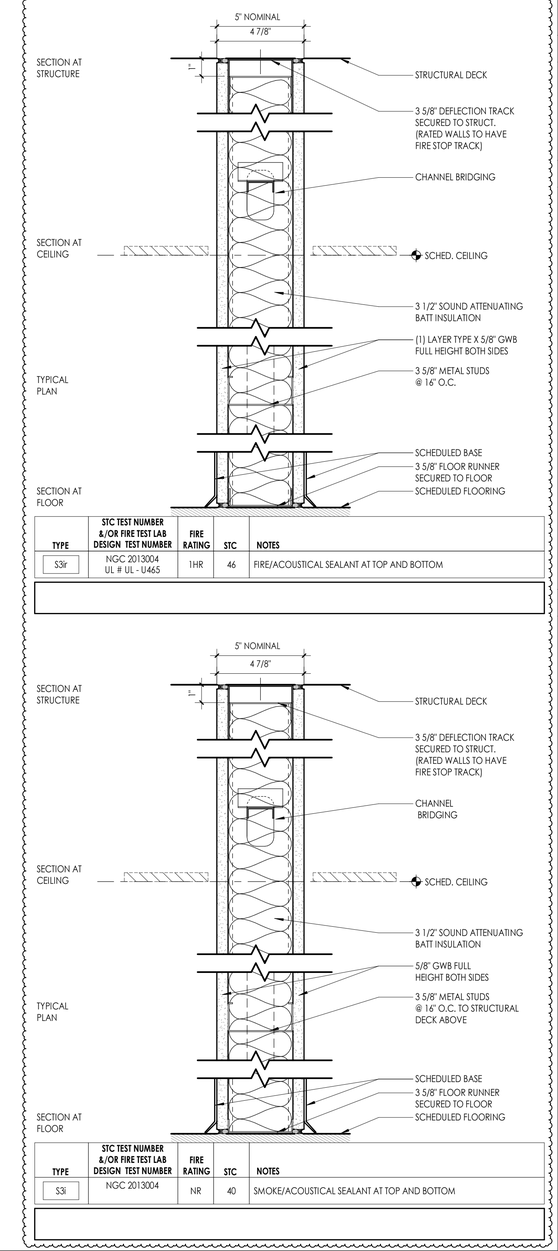
3 A810 **TYPICAL ROOF CURB DETAIL**

1 1/2" = 1'-0"



2 A810 **INFILL DETAIL**

1" = 1'-0"



TYPE	STC TEST NUMBER &/OR FIRE TEST LAB DESIGN TEST NUMBER	FIRE RATING	STC	NOTES
S3ir	NGC 2013004 UL # UL - U465	1HR	46	FIRE/ACOUSTICAL SEALANT AT TOP AND BOTTOM

TYPE	STC TEST NUMBER &/OR FIRE TEST LAB DESIGN TEST NUMBER	FIRE RATING	STC	NOTES
S3i	NGC 2013004	NR	40	SMOKE/ACOUSTICAL SEALANT AT TOP AND BOTTOM

PARTITION GENERAL NOTES

1. ALL WALL TYPES MAY NOT BE USED ON THIS PROJECT.
2. UNLESS NOTED OTHERWISE ALL PARTITIONS ARE FULL HEIGHT, EXTEND & SECURE TO UNDERSIDE OF CONCRETE OR METAL DECK ABOVE.
3. PROVIDE UL APPROVED JOINT AT ALL TOP OF WALL AND WALL TO WALL CONDITIONS AT ALL RATED WALLS.
4. PROVIDE DEFLECTION TRACKS AT METAL STUD PARTITIONS THAT TERMINATE AT THE UNDERSIDE OF STRUCTURE AND DECK.
5. REFER TO CODE/LIFE SAFETY DRAWINGS FOR RATED PARTITIONS AND UL ASSEMBLIES.
6. REFER TO INTERIOR DRAWINGS FOR LOCATIONS OF WALL TILE, AND OTHER SPECIALTY WALL FINISHES. PROVIDE 5/8" TILE BACKER BOARD AT ALL WALLS RECEIVING TILE.
7. PROVIDE MOISTURE RESISTANT GYP. BD. AT ALL TOILET ROOMS, JANITOR'S CLOSETS AND OTHER WET LOCATIONS WHERE TILE AND TILE BACKER BOARD ARE NOT INSTALLED.
8. PARTITION TYPES WITH ONE SIDE OF DOUBLE DRYWALL TO BE PLACED SO THAT THE DOUBLE SIDE IS ON CORRIDOR AND/OR HIGH TRAFFIC SIDE OF WALL.
9. REFER TO SPECIFICATIONS FOR METAL STUD GAUGE REQUIREMENTS.
10. COORDINATE ALL PARTITION ACCESSORIES (APPLIED FINISHES, RESILIENT CHANNEL, ADDITIONAL LAYERS OF SHEATHING, SHIELDING, ETC.) ITEMS SHOWN IN TYPICAL WALL CONSTRUCTION DETAILS MAY HAVE TO BE ARRANGED ON DIFFERENT SIDES OF WALL ASSEMBLY TO ACHIEVE FLUSH CONTINUOUS WALL SURFACES. ANY CONFLICTS SHOULD BE BROUGHT TO THE ATTENTION OF THE ARCHITECT.
11. FIRESTOP/ SMOKE STOP ALL REQUIRED WALL PARTITIONS, SLABS, AND PENETRATIONS THROUGH NEW AND EXISTING WALLS WITHIN THE PROJECT LIMITS IN COORDINATION WITH CODE PLAN, OR WHERE COORDINATED SYSTEMS CONNECTION POINTS ARE LOCATED OUTSIDE THE PROJECT LIMIT AREA. SEE ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING DRAWINGS AND SPECIFICATION DIVISION 7.
12. NOTIFY OWNER AND ARCHITECT IF EXISTING NON-COMPLIANT PENETRATIONS ARE DISCOVERED NOT FIRESTOPPPED IN COORDINATION WITH CODE PLAN.
13. PROVIDE CONTROL JOINT WHERE NEW PARTITIONS BUTT EXISTING CONSTRUCTION.
14. PROVIDE CONTROL JOINTS A MAXIMUM OF 30'-0" APART UNLESS NOTED OTHERWISE, PER ASTM C 840-17A, LOCATE ABOVE DOOR FRAMES WHERE POSSIBLE.
15. PROVIDE SUPPORT BLOCKING AND STRAPPING FOR ALL MILLWORK, CASEWORK, AND WALL MOUNTED ACCESSORIES.

PARTITION TYPE TAG LEGEND

PARTITION CONSTRUCTION TYPE & SIZE SEE LEGEND BELOW — RATING SUFFIX

S3 i t r

ACCESSORY SUFFIX(S) SEE LEGEND BELOW

PARTITION CONSTRUCTION TYPE & SIZE LEGEND

S# STEEL STUDS, FINISH BOTH SIDES
- 1 = 1 5/8" C STUD
- 2 = 2 1/2" C STUD
- 3 = 3 5/8" C STUD
- 4 = 4" C STUD
- 6 = 6" C STUD
- 8 = 8" C STUD

F# STEEL STUD FURRING, FINISH ONE SIDE
- 1 = 1 5/8" C STUD
- 2 = 2 1/2" C STUD
- 3 = 3 5/8" C STUD
- 4 = 4" C STUD
- 6 = 6" C STUD
- 8 = 8" C STUD

W# STEEL STUD SHAFT WALL ASSEMBLY, FINISH ONE SIDE
- 2 = 2 1/2" CH SHAFT WALL STUD
- 4 = 4" CH SHAFTWALL STUD
- 6 = 6" CH SHAFTWALL STUD

B# CONSTRUCTION BARRIER/TEMP WALL
- 1 = 1 5/8" C STUD
- 2 = 2 1/2" C STUD
- 3 = 3 5/8" C STUD
- 4 = 4" C STUD
- 6 = 6" C STUD
- 8 = 8" C STUD

M# CONCRETE MASONRY UNIT
- 4 = 4" NOMINAL CMU
- 6 = 6" NOMINAL CMU
- 8 = 8" NOMINAL CMU
- 10 = 10" NOMINAL CMU
- 12 = 12" NOMINAL CMU

A APPLIED FINISH, NON SELF SUPPORTING/ATTACHED TO OTHER STRUCTURE

C# RESILIENT CHANNEL, NON SELF SUPPORTING/ATTACHED TO OTHER STRUCTURE
- 1 = 1/2" RC-1 RESILIENT CHANNEL
- 2 = 1/2" RC-2 RESILIENT CHANNEL

H# HAT CHANNEL, NON SELF SUPPORTING/ATTACHED TO OTHER STRUCTURE
- 1 = 7/8" HAT CHANNEL
- 2 = 1 1/2" HAT CHANNEL

Z# ZEE-FURRING, NON SELF SUPPORTING/ATTACHED TO OTHER STRUCTURE
- 1 = 1" ZEE FURRING
- 1.5 = 1 1/2" ZEE FURRING
- 2 = 2" ZEE FURRING
- 2.5 = 2 1/2" ZEE FURRING
- 3 = 3" ZEE FURRING

PARTITION TYPE SUFFIX

ACCESSORIES SUFFIX:

i - SOUND ATTENUATING BATT INSULATION (FIBERGLASS) FRICTION FIT BETWEEN STUDS TO FILL CAVITY

w - SOUND ATTENUATING FIRE BATT INSULATION (ROCK WOOL) FRICTION FIT BETWEEN STUDS TO FILL CAVITY

t - CERAMIC WALL TILE (1) SIDE W/ THINSET MORTAR BED, 5/8" CEMENT BACKER BOARD IN LIEU OF 5/8" GYP. AT TILE LOCATIONS - SEE INTERIOR ELEVATIONS FOR TILE EXTENTS

tt - CERAMIC WALL TILE (2) SIDES W/ THINSET MORTAR BED, 5/8" CEMENT BACKER BOARD IN LIEU OF 5/8" GYP. AT TILE LOCATIONS - SEE INTERIOR ELEVATIONS FOR TILE EXTENTS

b - INTERIOR VENEER MASONRY/STONE APPLIED FINISH, REFER TO DETAILS FOR CONSTRUCTION, AND INTERIOR ELEVATIONS FOR EXTENTS

g - CMU WALL GROUT CORES SOLID

s - ADD 1/2" RC1 RESILIENT SOUND CHANNEL BEHIND SPECIFIED SHEATHING

k - ADD ADDITIONAL (1) LAYER OF 5/8" GYP BOARD, TO ONE SIDE OF WALL

kk - ADD ADDITIONAL (2) LAYERS OF 5/8" GYP BOARD, (1) EA. SIDE OF WALL

e - ADD ADDITIONAL (1) LAYER OF 5/8" FRT PLYWOOD BOLTED TO WALL FOR MOUNTING OF ELECTRICAL PANELS/ EQUIPMENT WHERE NOTED ON ELEC. DWGS.

v - SUBSTITUE (1) LAYER OF 5/8" SOUNDBLOCK GYP. W/ INTEGRAL VISCOELASTIC POLYMER CORE FOR (1) LAYER OF SPECIFIED 5/8" TYPE X GYP.

vv - SUBSTITUE 5/8" SOUNDBLOCK GYP. W/ INTEGRAL VISCOELASTIC POLYMER CORE FOR ALL LAYER OF SPECIFIED 5/8" TYPE X GYP.

p - LEAD SHIELDING REFER TO PHYSICIST REPORT FOR REQUIREMENTS

x - COPPER MAGNETIC/RF SHIELDING REFER TO PHYSICIST REPORT FOR REQUIREMENTS

c - WALL FINISH TO TERMINATE 6" ABV. HIGHEST ADJACENT CEILING STUDS TO RUN TO UNDERSIDE OF DECK ABOVE.

y - WALL STRUCTURE TERMINATES 12" ABV. HIGHEST ADJACENT CEILING, PROVIDE STRUCTURAL BRACING AT TOP OF WALL AS REQUIRED.

n - KNEE WALL, REFER TO INTERIOR ELEVATIONS FOR HEIGHT & SILL CONDITION, REFER TO STRUCTURAL DETAILS FOR REQUIRED SUPPLEMENTAL STEEL AND ANCHORING REQUIREMENTS

RATING SUFFIX:

r - 1 HR RATED ASSEMBLY REFER TO UL DETAILS FOR RATED CONSTRUCTION REQUIREMENTS

d - 2 HR RATED ASSEMBLY REFER TO UL DETAILS FOR RATED CONSTRUCTION REQUIREMENTS

CPL | Architecture Engineering Planning
50 Front Street Suite 202,
Newburgh, NY 12550
CPLeam.com

SOUTH ORANGETOWN Central School District
Capital Improvements Bond
Essential Infrastructure for Student Health, Safety and Success

PROJECT INFORMATION

Project Number
14457.20

Client Name
SOUTH ORANGETOWN CENTRAL SCHOOL DISTRICT

Project Name
PHASE 1: 2022 BOND

District Office Address
160 VAN WYCK RD.
BLAUVELT, NY 10913

SOUTH ORANGETOWN CSD
- ☐ WILLIAM O. SCHAEFER SED#:50-03-01-06-0-012-019
- ☐ COTTAGE LANE ELEMENTARY SED#:50-03-01-06-0-010-022
- ☐ TAPPAN ZEE HIGH SCHOOL SED#:50-03-01-06-0-006-032
- ☐ WILLIAM O. SCHAEFER S&L SED#: 50-03-01-06-0-012-020
- ☐ COTTAGE LANE S&L SED#: 50-03-01-06-0-010-023
- ☐ COTTAGE LANE LIBRARY S&L SED#: 50-03-01-06-8-023-002
- ☐ WOS OUTDOOR CLASSROOM SED#:50-03-01-06-7-053-001
- ☐ SOMS OUTDOOR CLASSROOM SED#:50-03-01-06-7-056-001
- ☐ CLE OUTDOOR CLASSROOM SED#:50-03-01-06-7-054-001
- ☐ TDHS OUTDOOR CLASSROOM SED#:50-03-01-06-7-055-001

PROJECT ISSUE & REVISION SCHEDULE

No.	Date	Description
1	11/09/23	BID ADDENDUM #3
2	11/17/23	BID ADDENDUM #4

PROFESSIONAL STAMPS

NEW YORK STATE EDUCATION STATEMENT
IT IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW AND THE COMMISSIONER'S REGULATIONS FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED ARCHITECT, ENGINEER OR LAND SURVEYOR, TO ALTER AN ITEM IN ANY WAY. IF AN ITEM BEARING THE SEAL OF AN ARCHITECT, ENGINEER OR LAND SURVEYOR IS ALTERED, THE ALTERING PARTY SHALL AFFIX TO THE ITEM THEIR SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE AND THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

SHEET INFORMATION

Issued	Scale
10/18/23	As indicated

Project Status
BID DOCUMENTS

Drawn By	Checked By
Author	Checker

Drawing Title
WALL TYPES & MISC. DETAILS

Drawing Number
CLE A810

11/16/2023 2:42:51 PM <project location> REVIT PROJECT FILES ON BIM360

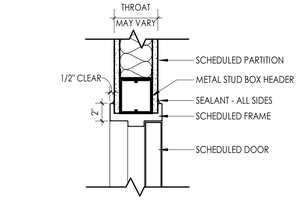
DOOR SCHEDULE- NEW

DOOR NUMBER	FIRE RATING (MIN)	ROOM NUMBER/NAME	DOOR PANELS: PANEL TYPE: PANEL 1	PANEL TYPE: PANEL 2	SINGLE PANEL DIMENSIONS: WIDTH: PANEL 1	PANEL 2	TOTAL PANEL DIMENSIONS: WIDTH	HEIGHT	THICKNESS	DOOR FRAME: FRAME TYPE	FRAME DIMENSIONS: JAMB WIDTH	HEAD HEIGHT	FRAME DEPTH	FRAME FINISH	DOOR: HEAD DTL	JAMB DTL	COMMENTS	DOOR NUMBER
FINISH FIRST FLOOR																		
102A	-	102 SECURE VESTIBULE	PNL-G2-AL	PNL-G2-AL	3'-0"	3'-0"	6'-0"	7'-0"	0'-1 3/4"	FRM-00AL(CW)	0'-0"	0'-0"	0'-0"	MFR	7/A900	8/A900	REFER TO CW1	102A
102B	45	400 MAIN OFFICE	PNL-N-WD		3'-0"		3'-0"	7'-0"	0'-1 3/4"	FRM-00HM1	0'-2"	0'-2"	0'-8 7/8"	PNT	5/A900	6/A900		102B
201B	45	201B I.T.	PNL-F-WD		3'-0"		3'-0"	7'-0"	0'-1 3/4"	FRM-00HM1	0'-2"	0'-2"	0'-8 7/8"	PNT	5/A900	6/A900		201B
202A	45	202A RESOURCE ROOM	PNL-N-WD		3'-0"		3'-0"	7'-0"	0'-1 3/4"	FRM-00HM1	0'-2"	0'-2"	0'-5 3/4"	PNT	1/A900	2/A900		202A
300D	--	300D ST.	PNL-F-WD		3'-0"		3'-0"	7'-0"	0'-1 3/4"	FRM-00HM1	0'-2"	0'-2"	0'-7 7/8"	PNT	5/A900	6/A900	ALTERNATE GC-05	300D
300E	--	300E ST.	PNL-F-WD	PNL-F-WD	2'-10"	2'-10"	5'-8"	7'-0"	0'-1 3/4"	FRM-00HM1	0'-2"	0'-2"	0'-8 3/4"	PNT	3/A900	4/A900	ALTERNATE GC-05	300E
400	45	400 MAIN OFFICE	PNL-G2-WD		3'-0"		3'-0"	7'-0"	0'-1 3/4"	FRM-20HM1	0'-2"	0'-2"	0'-8 7/8"	PNT	5/A900	6/A900		400
400A	--	400A CL.	PNL-F-WD		3'-0"		3'-0"	7'-0"	0'-1 3/4"	FRM-00HM1	0'-2"	0'-2"	0'-5 3/4"	PNT	1/A900	2/A900		400A
400B	--	400B ASSISTANT PRINCIPAL	PNL-N-WD		3'-0"		3'-0"	7'-0"	0'-1 3/4"	FRM-00HM1	0'-2"	0'-2"	0'-5 3/4"	PNT	1/A900	2/A900		400B
400C	--	400C PRINCIPAL	PNL-N-WD		3'-0"		3'-0"	7'-0"	0'-1 3/4"	FRM-00HM1	0'-2"	0'-2"	0'-5 3/4"	PNT	1/A900	2/A900		400C

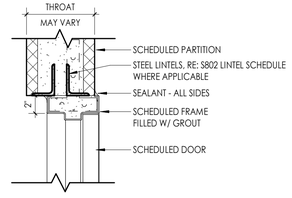
OFCI DOOR SCHEDULE - NEW FRAMES

DOOR NUMBER	FIRE RATING (MIN)	ROOM NUMBER/NAME	DOOR PANELS: PANEL TYPE: PANEL 1	SINGLE PANEL DIMENSIONS: WIDTH: PANEL 1	DOOR FRAME: FRAME TYPE	FRAME DIMENSIONS: JAMB WIDTH	HEAD HEIGHT	FRAME DEPTH	FRAME FINISH	DOOR: HEAD DTL	JAMB DTL	COMMENTS	DOOR NUMBER
FINISH FIRST FLOOR													
112	45	112 GIRLS	PNL-F-WD	3'-0"	FRM-00HM1	0'-2"	0'-2"	0'-8 7/8"	PNT	5/A900	6/A900	OFCI - DOOR, HW AND HC OPERATOR. PROVIDE NEW FRAME AS SCHEDULED	112
114	45	114 BOYS	PNL-F-WD	3'-0"	FRM-00HM1	0'-2"	0'-2"	0'-8 7/8"	PNT	5/A900	6/A900	OFCI - DOOR, HW AND HC OPERATOR. PROVIDE NEW FRAME AS SCHEDULED	114
219	45	219 GIRLS	PNL-F-WD	3'-0"	FRM-00HM1	0'-2"	0'-2"	0'-8 7/8"	PNT	5/A900	6/A900	OFCI - DOOR, HW AND HC OPERATOR. PROVIDE NEW FRAME AS SCHEDULED	219
220	45	220 BOYS	PNL-F-WD	3'-0"	FRM-00HM1	0'-2"	0'-2"	0'-8 7/8"	PNT	5/A900	6/A900	OFCI - DOOR, HW AND HC OPERATOR. PROVIDE NEW FRAME AS SCHEDULED	220

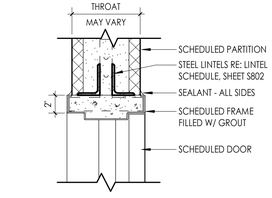
NOTE: DOOR 501 TO RECEIVE A NEW ALUMINUM COVER PLATE AT THE SILL - REFER TO HARDWARE SPEC



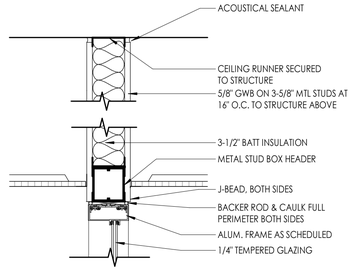
1 A900 **DOOR IN STUD - HEAD DETAIL**
1 1/2" = 1'-0"



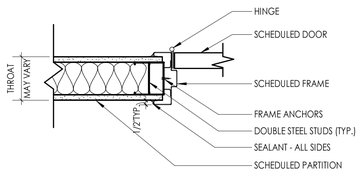
3 A900 **DOOR IN CMU - HEAD DETAIL**
1 1/2" = 1'-0"



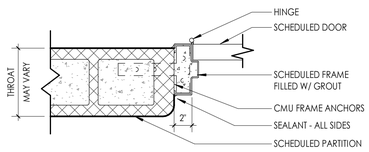
5 A900 **WRAPPED DOOR IN CMU - HEAD DETAIL**
1 1/2" = 1'-0"



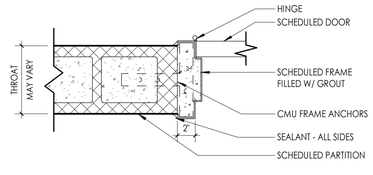
7 A900 **ALUM. STOREFRONT - HEAD DETAIL**
1 1/2" = 1'-0"



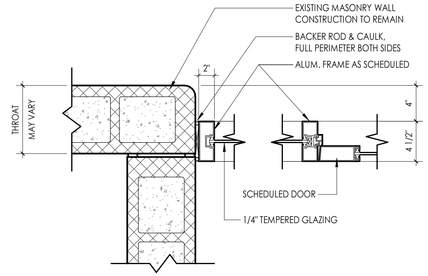
2 A900 **DOOR IN STUD - JAMB DETAIL**
1 1/2" = 1'-0"



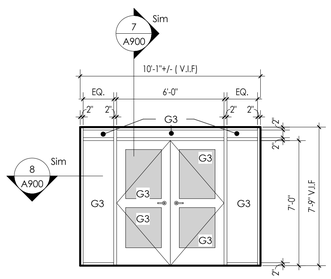
4 A900 **DOOR IN CMU - JAMB DETAIL**
1 1/2" = 1'-0"



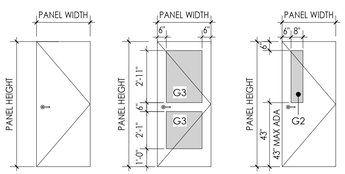
6 A900 **WRAPPED DOOR IN CMU - JAMB DETAIL**
1 1/2" = 1'-0"



8 A900 **ALUM. STOREFRONT - JAMB DETAIL**
1 1/2" = 1'-0"

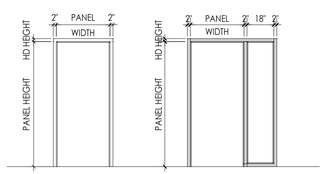


9 A900 **ALUM. STOREFRONT ELEVATION**
1/4" = 1'-0"



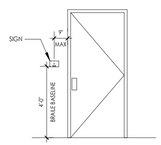
PNL-F-WD PNL-G2-WD PNL-G2-AL PNL-N-WD

DOOR PANEL TYPES
1/4" = 1'-0"

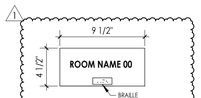


FRM-00 HM.1 (SINGLE) FRM-20 HM.1 (SINGLE W/ SIDELITE)

DOOR FRAME TYPES
1/4" = 1'-0"



ADA SIGN LOCATION
1/4" = 1'-0"



TYPE 'A'

ADA SIGN TYPES
1 1/2" = 1'-0"

SIGNAGE SCHEDULE

ROOM NAME/NUMBER	DOOR NUMBER	"TEXT"	TYPE	COMMENTS
RESOURCE ROOM 202A	202A	"ROOM 202A"	A	REFER TO PLAN FOR LOCATION
MAIN OFFICE 400	102B	"MAIN OFFICE"	A	REFER TO PLAN FOR LOCATION
MAIN OFFICE 400	400	"MAIN OFFICE"	A	REFER TO PLAN FOR LOCATION
MAIN OFFICE 400	400B	"OFFICE 400B"	A	REFER TO PLAN FOR LOCATION
MAIN OFFICE 400	400C	"OFFICE 400C"	A	REFER TO PLAN FOR LOCATION

DOOR AND FRAME NOTES

1. ALL FRAMES ARE TO RECEIVE FULL PERIMETER SEALANT. INTERIOR AND EXTERIOR
2. ALL DOOR AND WINDOW OPENING DIMENSIONS ARE TO BE VERIFIED IN FIELD AND COORDINATED WITH APPROVED SHOP DRAWINGS PRIOR TO FABRICATION.
3. SEE SCHEDULE FOR DOOR & FRAME MATERIAL

DOOR AND FRAME SCHEDULE LEGEND

NOTE: THIS LEGEND MAY CONTAIN SYMBOLS THAT ARE NOT USED IN THIS PROJECT.

DOOR OR FRAME MATERIAL

ACR	ACROVYN DOOR
ACR-L	ACROVYN LEAD LINED DOOR
ALUM	ALUMINUM
HM	HOLLOW METAL
HM-L	HOLLOW METAL LEAD LINED
IHM	INSULATED HOLLOW METAL
WD	WOOD
WD-L	WOOD LEAD LINED

DOOR OR FRAME FINISH

PTD	PAINT
ST	WOOD STAIN
DB	DARK BRONZE(ANODIZED)
SS	STAINLESS STEEL
BE	BAKED ENAMEL
MFR	MANUFACTURER

GLAZING TYPES

G1 - INSULATED GLAZING

G2 - FIRE RATED GLAZING

G3 - TEMPERED GLAZING

NOTE: NEW FRAMES TO BE PAINTED TO MATCH EXISTING ADJACENT.

CPL | Architecture Engineering Planning
50 Front Street Suite 202,
Newburgh, NY 12550
CPLeam.com

SOUTH ORANGETOWN Central School District
Capital Improvements Bond
Essential Infrastructure for Student Health, Safety and Success

PROJECT INFORMATION

Project Number
14457.20

Client Name
SOUTH ORANGETOWN CENTRAL SCHOOL DISTRICT

Project Name
PHASE 1: 2022 BOND

District Office Address
160 VAN WYCK RD.
BLAUVELT, NY 10913

SOUTH ORANGETOWN CSD
- ☐ WILLIAM O. SCHAEFER SED#:50-03-01-06-0-012-019
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- ☐ TDHS OUTDOOR CLASSROOM SED#:50-03-01-06-7-055-001

PROJECT ISSUE & REVISION SCHEDULE

No.	Date	Description
1	11/17/23	BID ADDENDUM #4

PROFESSIONAL STAMPS

SHEET INFORMATION

Issued	Scale
10/18/23	As indicated

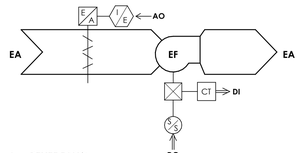
Project Status
BID DOCUMENTS

Drawn By	Checked By
LF	LT

Drawing Title
DOOR TYPES & SCHEDULES

Drawing Number
CLE
A900

11/15/2023 2:43:00 PM <project location> REVIT PROJECT FILES ON BIM360



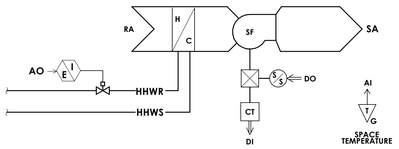
A. RELIEF FANS:

1. OCCUPIED MODE:
   - a. ENABLE FAN AND OPEN DAMPER WHEN ASSOCIATED UNIT VENTILATOR IS ON.
   - b. ENABLE FAN AT MINIMUM SCHEDULED AIRFLOW UNLESS ANY OF THE ASSOCIATED UNIT VENTILATORS ARE IN ECONOMIZER MODE.
   - c. WHEN THE ASSOCIATED UNIT VENTILATORS ARE IN ECONOMIZER MODE, MODULATE FAN BEYOND IT'S MINIMUM SCHEDULED AIR FLOW BASED ON THE AVERAGE OUTDOOR AIR DAMPER POSITION OF THE ASSOCIATED UNITS.
   - 1) UN-OCCUPIED MODE:
     - a. DISABLE FAN, CLOSE DAMPER.

2) ALARMS
   - a. FAN FAILS TO RUN AFTER 30 SECONDS OF BEING COMMANDED ON.
   - b. FAN FAILS TO STOP AFTER 30 SECONDS OF BEING COMMANDED OFF.

1 H500 RELIEF FAN CONTROLS

NOT TO SCALE

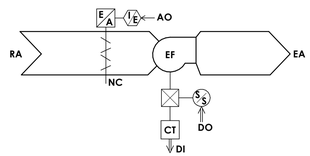


A. HYDRONIC UNIT HEATERS:

1. MODULATE THE CONTROL VALVE AS NECESSARY TO MAINTAIN SPACE TEMPERATURE HEATING SET POINT.
2. ALARMS
   - a. SPACE TEMPERATURE HIGH/LOW LIMITS.

2 H500 UNIT HEATER CONTROLS SCHEMATIC

NOT TO SCALE



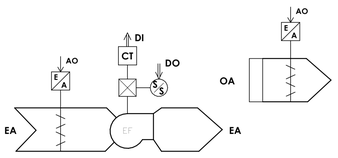
A. EXHAUST FANS:

- a. OCCUPIED MODE: OPEN DAMPER AND ENABLE FAN AFTER 15-SECOND DELAY.
- b. UNOCCUPIED MODE: DISABLE FAN AND MODULATE DAMPER TO FULL CLOSED POSITION AFTER 15-SECOND DELAY.

2. ALARMS
   - a. FAN FAILS TO RUN AFTER 30 SECONDS OF BEING COMMANDED ON.
   - b. FAN FAILS TO STOP AFTER 30 SECONDS OF BEING COMMANDED OFF.

3 H500 TOILET EXHAUST CONTROLS DIAGRAM

SCALE: NOT TO SCALE



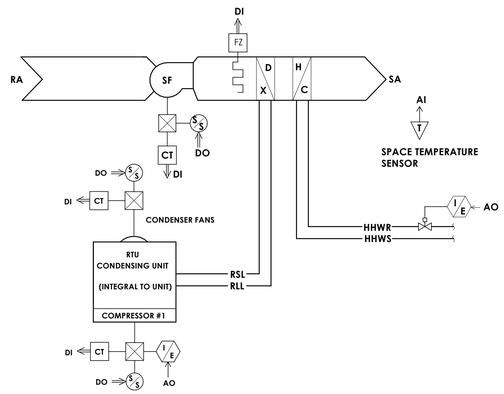
A. EXHAUST FANS:

- a. OCCUPIED MODE: OPEN DAMPER AND ENABLE FAN AFTER 15-SECOND DELAY.
- b. UNOCCUPIED MODE: DISABLE FAN AND MODULATE DAMPER TO FULL CLOSED POSITION AFTER 15-SECOND DELAY.

2. ALARMS
   - a. FAN FAILS TO RUN AFTER 30 SECONDS OF BEING COMMANDED ON.
   - b. FAN FAILS TO STOP AFTER 30 SECONDS OF BEING COMMANDED OFF.

4 H500 HOOD EXHAUST FAN CONTROLS DIAGRAM EF-1

NOT TO SCALE



A. HYDRONIC FAN COIL UNIT:

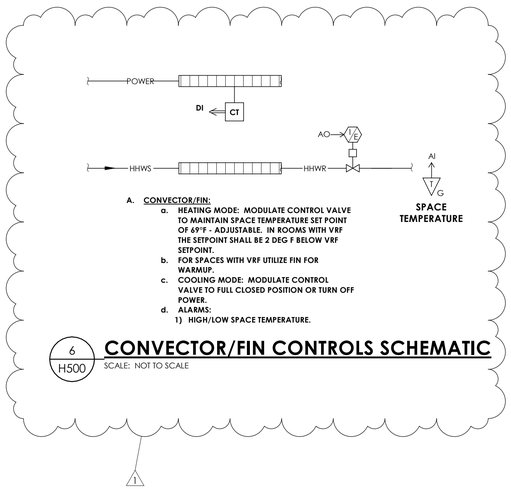
1. ASSIGN EACH FAN COIL UNIT A STAGGER START NUMBER TO KEEP TOO MANY UNITS FROM STARTING AT THE SAME TIME. IN EFFECT, THIS FLATTENS LOAD PEAKS.
2. WARM-UP MODE CONTROL:
   - a. OPTIMUM START DURATION SHALL BE DETERMINED BASED ON OUTSIDE AIR TEMPERATURE.
   - b. DURING THE OPTIMUM START PERIOD, THE HEATING SET-POINT WILL BE LINEARLY RAMPED UP FROM UNOCCUPIED HEATING SET-POINT TO OCCUPIED HEATING SET-POINT.
   - c. WHEN THE HEATING SET-POINT CROSSES ABOVE THE SPACE TEMPERATURE, THE SUPPLY FAN WILL BE COMMANDED ON. THE MIXING DAMPERS SHALL REMAIN IN THE FULL RETURN AIR POSITION AND THE HEATING VALVE WILL MODULATE TO MAINTAIN HEATING SET-POINT.
3. COOL-DOWN MODE CONTROL:
   - a. OPTIMUM START DURATION SHALL BE DETERMINED BASED ON OUTSIDE AIR TEMPERATURE.
   - b. DURING THE OPTIMUM START PERIOD, THE COOLING SET-POINT WILL BE LINEARLY RAMPED DOWN FROM UNOCCUPIED COOLING SET-POINT TO OCCUPIED COOLING SET-POINT.
   - c. WHEN THE COOLING SET-POINT CROSSES BELOW THE SPACE TEMPERATURE, THE SUPPLY FAN WILL BE COMMANDED ON. THE MIXING DAMPERS SHALL MODULATE TO THE FULL RETURN AIR POSITION AND THE CONDENSING UNIT SHALL MODULATE TO MAINTAIN THE SPACE COOLING SET-POINT.
4. OCCUPIED MODE:
   - a. SUPPLY FAN:
     - 1) ENABLE CONTINUOUSLY.
   - b. MIXED AIR DAMPER:
     - 1) OPEN TO MAINTAIN OUTSIDE AIR QUANTITY AS SCHEDULED, OUTSIDE AIR DAMPER SHALL NEVER BE POSITIONED BELOW THIS MINIMUM EXCEPT IN CASE OF EMERGENCY.
   - c. OCCUPIED HEATING MODE (OAT IS ABOVE 55°F AND SPACE TEMPERATURE BELOW SET POINT)
     - 1) MODULATE HHW COIL CONTROL VALVE TO MAINTAIN SPACE TEMPERATURE SET POINT AND MINIMUM DISCHARGE AIR SET POINT.
       - a) MINIMUM LEAVING AIR TEMPERATURE RESET SCHEDULE:
         - 65 DEGREE LAT AT 0 DEGREE OAT.
         - 55 DEGREE LAT AT 55 DEGREE OAT.
     - 2) MODULATE THE CONDENSING UNIT TO THE OFF POSITION.
   - d. OCCUPIED COOLING MODE (OAT IS ABOVE 60°F AND SPACE TEMPERATURE IS ABOVE SET POINT)
     - 1) MODULATE THE HHW COIL CONTROL VALVE TO THE FULL CLOSED POSITION.
     - 2) MODULATE THE CONDENSING UNIT TO MAINTAIN THE SPACE TEMPERATURE SETPOINT.
5. UNOCCUPIED MODE:
   - a. SUPPLY FAN:
     START (2°F BELOW HEATING SET POINT) AND STOP (1°F ABOVE HEATING SET POINT) TO MAINTAIN SPACE TEMPERATURE SET POINT.
   - b. MIXED AIR DAMPER:
     FULLY RETURN AIR POSITION.
   - c. HOT WATER COIL CONTROL VALVE:
     SAME AS OCCUPIED MODE.
   - d. CONDENSING UNIT
     - MODULATE TO FULL CLOSED POSITION UNLESS NIGHT COOLING IS REQUIRED. WHEN NIGHT COOLING IS REQUIRED, MODULATE TO MAINTAIN SPACE TEMPERATURE SET POINT.
6. ALARMS - PROVIDE AN ALARM FOR EACH OF THE FOLLOWING:
   - a. FAN FAILS TO RUN AFTER 30 SECONDS OF BEING COMMANDED ON.
   - b. FAN FAILS TO STOP AFTER 30 SECONDS OF BEING COMMANDED OFF.
   - c. SOFTWARE SAFETY TRIP.
   - d. SOFTWARE SAFETY LOCKOUT (4 SAFETY TRIPS IN 3 HOURS).
   - e. LOW OR HIGH DISCHARGE AIR TEMPERATURES.
   - f. LOW OR HIGH SPACE TEMPS.

5 H500 FAN COIL TYPICAL CONTROLS DIAGRAM

SCALE: NOT TO SCALE

A. UNIT VENTILATORS WITH COOLING:

1. ASSOCIATED EQUIPMENT IS FIN-TUBE RADIATION WHERE INDICATED ON PLANS.
2. UNIT VENTILATOR SHALL OPERATE IN OCCUPIED/UNOCCUPIED MODES AS DETERMINED BY THE DDC BUILDING TIME CLOCK SYSTEM AND BY OCCUPANCY SENSOR.
3. ASSIGN EACH UNIT VENTILATOR A STAGGER START NUMBER TO KEEP TOO MANY UNITS FROM STARTING AT THE SAME TIME. IN EFFECT, THIS FLATTENS LOAD PEAKS.
4. OCCUPIED HEATING SET-POINT, UNOCCUPIED HEATING SET-POINT, UNOCCUPIED COOLING SET-POINT AND PURGE ENABLE/DISABLE SHALL BE GLOBAL AND FULLY ADJUSTABLE FROM ANY INTERFACE.
5. OUTSIDE AIR IS ADMITTED TO MEET VENTILATION AND COOLING REQUIREMENTS AS OUTLINED IN THE INDIVIDUAL UNIT SEQUENCES. MECHANICAL COOLING, IF EQUIPPED IS UTILIZED AS OUTLINED IN THE INDIVIDUAL UNIT SEQUENCES.
6. EACH UNIT VENTILATOR SHALL HAVE A SOFTWARE HOA FOR CONTROL OF THE SUPPLY FAN.
7. WIRE THE SUPPLY FAN NORMALLY OPEN AT THE CONTROL RELAY AND FAIL OFF.
8. CONTROL CYCLE TO FOLLOW ASHRAE CYCLE II STANDARD.
9. OCCUPIED ECONOMIZER COOLING MODE - WHEN THERE IS CALL FOR COOLING AND THE OUTDOOR AIR TEMPERATURE IS BELOW THE SPACE TEMPERATURE.
   - a. ECONOMIZER COOLING SET POINT: 74°F.
   - b. FULLY OPEN RECIRCULATION DAMPER.
   - c. IF THE SPACE TEMPERATURE RISES ABOVE THE COOLING SETPOINT OF 75 DEGREES F (ADJUSTABLE), AND THE CONTROLS INDICATES THAT ECONOMIZER OPERATION IS NOT APPROPRIATE, THE OUTSIDE AIR DAMPERS WILL MODULATE CLOSE TO MINIMUM POSITION AND THE COOLING CONTROL VALVE WILL MODULATE.
   - d. ECONOMIZER OPERATION SHALL USE AN ALGORITHM COMPARING INDOOR AIR AND OUTDOOR AIR ENTHALPY TO DETERMINE IF COOLING OR ASSISTED COOLING IS VIABLE. COOLING AND ECONOMIZER COOLING WILL BE ALLOWED TO OPERATE SIMULTANEOUSLY IF THE ALGORITHM CONFIRMS ASSISTED COOLING IS VIABLE.
   - e. THE CONTROLS WILL MONITOR FAN STATUS AND GENERATE AN ALARM WHENEVER THE FAN IS COMMANDED ON BUT THE STATUS INDICATES OFF. ALARMS WILL ALSO BE GENERATED IF A FREEZE CONDITION EXISTS OR IF A LOW SPACE TEMPERATURE IS DETECTED.
10. PURGE MODE CONTROL:
    - a. PURGE MODE (FRESH AIR CHANGEOVER) SHALL ONLY BE PERMITTED DURING AN UNOCCUPIED PERIOD.
    - b. IF THE OUTSIDE AIR IS BETWEEN 45°F AND 60°F AND THE SPACE TEMPERATURE RISES ABOVE 75°F, THE SUPPLY FAN SHALL BE COMMANDED ON. THE MIXING DAMPERS SHALL BE FULLY OPEN. THE HEATING COIL SHALL BE FULLY CLOSED AND THE INTEGRAL RELIEF FAN OR ASSOCIATED EXHAUST FAN SHALL BE ENABLED AT THE MAXIMUM AIRFLOW. WHEN THE SPACE TEMPERATURE DROPS TO 70°F, THE FANS SHALL BE COMMANDED OFF AND THE MIXING DAMPERS SHALL RETURN TO THE NORMAL POSITION.
11. WARM-UP MODE CONTROL:
    - a. OPTIMUM START DURATION SHALL BE DETERMINED BASED ON OUTSIDE AIR TEMPERATURE.
    - b. DURING THE OPTIMUM START PERIOD, THE HEATING SET-POINT WILL BE LINEARLY RAMPED UP FROM UNOCCUPIED HEATING SET-POINT TO OCCUPIED HEATING SET-POINT.
    - c. WHEN THE HEATING SET-POINT CROSSES ABOVE THE SPACE TEMPERATURE, THE SUPPLY FAN WILL BE COMMANDED ON, THE MIXING DAMPERS SHALL REMAIN CLOSED AND THE HEATING VALVE WILL MODULATE TO MAINTAIN HEATING SET-POINT.
12. COOL-DOWN MODE CONTROL:
    - a. OPTIMUM START DURATION SHALL BE DETERMINED BASED ON OUTSIDE AIR TEMPERATURE.
    - b. DURING THE OPTIMUM START PERIOD, THE COOLING SET-POINT WILL BE LINEARLY RAMPED DOWN FROM UNOCCUPIED COOLING SET-POINT TO OCCUPIED COOLING SET-POINT.
    - c. WHEN THE COOLING SET-POINT CROSSES BELOW THE SPACE TEMPERATURE, THE SUPPLY FAN WILL BE COMMANDED ON, THE MIXING DAMPERS SHALL MODULATE TO MAINTAIN COOLING SET-POINT.
13. OCCUPIED MODE:
    - a. UNIT VENTILATOR:
      - 1) SUPPLY FAN:
        - a) ENABLE CONTINUOUSLY.
      - 2) OUTSIDE AIR DAMPER:
        - a) OPEN TO MAINTAIN OUTSIDE AIR QUANTITY AS SCHEDULED. OUTSIDE AIR DAMPER SHALL NEVER BE POSITIONED BELOW THIS MINIMUM EXCEPT IN CASE OF EMERGENCY.
        - b) MODULATE OUTSIDE AIR DAMPER BEYOND SCHEDULED MINIMUM POSITION AS FOLLOWS:
          - MAINTAIN VENTILATION COOLING TEMPERATURE SET POINT.
      - 3) HOT WATER COIL CONTROL VALVE:
        - a) LAT SCHEDULE
          - UTILIZE DISCHARGE AIR MINIMUM TEMPERATURE RESET SCHEDULE AS OUTLINED BELOW.
          - 55°F LAT AT 55°F OAT
          - 65°F LAT AT 0°F OAT.
          - UTILIZE DISCHARGE AIR TEMPERATURE PID LOOP TO MAINTAIN SPACE TEMPERATURE SET POINT AND MINIMUM LAT.
        - b) OUTSIDE AIR TEMPERATURE DROPS BELOW 35 DEGREES:
          - MODULATE FULL OPEN. (VALVE SHALL STAY FULL OPEN UNTIL O.A. RISES ABOVE 38 DEGREES).
        - c) OUTSIDE AIR TEMPERATURE ABOVE 38 DEGREES:
          - MODULATE TO MAINTAIN SPACE TEMPERATURE SET POINT. MODULATE TO MAINTAIN 65 DEGREE MINIMUM DISCHARGE AIR TEMPERATURE DURING HEATING MODE.
      - 4) COIL FACE AND BY-PASS DAMPER :
        - a) OUTSIDE AIR TEMPERATURE DROPS BELOW 35 DEGREES:
          - MODULATE TO MAINTAIN SPACE TEMPERATURE SET POINT. MODULATE TO MAINTAIN 65 DEGREE MINIMUM DISCHARGE AIR TEMPERATURE.
          - MODULATE UNTIL O.A. RISES ABOVE 38 DEGREES.
        - b) OUTSIDE AIR TEMPERATURE ABOVE 38 DEGREES:
          - POSITION TO FULL COIL FACE POSITION.
      - 5) RA DAMPER:
        - a) MODULATE WITH OUTSIDE AIR DAMPER TO MAINTAIN THE FOLLOWING BALANCE: RA CFM = SA CFM - OA CFM.
      - 6) COOLING COIL (AS INDICATED ON THE DRAWINGS):
        - a) MODULATE TO MAINTAIN SPACE TEMPERATURE SET POINT.
14. UNOCCUPIED MODE BY OCCUPANCY SENSOR DURING DDC SCHEDULED OCCUPIED PERIOD
    - a. DURING THE SCHEDULED OCCUPIED MODE, WHEN THE SPACE IS UNOCCUPIED AS SENSED BY THE ROOM OCCUPANCY SENSOR, THE DAMPER WILL BE CLOSED TO OUTSIDE AIR.
    - b. IN HEATING MODE, THE SPACE TEMPERATURE SET-POINT SHALL BE RESET TO 2°F (ADJUSTABLE) LOWER THAN THE OCCUPIED SET-POINT. IN COOLING MODE, THE SPACE TEMPERATURE SET-POINT SHALL BE RESET TO 2°F (ADJUSTABLE) HIGHER THAN THE OCCUPIED SET-POINT.
    - c. THE SUPPLY FAN SHALL CYCLE ON AND OFF TO MAINTAIN THE SPACE TEMPERATURE SET-POINT. IN HEATING MODE, THE FINNED-TUBE CONTROL VALVE SHALL CONTINUE TO MODULATE TO MAINTAIN THE SPACE TEMPERATURE SET POINT. IF THE SPACE TEMPERATURE DROPS 1°F BELOW IN THE RESET HEATING SET-POINT, THE SUPPLY FAN SHALL BE COMMANDED ON. THE MIXING DAMPER SHALL REMAIN CLOSED AND THE HEATING VALVE SHALL MODULATE OPEN. WHEN THE SPACE TEMPERATURE RISES 1°F ABOVE THE RESET HEATING SET-POINT, THE SUPPLY FAN SHALL BE COMMANDED OFF. IN COOLING MODE, IF THE SPACE TEMPERATURE RISES 1°F ABOVE IN THE RESET COOLING SET-POINT, THE SUPPLY FAN SHALL BE COMMANDED ON, THE MIXING DAMPER SHALL REMAIN CLOSED AND THE COOLING VALVE SHALL MODULATE OPEN. WHEN THE SPACE TEMPERATURE DROPS 1°F BELOW THE RESET COOLING SET-POINT, THE SUPPLY FAN SHALL BE COMMANDED OFF.
    - d. WHEN THE SPACE IS OCCUPIED AS SENSED BY THE ROOM OCCUPANCY SENSOR, THE SEQUENCE SHALL BE INDEXED TO THE OCCUPIED MODE.
15. UNOCCUPIED MODE BY DDC SCHEDULE:
    - a. UNIT VENTILATORS
      - 1) SUPPLY FAN:
        - START (2°F BELOW HEATING SET POINT) AND STOP (1°F ABOVE HEATING SET POINT) TO MAINTAIN SPACE TEMPERATURE SET POINT.
      - 2) OUTSIDE AIR DAMPER:
        - FULLY CLOSED.
      - 3) HOT WATER COIL CONTROL VALVE:
        - SAME AS OCCUPIED MODE.
      - 4) COIL FACE AND BY-PASS DAMPER:
        - SAME AS OCCUPIED MODE.
      - 5) RA DAMPER:
        - FULLY OPEN.
      - 6) COOLING CONTROL:
        - MODULATE TO FULL CLOSED POSITION UNLESS NIGHT COOLING IS REQUIRED. WHEN NIGHT COOLING IS REQUIRED, MODULATE TO MAINTAIN SPACE TEMPERATURE SET POINT.
16. ALARMS - PROVIDE AN ALARM FOR EACH OF THE FOLLOWING:
    - a. FAN FAILS TO RUN AFTER 30 SECONDS OF BEING COMMANDED ON.
    - b. FAN FAILS TO STOP AFTER 30 SECONDS OF BEING COMMANDED OFF.
    - c. SOFTWARE SAFETY TRIP.
    - d. SOFTWARE SAFETY LOCKOUT (4 SAFETY TRIPS IN 3 HOURS).
    - e. LOW OR HIGH DISCHARGE AIR TEMPERATURES.
      - 1) IF THE DISCHARGE AIR TEMPERATURE FALLS BELOW 40°F (ADJUSTABLE) IN HEATING MODE, OPEN THE HEATING HOT WATER CONTROL VALVE, CLOSE THE OUTDOOR AIR DAMPER AND TURN OFF ALL FANS.
    - f. LOW OR HIGH SPACE TEMPERATURES.



A. CONVECTOR/FIN:

- a. HEATING MODE: MODULATE CONTROL VALVE TO MAINTAIN SPACE TEMPERATURE SET POINT OF 69°F - ADJUSTABLE. IN ROOMS WITH VRF THE SETPOINT SHALL BE 2 DEG F BELOW VRF SETPOINT.
- b. FOR SPACES WITH VRF UTILIZE FIN FOR WARMUP.
- c. COOLING MODE: MODULATE CONTROL VALVE TO FULL CLOSED POSITION OR TURN OFF POWER.
- d. ALARMS:
  - 1) HIGH/LOW SPACE TEMPERATURE.

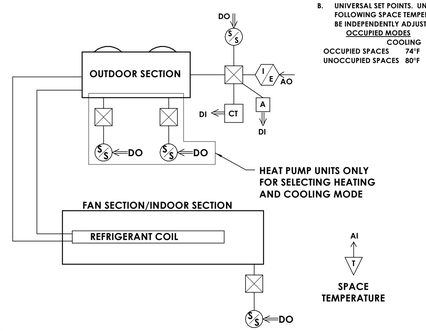
6 H500 CONVECTOR/FIN CONTROLS SCHEMATIC

SCALE: NOT TO SCALE

A. SPLIT SYSTEM AIR CONDITIONING UNITS:

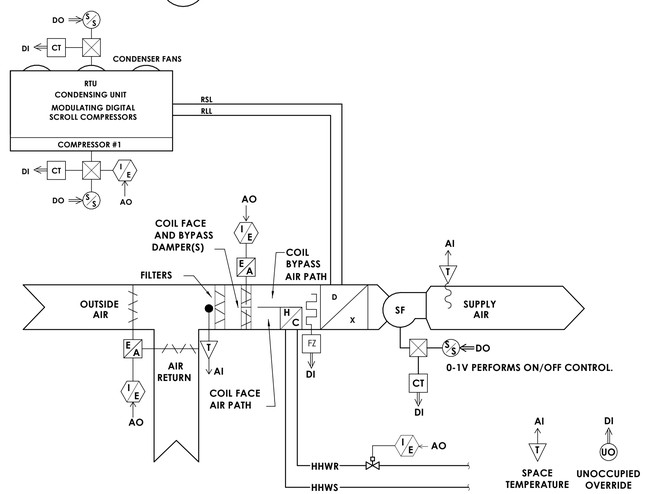
1. COOLING MODE
   - a. ENABLE SPLIT SYSTEM
   - b. MODULATE TO MAINTAIN SPACE TEMPERATURE SET POINT.
2. ALARMS
   - a. EQUIPMENT FAILURE
   - b. HIGH/LOW SPACE TEMP.
   - c. HIGH WATER LEVEL IN DRAIN PAN

COORDINATE WITH VRF MANUFACTURER TO PROVIDE BMS CONTROL OF SPACE TEMPERATURE SET POINTS, OCCUPIED/UNOCCUPIED MODES, HEATING COOLING MODES AND LOAD DEMAND.



7 H500 SPLIT SYSTEMS

NOT TO SCALE



8 H500 UNIT VENTILATOR CONTROL SCHEMATIC

SCALE: NOT TO SCALE

ALTERNATE MC-01 - PROVIDE NEW FULL BUILDING CONTROLS AND ALL ASSOCIATED COMPONENTS TO HAVE A NEW HEAD END AND FULLY OPERATIONAL SYSTEM. PROVIDE CONTROLS TO ALL EXISTING TO REMAIN EQUIPMENT.
BASE BID - PROVIDE CONTROLS AND NEW HEAD END FOR THE NEW EQUIPEMENT.
SEE PLANS FOR QUANTITY AND LOCATION, FOR BOTH SCHOOLS.
VERIFY ALL EXISTING CONTROL SEQUENCES BEFORE THE COMMENCEMENT OF ANY DEMOLITION WORK.

GENERAL NOTES:

1. SEQUENCES OF OPERATION SPECIFIED HEREIN, WHICH INDICATE THE FUNCTIONAL INTENT OF HVAC SYSTEMS, SUBSYSTEMS, AND/OR COMPONENTS OPERATION, ARE GENERAL IN NATURE AND MAY NOT FULLY DEFINE EVERY ASPECT OF PROGRAMMING THAT MAY BE REQUIRED TO FULFILL THE DESIGN INTENT. CONTRACTOR SHALL PROVIDE ALL PROGRAMMING AND HARDWARE NECESSARY TO OBTAIN THE SEQUENCES/SYSTEM OPERATION INDICATED, RESULTING IN STABLE HVAC SYSTEM OPERATION IN ACCORDANCE WITH THE DESIGN INTENT. THE SYSTEM SHALL COMMUNICATE WITH THE EXISTING BMS.

1.1 HVAC CONTROL SEQUENCES :

A. GENERAL
   1. ALL SET POINTS, CHANGEOVER POINTS AND RESET SCHEDULES SHALL BE USER ADJUSTABLE.
   2. CONTROL ALGORITHMS SHALL UTILIZE TUNED PID LOOPS TO MAINTAIN SET POINTS AND MINIMUM/MAXIMUM LEAVING AIR TEMPERATURES OPTIMALLY.
   3. COORDINATE INDIVIDUAL ALARM NOTIFICATIONS WITH OWNER.
   4. ALARMS SHALL BE CONFIGURED AS STATUS ONLY OR CRITICAL. STATUS ONLY ALARMS SHALL DISPLAY ALARM ON THE OWNER COORDINATED WORKSTATION(S) AND DEVICE(ES). CRITICAL ALARMS SHALL INCORPORATE COORDINATED UNIT SHUTDOWN ALONG WITH DISPLAYING ALARMS ON THE OWNER COORDINATED DEVICES AND REQUIRE THE ALARM TO BE CLEARED PRIOR TO RESTARTING THE EQUIPMENT.
   5. ALL HVAC EQUIPMENT SHALL OPERATE IN OCCUPIED/UNOCCUPIED MODES AS DETERMINED BY THE DDC BUILDING TIME CLOCK SYSTEM. OBTAIN THE BUILDING OCCUPANCY SCHEDULE FROM THE OWNER.
   6. ALL EQUIPMENT SHALL UTILIZE OPTIMUM START/STOP PROGRAMS.
   7. ASSIGN ALL EQUIPMENT A STAGGER START NUMBER TO KEEP TO MANY UNITS FROM STARTING AT THE SAME TIME. IN EFFECT, THIS FLATTENS LOAD PEAKS. THIS INCLUDES START-UP ON EMERGENCY POWER.
   8. UNOCCUPIED OVERRIDE BUTTONS SHALL PLACE THE SPACE EQUIPMENT IN OCCUPIED MODE FOR A PERIOD OF ONE-HOUR (ADJUSTABLE).
   9. COORDINATE CHILLED WATER VALVE AND CHILLED WATER PUMP RESPONSE TIME WITH THE CHILLER MANUFACTURER'S MAXIMUM RATE OF CHANGE IN CHILLED WATER FLOW.
8. UNIVERSAL SET POINTS. UNLESS OTHERWISE NOTED, USE THE FOLLOWING SPACE TEMPERATURE SET POINTS. SET POINTS SHALL BE INDEPENDENTLY ADJUSTABLE BY SPACE THROUGH THE BMS.

OCCUPIED MODES		UNOCCUPIED MODES	
COOLING	HEATING	COOLING	HEATING
OCCUPIED SPACES	74°F	69°F	85°F	55°F
UNOCCUPIED SPACES	80°F	60°F	85°F	55°F

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SOUTH ORANGETOWN Central School District
Capital Improvements Bond
Essential Infrastructure for Student Health, Safety and Success

PROJECT INFORMATION

Project Number
1457.20

Client Name
SOUTH ORANGETOWN CENTRAL SCHOOL DISTRICT

Project Name
PHASE 1: 2022 BOND

District Office Address
160 VAN WYCK RD, BLAUVELT, NY 10913

SOUTH ORANGETOWN CSD
- ☐ WILLIAM O. SCHAEFER SED#:50-03-01-06-0-012-019
- ☐ COTTAGE LANE ELEMENTARY SED#:50-03-01-06-0-010-022
- ☐ TAPPAN ZEE HIGH SCHOOL SED#:50-03-01-06-0-006-032
- ☐ WILLIAM O. SCHAEFER S&L SED#: 50-03-01-06-0-012-020
- ☐ COTTAGE LANE S&L SED#: 50-03-01-06-0-010-023
- ☐ COTTAGE LANE LIBRARY S&L SED#: 50-03-01-06-8-023-002
- ☐ WOS OUTDOOR CLASSROOM SED#: 50-03-01-06-7-053-001
- ☐ SOMS OUTDOOR CLASSROOM SED#: 50-03-01-06-7-056-001
- ☐ CLE OUTDOOR CLASSROOM SED#: 50-03-01-06-7-054-001
- ☐ TDHS OUTDOOR CLASSROOM SED#: 50-03-01-06-7-055-001

PROJECT ISSUE & REVISION SCHEDULE

No.	Date	Description
1	11/17/2023	BID ADDENDUM #4

PROFESSIONAL STAMPS

NEW YORK STATE EDUCATION STATEMENT

IT IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW AND THE COMMISSIONER'S REGULATIONS FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED ARCHITECT, ENGINEER OR LAND SURVEYOR, TO ALTER AN ITEM IN ANY WAY. IF AN ITEM BEARING THE SEAL OF AN ARCHITECT, ENGINEER OR SURVEYOR IS ALTERED, THE ALTERING PARTY SHALL AFFIX TO THE ITEM THEIR SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE AND THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

SHEET INFORMATION

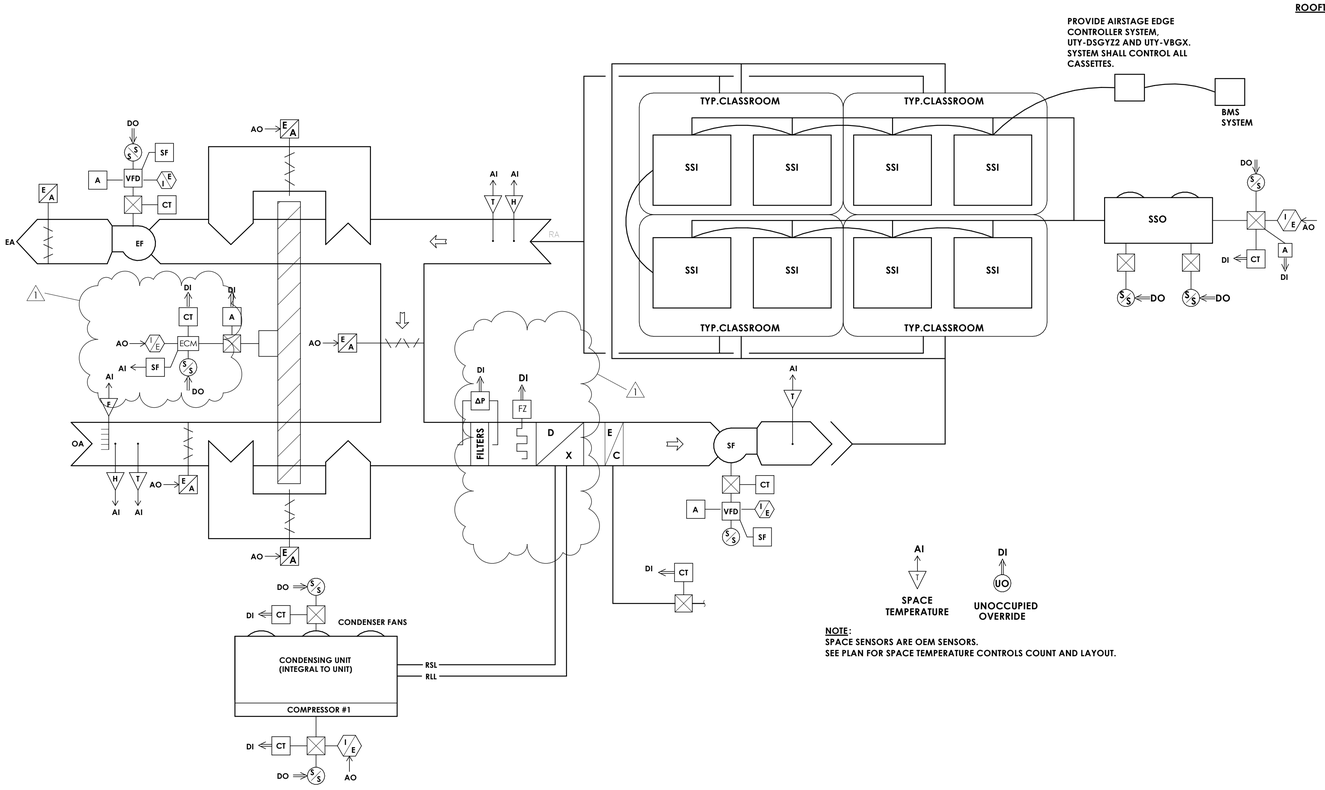
Issued	Scale
10/18/2023	12" = 1'-0"

Project Status
BID DOCUMENTS

Drawn By	Checked By
KCM	JJM

Drawing Title
MECHANICAL CONTROLS

Drawing Number
GEN H500



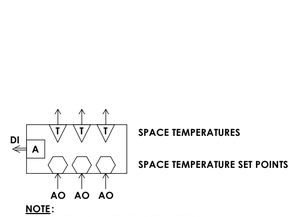
NOTE:
SPACE SENSORS ARE OEM SENSORS.
SEE PLAN FOR SPACE TEMPERATURE CONTROLS COUNT AND LAYOUT.

1 H501 TYPICAL CLASSROOM DOAS CONTROLS DIAGRAM

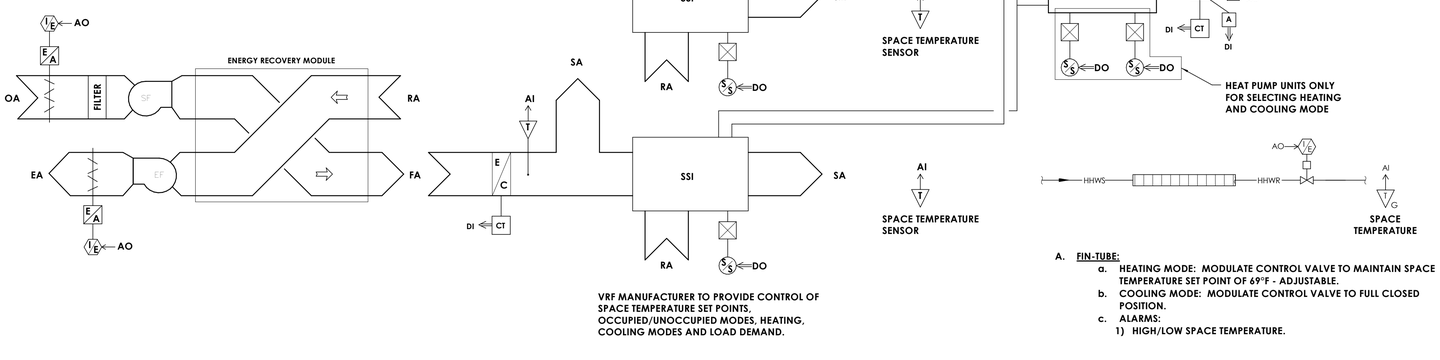
SCALE: NOT TO SCALE

A. ENERGY RECOVERY UNITS:

1. **OCCUPIED MODE**
   - a. **ENABLE SUPPLY AND EXHAUST EC FAN MOTORS AT ALL TIMES.**
     - 1) **ENERGIZE THE DUCT MOUNTED HEATING COIL TO MAINTAIN THE DUCT TEMPERATURE SET POINT.**
2. **UNOCCUPIED MODES**
   - a. **SEQUENCE OF OPERATIONS IN UNOCCUPIED MODE IS THE SAME AS OCCUPIED MODE EXCEPT THE ERU SHALL BE DISABLED UNLESS THERE IS A CALL FOR HEATING OR COOLING. CONTROL VALVES SHALL BE CLOSED UNLESS THE ERU IS ENABLED.**
3. **ALARMS**
   - a. **FAN START FAILURE.**
   - b. **FAN STOP FAILURE.**
   - c. **HIGH/LOW DISCHARGE AIR TEMPS.**
   - d. **HIGH/LOW COIL ENTERING AIR TEMPS**
   - e. **HIGH WATER LEVEL IN DRAIN PAN**
   - f. **DIRTY FILTER**



NOTE:
SPACE SENSORS ARE VRF OEM SENSORS.
REFERENCE PLANS FOR QUANTITY AND LOCATIONS.



VRF MANUFACTURER TO PROVIDE CONTROL OF SPACE TEMPERATURE SET POINTS, OCCUPIED/UNOCCUPIED MODES, HEATING, COOLING MODES AND LOAD DEMAND.

A. FIN-TUBE:

- a. **HEATING MODE: MODULATE CONTROL VALVE TO MAINTAIN SPACE TEMPERATURE SET POINT OF 69°F - ADJUSTABLE.**
- b. **COOLING MODE: MODULATE CONTROL VALVE TO FULL CLOSED POSITION.**
- c. **ALARMS:**
  - 1) **HIGH/LOW SPACE TEMPERATURE.**

2 H501 OFFICE VRF SYSTEM CONTROLS SCHEMATIC

SCALE: NOT TO SCALE

ROOFTOP DEDICATED OUTSIDE AIR SYSTEMS (DOAS) - ENERGY RECOVERY UNITS:

1. **OCCUPIED**
   - **A. THE BMS WILL START THE UNIT SUPPLY AND RELIEF/EXHAUST FANS BASED ON A TIME-OF-DAY SCHEDULE. THE FANS WILL BE ENERGIZED CONTINUOUSLY WHENEVER THE ZONE IS SCHEDULED TO BE OCCUPIED. THE OUTSIDE AIR DAMPERS SHALL OPEN FULLY TO PROVIDE THE MINIMUM REQUIRED OUTSIDE AIR TO MEET THE VOLUMETRIC FLOW RATES INDICATED ON THE VENTILATION SCHEDULE. THE RELIEF AIR VENTILATOR DAMPER SHALL INDEX OPEN TO MATCH THE POSITION OF THE OUTSIDE AIR DAMPER TO EQUALIZE THE VOLUME OF RELIEF AIR WITH THE VOLUME OF OUTSIDE AIR. THE BMS WILL MONITOR THE DISCHARGE AIR TEMPERATURE.**
   - **B. THE INTEGRAL AIR-COOLED HEAT PUMP WILL OPERATE HEATING AND COOLING OPERATION TO MAINTAIN THE DISCHARGE AIR TEMPERATURE SETPOINT.**
   - **C. THE SUPPLEMENTAL HEATING COIL WILL REMAIN OFF DURING NORMAL UNIT OPERATION.**
   - **D. WHEN THE OUTSIDE AIR TEMPERATURE IS BELOW 10 DEG. F, THE HEAT PUMP WILL BE DISABLED, AND THE ELECTRIC COIL SHALL MAINTAIN THE DOWNSTREAM SUPPLY AIR TEMPERATURE SETPOINT.**
   - **E. IF THE CONNECTED SPACES ARE CALLING FOR COOLING, AND THE BMS INDICATES THAT ECONOMIZER OPERATION IS APPROPRIATE, THE BYPASS DAMPERS WILL MODULATE OPEN TO MAINTAIN THE DISCHARGE AIR TEMPERATUE SETPOINT. THE ELECTRIC COIL WILL BE OFF. THE OUTSIDE AIR DAMPER WILL BE RESTRICTED TO LIMIT THE MINIMUM DISCHARGE AIR TEMPERATURE TO A SETPOINT OF 55 DEGREES F (ADJUSTABLE) WHILE THE SPACE TEMPERATURE IS ABOVE THE COOLING SETPOINT.**
   - **F. IF THE SPACE TEMPERATURE RISES ABOVE THE COOLING SETPOINT OF 74 DEGREES F (ADJUSTABLE), AND THE BMS INDICATES THAT ECONOMIZER OPERATION IS NOT APPROPRIATE, THE OUTSIDE AIR DAMPERS WILL MODULATE CLOSE TO MINIMUM POSITION AND COOLING WILL BE ENABLED.**
   - **G. ECONOMIZER OPERATION SHALL USE AN ALGORITHM COMPARING INDOOR AIR AND OUTDOOR AIR ENTHALPY TO DETERMINE IF COOLING OR ASSISTED COOLING IS VIABLE. DX COOLING AND ECONOMIZER COOLING WILL BE ALLOWED TO OPERATE SIMULTANEOUSLY IF THE ALGORITHM CONFIRMS ASSISTED COOLING IS VIABLE.**
   - **H. ENERGY RECOVERY WHEEL CONTROL**
     - **1) THE ENERGY RECOVERY WHEEL MOTOR WILL BE ENABLED WHENEVER THE SUPPLY AND RETURN/EXHAUST FANS ARE ENABLED EXCEPT AS NOTED HERE:**
   - **(A) THE ENERGY RECOVERY WHEEL MOTOR SHALL BE DISABLED WHEN THE BMS DETERMINES THAT IT IS BENEFICIAL TO USE ADDITIONAL OUTSIDE AIR FOR COOLING (ECONOMIZER MODE).**
   - **(B) THE ENERGY RECOVERY WHEEL MOTOR SHALL BE DISABLED FOR TWO MINUTES OUT OF EACH 30 MINUTE PERIOD WHEN THE OUTDOOR AIR TEMPERATURE IS AT OR BELOW ZERO DEGREES F (DEFROST CYCLE).**
   - **I. THE BMS WILL MONITOR FAN STATUS AND GENERATE AN ALARM WHENEVER THE FAN IS COMMANDED ON BUT THE STATUS INDICATES OFF. ALARMS WILL ALSO BE GENERATED IF A FREEZE CONDITION EXISTS OR IF A LOW DISCHARGE AIR TEMPERATURE IS DETECTED.**
2. **UNOCCUPIED**
   - **A. WHEN THE ZONE IS SCHEDULED TO BE UNOCCUPIED, THE FANS WILL BE DISABLED, AND THE OUTSIDE AIR DAMPER WILL BE CLOSED.**
3. **ALARMS**
   - **A. FAN FAILURE**
     - **1) IF STATUS OF A FAN, WHICH HAS BEEN CALLED BY THE BMS SYSTEM TO START, HAS NOT BEEN VERIFIED AS RUNNING WITHIN A PERIOD OF 10 SECONDS (ADJ.), AN ALARM SHALL BE SENT TO THE OPERATOR'S WORKSTATION. THE FAN SHALL BE IDENTIFIED BY A DESCRIPTION OF WHAT IT SERVES, AND SHALL BE TAGGED AS A "FAN FAILURE".**
   - **B. LOW LIMIT THERMOSTAT**
     - **1) IF THE AIR LEAVING THE HOT WATER COIL DROPS BELOW 38 DEGREES F (ADJ.) THE SUPPLY FAN SHALL BE STOPPED VIA HARD WIRE INTERLOCK AND THE BMS SYSTEM SHALL BE ALERTED BY A SET OF DRY CONTACTS PROVIDED BY THE LOW LIMIT THERMOSTAT. AN ALARM SHALL BE SENT TO THE OPERATOR'S WORKSTATION. THE UNIT SHALL BE IDENTIFIED BY ITS CALL NUMBER AND SHALL BE TAGGED AS A "LOW LIMIT THERMOSTAT ALARM". THE UNIT MUST BE MANUALLY RESET BEFORE IT CAN BE RESTARTED.**

ALTERNATE MC-01 - PROVIDE NEW FULL BUILDING CONTROLS AND ALL ASSOCIATED COMPONENTS TO HAVE A NEW HEAD END AND FULLY OPERATIONAL SYSTEM. PROVIDE CONTROLS TO ALL EXISTING TO REMAIN EQUIPMENT.
BASE BID - PROVIDE CONTROLS AND NEW HEAD END FOR THE NEW EQUIPEMENT.
SEE PLANS FOR QUANTITY AND LOCATION. FOR BOTH SCHOOLS.
VERIFY ALL EXISTING CONTROL SEQUENCES BEFORE THE COMMENCEMENT OF ANY DEMOLITION WORK.

GENERAL NOTES:

1. SEQUENCES OF OPERATION SPECIFIED HEREIN, WHICH INDICATE THE FUNCTIONAL INTENT OF HVAC SYSTEMS, SUBSYSTEMS, AND/OR COMPONENTS OPERATION, ARE GENERAL IN NATURE AND MAY NOT FULLY DEFINE EVERY ASPECT OF PROGRAMMING THAT MAY BE REQUIRED TO FULFILL THE DESIGN INTENT. CONTRACTOR SHALL PROVIDE ALL PROGRAMMING AND HARDWARE NECESSARY TO OBTAIN THE SEQUENCES/SYSTEM OPERATION INDICATED, RESULTING IN STABLE HVAC SYSTEM OPERATION IN ACCORDANCE WITH THE DESIGN INTENT. THE SYSTEM SHALL COMMUNICATE WITH THE EXISTING BMS.

1.1 HVAC CONTROL SEQUENCES :

A. GENERAL

1. **ALL SET POINTS, CHANGEOVER POINTS AND RESET SCHEDULES SHALL BE USER ADJUSTABLE.**
2. **CONTROL ALGORITHMS SHALL UTILIZE TUNED PID LOOPS TO MAINTAIN SET POINTS AND MINIMUM/MAXIMUM LEAVING AIR TEMPERATURES OPTIMALLY.**
3. **COORDINATE INDIVIDUAL ALARM NOTIFICATIONS WITH OWNER.**
4. **ALARMS SHALL BE CONFIGURED AS STATUS ONLY OR CRITICAL. STATUS ONLY ALARMS SHALL DISPLAY ALARM ON THE OWNER COORDINATED WORKSTATION(S) AND DEVICE(S). CRITICAL ALARMS SHALL INCORPORATE COORDINATED UNIT SHUTDOWN ALONG WITH DISPLAYING ALARMS ON THE OWNER COORDINATED DEVICES AND REQUIRE THE ALARM TO BE CLEARED PRIOR TO RESTARTING THE EQUIPMENT.**
5. **ALL HVAC EQUIPMENT SHALL OPERATE IN OCCUPIED/UNOCCUPIED MODES AS DETERMINED BY THE DDC BUILDING TIME CLOCK SYSTEM. OBTAIN THE BUILDING OCCUPANCY SCHEDULE FROM THE OWNER.**
6. **ALL EQUIPMENT SHALL UTILIZE OPTIMUM START/STOP PROGRAMS.**
7. **ASSIGN ALL EQUIPMENT A STAGGER START NUMBER TO KEEP TO MANY UNITS FROM STARTING AT THE SAME TIME. IN EFFECT, THIS FLATTENS LOAD PEAKS. THIS INCLUDES START-UP ON EMERGENCY POWER.**
8. **UNOCCUPIED OVERRIDE BUTTONS SHALL PLACE THE SPACE EQUIPMENT IN OCCUPIED MODE FOR A PERIOD OF ONE-HOUR (ADJUSTABLE).**
9. **COORDINATE CHILLED WATER VALVE AND CHILLED WATER PUMP RESPONSE TIME WITH THE CHILLER MANUFACTURER'S MAXIMUM RATE OF CHANGE IN CHILLED WATER FLOW.**

B. UNIVERSAL SET POINTS. UNLESS OTHERWISE NOTED, USE THE FOLLOWING SPACE TEMPERATURE SET POINTS. SET POINTS SHALL BE INDEPENDENTLY ADJUSTABLE BY SPACE THROUGH THE BMS.

	OCCUPIED MODES		UNOCCUPIED MODES	
	COOLING	HEATING	COOLING	HEATING
OCCUPIED SPACES	74°F	69°F	85°F	55°F
UNOCCUPIED SPACES	80°F	60°F	85°F	55°F

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SOUTH ORANGETOWN Central School District
Capital Improvements Bond
Essential Infrastructure for Student Health, Safety and Success

PROJECT INFORMATION

Project Number
14457.20

Client Name
SOUTH ORANGETOWN CENTRAL SCHOOL DISTRICT

Project Name
PHASE 1: 2022 BOND

District Office Address
160 VAN WYCK RD, BLAUVELT, NY 10913

SOUTH ORANGETOWN CSD
- WILLIAM O. SCHAEFER SED#:50-03-01-06-0-012-019
- COTTAGE LANE ELEMENTARY SED#:50-03-01-06-0-010-022
- TAPPAN ZEE HIGH SCHOOL SED#:50-03-01-06-0-006-032
- WILLIAM O. SCHAEFER S&L SED#: 50-03-01-06-0-012-020
- COTTAGE LANE S&L SED#: 50-03-01-06-0-010-023
- COTTAGE LANE LIBRARY S&L SED#: 50-03-01-06-8-023-002
- WOS OUTDOOR CLASSROOM SED#: 50-03-01-06-7-053-001
- SOMS OUTDOOR CLASSROOM SED#: 50-03-01-06-7-056-001
- CLE OUTDOOR CLASSROOM SED#: 50-03-01-06-7-054-001
- TDHS OUTDOOR CLASSROOM SED#: 50-03-01-06-7-055-001

PROJECT ISSUE & REVISION SCHEDULE

No.	Date	Description
1	11/17/2023	BID ADDENDUM #4

PROFESSIONAL STAMPS

SHEET INFORMATION

Issued	Scale
10/18/2023	12" = 1'-0"

Project Status
BID DOCUMENTS

Drawn By	Checked By
KCM	JJM

Drawing Title
MECHANICAL CONTROLS

Drawing Number
GEN
H501

EXISTING KITCHEN EF

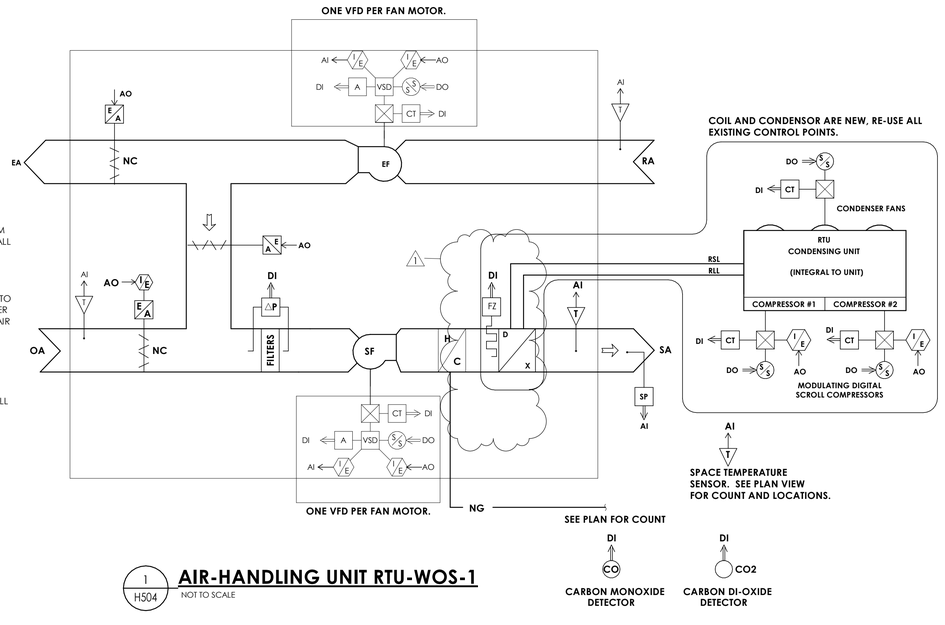
EXISTING MANUAL ON/OFF

KITCHEN FAN ENABLED:

1. WHEN THE KITCHEN EXHAUST FAN IS ON AND RTU-1 IS IN FULL OCCUPIED MODE THE RETURN AIR FAN SHALL MODULATE TO 3750 CFM AND THE EXHAUST AIR DAMPER SHALL MODULATE TO 650 CFM.
2. WHEN THE KITCHEN EXHAUST FAN IS ON AND RTU-1 IS AT ITS STANDARD OCCUPIED MODE THE RETURN AIR FAN SHALL MODULATE TO 3750 CFM, THE EXHAUST AIR DAMPER SHALL CLOSE AND THE OUTDOOR AIR DAMPER SHALL MODULATE TO 750 CFM.

KITCHEN FAN DISABLED:

1. WHEN THE EXISTING KITCHEN FAN IS OFF THE RETURN FAN AND EXHAUST AIR DAMPER IN RTU-1 SHALL MODULATE TO THE SCHEDULED VALUES ON SHEET WOS-H800



1 H504 **AIR-HANDLING UNIT RTU-WOS-1**

NOT TO SCALE

EXISTING CONTROL SEQUENCE: FOR BOTH UNITS

3.1 HVAC CONTROL SEQUENCES

A. ALL HVAC EQUIPMENT SHALL OPERATE IN OCCUPIED/UNOCCUPIED MODES AS DETERMINED BY THE DDC BUILDING TIME CLOCK SYSTEM. OBTAIN THE BUILDING OCCUPANCY SCHEDULE FROM THE OWNER.

B. AHU'S/RTU'S AND ASSOCIATED SPACE EQUIPMENT AND DUCTWORK SYSTEM:
1. ASSIGN EACH RTU A STAGGER START NUMBER TO KEEP TOO MANY UNITS FROM STARTING AT THE SAME TIME. IN EFFECT, THIS FLATTENS LOAD PEAKS. THIS INCLUDES START-UP ON EMERGENCY POWER.
2. OUTSIDE AIR AND RETURN AIR DAMPERS SHALL NEVER BE SIMULTANEOUSLY CLOSED. IN UNOCCUPIED MODES, THE RETURN AIR DAMPER SHALL BE FULL OPEN AND SHALL ONLY MODULATE CLOSED AS THE OUTDOOR AIR DAMPER MODULATES OPEN TO PROVIDE MAKEUP FOR SPACES THAT ARE EXHAUSTED.

3. ALL OCCUPIED MODES:
A. RTU SUPPLY FAN:
1) RUN CONTINUOUSLY.
B. RTU EXHAUST FAN:
1) RUN CONTINUOUSLY.
C. OUTSIDE AIR DAMPER:
1) OPEN TO MAINTAIN OUTSIDE AIR QUANTITY AS SCHEDULED, OUTSIDE AIR DAMPER SHALL NEVER BE POSITIONED BELOW THIS MINIMUM EXCEPT IN CASE OF EMERGENCY.
2) MODULATE OUTSIDE AIR DAMPER BEYOND SCHEDULED MINIMUM POSITION AS FOLLOWS:
A) AS REQUIRED FOR ECONOMIZER COOLING (SEE COOLING MODE BELOW).
D. EXHAUST AIR DAMPER:
1) MODULATE WITH OUTSIDE AIR DAMPER TO MAINTAIN FOLLOWING AIR BALANCE: EXH CFM = SA CFM – OA CFM.

4. OCCUPIED HEATING MODE –SPACE TEMPERATURE BELOW SET POINT.
A. UNIT MOUNTED HEATING COIL: MODULATE COIL CONTROL VALVE (CV) TO MAINTAIN SPACE TEMPERATURE SET POINT.
B. UNIT MOUNTED INDIRECT FIRED GAS HEATING: MODULATE GAS BURNER TO MAINTAIN SPACE TEMPERATURE SET POINT.
C. SPACE TEMPERATURE SET POINTS:
1) HEATING = 69 DEGREES (ADJUSTABLE).
D. LAT TEMPERATURE SET POINTS:
1) MINIMUM TEMPERATURE RESET SCHEDULE:
A. 65 DEGREE LAT AT 0 DEGREE OAT.
B. 55 DEGREE LAT AT 55 DEGREE OAT.

5. OCCUPIED ECONOMIZER COOLING MODE – WHEN THERE IS CALL FOR COOLING AND THE OUTDOOR AIR TEMPERATURE IS BELOW THE SPACE TEMPERATURE.
1) ECONOMIZER COOLING SET POINT: 74°F.
2) MODULATE EXHAUST AND OUTDOOR AIR DAMPERS INVERSELY TO MAINTAIN SPACE TEMPERATURE SET POINT.

6. ALL UNOCCUPIED MODES:
I. SPACE TEMPERATURE SET POINTS:
1) HEATING = 60 DEGREES.
2) COOLING = 85 DEGREES, FOR UNITS WITH DX.
b. RTU AND DUCT MOUNTED HEATING COIL:
1) ALL SAME AS OCCUPIED MODE WITH FOLLOWING EXCEPTIONS:
a) ENABLE AND DISABLE UNIT ONLY TO MEET TEMPERATURE SET POINT.
b) RETURN AIR DAMPER SHALL BE IN THE FULL OPEN POSITION.
c) EXHAUST AIR DAMPER SHALL BE IN THE FULL CLOSED POSITION.
d) THE EXHAUST FAN SHALL REMAIN DISABLED.

7. WARM-UP MODE.:
a. ALL UNITS SHALL START PER OPTIMUM START PROGRAM.
1) OPTIMUM START DURATION SHALL BE DETERMINED BASED ON OUTSIDE AIR TEMPERATURE.
1) DURING THE OPTIMUM START PERIOD, THE HEATING SET-POINT SHALL BE LINEARLY RAMPED UP FROM UNOCCUPIED HEATING SET-POINT TO OCCUPIED HEATING SET POINT.
2) WHEN THE HEATING SET-POINT CROSSES ABOVE THE SPACE TEMPERATURE, THE SUPPLY FAN SHALL BE COMMANDED ON, THE MIXING DAMPERS SHALL REMAIN CLOSED AND THE HEATING VALVE WILL MODULATE TO MAINTAIN HEATING SET-POINT.
b. SYSTEMS SHALL OPERATE AS DESCRIBED IN UNOCCUPIED HEATING MODE WITH TEMPERATURE SET POINT EQUAL TO OCCUPIED MODE.

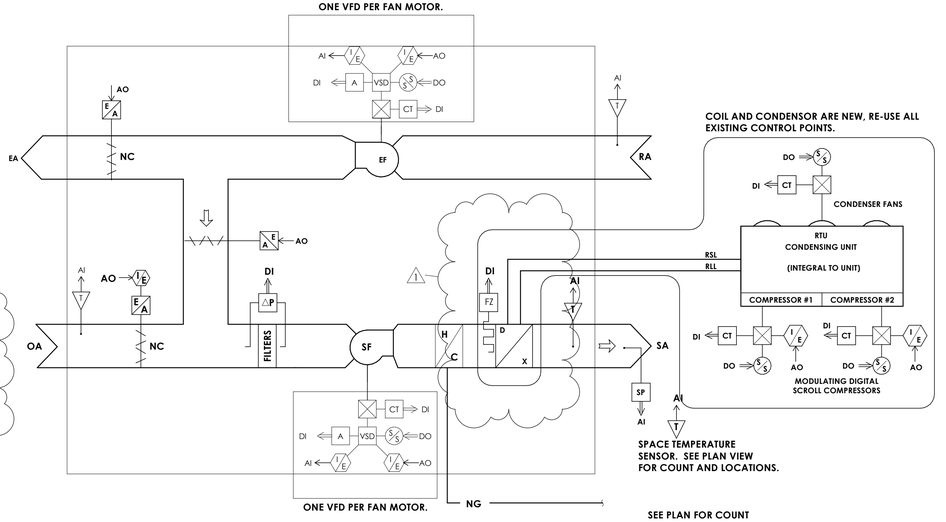
8. ALARMS – PROVIDE AN ALARM FOR EACH OF THE FOLLOWING:
a. FAN MOTOR FAILURES.
b. DISCHARGE AIR TEMPERATURE LOW/HIGH LIMITS.
c. SPACE TEMPERATURE LOW/HIGH LIMITS +/-5°F.
d. VFD FAULT.

9. UNOCCUPIED MODE BY OCCUPANCY SENSOR DURING DDC SCHEDULED OCCUPIED PERIOD
a. DURING THE SCHEDULED OCCUPIED MODE, WHEN THE SPACE IS UNOCCUPIED AS SENSED BY THE ROOM OCCUPANCY SENSOR, THE OUTSIDE AIR DAMPER WILL BE SET TO THE STANDARD OCCUPANCY MINIMUM OUTSIDE AIR AS INDICATED ON THE SCHEDULE.
b. IN HEATING MODE, THE SPACE TEMPERATURE SET-POINT SHALL BE RESET TO 2°F (ADJUSTABLE) LOWER THAN THE OCCUPIED SET-POINT. IN COOLING MODE, THE SPACE TEMPERATURE SET-POINT SHALL BE RESET TO 2°F (ADJUSTABLE) HIGHER THAN THE OCCUPIED SET-POINT.
c. THE SUPPLY FAN SHALL CYCLE REMAIN ON TO MAINTAIN THE STANDARD MINIMUM OUTSIDE air.
d. WHEN THE SPACE IS OCCUPIED AS SENSED BY THE ROOM OCCUPANCY SENSOR, THE SEQUENCE SHALL BE INDEXED TO THE OCCUPIED MODE.

C. CARBON MONOXIDE DETECTION:
1. UPON RISE IN CARBON MONOXIDE AT OR ABOVE 20PPM AS DETECTED BY A SPACE SENSOR, DISPLAY ALARM AT OPERATOR WORK STATION.
2. UPON RISE IN CARBON MONOXIDE LEVEL AT OR ABOVE 30PPM AS DETECTED BY A SPACE SENSOR, SOUND AUDIBLE ALARM AT SENSOR AND AT THE ASSOCIATED HALLWAY SENSOR IF APPLICABLE.

ADD COOLING CONTROL SEQUENCE: FOR BOTH UNITS

1. OCCUPIED COOLING MODE - SPACE TEMPERATURE BELOW SET POINT. - WHERE APPLICABLE
a. UNIT MOUNTED DX COOLING COIL: MODULATE DX COMPRESSOR TO MAINTAIN SPACE TEMPERATURE SET POINT.
b. SPACE TEMPERATURE SET POINTS:
1) COOLING = 75 DEGREES (ADJUSTABLE).
c. LAT TEMPERATURE SET POINTS:
2) COOLING = 55 DEGREE LAT AT 88 DEGREE OAT.



2 H504 **AIR-HANDLING UNIT RTU-WOS-2**

NOT TO SCALE

ALTERNATE MC-01 - PROVIDE NEW FULL BUILDING CONTROLS AND ALL ASSOCIATED COMPONENTS TO HAVE A NEW HEAD END AND FULLY OPERATIONAL SYSTEM. PROVIDE CONTROLS TO ALL EXISTING TO REMAIN EQUIPMENT.
BASE BID - PROVIDE CONTROLS AND NEW HEAD END FOR THE NEW EQUIPEMENT.
SEE PLANS FOR QUANTITY AND LOCATION, FOR BOTH SCHOOLS.
VERIFY ALL EXISTING CONTROL SEQUENCES BEFORE THE COMMENCEMENT OF ANY DEMOLITION WORK.

GENERAL NOTES:

1. **SEQUENCES OF OPERATION SPECIFIED HEREIN, WHICH INDICATE THE FUNCTIONAL INTENT OF HVAC SYSTEMS, SUBSYSTEMS, AND/OR COMPONENTS OPERATION, ARE GENERAL IN NATURE AND MAY NOT FULLY DEFINE EVERY ASPECT OF PROGRAMMING THAT MAY BE REQUIRED TO FULFILL THE DESIGN INTENT. CONTRACTOR SHALL PROVIDE ALL PROGRAMMING AND HARDWARE NECESSARY TO OBTAIN THE SEQUENCES/SYSTEM OPERATION INDICATED, RESULTING IN STABLE HVAC SYSTEM OPERATION IN ACCORDANCE WITH THE DESIGN INTENT. THE SYSTEM SHALL COMMUNICATE WITH THE EXISTING BMS.**

1.1 **HVAC CONTROL SEQUENCES** :

A. **GENERAL**
1. **ALL SET POINTS, CHANGEOVER POINTS AND RESET SCHEDULES SHALL BE USER ADJUSTABLE.**
2. **CONTROL ALGORITHMS SHALL UTILIZE TUNED PID LOOPS TO MAINTAIN SET POINTS AND MINIMUM/MAXIMUM LEAVING AIR TEMPERATURES OPTIMALLY.**
3. **COORDINATE INDIVIDUAL ALARM NOTIFICATIONS WITH OWNER.**
4. **ALARMS SHALL BE CONFIGURED AS STATUS ONLY OR CRITICAL. STATUS ONLY ALARMS SHALL DISPLAY ALARM ON THE OWNER COORDINATED WORKSTATION(S) AND DEVICE(S). CRITICAL ALARMS SHALL INCORPORATE COORDINATED UNIT SHUTDOWN ALONG WITH DISPLAYING ALARMS ON THE OWNER COORDINATED DEVICES AND REQUIRE THE ALARM TO BE CLEARED PRIOR TO RESTARTING THE EQUIPMENT.**
5. **ALL HVAC EQUIPMENT SHALL OPERATE IN OCCUPIED/UNOCCUPIED MODES AS DETERMINED BY THE DDC BUILDING TIME CLOCK SYSTEM. OBTAIN THE BUILDING OCCUPANCY SCHEDULE FROM THE OWNER.**
6. **ALL EQUIPMENT SHALL UTILIZE OPTIMUM START/STOP PROGRAMS.**
7. **ASSIGN ALL EQUIPMENT A STAGGER START NUMBER TO KEEP TO MANY UNITS FROM STARTING AT THE SAME TIME. IN EFFECT, THIS FLATTENS LOAD PEAKS. THIS INCLUDES START-UP ON EMERGENCY POWER.**
8. **UNOCCUPIED OVERRIDE BUTTONS SHALL PLACE THE SPACE EQUIPMENT IN OCCUPIED MODE FOR A PERIOD OF ONE-HOUR (ADJUSTABLE).**
9. **COORDINATE CHILLED WATER VALVE AND CHILLED WATER PUMP RESPONSE TIME WITH THE CHILLER MANUFACTURER'S MAXIMUM RATE OF CHANGE IN CHILLED WATER FLOW.**

B. **UNIVERSAL SET POINTS. UNLESS OTHERWISE NOTED, USE THE FOLLOWING SPACE TEMPERATURE SET POINTS. SET POINTS SHALL BE INDEPENDENTLY ADJUSTABLE BY SPACE THROUGH THE BMS.**

	OCCUPIED MODES		UNOCCUPIED MODES	
	COOLING	HEATING	COOLING	HEATING
OCCUPIED SPACES	74°F	69°F	85°F	55°F
UNOCCUPIED SPACES	80°F	60°F	85°F	55°F

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SOUTH ORANGETOWN Central School District
Capital Improvements Bond
Essential Infrastructure for Student Health, Safety and Success

PROJECT INFORMATION

Project Number
1457.20

Client Name
SOUTH ORANGETOWN CENTRAL SCHOOL DISTRICT

Project Name
PHASE 1: 2022 BOND

District Office Address
160 VAN WYCK RD, BLAUVELT, NY 10913

SOUTH ORANGETOWN CSD
- ☐ WILLIAM O. SCHAEFER SED#:50-03-01-06-0-012-019
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- ☐ WOS OUTDOOR CLASSROOM SED#: 50-03-01-06-7-053-001
- ☐ SOMS OUTDOOR CLASSROOM SED#: 50-03-01-06-7-056-001
- ☐ CLE OUTDOOR CLASSROOM SED#: 50-03-01-06-7-054-001
- ☐ TZHS OUTDOOR CLASSROOM SED#: 50-03-01-06-7-055-001

PROJECT ISSUE & REVISION SCHEDULE

No.	Date	Description
1	11/17/2023	BID ADDENDUM #4

PROFESSIONAL STAMPS

SHEET INFORMATION

Issued
10/18/2023

Scale
12" = 1'-0"

Project Status
BID DOCUMENTS

Drawn By
KCM

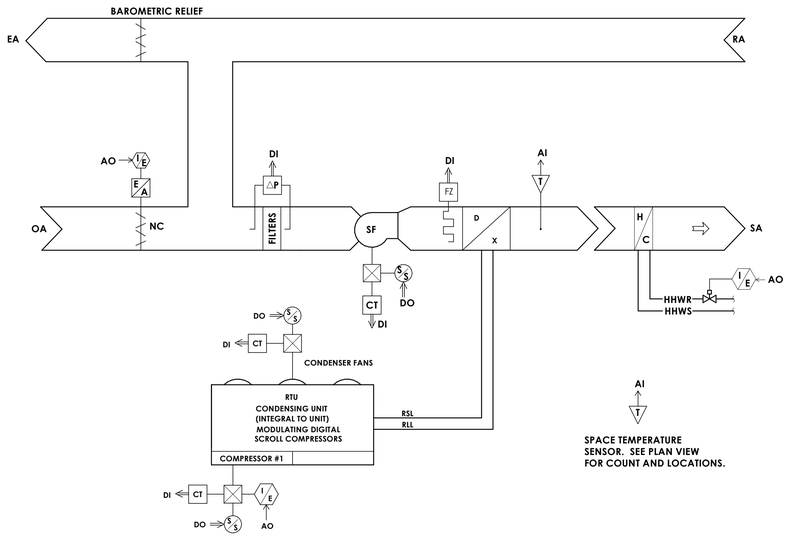
Checked By
JJM

Drawing Title
MECHANICAL CONTROLS

Drawing Number
GEN
H504

11/16/2023 2:06:39 PM <project location> REVIT PROJECT FILES ON BIM360

A. ROOF TOP UNITS:
1. ALL OCCUPIED MODES:
   a. UNIT SUPPLY FAN:
      1) RUN CONTINUOUSLY.
2. OCCUPIED HEATING MODE -SPACE TEMPERATURE BELOW SET POINT.
   a. HEATING COIL: MODULATE HEATING COIL CONTROL VALVE (CV) TO MAINTAIN SPACE TEMPERATURE SET POINT.
   b. SPACE TEMPERATURE SET POINTS:
      1) HEATING = 69 DEGREES (ADJUSTABLE).
   c. LAT TEMPERATURE SET POINTS:
      MINIMUM TEMPERATURE RESET SCHEDULE:
      65 DEGREE LAT AT 0 DEGREE OAT.
      55 DEGREE LAT AT 55 DEGREE OAT.
   d. HEAT EXCHANGER FACE AND BYPASS DAMPER: MODULATE DAMPER AS RECOMMENDED BY THE UNIT MANUFACTURER FOR THE HEAT EXCHANGER DEFROST CYCLE.
3. OCCUPIED COOLING MODE - SPACE TEMPERATURE BELOW SET POINT. - WHERE APPLICABLE
   a. UNIT MOUNTED DX COOLING COIL: MODULATE DX COMPRESSOR TO MAINTAIN SPACE TEMPERATURE SET POINT.
   b. SPACE TEMPERATURE SET POINTS:
      1) COOLING = 75 DEGREES (ADJUSTABLE).
   c. LAT TEMPERATURE SET POINTS:
      1) COOLING = 55 DEGREE LAT AT 88 DEGREE OAT
4. OCCUPIED ECONOMIZER COOLING MODE - WHEN THERE IS CALL FOR COOLING AND THE OUTDOOR AIR TEMPERATURE IS BELOW THE SPACE TEMPERATURE.
   a. ECONOMIZER COOLING SET POINT: 74°F.
   b. FULLY OPEN RECIRCULATION DAMPER.
   c. IF THE SPACE TEMPERATURE RISES ABOVE THE COOLING SETPOINT OF 75 DEGREES F (ADJUSTABLE), AND THE CONTROLS INDICATES THAT ECONOMIZER OPERATION IS NOT APPROPRIATE, THE OUTSIDE AIR DAMPERS WILL MODULATE CLOSE TO MINIMUM POSITION AND THE DX COOLING STAGES WILL BE ENERGIZED.
   d. ECONOMIZER OPERATION SHALL USE AN ALGORITHM COMPARING INDOOR AIR AND OUTDOOR AIR ENTHALPY TO DETERMINE IF COOLING OR ASSISTED COOLING IS VIABLE. DX COOLING AND ECONOMIZER COOLING WILL BE ALLOWED TO OPERATE SIMULTANEOUSLY IF THE ALGORITHM CONFIRMS ASSISTED COOLING IS VIABLE.
   e. THE CONTROLS WILL MONITOR FAN STATUS AND GENERATE AN ALARM WHENEVER THE FAN IS COMMANDED ON BUT THE STATUS INDICATES OFF. ALARMS WILL ALSO BE GENERATED IF A FREEZE CONDITION EXISTS OR IF A LOW SPACE TEMPERATURE IS DETECTED.
5. ALL UNOCCUPIED MODES:
   a. SPACE TEMPERATURE SET POINTS:
      1) HEATING = 60 DEGREES.
      2) COOLING = 85 DEGREES.
      3) THERE SHALL BE A 5 DEGREE DEADBAND FOR HEATING AND COOLING SET POINTS.
   b. HEATING COIL:
      1) ALL SAME AS OCCUPIED MODE WITH FOLLOWING EXCEPTIONS:
         a) ENABLE AND DISABLE UNIT ONLY TO MEET TEMPERATURE SET POINT.
         b) OPEN RECIRCULATION DAMPER.
6. WARM-UP MODE.:
   a. ALL UNITS SHALL START PER OPTIMUM START PROGRAM.
      1) OPTIMUM START DURATION SHALL BE DETERMINED BASED ON OUTSIDE AIR TEMPERATURE.
      2) DURING THE OPTIMUM START PERIOD, THE HEATING SET-POINT SHALL BE LINEARLY RAMPED UP FROM UNOCCUPIED HEATING SET-POINT TO OCCUPIED HEATING SET POINT.
   b. SYSTEMS SHALL OPERATE AS DESCRIBED IN UNOCCUPIED HEATING MODE WITH TEMPERATURE SET POINT EQUAL TO OCCUPIED MODE.
7. ALARMS - PROVIDE AN ALARM FOR EACH OF THE FOLLOWING:
   a. FAN MOTOR FAILURES.
   b. DISCHARGE AIR TEMPERATURE LOW/HIGH LIMITS.
   c. FREEZE CONDITION.
   d. DRAIN PAN.
   e. SPACE TEMPERATURE LOW/HIGH LIMITS +/-5°F.
   f. VFD FAULT.



1 H505 **ROOFTOP UNIT RTU-3 CLE CONTROL SCHEMATIC**
NOT TO SCALE

ALTERNATE MC-01 - PROVIDE NEW FULL BUILDING CONTROLS AND ALL ASSOCIATED COMPONENTS TO HAVE A NEW HEAD END AND FULLY OPERATIONAL SYSTEM. PROVIDE CONTROLS TO ALL EXISTING TO REMAIN EQUIPMENT.
BASE BID - PROVIDE CONTROLS AND NEW HEAD END FOR THE NEW EQUIPEMENT.
SEE PLANS FOR QUANTITY AND LOCATION, FOR BOTH SCHOOLS.
VERIFY ALL EXISTING CONTROL SEQUENCES BEFORE THE COMMENCEMENT OF ANY DEMOLITION WORK.

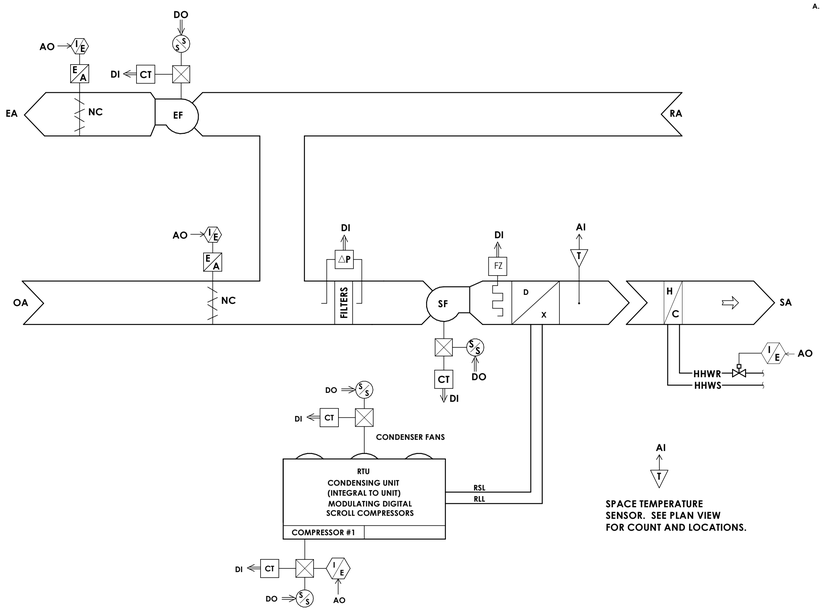
GENERAL NOTES:

1. SEQUENCES OF OPERATION SPECIFIED HEREIN, WHICH INDICATE THE FUNCTIONAL INTENT OF HVAC SYSTEMS, SUBSYSTEMS, AND/OR COMPONENTS OPERATION, ARE GENERAL IN NATURE AND MAY NOT FULLY DEFINE EVERY ASPECT OF PROGRAMMING THAT MAY BE REQUIRED TO FULFILL THE DESIGN INTENT. CONTRACTOR SHALL PROVIDE ALL PROGRAMMING AND HARDWARE NECESSARY TO OBTAIN THE SEQUENCES/SYSTEM OPERATION INDICATED, RESULTING IN STABLE HVAC SYSTEM OPERATION IN ACCORDANCE WITH THE DESIGN INTENT. THE SYSTEM SHALL COMMUNICATE WITH THE EXISTING BMS.

1.1 HVAC CONTROL SEQUENCES :
A. GENERAL
1. ALL SET POINTS, CHANGEOVER POINTS AND RESET SCHEDULES SHALL BE USER ADJUSTABLE.
2. CONTROL ALGORITHMS SHALL UTILIZE TUNED PID LOOPS TO MAINTAIN SET POINTS AND MINIMUM/MAXIMUM LEAVING AIR TEMPERATURES OPTIMALLY.
3. COORDINATE INDIVIDUAL ALARM NOTIFICATIONS WITH OWNER.
4. ALARMS SHALL BE CONFIGURED AS STATUS ONLY OR CRITICAL. STATUS ONLY ALARMS SHALL DISPLAY ALARM ON THE OWNER COORDINATED WORKSTATION(S) AND DEVICE(S). CRITICAL ALARMS SHALL INCORPORATE COORDINATED UNIT SHUTDOWN ALONG WITH DISPLAYING ALARMS ON THE OWNER COORDINATED DEVICES AND REQUIRE THE ALARM TO BE CLEARED PRIOR TO RESTARTING THE EQUIPMENT.
5. ALL HVAC EQUIPMENT SHALL OPERATE IN OCCUPIED/UNOCCUPIED MODES AS DETERMINED BY THE DDC BUILDING TIME CLOCK SYSTEM. OBTAIN THE BUILDING OCCUPANCY SCHEDULE FROM THE OWNER.
6. ALL EQUIPMENT SHALL UTILIZE OPTIMUM START/STOP PROGRAMS.
7. ASSIGN ALL EQUIPMENT A STAGGER START NUMBER TO KEEP TO MANY UNITS FROM STARTING AT THE SAME TIME. IN EFFECT, THIS FLATTENS LOAD PEAKS. THIS INCLUDES START-UP ON EMERGENCY POWER.
8. UNOCCUPIED OVERRIDE BUTTONS SHALL PLACE THE SPACE EQUIPMENT IN OCCUPIED MODE FOR A PERIOD OF ONE-HOUR (ADJUSTABLE).
9. COORDINATE CHILLED WATER VALVE AND CHILLED WATER PUMP RESPONSE TIME WITH THE CHILLER MANUFACTURER'S MAXIMUM RATE OF CHANGE IN CHILLED WATER FLOW.

B. UNIVERSAL SET POINTS. UNLESS OTHERWISE NOTED, USE THE FOLLOWING SPACE TEMPERATURE SET POINTS. SET POINTS SHALL BE INDEPENDENTLY ADJUSTABLE BY SPACE THROUGH THE BMS.

	OCCUPIED MODES		UNOCCUPIED MODES	
	COOLING	HEATING	COOLING	HEATING
OCCUPIED SPACES	74°F	69°F	85°F	55°F
UNOCCUPIED SPACES	80°F	60°F	85°F	55°F



2 H505 **ROOFTOP UNIT RTU-3 CLE CONTROL SCHEMATIC**
NOT TO SCALE

A. ROOF TOP UNITS:
1. ALL OCCUPIED MODES:
   a. UNIT SUPPLY FAN:
      1) RUN CONTINUOUSLY.
   b. UNIT EXHAUST FAN:
      1) RUN CONTINUOUSLY.
2. OCCUPIED HEATING MODE -SPACE TEMPERATURE BELOW SET POINT.
   a. HEATING COIL: MODULATE HEATING COIL CONTROL VALVE (CV) TO MAINTAIN SPACE TEMPERATURE SET POINT.
   b. SPACE TEMPERATURE SET POINTS:
      1) HEATING = 69 DEGREES (ADJUSTABLE).
   c. LAT TEMPERATURE SET POINTS:
      MINIMUM TEMPERATURE RESET SCHEDULE:
      65 DEGREE LAT AT 0 DEGREE OAT.
      55 DEGREE LAT AT 55 DEGREE OAT.
   d. HEAT EXCHANGER FACE AND BYPASS DAMPER: MODULATE DAMPER AS RECOMMENDED BY THE UNIT MANUFACTURER FOR THE HEAT EXCHANGER DEFROST CYCLE.
3. OCCUPIED COOLING MODE - SPACE TEMPERATURE BELOW SET POINT. - WHERE APPLICABLE
   a. UNIT MOUNTED DX COOLING COIL: MODULATE DX COMPRESSOR TO MAINTAIN SPACE TEMPERATURE SET POINT.
   b. SPACE TEMPERATURE SET POINTS:
      1) COOLING = 75 DEGREES (ADJUSTABLE).
   c. LAT TEMPERATURE SET POINTS:
      1) COOLING = 55 DEGREE LAT AT 88 DEGREE OAT
4. OCCUPIED ECONOMIZER COOLING MODE - WHEN THERE IS CALL FOR COOLING AND THE OUTDOOR AIR TEMPERATURE IS BELOW THE SPACE TEMPERATURE.
   a. ECONOMIZER COOLING SET POINT: 74°F.
   b. FULLY OPEN RECIRCULATION DAMPER.
   c. IF THE SPACE TEMPERATURE RISES ABOVE THE COOLING SETPOINT OF 75 DEGREES F (ADJUSTABLE), AND THE CONTROLS INDICATES THAT ECONOMIZER OPERATION IS NOT APPROPRIATE, THE OUTSIDE AIR DAMPERS WILL MODULATE CLOSE TO MINIMUM POSITION AND THE DX COOLING STAGES WILL BE ENERGIZED.
   d. ECONOMIZER OPERATION SHALL USE AN ALGORITHM COMPARING INDOOR AIR AND OUTDOOR AIR ENTHALPY TO DETERMINE IF COOLING OR ASSISTED COOLING IS VIABLE. DX COOLING AND ECONOMIZER COOLING WILL BE ALLOWED TO OPERATE SIMULTANEOUSLY IF THE ALGORITHM CONFIRMS ASSISTED COOLING IS VIABLE.
   e. THE CONTROLS WILL MONITOR FAN STATUS AND GENERATE AN ALARM WHENEVER THE FAN IS COMMANDED ON BUT THE STATUS INDICATES OFF. ALARMS WILL ALSO BE GENERATED IF A FREEZE CONDITION EXISTS OR IF A LOW SPACE TEMPERATURE IS DETECTED.
5. ALL UNOCCUPIED MODES:
   a. SPACE TEMPERATURE SET POINTS:
      1) HEATING = 60 DEGREES.
      2) COOLING = 85 DEGREES.
      3) THERE SHALL BE A 5 DEGREE DEADBAND FOR HEATING AND COOLING SET POINTS.
   b. HEATING COIL:
      1) ALL SAME AS OCCUPIED MODE WITH FOLLOWING EXCEPTIONS:
         a) ENABLE AND DISABLE UNIT ONLY TO MEET TEMPERATURE SET POINT.
         b) DISABLE EXHAUST FAN.
         c) OPEN RECIRCULATION DAMPER.
6. WARM-UP MODE.:
   a. ALL UNITS SHALL START PER OPTIMUM START PROGRAM.
      1) OPTIMUM START DURATION SHALL BE DETERMINED BASED ON OUTSIDE AIR TEMPERATURE.
      2) DURING THE OPTIMUM START PERIOD, THE HEATING SET-POINT SHALL BE LINEARLY RAMPED UP FROM UNOCCUPIED HEATING SET-POINT TO OCCUPIED HEATING SET POINT.
   b. SYSTEMS SHALL OPERATE AS DESCRIBED IN UNOCCUPIED HEATING MODE WITH TEMPERATURE SET POINT EQUAL TO OCCUPIED MODE.
7. ALARMS - PROVIDE AN ALARM FOR EACH OF THE FOLLOWING:
   a. FAN MOTOR FAILURES.
   b. DISCHARGE AIR TEMPERATURE LOW/HIGH LIMITS.
   c. FREEZE CONDITION.
   d. DRAIN PAN.
   e. SPACE TEMPERATURE LOW/HIGH LIMITS +/-5°F.
   f. VFD FAULT.

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SOUTH ORANGETOWN Central School District
Capital Improvements Bond
Essential Infrastructure for Student Health, Safety and Success

PROJECT INFORMATION
Project Number
14457.20
Client Name
SOUTH ORANGETOWN CENTRAL SCHOOL DISTRICT
Project Name
PHASE 1: 2022 BOND

District Office Address
160 VAN WYCK RD, BLAUVELT, NY 10913

SOUTH ORANGETOWN CSD
- ☐ WILLIAM O. SCHAEFER SED#:50-03-01-06-0-012-019
- ☐ COTTAGE LANE ELEMENTARY SED#:50-03-01-06-0-010-022
- ☐ TAPPAN ZEE HIGH SCHOOL SED#:50-03-01-06-0-006-032
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- ☐ WOS OUTDOOR CLASSROOM SED#: 50-03-01-06-7-053-001
- ☐ SOMS OUTDOOR CLASSROOM SED#: 50-03-01-06-7-056-001
- ☐ CLE OUTDOOR CLASSROOM SED#: 50-03-01-06-7-054-001
- ☐ TDHS OUTDOOR CLASSROOM SED#: 50-03-01-06-7-055-001

PROJECT ISSUE & REVISION SCHEDULE

No.	Date	Description
1	11/17/2023	BID ADDENDUM #4

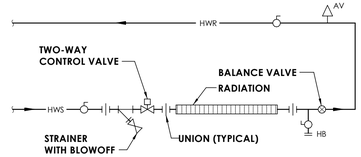
PROFESSIONAL STAMPS

SHEET INFORMATION

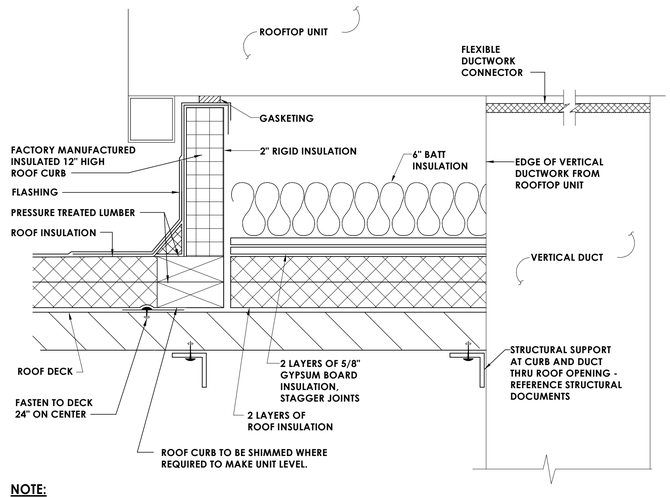
Issued	Scale
10/18/2023	12" = 1'-0"
Project Status	
BID DOCUMENTS	
Drawn By	Checked By
KCM	JJM

Drawing Title
MECHANICAL CONTROLS

Drawing Number
GEN
H505
1



1 H801 **FIN-TUBE RADIATION DETAIL**
NOT TO SCALE



NOTE:

ALL ROOF TOP HVAC UNITS REQUIRED TO HAVE CURB AND CURB INTERIOR AS SHOWN.

2 H801 **ROOFTOP UNIT - ROOF CURB DETAIL**
NOT TO SCALE

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SOUTH ORANGETOWN Central School District
Capital Improvements Bond
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Project Number
14457.20

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SOUTH ORANGETOWN CENTRAL SCHOOL DISTRICT

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PROJECT ISSUE & REVISION SCHEDULE

vv	Date	Description
1	11/17/2023	BID ADDENDUM #4

PROFESSIONAL STAMPS

NEW YORK STATE EDUCATION STATEMENT

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SHEET INFORMATION

Issued
10/18/23

Scale
1/2" = 1'-0"

Project Status
BID DOCUMENTS

Drawn By
--

Checked By
--

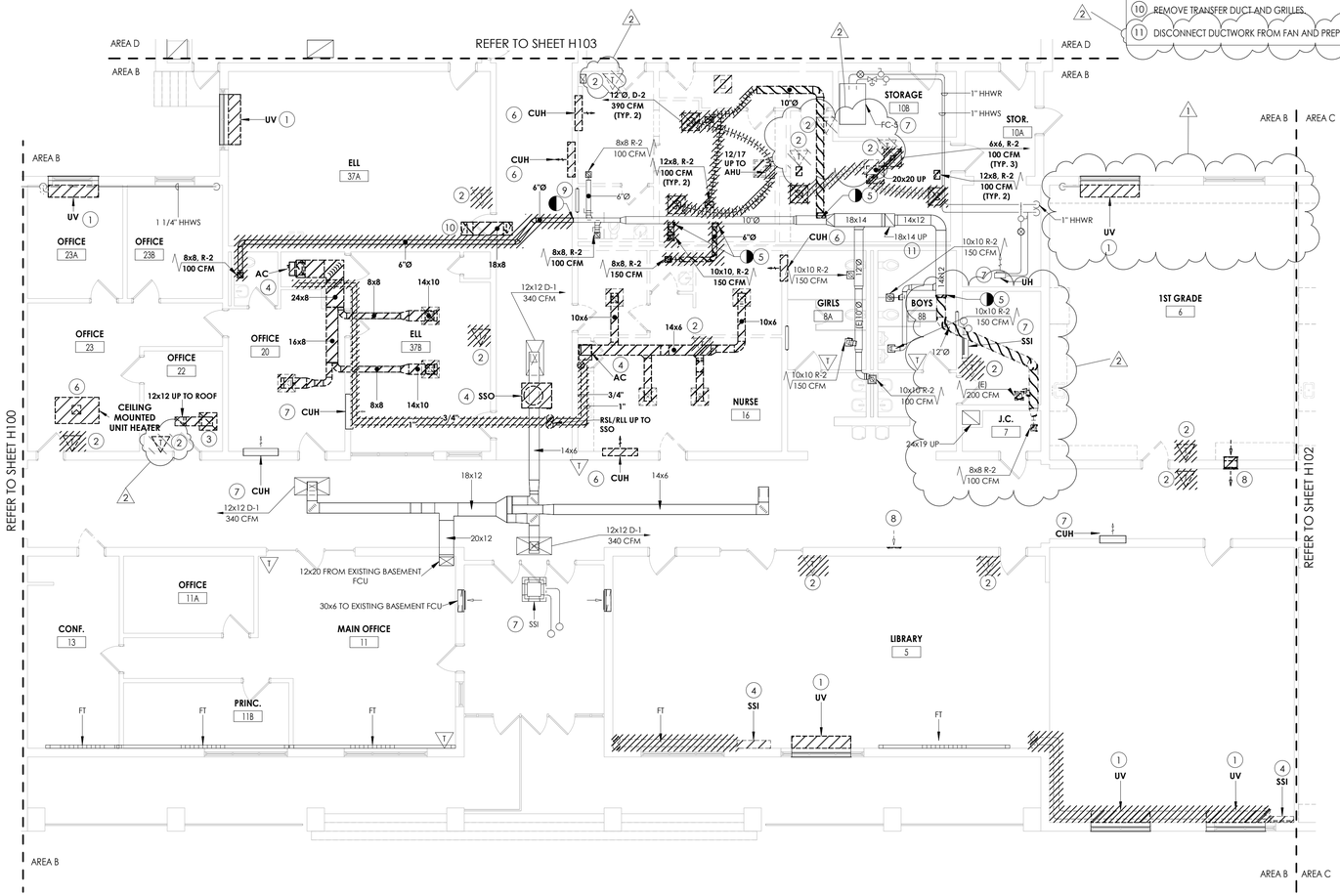
Drawing Title
HVAC DETAILS

Drawing Number
GEN
H801

11/16/2023 4:36:13 PM <project location> REVIT PROJECT FILES CJN BIM360

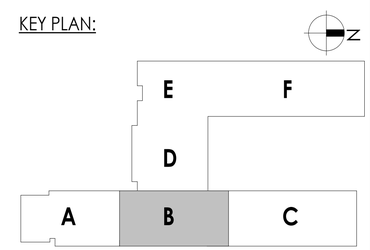
KEY NOTES:

1. REMOVE EXISTING UNIT VENTILATOR, LOUVER AND SLEEVE TO REMAIN. CUT AND CAP PIPING AT FINTUBE. REFER TO ARCHITECTURAL PLAN. MAINTAIN THE PIPING LOOP. PREPARE FOR NEW WORK.
2. REMOVE EXISTING ROOM TEMPERATURE SENSOR AND WIRING BACK TO CONTROL HEAD END.
3. REMOVE EXISTING GRILLE AND DUCTWORK UP TO ROOF.
4. REMOVE EXISTING HEATING/COOLING UNIT. REMOVE ALL ASSOCIATED PIPING, DUCTWORK, AND CONTROLS. REMOVE ALL RLL/RSL PIPING FROM UNIT TO CONDENSING UNIT ON ROOF. PRIOR REMOVAL, DRAIN ALL PIPING AND DISPOSE OF ALL REFRIGERANT PER THE LATEST ADAPTED RULES AND REGULATIONS BY THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY (EPA). CONTRACTOR OR TECHNICIAN PERFORMING THE WORK SHALL BE AN EPA APPROVED AGENT OR ORGANIZATION.
5. REMOVE EXISTING EXHAUST BRANCH DUCTWORK TO POINT INDICATED AND CAP.
6. REMOVE EXISTING CABINET UNIT HEATER, INCLUDING CONTROLS AND WIRING. CUT AND CAP ASSOCIATED PIPING.
7. PREPARE EXISTING EQUIPMENT FOR NEW CONTROLS. **BID ALTERNATE MC-01.**
8. REMOVE EXISTING LOW RELIEF AIR GRILLE IN ROOM AND HIGH RELIEF AIR GRILLE IN COORIDOR. ABANDON DUCTWORK WITHIN WALL. G.C TO PATCH WALL OPENINGS.
9. CAP DUCT AT THIS POINT.
10. REMOVE TRANSFER DUCT AND GRILLES.
11. DISCONNECT DUCTWORK FROM FAN AND PREPARE FOR NEW CONNECTION.



1 H101 **FIRST FLOOR DEMOLITION PLAN- AREA B**
1/8" = 1'-0"

KEY PLAN:



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SOUTH ORANGETOWN Central School District
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Essential Infrastructure for Student Health, Safety and Success

PROJECT INFORMATION

Project Number
14457.20

Client Name
SOUTH ORANGETOWN CENTRAL SCHOOL DISTRICT

Project Name
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PROJECT ISSUE & REVISION SCHEDULE

No.	Date	Description
1	10/27/2023	BID ADDENDUM #1
2	11/17/2023	BID ADDENDUM #4

PROFESSIONAL STAMPS

NEW YORK STATE EDUCATION STATEMENT
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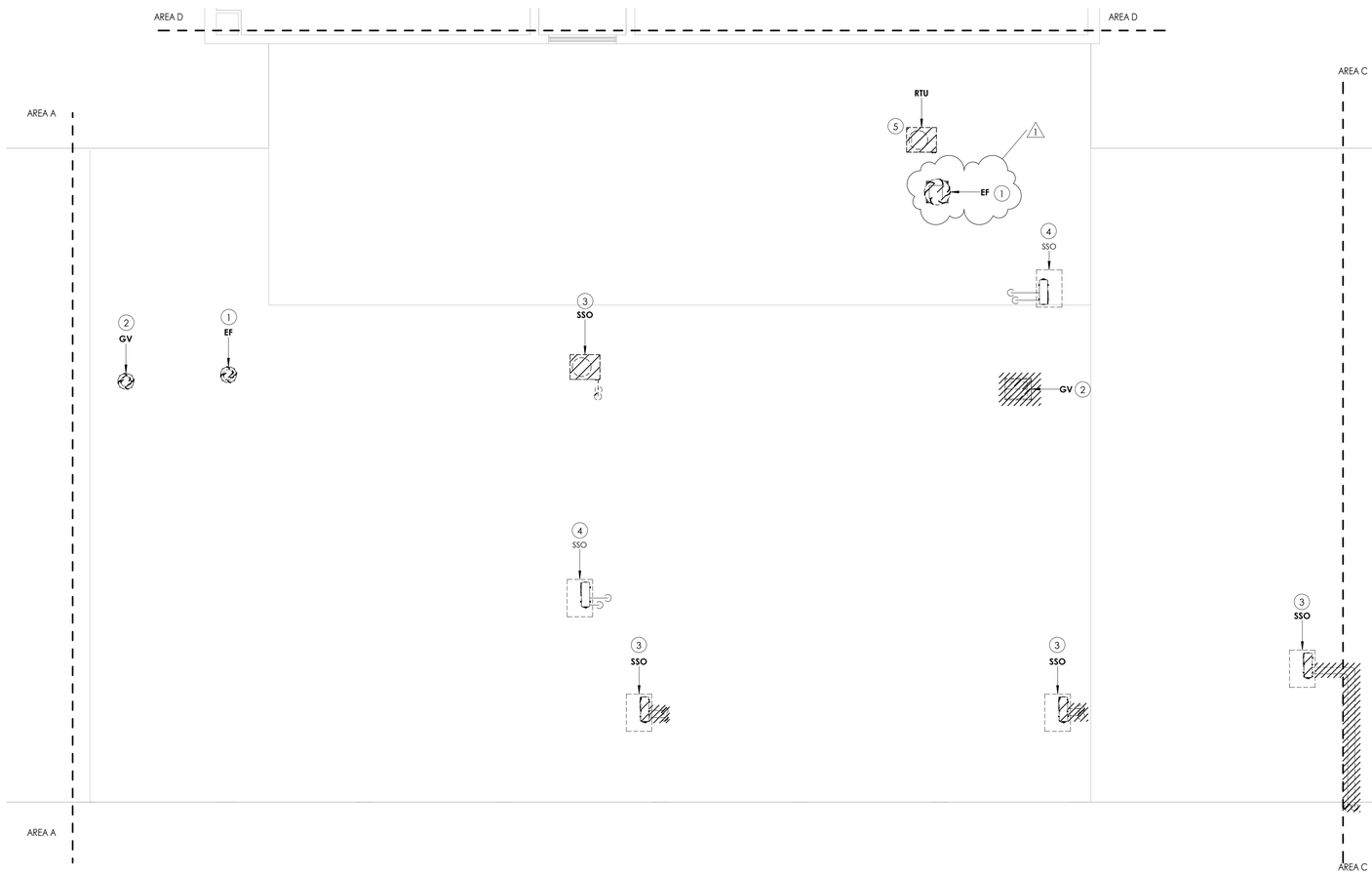
SHEET INFORMATION

Issued: 10/18/2023
Scale: 1/8" = 1'-0"
Project Status: BID DOCUMENTS
Drawn By: KCM
Checked By: JJM
Drawing Title: FIRST FLOOR DEMOLITION PLANS- AREA B

Drawing Number
WOS
H101

KEY NOTES:

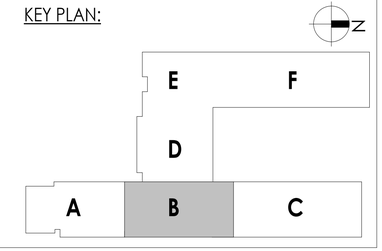
1. REMOVE EXISTING EXHAUST FAN.
2. REMOVE EXISTING RELIEF HOOD.
3. REMOVE EXISTING SSO UNIT.
4. PREPARE EXISTING EQUIPMENT FOR NEW CONTROLS. **BID ALTERNATE MC-01.**
5. REMOVE EXISTING ROOFTOP UNIT AND DISCONNECT DUCTWORK.



1 / H111 **ROOF HVAC DEMOLITION PLAN- AREA B**

1/8" = 1'-0"

KEY PLAN:



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SOUTH ORANGETOWN Central School District
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1457.20

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SHEET INFORMATION

Issued
10/18/2023

Scale
1/8" = 1'-0"

Project Status
BID DOCUMENTS

Drawn By
KCM

Checked By
JJM

Drawing Title
ROOF HVAC DEMOLITION PLANS- AREA B

Drawing Number
WOS
H111

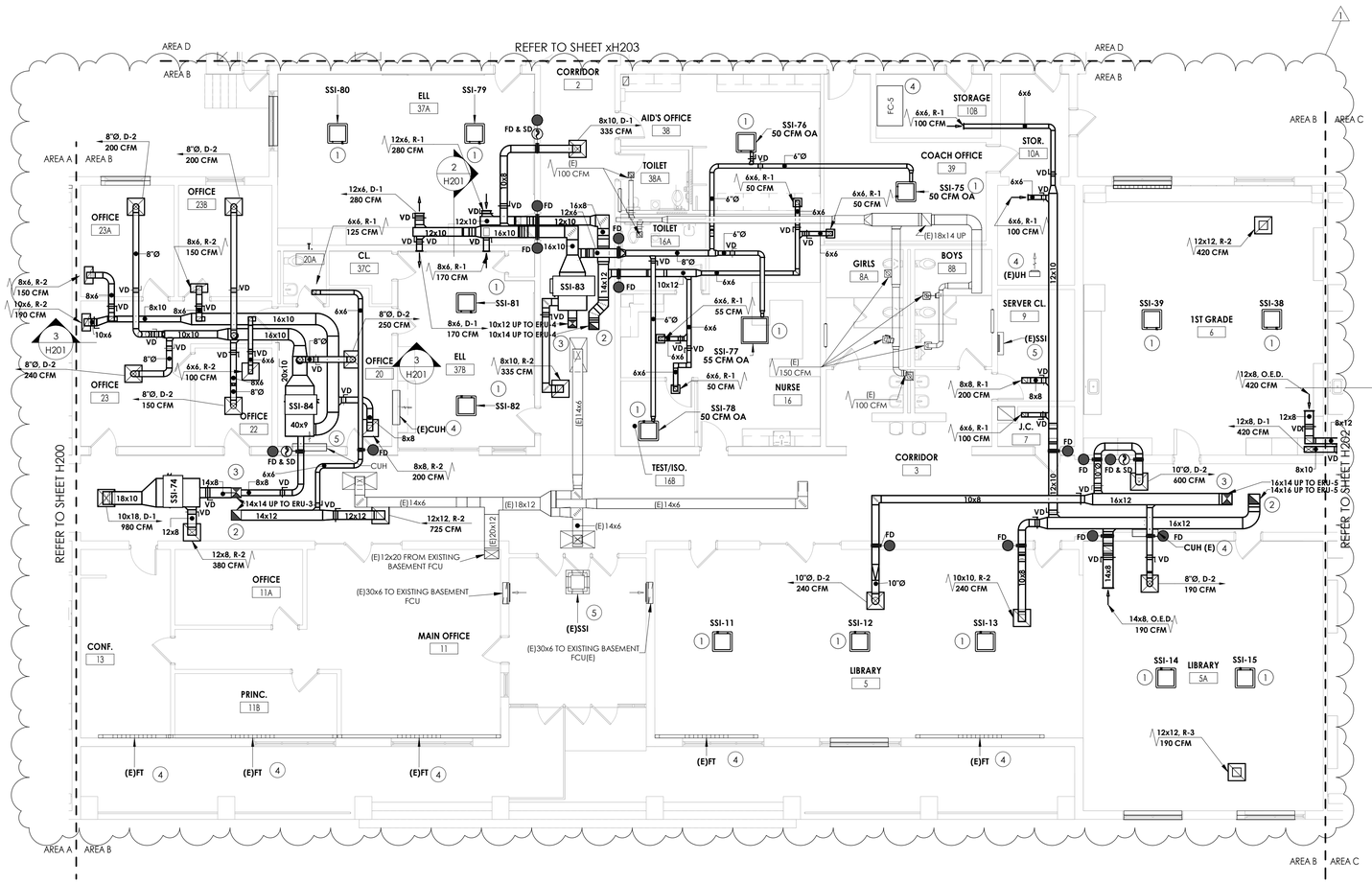
11/16/2023 3:33:31 PM <project location> REVIT PROJECT FILES ON BIM360

GENERAL NOTES

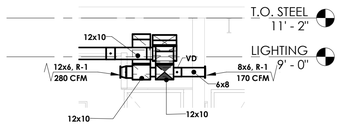
1. MAINTAIN ALL EXISTING ROOF WARRANTIES.

KEY NOTES:

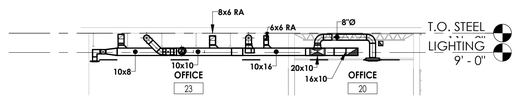
1. SSI TO BE INSTALLED IN JOIST SPACE. REMOVE BRACING AS NEEDED FOR INSTALLATION. PROVIDE NEW PROVIDE NEW BRACING IN NEW LOCATION IF EXISTING BRACING IS REMOVED.
2. RETURN DUCTWORK TO BE ROUTED IN HALLWAY CEILING. COORDINATE WITH EXISTING UTILITIES AND REFRIGERANT PIPING.
3. SUPPLY DUCTWORK TO BE ROUTED IN CEILING. COORDINATE WITH EXISTING UTILITIES AND REFRIGERANT PIPING.
4. CONNECT EXISTING EQUIPMENT TO NEW BMS SYSTEM. PROVIDE NEW CONTROL VALVE OR BRACNET CARD DEPENDING UPON THE TYPE OF EQUIPMENT. **BID ALTERNATE MC-01.**
5. EQUIPMENT NOT CONNECTED TO NEW BMS SYSTEM.



1 / H201 **FIRST FLOOR HVAC NEW WORK PLAN-AREA B**
1/8" = 1'-0"

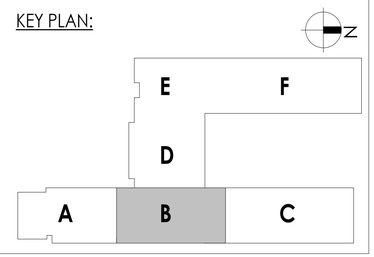


2 / H201 **SECTION**
1/4" = 1'-0"



3 / H201 **SECTION**
1/8" = 1'-0"

KEY PLAN:



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SOUTH ORANGETOWN Central School District
Capital Improvements Bond
Essential Infrastructure for Student Health, Safety and Success

PROJECT INFORMATION

Project Number
14457.20

Client Name
SOUTH ORANGETOWN CENTRAL SCHOOL DISTRICT

Project Name
PHASE 1: 2022 BOND

District Office Address
160 VAN WYCK RD, BLAUVELT, NY 10913

SOUTH ORANGETOWN CSD
- WILLIAM O. SCHAEFER SED#:50-03-01-06-0-012-019
- COTTAGE LANE ELEMENTARY SED#:50-03-01-06-0-010-022
- TAPPAN ZEE HIGH SCHOOL SED#:50-03-01-06-0-006-032
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- COTTAGE LANE LIBRARY S&L SED#: 50-03-01-06-8-023-002
- WOS OUTDOOR CLASSROOM SED#: 50-03-01-06-7-053-001
- SOMS OUTDOOR CLASSROOM SED#: 50-03-01-06-7-056-001
- CLE OUTDOOR CLASSROOM SED#: 50-03-01-06-7-054-001
- TDHS OUTDOOR CLASSROOM SED#: 50-03-01-06-7-055-001

PROJECT ISSUE & REVISION SCHEDULE

No.	Date	Description
1	11/17/2023	BID ADDENDUM #4

PROFESSIONAL STAMPS

NEW YORK STATE EDUCATION STATEMENT
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SHEET INFORMATION

Issued	Scale
10/18/2023	As indicated

Project Status
BID DOCUMENTS

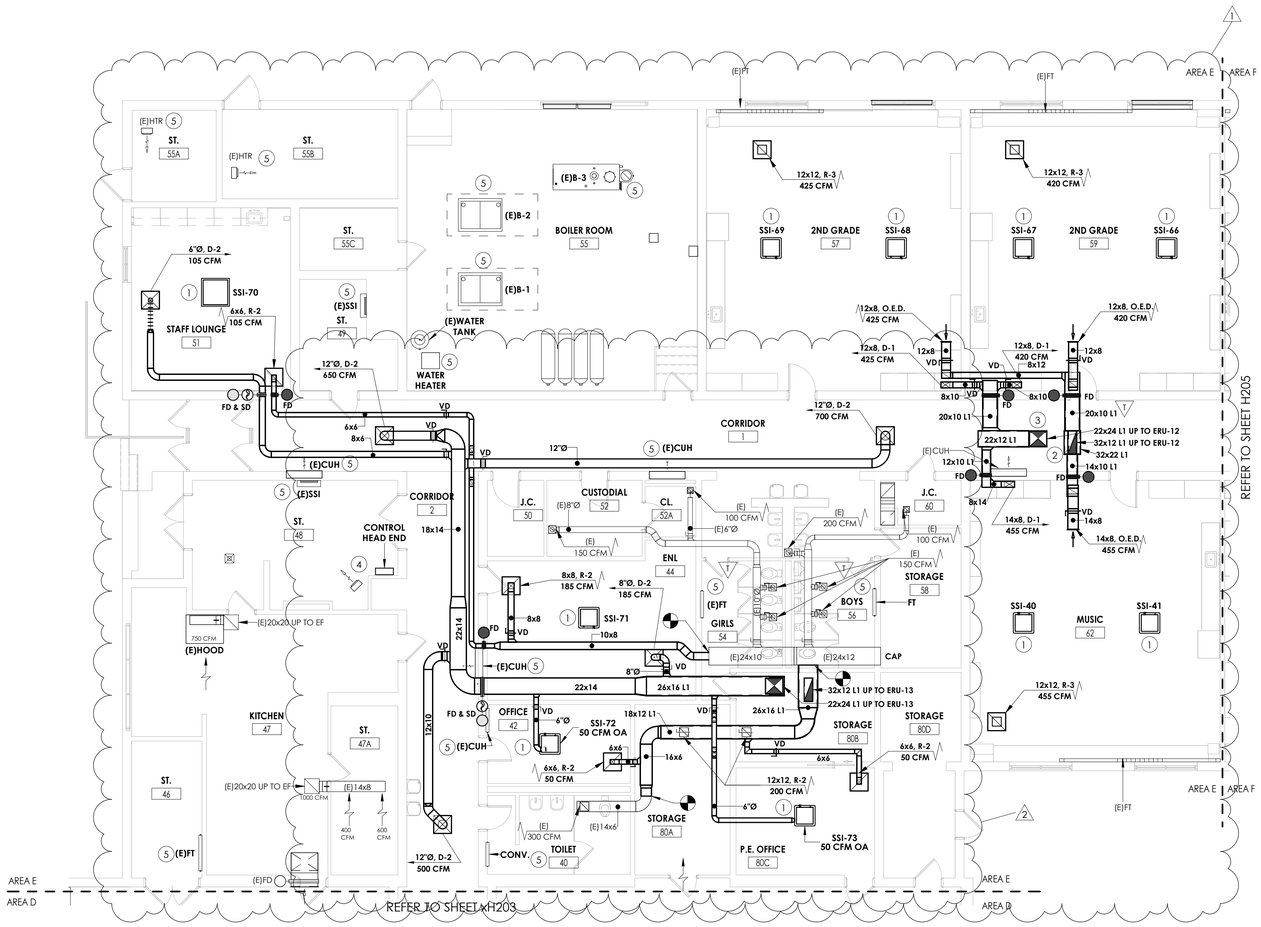
Drawn By	Checked By
KCM	JJM

Drawing Title
FIRST FLOOR HVAC NEW WORK PLAN- AREA B

Drawing Number
WOS H201

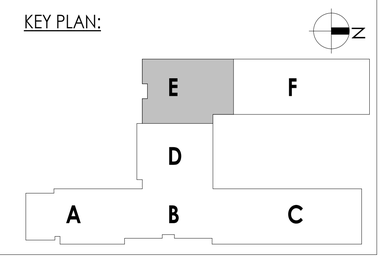
KEY NOTES:

1. SSI TO BE INSTALLED IN JOIST SPACE. REMOVE BRACING AS NEEDED FOR INSTALLATION. PROVIDE NEW BRACING IN NEW LOCATION IF EXISTING BRACING IS REMOVED.
2. RETURN DUCTWORK TO BE ROUTED IN HALLWAY CEILING. COORDINATE WITH EXISTING UTILITIES AND REFRIGERANT PIPING.
3. SUPPLY DUCTWORK TO BE ROUTED IN CEILING. COORDINATE WITH EXISTING UTILITIES AND REFRIGERANT PIPING.
4. PROVIDE NEW CONTROLS HEAD END. **BID ALTERNATE MC-01.**
5. CONNECT EXISTING EQUIPMENT TO NEW BMS SYSTEM. PROVIDE NEW CONTROL VALVE OR BACNET CARD DEPENDING UPON THE TYPE OF EQUIPMENT. **BID ALTERNATE MC-01.**



1 H204 **FIRST FLOOR HVAC NEW WORK PLAN-AREA E**
1/8" = 1'-0"

KEY PLAN:



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PROJECT INFORMATION

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Project Name
PHASE 1: 2022 BOND

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SOUTH ORANGETOWN CSD
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PROJECT ISSUE & REVISION SCHEDULE

No.	Date	Description
1	10/27/2023	BID ADDENDUM #1
2	11/17/2023	BID ADDENDUM #4

PROFESSIONAL STAMPS

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SHEET INFORMATION

Issued	Scale
10/18/2023	1/8" = 1'-0"

Project Status
BID DOCUMENTS

Drawn By	Checked By
KCM	JJM

Drawing Title
FIRST FLOOR HVAC NEW WORK PLAN- AREA E

Drawing Number
WOS H204

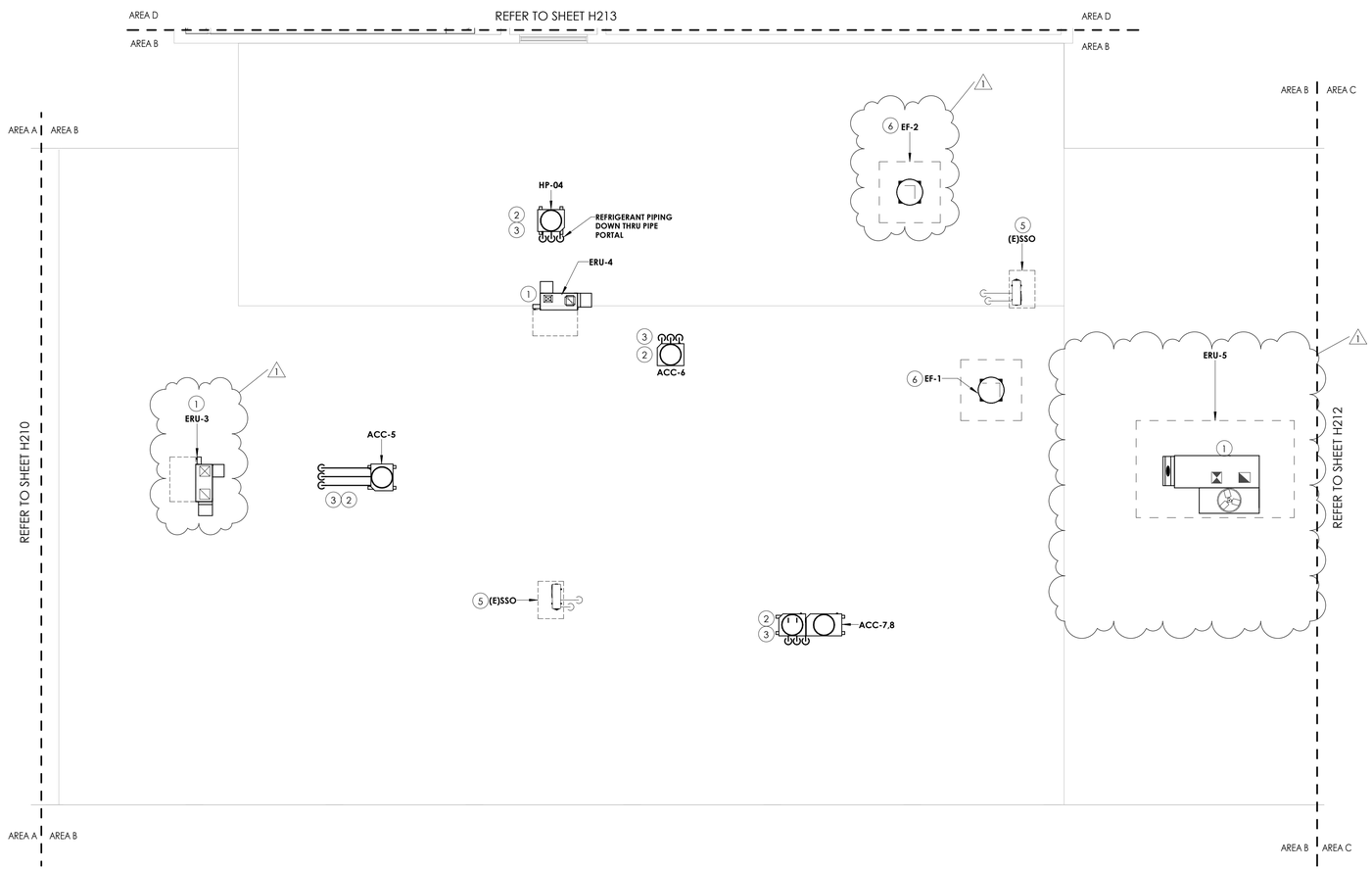
11/16/2023 2:06:32 P.M. <project location> REVIT PROJECT FILES ON BIM360

GENERAL NOTES

1. MAINTAIN ALL EXISTING ROOF WARRANTIES.

KEY NOTES

1. PROVIDE ERU ON INSULATED CURB WITH VIBRATION INSULATION.
2. PROVIDE WITH 12" EQUIPMENT RAILS, VIBRATION INSULATION AND PIPE PORTAL.
3. ROUTE NEW RS/RL LINES DOWN THROUGH ROOF. COORDINATE WITH EXISTING ROOFING AND STRUCTURE. INSTALL PER MANUFACTURERS INSTRUCTIONS.
4. CONNECT EXISTING EQUIPMENT TO NEW BMS SYSTEM. PROVIDE NEW CONTROL VALVE OR BACNET CARD DEPENDING UPON THE TYPE OF EQUIPMENT. **BID ALTERNATE MC-01.**
5. EXISTING EQUIPMENT NOT CONNECTED TO BMS.
6. PROVIDE NEW INSULATED ROOF CURB.



1 H211 **ROOF NEW WORK PLAN- AREA B**

1/8" = 1'-0"

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PROJECT INFORMATION

Project Number
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Client Name
SOUTH ORANGETOWN CENTRAL SCHOOL DISTRICT

Project Name
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SOUTH ORANGETOWN CSD
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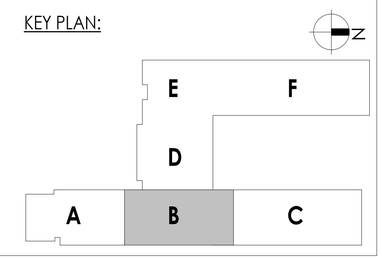
PROJECT ISSUE & REVISION SCHEDULE

No.	Date	Description
1	11/17/2023	BID ADDENDUM #4

KEY PLAN:



PROFESSIONAL STAMPS

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SHEET INFORMATION

Issued	Scale
10/18/2023	1/8" = 1'-0"

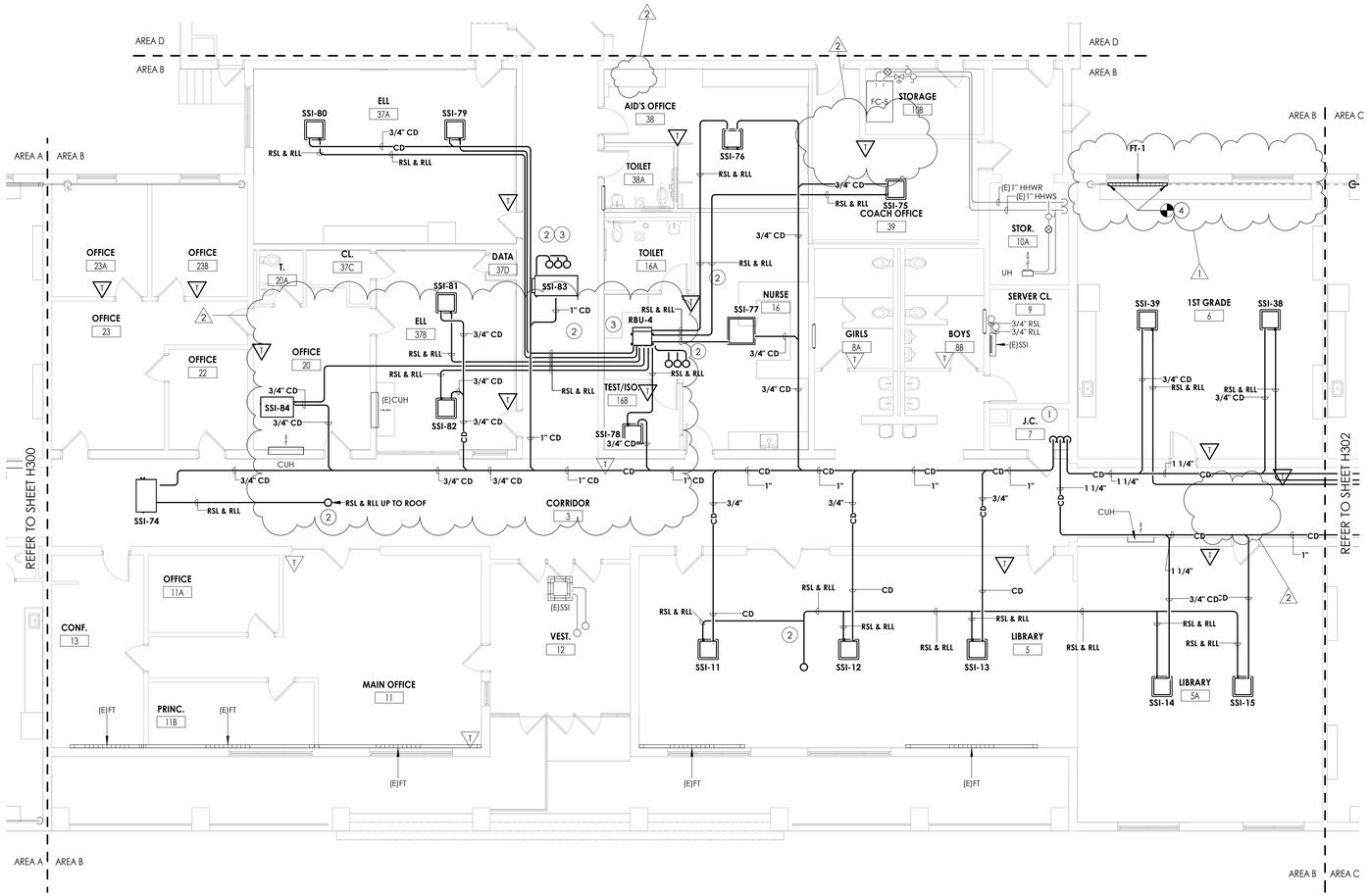
Project Status
BID DOCUMENTS

Drawn By	Checked By
KCM	JJM

Drawing Title
ROOF HVAC NEW WORK PLAN-AREA B

Drawing Number
WOS H211

11/16/2023 3:51:33 P.M. <project location> REVIT PROJECT FILES ON BIM360



1 H301 **HVAC PIPING PLAN-AREA B**

1/8" = 1'-0"

KEY NOTES:

1. EXTEND CONDENSATE PIPING TO SANITARY. PROVIDE WITH AN INDIRECT CONNECTION.
2. PROVIDE PIPING SIZING AND ROUTING, REFER TO MANUFACTURER'S RECOMMENDATIONS.
3. PROVIDE BRANCH BOX. MOUNT UNIT AS HIGH AS POSSIBLE. COORDINATE PIPE ROUTING WITH DUCTWORK AND EXISTING STRUCTURE.
4. PROVIDE 4" FIN TUBE WITH DRAFT STOP WHERE INDICATED AND CONNECT TO EXISTING PIPING.

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PROJECT ISSUE & REVISION SCHEDULE

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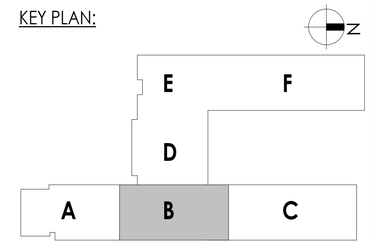
SHEET INFORMATION

Issued: 10/18/2023
Scale: 1/8" = 1'-0"
Project Status: BID DOCUMENTS
Drawn By: KCM
Checked By: JJM
Drawing Title: FIRST FLOOR HVAC PIPING PLAN-AREA B

Drawing Number
WOS
H301

KEY PLAN:



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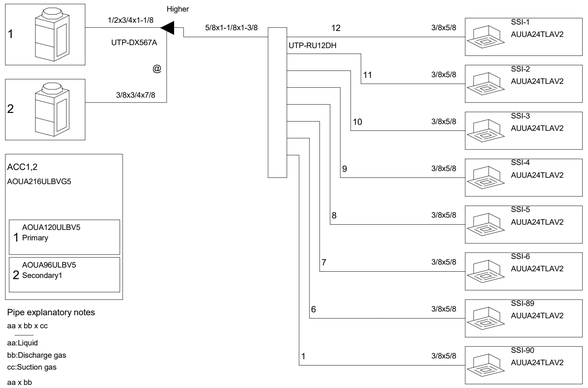
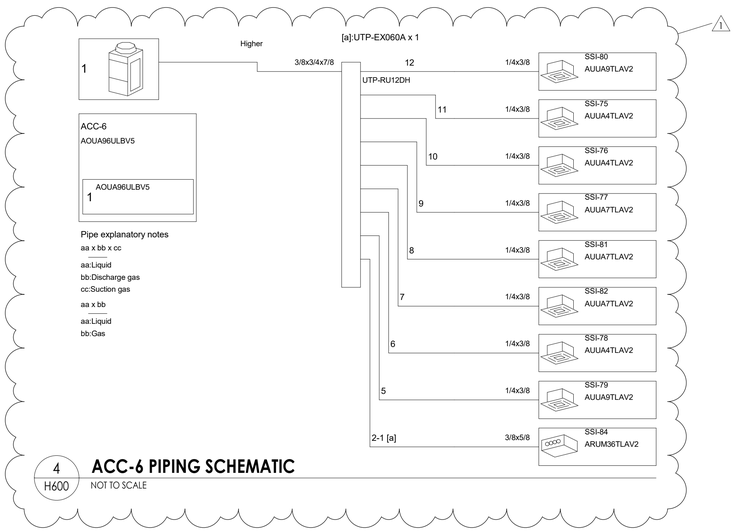


@ Specific installation rules may be applicable for piping multiple outdoor combinations. (e.g. rise setting for gas pipe).Refer to outdoor unit installation manual for specifics.

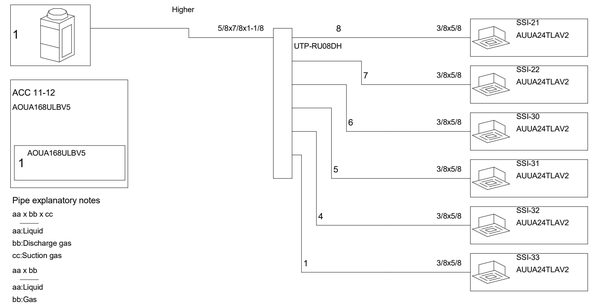
1 H600 **ACC-1,2 PIPING SCHEMATIC**

NOT TO SCALE



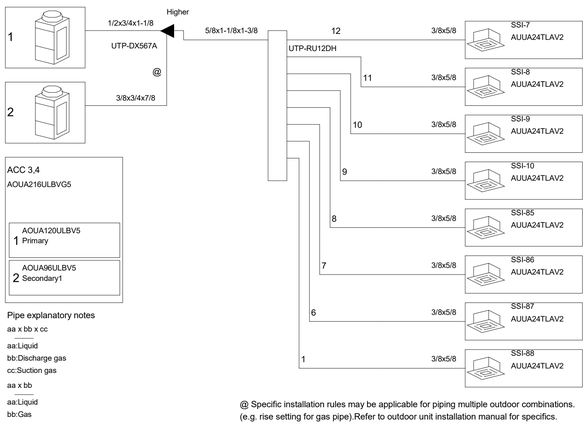
4 H600 **ACC-6 PIPING SCHEMATIC**

NOT TO SCALE



7 H600 **ACC-11,12 PIPING SCHEMATIC**

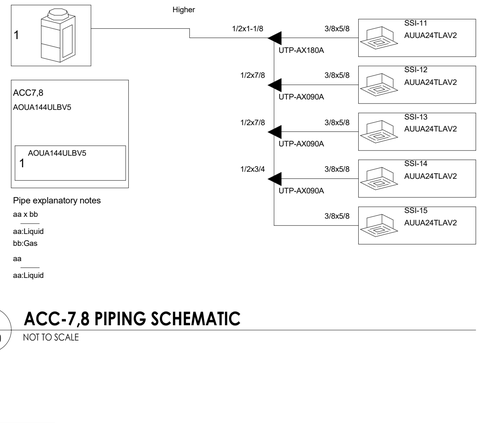
NOT TO SCALE



@ Specific installation rules may be applicable for piping multiple outdoor combinations. (e.g. rise setting for gas pipe).Refer to outdoor unit installation manual for specifics.

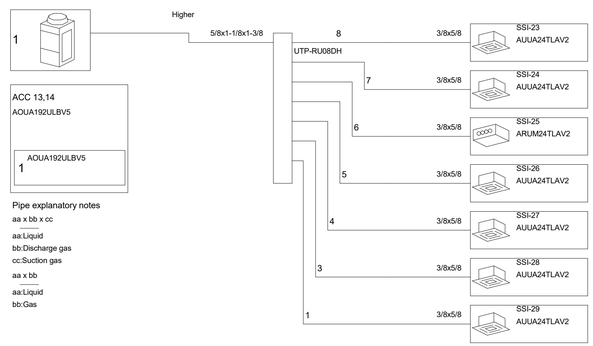
2 H600 **ACC-3,4 PIPING SCHEMATIC**

NOT TO SCALE



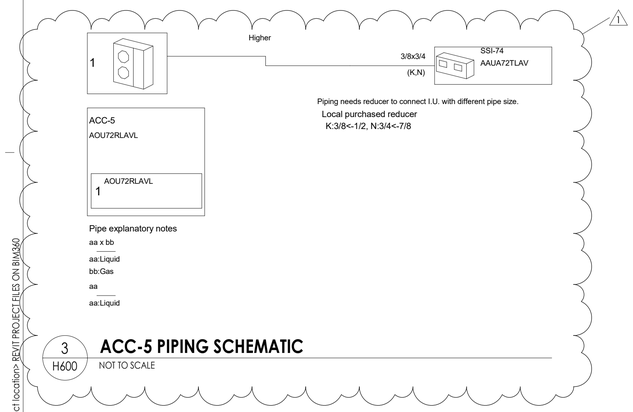
5 H600 **ACC-7,8 PIPING SCHEMATIC**

NOT TO SCALE



8 H600 **ACC-13,14 PIPING SCHEMATIC**

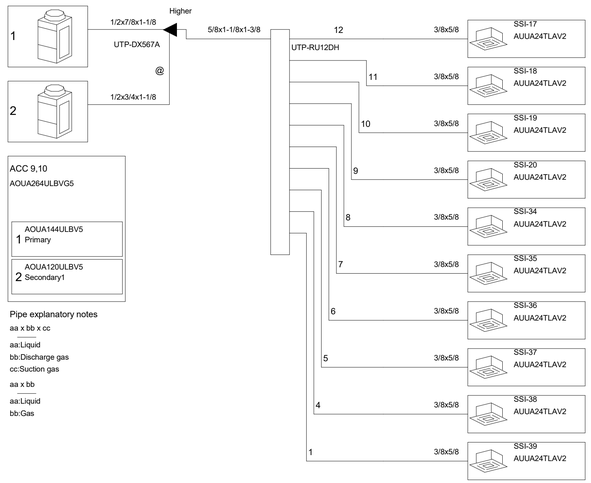
NOT TO SCALE



Piping needs reducer to connect I.U. with different pipe size.
Local purchased reducer
K:3/8<-1/2, N:3/4<-7/8

3 H600 **ACC-5 PIPING SCHEMATIC**

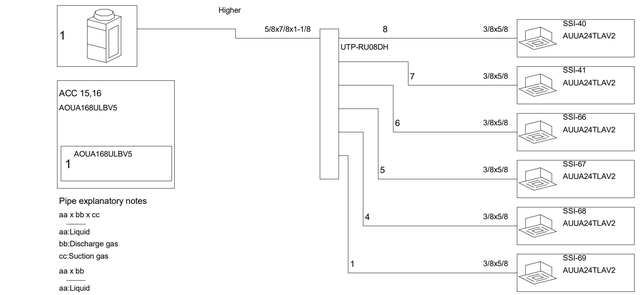
NOT TO SCALE



@ Specific installation rules may be applicable for piping multiple outdoor combinations. (e.g. rise setting for gas pipe).Refer to outdoor unit installation manual for specifics.

6 H600 **ACC-9,10 PIPING SCHEMATIC**

NOT TO SCALE



9 H600 **ACC-15,16 PIPING SCHEMATIC**

NOT TO SCALE

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SOUTH ORANGETOWN Central School District

Capital Improvements Bond

Essential Infrastructure for Student Health, Safety and Success

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SHEET INFORMATION

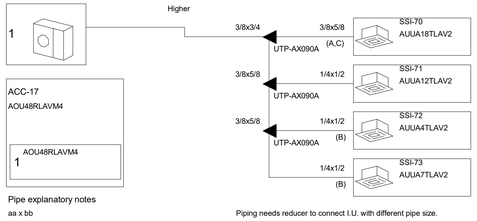
Issued	Scale
10/18/2023	NOT TO SCALE

Project Status
BID DOCUMENTS

Drawn By	Checked By
KCM	JJM

Drawing Title
VRF PIPING

Drawing Number
WOS
H600



Pipe explanatory notes

aa x bb

aa:Liquid
bb:Gas

aa

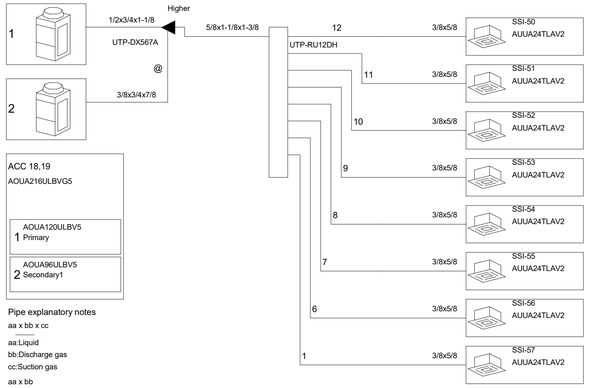
aa:Liquid

Piping needs reducer to connect I.U. with different pipe size.

Local purchased expander
A:3/8<-1/4, B:1/2<-3/8, C:5/8<-1/2

1 H601 ACC-17 PIPING SCHEMATIC

NOT TO SCALE



Pipe explanatory notes

aa x bb x cc

aa:Liquid
bb:Discharge gas
cc:Suction gas

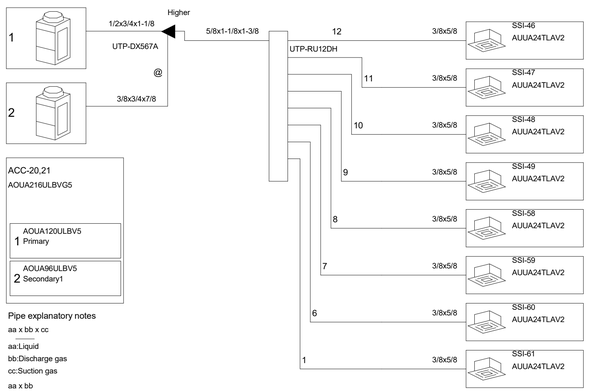
aa x bb

aa:Liquid
bb:Gas

@ Specific installation rules may be applicable for piping multiple outdoor combinations. (e.g. rise setting for gas pipe).Refer to outdoor unit installation manual for specifics.

2 H601 ACC-18,19 PIPING SCHEMATIC

NOT TO SCALE



Pipe explanatory notes

aa x bb x cc

aa:Liquid
bb:Discharge gas
cc:Suction gas

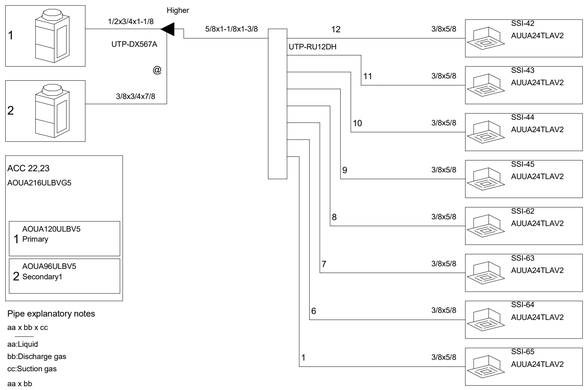
aa x bb

aa:Liquid
bb:Gas

@ Specific installation rules may be applicable for piping multiple outdoor combinations. (e.g. rise setting for gas pipe).Refer to outdoor unit installation manual for specifics.

3 H601 ACC-20,21 PIPING SCHEMATIC

NOT TO SCALE



Pipe explanatory notes

aa x bb x cc

aa:Liquid
bb:Discharge gas
cc:Suction gas

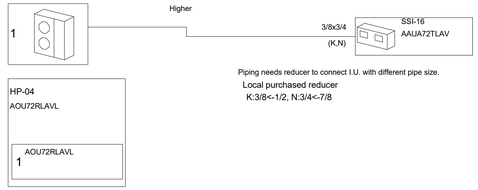
aa x bb

aa:Liquid
bb:Gas

@ Specific installation rules may be applicable for piping multiple outdoor combinations. (e.g. rise setting for gas pipe).Refer to outdoor unit installation manual for specifics.

4 H601 ACC-22,23 PIPING SCHEMATIC

NOT TO SCALE



Pipe explanatory notes

aa x bb

aa:Liquid
bb:Gas

aa

aa:Liquid

Piping needs reducer to connect I.U. with different pipe size.

Local purchased reducer
K:3/8<-1/2, N:3/4<-7/8

5 H601 HP-4 PIPING SCHEMATIC

NOT TO SCALE

CPL | Architecture Engineering Planning
50 Front Street Suite 202,
Newburgh, NY 12550
CPLteam.com

SOUTH ORANGETOWN Central School District
Capital Improvements Bond
Essential Infrastructure for Student Health, Safety and Success

PROJECT INFORMATION

Project Number
14457.20

Client Name
SOUTH ORANGETOWN CENTRAL SCHOOL DISTRICT

Project Name
PHASE 1: 2022 BOND

District Office Address
160 VAN WYCK RD, BLAUVELT, NY 10913

SOUTH ORANGETOWN CSD

- [x] WILLIAM O. SCHAEFER SED#:50-03-01-06-0-012-019
- [ ] COTTAGE LANE ELEMENTARY SED#:50-03-01-06-0-010-022
- [ ] TAPPAN ZEE HIGH SCHOOL SED#:50-03-01-06-0-006-032
- [ ] WILLIAM O. SCHAEFER S&L SED#: 50-03-01-06-0-012-020
- [ ] COTTAGE LANE S&L SED#: 50-03-01-06-0-010-023
- [ ] COTTAGE LANE LIBRARY S&L SED#: 50-03-01-06-8-023-002
- [ ] WOS OUTDOOR CLASSROOM SED#: 50-03-01-06-7-053-001
- [ ] SOMS OUTDOOR CLASSROOM SED#: 50-03-01-06-7-056-001
- [ ] CLE OUTDOOR CLASSROOM SED#: 50-03-01-06-7-054-001
- [ ] TDHS OUTDOOR CLASSROOM SED#: 50-03-01-06-7-055-001

PROJECT ISSUE & REVISION SCHEDULE

No.	Date	Description
1	11/17/2023	BID ADDENDUM #4

PROFESSIONAL STAMPS

SHEET INFORMATION

Issued
10/18/2023

Scale
NOT TO SCALE

Project Status
BID DOCUMENTS

Drawn By
KCM

Checked By
JJM

Drawing Title
VRF PIPING

Drawing Number
WOS
H601

DX COIL SCHEDULE

TAG	LOCATION / SERVES	SUPPLY AIR (CFM)	DCV OA (CFM)	NOMINAL CAPACITY (TON)	COOLING CAPACITY								MFG SIZE	MFG SIZE HXL (IN.)	ROWS	TYPICAL UNIT MFG & MODEL NO.	NOTES:
					TOTAL MBH	SENS MBH	EAT°F		LAT°F		AMB °F	MAX APD (IN WC)					
							DB	WB	DB	WB							
DX-1	ROOF / AUDITERIA	5025	2700	20.3	243.2	170.2	84.0	69.2	55.0	54.5	93 / 75	0.83	9.93 SF	28.7 / 11.2	6	CARRIER 28ME	1,2
DX-2	ROOF / GYMNASIUM	5163	1800	18.2	217.9	152.5	81.2	67.2	55.0	54.5	93 / 75	0.37	14.34 SF	32.6 / 11.6	4	CARRIER 28ME	1,2

NOTES:
1. COORDINATE REFRIGERATION TYPE WITH CONDENSING UNIT
2. LOCATE IN EXISTING RTU, UPSTREAM OF SUPPLY FAN, DOWN STREAM FROM FILTERS.

REFRIGERANT BRANCH BOXES

MARK	UNIT SERVES	NUMBER OF BRANCHES AVAILABLE	NUMBER OF BRANCHES USED	MAX TOTAL CAPACITY (MBH)	MAX BRANCH CAPACITY (MBH)	CONNECTED TOTAL HEATING CAPACITY (MBH)	CONNECTED TOTAL COOLING CAPACITY (MBH)	DIMENSIONS (H × W × D)	POWER (V/Ø/HZ)	POWER (WATTS)	TYPICAL UNIT MFG & MODEL NO.
RBU-1	ACC-1,2	12	8	245	27	2592	2304	11" × 39" × 25"	208 / 230 / 1 / 60	339 W	UTP-RU12AH
RBU-2	ACC-3,4	12	8	245	27	2592	2304	11" × 39" × 25"	208 / 230 / 1 / 60	339 W	UTP-RU12AH
RBU-4	ACC-6	8	8	245	27	1010.4	852	11" × 26" × 25"	208 / 230 / 1 / 60	226 W	UTP-RU08AH
RBU-6	ACC-9,10	12	10	324	27	3240	2880	11" × 39" × 25"	208 / 230 / 1 / 60	339 W	UTP-RU12AH
RBU-7	ACC-11,12	8	6	245	27	1944	1728	11" × 26" × 25"	208 / 230 / 1 / 60	226 W	UTP-RU08AH
RBU-8	ACC-13,14	8	7	245	27	2268	2016	11" × 26" × 25"	208 / 230 / 1 / 60	226 W	UTP-RU08AH
RBU-9	ACC-18,19	12	8	245	27	2592	2304	11" × 39" × 25"	208 / 230 / 1 / 60	339 W	UTP-RU12AH
RBU-10	ACC-20,21	12	8	245	27	2592	2304	11" × 39" × 25"	208 / 230 / 1 / 60	339 W	UTP-RU12AH
RBU-11	ACC-22,23	12	8	245	27	2592	2304	11" × 39" × 25"	208 / 230 / 1 / 60	339 W	UTP-RU12AH
RBU-12	ACC-15,16	8	6	245	27	1944	1728	11" × 26" × 25"	208 / 230 / 1 / 60	226 W	UTP-RU08AH

FAN SCHEDULE

TAG	LOCATION	SERVICE	TYPE	CFM	SP IN W.G.	RPM	ELECTRICAL DATA				TYPICAL UNIT MFG & MODEL NO.	NOTES:
							HP	VOLTS	PHASE	AMPS		
EF-1	ROOF	CRAWLSPACE	DOWNBLAST	2320	1.3	1725	1-1/2	208	1	11	GREEHECK G-140-A	1-2
EF-2	ROOF	TOILETS	DIRECT	900	0.3	959	1/4	115	1	3.8	GREEHECK G-120-VG	1-2

NOTES:
1. FACTORY MOUNTED AND WIRED DISCONNECT.
2. HINGED BASE AND BIRD SCREEN.

REGISTERS, GRILLES, AND DIFFUSERS

TAG	APPLICATION	MATERIAL	TYPE	FINISH	DESIGN EQUIP.	NOTES:
D-1	SUPPLY	STEEL	CEILING GRILLE	WHITE	PRICE 500	3
D-2	SUPPLY	STEEL	LAY-IN	WHITE	PRICE SPD	2,4
D-3	SUPPLY	STEEL	ROUND	WHITE	PRICE HCD	1
R-1	RETURN/EA	STEEL	CEILING GRILLE	WHITE	PRICE 510	3
R-2	RETURN/EA	STEEL	LAY-IN	WHITE	PRICE PDN	-
R-3	RETURN/EA	STEEL	LAY-IN	WHITE	PRICE PDDR	-

NOTES:
1. OPPOSED BLADE DAMPER.
2. STANDARD AIR FLOW PATTERN.
3. SINGLE DEFLECTION, BLADES PARALLEL TO LENGTH.
4. INSULATED BACK PAN.

ENERGY RECOVERY UNIT

TAG	LOCATION	AREA SERVED	SA/OA (CFM)	EA (CFM)	RA (CFM)	SUPPLY FAN					EXHAUST FAN					HEATING TYPE	FROST CONTROL	OPERATING WEIGHT (LBS)	FILTERS	UNIT ELECTRICAL REQUIREMENTS	
						FAN TYPE	E.S.P. (IN. WC)	RPM	BHP	HP	FAN TYPE	E.S.P. (IN. WC)	RPM	BHP	HP					V/Ø/HZ	FLA
ERU-1	ROOF	CLASSROOMS	1885	1885	1885	PLENUM	1	1760	1.39	2	PLENUM	0.5	1562	0.77	2	ELECTRIC	YES	1554	2" PRE-FILTER/4" MERV 13	208/3/60	99
ERU-2	ROOF	CLASSROOMS	1620	1620	1620	PLENUM	1	1760	1.14	2	PLENUM	0.5	1454	0.61	2	ELECTRIC	YES	1524	2" PRE-FILTER/4" MERV 13	208/3/60	78
ERU-5	ROOF	CLASSROOMS	1120	1120	1120	PLENUM	1	1760	1.48	2	PLENUM	0.5	1760	0.85	2	ELECTRIC	YES	1510	2" PRE-FILTER/4" MERV 13	208/3/60	54
ERU-6	ROOF	CLASSROOMS	2120	2120	2120	PLENUM	1	1760	1.62	2	PLENUM	0.5	1635	0.8	2	ELECTRIC	YES	1554	2" PRE-FILTER/4" MERV 13	208/3/60	99
ERU-7	ROOF	CLASSROOMS	1230	1230	1230	PLENUM	1	1760	0.8	2	PLENUM	0.5	1633	0.4	1	ELECTRIC	YES	1510	2" PRE-FILTER/4" MERV 13	208/3/60	54
ERU-8	ROOF	CLASSROOMS	1260	1260	1260	PLENUM	1	1760	0.8	2	PLENUM	0.5	1626	0.4	2	ELECTRIC	YES	1510	2" PRE-FILTER/4" MERV 13	208/3/60	54
ERU-9	ROOF	CLASSROOMS	1990	1990	1990	PLENUM	1	1760	1.53	2	PLENUM	0.5	1608	0.84	2	ELECTRIC	YES	1554	2" PRE-FILTER/4" MERV 13	208/3/60	99
ERU-10	ROOF	CLASSROOMS	1690	1690	1690	PLENUM	1	1760	1.2	2	PLENUM	0.5	1481	0.65	2	ELECTRIC	YES	1554	2" PRE-FILTER/4" MERV 13	208/3/60	78
ERU-11	ROOF	CLASSROOMS	1680	1680	1680	PLENUM	1	1760	1.2	2	PLENUM	0.5	1481	0.65	2	ELECTRIC	YES	1554	2" PRE-FILTER/4" MERV 13	208/3/60	78
ERU-12	ROOF	CLASSROOMS	1300	1300	1300	PLENUM	1	1760	0.8	2	PLENUM	0.5	1321	0.4	1	ELECTRIC	YES	1510	2" PRE-FILTER/4" MERV 13	208/3/60	54
ERU-13	ROOF	CLASSROOMS	2240	2240	2240	PLENUM	1	1760	1.7	2	PLENUM	0.5	1684	0.9	2	ELECTRIC	YES	1554	2" PRE-FILTER/4" MERV 13	208/3/60	120

ENERGY RECOVERY UNIT (CONT.)

TAG	WINTER CONDITIONS									SUMMER CONDITIONS									TYPICAL UNIT MFG & MODEL NO.	NOTES
	WHEEL ENTERING CONDITIONS				WHEEL LEAVING CONDITIONS				EFFECTIVENESS @ WINTER DESIGN	WHEEL ENTERING CONDITIONS				WHEEL LEAVING CONDITIONS				EFFECTIVENESS @ SUMMER DESIGN		
	OUTSIDE AIR		RETURN AIR		SUPPLY AIR		EXHAUST AIR			OUTSIDE AIR		RETURN AIR		SUPPLY AIR		EXHAUST AIR				
	DB (°F)	WB (°F)	DB (°F)	WB (°F)	DB (°F)	WB (°F)	DB (°F)	WB (°F)	TOTAL %	DB (°F)	WB (°F)	DB (°F)	WB (°F)	DB (°F)	WB (°F)	DB (°F)	WB (°F)	TOTAL %		
ERU-1	-7	-8	65	62	39.2	39.2	18.7	18.7	65.4	90	71	75	62	79.8	65.1	85	68.1	65.4	AAON RN-007-80-E60E14A	1,2,3,4
ERU-2	-7	-8	65	62	41.6	41.6	16.3	16.3	68.2	90	71	75	62	79.3	64.9	85.4	68.4	68.2	AAON RN-006-80-E60E13A	1,2,3,4
ERU-5	-7	-8	65	62	46.2	46.2	11.7	11.7	74.3	90	71	75	62	78.4	64.3	86.4	68.9	74.3	AAON RN-006-80-E60E12A	1,2,3,4
ERU-6	-7	-8	65	62	42	42	18.7	18.7	65.1	90	71	75	62	79.3	64.8	84.9	68.1	65.1	AAON RN-007-80-E60E14A	1,2,3,4
ERU-7	-7	-8	65	62	45.2	45.2	12.7	12.7	72.9	90	71	75	62	78.6	64.4	86.2	68.8	72.9	AAON RN-006-80-E60E12A	1,2,3,4
ERU-8	-7	-8	65	62	45.3	45.3	12.7	12.7	73.1	90	71	75	62	78.6	64.4	86.2	68.8	73.1	AAON RN-006-80-E60E12A	1,2,3,4
ERU-9	-7	-8	65	62	38.2	38.2	19.7	19.7	63.8	90	71	75	62	80	65.3	84.8	68	63.8	AAON RN-007-80-E60E14A	1,2,3,4
ERU-10	-7	-8	65	62	41	41	16.9	16.9	67.4	90	71	75	62	79.4	64.9	85.3	68.3	67.4	AAON RN-007-80-E60E13A	1,2,3,4
ERU-11	-7	-8	65	62	41	41	16.9	16.9	67.4	90	71	75	62	79.4	64.9	85.3	68.3	67.4	AAON RN-007-80-E60E13A	1,2,3,4
ERU-12	-7	-8	65	62	46.5	46.5	12.7	12.7	73.1	90	71	75	62	78.3	64.3	86.2	68.8	73.1	AAON RN-006-80-E60E12A	1,2,3,4
ERU-13	-7	-8	65	62	33.6	33.6	19.8	19.8	63.7	90	71	75	62	81	65.9	84.7	68	63.7	AAON RN-007-80-E60E15A	1,2,3,4

NOTES:
1. FACTORY MOUNTED AND WIRED DISCONNECT.
2. FRESH AIR AND EXHAUST DAMPERS.
3. TERMINAL STRIP FOR BMS CONTROL OF FAN AND DAMPERS.
4. DIRTY FILTER SENSORS.

ENERGY RECOVERY UNIT (CONT.)

TAG	TYPE	FINS PER INCH	ROWS	FACE VEL	COIL PD	REF.	COMP QTY	COOLING				REHEAT		HEATING				
								TOTAL CAPACITY (MBH)	SENSIBLE (MBH)	EAT(F)	LAT(F)	CAPACITY (MBH)	LAT(F)	OAT(F)	RAT(F)	EAT(F)	TOTAL CAPACITY (MBH)	INPUT kW
ERU-1	AIR TO AIR	14	3	221	0.12	R410A	1	105	52.9	79.8	55.2	34	70/59	-7.0	65	39.2	102.4	30
ERU-2	AIR TO AIR	14	3	190	0.09	R410A	1	93.2	46.1	79.3	54.4	31	70/58.7	-7.0	65	41.6	76.8	22.5
ERU-5	AIR TO AIR	14	3	131		R410A	1	79.6	37.8	78.4/64.3	48.2/47	28	70/56.3	-7.0	65	46.2	51.2	15
ERU-6	AIR TO AIR	14	3	249	0.14	R410A	1	106	55.7	79.3	54.5	35	70/59.4	-7.0	65	42.1	102.4	30
ERU-7	AIR TO AIR	14	3	144	0.06	R410A	1	83	39.7	78.6	49.8	29	70/56.9	-7.0	65	45.2	68.3	20
ERU-8	AIR TO AIR	14	3	143	0.06	R410A	1	82.7	39.6	78.6	49.6	29	70/56.8	-7.0	65	45.3	51.2	15
ERU-9	AIR TO AIR	14	3	233	0.12	R410A	1	107	54.4	80	56.2	34	70/59.3	-7.0	65	38.2	102.4	30
ERU-10	AIR TO AIR	14	3	198	0.1	R410A	1	100	49.7	79.4	53.6	33	70/58.3	-7.0	65	41	76.8	22.5
ERU-11	AIR TO AIR	14	3	197	0.1	R410A	1	100	49.7	79.4	53.6	33	70/58.3	-7.0	65	41	76.8	22.5
ERU-12	AIR TO AIR	14	3	152	0.07	R410A	1	83.4	40.9	78.3	50.4	30	70/57.1	-7.0	65	46.5	51.2	15
ERU-13	AIR TO AIR	14	3	261	0.14	R410A	1	109	58.6	81	58.1	34	70/60.2	-7.0	65	33.7	128	37.6

ENERGY RECOVERY UNIT (CONT.)

TAG	SOUND SOURCE	OCTAVE BAND AND CENTER FREQUENCY (HZ)							
		1	2	3	4	5	6	7	8
		62.5	125	250	500	1000	2000	4000	8000
ERU-1	DISC.	84	83	86	81	73	71	68	63
	INLET	82	81	78	71	69	67	64	60
ERU-2	DISC.	83	814	84	79	72	69	67	61
	INLET	80	79	76	69	67	65	61	57
ERU-5	DISC.	85	83	86	82	74	72	69	63
	INLET	83	81	78	72	70	68	64	60
ERU-6	DISC.	85	83	87	83	75	72	70	64
	INLET	83	82	79	73	71	68	64	60
ERU-7	DISC.	80	79	81	77	70	67	64	59
	INLET	80	79	75	69	69	67	64	60
ERU-8	DISC.	80	79	81	77	70	67	64	59
	INLET	80	79	75	69	69	67	64	60
ERU-9	DISC.	85	83	87	82	75	72	69	63
	INLET	83	81	78	72	70	68	64	60
ERU-10	DISC.	83	82	84	80	72	70	67	61
	INLET	81	79	76	69	67	65	62	58
ERU-11	DISC.	83	82	84	79	72	70	67	61
	INLET	81	79	76	69	67	65	62	58
ERU-12	DISC.	80	78	81	78	70	68	64	59
	INLET	78	76	72	65	64	63	59	55
ERU-13	DISC.	85	84	88	84	75	73	70	65
	INLET	83	83	80	74	71	69	66	62

ENERGY RECOVERY UNITS

TAG	LOCATION	AREA SERVED	SA (CFM)	EA (CFM)	RA (CFM)	SUPPLY FAN				EXHAUST FAN				TOTAL MBH SAVED SUMMER	TOTAL MBH SAVED WINTER	OPERATING WEIGHT (LBS)	FILTERS	ELECTRICAL REQUIREMENTS		TYPICAL UNIT MFG & MODEL NO.	NOTES:
						FAN TYPE	E.S.P. (IN. WC)	WATTS	HP	FAN TYPE	E.S.P. (IN. WC)	WATTS	HP					V/Ø/HZ	MCA		
ERU-3	ROOF	B	850	850	850	DIRECT	0.5	238	0.5	DIRECT	0.5	284	0.5	15.1	35.9	243-346	MERV 8	208/1/60	10.8	RENEWAIRE HE-1XJRTV-S15EE	1,2,3,4
ERU-4	ROOF	B	655	655	655	DIRECT	0.5	238	0.5	DIRECT	0.5	284	0.5	15.1	35.9	243-346	MERV 8	208/1/60	10.8	RENEWAIRE HE-1XJRTV-S15EE	1,2,3,4

NOTES:
1. FACTORY MOUNTED AND WIRED DISCONNECT.
2. FRESH AIR AND EXHAUST DAMPERS.
3. TERMINAL STRIP FOR BMS CONTROL OF FAN AND DAMPERS.
4. DIRTY FILTER SENSORS.

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SOUTH ORANGETOWN Central School District
Capital Improvements Bond
Essential Infrastructure for Student Health, Safety and Success

PROJECT INFORMATION

Project Number
14457.20

Client Name
SOUTH ORANGETOWN CENTRAL SCHOOL DISTRICT

Project Name
PHASE 1: 2022 BOND

District Office Address
160 VAN WYCK RD, BLAUVELT, NY 10913

SOUTH ORANGETOWN CSD
- [x] WILLIAM O. SCHAEFER SED#:50-03-01-06-0-012-019
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PROJECT ISSUE & REVISION SCHEDULE

No.	Date	Description
1	11/17/2023	BID ADDENDUM #4

PROFESSIONAL STAMPS

NEW YORK STATE EDUCATION STATEMENT
IT IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW AND THE COMMISSIONER'S REGULATIONS FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED ARCHITECT, ENGINEER OR LAND SURVEYOR, TO ALTER AN ITEM IN ANY WAY. IF AN ARCHITECT, ENGINEER OR LAND SURVEYOR ALTERS THIS DOCUMENT IN ANY WAY, THE ALTERING ARCHITECT, ENGINEER OR LAND SURVEYOR SHALL AFFIX TO THE ITEM HIS/HER SEAL OR STAMP, THE NOTATION "ALTERED" BY HIM/HER FOLLOWED BY HIS/HER SIGNATURE AND THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

SHEET INFORMATION

Issued: 10/18/2023
Scale: 12" = 1'-0"
Project Status: BID DOCUMENTS
Drawn By: KCM
Checked By: JJM
Drawing Title: MECHANICAL SCHEDULES

Drawing Number
WOS
H900

11/14/2023 3:45:21 PM <project location> REVIT PROJECT FILES ON BIM360

VRF INDOOR UNITS

MARK	ROOM SERVED	TYPE	AIRFLOW (H/M/L) CFM	OUTDOOR AIRFLOW CFM	ESP (INWG)	NOM. HEATING CAPACITY MBH	NOM. COOLING CAPACITY MBH	DIMENSIONS (H" X W" X D")	WEIGHT (LBS)	POWER (V/Ø/Hz)	MOCP	FLA	TYPICAL UNIT MFG & MODEL NO.	REMARKS:
SSI-1	KINDERGARTEN RM 32	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-2	KINDERGARTEN RM 32	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-3	KINDERGARTEN RM 21	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-4	KINDERGARTEN RM 21	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-5	KINDERGARTEN RM 19	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-6	KINDERGARTEN RM 19	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-7	KINDERGARTEN RM 17	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-8	KINDERGARTEN RM 17	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-9	FIRST GRADE RM 15	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-10	FIRST GRADE RM 15	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-11	LIBRARY RM 5	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-12	LIBRARY RM 5	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-13	LIBRARY RM 5	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-14	LIBRARY RM 5	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-15	LIBRARY RM 5	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-16														
SSI-17	MAKERSPACE RM 3	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-18	MAKERSPACE RM 3	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-19	1ST GRADE RM 1	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-20	1ST GRADE RM 1	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-21	KINDERGARTEN RM 104	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-22	KINDERGARTEN RM 104	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-23	OT/PT RM 105	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-24	OT/PT RM 105	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-25	OFFICES M1/M2/M3	DUCTED	860/760/648	60	-	27	24	52 X 32 X 12	104	208/1/60	15	0.88	FUJITSU ARUM24TLAV2	1-5
SSI-26	KINDERGARTEN RM 103	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-27	KINDERGARTEN RM 103	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-28	KINDERGARTEN RM 102	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-29	KINDERGARTEN RM 102	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-30	KINDERGARTEN RM 101	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-31	KINDERGARTEN RM 101	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-32	SPECIAL ED RM 100	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-33	SPECIAL ED RM 100	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-34	1ST GRADE RM 2	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-35	1ST GRADE RM 2	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-36	1ST GRADE RM 4	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-37	1ST GRADE RM 4	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-38	1ST GRADE RM 6	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-39	1ST GRADE RM 6	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-40	MUSIC RM 62	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-41	MUSIC RM 62	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-42	2ND GRADE RM 64	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-43	2ND GRADE RM 64	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-44	2ND GRADE RM 66	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-45	2ND GRADE RM 66	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-46	2ND GRADE RM 68	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-47	2ND GRADE RM 68	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-48	1ST GRADE RM 70	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-49	1ST GRADE RM 70	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-50	2ND GRADE RM 72	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-51	2ND GRADE RM 72	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5

VRF INDOOR UNITS

MARK	ROOM SERVED	TYPE	AIRFLOW (H/M/L) CFM	OUTDOOR AIRFLOW CFM	ESP (INWG)	NOM. HEATING CAPACITY MBH	NOM. COOLING CAPACITY MBH	DIMENSIONS (H" X W" X D")	WEIGHT (LBS)	POWER (V/Ø/Hz)	MOCP	FLA	TYPICAL UNIT MFG & MODEL NO.	REMARKS:
SSI-52	ART RM 74	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-53	ART RM 74	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-54	1ST GRADE RM 71	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-55	1ST GRADE RM 71	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-56	1ST GRADE RM 69	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-57	1ST GRADE RM 69	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-58	2ND GRADE RM 67	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-59	2ND GRADE RM 67	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-60	2ND GRADE RM 65	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-61	2ND GRADE RM 65	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-62	2ND GRADE RM 63	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-63	2ND GRADE RM 63	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-64	1ST GRADE RM 61	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-65	1ST GRADE RM 61	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-66	2ND GRADE RM 59	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-67	2ND GRADE RM 59	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-68	2ND GRADE RM 57	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-69	2ND GRADE RM 57	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-70	STAFF LOUNGE RM 51	CEILING CASSETTE	418/348/271	-	-	20	18	23 X 23 X 10	44	208/1/60	15	0.41	FUJITSU AUUA18TLAV2	1-5
SSI-71	ENL RM44	CEILING CASSETTE	353/306/253	-	-	13.5	12	23 X 23 X 10	42	208/1/60	15	0.41	FUJITSU AUUA12TLAV2	1-5
SSI-72	OFFICE RM 42	CEILING CASSETTE	312/265/230	-	-	4.4	4	23 X 23 X 10	40	208/1/60	15	0.23	FUJITSU AUUA4TLAV2	1-5
SSI-73	P.E. OFFICE RM 80B	CEILING CASSETTE	318/271/230	-	-	9.5	7.5	23 X 23 X 10	40	208/1/60	15	0.41	FUJITSU AUUA7TLAV2	1-5
SSI-74	CORRIDOR 3	VENTILATION UNIT	989/742/495	600	-	47	72	60 X 27 X 20	139	208/1/60	15	-	FUJITSU AAUA72TLAV	1-5
SSI-75	COACH OFFICE RM 39	CEILING CASSETTE	318/271/230	-	-	9.5	7.5	23 X 23 X 10	40	208/1/60	15	0.41	FUJITSU AUUA7TLAV2	1-5
SSI-76	AID'S OFFICE RM 38	CEILING CASSETTE	318/271/230	-	-	9.5	7.5	23 X 23 X 10	40	208/1/60	15	0.41	FUJITSU AUUA7TLAV2	1-5
SSI-77	NURSE RM 16	CEILING CASSETTE	418/348/271	-	-	20	18	23 X 23 X 10	44	208/1/60	15	0.41	FUJITSU AUUA18TLAV2	1-5
SSI-78	TEST/ISO RM 168	CEILING CASSETTE	312/265/230	-	-	4.4	4	23 X 23 X 10	40	208/1/60	15	0.23	FUJITSU AUUA4TLAV2	1-5
SSI-79	ELL RM 37A	CEILING CASSETTE	324/283/236	-	-	10.9	9.5	23 X 23 X 10	40	208/1/60	15	0.41	FUJITSU AUUA9TLAV2	1-5
SSI-80	ELL RM 37A	CEILING CASSETTE	324/283/236	-	-	10.9	9.5	23 X 23 X 10	40	208/1/60	15	0.41	FUJITSU AUUA9TLAV2	1-5
SSI-81	ELL RM 37B	CEILING CASSETTE	318/271/230	-	-	9.5	7.5	23 X 23 X 10	40	208/1/60	15	0.41	FUJITSU AUUA7TLAV2	1-5
SSI-82	ELL RM 37B	CEILING CASSETTE	318/271/230	-	-	9.5	7.5	23 X 23 X 10	40	208/1/60	15	0.41	FUJITSU AUUA7TLAV2	1-5
SSI-83	RM 16, 168, 37A, & 37B, 38	VENTILATION UNIT	989/742/495	655	-	47	72	60 X 27 X 20	139	208/1/60	15	-	FUJITSU AAUA72TLAV	1-5
SSI-84	OFFICE 20/22/23/23A/23B	DUCTED	1113/954/766	250	0.6	40	36	52 X 32 X 12	104	208/1/60	15	1.39	FUJITSU ARUM36TLAV2	1-5
SSI-85	KINDERGARTEN RM 24	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-86	KINDERGARTEN RM 24	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-87	KINDERGARTEN RM 26	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-88	KINDERGARTEN RM 26	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-89	KINDERGARTEN RM 30	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-90	KINDERGARTEN RM 30	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5

REMARKS:

1. UNIT MOUNTED AND WIRED DISCONNECT.
2. BAC NET INTERGRATION TO BMS.
3. COLOR WHITE.
4. DRAIN PAN LEVEL SESORS.
5. CONDENSATE PUMP.

SPLIT SYSTEM OUTDOOR CONDENSING UNIT SCHEDULE

NAME	LOCATION	SERVES	EER	COP	RATED COOLING CAPACITY (TON)	RATED HEATING CAPACITY (TON)	TOTAL COOLING CAPACITY (TON)	TOTAL HEATING CAPACITY (TON)	ELECTRICAL DATA: POWER (Ø/V/Hz)	ELECTRICAL DATA: RATED CURRENT IN COOLING (A)	ELECTRICAL DATA: RATED CURRENT IN HEATING (A)	ELECTRICAL DATA: MCA (A)	ELECTRICAL DATA: MFA (A)	DIMENSIONS (H X W X D) (INCH)	WEIGHT (LBS)	MANUF.	MODEL	NOTES
ACC-1,2,	ROOF	SSI-1, SSI-2, SSI-3, SSI-4, SSI-5, SSI-6, SSI-89, SSI-90	10.9	3.47	18	20.25	13	14.19	3/208/60	21.69	26.71	81.6	50	66-9/16 X 36-5/16 X 30-1/8	569	FUJITSU	AOUA120ULBV5	1,2,3
	ROOF								3/208/60	17.64	19.4		60	66-9/16 X 48-13/16 X 30-1/8	622		AOUA96ULBV5	
ACC-3,4	ROOF	SSI-7, SSI-8, SSI-9, SSI-10, SSI-85, SSI-86, SSI-87, SSI-88	10.9	3.47	18	20.25	13	14.19	3/208/60	21.69	26.71	81.6	50	66-9/16 X 36-5/16 X 30-1/8	569	FUJITSU	AOUA120ULBV5	1,2,3
	ROOF								3/208/60	17.64	19.4		60	66-9/16 X 48-13/16 X 30-1/8	622		AOUA96ULBV5	
ACC-5	ROOF	SSI-74	11	3.48	16	18	12.88	8.4	3/208/60	14.83	13.94	71	40	64-1/2 X 42-1/2 X 18-7/8	469.6	FUJITSU	AOU72RLAVL	1,2,3
ACC-6	ROOF	SSI-75, SSI-76, SSI-77, SSI-78, SSI-79, SSI-80, SSI-81, SSI-82, SSI-84	14.9	4.42	6	6.75	3.64	4.83	3/208/60	17.64	19.4	29.3	60	66-9/16 X 48-13/16 X 30-1/8	622	FUJITSU	AOUA96ULBV5	1,2,3
ACC-7,8	ROOF	SSI-11, SSI-12, SSI-13, SSI-14, SSI-15	14.4	4.07	12	13.5	6.17	9.67	3/208/60	24.36	28.25	49.8	60	66-9/16 x 63 x 30-1/8	937	FUJITSU	AOUA144ULBV5	1,2,3
ACC-9,10	ROOF	SSI-17, SSI-18, SSI-19, SSI-20, SSI-34, SSI-35, SSI-36, SSI-37, SSI-38, SSI-39	11.7	3.52	22	24.75	15.89	17.72	3/208/60	24.36	28.25	93.7	60	66-9/16 x 63 x 30-1/8	937	FUJITSU	AOUA144ULBV5	1,2,3
									3/208/60	21.69	26.71		50	66-9/16 X 36-5/16 X 30-1/8	569		AOUA120ULBV5	1,2
ACC-11,12	ROOF	SSI-21, SSI-22, SSI-30, SSI-31, SSI-32, SSI-33	12.2	3.78	14	15.67	9.62	10.78	3/208/60	33.49	35.83	59.8	70	66-9/16 X 63 X 30-1/8	937	FUJITSU	AOUA168ULBV5	1,2,3
ACC-13,14	ROOF	SSI-23, SSI-24, SSI-25, SSI-26, SSI-27, SSI-28, SSI-29	11	3.48	16	18	11	12.72	3/208/60	43.54	45.08	71	80	66-9/16 x 63 x 30-1/8	937	FUJITSU	AOUA192ULBV5	1,2,3
ACC-15,16	ROOF	SSI-40, SSI-41, SSI-66, SSI-67, SSI-68, SSI-69	12.2	3.78	14	15.67	9.62	10.78	3/208/60	33.49	35.83	59.8	70	66-9/16 X 63 X 30-1/8	937	FUJITSU	AOUA168ULBV5	1,2,3
ACC-17	ROOF	SSI-70, SSI-71, SSI-72, SSI-73	12.5	3.88	4	4.5	2.83	3.43	1/208/60	16.38	17.44	29.8	30	52-1/2 X 38-3/16 X 14-9/16	265	FUJITSU	AOU48RLAVM4	1,2,3
ACC-18,19	ROOF	SSI-50, SSI-51, SSI-52, SSI-53, SSI-54, SSI-55, SSI-56, SSI-57	10.9	3.47	18	20.25	12.37	14.01	3/208/60	21.69	26.71	81.6	50	66-9/16 X 36-5/16 X 30-1/8	569	FUJITSU	AOUA120ULBV5	1,2,3
	ROOF								3/208/60	17.64	19.4		60	66-9/16 X 48-13/16 X 30-1/8	622		AOUA96ULBV5	
ACC-20,21	ROOF	SSI-46, SSI-47, SSI-48, SSI-49, SSI-58, SSI-59, SSI-60, SSI-61	10.9	3.47	18	20.25	13	14.19	3/208/60	21.69	26.71	81.6	50	66-9/16 X 36-5/16 X 30-1/8	569	FUJITSU	AOUA120ULBV5	1,2,3
	ROOF								3/208/60	17.64	19.4		60	66-9/16 X 48-13/16 X 30-1/8	622		AOUA96ULBV5	
ACC 22,23	ROOF	SSI-42, SSI-43, SSI-44, SSI-45, SSI-62, SSI-63, SSI-64, SSI-65	10.9	3.47	18	20.25	13	14.19	3/208/60	21.69	26.71	81.6	50	66-9/16 X 36-5/16 X 30-1/8	569	FUJITSU	AOUA120ULBV5	1,2,3
	ROOF								3/208/60	17.64	19.4		60	66-9/16 X 48-13/16 X 30-1/8	622		AOUA96ULBV5	
SSO-1	HIGH ROOF	DX COIL	10.4	-	25	-	264.7	-	3/208/60	-	-	120.2	150	66.5 × 40.3 × 88.2	1095	CARRIER	38APD0255H	1,2
SSO-2	HIGH ROOF	DX COIL	10.6	-	20	-	224.3	-	3/208/60	-	-	74.8	100	50.4 × 67.1 × 86.1	976	CARRIER	38AUDT25	1,2
HP-05																		
HP-04	ROOF	SSI-16	12.1	4.19	8	6.75	6.88	6.07	3/208/60	14.83	13.94	38	40	64-1/2 X 42-1/2 X 18-7/8	469.6	FUJITSU	AOU72RLAVL	1,2,3

NOTES:

1. FACTORY MOUNTED DISCONNECT
2. 95°F OUTDOOR TEMPERATURE IN COOLING (DRY BULB), 10°F OUTDOOR TEMPERATURE IN HEATING(DRY BULB)
3. LOW AMBIENT TEMPERATURE KIT

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SOUTH ORANGETOWN Central School District
Capital Improvements Bond
Essential Infrastructure for Student Health, Safety and Success

PROJECT INFORMATION

Project Number
14457.20

Client Name
SOUTH ORANGETOWN CENTRAL SCHOOL DISTRICT

Project Name
PHASE 1: 2022 BOND

District Office Address
160 VAN WYCK RD, BLAUVELT, NY 10913

SOUTH ORANGETOWN CSD

- [x] WILLIAM O. SCHAEFER SED#:50-03-01-06-0-012-019
- [ ] COTTAGE LANE ELEMENTARY SED#:50-03-01-06-0-010-022
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- [ ] COTTAGE LANE S&L SED#: 50-03-01-06-0-010-023
- [ ] COTTAGE LANE LIBRARY S&L SED#: 50-03-01-06-8-023-002
- [ ] WOS OUTDOOR CLASSROOM SED#: 50-03-01-06-7-053-001
- [ ] SOMS OUTDOOR CLASSROOM SED#: 50-03-01-06-7-058-001
- [ ] CLE OUTDOOR CLASSROOM SED#: 50-03-01-06-7-054-001
- [ ] TZHS OUTDOOR CLASSROOM SED#: 50-03-01-06-7-055-001

PROJECT ISSUE & REVISION SCHEDULE

No.	Date	Description
1	11/17/2023	BID ADDENDUM #4

PROFESSIONAL STAMPS

SHEET INFORMATION

Issued: 10/18/2023
Scale: NOT TO SCALE
Project Status: BID DOCUMENTS
Drawn By: KCM
Checked By: JJM
Drawing Title: MECHANICAL SCHEDULES

Drawing Number
WOS
H901

11/16/2023 3:52:53 P.M. <project location> REVIT PROJECT FILES ON BIM360

VENTILATION CALCULATIONS

ROOM #	SPACE NAME CLASSIFICATION	HVAC SYSTEM	SPACE MAXIMUM SUPPLY (CFM) Vpz	FLOOR AREA (SQ FT) Az	OCCUPANT DENSITY (PERSON/SQ FT) A	TOTAL OCCUPANCY FOR VENTILATION (PEOPLE/1000 SQ FT)	PEOPLE OUTDOOR AIRFLOW RATE (CFM/PERSON) Rp	AREA OUTDOOR AIRFLOW RATE (CFM/SQ FT) Ra	EXHAUST AIRFLOW RATE (CFM/SQ FT)	AIR DISTRIBION EFFECTIVENESS Ez	BREATHING ZONE OUTDOOR AIR (CFM) Vbz	ZONE OUTDOOR AIRFLOW (CFM) Voz	ADJUSTED CFM
1	CLASSROOMS (5-8)	SSI-19,20	425	891 SF	25	23	10.0	0.12	-	0.8	337	422	425
2	CLASSROOMS (5-8)	SSI-34,35	425	891 SF	25	23	10.0	0.12	-	0.8	337	422	425
3	CLASSROOMS (5-8)	SSI-17,18	425	885 SF	25	23	10.0	0.12	-	0.8	336	421	425
4	CLASSROOMS (5-8)	SSI-36,37	425	888 SF	25	23	10.0	0.12	-	0.8	337	421	425
5	LIBRARY	ERU-5	240	1099 SF	10	11	5.0	0.12	-	0.8	187	234	240
5A	LIBRARY	ERU-5	190	882 SF	10	9	5.0	0.12	-	0.8	151	189	190
6	CLASSROOMS (5-8)	SSI-38,39	420	882 SF	25	23	10.0	0.12	-	0.8	336	420	420
15	CLASSROOMS (5-8)	SSI-9,10	405	857 SF	25	22	10.0	0.12	-	0.8	323	404	405
16	OFFICE SPACES	SSI-77	55	464 SF	5	3	5.0	0.06	-	0.8	43	54	55
16B	SICKROOM	SSI-78	50	66 SF	25	2	10.0	0.18	-	0.8	32	40	50
17	CLASSROOMS (5-8)	SSI-7,8	405	857 SF	25	22	10.0	0.12	-	0.8	323	404	405
19	CLASSROOMS (5-8)	SSI-5,6	405	857 SF	25	22	10.0	0.12	-	0.8	323	404	405
20	OFFICE SPACES	SSI-84	250	228 SF	5	2	5.0	0.06	-	0.8	24	30	50
21	CLASSROOMS (5-8)	SSI-3,4	480	1025 SF	25	26	10.0	0.12	-	0.8	383	479	480
22	OFFICE SPACES	SSI-84	150	104 SF	5	1	5.0	0.06	-	0.8	11	15	50
23	OFFICE SPACES	SSI-84	240	266 SF	5	2	5.0	0.06	-	0.8	26	33	50
23A	OFFICE SPACES	SSI-84	200	142 SF	5	1	5.0	0.06	-	0.8	14	17	50
23B	OFFICE SPACES	SSI-84	200	142 SF	5	1	5.0	0.06	-	0.8	14	17	50
24	CLASSROOMS (5-8)	SSI-85,86	405	857 SF	25	22	10.0	0.12	-	0.8	323	404	405
26	CLASSROOMS (5-8)	SSI-87,88	405	857 SF	25	22	10.0	0.12	-	0.8	323	404	405
30	CLASSROOMS (5-8)	SSI-89,90	520	1105 SF	25	28	10.0	0.12	-	0.8	413	516	520
32	CLASSROOMS (5-8)	SSI-1,2	480	1025 SF	25	26	10.0	0.12	-	0.8	383	479	480
37A	CLASSROOMS (5-8)	SSI-79,80	280	600 SF	25	15	10.0	0.12	-	0.8	222	278	280
37B	CLASSROOMS (5-8)	SSI-81,82	170	356 SF	25	9	10.0	0.12	-	0.8	133	166	170
38	OFFICE SPACES	SSI-76	50	309 SF	5	2	5.0	0.06	-	0.8	29	36	50
39	OFFICE SPACES	SSI-75	50	261 SF	5	2	5.0	0.06	-	0.8	26	33	50
42	OFFICE SPACES	SSI-72	50	141 SF	5	1	5.0	0.06	-	0.8	13	17	50
44	CLASSROOMS (5-8)	SSI-71	185	377 SF	25	10	10.0	0.12	-	0.8	145	182	185
51	BREAK ROOMS	SSI-70	105	369 SF	30	12	5.0	0.06	-	0.8	82	103	105
57	CLASSROOMS (5-8)	SSI-68,69	425	898 SF	25	23	10.0	0.12	-	0.8	338	423	425
59	CLASSROOMS (5-8)	SSI-66,67	420	882 SF	25	23	10.0	0.12	-	0.8	336	420	420
61	CLASSROOMS (5-8)	SSI-64,65	420	882 SF	25	23	10.0	0.12	-	0.8	336	420	420
62	MUSIC/THEATER/DANCE	SSI-40,41	455	882 SF	35	31	10.0	0.06	-	0.8	363	454	455
63	CLASSROOMS (5-8)	SSI-62,63	420	882 SF	25	23	10.0	0.12	-	0.8	336	420	420
64	CLASSROOMS (5-8)	SSI-42,43	420	882 SF	25	23	10.0	0.12	-	0.8	336	420	420
65	CLASSROOMS (5-8)	SSI-60,61	420	882 SF	25	23	10.0	0.12	-	0.8	336	420	420
66	CLASSROOMS (5-8)	SSI-44,45	420	882 SF	25	23	10.0	0.12	-	0.8	336	420	420
67	CLASSROOMS (5-8)	SSI-58,59	425	889 SF	25	23	10.0	0.12	-	0.8	337	421	425
68	CLASSROOMS (5-8)	SSI-46,47	420	882 SF	25	23	10.0	0.12	-	0.8	336	420	420
69	CLASSROOMS (5-8)	SSI-56,57	425	891 SF	25	23	10.0	0.12	-	0.8	337	422	425
70	CLASSROOMS (5-8)	SSI-48,49	425	889 SF	25	23	10.0	0.12	-	0.8	337	421	425
71	CLASSROOMS (5-8)	SSI-54,55	425	891 SF	25	23	10.0	0.12	-	0.8	337	422	425
72	CLASSROOMS (5-8)	SSI-50,51	425	891 SF	25	23	10.0	0.12	-	0.8	337	422	425
74	ART CLASSROOM	SSI-52,53	715	891 SF	20	18	10.0	0.18	0.70	0.8	340	713	715
80C	OFFICE SPACES	SSI-73	50	186 SF	5	1	5.0	0.06	-	0.8	16	21	50
100	CLASSROOMS (5-8)	SSI-32,33	410	869 SF	25	22	10.0	0.12	-	0.8	324	406	410
101	CLASSROOMS (5-8)	SSI-30,31	410	870 SF	25	22	10.0	0.12	-	0.8	324	406	410
102	CLASSROOMS (5-8)	SSI-28,29	410	872 SF	25	22	10.0	0.12	-	0.8	325	406	410
103	CLASSROOMS (5-8)	SSI-26,27	410	872 SF	25	22	10.0	0.12	-	0.8	325	406	410
104	CLASSROOMS (5-8)	SSI-21,22	410	872 SF	25	22	10.0	0.12	-	0.8	325	406	410
105	HEALTH CLUB/WEIGHT ROOM	SSI-23,24	290	856 SF	10	9	20.0	0.06	-	0.8	231	290	290
106	CORRIDOR	RTU-3	100	172 SF	-	0	-	0.06	-	0.8	10	13	50
106A	OFFICE SPACES	RTU-3	380	181 SF	5	1	5.0	0.06	-	0.8	16	20	50
106B	OFFICE SPACES	RTU-3	360	132 SF	5	1	5.0	0.06	-	0.8	13	17	50
106C	OFFICE SPACES	RTU-3	180	124 SF	5	1	5.0	0.06	-	0.8	12	16	50
106D	OFFICE SPACES	RTU-3	250	245 SF	5	2	5.0	0.06	-	0.8	25	31	50
M1	OFFICE SPACES	SSI-25	175	113 SF	5	1	5.0	0.06	-	0.8	12	15	50
M2	OFFICE SPACES	SSI-25	225	150 SF	5	1	5.0	0.06	-	0.8	14	18	50
M3	OFFICE SPACES	SSI-25	365	241 SF	5	2	5.0	0.06	-	0.8	24	31	50
1	CORRIDOR	ERU-13	1,350	2472 SF	-	0	-	0.06	-	0.8	148	186	200
2	CORRIDOR	ERU-13	500	1500 SF	-	0	-	0.06	-	0.8	90	113	120
3	CORRIDOR	ERU-5	600	1915 SF	-	0	-	0.06	-	0.8	115	144	150
	CORRIDOR	SSI-74	980	1915 SF	-	0	-	0.06	-	0.8	115	144	150

ROOFTOP AIR CONDITIONING UNIT SCHEDULE

TAG	LOCATION	NOM. TONS	SEER	SUPPLY FAN CFM	SUPPLY FAN OA CFM	SUPPLY FAN ESP (IN. W.C.)	SUPPLY FAN BHP / HP	COOLING CAPACITY TOTAL MBH	COOLING CAPACITY SENS MBH	COOLING CAPACITY EAT°F DB	COOLING CAPACITY EAT°F WB	LAT°F	AMB °F	ELECTRICAL VOLT/Ø	ELECTRICAL MCA	ELECTRICAL FLA	TYPICAL UNIT MFG & MODEL NO.	NOTES:
RTU-3	ROOF	1-6	13.4	1250	250	1	0.73/1	37.81	25.61	75	64.66	55.78	95	208/1	32	28	AAON. RQ-003-1-0-DAAC-V0-21-000-A	1,2,3

NOTES:
1. 14" INSULATED CURB. UNIT SHALL HAVE PACKAGED CONTROLS AND CONNECT TO BMS.
2. FACTORY MOUNTED AND WIRED DISCONNECT. 2" PREFILTER, 4" MERV 13 FILTER.
3. DOUBLE WALL, R-13 FOAM INSULATION.

FIN TUBE SCHEDULE

TAG	LOCATION	BTU/FT.	GPM	TUBE SIZE (IN.)	FINS / FT.	EWT (°F)	EAT (°F)	ENCLOSURE H (IN.)	ENCLOSURE D (IN.)	ENCLOSURE STYLE	TYPICAL UNIT MFG & MODEL NO.	NOTES:
FT-1	6	1200	0.7	0.75	50	180	65	28"	5-5/16"	BARE ELEMENT	STERLING JVB-T-C3/4-435	1,2,3

NOTES:
1. LOCATE ELEMENT BEHIND MILLWORK BY GC.
2. MC TO FIELD VERIFY ENCLOSURE LENTGH. ENCLOSURE TO BE FULL WIDTH WITHOUT GAPS.
3. COORDINATE HEIGHT WITH ELECTRICAL DEVICES.

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SOUTH ORANGETOWN Central School District
Capital Improvements Bond
Essential Infrastructure for Student Health, Safety and Success

PROJECT INFORMATION

Project Number
14457.20

Client Name
SOUTH ORANGETOWN CENTRAL SCHOOL DISTRICT

Project Name
PHASE 1: 2022 BOND

District Office Address
160 VAN WYCK RD, BLAUVELT, NY 10913

SOUTH ORANGETOWN CSD
- [x] WILLIAM O. SCHAEFER SED#:50-03-01-06-0-012-019
- [ ] COTTAGE LANE ELEMENTARY SED#:50-03-01-06-0-010-022
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- [ ] CLE OUTDOOR CLASSROOM SED#: 50-03-01-06-7-054-001
- [ ] TDHS OUTDOOR CLASSROOM SED#: 50-03-01-06-7-055-001

PROJECT ISSUE & REVISION SCHEDULE

No.	Date	Description
1	10/27/2023	BID ADDENDUM #1
2	11/03/2023	BID ADDENDUM #2
3	11/17/2023	BID ADDENDUM #4

PROFESSIONAL STAMPS

NEW YORK STATE EDUCATION STATEMENT
IT IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW AND THE COMMISSIONER'S REGULATIONS FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED ARCHITECT, ENGINEER OR LAND SURVEYOR TO ALTER AN ITEM IN ANY WAY. IF AN ITEM BEARING THE SEAL OF AN ARCHITECT, ENGINEER OR SURVEYOR IS ALTERED, THE ALTERING PARTY SHALL AFFIX TO THE ITEM THEIR SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE AND THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

SHEET INFORMATION

Issued
10/18/2023

Scale
12" = 1'-0"

Project Status
BID DOCUMENTS

Drawn By
KCM

Checked By
JJM

Drawing Title
MECHANICAL SCHEDULES

Drawing Number
WOS
H902

11/16/2023 4:03:22 PM <project location> REVIT PROJECT FILES ON BIM360

REGISTERS, GRILLES, AND DIFFUSERS

TAG	APPLICATION	MATERIAL	TYPE	FINISH	DESIGN EQUIP.	NOTES:
D-1	SUPPLY	STEEL	CEILING GRILLE	WHITE	PRICE 500	3
D-2	SUPPLY	STEEL	LAY-IN	WHITE	PRICE SPD	2,4
D-3	SUPPLY	STEEL	ROUND	WHITE	PRICE HCD	1
R-1	RETURN/EA	STEEL	CEILING GRILLE	WHITE	PRICE 510	3
R-2	RETURN/EA	STEEL	LAY-IN	WHITE	PRICE PDN	-
R-3	RETURN/EA	STEEL	GYM RA	WHITE	PRICE 90	1,3

NOTES:
1. OPPOSED BLADE DAMPER.
2. STANDARD AIR FLOW PATTERN.
3. SINGLE DEFLECTION, BLADES PARALLEL TO LENGTH.
4. INSULATED BACK PAN.

GRAVITY VENTILATOR SCHEDULE

TAG	LOCATION	SERVICE	MANUF.	MODEL	THROAT AREA (SQ.FT.)	HOOD AREA (SQ.FT.)	AIR FLOW (CFM)	S.P. (IN.WG.)	TYPICAL UNIT MFG & MODEL NO.	NOTES
GI-1	ROOF	I.T. & RESOURCES	GREENHECK	GRSI-8	0.4	2.0	160	0.032	GREENHECK: GRSI-8	1,2
GI-2	ROOF	NURSE	GREENHECK	GRSI-8	0.4	2.0	100	0.013	GREENHECK: GRSI-8	1,2
GR-1	ROOF	I.T. & RESOURCES	GREENHECK	GRSR-8	0.4	2.0	160	0.019	GREENHECK: GRSR-8	1,2
GR-2	ROOF	NURSE	GREENHECK	GRSR-8	0.4	2.0	100	0.008	GREENHECK: GRSR-8	1,2

NOTES:
1. BAROMETRIC RELIEF DAMPER IN CURB.
2. 14" CURB, HINGED BASE AND BIRD SCREEN.

VRF BRANCH SELECTOR UNITS

MARK	NUMBER OF BRANCHES AVAILABLE	NUMBER OF BRANCHES USED	MAX TOTAL CAPACITY (MBH)	MAX BRANCH CAPACITY (MBH)	CONNECTED TOTAL HEATING CAPACITY (MBH)	CONNECTED TOTAL COOLING CAPACITY (MBH)	DIMENSIONS (H × W × D)	POWER (V/Ø/HZ)	POWER (WATTS)	TYPICAL UNIT MFG & MODEL NO.
RBU-1	8	8	245	27	216	192	11" × 26" × 25"	208-230 / 1 / 60	226 W	FUJITSU UTP-RU08AH
RBU-2	8	6	245	27	162	144	11" × 26" × 25"	208-230 / 1 / 60	226 W	FUJITSU UTP-RU08AH
RBU-3	8	8	245	27	216	192	11" × 26" × 25"	208-230 / 1 / 60	226 W	FUJITSU UTP-RU08AH
RBU-4	8	5	245	27	128	132	11" × 26" × 25"	208-230 / 1 / 60	226 W	FUJITSU UTP-RU08AH
RBU-5	4	2	191	96	30	51	11" × 26" × 25"	208-230 / 1 / 60	110 W	FUJITSU UTP-RU08AH
RBU-6	8	3	245	27	60	108	11" × 26" × 25"	208-230 / 1 / 60	226 W	FUJITSU UTP-RU08AH
RBU-7	8	8	245	27	216	192	11" × 26" × 25"	208-230 / 1 / 60	226 W	FUJITSU UTP-RU08AH
RBU-8	8	8	245	27	216	192	11" × 26" × 25"	208-230 / 1 / 60	226 W	FUJITSU UTP-RU08AH
RBU-9	4	3	191	96	81	96	11" × 26" × 25"	208-230 / 1 / 60	110 W	FUJITSU UTP-RU08AH
RBU-10	4	4	191	96	49	81	11" × 26" × 25"	208-230 / 1 / 60	110 W	FUJITSU UTP-RU08AH
RBU-11	8	7	245	27	165	195	11" × 26" × 25"	208-230 / 1 / 60	226 W	FUJITSU UTP-RU08AH
RBU-12	4	4	191	96	108	96	11" × 26" × 25"	208-230 / 1 / 60	110 W	FUJITSU UTP-RU08AH
RBU-13	8	8	245	27	216	192	11" × 26" × 25"	208-230 / 1 / 60	226 W	FUJITSU UTP-RU08AH
RBU-14	8	6	245	27	162	144	11" × 26" × 25"	208-230 / 1 / 60	226 W	FUJITSU UTP-RU08AH
RBU-15	8	5	245	27	97	135	11" × 26" × 25"	208-230 / 1 / 60	226 W	FUJITSU UTP-RU08AH

HOT WATER REHEAT COIL SCHEDULE

TAG	LOCATION	AIR DATA				WATER DATA				MFG SIZE HxL (IN.)	ROWS	TYPICAL UNIT MFG & MODEL NO.	NOTES:
		CFM	TEMP °F ENT	TEMP °F LVG	MAX APD (IN WC)	MIN. MBH	GPM	TEMP °F ENT	TEMP °F LVG	MAX WPD (FT. HD)			
HC-1	GYM	3750	22.6	90.1	0.27	268.6	21.3	180	154.2	2.5	30X30	2	CAPITAL COIL W8-3030-10B-HCA-R	1
HC-2	GYM	3750	22.6	90.1	0.27	268.6	21.3	180	154.2	2.5	30X30	2	CAPITAL COIL W8-3030-10B-HCA-R	1
HC-3	GYM STAGE	2000	28.2	92.0	0.21	138.1	10.7	180	153.2	2.9	18X30	2	CAPITAL COIL W8-3018-09B-4CA-R	1

NOTES:
1. TUBE OD 0.625, TUBE SPACING 1.500 x 1.299

ELECTRIC REHEAT COIL SCHEDULE

TAG	LOCATION	AIR DATA					ELECTRICAL			MFG SIZE H (IN.)	MFG SIZE L (IN.)	TYPICAL UNIT MFG & MODEL NO.	NOTES:
		CFM	TEMP °F ENT	TEMP °F LVG	MAX APD (IN WC)	KW	VOLTS	Ø	AMPS				
EC-1	MAIN OFFICE	390	40	72	0.08	13.48	208	3	65	8	10	INDEECO QUA	1,2,3
EC-2	RESOURCE	160	40	72	0.08	5.53	208	3	27	6	6	INDEECO QUA	1,2,3
EC-3	NURSE	100	40	72	0.08	3.46	208	3	17	8	8	INDEECO QUA	1,2,3
EC-4	ENL	265	40	72	0.08	9.16	208	3	45	6	8	INDEECO QUA	1,2,3
EC-5	MAC LAB	260	40	72	0.08	8.99	208	3	45	8	8	INDEECO QUA	1,2,3

NOTES:
1. PROVIDE PROPORTIONAL SCR CONTROLS AND DUCT TEMPERATURE SENSOR.
2. CONNECT TO BMS.
3. FACTORY MOUNTED AND WIRED DISCONNECT.

1

ENERGY RECOVERY UNITS

TAG	LOCATION	AREA SERVED	SA (CFM)	EA (CFM)	RA (CFM)	SUPPLY FAN				EXHAUST FAN				TOTAL MBH SAVED SUMMER	TOTAL MBH SAVED WINTER	OPERATING WEIGHT (LBS)	FILTERS	ELECTRICAL REQUIREMENTS		TYPICAL UNIT MFG & MODEL NO.	NOTES:
						FAN TYPE	E.S.P. (IN. WC)	WATTS	HP	FAN TYPE	E.S.P. (IN. WC)	WATTS	HP					V/Ø/HZ	MCA		
ERU-12	ROOF	MAIN OFFICE	390	390	390	DIRECT	0.75	395	0.5	DIRECT	0.75	395	0.5	9.0	21.1	184-243	MERV 8	208/1	15	RENEWAIRE EV450RT	1,2,3,4
ERU-13	CORRIDOR	RESOURCE	160	160	160	DIRECT	0.47	146	0.1	DIRECT	0.47	146	0.1	4.2	9.3	68	MERV 8	208/1	15	RENEWAIRE: EV200	1,2,3,4
ERU-14	212 NURSE	NURSE	100	100	100	DIRECT	0.77	111	0.1	DIRECT	0.77	111	0.1	2.8	6.1	68	MERV 8	208/1	15	RENEWAIRE: EV200	1,2,3,4
ERU-15	ROOF	MAT LABS	260	260	260	DIRECT	0.75	493	0.6	DIRECT	0.75	493	0.6	6.9	15.1	184-243	MERV 8	208/1	15	RENEWAIRE EV450RT	1,2,3,4
ERU-16	ROOF	ENL, BOOK, CUSTODIAN	265	265	265	DIRECT	0.75	493	0.6	DIRECT	0.75	493	0.6	7.0	15.4	184-243	MERV 8	208/1	15	RENEWAIRE EV450RT	1,2,3,4

NOTES:
1. FACTORY MOUNTED AND WIRED DISCONNECT.
2. FRESH AIR AND EXHAUST DAMPERS.
3. TERMINAL STRIP FOR BMS CONTROL OF FAN AND DAMPERS.
4. DIRTY FILTER SENSORS.

VRF INDOOR UNITS

MARK	ROOM SERVED	TYPE	AIRFLOW (H/M/L) CFM	OUTDOOR AIRFLOW CFM	ESP (INWG)	NOM.HEATING CAPACITY MBH	NOM.COOLING CAPACITY MBH	DIMENSIONS (W" X H" X D")	WEIGHT (LBS)	POWER (Ø/V/Hz)	MOCP	FLA	TYPICAL UNIT MFG & MODEL NO.	NOTES
SSI-1,2	411	CEILING CASSETTE	607/465/330		-	27	24	23 X 23 X 10	44	1/208/60	15	0.62	FUJITSU AUUA24TLAV2	1,2,3,4,5,6
SSI-3,4	409	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	1/208/60	15	0.62	FUJITSU AUUA24TLAV2	1,2,3,4,5,6
SSI-5,6	407	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	1/208/60	15	0.62	FUJITSU AUUA24TLAV2	1,2,3,4,5,6
SSI-7,8	405	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	1/208/60	15	0.62	FUJITSU AUUA24TLAV2	1,2,3,4,5,6
SSI-9,10	410	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	1/208/60	15	0.62	FUJITSU AUUA24TLAV2	1,2,3,4,5,6
SSI-11,12	408	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	1/208/60	15	0.62	FUJITSU AUUA24TLAV2	1,2,3,4,5,6
SSI-13,14	406	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	1/208/60	15	0.62	FUJITSU AUUA24TLAV2	1,2,3,4,5,6
SSI-15	404	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	1/208/60	15	0.62	FUJITSU AUUA24TLAV2	1,2,3,4,5,6
SSI-16	400B	CEILING CASSETTE	318/271/230	50	-	9.5	7.5	23 X 23 X 10	40	1/208/60	15	0.41	FUJITSU AUUA7TLAV2	1,2,3,4,5,6
SSI-17	400C	CEILING CASSETTE	418/348/271	50	-	20	18	23 X 23 X 10	44	1/208/60	15	0.41	FUJITSU AUUA18TLAV2	1,2,3,4,5,6
SSI-18,19	400	CEILING CASSETTE	418/348/271	75	-	20	18	23 X 23 X 10	44	1/208/60	15	0.41	FUJITSU AUUA18TLAV2	1,2,3,4,5,6
SSI-20,21	106	CASSETTE	589/512/436	-	-	27	24	46 X 32 X 13	84	1/208/60	15	0.74	FUJITSU ABUA24TLAV2	1,2,3,4,5,6
SSI-22,23	108	CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	1/208/60	15	0.62	FUJITSU AUUA24TLAV2	1,2,3,4,5,6
SSI-24,25	110	CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	1/208/60	15	0.62	FUJITSU AUUA24TLAV2	1,2,3,4,5,6
SSI-26,27	111	CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	1/208/60	15	0.62	FUJITSU AUUA24TLAV2	1,2,3,4,5,6
SSI-28,29	109	CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	1/208/60	15	0.62	FUJITSU AUUA24TLAV2	1,2,3,4,5,6
SSI-30,31	107	CASSETTE	589/512/436	-	-	27	24	46 X 32 X 13	84	1/208/60	15	0.74	FUJITSU ABUA24TLAV2	1,2,3,4,5,6
SSI-32,33	105	CASSETTE	589/512/436	-	-	27	24	46 X 32 X 13	84	1/208/60	15	0.74	FUJITSU ABUA24TLAV2	1,2,3,4,5,6
SSI-34	101A	CEILING CASSETTE	318/271/230	50	-	9.5	7.5	23 X 23 X 10	40	1/208/60	15	0.41	FUJITSU AUUA7TLAV2	1,2,3,4,5,6
SSI-35	101G	CEILING CASSETTE	418/348/271	-	-	20	18	23 X 23 X 10	44	1/208/60	15	0.41	FUJITSU AUUA18TLAV2	1,2,3,4,5,6
SSI-36	200B	CEILING CASSETTE	418/348/271	-	-	20	18	23 X 23 X 10	44	1/208/60	15	0.41	FUJITSU AUUA18TLAV2	1,2,3,4,5,6
SSI-37	200	CEILING CASSETTE	418/348/271	-	-	20	18	23 X 23 X 10	44	1/208/60	15	0.41	FUJITSU AUUA18TLAV2	1,2,3,4,5,6
SSI-38	202	CEILING CASSETTE	418/348/271	50	-	20	18	23 X 23 X 10	44	1/208/60	15	0.41	FUJITSU AUUA18TLAV2	1,2,3,4,5,6
SSI-39	204	CEILING CASSETTE	418/348/271	-	-	20	18	23 X 23 X 10	44	1/208/60	15	0.41	FUJITSU AUUA18TLAV2	1,2,3,4,5,6
SSI-40,41	206	CASSETTE	589/512/436	-	-	27	24	46 X 32 X 13	84	1/208/60	15	0.74	FUJITSU ABUA24TLAV2	1,2,3,4,5,6
SSI-42,43	208	CASSETTE	589/512/436	-	-	27	24	46 X 32 X 13	84	1/208/60	15	0.74	FUJITSU ABUA24TLAV2	1,2,3,4,5,6
SSI-44,45	210	CASSETTE	589/512/436	-	-	27	24	46 X 32 X 13	84	1/208/60	15	0.74	FUJITSU ABUA24TLAV2	1,2,3,4,5,6
SSI-46,47	209	CASSETTE	589/512/436	-	-	27	24	46 X 32 X 13	84	1/208/60	15	0.74	FUJITSU ABUA24TLAV2	1,2,3,4,5,6
SSI-48,49	207	CASSETTE	589/512/436	-	-	27	24	46 X 32 X 13	84	1/208/60	15	0.74	FUJITSU ABUA24TLAV2	1,2,3,4,5,6
SSI-50,51	205	CASSETTE	589/512/436	-	-	27	24	46 X 32 X 13	84	1/208/60	15	0.74	FUJITSU ABUA24TLAV2	1,2,3,4,5,6
SSI-52	201B	CEILING CASSETTE	318/271/230	110	-	9.5	7.5	23 X 23 X 10	40	1/208/60	15	0.41	FUJITSU AUUA7TLAV2	1,2,3,4,5,6
SSI-53	202A	CEILING CASSETTE	418/348/271	50	-	20	18	23 X 23 X 10	44	1/208/60	15	0.41	FUJITSU AUUA18TLAV2	1,2,3,4,5,6
SSI-54	212	CEILING CASSETTE	318/271/230	50	-	9.5	7.5	23 X 23 X 10	40	1/208/60	15	0.41	FUJITSU AUUA7TLAV2	1,2,3,4,5,6
SSI-55	212A	CEILING CASSETTE	318/271/230	50	-	9.5	7.5	23 X 23 X 10	40	1/208/60	15	0.41	FUJITSU AUUA7TLAV2	1,2,3,4,5,6
SSI-56,57	300C	CASSETTE	589/512/436	-	-	27	24	46 X 32 X 13	84	1/208/60	15	0.74	FUJITSU ABUA24TLAV2	1,2,3,4,5,6
SSI-58	300B	CEILING CASSETTE	318/271/230	-	-	9.5	7.5	23 X 23 X 10	40	1/208/60	15	0.41	FUJITSU AUUA7TLAV2	1,2,3,4,5,6
SSI-59	300A	CEILING CASSETTE	418/348/271	-	-	20	18	23 X 23 X 10	44	1/208/60	15	0.41	FUJITSU AUUA18TLAV2	1,2,3,4,5,6
SSI-60	302	CEILING CASSETTE	589/512/436	-	-	27	24	46 X 32 X 13	84	1/208/60	15	0.74	FUJITSU ABUA24TLAV2	1,2,3,4,5,6
SSI-61,62	301	CEILING CASSETTE	589/512/436	-	-	27	24	46 X 32 X 13	84	1/208/60	15	0.74	FUJITSU ABUA24TLAV2	1,2,3,4,5,6
SSI-63,64	301A	CEILING CASSETTE	589/512/436	-	-	27	24	46 X 32 X 13	84	1/208/60	15	0.74	FUJITSU ABUA24TLAV2	1,2,3,4,5,6
SSI-65,66	301B	CASSETTE	589/512/436	-	-	27	24	46 X 32 X 13	84	1/208/60	15	0.74	FUJITSU ABUA24TLAV2	1,2,3,4,5,6
SSI-67	304	CEILING CASSETTE	589/512/436	-	-	27	24	46 X 32 X 13	84	1/208/60	15	0.74	FUJITSU ABUA24TLAV2	1,2,3,4,5,6
SSI-68,69	306	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	1/208/60	15	0.62	FUJITSU AUUA24TLAV2	1,2,3,4,5,6
SSI-70,71	308	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	1/208/60	15	0.62	FUJITSU AUUA24TLAV2	1,2,3,4,5,6
SSI-72,73	310	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	1/208/60	15	0.62	FUJITSU AUUA24TLAV2	1,2,3,4,5,6
SSI-74,75	312	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	1/208/60	15	0.62	FUJITSU AUUA24TLAV2	1,2,3,4,5,6
SSI-76,77	311	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	1/208/60	15	0.62	FUJITSU AUUA24TLAV2	1,2,3,4,5,6
SSI-78,79	309	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	1/208/60	15	0.62	FUJITSU AUUA24TLAV2	1,2,3,4,5,6
SSI-80,81	307	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	1/208/60	15	0.62	FUJITSU AUUA24TLAV2	1,2,3,4,5,6
SSI-82,83	305	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	1/208/60	15	0.62	FUJITSU AUUA24TLAV2	1,2,3,4,5,6
SSI-84,85	303	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	1/208/60	15	0.62	FUJITSU AUUA24TLAV2	1,2,3,4,5,6

NOTES:
1. UNIT MOUNTED AND WIRED DISCONNECT.
2. BAC NET INTEGRATION TO BMS.
3. COLOR WHITE.
4. DRAIN PAN LEVEL SENSORS.
5. CONDENSATE PUMP.
6. OUTDOOR UNITS POWERS INDOOR UNITS.

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SOUTH ORANGETOWN Central School District
Capital Improvements Bond
Essential Infrastructure for Student Health, Safety and Success

PROJECT INFORMATION

Project Number
14457.20

Client Name
SOUTH ORANGETOWN CENTRAL SCHOOL DISTRICT

Project Name
PHASE 1: 2022 BOND

District Office Address
160 VAN WYCK RD.
BLAUVELT, NY 10913

SOUTH ORANGETOWN CSD
- WILLIAM O. SCHAEFER SED#:50-03-01-06-0-012-019
- COTTAGE LANE ELEMENTARY SED#:50-03-01-06-0-010-022
- TAPPAN ZEE HIGH SCHOOL SED#:50-03-01-06-0-006-032
- WILLIAM O. SCHAEFER S&L SED#: 50-03-01-06-0-012-020
- COTTAGE LANE S&L SED#: 50-03-01-06-0-010-023
- COTTAGE LANE LIBRARY S&L SED#: 50-03-01-06-8-023-002
- WOS OUTDOOR CLASSROOM SED#: 50-03-01-06-7-053-001
- SOMS OUTDOOR CLASSROOM SED#: 50-03-01-06-7-056-001
- CLE OUTDOOR CLASSROOM SED#: 50-03-01-06-7-054-001
- TDHS OUTDOOR CLASSROOM SED#: 50-03-01-06-7-055-001

PROJECT ISSUE & REVISION SCHEDULE

vv	Date	Description
1	11/03/2023	BID ADDENDUM #2
2	11/17/2023	BID ADDENDUM #4

PROFESSIONAL STAMPS

NEW YORK STATE EDUCATION STATEMENT
IT IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW AND THE COMMISSIONER'S REGULATIONS FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED ARCHITECT, ENGINEER OR LAND SURVEYOR, TO ALTER AN ITEM IN ANY WAY. IF AN ITEM BEARING THE SEAL OF AN ARCHITECT, ENGINEER OR LAND SURVEYOR IS ALTERED, THE ALTERING PARTY SHALL AFFIX TO THE ITEM THEIR SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE AND THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

SHEET INFORMATION

Issued: 10/18/23
Scale: NTS
Project Status: BID DOCUMENTS
Drawn By: KCM
Checked By: JJM
Drawing Title: HVAC SCHEDULES

Drawing Number
CLE
H900

FAN COIL UNIT SCHEDULE

TAG	LOCATION	SERVICE	MANUFACTURER	MODEL	TYPE	FAN					HOT WATER HEATING COIL														ELECTRICAL						WEIGHT (LBS)	NOTES
						AIR FLOW (CFM)	ESP (IN.WG.)	MOTOR BHP	MOTOR HP	DRIVE	EAT (°F)	LAT (°F)	EWT (°F)	LWT (°F)	CAPACITY (MBH)	FLUID TYPE	GPM	WPD (FT.WG)	TOTAL CAPACITY (MBH)	SENSIBLE CAPACITY (MBH)	AMBIENT (°F)	FACE VELOCITY (FPM)	CIRCUITS	REFRIGERANT	FILTER	V	PH	HZ	MCA	FLA	MOCP		
FCU-1	VEST	102 VEST	AIR THERM	SRBB	DUCTED	500	100	-	2	DIRECT	50	90	180	150	21.6	WATER	1.44	-	19.3	13.5	85	400	1	R410A	MERV 8	120	1	60	-	-	15	-	1,2

NOTES: 1. PROVIDE DISCONNECT.
2. CEILING RECESSED

ENERGY RECOVERY EHEEL PERFORMANCE SCHEDULE

TAG	SUPPLY FAN				EXHAUST FAN				ELECTRICAL		WINTER CONDITIONS								SUMMER CONDITIONS										TYPICAL UNIT MFG & MODEL NO.	NOTES:
											WHEEL ENTERING CONDITIONS				WHEEL LEAVING CONDITIONS				TOTAL CAPACITY	WHEEL ENTERING CONDITIONS				WHEEL LEAVING CONDITIONS				TOTAL CAPACITY	EFFECTIVENESS @ SUMMER DESIGN		
	AIR FLOW (CFM)	E.S.P. (IN WC)	RPM	HP	AIR FLOW (CFM)	E.S.P. (IN WC)	RPM	HP	VOLT/Φ	FLA	OUTSIDE AIR		RETURN AIR		SUPPLY AIR		EXHAUST AIR			OUTSIDE AIR		RETURN AIR		SUPPLY AIR		EXHAUST AIR					
											DB (°F)	WB (°F)	DB (°F)	WB (°F)	DB (°F)	WB (°F)	DB (°F)	WB (°F)	(MBH)	DB (°F)	WB (°F)	DB (°F)	WB (°F)	DB (°F)	WB (°F)	DB (°F)	WB (°F)	(MBH)	TOTAL %		
RTU-1	3675	0.75	1760	5	2390	0.5	1760	2	208/3	64	-2	-3	65	62	42.71	42.71	20.29	20.29	185.74	95	71	72	62	79.25	65.08	87.47	68.27	46.05	66.4	AAON RN-011-3-0-DAAC-V0-21-000-A	1,2,3
RTU-2	3675	0.75	1760	5	2390	0.5	1760	2	208/3	64	-2	-3	65	62	42.71	42.71	20.29	20.29	185.74	95	71	72	62	79.25	65.08	87.47	68.27	46.05	66.4	AAON RN-011-3-0-DAAC-V0-21-000-A	1,2,3

NOTES: 1. 14" INSULATED CURB. EXTEND EXISTING CONTROLS TO NEW UNITS. MOTORIZED RELIEF DAMPERS.
2. FACTORY MOUNTED AND WIRED DISCONNECT. 2" PREFILTER, 4" MERV 13 FILTER.
3. DOUBLE WALL, R-13 FOAM INSULATION.

ENERGY RECOVERY UNIT

TAG	LOCATION	AREA SERVED	SA/OA (CFM)	EA (CFM)	RA (CFM)	SUPPLY FAN					EXHAUST FAN					HEATING TYPE	FROST CONTROL	OPERATING WEIGHT (LBS)	FILTERS	UNIT ELECTRICAL REQUIREMENTS	
						FAN TYPE	E.S.P. (IN. WC)	RPM	BHP	HP	FAN TYPE	E.S.P. (IN. WC)	RPM	BHP	HP					V/Ø/HZ	FLA
ERU-1	ROOF	CLASSROOMS	2000	2000	2000	PLENUM	1	1760	1.48	2	PLENUM	0.5	1760	0.85	2	ELECTRIC	YES	1554	2" PRE-FILTER/4" MERV 13	208/3/60	99
ERU-2	ROOF	CLASSROOMS	1500	1500	1500	PLENUM	1	1760	1.48	2	PLENUM	0.5	1760	0.85	1	ELECTRIC	YES	1511	2" PRE-FILTER/4" MERV 13	208/3/60	75
ERU-3	ROOF	CLASSROOMS	2000	2000	2000	PLENUM	1	1760	1.48	2	PLENUM	0.5	1760	0.85	2	ELECTRIC	YES	1554	2" PRE-FILTER/4" MERV 13	208/3/60	99
ERU-4	ROOF	CLASSROOMS	1950	1500	1500	PLENUM	1	1760	1.48	2	PLENUM	0.5	1760	0.85	2	ELECTRIC	YES	1541	2" PRE-FILTER/4" MERV 13	208/3/60	96
ERU-5	ROOF	CLASSROOMS	2000	2000	2000	PLENUM	1	1760	1.48	2	PLENUM	0.5	1760	0.85	2	ELECTRIC	YES	1554	2" PRE-FILTER/4" MERV 13	208/3/60	99
ERU-6	ROOF	CLASSROOMS	1650	1060	1060	PLENUM	1	1760	1.48	2	PLENUM	0.5	1760	0.85	2	ELECTRIC	YES	1511	2" PRE-FILTER/4" MERV 13	208/3/60	96
ERU-7	ROOF	CLASSROOMS	2020	2020	2020	PLENUM	1	1760	1.48	2	PLENUM	0.5	1760	0.85	2	ELECTRIC	YES	1554	2" PRE-FILTER/4" MERV 13	208/3/60	99
ERU-8	ROOF	CLASSROOMS	2000	2000	2000	PLENUM	1	1760	1.48	2	PLENUM	0.5	1760	0.85	2	ELECTRIC	YES	1554	2" PRE-FILTER/4" MERV 13	208/3/60	99
ERU-9	ROOF	CLASSROOMS	1605	700	700	PLENUM	1	1760	1.48	2	PLENUM	0.5	1760	0.85	2	ELECTRIC	YES	1511	2" PRE-FILTER/4" MERV 13	208/3/60	96
ERU-10	ROOF	CLASSROOMS	2110	1660	1660	PLENUM	1	1760	1.48	2	PLENUM	0.5	1760	0.85	2	ELECTRIC	YES	1541	2" PRE-FILTER/4" MERV 13	208/3/60	117
ERU-11	ROOF	CLASSROOMS	1120	1120	1120	PLENUM	1	1760	1.48	2	PLENUM	0.5	1760	0.85	2	ELECTRIC	YES	1510	2" PRE-FILTER/4" MERV 13	208/3/60	54

ENERGY RECOVERY UNIT (CONT.)

TAG	WINTER CONDITIONS									SUMMER CONDITIONS										TYPICAL UNIT MFG & MODEL NO.	NOTES
	WHEEL ENTERING CONDITIONS				WHEEL LEAVING CONDITIONS				EFFECTIVENESS @ WINTER DESIGN	WHEEL ENTERING CONDITIONS				WHEEL LEAVING CONDITIONS				EFFECTIVENESS @ SUMMER DESIGN			
	OUTSIDE AIR		RETURN AIR		SUPPLY AIR		EXHAUST AIR			OUTSIDE AIR		RETURN AIR		SUPPLY AIR		EXHAUST AIR					
	DB (°F)	WB (°F)	DB (°F)	WB (°F)	DB (°F)	WB (°F)	DB (°F)	WB (°F)	TOTAL %	DB (°F)	WB (°F)	DB (°F)	WB (°F)	DB (°F)	WB (°F)	DB (°F)	WB (°F)	TOTAL %		
ERU-1	-7	-8	65	62	38	38	19.8	19.8	63.7	90	71	75	62	80	65	84.7	68	63.7	AAON RN-007-80-E60E14A	1,2,3,4
ERU-2	-7	-8	65	62	42.7	42.7	15.2	15.2	69.7	90	71	75	62	79.1	64.7	85.7	68.5	69.7	AAON RN-006-80-E60E13A	1,2,3,4
ERU-3	-7	-8	65	62	38	38	19.8	19.8	63.7	90	71	75	62	80	65	84.7	68	63.7	AAON RN-007-80-E60E14A	1,2,3,4
ERU-4	-7	-8	65	62	28.1	28.1	19.3	19.3	72.4	90	71	75	62	81.1	65.9	86.2	68.9	72.4	AAON RN-007-80-E60E14A	1,2,3,4
ERU-5	-7	-8	65	62	38	38	19.8	19.8	63.7	90	71	75	62	80	65	84.7	68	63.7	AAON RN-007-80-E60E14A	1,2,3,4
ERU-6	-7	-8	65	62	24.1	24.1	16.6	16.6	78.6	90	71	75	62	81.9	66.4	87.2	69.4	78.6	AAON RN-006-80-E60E13A	1,2,3,4
ERU-7	-7	-8	65	62	38	38	19.8	19.8	63.7	90	71	75	62	80	65	84.7	68	63.7	AAON RN-007-80-E60E14A	1,2,3,4
ERU-8	-7	-8	65	62	38	38	19.8	19.8	63.7	90	71	75	62	80	65	84.7	68	63.7	AAON RN-007-80-E60E14A	1,2,3,4
ERU-9	-7	-8	65	62	24.1	24.1	16.6	16.6	78.6	90	71	75	62	81.9	66.4	87.2	69.4	78.6	AAON RN-006-80-E60E13A	1,2,3,4
ERU-10	-7	-8	65	62	28.5	28.5	19.8	19.8	69.7	90	71	75	62	81.3	71.7	85.8	68.6	69.7	AAON RN-007-80-E60E15A	1,2,3,4
ERU-11	-7	-8	65	62	46.2	46.2	11.7	11.7	74.3	90	71	75	62	78.4	64.3	86.4	68.9	74.3	AAON RN-006-80-E60E12A	1,2,3,4

NOTES: 1. FACTORY MOUNTED AND WIRED DISCONNECT.
2. FRESH AIR AND EXHAUST DAMPERS.
3. TERMINAL STRIP FOR BMS CONTROL OF FAN AND DAMPERS.
4. DIRTY FILTER SENSORS.

ENERGY RECOVERY UNIT (CONT.)

TAG	TYPE	FINS PER INCH	ROWS	FACE VEL	COIL PD	REF.	COMP QTY	COOLING				REHEAT		HEATING				
								TOTAL CAPACITY (MBH)	SENSIBLE (MBH)	EAT(F)	LAT(F)	CAPACITY (MBH)	LAT(F)	OAT(F)	RAT(F)	EAT(F)	TOTAL CAPACITY (MBH)	INPUT kW
ERU-1	AIR TO AIR	14	3	235		R410A	1	107	54.6	80/65.3	54.5/53.3	34	70/59.4	-7.0	65	38.1	102	30
ERU-2	AIR TO AIR	14	3	176		R410A	1	90.2	44.3	79.1/64.7	53/51.5	30	70/58.3	-7.0	65	42.8	76.8	22.5
ERU-3	AIR TO AIR	14	3	235		R410A	1	107	54.6	80/65.3	54.5/53.3	34	70/59.4	-7.0	65	38.1	102	30
ERU-4	AIR TO AIR	14	3	229		R410A	1	102	54.5	81.6/65.9	56.7/54.4	32	70/59.6	-7.0	65	28.1	102	30
ERU-5	AIR TO AIR	14	3	235		R410A	1	107	54.6	80/65.3	54.5/53.3	34	70/59.4	-7.0	65	38.1	102	30
ERU-6	AIR TO AIR	14	3	194		R410A	1	87.1	48.2	81.9/66.4	56.1/54.1	28	70/59.5	-7.0	65	24.1	102	30
ERU-7	AIR TO AIR	14	3	235		R410A	1	107	54.6	80/65.3	54.5/53.3	34	70/59.4	-7.0	65	38.1	102	30
ERU-8	AIR TO AIR	14	3	235		R410A	1	107	54.6	80/65.3	54.5/53.3	34	70/59.4	-7.0	65	38.1	102	30
ERU-9	AIR TO AIR	14	3	194		R410A	1	86.6	47.8	81.1/65.9	55.6/53.8	29	70/59.4	-7.0	65	24.1	102	30
ERU-10	AIR TO AIR	14	3	248		R410A	1	105.5	57.2	81.3/66	57.6/55.4	33	70/60.1	-7.0	65	28.5	128	37.6
ERU-11	AIR TO AIR	14	3	131		R410A	1	79.6	37.8	78.4/64.3	48.2/47	28	70/56.3	-7.0	65	46.2	51.2	15

ENERGY RECOVERY UNIT (CONT.)

TAG	SOUND SOURCE	OCTAVE BAND AND CENTER FREQUENCY (HZ)							
		1	2	3	4	5	6	7	8
		62.5	125	250	500	1000	2000	4000	8000
ERU-1	DISC.	85	83	86	82	74	72	69	63
	INLET	83	81	78	72	70	68	64	60
ERU-2	DISC.	85	83	86	82	74	72	69	63
	INLET	83	81	78	72	70	68	64	60
ERU-3	DISC.	85	83	86	82	74	72	69	63
	INLET	83	81	78	72	70	68	64	60
ERU-4	DISC.	85	83	86	82	74	72	69	63
	INLET	83	81	78	72	70	68	64	60
ERU-5	DISC.	85	83	86	82	74	72	69	63
	INLET	83	81	78	72	70	68	64	60
ERU-6	DISC.	85	83	86	82	74	72	69	63
	INLET	83	81	78	72	70	68	64	60
ERU-7	DISC.	85	83	86	82	74	72	69	63
	INLET	83	81	78	72	70	68	64	60
ERU-8	DISC.	85	83	86	82	74	72	69	63
	INLET	83	81	78	72	70	68	64	60
ERU-9	DISC.	85	83	86	82	74	72	69	63
	INLET	83	81	78	72	70	68	64	60
ERU-10	DISC.	85	83	86	82	74	72	69	63
	INLET	83	81	78	72	70	68	64	60
ERU-11	DISC.	85	83	86	82	74	72	69	63
	INLET	83	81	78	72	70	68	64	60

PUMP SCHEDULE

TAG	LOCATION	SERVICE	MANUF.	MODEL	TYPE	FLUID	GPM	HEAD (FT.WG.)	RPM	HP	STARTER	ELECTRICAL						NOTES
												V	PH	HZ	MCA	FLA	MOCP	
P-1	BOILER ROOM	HHW	B&G	1510	BASE-MOUNTED SPLIT COUPLE	WATER	90	50	1750	10	VFD	460	3	60	-	-	-	1
P-2	BOILER ROOM	HHW	B&G	1510	BASE-MOUNTED SPLIT COUPLE	WATER	90	50	1750	10	VFD	460	3	60	-	-	-	1
P-3	GYM	HHW	B&G	ECOCIRC XL - 36-45	INLINE	WATER	22	12.5	2919	0.16	N	208	1	60	-	-	-	1,2
P-4	GYM	HHW	B&G	ECOCIRC XL - 36-45	INLINE	WATER	22	12.5	2919	0.16	N	208	1	60	-	-	-	1,2
P-5	STAGE	HHW	B&G	ECOCIRC XL - 36-45	INLINE	WATER	11	13	2727	0.16	N	208	1	60	-	-	-	1,2

NOTES: 1. PROVIDE DISCONNECT
2. ECM MOTOR.

ROOFTOP AIR CONDITIONING UNIT SCHEDULE

TAG	LOCATION	NOM. TONS	IEER	SUPPLY FAN				EXHAUST FAN			COOLING CAPACITY					ELECTRICAL		TYPICAL UNIT MFG & MODEL NO.	NOTES:
				CFM	OA CFM	ESP (IN. W.C.)	BHP / HP	CFM	ESP (IN. W.C.)	BHP / HP	TOTAL MBH	SENS MBH	EAT°F		LAT°F	AMB °F	VOLT/Ø	FLA	
													DB	WB					
RTU-3	STAGE	6	14.8	2000	1100	1.25	1.23/2	2000	0.5	.7/1	72.67	60.37	84.7	67.2	56.04	95	208/3	35	AAON: RN-007-3-0-BABC-V0-21-000-A	1,2,3

NOTES: 1. 14" INSULATED CURB. EXTEND EXISTING CONTROLS TO NEW UNITS. MOTORIZED RELIEF DAMPERS.
2. FACTORY MOUNTED AND WIRED DISCONNECT. 2" PREFILTER, 4" MERV 13 FILTER.
3. DOUBLE WALL, R-13 FOAM INSULATION.

UNIT VENTILATOR SCHEDULE

TAG	ROOM SERVES	SA	OA	UNIT TYPE	ELECTRICAL		WINTER		HW COIL CAPACITY							DX COIL CAPACITY				TYPICAL UNIT MFG & MODEL NO.	NOTES:
					MCA	VOLT/Ø	OA °F	RA °F	EWT °F	LWT °F	EAT °F	LAT °F	MBH	WPD	GPM	REF.	EAT °F	LAT °F	MBH		
UV-1	CAFÉ	1500	975	VERT	5.9	120/1	2	65	180	133	23.0	101	136.0	5.0	6.0	410A	85/70	62/59	54.0	MAGIC AIRE MAUV5	1,2,3,4,5
UV-2	CAFÉ	1500	975	VERT	5.9	120/1	2	65	180	133	23.0	101	136.0	5.0	6.0	410A	85/70	62/59	54.0	MAGIC AIRE MAUV5	1,2,3,4,5

NOTES: 1. FACTORY MOUNTED AND WIRED DISCONNECT.
2. CONDENSATE PUMP, DRAIN PAN ALARM.
3. FULL ADAPTER WITH ENCLOSED PIPE TUNNEL, FINISHED ENDS.
4. ECM MOTORS.
5. MERV 13 FILTERS.

CPL | Architecture Engineering Planning
50 Front Street Suite 202,
Newburgh, NY 12550
CPLteam.com

SOUTH ORANGETOWN Central School District
Capital Improvements Bond
Essential Infrastructure for Student Health, Safety and Success

PROJECT INFORMATION

Project Number
14457.20

Client Name
SOUTH ORANGETOWN CENTRAL SCHOOL DISTRICT

Project Name
PHASE 1: 2022 BOND

District Office Address
160 VAN WYCK RD.
BLAUVELT, NY 10913

SOUTH ORANGETOWN CSD
- WILLIAM O. SCHAEFER SED#:50-03-01-06-0-012-019
- COTTAGE LANE ELEMENTARY SED#:50-03-01-06-0-010-022
- TAPPAN ZEE HIGH SCHOOL SED#:50-03-01-06-0-006-032
- WILLIAM O. SCHAEFER S&L SED#: 50-03-01-06-0-012-020
- COTTAGE LANE S&L SED#: 50-03-01-06-0-010-023
- COTTAGE LANE LIBRARY S&L SED#: 50-03-01-06-8-023-002
- WOS OUTDOOR CLASSROOM SED#: 50-03-01-06-7-053-001
- SOMS OUTDOOR CLASSROOM SED#: 50-03-01-06-7-056-001
- CLE OUTDOOR CLASSROOM SED#: 50-03-01-06-7-054-001
- TDHS OUTDOOR CLASSROOM SED#: 50-03-01-06-7-055-001

PROJECT ISSUE & REVISION SCHEDULE

vv	Date	Description
1	10/27/2023	BID ADDENDUM #1
2	11/03/2023	BID ADDENDUM #2
3	11/17/2023	BID ADDENDUM #4

PROFESSIONAL STAMPS

NEW YORK STATE EDUCATION STATEMENT
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SHEET INFORMATION

Issued
10/18/23
Scale
NTS
Project Status
BID DOCUMENTS
Drawn By
KCM
Checked By
JJM
Drawing Title
HVAC SCHEDULES

Drawing Number
CLE
H901

EQUIPMENT	LOCATION	HP/FLA	VOLTS	PHASE	AMPS	BREAKER SIZE	WIRE/CONDUIT SIZE	PANEL/CIRCUIT	REMARKS:
ERU-1	ROOF	99A	208	3	99A	125A/3P	3 #1, 1#6GND IN 2" C	1LNL14/1,3,5	1
ERU-2	ROOF	75A	208	3	75A	100A/3P	3 #2, 1#8GND IN 1-1/2" C	1LNL14/2,4,6	1
ERU-3	ROOF	99A	208	3	99A	125A/3P	3 #1, 1#6GND IN 2" C	1LNL14/26,28,30	1
ERU-4	ROOF	96A	208	3	96A	125A/3P	3 #1, 1#6GND IN 2" C	1LNL11/37,39,41	1
ERU-5	ROOF	99A	208	3	99A	125A/3P	3 #1, 1#6GND IN 2" C	1LNL15/1,3,5	1
ERU-6	ROOF	96A	208	3	96A	125A/3P	3 #1, 1#6GND IN 2" C	1LNL15/2,4,6	1
ERU-7	ROOF	99A	208	3	99A	125A/3P	3 #1, 1#6GND IN 2" C	1LNL16/26,28,30	1
ERU-8	ROOF	99A	208	3	99A	125A/3P	3 #1, 1#6GND IN 2" C	1LNL16/25,27,29	1
ERU-9	ROOF	96A	120	1	96A	125A/3P	3 #1, 1#6GND IN 2" C	1LNL13/38,40,42	1
ERU-10	ROOF	117A	208	3	117A	150A/3P	3# 2/0, 1#6GND IN 2-1/2" C	1LNL16/1,3,5	1
ERU-11	ROOF	54A	208	3	54A	70A/3P	3 #4, 1#8GND IN 1-1/2" C	1LNL16/2,4,6	1
ERU-12	ROOF	6A	208	1	6A	20A/2P	2 #12, 1 #12 GND IN 3/4" C	1LNL14/19,21	1
ERU-13	CORRIDOR	10A	208	1	10A	20A/2P	2 #12, 1 #12 GND IN 3/4" C	1LNL15/45,47	1
ERU-14	NURSE 212	10A	208	1	10A	20A/2P	2 #12, 1 #12 GND IN 3/4" C	1LNL15/40,42	1
ERU-15	ROOF	15A	208	1	15A	20A/2P	2 #12, 1 #12 GND IN 3/4" C	1LNL15/19,21	1
ERU-16	ROOF	15A	208	1	15A	20A/2P	2 #12, 1 #12 GND IN 3/4" C	1LNL15/29,31	1
RTU-1	ROOF	64A	208	3	64A	80A/3P	3 #4, 1 #10 GND IN 1-1/2" C	1LNL15/39,41,43	1
RTU-2	ROOF	64A	208	3	64A	80A/3P	3 #4, 1 #10 GND IN 1-1/2" C	1LNL16/20,22,24	1
RTU-3	ROOF	35A	208	3	35A	50A/3P	3 #6, 1 #10 GND IN 1" C	1LNL16/19,21,23	1
ACC-1	ROOF	50A	208	3	60A	60A/3P	3 #6, 1 #10 GND IN 1" C	1LNL14/7,9,11	1
ACC-2	ROOF	50A	208	3	60A	60A/3P	3 #6, 1 #10 GND IN 1" C	1LNL14/8,10,12	1
ACC-3	ROOF	50A	208	3	60A	60A/3P	3 #6, 1 #10 GND IN 1" C	1LNL14/13,15,17	1
ACC-4	ROOF	50A	208	3	60A	60A/3P	3 #6, 1 #10 GND IN 1" C	1LNL14/14,16,18	1
ACC-5	ROOF	50A	208	3	60A	60A/3P	3 #6, 1 #10 GND IN 1" C	1LNL14/32,34,36	1
ACC-6	ROOF	50A	208	3	60A	60A/3P	3 #6, 1 #10 GND IN 1" C	1LNL14/41,43,45	1
ACC-7	ROOF	50A	208	3	60A	60A/3P	3 #6, 1 #10 GND IN 1" C	1LNL14/38,40,42	1
ACC-8	ROOF	50A	208	3	60A	60A/3P	3 #6, 1 #10 GND IN 1" C	1LNL14/20,22,24	1
ACC-9	ROOF	50A	208	3	60A	60A/3P	3 #6, 1 #10 GND IN 1" C	1LNL15/7,9,11	1
ACC-10	ROOF	50A	208	3	60A	60A/3P	3 #6, 1 #10 GND IN 1" C	1LNL15/8,10,12	1
ACC-11	ROOF	50A	208	3	60A	60A/3P	3 #6, 1 #10 GND IN 1" C	1LNL15/14,16,18	1
ACC-12	ROOF	50A	208	3	60A	60A/3P	3 #6, 1 #10 GND IN 1" C	1LNL15/13,15,17	1
ACC-13	ROOF	50A	208	3	60A	60A/3P	3 #6, 1 #10 GND IN 1" C	1LNL16/32,34,36	1
ACC-14	ROOF	50A	208	3	60A	60A/3P	3 #6, 1 #10 GND IN 1" C	1LNL16/31,33,35	1
ACC-15	ROOF	50A	208	3	60A	60A/3P	3 #6, 1 #10 GND IN 1" C	1LNL16/38,40,42	1
ACC-16	ROOF	50A	208	3	60A	60A/3P	3 #6, 1 #10 GND IN 1" C	1LNL16/37,39,41	1
ACC-17	ROOF	50A	208	3	60A	60A/3P	3 #6, 1 #10 GND IN 1" C	1LNL16/44,46,48	1
ACC-18	ROOF	50A	208	3	60A	60A/3P	3 #6, 1 #10 GND IN 1" C	1LNL15/20,22,24	1
ACC-19	ROOF	50A	208	3	60A	60A/3P	3 #6, 1 #10 GND IN 1" C	1LNL16/7,9,11	1
ACC-20	ROOF	50A	208	3	60A	60A/3P	3 #6, 1 #10 GND IN 1" C	1LNL16/8,10,12	1
ACC-21	ROOF	50A	208	3	60A	60A/3P	3 #6, 1 #10 GND IN 1" C	1LNL16/13,15,17	1
ACC-22	ROOF	50A	208	3	60A	60A/3P	3 #6, 1 #10 GND IN 1" C	1LNL16/14,16,18	1
ACC-23	ROOF	50A	208	3	60A	60A/3P	3 #6, 1 #10 GND IN 1" C	1LNL14/23,25,27	1
ACC-24	ROOF	50A	208	3	60A	60A/3P	3 #6, 1 #10 GND IN 1" C	1LNL15/33,35,37	1
ACC-25	ROOF	50A	208	3	60A	60A/3P	3 #6, 1 #10 GND IN 1" C	1LNL15/23,25,27	1
ACC-26	EXTERIOR OUTSIDE CAFÉ	50A	208	3	60A	60A/3P	3 #6, 1 #10 GND IN 1" C	1LNL15/34,36,38	1
ACC-27	EXTERIOR OUTSIDE CAFÉ	50A	208	3	60A	60A/3P	3 #6, 1 #10 GND IN 1" C	1LNL15/28,30,32	1
FC-1	SECURE VESTIBULE 102	50A	120	1	15A	20A/1P	2 #12, 1 #12 GND IN 3/4" C	1LNL11/9	1,2
RBU-1	CORRIDOR	226W	208	1	1A	20A/2P	2 #12, 1 #12 GND IN 3/4" C	1LNL12/10,12	1,2
RBU-2	CORRIDOR	226W	208	1	1A		2 #12, 1 #12 GND IN 3/4" C		
RBU-3	CORRIDOR	226W	208	1	1A	20A/2P	2 #12, 1 #12 GND IN 3/4" C	1LNL12/13,15	1,2
RBU-4	CORRIDOR	226W	208	1	1A		2 #12, 1 #12 GND IN 3/4" C		
RBU-5	ENL 101G	110W	208	1	1A	20A/2P	2 #12, 1 #12 GND IN 3/4" C	1LNL12/14,16	1,2
RBU-6	MAC LAB 200	226W	208	1	1A		2 #12, 1 #12 GND IN 3/4" C		
RBU-7	CORRIDOR	226W	208	1	1A	20A/2P	2 #12, 1 #12 GND IN 3/4" C	1LNL13/13,15	1,2
RBU-8	CORRIDOR	226W	208	1	1A		2 #12, 1 #12 GND IN 3/4" C		
RBU-9	CORRIDOR	110W	208	1	1A		2 #12, 1 #12 GND IN 3/4" C		
RBU-10	CORRIDOR	110W	208	1	1A	20A/2P	2 #12, 1 #12 GND IN 3/4" C	1LNL12/24,26	1
RBU-11	CORRIDOR	226W	208	1	1A	20A/2P	2 #12, 1 #12 GND IN 3/4" C	1LNL13/12,14	1,2
RBU-12	CORRIDOR	110W	208	1	1A		2 #12, 1 #12 GND IN 3/4" C		
RBU-13	CORRIDOR	226W	208	1	1A	20A/2P	2 #12, 1 #12 GND IN 3/4" C	1LNL11/12,14	1,2
RBU-14	CORRIDOR	226W	208	1	1A		2 #12, 1 #12 GND IN 3/4" C		
RBU-15	MAIN OFFICE 400	226W	208	1	1A		2 #12, 1 #12 GND IN 3/4" C		
EC-1	MAIN OFFICE 400	13.5KW	208	3	65A	70A/3P	3 #4, 1 #10 GND IN 1-1/2" C	1LNL11/6,8,10	1,2
EC-2	RESOURCE	5.5KW	208	3	27A	30A/3P	3 #10, 1 #12 GND IN 3/4" C	1LNL12/17,19,21	1,2
EC-3	NURSE 212	3.5KW	208	3	17A	20A/3P	3 #12, 1 #12 GND IN 3/4" C	1LNL12/18,20,22	1,2
SSO-1	ROOF	50A	208	3	60A	60A/3P	3 #6, 1 #10 GND IN 1" C	1LNL14/29,31,33	1

1. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR THE MOUNTING, AND LINE/LOAD SIDE CONNECTIONS OF DISCONNECT AND/OR STARTER DEVICE ASSOCIATED WITH UNIT. MEANS OF DISCONNECT AND/OR STARTER ASSOCIATED WITH UNIT PROVIDE BY MECHANICAL CONTRACTOR. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR ALL FINAL CONNECTIONS TO EQUIPMENT.

2. REMOVE 1-POLE CIRCUIT BREAKERS IN SPACE INDICATED. PLACE 1-POLE CIRCUIT BREAKERS IN OPEN SPACES WITHIN PANEL.

PANEL: 1LNL14

LOCATION: JC 113 **A.I.C. RATING:**
VOLTAGE: **MCB RATING:** Type 1
FED FROM: MDP **MAIN BUS RATING:** 800 A
MOUNTING: Surface

...	BRKR			LOAD DESCRIPTION	A (VA)		B (VA)		C (VA)		LOAD DESCRIPTION	BRKR		...
1					11889	9006								2
3	125	3		ERU-1			11889	9006			ERU-2	3	100	4
5									11889	9006				6
7					7205	7205								8
9	60	3		ACC-1			7205	7205			ACC-2	3	60	10
11									7205	7205				12
13					7205	7205								14
15	60	3		ACC-3			7205	7205			ACC-4	3	60	16
17									7205	7205				18
19	20	2		ERU-12	624	7205								20
21							624	7205			ACC-8	3	60	22
23									7205	7205				24
25	60	3		ACC-23	7205	11889								26
27							7205	11889			ERU-3	3	125	28
29									7205	11889				30
31	60	3		SSO-1	7205	7205								32
33							7205	7205			ACC-5	3	60	34
35	20	1		SPARE					0	7205				36
37	20	1		SPARE	0	7205								38
39	20	1		SPARE			0	7205			ACC-7	3	60	40
41									7205	7205				42
43	60	3		ACC-6	7205	--					SPACE	1	--	44
45							7205	--			SPACE	1	--	46
47	--	1		SPACE					--	--	SPACE	1	--	48
49	--	1		SPACE	--	--					SPACE	1	--	50
51	--	1		SPACE			--	--			SPACE	1	--	52
53	--	1		SPACE					--	--	SPACE	1	--	54
				TOTAL LOAD	105458 VA		105458 VA		104834 VA					

Load Classification

Load	Connected VA	Demand Factor	Demand VA
Recept.			
Lighting			
HVAC			
Motors			
Refrig.			
Kitchen			
Misc.	315749 VA	75.00%	236812 VA

Panel Totals

Connected Load	315749 VA
Estimated Load	236812 VA
Connected Amps	876 A
Demand Amps	657 A

PANEL: 1LNL15

LOCATION: CL. 200A **A.I.C. RATING:**
VOLTAGE: **MCB RATING:** Type 1
FED FROM: MDP **MAIN BUS RATING:** 800 A
MOUNTING: Surface

...	BRKR			LOAD DESCRIPTION	A (VA)		B (VA)		C (VA)		LOAD DESCRIPTION	BRKR		...
1					11889	11528								2
3	125	3		ERU-5			11889	11528			ERU-6	3	125	4
5									11889	11528				6
7					7205	7205								8
9	60	3		ACC-9			7205	7205			ACC-10	3	60	10
11									7205	7205				12
13					7205	7205								14
15	60	3		ACC-12			7205	7205			ACC-11	3	60	16
17									7205	7205				18
19	20	2		ERU-15	1560	7205								20
21							1560	7205			ACC-18	3	60	22
23									7205	7205				24
25	60	3		ACC-25	7205	--					SPACE	1	--	26
27							7205	7205						28
29	20	2		ERU-16					1560	7205	ACC-27	3	60	30
31					1560	7205								32
33							7205	7205						34
35	60	3		ACC-24					7205	7205	ACC-26	3	60	36
37					7205	7205								38
39							7686	1040						40
41	80	3		RTU-1					7686	1040	ERU-14	2	20	42
43					7686	--					SPACE	1	--	44
45	20	2		ERU-13			1040	--			SPACE	1	--	46
47									1040	--	SPACE	1	--	48
49	--	1		SPACE	--	--					SPACE	1	--	50
51	--	1		SPACE			--	--			SPACE	1	--	52
53	--	1		SPACE					--	--	SPACE	1	--	54
				TOTAL LOAD	99068 VA		99588 VA		99588 VA					

Load Classification

Load	Connected VA	Demand Factor	Demand VA
Recept.			
Lighting			
HVAC			
Motors			
Refrig.			
Kitchen			
Misc.	298245 VA	75.00%	223684 VA

Panel Totals

Connected Load	298245 VA
Estimated Load	223684 VA
Connected Amps	828 A
Demand Amps	621 A

CPL | Architecture Engineering Planning
50 Front Street Suite 202,
Newburgh, NY 12550
CPLteam.com

SOUTH ORANGETOWN Central School District
Capital Improvements Bond
Essential Infrastructure for Student Health, Safety and Success

PROJECT INFORMATION

Project Number
14457.20

Client Name
SOUTH ORANGETOWN CENTRAL SCHOOL DISTRICT

Project Name
PHASE 1: 2022 BOND

District Office Address
160 VAN WYCK RD.
BLAUVELT, NY 10913

SOUTH ORANGETOWN CSD
- ☐ WILLIAM O. SCHAEFER SED#:50-03-01-06-0-012-019
- ■ COTTAGE LANE ELEMENTARY SED#:50-03-01-06-0-010-022
- ☐ TAPPAN ZEE HIGH SCHOOL SED#:50-03-01-06-0-006-032
- ☐ WILLIAM O. SCHAEFER S&L SED#: 50-03-01-06-0-012-020
- ☐ COTTAGE LANE S&L SED#: 50-03-01-06-0-010-023
- ☐ COTTAGE LANE LIBRARY S&L SED#: 50-03-01-06-8-023-002
- ☐ WOS OUTDOOR CLASSROOM SED#: 50-03-01-06-7-053-001
- ☐ SOMS OUTDOOR CLASSROOM SED#: 50-03-01-06-7-056-001
- ☐ CLE OUTDOOR CLASSROOM SED#: 50-03-01-06-7-054-001
- ☐ TDHS OUTDOOR CLASSROOM SED#: 50-03-01-06-7-055-001

PROJECT ISSUE & REVISION SCHEDULE

vv	Date	Description
1	11/17/2023	BID ADDENDUM #4

PROFESSIONAL STAMPS

SHEET INFORMATION

Issued: 12/21/22
Scale: 12" = 1'-0"
Project Status: BID DOCUMENTS
Drawn By: MAY
Checked By: JBT
Drawing Title: ELECTRICAL SCHEDULES

Drawing Number
CLE
E900

EQUIPMENT	LOCATION	HP/FLA	VOLTS	PHASE	AMPS	BREAKER SIZE	WIRE/CONDUIT SIZE	PANEL/CIRCUIT	REMARKS:
SSI-67	MATH RTI 304	0.84	208	1	0.34A		2 #12, 1 #12 GND IN 3/4" C		
SSI-68	4TH GRADE 306	0.34	208	1	0.34A		2 #12, 1 #12 GND IN 3/4" C		
SSI-69	4TH GRADE 306	0.34	208	1	0.34A		2 #12, 1 #12 GND IN 3/4" C		
SSI-70	4TH GRADE 308	0.34	208	1	0.34A		2 #12, 1 #12 GND IN 3/4" C		
SSI-71	4TH GRADE 308	0.34	208	1	0.34A	20A/2P	2 #12, 1 #12 GND IN 3/4" C	1LNL13/6,8	1,2
SSI-72	3RD GRADE 310	0.34	208	1	0.34A		2 #12, 1 #12 GND IN 3/4" C		
SSI-73	3RD GRADE 310	0.34	208	1	0.34A		2 #12, 1 #12 GND IN 3/4" C		
SSI-74	3RD GRADE 312	0.34	208	1	0.34A		2 #12, 1 #12 GND IN 3/4" C		
SSI-75	3RD GRADE 312	0.34	208	1	0.34A		2 #12, 1 #12 GND IN 3/4" C		
SSI-76	3RD GRADE 311	0.34	208	1	0.34A		2 #12, 1 #12 GND IN 3/4" C		
SSI-77	3RD GRADE 311	0.34	208	1	0.34A		2 #12, 1 #12 GND IN 3/4" C		
SSI-78	5TH GRADE 309	0.34	208	1	0.34A		2 #12, 1 #12 GND IN 3/4" C		
SSI-79	5TH GRADE 309	0.34	208	1	0.34A		2 #12, 1 #12 GND IN 3/4" C		
SSI-80	5TH GRADE 307	0.34	208	1	0.34A		2 #12, 1 #12 GND IN 3/4" C		
SSI-81	5TH GRADE 307	0.34	208	1	0.34A	20A/2P	2 #12, 1 #12 GND IN 3/4" C	1LNL13/9,11	1,2
SSI-82	4TH GRADE 305	0.34	208	1	0.34A		2 #12, 1 #12 GND IN 3/4" C		
SSI-83	4TH GRADE 305	0.34	208	1	0.34A		2 #12, 1 #12 GND IN 3/4" C		
SSI-84	3RD GRADE 303	0.34	208	1	0.34A		2 #12, 1 #12 GND IN 3/4" C		
SSI-85	3RD GRADE 303	0.34	208	1	0.34A		2 #12, 1 #12 GND IN 3/4" C		
EC-4	ENL 101G	9.16KW	208	3	45A	60A/3P	3 #6, 1 #10 GND IN 1-1/4" C	1LNL12/25,27,29	1
EC-5	MAC LAB 200B	8.99KW	208	3	45A	60A/3P	3 #6, 1 #10 GND IN 1-1/4" C	1LNL12/28,30,32	1

1. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR THE MOUNTING, AND LINE/LOAD SIDE CONNECTIONS OF DISCONNECT AND/OR STARTER DEVICE ASSOCIATED WITH UNIT. MEANS OF DISCONNECT AND/OR STARTER ASSOCIATED WITH UNIT PROVIDE BY MECHANICAL CONTRACTOR. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR ALL FINAL CONNECTIONS TO EQUIPMENT.

2. REMOVE 1-POLE CIRCUIT BREAKERS IN SPACE INDICATED. PLACE 1-POLE CIRCUIT BREAKERS IN OPEN SPACES WITHIN PANEL.

LUMINAIRE SCHEDULE

MARK	DESCRIPTION	DESIGN MAKE	MODEL NUMBER	VOLTS	LAMP		REMARKS:
					WATTS	TEMPERATURE	
A	2X2 RECESSED LED TROFFER	CURRENT LIGHTING	LCAT22-9-35-HL-G-ED1-U	UNV	32	3500K	
A/EM	2X2 RECESSED LED TROFFER WITH EMERGENCY BATTERY BACKUP	CURRENT LIGHTING	LCAT22-9-35-HL-G-ED1-U-ELL14	UNV	32	3500K	3,4
B	2X2 RECESSED LED FLAT PANEL	CURRENT LIGHTING	CFP22-40/33/2835	UNV	40	3500K	1
B/EM	2X2 RECESSED LED FLAT PANEL EMERGENCY BATTERY BACKUP	CURRENT LIGHTING	CFP22-40/33/2835-ELL14	UNV	4	3500K	1,3,4
C	2X2 RECESSED LED TROFFER	CURRENT LIGHTING	LHFL-G-D-22-SOF-C1-35K-D42-D01-UNV	UNV	33	3500K	
C/EM	2X2 RECESSED LED TROFFER EMERGENCY BATTERY BACKUP	CURRENT LIGHTING	LHFL-G-D-22-SOF-C1-35K-D42-D01-UNV-EF	UNV	33	3500K	3,4
D	1X4 SURFACE MOUNTED LED EXTERIOR	CURRENT LIGHTING	91L-P-D-2-STD-4-04-SOF-C5-40K-D100-D01-1C-UNV-H72	UNV	48	4000K	2
E	6" LED RECESSED CANOPY DOWNLIGHT	CURRENT LIGHTING	LTR-6RD-H-35L-DM1-LTR-6RD-T-SH-HL-40K-8-WT-ACL-B6	UNV	42	4000K	
EM	6" LED RECESSED CANOPY DOWNLIGHT WITH EMERGENCY BATTERY BACKUP	CURRENT LIGHTING	LTR-6RD-H-35L-DM1-EMR-LTR-6RD-T-SH-HL-40K-8-WT-ACL-B6	UNV	42	4000K	3,4
X	LED EXIT SIGN	CURRENT LIGHTING	CEWSRE	UNV	3		3,4
EM	LED EMERGENCY FIXTURE	CURRENT LIGHTING	CU2SO	UNV	4		3,4

REMARKS: 1. FIXTURE TO BE SET AT 40 (4000 LUMENS) IN FIELD BEFORE INSTALLATION.
2. FIXTURES TO BE MOUNTED TO UNDERSIDE OF ROOF. PROVIDE ALL MOUNTING HARDWARE NECESSARY.
3. ALL FIXTURES SHOWN WITH AN "EM" DESIGNATION INDICATES AND EMERGENCY FIXTURE. PROVIDE EMERGENGY BATTERY BACKUP FOR EACH FIXTURE INDICATED.
4. ALL "EM" BATTERY BACKUPS WITHIN FIXTURE SHALL BE WIRED TO THE UNSWITCHED HOT LEG OF THE CIRCUIT FEEDING IT.

PANEL: 1LNL16

LOCATION: ST. 302B
VOLTAGE:
FED FROM: MDP
MOUNTING: Surface

A.I.C. RATING:
MCB RATING: Type 1
MAIN BUS RATING: 800 A

...	BRKR		LOAD DESCRIPTION	A (VA)		B (VA)		C (VA)		LOAD DESCRIPTION	BRKR		...
1				14050	6485								2
3	150	3	ERU-10			14050	6485			ERU-11	3	70	4
5								14050	6485				6
7				7205	7205								8
9	60	3	ACC-19			7205	7205			ACC-20	3	60	10
11								7205	7205				12
13				7205	7205								14
15	60	3	ACC-21			7205	7205			ACC-22	3	60	16
17								7205	7205				18
19				5164	7686								20
21	50	3	RTU-3			5164	7686			RTU-2	3	80	22
23								5164	7686				24
25				11889	11889								26
27	125	3	ERU-8			11889	11889			ERU-7	3	125	28
29								11889	11889				30
31				7205	7205								32
33	60	3	ACC-14			7205	7205			ACC-13	3	60	34
35								7205	7205				36
37				7205	7205								38
39	60	3	ACC-16			7205	7205			ACC-15	3	60	40
41								7205	7205				42
43	20	1	SPARE	0	7205								44
45	20	1	SPARE			0	7205			ACC-17	3	60	46
47	20	1	SPARE					0	7205				48
49	--	1	SPACE	--	--					SPACE	1	--	50
51	--	1	SPACE			--	--			SPACE	1	--	52
53	--	1	SPACE					--	--	SPACE	1	--	54
			TOTAL LOAD	122008 VA		122008 VA		122008 VA					

Load Classification

Load	Connected VA	Demand Factor	Demand VA
Recept.			
Lighting			
HVAC			
Motors			
Refrig.			
Kitchen			
Misc.	366025 VA	75.00%	274518 VA

Panel Totals

Connected Load	366025 VA
Estimated Load	274518 VA
Connected Amps	1016 A
Demand Amps	762 A

EQUIPMENT	LOCATION	HP/FLA	VOLTS	PHASE	AMPS	BREAKER SIZE	WIRE/CONDUIT SIZE	PANEL/CIRCUIT	REMARKS:
SSI-1	5TH GRADE 411	0.62A	208	1	0.62A		2 #12, 1 #12 GND IN 3/4" C		
SSI-2	5TH GRADE 411	0.62A	208	1	0.62A		2 #12, 1 #12 GND IN 3/4" C		
SSI-3	4TH GRADE 409	0.62A	208	1	0.62A		2 #12, 1 #12 GND IN 3/4" C		
SSI-4	4TH GRADE 409	0.62A	208	1	0.62A	20A/2P	2 #12, 1 #12 GND IN 3/4" C	1LNL11/1,3	1,2
SSI-5	5TH GRADE 407	0.62A	208	1	0.62A		2 #12, 1 #12 GND IN 3/4" C		
SSI-6	5TH GRADE 407	0.62A	208	1	0.62A		2 #12, 1 #12 GND IN 3/4" C		
SSI-7	5TH GRADE 405	0.62A	208	1	0.62A		2 #12, 1 #12 GND IN 3/4" C		
SSI-8	5TH GRADE 405	0.62A	208	1	0.62A		2 #12, 1 #12 GND IN 3/4" C		
SSI-9	5TH GRADE 410	0.62A	208	1	0.62A		2 #12, 1 #12 GND IN 3/4" C		
SSI-10	5TH GRADE 410	0.62A	208	1	0.62A		2 #12, 1 #12 GND IN 3/4" C		
SSI-11	5TH GRADE 408	0.62A	208	1	0.62A		2 #12, 1 #12 GND IN 3/4" C		
SSI-12	5TH GRADE 408	0.62A	208	1	0.62A	20A/2P	2 #12, 1 #12 GND IN 3/4" C	1LNL11/2,4	1,2
SSI-13	5TH GRADE 406	0.62A	208	1	0.62A		2 #12, 1 #12 GND IN 3/4" C		
SSI-14	5TH GRADE 406	0.62A	208	1	0.62A		2 #12, 1 #12 GND IN 3/4" C		
SSI-15	CONFERENCE ROOM 404	0.62A	208	1	0.62A		2 #12, 1 #12 GND IN 3/4" C		
SSI-16	ASSISTANT PRINCIPAL 400B	0.41	208	1	0.34A		2 #12, 1 #12 GND IN 3/4" C		
SSI-17	PRINCIPAL 400C	0.41	208	1	0.34A		2 #12, 1 #12 GND IN 3/4" C		
SSI-18	MAIN OFFICE 400	0.41	208	1	0.34A	20A/2P	2 #12, 1 #12 GND IN 3/4" C	1LNL11/5,7	1,2
SSI-19	MAIN OFFICE 400	0.41	208	1	0.34A		2 #12, 1 #12 GND IN 3/4" C		
SSI-20	4TH GRADE 106	0.84	208	1	0.34A		2 #12, 1 #12 GND IN 3/4" C		
SSI-21	4TH GRADE 106	0.84	208	1	0.34A		2 #12, 1 #12 GND IN 3/4" C		
SSI-22	5TH GRADE 108	0.84	208	1	0.34A		2 #12, 1 #12 GND IN 3/4" C		
SSI-23	5TH GRADE 108	0.84	208	1	0.34A	20A/2P	2 #12, 1 #12 GND IN 3/4" C	1LNL12/1,3	1,2
SSI-24	4TH GRADE 110	0.84	208	1	0.34A		2 #12, 1 #12 GND IN 3/4" C		
SSI-25	4TH GRADE 110	0.84	208	1	0.34A		2 #12, 1 #12 GND IN 3/4" C		
SSI-26	4TH GRADE 111	0.84	208	1	0.34A		2 #12, 1 #12 GND IN 3/4" C		
SSI-27	4TH GRADE 111	0.84	208	1	0.34A		2 #12, 1 #12 GND IN 3/4" C		
SSI-28	4TH GRADE 109	0.84	208	1	0.34A		2 #12, 1 #12 GND IN 3/4" C		
SSI-29	4TH GRADE 109	0.84	208	1	0.34A		2 #12, 1 #12 GND IN 3/4" C		
SSI-30	MAKERSPACE 107	0.84	208	1	0.34A	20A/2P	2 #12, 1 #12 GND IN 3/4" C	1LNL12/2,4	1,2
SSI-31	MAKERSPACE 107	0.84	208	1	0.34A		2 #12, 1 #12 GND IN 3/4" C		
SSI-32	4TH GRADE 105	0.84	208	1	0.34A		2 #12, 1 #12 GND IN 3/4" C		
SSI-33	4TH GRADE 105	0.84	208	1	0.34A		2 #12, 1 #12 GND IN 3/4" C		
SSI-34	BOOK ROOOM 101A	0.41	208	1	0.34A		2 #12, 1 #12 GND IN 3/4" C		
SSI-35	ENL 101G	0.41	208	1	0.34A		2 #12, 1 #12 GND IN 3/4" C		
SSI-36	MAC LAB 200B	0.41	208	1	0.34A		2 #12, 1 #12 GND IN 3/4" C		
SSI-37	MAC LAB 200	0.41	208	1	0.34A	20A/2P	2 #12, 1 #12 GND IN 3/4" C	1LNL12/5,7	1,2
SSI-38	PSYCH. 202	0.41	208	1	0.34A		2 #12, 1 #12 GND IN 3/4" C		
SSI-39	PSYCH. 204	0.41	208	1	0.34A		2 #12, 1 #12 GND IN 3/4" C		
SSI-40	4TH GRADE 206	0.84	208	1	0.34A		2 #12, 1 #12 GND IN 3/4" C		
SSI-41	4TH GRADE 206	0.84	208	1	0.34A		2 #12, 1 #12 GND IN 3/4" C		
SSI-42	3RD GRADE 208	0.84	208	1	0.34A		2 #12, 1 #12 GND IN 3/4" C		
SSI-43	3RD GRADE 208	0.84	208	1	0.34A	20A/2P	2 #12, 1 #12 GND IN 3/4" C	1LNL12/6,8	1,2
SSI-44	TECH. 210	0.84	208	1	0.34A		2 #12, 1 #12 GND IN 3/4" C		
SSI-45	TECH. 210	0.84	208	1	0.34A		2 #12, 1 #12 GND IN 3/4" C		
SSI-46	3RD GRADE 209	0.84	208	1	0.34A		2 #12, 1 #12 GND IN 3/4" C		
SSI-47	3RD GRADE 209	0.84	208	1	0.34A		2 #12, 1 #12 GND IN 3/4" C		
SSI-48	4TH GRADE 207	0.84	208	1	0.34A		2 #12, 1 #12 GND IN 3/4" C		
SSI-49	4TH GRADE 207	0.84	208	1	0.34A	20A/2P	2 #12, 1 #12 GND IN 3/4" C	1LNL12/9,11	1,2
SSI-50	3RD GRADE 205	0.34	208	1	0.34A		2 #12, 1 #12 GND IN 3/4" C		
SSI-51	3RD GRADE 205	0.34	208	1	0.34A		2 #12, 1 #12 GND IN 3/4" C		
SSI-52	I.T. 201B	0.41	208	1	0.34A		2 #12, 1 #12 GND IN 3/4" C		
SSI-53	RESOURCE ROOM 202A	0.41	208	1	0.34A		2 #12, 1 #12 GND IN 3/4" C		
SSI-54	NURSE 212	0.41	208	1	0.34A	20A/2P	2 #12, 1 #12 GND IN 3/4" C	1LNL13/1,3	1,2
SSI-55	NURSE 212A	0.41	208	1	0.34A		2 #12, 1 #12 GND IN 3/4" C		
SSI-56	MUSIC 300C	0.84	208	1	0.34A		2 #12, 1 #12 GND IN 3/4" C		
SSI-57	MUSIC 300C	0.84	208	1	0.34A		2 #12, 1 #12 GND IN 3/4" C		
SSI-58	O.T. 300B	0.41	208	1	0.34A	20A/2P	2 #12, 1 #12 GND IN 3/4" C	1LNL13/2,4	1,2
SSI-59	READING 300A	0.41	208	1	0.34A		2 #12, 1 #12 GND IN 3/4" C		
SSI-60	COPY/ST. 302	0.84	208	1	0.34A		2 #12, 1 #12 GND IN 3/4" C		
SSI-61	3RD GRADE 301	0.84	208	1	0.34A		2 #12, 1 #12 GND IN 3/4" C		
SSI-62	3RD GRADE 301	0.84	208	1	0.34A		2 #12, 1 #12 GND IN 3/4" C		
SSI-63	3RD GRADE 301A	0.84	208	1	0.34A		2 #12, 1 #12 GND IN 3/4" C		
SSI-64	3RD GRADE 301A	0.84	208	1	0.34A	20A/2P	2 #12, 1 #12 GND IN 3/4" C	1LNL13/5,7	1,2
SSI-65	ART 301B	0.84	208	1	0.34A		2 #12, 1 #12 GND IN 3/4" C		
SSI-66	ART 301B	0.84	208	1	0.34A		2 #12, 1 #12 GND IN 3/4" C		

1. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR THE MOUNTING, AND LINE/LOAD SIDE CONNECTIONS OF DISCONNECT AND/OR STARTER DEVICE ASSOCIATED WITH UNIT. MEANS OF DISCONNECT AND/OR STARTER ASSOCIATED WITH UNIT PROVIDE BY MECHANICAL CONTRACTOR. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR ALL FINAL CONNECTIONS TO EQUIPMENT.

2. REMOVE EXISTING 1-POLE CIRCUIT BREAKERS IN SPACES INDICATED. PLACE 1-POLE CIRCUIT BREAKERS IN OPEN SPACES WITHIN PANEL.

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50 Front Street Suite 202,
Newburgh, NY 12550
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SOUTH ORANGETOWN Central School District
Capital Improvements Bond
Essential Infrastructure for Student Health, Safety and Success

PROJECT INFORMATION

Project Number
14457.20

Client Name
SOUTH ORANGETOWN CENTRAL SCHOOL DISTRICT

Project Name
PHASE 1: 2022 BOND

District Office Address
160 VAN WYCK RD.
BLAUVELT, NY 10913

SOUTH ORANGETOWN CSD
- ☐ WILLIAM O. SCHAEFER SED#:50-03-01-06-0-012-019
- ■ COTTAGE LANE ELEMENTARY SED#:50-03-01-06-0-010-022
- ☐ TAPPAN ZEE HIGH SCHOOL SED#:50-03-01-06-0-006-032
- ☐ WILLIAM O. SCHAEFER S&L SED#: 50-03-01-06-0-012-020
- ☐ COTTAGE LANE S&L SED#: 50-03-01-06-0-010-023
- ☐ COTTAGE LANE LIBRARY S&L SED#: 50-03-01-06-8-023-002
- ☐ WOS OUTDOOR CLASSROOM SED#: 50-03-01-06-7-053-001
- ☐ SOMS OUTDOOR CLASSROOM SED#: 50-03-01-06-7-056-001
- ☐ CLE OUTDOOR CLASSROOM SED#: 50-03-01-06-7-054-001
- ☐ TZHS OUTDOOR CLASSROOM SED#: 50-03-01-06-7-055-001

PROJECT ISSUE & REVISION SCHEDULE

vv	Date	Description
1	11/17/2023	BID ADDENDUM #4

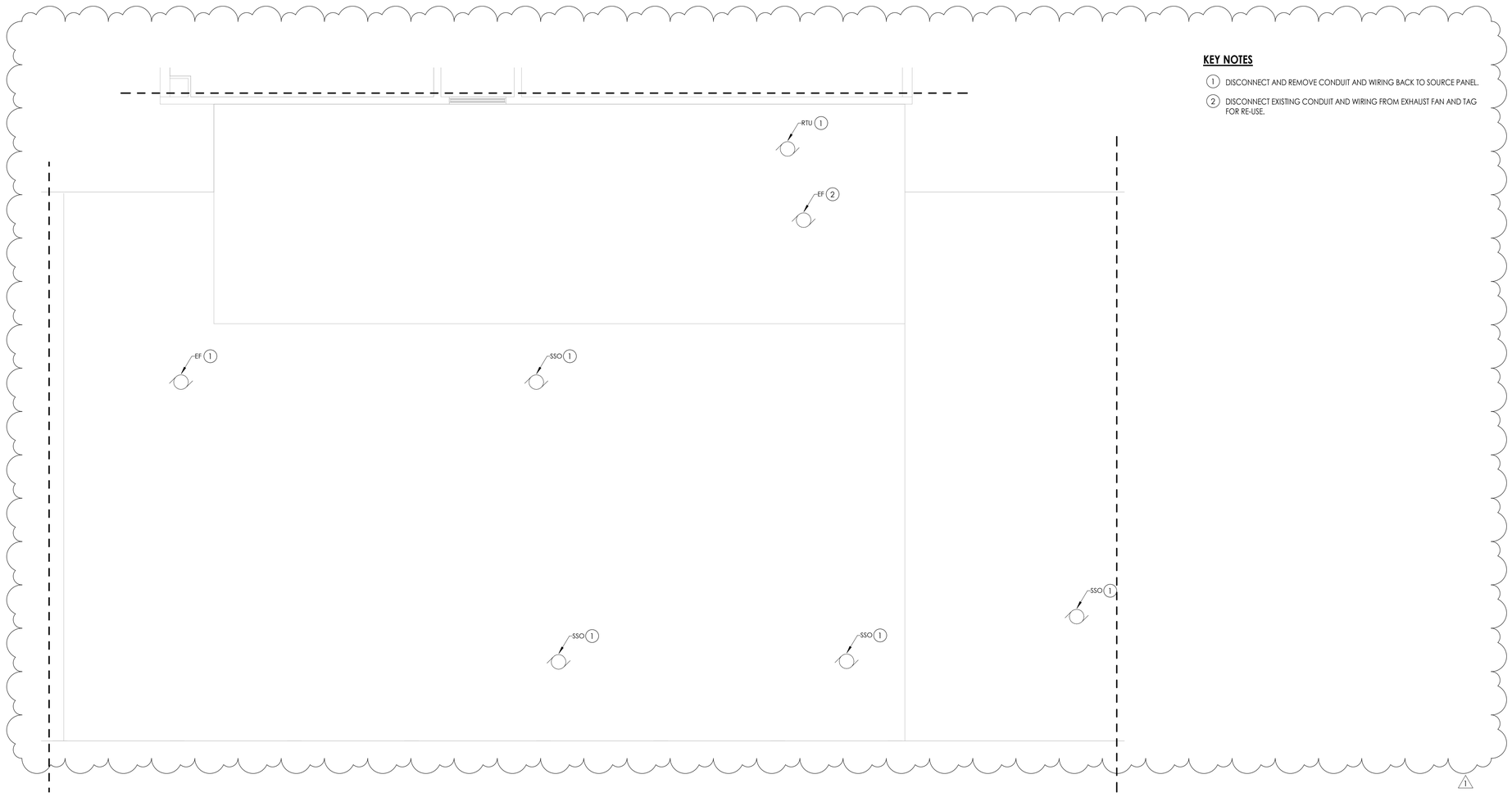
PROFESSIONAL STAMPS

NEW YORK STATE EDUCATION STATEMENT
IT IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW AND THE COMMISSIONER'S REGULATIONS FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER OR LICENSED ARCHITECT, TO ALTER ANY ITEM IN ANY WAY. IF ANY ITEM BEARING THE SEAL OF AN ARCHITECT, ENGINEER OR SURVEYOR IS ALTERED, THE ALTERING PARTY SHALL AFFIX TO THE ITEM THEIR SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE AND THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

SHEET INFORMATION

Issued: 12/21/22
Scale: 12" = 1'-0"
Project Status: BID DOCUMENTS
Drawn By: MAY
Checked By: JBT
Drawing Title: ELECTRICAL SCHEDULES

Drawing Number
CLE
E901

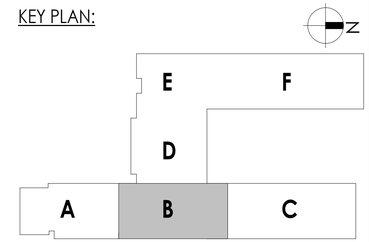


1 E107 **ROOF DEMOLITION PLAN - AREA B**
1/8" = 1'-0"

KEY NOTES

1. DISCONNECT AND REMOVE CONDUIT AND WIRING BACK TO SOURCE PANEL.
2. DISCONNECT EXISTING CONDUIT AND WIRING FROM EXHAUST FAN AND TAG FOR RE-USE.

KEY PLAN:



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SOUTH ORANGETOWN Central School District
Capital Improvements Bond
Essential Infrastructure for Student Health, Safety and Success

PROJECT INFORMATION

Project Number
14457.20

Client Name
SOUTH ORANGETOWN CENTRAL SCHOOL DISTRICT

Project Name
PHASE 1: 2022 BOND

District Office Address
160 VAN WYCK RD, BLAUVELT, NY 10913

SOUTH ORANGETOWN CSD
- ■ WILLIAM O. SCHAEFER SED#:50-03-01-06-0-012-019
- ☐ COTTAGE LANE ELEMENTARY SED#:50-03-01-06-0-010-022
- ☐ TAPPAN ZEE HIGH SCHOOL SED#:50-03-01-06-0-006-032
- ☐ WILLIAM O. SCHAEFER S&L SED#: 50-03-01-06-0-012-020
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- ☐ WOS OUTDOOR CLASSROOM SED#: 50-03-01-06-7-053-001
- ☐ SOMS OUTDOOR CLASSROOM SED#: 50-03-01-06-7-056-001
- ☐ CLE OUTDOOR CLASSROOM SED#: 50-03-01-06-7-054-001
- ☐ TZHS OUTDOOR CLASSROOM SED#: 50-03-01-06-7-055-001

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SHEET INFORMATION

Issued
10/18/2023

Scale
AS NOTED

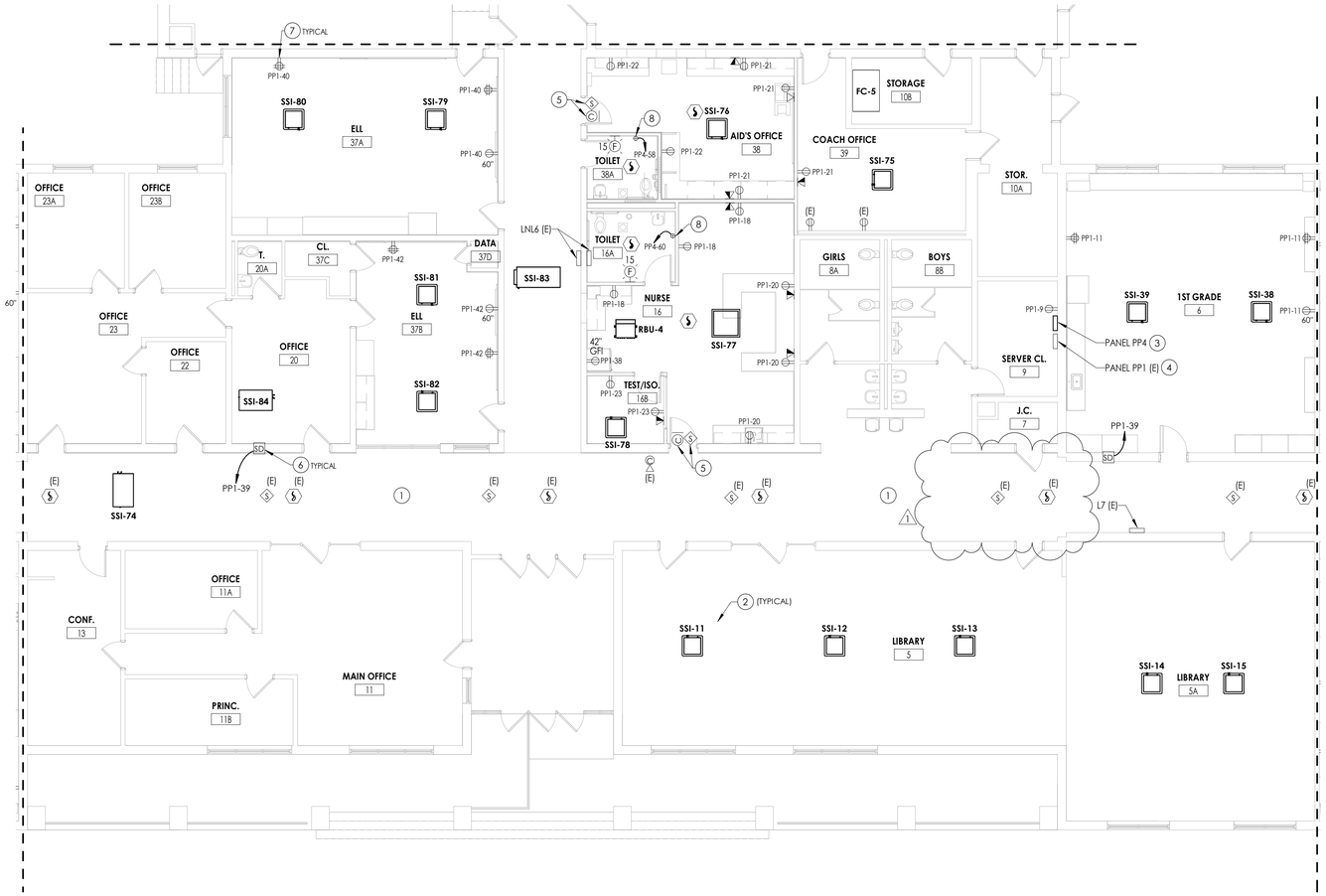
Project Status
BID DOCUMENTS

Drawn By
MAY

Checked By
JBT

Drawing Title
ROOF DEMOLITION PLAN-AREA B

Drawing Number
WOS
E107



1 E201 **FIRST FLOOR NEW WORK PLAN - AREA B**

1/8" = 1'-0"

GENERAL NOTES

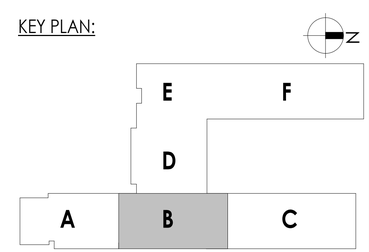
A. FOR ALL 120V DEVICES SHOWN, WIRE WITH (2)#12, #12G IN 3/4"C AND CONNECT TO 20A/1P CIRCUIT BREAKER IN PANEL INDICATED TO CIRCUIT INDICATED ADJACENT TO DEVICE.

B ALL CIRCUITS OVER 100' SHALL BE WIRED WITH #10 THHN.

KEY NOTES

1. EXISTING CEILING MOUNTED DEVICES TO BE RE-INSTALLED BACK IN CEILING AS NECESSARY TO ACCOMMODATE ANY CEILING REMOVAL/REPLCAEMENTS. CONNECT TO EXISTING TAGGED WIRING.
2. ALL MECHANICAL EQUIPMENT POWER REQUIREMENTS ARE NOTED ON DRAWINGS E901, E902, AND E903. LABEL INDICATES EQUIPMENT TAG. REFER TO RESPECTIVE TAG ON DRAWINGS NOTED.
3. PROVIDE A 120/208V, 3-PHASE, 4-WIRE, 800-AMP, 66 CIRCUIT PANELBOARD AT LOCATION INDICATED. PROVIDE (2) SETS OF (4) #500 MCM, (1) #3 GND IN (2) 4" C FROM NEW PANEL TO MDP, REFER TO DRAWING WOS-E204.
4. UTILIZE EXISTING 20A, 1-POLE CIRCUIT BREAKERS IN EXISTING PANELBOARD.
5. NEW LOCATION OF EXISTING CLOCK/SPEAKER UNITS. CONNECT TO EXISTING TAGGED WIRING.
6. PROVIDE FIRE/SMOKE DAMPER FIRE ALARM RELAY AT LOCATIONS INDICATED. PROVIDE WIRING TO CONNECT TO EXISTING FIRE ALARM SYSTEM. PROVIDE (2) #12, (1) #12GND IN 3/4" CONDUIT TO FIRE/SMOKE DAMPER ACTUATOR FROM PANEL AND CIRCUIT INDICATED.
7. NEW RECEPTACLES TO BE PLACED IN WIREMOLD AT THESE LOCATIONS. WIREMOLD BY OTHERS. COORDINATE FINAL LOCATIONS WITH OWNER AND T-SERIES DRAWINGS.
8. PROVIDE (2) #12, (1) #12 GND IN 3/4" CONDUIT FROM PANEL PP4 TO EACH HAND DRYER LOCATION INDICATED.

KEY PLAN:



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PROFESSIONAL STAMPS

SHEET INFORMATION

Issued
10/18/2023

Scale
1/8" = 1'-0"

Project Status
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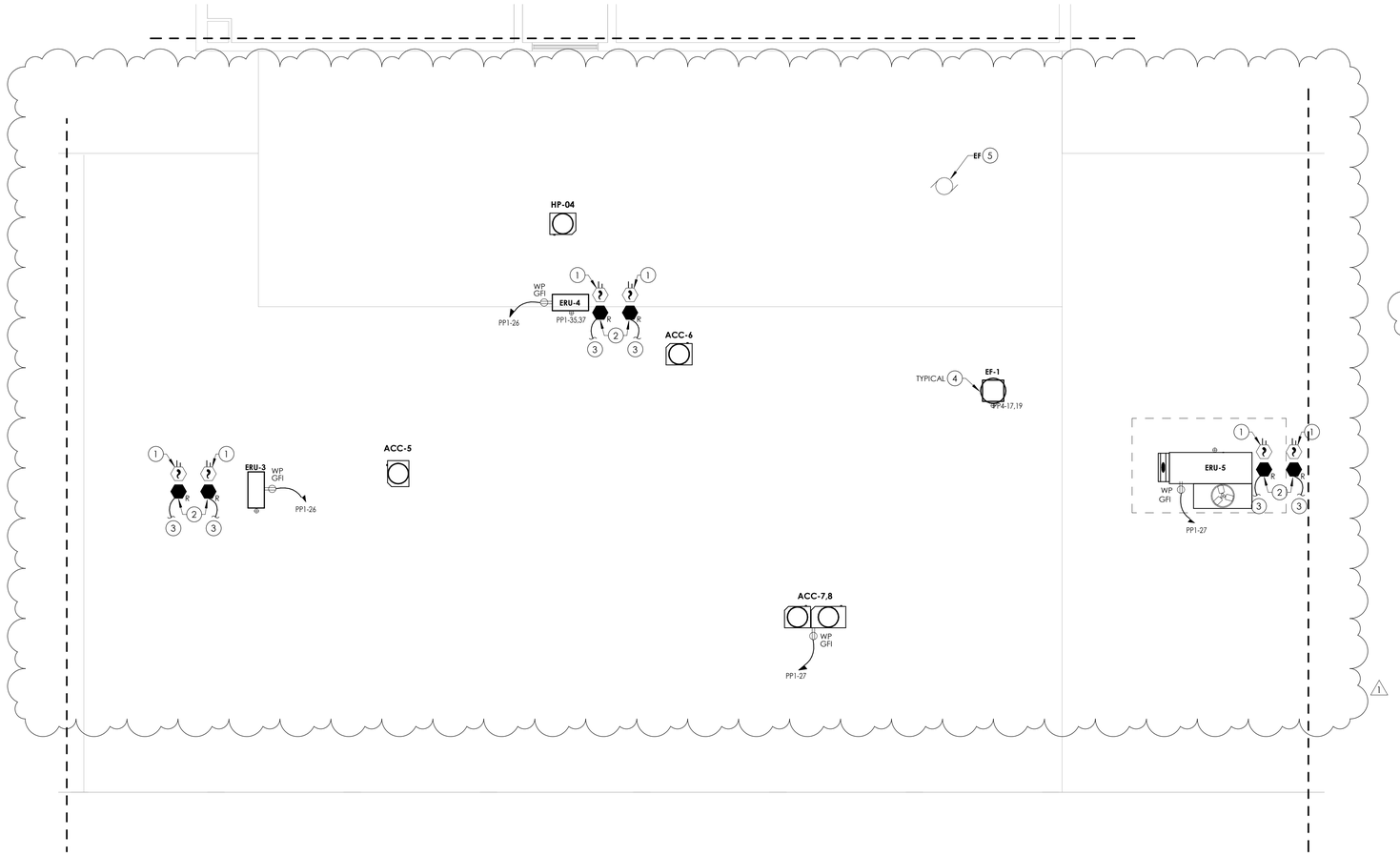
Drawn By
MAY

Checked By
JBT

Drawing Title
FIRST FLOOR NEW WORK PLAN - AREA B

Drawing Number
WOS
E201



GENERAL NOTES

A. FOR ALL 120V DEVICES SHOWN, WIRE WITH (2)#12, #12G IN 3/4"C AND CONNECT TO 20A/1P CIRCUIT BREAKER IN PANEL INDICATED TO CIRCUIT INDICATED ADJACENT TO DEVICE.

B. ALL CIRCUITS OVER 100' SHALL BE WIRED WITH #10 THHN.

KEY NOTES

1. PROVIDE DUCT SMOKE DETECTOR FOR RETURN AND SUPPLY LINES OF RTU'S. SHOWN HERE FOR CLARITY BUT ARE IN FIRST FLOOR CEILING PLAN. PROVIDE FAN SHUT DOWN RELAYS SO THAT UNIT WILL SHUT DOWN ALL FANS ASSOCIATED WITH UNIT ON ACTIVATION OF THE BUILDING FIRE ALARM PANEL.
2. PROVIDE FAN SHUT DOWN RELAYS AT HVAC EQUIPMENT CONTROLS. INTERCONNECT RELAYS TO BUILDING FIRE ALARM SYSTEM TO SHUT DOWN FAN MOTORS WHEN THE FIRE ALARM IS ACTIVATED.
3. PROVIDE ASSOCIATED REMOTE TEST SWITCHES IN CEILING SPACE BELOW.
4. ALL MECHANICAL EQUIPMENT POWER REQUIREMENTS ARE NOTED ON DRAWINGS E901, E902, AND E903. LABEL INDICATES EQUIPMENT TAG. REFER TO RESPECTIVE TAG ON DRAWINGS NOTED.
5. CONNECT NEW EXHAUST FAN TO EXISTING TAGGED CIRCUITRY. REWORK/EXTEND CIRCUITRY AS NECESSARY TO ACCOMMODATE NEW EQUIPMENT AND ROOF CURB.

1

1 E211 **ROOF NEW WORK PLAN - AREA B**
1/8" = 1'-0"

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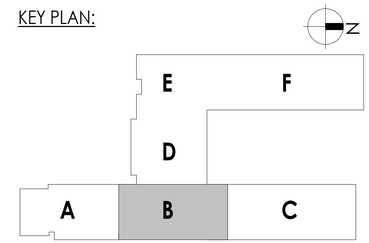
Drawn By
MAY

Checked By
JBT

Drawing Title
ROOF NEW WORK PLAN - AREA B

Drawing Number
WOS
E211

KEY PLAN:



11/17/2023 9:16:54 AM <project location> REVIT PROJECT FILES ON BIM360

EQUIPMENT	LOCATION	HP/FLA	VOLTS	PHASE	AMPS	BREAKER SIZE	WIRE/CONDUIT SIZE	PANEL/CIRCUIT	REMARKS:
ERU-01	ROOF	99A	208	3	99A	125A/3P	(3) #1, (1) #6GND IN 1-1/2" C	PP4/49,51,53	1
ERU-02	ROOF	78A	208	3	78A	100A/3P	(3) #2, (1) #8GND IN 1-1/2" C	PP4/52,54,56	1
ERU-03	ROOF	10.8A	208	1	10.8A	20A/2P	(2) #12, (1) #12 GND IN 3/4" C	PP1/34,36	1
ERU-04	ROOF	10.8A	208	1	10.8A	20A/2P	(2) #12, (1) #12 GND IN 3/4" C	PP1/35,37	1
ERU-05	ROOF	54A	208	3	54A	70A/3P	(3) #4, (1) #8GND IN 1-1/4" C	PP4/28,30,32	1
ERU-06	ROOF	99A	208	3	99A	125A/3P	(3) #1, (1) #6GND IN 1-1/2" C	PP5/30,32,34	1
ERU-07	ROOF	54A	208	3	54A	70A/3P	(3) #4, (1) #8GND IN 1-1/4" C	PP5/31,33,35	1
ERU-08	ROOF	54A	208	3	54A	70A/3P	(3) #4, (1) #8GND IN 1-1/4" C	PP5/36,38,40	1
ERU-09	ROOF	99A	208	3	99A	125A/3P	(3) #1, (1) #6GND IN 1-1/2" C	PP3/1,3,5	1
ERU-10	ROOF	78A	208	3	78A	100A/3P	(3) #2, (1) #8GND IN 1-1/2" C	PP3/2,4,6	1
ERU-11	ROOF	78A	208	3	78A	100A/3P	(3) #2, (1) #8GND IN 1-1/2" C	PP3/7,9,11	1
ERU-12	ROOF	54A	208	3	54A	70A/3P	(3) #4, (1) #8GND IN 1-1/4" C	PP3/26,28,30	1
ERU-13	ROOF	120A	208	3	120A	150A/3P	(3) #2/0, (1) #6GND IN 2-1/2" C	PP3/31,33,35	1
ACC-01	ROOF	-	208	3	50A	50A/3P	(3) #6, (1) #10GND IN 1" C	PP4/31,33,35	1
ACC-02	ROOF	-	208	3	60A	60A/3P	(3) #6, (1) #10GND IN 1" C	PP4/37,39,41	1
ACC-03	ROOF	-	208	3	50A	50A/3P	(3) #6, (1) #10GND IN 1" C	PP4/34,36,38	1
ACC-04	ROOF	-	208	3	60A	60A/3P	(3) #6, (1) #10GND IN 1" C	PP4/40,42,44	1
ACC-05	ROOF	-	208	3	71A	90A/3P	(3) #3, (1) #8GND IN 1-1/4" C	PP4/43,45,47	1
ACC-06	ROOF	-	208	3	29.3A	40A/3P	(3) #8, (1) #10GND IN 1" C	PP4/22,24,26	1
ACC-07	ROOF	-	208	3	49.8A	60A/3P	(3) #6, (1) #10GND IN 1" C	PP1/28,30,32	1
ACC-08	ROOF	-	208	3	49.8A	60A/3P	(3) #6, (1) #10GND IN 1" C	PP1/29,31,33	1
ACC-09	ROOF	-	208	3	60A	60A/3P	(3) #6, (1) #10GND IN 1" C	PP5/19,21,23	1
ACC-10	ROOF	-	208	3	50A	50A/3P	(3) #6, (1) #10GND IN 1" C	PP5/12,14,16	1
ACC-11	ROOF	-	208	3	59.8A	70A/3P	(3) #4, (1) #8GND IN 1-1/4" C	PP5/13,15,17	1
ACC-12	ROOF	-	208	3	59.8A	70A/3P	(3) #4, (1) #8GND IN 1-1/4" C	PP5/18,20,22	1
ACC-13	ROOF	-	208	3	71A	90A/3P	(3) #3, (1) #8GND IN 1-1/4" C	PP5/24,26,28	1
ACC-14	ROOF	-	208	3	71A	90A/3P	(3) #3, (1) #8GND IN 1-1/4" C	PP5/25,27,29	1
ACC-15	ROOF	-	208	3	59.8A	70A/3P	(3) #4, (1) #8GND IN 1-1/4" C	PP3/32,34,36	1
ACC-16	ROOF	-	208	3	59.8A	70A/3P	(3) #4, (1) #8GND IN 1-1/4" C	PP3/37,39,41	1
ACC-17	ROOF	-	208	3	29.8A	40A/3P	(3) #8, (1) #10GND IN 1" C	PP3/38,40,42	1
ACC-18	ROOF	-	208	3	50A	50A/3P	(3) #6, (1) #10GND IN 1" C	PP3/8,10,12	1
ACC-19	ROOF	-	208	3	60A	60A/3P	(3) #6, (1) #10GND IN 1" C	PP3/13,15,17	1
ACC-20	ROOF	-	208	3	50A	50A/3P	(3) #6, (1) #10GND IN 1" C	PP3/14,16,18	1
ACC-21	ROOF	-	208	3	60A	60A/3P	(3) #6, (1) #10GND IN 1" C	PP3/19,21,23	1
ACC-22	ROOF	-	208	3	50A	50A/3P	(3) #6, (1) #10GND IN 1" C	PP3/20,22,24	1
ACC-23	ROOF	-	208	3	60A	60A/3P	(3) #6, (1) #10GND IN 1" C	PP3/25,27,29	1
SSI-1	KINDERGARTEN 32	3.15A	208	1	15A	20A/2P	(2) #12, (1) #12 GND IN 3/4" C	PP4/13,15	1
SSI-2	KINDERGARTEN 32	3.15A	208	1	15A		(2) #12, (1) #12 GND IN 3/4" C		
SSI-3	KINDERGARTEN 21	3.15A	208	1	15A		(2) #12, (1) #12 GND IN 3/4" C		
SSI-4	KINDERGARTEN 21	3.15A	208	1	15A		(2) #12, (1) #12 GND IN 3/4" C		
SSI-5	KINDERGARTEN 19	3.15A	208	1	15A	20A/2P	(2) #12, (1) #12 GND IN 3/4" C	PP4/10,12	1
SSI-6	KINDERGARTEN 19	3.15A	208	1	15A		(2) #12, (1) #12 GND IN 3/4" C		
SSI-7	1ST GRADE 17	0.34A	208	1	15A		(2) #12, (1) #12 GND IN 3/4" C		
SSI-8	1ST GRADE 17	0.34A	208	1	15A		(2) #12, (1) #12 GND IN 3/4" C		
SSI-9	FIRST GRADE 15	0.34A	208	1	15A		(2) #12, (1) #12 GND IN 3/4" C		
SSI-10	FIRST GRADE 15	0.34A	208	1	15A		(2) #12, (1) #12 GND IN 3/4" C		
SSI-11	LIBRARY 5	0.34A	208	1	15A	20A/2P	(2) #12, (1) #12 GND IN 3/4" C	PP4/14,16	1
SSI-12	LIBRARY 5	0.34A	208	1	15A		(2) #12, (1) #12 GND IN 3/4" C		
SSI-13	LIBRARY 5	0.34A	208	1	15A		(2) #12, (1) #12 GND IN 3/4" C		
SSI-14	LIBRARY 5A	0.34A	208	1	15A		(2) #12, (1) #12 GND IN 3/4" C		
SSI-15	LIBRARY 5A	0.34A	208	1	15A		(2) #12, (1) #12 GND IN 3/4" C		
SSI-17	MAKERSPACE 3	0.34A	208	1	15A	20A/2P	(2) #12, (1) #12 GND IN 3/4" C	PP5/1,3	1
SSI-18	MAKERSPACE 3	0.34A	208	1	15A		(2) #12, (1) #12 GND IN 3/4" C		
SSI-19	1ST GRADE 1	0.34A	208	1	15A		(2) #12, (1) #12 GND IN 3/4" C		
SSI-20	1ST GRADE 1	0.34A	208	1	15A		(2) #12, (1) #12 GND IN 3/4" C		
SSI-21	KINDERGARTEN 104	0.34A	208	1	15A	20A/2P	(2) #12, (1) #12 GND IN 3/4" C	PP5/4,6	1
SSI-22	KINDERGARTEN 104	0.34A	208	1	15A		(2) #12, (1) #12 GND IN 3/4" C		
SSI-23	OT/PT 105	0.34A	208	1	15A		(2) #12, (1) #12 GND IN 3/4" C		
SSI-24	OT/PT 105	0.34A	208	1	15A		(2) #12, (1) #12 GND IN 3/4" C		
SSI-25	SUPPORT M3	0.88A	208	1	15A		(2) #12, (1) #12 GND IN 3/4" C		
SSI-26	KINDERGARTEN 103	0.34A	208	1	15A	20A2P	(2) #12, (1) #12 GND IN 3/4" C	PP5/9,11	1
SSI-27	KINDERGARTEN 103	0.34A	208	1	15A		(2) #12, (1) #12 GND IN 3/4" C		
SSI-28	KINDERGARTEN 102	0.34A	208	1	15A		(2) #12, (1) #12 GND IN 3/4" C		
SSI-29	KINDERGARTEN 102	0.34A	208	1	15A		(2) #12, (1) #12 GND IN 3/4" C		
SSI-30	KINDERGARTEN 101	0.34A	208	1	15A		(2) #12, (1) #12 GND IN 3/4" C		
SSI-31	KINDERGARTEN 101	0.34A	208	1	15A		(2) #12, (1) #12 GND IN 3/4" C		

1. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR THE MOUNTING, AND LINE/LOAD SIDE CONNECTIONS OF DISCONNECT AND/OR STARTER DEVICE ASSOCIATED WITH UNIT. MEANS OF DISCONNECT AND/OR STARTER ASSOCIATED WITH UNIT PROVIDE BY MECHANICAL CONTRACTOR. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR ALL FINAL CONNECTIONS TO EQUIPMENT.

2. REMOVE 1-POLE CIRCUIT BREAKERS IN SPACES INDICATED. TURN BREAKERS OVER TO OWNER.

LUMINAIRE SCHEDULE

MARK	DESCRIPTION	DESIGN MAKE	MODEL NUMBER	VOLTS	LAMP		REMARKS:
					WATTS	TEMPERATURE	
A	2X2 RECESSED LED TROFFER	CURRENT LIGHTING	LCAT22-9-35-HL-G-ED1-U	UNV	32	3500K	
A/EM	2X2 RECESSED LED TROFFER WITH EMERGENCY BATTERY BACKUP	CURRENT LIGHTING	LCAT22-9-35-HL-G-ED1-U-ELL14	UNV	32	3500K	3,4
B	6" RECESSED LED DOWNLIGHT	CURRENT LIGHTING	LTR-6RD-H-ML-20L-DM01-LTR-6RD-T-ML-35K-9-MD-SS-WT-FMR6-R	UNV	22	3500K	
C	2X2 RECESSED LED FLAT PANEL	CURRENT LIGHTING	CFP22-40/33/2835	UNV	40/28	3500K	1
C/EM	2X2 RECESSED LED FLAT PANEL EMERGENCY BATTERY BACKUP	CURRENT LIGHTING	CFP22-40/33/2835-ELL14	UNV	40/28	3500K	1,3,4
D	2X4 RECESSED LED TROFFER	CURRENT LIGHTING	LCAT24-35-LW-G-ED1-U	UNV	36	3500K	
D/EM	2X4 RECESSED LED TROFFER EMERGENCY BATTERY BACKUP	CURRENT LIGHTING	LCAT24-35-LW-G-ED1-U-ELL14	UNV	36	3500K	3,4
E	1X4 RECESSED LED TROFFER	CURRENT LIGHTING	LCAT14-9-35-LW-G-ED1-U	UNV	36	3500K	5
E/EM	1X4 RECESSED LED TROFFER WITH EMERGENCY BATTERY BACKUP	CURRENT LIGHTING	LCAT14-9-35-LW-G-ED1-U-ELL14	UNV	36	3500K	3,4,5
F	1X4 SURFACE MOUNTED LED EXTERIOR	CURRENT LIGHTING	91L-P-D-2-STD-4-04-SOF-C5-40K-D100-D01-1C-UNV-H72	UNV	48	4000K	2
X	LED EXIT SIGN	CURRENT LIGHTING	CEWSRE	UNV	3		3,4
EM	LED EMERGENCY FIXTURE	CURRENT LIGHTING	CU2SO	UNV	4		3,4

REMARKS:
1. FIXTURE TO BE SET AT 40 (4000 LUMENS) IN FIELD BEFORE INSTALLATION. IN THE SINGLE GANG TOILET ROOMS WITHIN THE CLASSROOMS, FIXTURES TO BE SET AT 28 (2800 LUMENS).
2. FIXTURES TO BE MOUNTED TO UNDERSIDE OF ROOF. PROVIDE ALL MOUNTING HARDWARE NECESSARY.
3. ALL FIXTURES SHOWN WITH AN "EM" DESIGNATION INDICATES AND EMERGENCY FIXTURE. PROVIDE EMERGENGY BATTERY BACKUP FOR EACH FIXTURE INDICATED.
4. ALL "EM" BATTERY BACKUPS WITHIN FIXTURE SHALL BE WIRED TO THE UNSWITCHED HOT LEG OF THE CIRCUIT FEEDING IT.
5. PROVIDE FIXTURES WITH GYP CEILING KIT FK14.

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Newburgh, NY 12550
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SOUTH ORANGETOWN Central School District
Capital Improvements Bond
Essential Infrastructure for Student Health, Safety and Success

PROJECT INFORMATION

Project Number
14457.20

Client Name
SOUTH ORANGETOWN CENTRAL SCHOOL DISTRICT

Project Name
PHASE 1: 2022 BOND

District Office Address
160 VAN WYCK RD, BLAUVELT, NY 10913

SOUTH ORANGETOWN CSD
- [x] WILLIAM O. SCHAEFER SED#:30-03-01-06-0-012-019
- [ ] COTTAGE LANE ELEMENTARY SED#:30-03-01-06-0-010-022
- [ ] TAPPAN ZEE HIGH SCHOOL SED#:30-03-01-06-0-006-032
- [ ] WILLIAM O. SCHAEFER S&L SED#: 30-03-01-06-0-012-020
- [ ] COTTAGE LANE S&L SED#: 30-03-01-06-0-010-023
- [ ] COTTAGE LANE LIBRARY S&L SED#: 30-03-01-06-8-023-002
- [ ] WOS OUTDOOR CLASSROOM SED#: 30-03-01-06-7-053-001
- [ ] SOMS OUTDOOR CLASSROOM SED#: 30-03-01-06-7-056-001
- [ ] CLE OUTDOOR CLASSROOM SED#: 30-03-01-06-7-054-001
- [ ] TDHS OUTDOOR CLASSROOM SED#: 30-03-01-06-7-055-001

PROJECT ISSUE & REVISION SCHEDULE

No.	Date	Description
1	11/17/2023	BID ADDENDUM #4

PROFESSIONAL STAMPS

NEW YORK STATE EDUCATION STATEMENT

IT IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW AND THE COMMISSIONER'S REGULATIONS FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED ARCHITECT, ENGINEER OR LAND SURVEYOR TO ALTER AN ITEM IN ANY WAY. IF AN ITEM BEARING THE SEAL OF AN ARCHITECT, ENGINEER OR SURVEYOR IS ALTERED, THE ALTERING PARTY SHALL AFFIX TO THE ITEM THEIR SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE AND THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

SHEET INFORMATION

Issued	Scale
10/18/2023	12" = 1'-0"

Project Status
BID DOCUMENTS

Drawn By	Checked By
MAY	JBT

Drawing Title
ELECTRICAL SCHEDULES

Drawing Number
WOS
E900

EQUIPMENT	LOCATION	HP/FLA	VOLTS	PHASE	AMPS	BREAKER SIZE	WIRE/CONDUIT SIZE	PANEL/CIRCUIT	REMARKS:
EF-1	ROOF	1-1/2HP	208	1	11A	20A/2P	(2) #12, (1) #12 GND IN 3/4" C	PP4/17,19	1,2
SSO-1	ROOF	120A	208	3	150A	150A/3P	(3) #2/0, (1) #6GND IN 2" C	PP4/46,48,50	1
SSO-2	ROOF	75A	208	3	100A	100A/3P	(3) #2, (1) #8 IN 1-1/4"C	PP2/29,31,33	1
HP-04	ROOF	38A	208	3	40A	50A/3P	(3) #6, (1) #10 GND IN 1" C	PP4/25,27,29	1
RBU-1	CORRIDOR	339W	208	1	1A	20A/2P	(2) #12, (1) #12 GND IN 3/4" C	PP4/9,11	1
RBU-2	CORRIDOR	339W	208	1	1A		(2) #12, (1) #12 GND IN 3/4" C		
RBU-4	NURSE 16	226W	208	1	1A	20A/2P	(2) #12, (1) #12 GND IN 3/4" C	PP4/5,7	1
RBU-6	CORRIDOR	339W	208	1	1A	20A/2P	(2) #12, (1) #12 GND IN 3/4" C	PP5/5,7	1
RBU-7	CORRIDOR	226W	208	1	1A		(2) #12, (1) #12 GND IN 3/4" C		
RBU-8	CORRIDOR	226W	208	1	1A		(2) #12, (1) #12 GND IN 3/4" C		
RBU-9	CORRIDOR	339W	208	1	1A	20A/2P	(2) #12, (1) #12 GND IN 3/4" C	PP2/28,30	1
RBU-10	CORRIDOR	339W	208	1	1A		(2) #12, (1) #12 GND IN 3/4" C		
RBU-11	CORRIDOR	339W	208	1	1A		(2) #12, (1) #12 GND IN 3/4" C		
RBU-12	ROOF	339W	208	1	1A		(2) #12, (1) #12 GND IN 3/4" C		

1. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR THE MOUNTING, AND LINE/LOAD SIDE CONNECTIONS OF DISCONNECT AND/OR STARTER DEVICE ASSOCIATED WITH UNIT. MEANS OF DISCONNECT AND/OR STARTER ASSOCIATED WITH UNIT PROVIDE BY MECHANICAL CONTRACTOR. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR ALL FINAL CONNECTIONS TO EQUIPMENT.

2. PROVIDE FIRE ALARM RELAY AT EXHAUST FAN AND TIE INTO EXISTING FIRE ALARM SYSTEM

EQUIPMENT	LOCATION	HP/FLA	VOLTS	PHASE	AMPS	BREAKER SIZE	WIRE/CONDUIT SIZE	PANEL/CIRCUIT	REMARKS:
SSI-32	SPEC. ED. 100	0.34A	208	1	15A	20A/2P	(2) #12, (1) #12 GND IN 3/4" C	PP5/8,10	1
SSI-33	SPEC. ED. 100	0.34A	208	1	15A		(2) #12, (1) #12 GND IN 3/4" C		
SSI-34	1ST GRADE 2	0.34A	208	1	15A		(2) #12, (1) #12 GND IN 3/4" C		
SSI-35	1ST GRADE 2	0.34A	208	1	15A		(2) #12, (1) #12 GND IN 3/4" C		
SSI-36	1ST GRADE 4	0.34A	208	1	15A		(2) #12, (1) #12 GND IN 3/4" C		
SSI-37	1ST GRADE 4	0.34A	208	1	15A		(2) #12, (1) #12 GND IN 3/4" C		
SSI-38	1ST GRADE 6	0.34A	208	1	15A		(2) #12, (1) #12 GND IN 3/4" C		
SSI-39	1ST GRADE 6	0.34A	208	1	15A		(2) #12, (1) #12 GND IN 3/4" C		
SSI-40	MUSIC 62	0.34A	208	1	15A	20A/2P	(2) #12, (1) #12 GND IN 3/4" C	PP2/21,23	1,2
SSI-41	MUSIC 62	0.34A	208	1	15A		(2) #12, (1) #12 GND IN 3/4" C		
SSI-42	2ND GRADE 64	0.34A	208	1	15A		(2) #12, (1) #12 GND IN 3/4" C		
SSI-43	2ND GRADE 64	0.34A	208	1	15A		(2) #12, (1) #12 GND IN 3/4" C		
SSI-44	2ND GRADE 66	0.34A	208	1	15A		(2) #12, (1) #12 GND IN 3/4" C		
SSI-45	2ND GRADE 66	0.34A	208	1	15A		(2) #12, (1) #12 GND IN 3/4" C		
SSI-46	2ND GRADE 68	0.34A	208	1	15A		(2) #12, (1) #12 GND IN 3/4" C		
SSI-47	2ND GRADE 68	0.34A	208	1	15A		(2) #12, (1) #12 GND IN 3/4" C		
SSI-48	1ST GRADE 70	0.34A	208	1	15A		(2) #12, (1) #12 GND IN 3/4" C		
SSI-49	1ST GRADE 70	0.34A	208	1	15A		(2) #12, (1) #12 GND IN 3/4" C		
SSI-50	2ND GRADE 72	0.34A	208	1	15A	20A/2P	(2) #12, (1) #12 GND IN 3/4" C	PP2/25,27	1
SSI-51	2ND GRADE 72	0.34A	208	1	15A		(2) #12, (1) #12 GND IN 3/4" C		
SSI-52	ART 74	0.34A	208	1	15A		(2) #12, (1) #12 GND IN 3/4" C		
SSI-53	ART 74	0.34A	208	1	15A		(2) #12, (1) #12 GND IN 3/4" C		
SSI-54	1ST GRADE 71	0.34A	208	1	15A		(2) #12, (1) #12 GND IN 3/4" C		
SSI-55	1ST GRADE 71	0.34A	208	1	15A		(2) #12, (1) #12 GND IN 3/4" C		
SSI-56	1ST GRADE 69	0.34A	208	1	15A		(2) #12, (1) #12 GND IN 3/4" C		
SSI-57	1ST GRADE 69	0.34A	208	1	15A		(2) #12, (1) #12 GND IN 3/4" C		
SSI-58	2ND GRADE 67	0.34A	208	1	15A	20A/2P	(2) #12, (1) #12 GND IN 3/4" C	PP2/32,34	1
SSI-59	2ND GRADE 67	0.34A	208	1	15A		(2) #12, (1) #12 GND IN 3/4" C		
SSI-60	2ND GRADE 69	0.34A	208	1	15A		(2) #12, (1) #12 GND IN 3/4" C		
SSI-61	2ND GRADE 65	0.34A	208	1	15A		(2) #12, (1) #12 GND IN 3/4" C		
SSI-62	2ND GRADE 63	0.34A	208	1	15A		(2) #12, (1) #12 GND IN 3/4" C		
SSI-63	2ND GRADE 63	0.34A	208	1	15A		(2) #12, (1) #12 GND IN 3/4" C		
SSI-64	1ST GRADE 61	0.34A	208	1	15A		(2) #12, (1) #12 GND IN 3/4" C		
SSI-65	1ST GRADE 61	0.34A	208	1	15A		(2) #12, (1) #12 GND IN 3/4" C		
SSI-66	2ND GRADE 59	0.34A	208	1	15A	20A/2P	(2) #12, (1) #12 GND IN 3/4" C	PP2/20,22	1,2
SSI-67	2ND GRADE 59	0.34A	208	1	15A		(2) #12, (1) #12 GND IN 3/4" C		
SSI-68	2ND GRADE 57	0.34A	208	1	15A		(2) #12, (1) #12 GND IN 3/4" C		
SSI-69	2ND GRADE 57	0.34A	208	1	15A		(2) #12, (1) #12 GND IN 3/4" C		
SSI-70	STAFF LOUNGE 51	0.34A	208	1	15A		(2) #12, (1) #12 GND IN 3/4" C		
SSI-71	ENL 44	0.34A	208	1	15A	20A/2P	(2) #12, (1) #12 GND IN 3/4" C	PP2/24,26	1
SSI-72	OFFICE 42	0.34A	208	1	15A		(2) #12, (1) #12 GND IN 3/4" C		
SSI-73	P.E. OFFICE 80C	0.34A	208	1	15A		(2) #12, (1) #12 GND IN 3/4" C		
SSI-74	CORRIDOR	0.34A	208	1	15A	20A/2P	(2) #12, (1) #12 GND IN 3/4" C	PP4/1,3	1
SSI-75	COACH OFFICE 39	0.34A	208	1	15A	20A/2P	(2) #12, (1) #12 GND IN 3/4" C	PP4/4,6	1
SSI-76	AID'S OFFICE 38	0.34A	208	1	15A		(2) #12, (1) #12 GND IN 3/4" C		
SSI-77	NURSE 16	0.34A	208	1	15A		(2) #12, (1) #12 GND IN 3/4" C		
SSI-78	TEST/ISO 16B	0.34A	208	1	15A		(2) #12, (1) #12 GND IN 3/4" C		
SSI-79	ENL 37A	0.34A	208	1	15A	20A/2P	(2) #12, (1) #12 GND IN 3/4" C	PP4/21,23	1
SSI-80	ENL 37A	0.34A	208	1	15A		(2) #12, (1) #12 GND IN 3/4" C		
SSI-81	ENL 37B	0.34A	208	1	15A		(2) #12, (1) #12 GND IN 3/4" C		
SSI-82	ENL 37B	0.34A	208	1	15A		(2) #12, (1) #12 GND IN 3/4" C		
SSI-83	CORRIDOR	0.34A	208	1	15A		(2) #12, (1) #12 GND IN 3/4" C		
SSI-84	OFFICE 20	1.39A	208	1	15A		(2) #12, (1) #12 GND IN 3/4" C		
SSI-85	KINDERGARTEN 24	0.34A	208	1	15A	20A/2P	(2) #12, (1) #12 GND IN 3/4" C	PP4/18,20	1
SSI-86	KINDERGARTEN 24	0.34A	208	1	15A		(2) #12, (1) #12 GND IN 3/4" C		
SSI-87	KINDERGARTEN 26	0.34A	208	1	15A		(2) #12, (1) #12 GND IN 3/4" C		
SSI-88	KINDERGARTEN 26	0.34A	208	1	15A		(2) #12, (1) #12 GND IN 3/4" C		
SSI-89	KINDERGARTEN 30	0.34A	208	1	15A		(2) #12, (1) #12 GND IN 3/4" C		
SSI-90	KINDERGARTEN 30	0.34A	208	1	15A		(2) #12, (1) #12 GND IN 3/4" C		

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2. REMOVE EXISTING 1-POLE CIRCUIT BREAKERS IN SPACES INDICATED. PLACE 1-POLE CIRCUIT BREAKERS IN OPEN SPACES WITHIN PANEL.

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Newburgh, NY 12550
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SOUTH ORANGETOWN Central School District
Capital Improvements Bond
Essential Infrastructure for Student Health, Safety and Success

PROJECT INFORMATION

Project Number
14457.20

Client Name
SOUTH ORANGETOWN CENTRAL SCHOOL DISTRICT

Project Name
PHASE 1: 2022 BOND

District Office Address
160 VAN WYCK RD, BLAUVELT, NY 10913

SOUTH ORANGETOWN CSD
- ■ WILLIAM O. SCHAEFER SED#:50-03-01-06-0-012-019
- ☐ COTTAGE LANE ELEMENTARY SED#:50-03-01-06-0-010-022
- ☐ TAPPAN ZEE HIGH SCHOOL SED#:50-03-01-06-0-006-032
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- ☐ COTTAGE LANE LIBRARY S&L SED#: 50-03-01-06-8-023-002
- ☐ WOS OUTDOOR CLASSROOM SED#: 50-03-01-06-7-053-001
- ☐ SOMS OUTDOOR CLASSROOM SED#: 50-03-01-06-7-056-001
- ☐ CLE OUTDOOR CLASSROOM SED#: 50-03-01-06-7-054-001
- ☐ TDHS OUTDOOR CLASSROOM SED#: 50-03-01-06-7-055-001

PROJECT ISSUE & REVISION SCHEDULE

No.	Date	Description
1	11/17/2023	BID ADDENDUM #4

PROFESSIONAL STAMPS

SHEET INFORMATION

Issued: 10/18/2023
Scale: 12" = 1'-0"
Project Status: BID DOCUMENTS
Drawn By: MAY
Checked By: JBT
Drawing Title: ELECTRICAL SCHEDULES

Drawing Number
WOS
E901

PANEL: PP5

LOCATION: SUPPORT M2 **A.I.C. RATING:**
VOLTAGE: **MCB RATING:** Type 1
FED FROM: **MAIN BUS RATING:** 800 A
MOUNTING: Surface

...	BRKR		LOAD DESCRIPTION	A (VA)		B (VA)		C (VA)		LOAD DESCRIPTION	BRKR		...
1	20	2	SSI-17,18,19,20	140	--					SPACE	1	--	2
3						140	175			SSI-21,22,23,24,25	2	20	4
5	20	2	RBU-6,7,8					600	175				6
7				600	280					SSI-32,33,34,35,36,37,38,39	2	20	8
9	20	2	SSI-26,27,28,29,30,31			210	280						10
11								210	6004				12
13				7181	6004					ACC-10	3	50	14
15	70	3	ACC-11			7181	6004						16
17								7181	7181				18
19				7205	7181					ACC-12	3	70	20
21	60	3	ACC-9			7205	7181						22
23								7205	8526				24
25				8526	8526					ACC-13	3	90	26
27	90	3	ACC-14			8526	8526						28
29								8526	11889				30
31				6485	11889					ERU-6	3	125	32
33	70	3	ERU-7			6485	11889						34
35								6485	6485				36
37	--	1	SPACE	--	6485					ERU-8	3	70	38
39	--	1	SPACE			--	6485						40
41	--	1	SPACE					--	--	SPACE	1	--	42
43	--	1	SPACE	--	--					SPACE	1	--	44
45	--	1	SPACE			--	--			SPACE	1	--	46
47	--	1	SPACE					--	--	SPACE	1	--	48
49	--	1	SPACE	--	--					SPACE	1	--	50
51	--	1	SPACE			--	--			SPACE	1	--	52
53	--	1	SPACE					--	--	SPACE	1	--	54
			TOTAL LOAD	70502 VA		70287 VA		70467 VA					

Load Classification

Load	Connected VA	Demand Factor	Demand VA
Recept.			
Lighting			
HVAC			
Motors			
Refrig.			
Kitchen			
Misc.	211256 VA	75.00%	158442 VA

Panel Totals

Connected Load	211256 VA
Estimated Load	158442 VA
Connected Amps	586 A
Demand Amps	440 A

PANEL: PP3

LOCATION: STORAGE 58 **A.I.C. RATING:**
VOLTAGE: **MCB RATING:** Type 1
FED FROM: **MAIN BUS RATING:** 800 A
MOUNTING: Surface

...	BRKR		LOAD DESCRIPTION	A		B		C		LOAD DESCRIPTION	BRKR		...
1				11649	9367								2
3	125	3	ERU-9			11649	9367			ERU-10	3	100	4
5								11649	9367				6
7				9367	6004								8
9	100	3	ERU-11			9367	6004			ACC-18	3	50	10
11								9367	6004				12
13				7205	6004								14
15	60	3	ACC-19			7205	6004			ACC-20	3	50	16
17								7205	6004				18
19				7205	6004								20
21	60	3	ACC-21			7205	6004			ACC-22	3	50	22
23								7205	6004				24
25				7205	6485								26
27	60	3	ACC-23			7205	6485			ERU-12	3	70	28
29								7205	6485				30
31				14411	7181								32
33	150	3	ERU-13			14411	7181			ACC-15	3	70	34
35								14411	7181				36
37				7181	3578								38
39	70	3	ACC-16			7181	3578			ACC-17	3	40	40
41								7181	3578				42
43	--	1	SPACE	--	--					SPACE	1	--	44
45	--	1	SPACE			--	--			SPACE	1	--	46
47	--	1	SPACE					--	--	SPACE	1	--	48
49	--	1	SPACE	--	--					SPACE	1	--	50
51	--	1	SPACE			--	--			SPACE	1	--	52
53	--	1	SPACE					--	--	SPACE	1	--	54
			TOTAL LOAD	108846 VA		108846 VA		108846 VA					

Load Classification

Load	Connected VA	Demand Factor	Demand VA
Recept.			
Lighting			
HVAC			
Motors			
Refrig.			
Kitchen			
Misc.	326539 VA	75.00%	244904 VA

Panel Totals

Connected Load	326539 VA
Estimated Load	244904 VA
Connected Amps	906 A
Demand Amps	680 A

PANEL: PP4

LOCATION: SERVER CL. 9 **A.I.C. RATING:**
VOLTAGE: **MCB RATING:** Type 1
FED FROM: **MAIN BUS RATING:** 800 A
MOUNTING: Surface

...	BRKR		LOAD DESCRIPTION	A		B		C		LOAD DESCRIPTION	BRKR		...
1	20	2	SSI-74	35	--					SPACE	1	--	2
3						35	140			SSI-75,76,77,78	2	20	4
5	20	2	RBU-4					200	140				6
7				200	--					SPACE	1	--	8
9	20	2	RBU-1,2			400	795			SSI-5,6,7,8,9,10	2	20	10
11								400	795				12
13	20	2	SSI-1,2,3,4	1310	210					SSI-11,12,13,14,15,16	2	20	14
15						1310	210						16
17	20	2	EF-1					1144	210	SSI-85,86,87,88,89,90	2	20	18
19				1144	210								20
21	20	2	SSI-79,80,81,82,83,84			210	3579						22
23								210	3579	ACC-6	3	40	24
25				4803	3579								26
27	50	3	HP-04			4803	6485						28
29								4803	6485	ERU-5	3	70	30
31				6004	6485								32
33	50	3	ACC-1			6004	6004						34
35								6004	6004	ACC-3	3	50	36
37				7205	6004								38
39	60	3	ACC-2			7205	7205						40
41								7205	7205	ACC-4	3	60	42
43				8526	7205								44
45	90	3	ACC-5			8526	9006						46
47								8526	9006	SSO-1	3	150	48
49				11889	9006								50
51	125	3	ERU-1			11889	9367						52
53								11889	9367	ERU-2	3	100	54
55	20	1	SPARE	0	9367								56
57	20	1	SPARE			0	500			POWER	1	20	58
59	20	1	SPARE					0	500	POWER	1	20	60
61	--	1	SPACE	--	--					SPACE	1	--	62
63	--	1	SPACE			--	--			SPACE	1	--	64
65	--	1	SPACE					--	--	SPACE	1	--	66
			TOTAL LOAD	83183 VA		83674 VA		83673 VA					

Load Classification

Load	Connected VA	Demand Factor	Demand VA
Recept.			
Lighting			
HVAC			
Motors			
Refrig.			
Kitchen			
Misc.	249529 VA	75.00%	187146 VA

Panel Totals

Connected Load	250529 VA
Estimated Load	187896 VA
Connected Amps	695 A
Demand Amps	522 A

PANEL: PP1

LOCATION: SERVER CL. 9 **A.I.C. RATING:**
VOLTAGE: **MCB RATING:** Type 1
FED FROM: **MAIN BUS RATING:** 225 A
MOUNTING: Surface

...	BRKR		LOAD DESCRIPTION	A (VA)		B (VA)		C (VA)		LOAD DESCRIPTION	BRKR		...
1	20	1	RECEPTS: 32	1080	1080					RECEPTS: 21	1	20	2
3	20	1	RECEPTS: 30			1080	1080			RECEPTS: 19	1	20	4
5	20	1	RECEPTS: 26					1080	1080	RECEPTS: 17	1	20	6
7	20	1	RECEPTS: 24	1080	1080					RECEPTS: 15	1	20	8
9	20	1	RECEPTS: 9			180	1080			RECEPTS: 3	1	20	10
11	20	1	RECEPTS: 6					1080	1080	RECEPTS: 1	1	20	12
13	20	1	RECEPTS: 4	1080	1080					RECEPTS: 104	1	20	14
15	20	1	RECEPTS: 2			1080	1080			RECEPTS: 105	1	20	16
17	20	1	RECEPTS: 100					1080	540	RECEPTS: 16	1	20	18
19	20	1	RECEPTS: 101	1080	540					RECEPTS: 16	1	20	20
21	20	1	RECEPTS: 38, 39			720	360			RECEPTS: 38	1	20	22
23	20	1	RECEPTS: 16B					360	1080	RECEPTS: 102	1	20	24
25	20	1	RECEPTS: 103	1080	360					RECEPTS: ROOF	1	20	26
27	20	1	RECEPTS: ROOF			360	5980						28
29								5980	5980	ACC-7	3	60	30
31	60	3	ACC-8	5980	5980								32
33						5980	1040						34
35	20	2	ERU-4					1040	1040	ERU-3	2	20	36
37	20	1	FIRE/SMOKE DAMPER ACTUATORS	1040	180					RECEPTS: 16	1	20	38
39	20	1	SPARE			1000	900			RECEPTS: 37A	1	20	40
41	20	1	SPARE					0	900	RECEPTS: 37B	1	20	42
			TOTAL LOAD	22721 VA		21921 VA		22321 VA					

Load Classification

Load	Connected VA	Demand Factor	Demand VA
Recept.	25920 VA	69.29%	17960 VA
Lighting			
HVAC			
Motors			
Refrig.			
Kitchen			
Misc.	40042 VA	75.00%	30032 VA

Panel Totals

Connected Load	66962 VA
Estimated Load	48742 VA
Connected Amps	186 A
Demand Amps	135 A

PANEL: PP2

LOCATION: STORAGE 58 **A.I.C. RATING:**
VOLTAGE: **MCB RATING:** Type 1
FED FROM: **MAIN BUS RATING:** 225 A
MOUNTING: Surface

...	BRKR		LOAD DESCRIPTION	A (VA)		B (VA)		C (VA)		LOAD DESCRIPTION	BRKR		...
1	20	1	RECEPTS: 57	1080	1080					RECEPTS: 62	1	20	2
3	20	1	RECEPTS: 59			1080	1080			RECEPTS: 64	1	20	4
5	20	1	RECEPTS: 61					1080	1080	RECEPTS: 66	1	20	6
7	20	1	RECEPTS: 63	1080	1080					RECEPTS: 68	1	20	8
9	20	1	RECEPTS: 65			1080	1080			RECEPTS: 70	1	20	10
11	20	1	RECEPTS: 67					1080	1080	RECEPTS: 72	1	20	12
13	20	1	RECEPTS: 69	1080	1080					RECEPTS: 74	1	20	14
15	20	1	RECEPTS: 71			1080	360			RECEPTS: EXTERIOR CLASSROOM	1	20	16
17	20	1	RECEPTS: EXTERIOR CLASSROOM					720	3000	LIGHTING: EXTERIOR CLASSROOM	1	20	18
19	20	1	RECEPTS: ROOF	360	175					SSI-66,67,68,69,70	2	20	20
21						350	175						22
23	20	2	SSI-40,41,42,43,44,45,46,47,48,49					350	105	SSI-71,72,73	2	20	24
25				280	105								26
27	20	2	SSI-50,51,52,53,54,55,56,57			280	800			RBU-9,10,11,12	2	20	28
29								14410	800				30
31	100	3	SSO-2	14410	280					SSI-58,59,60,61,62,63,64,65	2	20	32
33						14410	280						34
35	20	1	FIRE/SMOKE DAMPER ACTUATORS					1000	0	SPARE	1	20	36
37	20	1	SPARE	0	0					SPARE	1	20	38
39	20	1	SPARE			0	0			SPARE	1	20	40
41	20	1	SPARE					0	0	SPARE	1	20	42
			TOTAL LOAD	22090 VA		22055 VA		24573 VA					

Load Classification

Load	Connected VA	Demand Factor	Demand VA
Recept.	17640 VA	78.34%	13820 VA
Lighting	3000 VA	125.00%	3750 VA
HVAC			
Motors			
Refrig.			
Kitchen			
Misc.	47211 VA	75.00%	35408 VA

Panel Totals

Connected Load	68707 VA
Estimated Load	53554 VA
Connected Amps	191 A
Demand Amps	149 A

CPL | Architecture Engineering Planning
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Newburgh, NY 12550
CPLeam.com

SOUTH ORANGETOWN Central School District
Capital Improvements Bond
Essential Infrastructure for Student Health, Safety and Success

PROJECT INFORMATION

Project Number
14457.20

Client Name
SOUTH ORANGETOWN CENTRAL SCHOOL DISTRICT

Project Name
PHASE 1: 2022 BOND

District Office Address
160 VAN WYCK RD, BLAUVELT, NY 10913

SOUTH ORANGETOWN CSD
- [x] WILLIAM O. SCHAEFER SED#:50-03-01-06-0-012-019
- [ ] COTTAGE LANE ELEMENTARY SED#:50-03-01-06-0-010-022
- [ ] TAPPAN ZEE HIGH SCHOOL SED#:50-03-01-06-0-006-032
- [ ] WILLIAM O. SCHAEFER S&L SED#: 50-03-01-06-0-012-020
- [ ] COTTAGE LANE S&L SED#: 50-03-01-06-0-010-023
- [ ] COTTAGE LANE LIBRARY S&L SED#: 50-03-01-06-8-023-002
- [ ] WOS OUTDOOR CLASSROOM SED#: 50-03-01-06-7-053-001
- [ ] SOMS OUTDOOR CLASSROOM SED#: 50-03-01-06-7-056-001
- [ ] CLE OUTDOOR CLASSROOM SED#: 50-03-01-06-7-054-001
- [ ] TZHS OUTDOOR CLASSROOM SED#: 50-03-01-06-7-055-001

PROJECT ISSUE & REVISION SCHEDULE

No.	Date	Description
1	11/17/2023	BID ADDENDUM #4

PROFESSIONAL STAMPS

NEW YORK STATE EDUCATION STATEMENT

IT IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW AND THE COMMISSIONER'S REGULATIONS FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED ARCHITECT, ENGINEER OR LAND SURVEYOR, TO ALTER AN ITEM IN ANY WAY. IF AN ITEM BEARING THE SEAL OF AN ARCHITECT, ENGINEER OR SURVEYOR IS ALTERED, THE ALTERING PARTY SHALL AFFIX TO THE ITEM THEIR SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE AND THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

SHEET INFORMATION

Issued: 10/18/2023
Scale:
Project Status: BID DOCUMENTS
Drawn By: MAY
Checked By: JBT
Drawing Title: ELECTRICAL SCHEDULES

Drawing Number
WOS
E902

11/16/2023 12:33:50 P.M. <project location> REVIT PROJECT FILES ON BIM360