



**TETRA TECH**  
ARCHITECTS & ENGINEERS

Cornell Business + Technology Park  
10 Brown Road  
Ithaca, New York 14850  
Tel. (607) 277-7100  
Fax (607) 277-1410

**Addendum**

Cornwall Central School District  
Cornwall, New York

SED NOS. 44-03-01-06-0-006-015  
44-03-01-06-0-002-017  
44-03-01-06-0-001-030  
44-03-01-06-0-001-031

Reconstruction to  
Cornwall-On-Hudson Elementary School  
Cornwall Elementary School  
Cornwall Central Middle School

Tt Project No. 363579-22001.3 – Phase 3

BID Addendum No. 2  
to  
Drawings and Project Manual  
September 19, 2024

To: ALL BIDDERS

This ADDENDUM forms a part of the BIDDING AND CONTRACT DOCUMENTS and modifies the following documents:  
Original DRAWINGS, dated June 28, 2024,  
PROJECT MANUAL, dated June 28, 2024 and BID ADDENDUM NO. 1, dated September 9, 2024.  
Acknowledge receipt of the ADDENDUM in the space provided on the BID FORMS.

This ADDENDUM consists of (2) pages and the following:

**ATTACHMENTS**

PRE-BID REQUEST FOR INFORMATION QUESTIONS/ANSWERS  
PREBID WALK-THROUGH SIGN-IN SHEET

**NEW PROJECT MANUAL SECTIONS**

SECTION 08 44 13 – GLAZED ALUMINUM CURTAIN WALLS  
SECTION 22 42 16.16 - COMMERCIAL SINKS

**REISSUED PROJECT MANUAL SECTIONS**

SECTION 01 12 00 – MULTIPLE CONTRACT SUMMARY  
SECTION 08 51 13 - ALUMINUM WINDOWS  
SECTION 08 80 00 - GLAZING

**REISSUED DRAWINGS (30 x 42)**

BE050 Key Plans

## **PROJECT MANUAL MODIFICATIONS**

ITEM 2-C-1: Refer to SECTION 00 01 10 – TABLE OF CONTENTS

1. Division 08, ADD the following:  
“08 44 13 Glazed Aluminum Curtain Walls”
2. Division 22, ADD the following:  
“22 42 16.16 Commercial Sinks”

ITEM 2-C-2: Refer to SECTION 01 12 00 – MULTIPLE CONTRACT SUMMARY

1. DELETE section in its entirety and, ADD new section attached to this addendum.

## **PROJECT MANUAL MODIFICATIONS - ARCHITECTURAL**

ITEM 2-C-3: Refer to SECTION 08 51 13 – ALUMINUM WINDOWS

1. DELETE section in its entirety and, ADD new section attached to this addendum.

ITEM 2-C-4: Refer to SECTION 08 80 00 – GLAZING

1. DELETE section in its entirety and, ADD new section attached to this addendum.

## **DRAWING MODIFICATIONS - ARCHITECTURAL**

ITEM 2-C-5: Refer to DRAWING BA200

1. Detail 3, West Elevation, ADD square tag “W15” to far right bottom window.

ITEM 2-C-6: Refer to DRAWING BA752

1. Detail 2, Window Jamb Detail, AMEND second to last call out note to read as follows:  
“ALUMINUM FLASHING”.

## **DRAWING MODIFICATIONS - ELECTRIC**

ITEM 2-C-7: Refer to DRAWING BE050

1. DELETE drawing in its entirety and, ADD new drawing attached to this addendum.

**END OF ADDENDUM**



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**SUBMIT FORM BY EMAIL TO [INE.Cornwall@tetrattech.com](mailto:INE.Cornwall@tetrattech.com)**

**Project No.:** 363579-22001.3

**Date:** 9/11/24

**Project Name:** "Phase 3" Reconstruction to Cornwall Elementary School, Cornwall Central Middle School, and Cornwall-on-Hudson Elementary School.

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**Bidder Contact Person:** RYAN HOOKER  
**Bidder Company Name:** AFI GLASS & ARCHITECTURAL METAL  
**Bidder Phone:** 845 485 1080 X2  
**Bidder Email Address:** RHOOKER@AFI GLASS.COM

---

**Question Pertains to:**

**Drawing Number:** BA DRAWINGS  
**Plan Area:** CORNWALL ON HUDSON ELEMENTARY SCHOOL  
**Room Number:** EXTERIOR WINDOWS  
**Drawing Detail Number:** MULTIPLE  
**Specification Section:** 085113

---

**Question: (Please be specific)**

1. Window type w14 is shown as a casement over a small fixed section in elevation 1/BA200. Window type w14 is shown as a fixed window over a small projecting vent window on BA601. Please advise which one should be included.
2. Untagged window shown in detail 3/BA200 should be tagged window type W15, correct? Please confirm.
3. Two windows shown in elevation 4/BA200 are tagged with W9 but they have different configurations. Should they be included as differently configured windows as shown in this elevation or per the W9 configuration on BA601?

---

**Review by Architect/Engineers:**

**Responded By:** Ingrid M. **Date:** 9/16/24

1. Refer to note adjacent to Window type W14 "BOTH OPERABLE..." on drawing BA601
2. Will be addressed by Bid addendum.
3. Per the W9 configuration on BA601.

---

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**Question Pertains to:**

**Drawing Number:** NONE  
**Plan Area:** WINDOW SPEC  
**Room Number:** EXTERIOR WINDOWS  
**Drawing Detail Number:** NONE  
**Specification Section:** 085113  
-----

**Question: (Please be specific)**

1. Spec section 085113 mentions horizontal sliding windows in part 2.4.A.5. Please confirm these are not used on the project.
2. Part 2.12.A of spec section 055113 mentions false muntins. These don't appear to be used for the windows on the project. Please confirm they can be disregarded.
3. Part 2.12.C of spec section 085113 mentions column covers. These don't appear to be used for the windows on the project. Please confirm they can be disregarded.
4. Part 2.12.D of spec section 085113 mentions extruded interior trim. This doesn't appear to be used for the windows on the project. Please confirm they can be disregarded.
5. Part 2.12.E of spec section 085113 mentions panning trim. This doesn't appear to be used for the windows on the project. Please confirm it can be disregarded.
6. Part 2.16 of spec section 085113 mentions 4 different types of finish. Please clarify which one is required for this project.

**Review by Architect/Engineers:**

**Responded By:** Ingrid M.

**Date:** 9/17/24

Will be addressed by addendum

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**Question Pertains to:**

**Drawing Number:** NONE  
**Plan Area:** GLAZING  
**Room Number:** GLAZING  
**Drawing Detail Number:** NONE  
**Specification Section:** 088000  
-----

**Question: (Please be specific)**

1. For glass type FCP, is the textured patterned glass required at both the interior & exterior lites of the IGU or just the exterior lite of the IGU?
2. Spec section 088000 mentions security glazing in several locations. This project does not appear to include any security glazing. Please confirm reference to it can be disregarded.

-----  
**Review by Architect/Engineers:**

**Responded By:** Ingrid M.

**Date:** 09.12.24

1. Only one lite must be textured patterned glass.
2. addressed by a bid addendum

-----  
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**Question Pertains to:**

**Drawing Number:** BA200  
**Plan Area:** CORNWALL ON HUDSON ELEMENTARY  
**Room Number:** EXTERIOR WALLS  
**Drawing Detail Number:** 1/BA200  
**Specification Section:** NONE  
-----

**Question: (Please be specific)**

- 1. Please confirm that all louvers not glazed into new windows shown in elevations on sheet BA200 are existing and unrelated to the window contract of this project.

-----  
**Review by Architect/Engineers:**

**Responded By:** KSZiler

**Date:** 9.13.24

Confirmed. Any louvers not glazed into new windows are existing and not in scope.

-----  
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-----

**Question Pertains to:**

**Drawing Number:** BA200  
**Plan Area:** CORNWALL ON HUDSON ELEMENTARY  
**Room Number:** ABATEMENT  
**Drawing Detail Number:** MULTIPLE  
**Specification Section:** 028200  
-----

**Question: (Please be specific)**

- 1. Please confirm that all caulk abatement associated with the window contract is exterior caulking at the perimeter of the window and does not include abatement of any interior caulking.

-----  
**Review by Architect/Engineers:**

**Responded By:** J.Fullum    **Date:** 9-16-2024

The only asbestos caulking is on the exterior of the window frames. The interior of the windows have no caulking or negative caulking that was homogenous with samples taken in the Renovation Survey for Asbestos-Containing Materials, Lead-Based Paint and PCB's report dated June 13, 2024.

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---

**Question Pertains to:**

**Drawing Number:** BA100  
**Plan Area:** DEMOLITION KEY NOTES  
**Room Number:** NONE  
**Drawing Detail Number:** N/A  
**Specification Section:** N/A

---

**Question: (Please be specific)**

21. Note D3 on sheet BA100 reads 'remove, salvage & store drapery for reinstallation after window installation'. This keynote does not occur on sheet BA100, please confirm it can be disregarded.

---

**Review by Architect/Engineers:**

**Responded By:** KSZiler

**Date:** 9.12.24

[See Auditorium A201 on 2/BA100 Second Floor - Demolition Plan](#)

---

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---

**Question Pertains to:**

**Drawing Number:** BA200  
**Plan Area:** CURTAIN WALLS  
**Room Number:** NONE  
**Drawing Detail Number:** N/A  
**Specification Section:** N/A

---

**Question: (Please be specific)**

1. No curtain wall spec was provided for this project. Please advise if one will be issued.

---

**Review by Architect/Engineers:**

**Responded By:** [Ingrid Martinez](#) **Date:** [9/18/24](#)

[Will be addressed by addendum](#)

---

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-----

**Question Pertains to:**

**Drawing Number:** BA752  
**Plan Area:** WINDOW DETAILS  
**Room Number:** NONE  
**Drawing Detail Number:** 2/BA752  
**Specification Section:** 085113  
-----

**Question: (Please be specific)**

1. What material is jamb flashing shown in detail 2/BA752? Flashing membrane, aluminum, or stainless steel?

-----  
**Review by Architect/Engineers:**

**Responded By:** IM

**Date:** 9.12.24

Will be addressed by addendum

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-----

**Question Pertains to:**

**Drawing Number:** NONE  
**Plan Area:** ALTERNATE NO B3 FOR CONTRACT 4  
**Room Number:** LINTEL PAINTING  
**Drawing Detail Number:** N/A  
**Specification Section:** 012300  
-----

**Question: (Please be specific)**

1. Alternate no B3 for contract 4 is for painting window lintels. Detail 1/BA752 shows and mentions lintel prep, prime & painting. Please confirm that all window lintel prep, priming & painting is an add alternate and not part of the base bid.

-----  
**Review by Architect/Engineers:** \_\_\_\_\_ **Responded By:** KSZiler **Date:** 9.12.24

Window Lintel Paint is all Add Alternate Alt-B3.

-----  
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**Bidder Contact Person:** Matt Galati  
**Bidder Company Name:** Arrow Steel Window Corp.  
**Bidder Phone:** 631-756-8661  
**Bidder Email Address:** mg@arrowsteelwindow.com

-----  
**Question Pertains to:**

**Drawing Number:** BA200- Notes  
**Plan Area:**  
**Room Number:**  
**Drawing Detail Number:**  
**Specification Section:**

-----  
**Question: (Please be specific)**

Paint all exposed steel lintels is listed as a general elevation note and an add Alternate. Is painting the existing lintels part of the base bid scope of work?

-----  
**Review by Architect/Engineers:**

**Responded By:** [Ingrid M](#) **Date:** [9/18/24](#)

Refer to spec section 01-23-00.  
All lintel paint is an alternate.

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**Question Pertains to:**

**Drawing Number:** 085113 2.16  
**Plan Area:**  
**Room Number:**  
**Drawing Detail Number:**  
**Specification Section:**

-----  
**Question: (Please be specific)**

Window specification includes anodize, 2 coat and 3 coat finishes. Please clarify desired finish

-----  
**Review by Architect/Engineers:**

**Responded By:** Ingrid M **Date:** 9/18/24

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---

**Question Pertains to:**

**Drawing Number:** DA400 / 9  
**Plan Area:**  
**Room Number:**  
**Drawing Detail Number:**  
**Specification Section:**

---

**Question: (Please be specific)**

DA400  
Please provide specification for 2" opaque glazing

---

**Review by Architect/Engineers:**

**Responded By:** Ingrid M. **Date:** 09/18/24

[Refer to Specification 08-80-00, Section 2.6 SPANDREL PANELS](#)

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**Question Pertains to:**

**Drawing Number:** BA200  
**Plan Area:**  
**Room Number:**  
**Drawing Detail Number:**  
**Specification Section:**

-----  
**Question: (Please be specific)**

Please provide window mark for west elevation single window

-----  
**Review by Architect/Engineers:**

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-----  
**Question Pertains to:**

**Drawing Number:** BA601  
**Plan Area:**  
**Room Number:**  
**Drawing Detail Number:**  
**Specification Section:**

-----  
**Question: (Please be specific)**

Please indicate operation (if any) of each sash indicated on window schedule.

-----  
**Review by Architect/Engineers:**

**Responded By:** Ingrid M. **Date:** 9/19/24

[Refer to spec. section 08 5112](#)

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**Question Pertains to:**

**Drawing Number:** BA200  
**Plan Area:**  
**Room Number:**  
**Drawing Detail Number:**  
**Specification Section:**

-----  
**Question: (Please be specific)**

Demolition note D1 indicates provide masonry sill restoration where necessary.  
Please provide detail associated with this scope of work.

-----  
**Review by Architect/Engineers:**

**Responded By:** Ingrid M. **Date:** 9/18/24

[Refer to Detail 3 on drawing BA752](#)

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**Question Pertains to:**

**Drawing Number:** Window  
**Plan Area:** Treatments  
**Room Number:**  
**Drawing Detail Number:**  
**Specification Section:**

-----  
**Question: (Please be specific)**

Are window treatments in the window prime contract.

yes

-----  
**Review by Architect/Engineers:**

**Responded By:** TPG      **Date:** 9/18/24

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**PRE-BID REQUEST FOR INTERPRETATION FORM**

**SUBMIT FORM BY EMAIL TO [INE.Cornwall@tetrattech.com](mailto:INE.Cornwall@tetrattech.com)**

**Project No.:** 363579-22001.3

**Date:** 09/16/24

**Project Name:** "Phase 3" Reconstruction to Cornwall Elementary School, Cornwall Central Middle School, and Cornwall-on-Hudson Elementary School.

-----  
**Bidder Contact Person:** Matt Galati  
**Bidder Company Name:** Arrow Steel Window Corp.  
**Bidder Phone:** 631-756-8661  
**Bidder Email Address:** mg@arrowsteelwindow.com

-----  
**Question Pertains to:**

**Drawing Number:** DA400 / DA500  
**Plan Area:**  
**Room Number:**  
**Drawing Detail Number:**  
**Specification Section:**

-----  
**Question: (Please be specific)**

DA400 / 8 / 11 - DA500  
Details show window related / storefront work adjacent non window related work such as masonry, soffits, new ceilings, sills. Please verify if window prime contractor is responsible for storefront. Please verify if window prime contractor is responsible for work adjacent to storefront.

-----  
**Review by Architect/Engineers:**

**Responded By:** TPG     **Date:** 9/18/24

Window contractor is responsible for all work associated with the removal and reinstallation of the windows system. see summary of work for more detail

-----  
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**Drawing Number:** DA400 / DA500  
**Plan Area:**  
**Room Number:**  
**Drawing Detail Number:**  
**Specification Section:**

-----  
**Question: (Please be specific)**

DA400  
Are all exterior doors and partitions included in the window prime contract?

-----  
**Review by Architect/Engineers:** \_\_\_\_\_ **Responded By:** TPG **Date:** 9/18/24

the storefront shown in the details you are referring to is a part of the window contractors scope of work... the new ceilings and lights will be by others

-----  
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-----  
**Question Pertains to:**

**Drawing Number:** Addendum 1 -  
**Plan Area:** Window Work H  
**Room Number:**  
**Drawing Detail Number:**  
**Specification Section:**

-----  
**Question: (Please be specific)**

Summary of work lists lintels. Please indicate where lintels are required (if any) as part of the window prime contract. Please associate detail with mention of lintel work.

-----  
**Review by Architect/Engineers:**

**Responded By:** TPG

**Date:** 9/18/24

As described in the drawings and summary of work, lintels are replaced as needed and there is an allowance to be carried for this work. see allowance spec.

-----  
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-----  
**Question Pertains to:**

**Drawing Number:** Addendum 1 -  
**Plan Area:** Window Work H  
**Room Number:**  
**Drawing Detail Number:**  
**Specification Section:**

-----  
**Question: (Please be specific)**

Summary of work states window prime contractor is obligated to replace materials stained / damaged at no cost to owner. Is window prime contractor responsible for damage to materials caused by others? if so please provide duration of exposure.

-----  
**Review by Architect/Engineers:**

**Responded By:** TPG      **Date:** 9/18/24

If you damage existing adjacent finishes, damaging contractor will be responsible to make repairs at no cost to the owner.

-----  
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-----  
**Question Pertains to:**

**Drawing Number:** Addendum 1 -  
**Plan Area:** Window Prime  
**Room Number:** B. Schedule  
**Drawing Detail Number:**  
**Specification Section:**

-----  
**Question: (Please be specific)**

Schedule indicates window prime contractor is to remove and replace one room per night. Please indicate when abatement is to occur.

-----  
**Review by Architect/Engineers:**

**Responded By:** TPG

**Date:** 9/18/24

before the window is removed

-----  
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-----  
**Question Pertains to:**

**Drawing Number:** DA500  
**Plan Area:**  
**Room Number:**  
**Drawing Detail Number:**  
**Specification Section:**

-----  
**Question: (Please be specific)**

Please clarify who is responsible for chase work indicated on 3/da500

-----  
**Review by Architect/Engineers:**

**Responded By:** TPG      **Date:** 9/18/24

the GC

-----  
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**Bidder Email Address:** mg@arrowsteelwindow.com

-----  
**Question Pertains to:**

**Drawing Number:** BA752  
**Plan Area:**  
**Room Number:** Details 1,2,3,4,5,6  
**Drawing Detail Number:**  
**Specification Section:**

-----  
**Question: (Please be specific)**

1. Detail 6 indicates new lintels. Please indicate where new lintels are to be provided and what contract is responsible. 2. Detail 2, 3 include in wall flashings. Please indicate if new flashings are required and what contract is responsible.

-----  
**Review by Architect/Engineers:**

**Responded By:** TPG **Date:** 9/18/24

all lintles above windows including flashing are a part of the window scope

-----  
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**Bidder Email Address:** mg@arrowsteelwindow.com

-----  
**Question Pertains to:**

**Drawing Number:** DA400  
**Plan Area:**  
**Room Number:**  
**Drawing Detail Number:**  
**Specification Section:**

-----  
**Question: (Please be specific)**

1. Please verify if the storefront elevations indicated in details 4,5,6,7,8,9,10,11 are part of the window prime contract?

please clarify the question

-----  
**Review by Architect/Engineers:** \_\_\_\_\_ **Responded By:** \_\_\_\_\_ **Date:** \_\_\_\_\_

-----  
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**TETRA TECH**  
ARCHITECTS & ENGINEERS

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-----  
**Question Pertains to:**

**Drawing Number:** DA600  
**Plan Area:**  
**Room Number:**  
**Drawing Detail Number:**  
**Specification Section:**

-----  
**Question: (Please be specific)**

1. Please verify if the storefront, aluminum and hollow metal doors included on DA600 are part of the window prime contract?

all storefronts and exterior doors are by the window contractor

-----  
**Review by Architect/Engineers:**

**Responded By:** TPG **Date:** 09/18/24

-----  
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**Date:**9/13/2024

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-----  
**Bidder Contact Person:** Joseph Barone  
**Bidder Company Name:** Barone Construction Group, Inc.  
**Bidder Phone:** 845-691-2244  
**Bidder Email Address:** joseph.barone@bcgcmgc.com  
-----

**Question Pertains to:** Cutting and Patching

**Drawing Number:**  
**Plan Area:**  
**Room Number:**  
**Drawing Detail Number:**  
**Specification Section:**01 12 00 Multiple Contract Summary  
-----

**Question: (Please be specific)**

Please confrimt that Contract # 1GC/AA- General Constructoon Work/Interior Abatement is not responsible for cutting and patching for the Contract 4 WC/AA- Window & Exterior Aabatement

-----  
**Review by Architect/Engineers:** \_\_\_\_\_ **Responded By:** TPG **Date:** 9/18/24

all associated abatement to remove and reinstall teh windows systems are a part of the window contract

-----  
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**Bidder Email Address:** joseph.barone@bcgcmgc.com  
-----

**Question Pertains to:** Allowances

**Drawing Number:**  
**Plan Area:**  
**Room Number:**  
**Drawing Detail Number:**  
**Specification Section:** 01 12 00 Multiple Contract Summary  
-----

**Question: (Please be specific)**

Summary of work section General Construction Contract A.1.e.s provide an allowance in base bid to include 7 boxes of additional ceiling tile.

Please confirm what ceiling tile to include?

Please confirm this allowance is above and therefore not included in the general allowance of \$30,000

] Summary of work section General Construction Contract A.1.g.4. within base bid furnish and install 1,000 SF of finished sheetrock and support, paint, etc. Does this include framing?

Please confirm that both the GC and Window contract should include in base bid an allowance of 40 LF of pipe insulation and 10 elbows removal and disposal including tents, deacons, etc.? Do we have include reinsulating pipe in this cost. Please confirm this allowance is above and therefore not included in the general allowance of \$30,000

**Review by Architect/Engineers:**

**Responded By:** TPG      **Date:** 9/18/24

See specifications for ceiling tile type  
Yes above and beyond the allowance require in the allowance specifications  
does not include framing  
only the GC is responsible to cover the additional allowance for abatement as stated and  
no it does not include installing new insulation

-----  
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-----

**Question Pertains to:** Keyed Ceiling Notes

**Drawing Number:** BA 051  
**Plan Area:** All area  
**Room Number:**  
**Drawing Detail Number:**  
**Specification Section:**  
-----

**Question: (Please be specific)**

Please confirm what Keyed Ceiling Notes are the responsibility of the of Contract 1 GC/AA- general Construction Work/ Interior abatement and which are the responsibility of Contract 4 WC/AA- Window & Exterior Abatement

-----  
**Review by Architect/Engineers:**

**Responded By:** TPG      **Date:** 9/18/24

please define the question

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-----

**Question Pertains to:** Exterior work at COH ES

**Drawing Number:** BA200 & BA201  
**Plan Area:** All area  
**Room Number:**  
**Drawing Detail Number:**  
**Specification Section:**  
-----

**Question: (Please be specific)**

Which prime is responsible for repoint of brick/masonry as shown on drawing BA200.  
Please confirm the work shown on BA201 is the responsibility of the Contract 1 General Construction Contract

-----  
**Review by Architect/Engineers:** \_\_\_\_\_ **Responded By:** TPG **Date:** 9/18/24

brick repointing as show on the contract drawings is the responsibility of the GC

-----  
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-----

**Question Pertains to:** MS Vestibule work

**Drawing Number:**DA400  
**Plan Area:**  
**Room Number:**  
**Drawing Detail Number:**  
**Specification Section:**  
-----

**Question: (Please be specific)**

Please confirm that all scope related to the vestibule, including but not limited to excavation, concrete, window (storefront) doors and hardware are the responsibility of Contract 1- General Construction Work.

-----  
**Review by Architect/Engineers:** \_\_\_\_\_ **Responded By:** TPG **Date:** 9/18/24

all storefronts and exterior doors is the responsibility of the window contractor

-----  
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**the Palombo Group**

Sign In Sheet

Meeting: CCSD Phase 3 – Pre-Bid Walk-Through

Date: 9/12/2024 10:00 AM

<u>Name</u>	<u>Company/Trade</u>	<u>Cell/Email</u>
Williams Devine	TPG/CM 845-554-7631/wdevine@thepalombogroup.com	
Dawn Ryan	TPG/CM 845-594-5328/dryan@thepalombogroup.com	
<i>PAVE REPIR</i>	<i>JUPITER ENV. (AA)</i>	<i>PAVE REPIR@JUPITERES.COM</i>
DAN HAIGHT	AFC GLASS 845 405 1080	DAN@AFCGLASS.COM
RYAN HOOKER	" "	RHOOKER@AFCGLASS.COM
ANGELO INCONVIA	" "	ANGELO@AFCGLASS.COM
<i>JOE JASSEL</i>	<i>MOS HALL R 914 760 3916</i>	<i>JOE@MOSHALLR.COM</i>
Joe Barone	BGG inc. 845-691-2244	Joseph.Barone@bgginc.com
Jeff Mauer	976-314-6824	JEFF@BGAENTERPRISESINC.COM
JANE JOYRAND	BUTLER 716-374-3685	ESTIMATIONS@BUTLERCONSTRUCTIONCORP.COM
STEVE SCHNEIDER	" " 845-769-7413	STEVE@BUTLERCONSTRUCTIONCORP.COM
Mike Buchholz	Green Meadows 845-234-3101	Mike@GMEDigS.com
TOMMY SPARRO	AVENUE/SPARRO - STE 2454543650	TOMMY@AVENUEKPIHMG.COM
Ken Leantz	PROLET INC 845-219-4069	KLANTZ@PROLETINC.NET
Anthony Lambrecht	BESS Electric 845-372-7275	anthony@bessselectrics.com
David Garibaldini	All Bright Electric 845-701-0390	dgaribaldi@allBrightElectric.com
Ian Sobol	ISZ/66 718-381-2572	ian@ijzassociates.com
<i>ingrid Vertner</i>		

## **SECTION 08 44 13 - GLAZED ALUMINUM CURTAIN WALLS**

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. Section Includes:
  - 1. Glazed aluminum curtain wall systems:
    - a. Conventionally glazed.
    - b. Two-sided, structural-sealant-glazed.

#### 1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.
  - 1. Review and discuss the finishing of glazed aluminum curtain walls that is required to be coordinated with the finishing of other aluminum work for color and finish matching.
  - 2. Review, discuss, and coordinate the interrelationship of glazed aluminum curtain walls with other exterior wall components. Include provisions for anchoring, flashing, weeping, sealing perimeters, and protecting finishes.
  - 3. Review and discuss the sequence of work required to construct a watertight and weathertight exterior building envelope.
  - 4. Inspect and discuss the condition of substrate and other preparatory work performed by other trades.

#### 1.4 SUBMITTALS, GENERAL

- A. General: Submit all action submittals and informational submittals required by this Section and by Division 08 Section "Glazing" concurrently.

#### 1.5 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.
  - 1. Light shelves.
  - 2. Accessories.

- B. As-Specified Data: If the product to be incorporated in the Work is as specified by manufacturer name and product designation in this Specification Section, submit the “**As-Specified Verification Form**” (attached to Division 01 Section “Submittal Procedures”) for each item listed below, otherwise submit full Product Data for the following:
  - 1. Conventionally glazed aluminum curtain walls.
  - 2. Two-sided, structural-sealant-glazed aluminum curtain walls.
- C. Shop Drawings: For glazed aluminum curtain walls. Include plans, elevations, sections, full-size details, and attachments to other work.
  - 1. Include details of provisions for assembly expansion and contraction and for draining moisture occurring within the assembly to the exterior.
  - 2. Show connection to and continuity with adjacent thermal, weather, air, and vapor barriers.
- D. Samples: For each type of exposed finish required, in manufacturer's standard sizes.
- E. Delegated-Design Submittal: For glazed aluminum curtain walls, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
- F. Sample Warranties: For special warranties.

#### 1.6 INFORMATIONAL SUBMITTALS

- A. Energy Performance Certificates: For glazed aluminum curtain walls, accessories, and components from manufacturer.
  - 1. Basis for Certification: NFRC-certified energy performance values for each glazed aluminum curtain wall.
- B. Field quality-control reports.

#### 1.7 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For glazed aluminum curtain walls to include in maintenance manuals.
- B. Maintenance Data for Structural Sealant: For structural-sealant-glazed curtain walls to include in maintenance manuals. Include ASTM C1401 recommendations for post-installation-phase quality-control program.
- C. Warranties: Executed special warranties.

#### 1.8 QUALITY ASSURANCE

- A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.

- B. Product Options: Information on Drawings and in Specifications establishes requirements for aesthetic effects and performance characteristics of assemblies. Aesthetic effects are indicated by dimensions, arrangements, alignment, and profiles of components and assemblies as they relate to sightlines, to one another, and to adjoining construction.
  - 1. Do not change intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If changes are proposed, submit comprehensive explanatory data to Architect for review.
- C. Structural-Sealant Glazing: Comply with ASTM C1401 for design and installation of structural-sealant-glazed curtain wall assemblies.

## 1.9 MOCKUPS

- A. Build mockups to verify selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for fabrication and installation.
  - 1. Build mockup of typical wall area as shown on Drawings.
  - 2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
  - 3. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

## 1.10 WARRANTY

- A. Special Assembly Warranty: Manufacturer agrees to correct or replace components of glazed aluminum curtain wall that do not comply with requirements or that fail in materials or workmanship within specified warranty period.
  - 1. Failures include, but are not limited to, the following:
    - a. Structural failures including, but not limited to, excessive deflection.
    - b. Noise or vibration created by wind and thermal and structural movements.
    - c. Deterioration of metals and other materials beyond normal weathering.
    - d. Water penetration through fixed glazing and framing areas.
    - e. Failure of operating components.
  - 2. Warranty Period: 10 years from date of Substantial Completion.
- B. Special Finish Warranty, Factory-Applied Finishes: Standard form in which manufacturer agrees to restore finishes or replace aluminum that shows evidence of deterioration of powder coat or organic finishes within specified warranty period.
  - 1. Deterioration includes, but is not limited to, the following:
    - a. Color fading more than 5 Delta E units when tested in accordance with ASTM D2244.

- b. Chalking in excess of a No. 8 rating when tested in accordance with ASTM D4214.
    - c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
  - 2. Warranty Period: 20 years from date of Substantial Completion.
- C. Special Finish Warranty, Anodized Finishes: Standard form in which manufacturer agrees to restore finishes or replace aluminum that shows evidence of deterioration of anodized finishes within specified warranty period.
  - 1. Deterioration includes, but is not limited to, the following:
    - a. Color fading more than 5 Delta E units when tested in accordance with ASTM D2244.
    - b. Chalking in excess of a No. 8 rating when tested in accordance with ASTM D4214.
    - c. Cracking, peeling, or chipping.
  - 2. Warranty Period: 10 years from date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Source Limitations: Obtain all components of curtain-wall system, including framing, venting windows, and accessories, from single manufacturer

### 2.2 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Engage a qualified professional engineer, as defined in Division 01 Section "Quality Requirements," to design glazed aluminum curtain walls.
- B. General Performance: Comply with performance requirements specified, as determined by testing of glazed aluminum curtain walls representing those indicated for this Project without failure due to defective manufacture, fabrication, installation, or other defects in construction.
  - 1. Glazed aluminum curtain walls shall withstand movements of supporting structure, including, but not limited to, story drift, twist, column shortening, long-term creep, and deflection from uniformly distributed and concentrated live loads.
  - 2. Failure also includes the following:
    - a. Thermal stresses transferring to building structure.
    - b. Glass breakage.
    - c. Noise or vibration created by wind and thermal and structural movements.
    - d. Loosening or weakening of fasteners, attachments, and other components.
    - e. Failure of operating units.

C. Structural Loads:

1. Wind Loads: As indicated on Drawings.
2. Other Design Loads: As indicated on Drawings.

D. Deflection of Framing Members Supporting Glass: At design wind load, as follows:

1. Deflection Normal to Wall Plane: Limited to 1/175 of clear span for spans of up to 13 feet 6 inches and to 1/240 of clear span plus 1/4 inch for spans of greater than 13 feet 6 inches.
2. Deflection Parallel to Glazing Plane: Limited to amount not exceeding that which reduces glazing bite to less than 75 percent of design dimension and that which reduces edge clearance between framing members and glazing or other fixed components to less than 1/8 inch.
  - a. Operable Units: Provide a minimum 1/16-inch clearance between framing members and operable units.
3. Cantilever Deflection: Where framing members overhang an anchor point, as follows:
  - a. Perpendicular to Plane of Wall: No greater than 1/240 of clear span plus 1/4-inch for spans of greater than 6 feet 9 inches or 1/175 times span, for spans of less than 6 feet 9 inches.

E. Structural: Test in accordance with ASTM E330/E330M as follows:

1. When tested at positive and negative wind-load design pressures, assemblies do not evidence deflection exceeding specified limits.
2. When tested at 150 percent of positive and negative wind-load design pressures, assemblies, including anchorage, do not evidence material failures, structural distress, or permanent deformation of main framing members exceeding 0.2 percent of span.
3. Test Durations: As required by design wind velocity, but not less than 10 seconds.

F. Water Penetration under Static Pressure: Test in accordance with ASTM E331 as follows:

1. No evidence of water penetration through fixed glazing and framing areas when tested in accordance with a minimum static-air-pressure differential of 20 percent of positive wind-load design pressure, but not less than 15 lbf/sq. ft.

G. Interstory Drift: Accommodate design displacement of adjacent stories indicated.

1. Design Displacement: As indicated on Drawings.
2. Test Performance: Complying with criteria for passing based on building occupancy type when tested in accordance with AAMA 501.4 at design displacement and 1.5 times the design displacement.

- H. Seismic Performance: Glazed aluminum curtain walls shall withstand the effects of earthquake motions determined in accordance with ASCE/SEI 7.
1. Seismic Drift Causing Glass Fallout: Complying with criteria for passing based on building occupancy type when tested in accordance with AAMA 501.6 at design displacement and 1.5 times the design displacement.
  2. Vertical Interstory Movement: Complying with criteria for passing based on building occupancy type when tested in accordance with AAMA 501.7 at design displacement and 1.5 times the design displacement.
- I. Energy Performance: Certified and labelled by manufacturer for energy performance as follows:
1. Thermal Transmittance (U-factor):
    - a. Fixed Glazing and Framing Areas: U-factor for the system of not more than 0.36 Btu/sq. ft. x h x deg F as determined in accordance with NFRC 100.
  2. Solar Heat Gain Coefficient (SHGC):
    - a. Fixed Glazing and Framing Areas: SHGC for the system of not more than 0.40 as determined in accordance with NFRC 200.
  3. Air Leakage:
    - a. Fixed Glazing and Framing Areas: Air leakage for the system of not more than 0.06 cfm/sq. ft. at a static-air-pressure differential of 6.24 lbf/sq. ft. when tested in accordance with ASTM E283 or NFRC 400.
- J. Condensation Resistance Factor (CRF):
1. Fixed Glazing and Framing Areas: CRF for the system of not less than 67 as determined in accordance with AAMA 1503.
- K. Windborne-Debris Impact Resistance: Pass ASTM E1886 missile-impact and cyclic-pressure tests in accordance with ASTM E1996 for Wind Zone 3 for basic protection.
1. Large-Missile Test: For glazing located within 30 feet of grade.
  2. Small-Missile Test: For glazing located between 30 feet and 60 feet above grade.
- L. Thermal Movements: Allow for thermal movements resulting from ambient and surface temperature changes:
1. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.
- M. Structural-Sealant Joints:
1. Designed to carry gravity loads of glazing.

- N. Structural Sealant: ASTM C1184. Capable of withstanding tensile and shear stresses imposed by structural-sealant-glazed curtain walls without failing adhesively or cohesively. When tested for preconstruction adhesion and compatibility, cohesive failure of sealant shall occur before adhesive failure.
1. Adhesive failure occurs when sealant pulls away from substrate cleanly, leaving no sealant material behind.
  2. Cohesive failure occurs when sealant breaks or tears within itself but does not separate from each substrate, because sealant-to-substrate bond strength exceeds sealant's internal strength.

## 2.3 GLAZED ALUMINUM CURTAIN WALL SYSTEMS, GENERAL

- A. Framing Members: Manufacturer's extruded- or formed-aluminum framing members of thickness required and reinforced as required to support imposed loads.
1. Construction: Thermally broken.
  2. Glazing System: Retained mechanically with gaskets on two sides and structural sealant on two sides.
  3. Glazing Plane: Front.
  4. Finish: Clear anodic finish.
  5. System: Stick system.
  6. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated.
  7. Steel Reinforcement: As required by manufacturer.
- B. Pressure Caps: Manufacturer's standard low-conductance components that mechanically retain glazing.
1. Include snap-on aluminum trim that conceals fasteners.
- C. Brackets and Reinforcements: Manufacturer's standard high-strength aluminum with nonstaining, nonferrous shims for aligning system components.
- D. Insulated Spandrel Panels: Comply with Division 08 Section "Glazing."
- E. Venting Windows: As specified in Division 08 Section "Aluminum Windows."
- F. Entrance Door Systems: Comply with Division 08 Section "Aluminum-Framed Entrances and Storefronts".

## 2.4 GLAZED ALUMINUM CURTAIN WALL SYTEM TYPES

- A. Type CW1: Provide the following glazed aluminum curtain wall system type in locations indicated on Drawings:
1. Conventionally glazed aluminum curtain wall systems.

## 2.5 GLAZING

- A. Glazing: Comply with Division 08 Section "Glazing."
- B. Glazing Gaskets: ASTM C509 or ASTM C864. Manufacturer's standard.
  - 1. Color: Black.
- C. Glazing Sealants: As recommended by manufacturer.
- D. Structural Glazing Sealants: ASTM C1184, chemically curing silicone formulation that is compatible with system components with which it comes into contact, specifically formulated and tested for use as structural sealant and approved by structural-sealant manufacturer for use in curtain-wall assembly indicated.
  - 1. Color: As selected by Architect from manufacturer's full range of colors.
- E. Weatherseal Sealants: ASTM C920 for Type S; Grade NS; Class 25; Uses NT, G, A, and O; chemically curing silicone formulation that is compatible with structural sealant and other system components with which it comes into contact; recommended by structural-sealant, weatherseal-sealant, and structural-sealant-glazed curtain-wall manufacturers for this use.
  - 1. Color: Match structural sealant.

## 2.6 MATERIALS

- A. Sheet and Plate: ASTM B209.
- B. Extruded Bars, Rods, Profiles, and Tubes: ASTM B221.
- C. Structural Profiles: ASTM B308/B308M.
- D. Steel Reinforcement:
  - 1. Structural Shapes, Plates, and Bars: ASTM A36/A36M.
  - 2. Cold-Rolled Sheet and Strip: ASTM A1008/A1008M.
  - 3. Hot-Rolled Sheet and Strip: ASTM A1011/A1011M.
- E. Steel Reinforcement Primer: Manufacturer's standard zinc-rich, corrosion-resistant primer complying with SSPC-PS Guide No. 12.00; applied immediately after surface preparation and pretreatment. Select surface preparation methods in accordance with recommendations in SSPC-SP COM, and prepare surfaces in accordance with applicable SSPC standard.

## 2.7 ACCESSORIES

- A. Fasteners and Accessories: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding fasteners and accessories compatible with adjacent materials.
  - 1. Use self-locking devices where fasteners are subject to loosening or turning out from thermal and structural movements, wind loads, or vibration.
  - 2. Reinforce members as required to receive fastener threads.

- B. Anchors: Three-way adjustable anchors with minimum adjustment of 1 inch that accommodate fabrication and installation tolerances in material and finish compatible with adjoining materials and recommended by manufacturer.
  - 1. Concrete and Masonry Inserts: Hot-dip galvanized cast-iron, malleable-iron, or steel inserts complying with ASTM A123/A123M or ASTM A153/A153M requirements.
- C. Concealed Flashing: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding flashing compatible with adjacent materials.
- D. Bituminous Paint: Cold-applied asphalt-mastic paint containing no asbestos, formulated for 30-mil thickness per coat.

## 2.8 FABRICATION

- A. Form or extrude aluminum shapes before finishing.
- B. Weld in concealed locations to greatest extent possible to minimize distortion or discoloration of finish. Remove weld spatter and welding oxides from exposed surfaces by descaling or grinding.
- C. Fabricate components that, when assembled, have the following characteristics:
  - 1. Profiles that are sharp, straight, and free of defects or deformations.
  - 2. Accurately fitted joints with ends coped or mitered.
  - 3. Physical and thermal isolation of glazing from framing members.
  - 4. Accommodations for thermal and mechanical movements of glazing and framing to maintain required glazing edge clearances.
  - 5. Provisions for field replacement of glazing from exterior.
  - 6. Provisions for safety railings mounted between mullions at interior.
  - 7. Fasteners, anchors, and connection devices that are concealed from view to greatest extent possible.
- D. Fabricate components to resist water penetration as follows:
  - 1. Internal guttering system or other means to drain water passing joints, condensation occurring within framing members, and moisture migrating within glazed aluminum curtain wall to exterior.
  - 2. Pressure-equalized system or double barrier design with primary air and vapor barrier at interior side of glazed aluminum curtain wall and secondary seal weeped and vented to exterior.
- E. Curtain-Wall Framing: Fabricate components for assembly using manufacturer's standard assembly method.
- F. After fabrication, clearly mark components to identify their locations in Project in accordance with Shop Drawings.

## 2.9 ALUMINUM FINISHES

- A. Clear Anodic Finish: AAMA 611, AA-M12C22A41, Class I, 0.018 mm or thicker.

## 2.10 SOURCE QUALITY CONTROL

- A. Structural Sealant: Perform quality-control procedures complying with ASTM C1401 recommendations, including, but not limited to, assembly material qualification procedures, sealant testing, and assembly fabrication reviews and checks.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine areas, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.
- C. Beginning installation constitutes Contractor's acceptance of substrates and conditions.

### 3.2 INSTALLATION, GENERAL

- A. Comply with manufacturer's written instructions.
- B. Do not install damaged components.
- C. Fit joints to produce hairline joints free of burrs and distortion.
- D. Rigidly secure nonmovement joints.
- E. Install anchors with separators and isolators to prevent metal corrosion and electrolytic deterioration and to prevent impeding movement of moving joints.
- F. Where welding is required, weld components in concealed locations to minimize distortion or discoloration of finish. Protect glazing surfaces from welding.
- G. Seal joints watertight unless otherwise indicated.
- H. Metal Protection:
  - 1. Where aluminum is in contact with dissimilar metals, protect against galvanic action by painting contact surfaces with primer, applying sealant or tape, or installing nonconductive spacers as recommended by manufacturer for this purpose.
  - 2. Where aluminum is in contact with concrete or masonry, protect against corrosion by painting contact surfaces with bituminous paint.

- I. Install components to drain water passing joints, condensation occurring within framing members, and moisture migrating within glazed aluminum curtain wall to exterior.
- J. Install components plumb and true in alignment with established lines and grades.

### 3.3 INSTALLATION OF OPERABLE UNITS

- A. Install operable units level and plumb, securely anchored, and without distortion. Adjust weather-stripping contact and hardware movement to produce proper operation.

### 3.4 INSTALLATION OF GLAZING

- A. Install glazing as specified in Division 08 Section "Glazing."

### 3.5 INSTALLATION OF STRUCTURAL GLAZING

- A. Prepare surfaces that will contact structural sealant in accordance with sealant manufacturer's written instructions, to ensure compatibility and adhesion. Preparation includes, but is not limited to, cleaning and priming surfaces.
- B. Set glazing into framing in accordance with sealant manufacturer's and framing manufacturer's written instructions and standard practice. Use a spacer or backer as recommended by manufacturer.
- C. Set glazing with proper orientation, so that coatings face exterior or interior as specified.
- D. Hold glazing in place using temporary retainers of type and spacing recommended by manufacturer, until structural sealant joint has cured.
- E. Apply structural sealant to completely fill cavity, in accordance with sealant manufacturer's and framing manufacturer's written instructions and in compliance with local codes.
- F. Apply structural sealant at temperatures indicated by sealant manufacturer for type of sealant.
- G. Allow structural sealant to cure in accordance with manufacturer's recommendations.
- H. Clean and protect glass as indicated in Division 08 Section "Glazing."

### 3.6 INSTALLATION OF WEATHERSEAL SEALANT

- A. After structural sealant has completely cured, remove temporary retainers and insert backer rod between lites of glass, as recommended by sealant manufacturer.
- B. Install weatherseal sealant to completely fill cavity, in accordance with sealant manufacturer's written instructions, to produce weatherproof joints.

### 3.7 ERECTION TOLERANCES

- A. Install glazed aluminum curtain walls to comply with the following maximum tolerances:
  - 1. Plumb: 1/8 inch in 10 feet; 1/4 inch in 40 feet.
  - 2. Level: 1/8 inch in 20 feet; 1/4 inch in 40 feet.
  - 3. Alignment:
    - a. Where surfaces abut in line or are separated by reveal or protruding element up to 1/2 inch wide, limit offset from true alignment to 1/16 inch.
    - b. Where surfaces are separated by reveal or protruding element from 1/2 to 1 inch wide, limit offset from true alignment to 1/8 inch.
    - c. Where surfaces are separated by reveal or protruding element of 1 inch wide or more, limit offset from true alignment to 1/4 inch.
  - 4. Location: Limit variation from plane to 1/8 inch in 12 feet; 1/2 inch over total length.

### 3.8 FIELD QUALITY CONTROL

- A. Special Inspections: Special Inspections are required for the work of this Section. Refer to Division 01 Section "Quality Requirements" and its attachments.
- B. Testing Agency: Engage a qualified testing agency to perform following tests and inspections.
- C. Structural-Sealant Adhesion: Test structural sealant in accordance with recommendations in ASTM C1401, Destructive Test Method A, "Hand Pull Tab (Destructive)," Appendix X2.
  - 1. Test a minimum of two areas on each building facade.
  - 2. Restore installation areas damaged by testing.
- D. Glazed aluminum curtain walls will be considered defective if they do not pass tests and inspections.
- E. Prepare test and inspection reports.

END OF SECTION 08 44 13

## SECTION 22 42 16.16 - COMMERCIAL SINKS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. Section Includes:
  - 1. Service basins.

#### 1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
  - 1. Mop receptor faucet.
- B. As-Specified Data: If the product to be incorporated in the Work is as specified by manufacturer name and product designation in this Specification Section, submit the “**As-Specified Verification Form**” (attached to Section 01 33 00 “Submittal Procedures”) for each item listed below; otherwise submit full Product Data for the following:
  - 1. Mop receptor “A”.
  - 2. Mop receptor accessories.

#### 1.4 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For sinks and accessories to include in maintenance manuals.

#### 1.5 QUALITY ASSURANCE

- A. Water Conservation:
  - 1. Provide plumbing fixtures complying with applicable provisions of Section 604.4 of the Plumbing Code of New York State, including the 2017 Uniform Code Supplement.

## PART 2 - PRODUCTS

### 2.1 SERVICE BASINS

#### A. Mop Receptor (MR "A"): Plastic, floor mounted.

1. Basis-of-Design Product: Subject to compliance with requirements, provide Crane Plumbing, L.L.C.; Fiat Model No. MSB2424 or comparable product by one of the following:
  - a. Ferguson Enterprises, Inc.; ProFlo Brand.
  - b. Florestone Products Co., Inc.
  - c. Mustee, E. L., & Sons, Inc.
  - d. Swan Corporation (The).
  - e. Zurn Industries, LLC; Light Commercial Specialty Plumbing Products.
2. Fixture:
  - a. Standard: CSA B45.5/IAPMO Z124.
  - b. Material: Molded polymer.
  - c. Nominal Size: 24 by 24 by 10 inches.
  - d. Tiling Flange: On two sides.
  - e. Rim Guard: On front top surfaces.
  - f. Drain: Stainless steel, flat grid drain body with NPS 3 outlet.
3. Mounting: On floor and flush to wall.

#### B. Accessories:

1. Faucet: Comply with requirements in "Sink Faucet" Article.
2. Hose and hose bracket; 5 by 3 inches stainless steel bracket with rubber grips. 30 inch long flexible heavy duty 5/8 inch rubber hose, cloth reinforced with 3/4 inch chrome coupling at one end. Similar to "No. 832-AA" by Fiat.
3. Mop hanger bracket; 24 by 3 inches, stainless steel with three (3) rubber grips. Similar to "No. 889-CC."

### 2.2 SINK FAUCETS

#### A. NSF Standard: Comply with NSF/ANSI 61, "Drinking Water System Components - Health Effects," for faucet-spout materials that will be in contact with potable water.

#### B. Mop Receptor Faucets: Manual type, two-lever-handle mixing valve.

1. Basis-of-Design Product: Subject to compliance with requirements, provide Speakman Company: Model No. SC-5811 or comparable product by one of the following:
  - a. Chicago Faucets.
  - b. Delta Faucet Company.

- c. GROHE America, Inc.
  - d. Just Manufacturing.
  - e. Moen Incorporated.
  - f. T & S Brass and Bronze Works, Inc.
  - g. Zurn Plumbing Products Group.
2. Standard: CSA/ASSE-1001.
  3. General: Include hot- and cold-water indicators; coordinate faucet inlets with supplies and fixture hole punchings; coordinate outlet with spout and sink receptor.
  4. Body Type: Widespread.
  5. Body Material: Commercial, solid brass.
  6. Finish: Polished chrome plate.
  7. Maximum Flow Rate: 10 gpm hot- and cold-water full open at 40 psig
  8. Handle(s): Cross, four arm.
  9. Mounting Type: Back/wall, exposed.
  10. Spout Type: Rigid, solid brass with wall brace.
  11. Vacuum Breaker: Required for hose outlet.
  12. Spout Outlet: Hose thread according to ASME B1.20.7.
  13. Integral Stops: Required.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine roughing-in of water supply and sanitary drainage and vent piping systems to verify actual locations of piping connections before sink installation.
- B. Examine walls, floors, and counters for suitable conditions where sinks will be installed.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.
- D. Beginning installation constitutes Contractor's acceptance of substrates and conditions.

### 3.2 INSTALLATION

- A. Install sinks level and plumb according to roughing-in drawings.
- B. Install water-supply piping with stop on each supply to each sink faucet. Install stops in locations that are accessible for ease of operation.

- C. Install trap and waste piping on each drain outlet of each sink to be connected to sanitary drainage system.
- D. Set floor-mounted sinks in leveling bed of cement grout.
- E. Seal joints between sinks and counters, floors, and walls using sanitary-type, one-part, mildew-resistant silicone sealant. Match sealant color to fixture color. Comply with sealant requirements specified in Section 07 92 00 "Joint Sealants" and sink manufacturer's recommendations.

### 3.3 CONNECTIONS

- A. Connect sinks with water supplies, stops, and risers, and with traps, soil, waste, and vent piping. Use size fittings required to match fixtures.
- B. Comply with water piping requirements specified in Section 22 11 16 "Domestic Water Piping."
- C. Comply with soil and waste piping requirements specified in Section 22 13 16 "Sanitary Waste and Vent Piping."

### 3.4 ADJUSTING

- A. Operate and adjust sinks and controls. Replace damaged and malfunctioning sinks, fittings, and controls.
- B. Adjust water pressure at faucets to produce proper flow.

### 3.5 CLEANING AND PROTECTION

- A. After completing installation of sinks, inspect and repair damaged finishes.
- B. Clean sinks, faucets, and other fittings with manufacturers' recommended cleaning methods and materials.
- C. Provide protective covering for installed sinks and fittings.
- D. Do not allow use of sinks for temporary facilities unless approved in writing by Owner.

END OF SECTION 22 42 16.16

SECTION 01 12 00 MULTIPLE CONTRACT SUMMARY

PART 1 GENERAL

**01. RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including the General Conditions and Division 1 Specification Section, apply to this Section.

**02. SUMMARY**

- A. Section includes:

1. Project information.
2. Work covered by Contract Documents.
3. Construction schedule.
4. Requirements and assignments for each Contract.
5. Owner-furnished products.
6. Access to site.
7. Coordination with occupants.
8. Work restrictions.

- B. This Section includes a summary of each contract, including responsibilities for coordination and temporary facilities and controls.

- C. Each Contractor is responsible for reviewing all Drawings and Specifications for every contract to gain a complete understanding and knowledge of the entire Project, to determine how the work of each contract is to interface with every other contract.

- D. Each trade will have a night shift to perform the renovations of the bathrooms (one Gang bathroom at each school at a time) during the school year. Work will be coordinated and scheduled with the CM. Summer of 2025, all areas of work will be available and complete by August 22<sup>nd</sup>, 2025. Abatement will take place in two mobilizations, 1. Winter break, 2. Summer 2025.

- E. Window Trade will perform work on night shift until summer 2025, when all remaining work associated with this contract will become available. Abatements will take place on the night shift while school is in session. After window caulk is abated, window trade will install temp caulk until window is replaced. Any window needing a lintel replacement will be replaced over the summer 2025.

**03. DEFINITIONS**

- A. Project Identification: Project consists of all labor, materials, equipment, appliances, services, and incidentals necessary for layout, installing, and performing Additions and Alterations at the Cornwall Central School District (CCSD) as shown on the Contract Drawings and described in the Specifications. The Work on this Contract will be performed at multiple schools within the School District.

1. Phase 3 - The work consists of but not limited to the following:
  - Window replacement and abatement
  - Bathroom renovations (Mechanical, Electrical, plumbing, architectural)
  - Sitework
2. The Work will be performed at
  - a. Cornwall Elementary School

- b. Cornwall Central Middle School
- c. Cornwall on Hudson
3. Architect Identification: The Contract Documents were prepared for the Project by Architect of Record, Tetra Tech Architect & Engineers
4. Construction Manager: The Palombo Group (TPG) has been engaged as Construction Manager for this Project to serve as an advisor to Owner and to aid in administering the Contract for Construction between Owner and Contractor, according to a separate contract between Owner and Construction Manager.
5. Building Code in Effect for Project: 2020 Building Code of New York State as adopted and the Energy Conservation Construction Code of New York State unless noted otherwise in the contract drawings.
6. Comply with the following: New York State Energy Conservation Code and the building rules and regulations of the New York State Education Department.

#### 04. THE CONTRACT

- A. The Project will be constructed under a multiple prime contracting arrangement with the Owner awarding and holding separate Contracts. Each contractor shall provide all labor, material, tools, equipment, supervision, layout, delivery, trucking, shop drawings, submittals, closeout etc. necessary to complete the work described in the Division of Work of their respective Contracts and based upon a complete set of Contract Documents for complete and functional systems. **If a single prime is awarded the project (window Contractor), then the Single prime will assume all responsibility within the Primes scop of work.**
- B. Each Contractor has been given the opportunity prior to bid to inspect the entire Project site for interferences to their Contract work and agrees to accept the site as it exists on the date of the bid opening.
  1. It is the Owner's intention to continue to occupy the existing buildings and site for normal operations/maintenance during the Construction process. The Contractors all agree to:
    - a. Cooperate with the Owner's personnel in maintaining and facilitating access to the school buildings and its facilities by the school staff, Students, Owner's agents, service consultants and the public, throughout the construction process.
    - b. Keep driveways and entrances serving the occupied buildings clear and available to the Owner, the Owner's employees/agents, and to emergency vehicles always. Do not obstruct access to, or use these areas for parking, staging of equipment or materials. All access through these existing areas must be coordinated in advance and in accordance with the Owner.
    - c. Schedule construction operations to minimize any conflicts or interruptions to the daily Owner functions/operations. Coordinate any necessary interruptions with the designated project representative. Contractor to include in their Bid required rates for second shift tasks to coordinate with such required operations.
    - d. All existing Owner-occupied areas of buildings (not turned over to the

Project Contractors) need to always remain operational. The contractors are responsible for maintaining all systems, such as but not limited to, fire alarm, electric, public address system, gas service, heat, water, egress points etc.

- e. The Cornwall Central School District currently under Contract for their Phase 2 Capital Project Scope. This work includes scope of work at all three buildings and shall be coordinated. Phase 2 schedule/logistics shall not be affected without coordinating prior to.
- f. In the case that there is no GC contract, each prime will be responsible for such (all) work of their own trade and anything stating that the GC will provide will be void.

C. Each Prime Contractor shall:

- 1) Provide field-engineering services, in addition to those provided by the Site Work Prime Contract, to install site utilities included in the applicable Prime Contract.
- 2) Coordinate construction schedule information to formulate one master schedule for the entire Project. Contractor to organize, publish and update said schedule as direct by the CM, but no less than bi-monthly (Once per month).
- 3) Coordinate weekly construction schedules and activities. Every week Prime submits to the CM and other Primes a detailed plan of activities in the field to include, but not be limited work planned, crew size, hours of work, deliveries, coordinated activities with others, Owner requested coordination needs. Prime Contractor to take responsibility for submitting this on account for all their vendors and subcontractors. 2-week lookahead provided every week.
- 4) Provide reflective vests/clothing and PPE to be always worn by all on-site personnel. Parties that do not abide by this requirement will be escorted off the premises.
- 5) Provide erosion and Sediment Control and dewatering as it relates to any excavation associated with its own Prime Contract.
- 6) Provide potable drinking water for its own employees.
- 7) Provide access to all concealed systems as required for system maintenance and repair for items installed in their Prime Contract. This specifically talks to access panels needed for future maintenance by the district.
- 8) Provide and maintain material lifting equipment required for the completion of their Contract requirements, and complying with NYS Labor Laws, OSHA Regulations, and other Federal, State, and local laws.
- 9) Provide and maintain additional temporary stairs, ladders, ramps, scaffolding, and platforms required specifically for completion of work of their own Contract, and as further detailed in this section. All work needs to comply with the NYS Labor Laws, OSHA regulation, and other Federal, State, and local laws.
- 10) Provide Fire Prevention materials and equipment for fire protection related to the work of their own Prime Contract. Provide fire extinguishers, fire

- blankets, and fire watch during all cutting and welding operations.
- 11) Provide any supplemental lighting required to install the work of its own Contract, beyond the minimum OSHA levels provided under the Electrical Work Prime Contract.
  - 12) Provide any supplemental heat required to install the work of its own Contract,
  - 13) Provide traffic control for deliveries, and equipment needed to perform the work of their own Prime Contract.
  - 14) Provide protection of its own finished Work, after installation, until accepted by the Owner.
  - 15) Provide fire caulking for any fire-resistance-rated penetration related to the work for its own Prime Contract.
  - 16) Provide any temporary office and storage trailers required to complete the work of their own Prime Contract.
  - 17) GC to Provide final cleaning of all surfaces and areas within the work areas to the satisfaction of the CM. Daily cleaning by each trade. Each trade to center pile garbage each day and the GC to remove and dispose into the dumpster.
  - 18) Project closeout requirements including As-Builts, Owner's Manual, Training, Commissioning etc.
  - 19) Each Contractor shall review each facility's asbestos report to become familiar with any materials that may contain asbestos. If the contractor encounters materials that have not been tested for asbestos, or finds suspicious materials, the contractor shall temporarily cease work and contact the Construction Manager. The Contractor will be held responsible for clean-up costs if they continue to remove materials that have not been tested for Hazardous Materials.
  - 20) Included within each Prime scope shall be any/all manufacturer's instructions, installations practices.
  - 21) Provide for a thorough final cleaning of the site, building, and equipment provided under their Prime Contract immediately before the final inspection. Each Prime Contractor is responsible for daily cleaning and dust and debris generated from the work of their own Contract. Final cleaning with a professional cleaning company by the GC.
    - a) Maintain areas in a clean condition until the Owner occupies the space.
    - b) Personnel: Experienced workman or professional cleaners approved by the Construction Manager.
    - c) Sitework contractor to coordinate with other primes/trades for any scheduled work to be performed

**01. SUMMARY OF WORK**

- A. The work will be constructed under multiple prime contracts. One set of contract documents is issued covering multiple contracts. Each Prime Contract is defined as:
- Contract 1 GC/AA – General Construction Work/Interior Abatement
  - Contract 2 MC/PC – Mechanical & Plumbing Construction Work
  - Contract 3 EC – Electrical Construction Work
  - Contract 4 WC/AA – Window & Exterior Abatement

Contract 5 SC – Site Construction Work

**02. WORK UNDER SEPARATE CONTRACTS**

- A. The project will be constructed under a multiple-prime contracting arrangement.
- B. One set of documents is issued covering all prime contracts scope of work. Each prime contractor is to review ALL drawings and specifications for complete understanding and knowledge of the work to be performed. Each prime contractor shall acknowledge and include scope called out on adjacent drawings and specifications.
- C. The following Contract Documents are specifically included and defined as integral to each Prime Contract.
  - 1. Bidding Requirements
  - 2. Performance and Payment Bonds
  - 3. Conditions of the Contract, including
    - a. General Conditions & Supplementary Conditions
    - b. Insurance Requirements
    - c. NYS Prevailing Wage Rates
- D. Extent of Contract: Unless the Contract Documents contain a more specific description of the Work, names, and terminology on Drawings and in Specification Sections determine which contract includes a specific element of Project.
  - 1) Unless otherwise indicated, the Work described in this Section for each contract shall be complete systems and assemblies, including products, components, accessories, and installation required by the Contract Documents.
  - 2) Local customs and trade-union jurisdictional settlements do not control the scope of the Work of each contract. When a potential jurisdictional dispute or similar interruption of work is first identified or threatened, affected contractors shall negotiate a reasonable settlement to avoid or minimize interruption and delays.
  - 3) It is implied, unless otherwise noted, that any new work that has existing work in its place, the removal of the existing work is included in the scope of new work installer.
  - 4) All contractors are responsible for the removal and reinstallation of the ceiling where work must be installed above a ceiling not scheduled for removal.
  - 5) Site Contractor shall provide excavation, SOE, backfilling material, restoration etc. for all scope within the Contract, unless otherwise noted.
  - 6) Concrete Work of each contract shall be provided by the GC (General Contractor) **in the case that there is no GC contract**, then the concrete work would be provided by the trade needing concrete for his own work.
  - 7) The General Construction Work Contract shall provide all cutting and patching associated with its own Contract and the contract of the **MEP trades**. All patching is to be performed by mechanics qualified and experienced with the materials and finishes being patched. **NEW** openings requiring structural reinforcing will be the responsibility of the General construction contract. Core drilling, fireproofing etc. shall be by each Prime Contractor. In the case that there is no GC contract, each **prime** will be responsible for such work of their own trade.
  - 8) Firestopping for the Work of each contract shall be provided by each contract

for its own Work. Firestopping shall comply with Division 7 Section "Through Penetration Firestop Systems".

- 9) Access doors not shown on Architectural drawings and required for access to junction boxes, valves and similar equipment for the Work of each contract shall be furnished by each contract for its own Work and given to the General Construction Contractor for installation. In the case that there is no GC contract, each trade will be responsible for such work of their own trade. Unless noted otherwise, final coordination of access doors is **all the Primes** responsibility.
- 10) Lead Based Paint precautions for the Work of each contract shall be provided by each contract for its own Work. Each Prime Contractor shall provide procedures for OSHA Lead precautions.
- 11) Each Prime Contractor shall designate a full-time superintendent to supervise the work of the Prime Contractor, who shall always be present on the job site when work is being performed; this person shall be familiar with Project and authorized to conclude matters relating to progress. This person shall also represent their company at weekly contractor meetings.
- 12) Termination and removal of its temporary facilities shall be provided by each contract for its own Work.
- 13) The Electrical Contractor shall provide temporary power and lighting at the areas of work for all trades within the building.
- 14) The Window Contractor provides their own light required for installation of their own **work at night as well as means of lifts and access to the work areas.**

E. Temporary Facilities and Controls: In addition to specific responsibilities for temporary facilities and controls indicated in this Section and in Division 1. "Temporary Facilities and Controls," each Contract is responsible for the following:

- 1) Installation, operation, maintenance, and removal of each temporary facility usually considered as its own normal construction activity, and costs and use charges associated with each facility.
- 2) Generators, plug-in electric power cords and extension cords, supplementary plug- in task lighting, and special lighting necessary exclusively for its own activities.
- 3) Its own field office, complete with necessary furniture, and telephone service.
- 4) Its own storage and fabrication sheds.
- 5) Temporary heat for construction at isolated work areas. It is assumed temp heat is sensitive to weather conditions and scope of work being performed (finish work). In the case of a disagreement, The CM will determine when temp heat is needed and by which prime contractor and at what time.
- 6) Its own dust protection to control dust where dust partition is not scheduled or shown on the drawings but are necessary to protect the building from dust contamination. Barriers such as "zip walls" plastic may need to be required in classrooms, hallways, office, to protect unmoved equipment, furniture, finishes, as required and as directed.
- 7) Temporary enclosures for its own construction activities.
- 8) Hoisting requirements for its own construction activities.
- 9) Staging and scaffolding for its own construction activities.

- 10) Collection and disposal of its own hazardous, dangerous, unsanitary, or other harmful waste material.
  - 11) Daily clean-up and disposal is required by each Contractor for the periods in which that Contractor is performing work on site. Dumpsters will be provided by the General Construction contract for use by all prime contractors, **except for the window contractor**, recycling of materials will be instituted daily. Each trade will assign at least one person to the weekly clean-up. Any Contractor not providing personnel will be “back charged” for labor provided by the Construction Manager. Progress cleaning of its own areas daily. Window contractor to provide their own dumpster and be responsible for cleaning and disposing into its dumpster daily. All primes to sweep daily and center pile, GC to remove and dispose clean up into the dumpster.
  - 12) Secure lockup of its own tools, materials, and equipment.
  - 13) Construction aids and miscellaneous services and facilities necessary exclusively for its own construction activities.
  - 14) Temporary heat to protect installed work where scheduled, temporary heat is not in place or not called for in the contract documents will be provided by the mechanical contractor.
  - 15) Safety procedures as dictated by the district, OSHA, and the NYS Department of Labor
  - 16) Snow removal **of the construction area**, shall be by the Site Contractor as required for work, site safety or as directed by the CM (if applicable).
- F. Temporary Heating, Cooling, and Ventilation: The Mechanical Contractor is responsible for temporary heating, cooling, and ventilation and/or when a system is removed or otherwise disabled. The Mechanical Construction Contract is responsible for temporary heating, cooling, and ventilation and Owner will pay utility-use charges once energized.
- G. Temporary ventilation: Each Contractor to control fumes from their own construction operations including interior painting and “off gassing” of new finish materials, **saw cutting, Etc..**
- H. Use Charges: Comply with the following:
- a. Water Service: Water service is available at no charge.
  1. Electric Power Service: Electric Power service is available at no charge. Except when power shut down to the building occurs, the EC to provide temp power to facilitate the ongoing work of other trades.
- I. Storage: Each Contractor shall coordinate with the Construction Manager for locations of on-site storage for material, employee parking, material loading/loading etc. It is the intent of the Project to store approved delivered material on site. Any storage required for material, tools, and equipment outside the summer schedule is the responsibility of the Contractor. Example locations are proposed in a Project Staging Plan. Material available and not on site will not be a basis for delay.

**03. SITE CONSTRUCTION CONTRACT**

A. Work in the Site Construction Contract includes, but is not limited to, the following:

1. Includes Structural, Civil, Drainage, Utility plus other construction operations traditionally recognized as Site Work Construction. This includes, but is not limited to, work shown on the following:
  - a. Drawings:
    1. All "title sheets, general notes, code compliance, life safety and Phasing Drawings" (General)
    2. All "AC" "DC" and "ZC" series Drawings (Civil)
    3. Applicable "E" series Drawings (Electrical) for their support related needs
    4. Applicable "ES" series Drawings (Structural) for their foundation related requirements
    5. All Prefix Letter Above Drawings and any applicable information shown on the "EA" "EM" "EP", drawings, unless noted otherwise. It also includes administrative and coordination responsibilities.
    6. All reference to other drawings from all other drawing listed above.
  - b. Coordination:
    1. Coordination of their scope of work with all other contractors, third parties, Owner activities/agents
    2. (if applicable) Contractor shall become familiar with scope of all State Contractors and their support/scope coordination and interface responsibilities.
    3. (if applicable) Site Work Contractor to provide a coordinated schedule between SW, EC, **PC** and all state contractors.
  - c. Temporary Facilities
    1. Provide and maintain dust protection and temporary fencing around the entirety of the work areas. The site shall be protected from any open excavations in accordance with OSHA guidelines. Provide water for dust control as directed by the CM.
    2. Provide temporary roads/ access and continuous exits as necessary to accommodate construction activities. Reference Logistics and Phasing Plan that will be provided after award.
    3. Provide all erosion control measures as indicated. Provide all necessary sediment and waste-water control measures specific to the delineated Site Construction Work area per the SPDES General Permit, terms of the SWPPP and contract documents.
    4. Provide wash out area for concrete & construction vehicles as needed.
    5. Provide proper protection to existing sidewalks / curbs to remain.
    6. Un-piped temporary toilet fixtures, wash facilities, and drinking water facilities, including disposable supplies at the athletic field for the duration of the project.
    7. Special or unusual hoisting requirements for construction activities, including hoisting loads more than two tons, hoisting material or equipment into spaces below grade, and hoisting requirements outside building enclosure.
    8. Project identification and temporary signs for construction

9. Pest control.
  10. Barricades, warning signs, and lights.
  11. Security enclosure and lockup. Temporary walls/fence/partitions to separate construction to Owner-occupied areas as directed by the CM
  12. Environmental protection.
  13. Dust mitigation/containment and control measures Equipment sweeping of access roads required weekly, coordinated around facility parking times, to be carried out not less than weekly, daily if required and as directed by the CM and to maintain the requirements of the SWPPP plans.
  14. Restoration of Owner's existing facilities used as temporary facilities.
  15. Furnish and maintain temporary erosion control measures as indicated on contract documents.
  16. Provide temporary tree protection where shown and/or as directed
  17. Provide proper dust control and pavement sweeping in and around active site. Contractor to understand limits of work are outside active administration offices.
  18. Provide temporary measures to properly manage surface water runoff.
  19. Provide Temporary Facilities indicated as Work of this Contract in Section 01 50 00 "Construction Facilities and Temporary Controls."
  20. Provide separate handicap temp toilet to be locked and used separately for construction manager. Site work Contractor to include the rental and associated costs for the CM office trailer from April 1, 2025, until substantial completion of the project. Water (if applicable) and Electrical connections by this contractor. Office Trailer to be no less than 500 sq. ft. in size and will include the following: Exact location will be determined after award.
    - Security bars on window
    - Security Bars on doors lockable with a padlock
    - Two desks and chairs
    - Two 6' foldable tables and 10 foldable chairs
    - Heat and A/C unit
    - Stairs at each door
    - Trailer skirt
    - Internet service (could be MIFI)
    - New 11x17 Color printer - paper and ink
    - Water cooler and water supply
- d. Demolition:
1. All sitework prep, existing facility protection, any all sitework runoff/stabilization for the site within the work area
  2. Removal and relocation of trees, shrubs and ground cover. Store/stockpile topsoil for the use within the project or relocation onsite as directed by the Owner/CM.
  3. Removal of any existing curbing, stairs, paving, and sidewalks as shown or described as it relates to the scope shown. Removal to the limits called out whether it be milling, full depth excavation down to the requirements as called out for the new installation details. Sawcut adjacent areas to the limits shown

- and tie-in as per the details specified.
4. Excavate for access to remove all underground utilities and/or equipment as shown or described as it relates to the scope shown. Infill as required. Protect otherwise as required to maintain usage. OSHA regulation shall be maintained during construction. No open trenches shall be left without coordinated protection measures or as directed by the CM.
  5. Removal and disposal of miscellaneous equipment, including equipment not shown if impacting work to be demolished.
  6. Salvage, Storage and Protection of work as needed as shown or described within the documents.
  7. Responsible for shoring, demolition and protection of areas associated with all excavation.
  8. Provide protection to all installed materials.
  9. Removal and disposal of miscellaneous equipment including all existing wall mounted specialty items and/or equipment not shown if impacting work to be demolished. Coordinate shutdown of water and/or electric with trades associated with the area of demolition. See demolition plans for additional demolition notes.
  10. Removal and disposal of equipment and materials as indicated on the drawings.
  11. Provide and install shoring bracing and underpinning related to the Site Construction work; excavation and structural backfill for footing, foundations, trenches, and ground openings.
  12. Provide Dewatering at excavation, manholes, catch basins etc. for the progression of work during weather events or water table issue. Discharge water as per regulatory means.
  13. Removal of curbing, roadways, bituminous paving, and concrete walks
  14. Removal of all underground utilities and/or equipment as shown or described.
  15. Removal of all shown existing athletic surfacing and fencing.
  16. Removal of existing associated structures and/or unused structures.
  17. (if applicable) Removal of existing light pole bases and associated conduit. Fill in with suitable soil.
  18. Removal and disposal of miscellaneous material and equipment including equipment/materials not shown on the drawings and if it is impacting work to be demolished.
  19. Removal and disposal of unsuitable fill including rock to suitable depth.
  - ~~20. Provide an allowance in base bid to remove and dispose of an additional 40 cubic yards of rock removal above and beyond contract requirements.~~
  21. Demo and dispose of all underground structures as shown on the contract drawings.

2.

- a. New Construction:
1. This Contractor shall be responsible for the construction of all exterior site work, including but not limited to all concrete/asphalt sidewalks, precast/stone/cast curbs, stairs/steps/landings/ramps, retaining walls, prep, finish, reinforcement/pins, railing, subgrade/base, drainage systems etc. asphalt, striping, fencing, guardrails, foundations, slabs, as per details shown
  2. The Site Construction Work Contract shall perform all necessary trenching and excavation, backfilling, and compaction. This Contractor shall be responsible for providing and setting light pole bases (if applicable).
  3. Repair road edges back to its original state, topsoil, seed and hay.
  4. Provide and install flagpoles as indicated on the drawings and or specifications (if applicable).
  5. Earthwork
    - a. GENERAL: All earthworks shall be confined to the construction area as shown on the plans and shall be done in an approved manner with proper equipment. Earthwork shall be suspended during rain and inclement weather, or when unsatisfactory field conditions are encountered, unless otherwise directed by the AE and CM. At all times during construction, the CONTRACTOR shall maintain proper drainage in the construction area and shall take all measures necessary for erosion and sediment control.
    - b. Existing Utilities: Contractor shall take every precaution to protect existing utility services from damage during construction operations. Contractor shall contact "Dig Safe NY" and provide private utility locating service as necessary to avoid damage to existing utilities. If damage occurs, the owner of the utility and construction manager shall be notified immediately. Repairs shall be made promptly at the contractor's expense. All repair work shall be satisfactory to the Architect, Construction Manager and the Owner of the utility. When interruptions of existing utilities occur, temporary service shall be provided as approved by the Architect, Construction Manager and Owner of the utility. A minimum 48-hour notification to the utility owner is required prior to working in and around utilities.
  6. Dressing Off: All cuts, fills and slopes shall be neatly dressed off to the required grade or subgrade, as indicated on the plans.
    - a. Cleanup: Cleanup of the site shall be made upon completion of grading work or any major part thereof. Unless otherwise noted, excess or surplus material shall be wasted and dressed off on the site, or adjacent thereto, to the AE and CM'S satisfaction. Excess or surplus material wasted in off- site spoil areas shall be spread and leveled as directed.
    - b. Topsoil Placement: Topsoil shall consist of a natural friable loam, occurring usually in a surface layer 6 to 18 inches thick,

and free of roots, grass, weeds, stone and other foreign matter. Topsoil may be obtained from the graded area, if available, and stockpiled for future use. Otherwise, the CONTRACTOR shall provide topsoil from other sources at his own expense. All topsoil shall be acceptable to the AE and CM. Topsoil shall be placed on the entire graded area as shown on the plans, or as directed by the AE and CM. Topsoil shall be distributed to a depth of 4 inches, measured loose, and dressed off neatly to finish grade, with all debris removed. Topsoil shall receive final dressing of seed and mulch or straw and watered until germination.

7. Provide all access i.e. temporary driveway, parking lot paving and drainage as required.
8. Provide interior equipment and housekeeping pads for all Prime Contracts, coordinate as necessary for size and locations.
9. Areas modified for construction/staging/etc. to be placed back to their natural state once construction is complete by this trade.
10. Provide all catch basins, storm drains, underdrains, pipe, fabric, stone, tie-in to adjacent structures and patching, etc. as shown.
11. Provide concrete pads as shown or called out.
12. Provide asphalt parking, seal coating, striping as shown or called out.
13. Provide all site signage and pavement markings as shown or called out.
14. Provide all site lines, stripes, arrows, handicap parking, etc. as shown or called out.
15. Site contractor to provide their own survey and layout by a NYS licensed surveyor. Coordinate and conform one all-inclusive survey including the survey from the bleacher and other contractors.
16. Site Contractor to provide and install light pole bases, coordinate with EC for anchor bolts and pattern (if applicable).
17. Provide excavation, bedding and backfill for underground electric for site electrical. Installation of electrical conduit, light poles and wiring will be by the Electrical Contractor. Assist EC in setting light poles bases (if applicable).
18. Contractor shall obtain and pay for any permits, inspections, or certifications from governing authorities having jurisdiction over the work to be performed, or over the finished product to be installed by this Contractor. Project Building Permit is by others.
19. Provide all labor, material, and equipment necessary for removal and disposal off site of rock. ~~The Contractor shall include the following quantities rock removal in the Base Bid. Cost shall include removal and appropriate disposal per the Contract Documents. Measurement shall be taken unexcavated.~~
20. Provide and install all underground structures/piping as shown on the contract drawings.

~~21. Provide all site work related to State Contractors including but not limited to the following Section "STATE CONTRACTORS SCOPE (various Contracts)"~~

The Work of the Site Construction Contract includes but is not limited to the Work that is specified in the Project Manual(s) and as shown on the drawings that form the contract plans. The Contractor is directed to examine all drawings since certain details and/or notes may appear anywhere therein that apply to his/her work. This prime contract is defined as, and includes, all Sections in the Divisions indicated by reference, and specific Sections noted:

- 1) Division 0 – Procurement and Contracting Requirements, All Sections
- 2) Division 1 – General Requirements, All Sections, including Temporary Facilities
- 3) Division 2 – Existing Conditions - As applicable to work of this contract
- 4) Division 3 – “Concrete” All Sections
- 5) Division 11 – “EQUIPMENT” All Sections
- 6) Division 13 – “SPECIAL CONSTRUCTION”
- 7) Division 31 – “Earth Work” - All Sections
- 8) Division 32 – “Exterior Improvements” - All Sections
- 9) Division 33 – “Utilities” - All Sections

**04. GENERAL CONSTRUCTION CONTRACT (includes Interior abatement)**

A. Work in the General Construction Contract includes, but is not limited to, the following:

1. Includes Architectural, Structural, Masonry, Hazardous Materials, Finishes, Blocking for Equipment, plus other construction operations traditionally recognized as General Work Construction. This contract will include all interior abatement within the bathroom renovation scope. This includes, but is not limited to, work shown on the following:

a. Drawings:

1. All "title sheets, general notes, code compliance, life safety and Phasing Drawings" (General)
2. All “AG” series Drawings
3. All "BA" “DA” “AA” series Drawings (Architectural)
4. All "AAA" “DA” series Drawings (Hazardous Material) coordinate
5. Applicable “AC” “DC” “ZC” series Drawings (Civil) as it applies to the scope of work.
6. Applicable “AP”, “BP”, “DP” series Drawings (Plumbing) for their support related needs
7. Applicable “AE” “BE” “DE” series Drawings (Electrical) for their support related needs.
8. Applicable “AM” “DM” “BM” series Drawings (Mechanical) for their support related needs.
9. All Prefix Letter Above Drawings and any applicable information shown on the “Electrical” “Mechanical” “Plumbing”, drawings, unless noted otherwise. It also includes administrative and coordination responsibilities.

10. All reference to other drawings from all other drawing listed above.
- b. Coordination:
  1. Coordination of their scope of work with all other contractors, third parties, Owner activities/agents
  2. Contractor shall obtain and pay for any permits, inspections, or certifications from governing authorities having jurisdiction over the work to be performed, or over the finished product to be installed by this Contractor.
  3. Contractor to create a coordinated schedule with all other primes for an all-inclusive construction schedule. Update once a month unless additional updates requested by the CM.
- c. Demolition:
  1. Removal and disposal of miscellaneous equipment, including equipment not, shown if impacting work to be demolished.
  2. The owner has the first right of refusal on all items designated to be thrown away.
  3. Salvage, Storage and Protection of work as needed as shown or described within the documents.
  4. Removal of masonry walls, doors, and interior partitions as required for new work. The General Work Contractor is responsible for shoring, demolition and protection of areas associated with new work.
  5. Provide protection to all materials to remain intact.
  6. Removal of finishes noted on plans including but not limited to flooring, ceilings, and misc. items attached to existing walls to be removed. Review and patch to match conditions. Hazardous Material to be removed by submitted and approved Certified Abatement Contractor.
  7. Removal and disposal of miscellaneous equipment including all existing wall mounted specialty items and/or equipment not shown if impacting work. Coordinate shutdown of water and/or electric with trades associated with the area of demolition. See demolition plans for additional demolition notes.
  8. Removal and disposal of equipment and materials as indicated on the drawings.
  9. All cutting and patching necessary for work of this contract, including layout, sleeves, coring, debris removal, excavation, saw cuts of existing slabs, patch/pinning or dowels, lintels, drywall work, plaster work, grouting, painting, ceiling removal and replacement, etc.
  10. Provide all excavation, saw cuts of existing slabs, patch/pinning or dowels, lintels, for MEP prime by this contractor. Layout by each prime. Window lintels and stone sills by Window prime.
  11. Some work may be required to be performed during nighttime / daytime hours during school days and **weekends.**

- d. Temporary Facilities
- a. Temporary facilities and controls that are not otherwise specifically assigned to the Mechanical Contract or Electrical Contract.
  - b. Un-piped temporary toilet fixtures, wash facilities, and drinking water facilities, including disposable supplies at each facility for the duration of the project.
  - c. Provide all site signage as requested by the CM. Example; Gates, Hard hat area, no smoking, Construction personnel only, Exit signs, Etc.
  - d. Special or unusual hoisting requirements for construction activities, including hoisting loads more than 2 tons, hoisting material or equipment into spaces below grade, and hoisting requirements outside building enclosure.
  - e. Project identification and temporary signs for construction
  - f. General waste disposal facilities including dumpsters for the project duration at each school for all trades. Specific Contracts to also carry general waste of their specific removed/demolished articles of work.
  - g. Pest control.
  - h. Temporary stairs.
  - i. Temporary fire-protection equipment. Provide Fire Extinguishers within code requirements.
  - j. Barricades, warning signs, and lights.
  - k. Security enclosure and lockup. Temporary walls to separate construction to Owner-occupied areas as directed by the CM.
  - l. Environmental protection. With the exception of the Site work contract.
  - m. Dust mitigation/containment and control measures i.e. “zip walls”, plastic may need to be required in classrooms, hallways, office, to protect unmoved equipment, furniture, finishes, as required and as directed.
  - n. Restoration of Owner's existing facilities used as temporary facilities.
  - o. Protect exterior wall and interior spaces when performing tie in work for new addition and any type of window wall replacements.
  - p. Provide all temporary partitions, egress doors, and temporary egress parameters indicated by the CM inside and outside the building. Restore all areas to original condition upon completion.
  - q. Provide Temporary Facilities indicated as Work of this Contract in Division 1 Section 01 5000, “Temporary Facilities and Controls.”
  - r. General Contractor is responsible for all temporary weather tight protection of openings and new work until final roofing waterproofing has been established.
  - s. Provide all temporary fall protection, guardrails, handrails, slab and roof openings protection, temporary stairs and ramps as required. Include maintaining these items throughout the project as well as removal when no longer needed.
  - t. Provide Temporary storage for salvaged materials as indicated on the drawings until reinstallation of such materials.

- u. Provide separate handicap temp toilet to be locked and used separately for construction manager.
  
- e. New Construction:
  - a. (Elementary) (COH School) (Middle School)– General Contractor, to provide all elements for a finished scope of work.
  - b. Provide interior equipment and housekeeping pads for all Prime Contracts, coordinate as necessary for size and locations (if applicable).
  - c. General including but not limited to survey, drainage, compaction, insulation, moisture protection, reinforcement, hardware, welding as necessary, concrete, masonry, carpentry, steel, finishes, etc. Coordinate with PC and EC on utility stub.
  - d. Contractor to provide rough opening in walls, floors, and roofs both inside and outside including lintels and any required structural framing for penetrations as part of this and MEP Contract only if openings in MEP contract require structural support. All lintels and/or framing are to be sized per the Architect.
  - e. Provide all associated lintels at new and old openings as required for the project. Coordinate with mechanical trades. Removal and replacement of ceilings as required to perform work by this trade. Exclude lintels at windows where being replaced by window contractor
  - f. Provide and install interior construction, including partitions, doors, frames, hardware, sills, interior glazed openings, and fittings and all work required to install select work. Provide all steel required at new openings, coordinate with all prime contracts. Power for electrified hardware to be provided by the Electrical Contractor.
  - g. Provide and install interior finishes such as rough carpentry finish carpentry, ceilings, architectural woodwork, filler panels and built-in casework. Salvage and re-install work as applicable.
  - h. Provide masonry walls including reinforcement, inserts, expansion joints, infills, veneer, anchors, drainage, weeps, insulation, flashing, lintels etc. for a complete system as detailed.
  - i. Provide repairs to masonry and concrete structures and openings. Patch to match exterior and interior finishes including work from other trades. Provide and install sitework restoration on disturbed areas.
  - j. Provide and install thermal and moisture protection as required.
  - k. Provide and install purple (moisture resistant) gypsum wallboard in all wet areas and finishing for same.
  - l. Provide and install all finishes and prep requirements including but not limited to polished concrete, terrazzo, floor tile, resilient vinyl tile, carpeting-padding, base cove, painting, grout, caulk, setting material, expansion material, suspended acoustical and gypsum ceilings, chase ways, grid/track and ceramic tile. Provide self-leveling underlayment where required to allow for acceptable flooring installation.

- m. Include surface prep as required by the product manufacturer. Remove and re-install obstructions as needed to finish work installation. Provide high performance coatings.
  - n. Provide all building signage, fire-protection specialties (enclosures), visual display boards, as indicated or directed by CM.
  - o. Provide and install Roof modifications required for the installation of mechanical equipment. General Contractor shall remove roof up to and including the deck. The contractor shall replace the roof and flash for watertight system after the Mechanical Contractor finalized the equipment, support curbs.
  - p. Install new mechanical roof curbs and rails. installation shall be coordinated for location and building tie-in. Curb, rails, duct supports and all other material to support/mount the mechanical material off the roof will be provided by the Mechanical Contractor. The roofing and curb cut in shall be by the General Contractor's Roofing Contractor, along with all necessary, waterproofing, etc. Any structural support modifications and building envelope penetrations will be by General Contractor.
  - q. Provide temporary hard protection over finished products. Include maintenance and removal of protection. Contractor shall anticipate that all existing areas to receive new flooring shall require both light grinding and self-leveling underlayment. Provide additional flash-patching where old walls were removed.
  - r. Contractor shall obtain and pay for any permits, inspections, or certifications from governing authorities having jurisdiction over the work to be performed, or over the finished product to be installed by this Contractor. Project Building Permit is by others.
  - s. Provide an allowance in base bade to include 7 boxes of additional ceiling tile installed at the direction of the CM.
  - t. Installation of the mechanical curbs/dunnage will take place after hours or on weekends when school is in session.
  - u. Install all curbs for the mechanical contractor with a certified roofer.
  - v. Provide ceiling pockets with the ceiling at every location a new ceiling dies into a window.
  - w. Include Brick repair and re-pointing as show on the contract drawings in this scope excluding stone window sills.
- f. Misc. Inclusions
- 1. Contractor shall include prime, paint, stone, brick, ceiling tile, gypsum, plaster, insulation, framing, chalk, grout, floor tile etc. Paint entire patched wall, corner to corner. Color/Finish to be coordinated with Owner prior to commencing. "Patch" to match existing at the following conditions.
    - i. At all removed existing walls.
    - ii. At all new door openings cut through existing walls.
    - iii. At all new walls in existing construction.

- g. Include (furnish, and install, unless noted otherwise):
1. As indicated on the plans.
  2. Provide exterior and interior equipment and housekeeping pads, structural slabs etc. including but not limited to including formwork, rebar, pins, sleeves, finishing, etc. for completion of work.
  3. Provide and install Bathroom finishes and accessories.
  4. Provide within the Base Bid, furnish and install additional to the contract documents, 1,000 square feet of finished sheetrock and support, paint etc. at the direction of the CM. This work shall be used for Owner requested items, bulk heads, chase-ways and excessive patch areas.
  5. Provide Professional cleaning prior to substantial completion including but not limited to, window washing, vacuuming of carpeting, and waxing of flooring. This shall be done with all trades complete. A Third-Party vendor is required and must be submitted for approval. This work shall start in each area prior to turnover to the Owner.
  6. Install all Access doors in hard ceilings that are provided by the MEP trades \
  7. Schedule:  
Provide a second shift for all work associated with the bathroom renovations. Second shift will be weekdays only and manpower must be adequate to perform the work.

**05. ABATEMENT CONSTRUCTION (included within Window Contractor and General Construction Scope). This work is not a separate prime.**

Work in the Window Construction Contract includes, but is not limited to, the following:

- A. Includes Hazardous Materials abatement/removal plus other construction operations traditionally recognized as Hazardous Materials Construction. This includes, but is not limited to, following:
1. Drawings:
    - a. All "title sheets, general notes, code compliance, life safety and Phasing Drawings" (General)
    - b. All "AAA" "BAA" "DAA" series drawings (Hazardous Abatement)
    - c. All references to other drawings from drawings listed above.
  2. Coordination:
    - a. Coordination with the work of all the other contractors. Review with adjacent Contractors and ensure that the work and facilities are always protected.
    - b. Contractor shall obtain and pay for any permits, inspections, or certifications, including variances, from governing authorities having jurisdiction over the work to be performed, or over the finished product to be installed by this Contractor.

3. Demolition:
  - a. Asbestos containing material removal as shown in the contract documents and disposal per Code Rule 56.
  - b. Construction of hard barriers separating abatement areas from all other areas.
4. Temporary Facilities
  - a. Provide Temporary Facilities indicated as Work of this Contract in Division 1 Section 01 50 00, "Temporary Facilities and Controls."
5. Construction:
  - a. Contractors have made themselves aware of the documenting within this bid, including the Hazardous Material Survey. Activity mentioned within this report not found within the drawings has either been asked via the RFI process or included within this proposal.
  - b. Provide the removal of asbestos containing material as shown.
  - c. Asbestos containing material removal as shown in the contract documents and disposal per Code Rule 56.
  - d. Pipe fitting insulation removal as shown.
  - e. Remove, relocate, and reinstall floor mounted equipment, casework, or anything else necessary to access the work.
  - f. If not otherwise being replaced, re-install/repair anything removed for protection and or access to the work regardless of trade correlation.
  - g. Seal all ends of open ACM not called to be removed.
  - h. Provide an additional (included in base bid) allowance of 40LF of pipe insulation and 10 elbows removal and disposal, including tents, deacons, and associated devices/materials to complete the work.
  - i. Plumbing hook ups by this contractor
  - j. Electrical hook ups by this contractor
  - k. Include afterhours work to keep the durations on the schedule even if additional work is added.
  - l. Work at multiple locations will take place simultaneously.
  - m. There could be more than one mobilization for this abatement contract.
  - n. Window caulk removal shall be done on second shift unless otherwise coordinated with the Window prime.
  - o. When caulk is removed, reinstall temp caulk until window is replaced.

B. The Work of the Window Construction Contract includes but is not limited to the Work that is specified in the Project Manual(s) and as shown on the drawings that form the contract plans.

The Contractor is directed to examine all drawings since certain details and/or notes may appear anywhere therein that apply to his/her work. This prime contract is defined as, and includes, all Sections in the Divisions indicated by reference, and specific Sections noted:

- 10) Division 0 – Procurement and Contracting Requirements. All Sections
- 11) Division 1 – General Requirements, All Sections, including Temporary Facilities
- 12) Division 2 – Existing Conditions - All Sections
- 13) Division 3 – “Concrete” All Sections
- 14) Division 4 – “Masonry” All Sections
- 15) Division 5 - “Metals” All Sections
- 16) Division 6 - “WOOD, PLASTICS, AND COMPOSITES” All Sections
- 17) Division 7 – “THERMAL AND MOISTURE PROTECTION” All Sections
- 18) Division 8 – “OPENINGS” All Sections
- 19) Division 9 – “FINISHES” All Sections
- 20) Division 10 – “SPECIALTIES” All Sections
- 21) Division 12 – “FURNISHINGS” – All Sections

## **06 ELECTRICAL CONTRACT**

A. Work of the Electrical Contract includes, but is not limited to, the following:

2. Includes a complete working system or tie-in for system such as Electrical Distribution Service, Lighting, CATV systems, Communications, Fire Alarm, Intercom Systems, electrical door hardware, Security Systems, Emergency Lighting, and other systems traditionally recognized as Electrical work. This includes, but is not limited to, work shown on the following:
  - a. Drawings:
    1. All "title sheets, general notes, code compliance, life safety and Phasing Drawings" (General)
    2. All “AE”, “DE”, “BE” series Drawings (Electrical)
    3. All "G" series Drawings, as it pertains to Work of this Contract
    4. Applicable “M” series Drawings (Mechanical) for their support related needs
    5. Applicable “D” series Drawings as it applies to the series above.
    6. Applicable “AAA” “BAA” “DAA”, series drawings (Hazardous Abatement) for their support related needs.
    7. All Prefix Letter Above Drawings and any applicable information shown on the “A” “C” “P” “M”, drawings, unless noted otherwise. It also includes administrative and coordination responsibilities.
    8. All reference to other drawings from all other drawing listed above.
3. Coordination:
  - a. Coordination of their scope of work with all other contractors, third parties, Owner activities/agents
  - b. Contractor shall obtain and pay for any permits, inspections, or certifications from governing authorities having jurisdiction over the work to be performed, or over the finished product to be installed by this Contractor.

- c. Coordinate with GC contractor to produce a master work schedule for the projects.

#### 4. Demolition

- a. Provide demolition of all electrical equipment and conduit as shown and as required at the existing building. Include removal of any work found abandoned in place or unused adjacent to work scope. Salvage, Store, Protection of equipment for reinstallation as indicated on the drawings.
- b. Coordinate with General Contractor for all cutting and patching necessary for the work of this contract, however the Electrical Contract to include layout, sleeves, coring, debris removal, etc. for scope associated with the Electrical system installation.
- c. Removal and disposal of miscellaneous equipment, including equipment not, shown if impacting work to be demolished.
- d. Provide protection to all materials to remain intact.
- e. Coordinate with the other Primes for necessary shutdowns and disconnects.
- f. Removal and disconnections of electrical devices in walls, ceilings and floors scheduled to be removed. Conduit to be labeled and capped, with wires pulled out to source.
- g. Remove and reinstall all window A/C outlets, conduit and associated wiring at COH.

#### 5. Temporary Facilities

- a. Provide Temporary Facilities indicated as Work of this Contract in Division 1 Section 01 5000, "Temporary Facilities and Controls."
- b. Provide and install temporary power to abatement contractor's equipment as required up to the Abatement Contractor provided sub/supply panel.
- c. Provide temp power panels
- d. Fire alarm devices shall be surveyed and protected prior to work. All devices shall be returned to their existing location or adjusted to a code compliant location as required due to the scope on the ceilings/walls due to them being removed/relocated/new.
- e. The Electrical Contractor is aware that the district has emergency lights on the ceilings and walls. Upon the end of the panel installation, all emergency fixtures shall be tested. Any devices not functioning shall be restored/repared/replaced in kind prior to the return of the building to the district for operational use or as directed.
- f. Provide Power to site trailer for the owner and CM.

6. Construction:

- a. Selective demolition in a safe and approved manner
  - b. Salvage all required equipment and re-install as applicable
  - c. Provide and install panels, equipment, disconnects, conduit, wire, grounding, terminations, tagging/labeling of new work
  - d. Provide and install electrical equipment such as transformers, junction boxes, panels, breakers, enclosures, switch gear, pull boxes, supports, etc.
  - e. Remove, salvage and re-install applicable speakers, cameras, sensors, devices, and other such existing electrical devices within the work areas. Coordinate with Owner on temp relocation, re-installation, and calibration.
  - f. Provide and install Interior and Exterior Lighting, including poles, supports, bases, junction boxes, manholes, pull boxes, fixtures, conduit, wire, sensors, controls for a complete system.
  - g. Provide and install Interior and Exterior Power, including supports, bases, junction boxes, manholes, pull boxes, fixtures, conduit, wire, sensors, controls for a complete system.
  - h. Provide and install Interior and Exterior Communication, including supports, bases, junction boxes, manholes, pull boxes, fixtures, conduit, wire, sensors, controls for a complete system.
  - i. Provided in wall cores, openings, etc. for system/equipment penetrations, firestopping.
  - j. Pumps, controls, motor starters, VFDs shall be furnished by the Mechanical Contractor. Disconnects to be provided by Electrical Contractor. Coordinate installation of main power from disconnect/breaker/panel to be performed by Electrical Contractor. Electrical equipment/components, for example VFDs and Motor Starters, shall be installed by the Electrical Contractor. The programming of such equipment and installation of all other items for the working system shall be by the Mechanical Contractor.
  - k. Provide power to all ADA / magnetic hardware and electric hardware shown in the door hardware schedule. Provide control wiring and connection for electrified door hardware. Hardware to be provided by the GC.
  - l. Provide all phone, CAT, and communication/networking work/systems as shown.
  - m. Provide all fees required for inspections and permits.
  - n. The Building Management System requires several 120v power feeds for panels, dampers etc. For the purposes of this bid, include six such locations at various points of the building. Locations to be coordinated with the Mechanical Contractor.
  - o. Provide and install a complete Fire Alarm System including FACP, batteries, smoke, strobes, horns, CO2, annunciator panels, and ancillary devices coordinated with the HVAC equipment. Remove old devices and wires. Coordinate with GC on schedule, elevations etc.
- B. The Work of the Electrical Work Contract includes but is not limited to the Work that is specified in the Project Manual(s) and as shown on the drawings that form the contract plans. The Contractor is directed to examine all drawings since certain details and/or notes may appear anywhere therein that apply to

his/her work. This prime contract is defined as, and includes, all Sections in the Divisions indicated by reference, and specific Sections noted:

- 1) Division 0 – Procurement and Contracting Requirement, All Sections.
- 2) Division 1 – General Requirements All Sections, including Temporary Facilities indicated.
- 3) Division 2 – Existing Conditions - As applicable to work of this contract
- 4) Division 3 – “Concrete” - As applicable to work of this contract
- 5) Division 7 – “THERMAL AND MOISTURE PROTECTION” - As applicable to work of this contract
- 6) Division 22 – “Plumbing” - As applicable to work of this contract
- 7) Division 23 – “Heating Ventilating and Air Conditioning” - As applicable to work of this contract
- 8) Division 26 – “Electrical” - All Sections
- 9) Division 27 – “Communications” - All Sections
- 10) Division 28 – “Electronic Safety and Security” - All Sections

#### **07. MECHANICAL CONTRACT**

Work of the HVAC Contract includes, but is not limited to, the following: Includes HVAC as a complete working finish system such as Equipment, Piping, ductwork, control systems, housekeeping pads, plus other construction operations traditionally recognized as heating, ventilating and cooling work. This includes, but is not limited to, work shown on the following:

- A. Drawings:
  - a. All "title sheets, general notes, code compliance, life safety and Phasing Drawings" (General)
  - b. All "AM", "DM", "BM" series Drawings (Mechanical)
  - c. All "G" series Drawings, as it pertains to Work of this Contract.
  - d. Applicable "M" series Drawings as it applies to the series above
  - e. All Prefix Letter Above Drawings and any applicable information shown on the "E" "S" "C" "A", drawings, unless noted otherwise. It also includes administrative and coordination responsibilities.
  - f. All reference to other drawings from all other drawing listed above
- B. Coordination:
  - a. Coordination of their scope of work with all other contractors, third parties, Owner activities/agents
  - b. Contractor shall obtain and pay for any permits, inspections, or certifications from governing authorities having jurisdiction over the work to be performed, or over the finished product to be installed by this Contractor.
  - d. Coordinate with GC contractor to produce a master work schedule for the project.
- C. Demolition
  - a. Provide demolition of all equipment and piping as shown and as required at the existing building. Included any work found abandoned in

place or unused adjacent to work scope. Salvage, Store, Protection of equipment for reinstallation as indicated on the drawings.

- b. Coordinate with General Contractor for all cutting and patching necessary for work of this contract, however the Mechanical Contract to include layout, sleeves, coring, debris removal, etc. for scope associated with the Mechanical system installation.
- c. Removal and disposal of miscellaneous equipment, including equipment not, shown if impacting work to be demolished.
- d. Provide protection to all materials to remain intact.
- e. Include the removal of exhaust fans in the window systems.

D. Temporary Facilities

A. Provide Temporary Facilities indicated as Work of this Contract in Division 1

“Temporary Facilities and Controls.”

- a. Provide temp heat during the winter conditions of all new and renovated spaces for all trades at the direction of the CM. interior of the building only

E. Construction:

- a. Selective demolition.
- b. Remove and dispose of all unused equipment, fuel lines, piping, etc. adjacent to the new work and/or as or as not shown on the Drawings.
- c. Curb material will be provided by the Mechanical Contractor. The roofing and curb cut in shall be by the General Contractor, along with all necessary, waterproofing, etc. Any structural support modifications and building envelope penetrations will be by General Contractor.
- d. Provide and install Ductwork, supports, grilles, louvers, valves, dampers hatches, insulation, and applicable accessories
- e. Adjust (add or remove) necessary duct extensions to make up the difference in height/locations or other necessary adjustments for grills/louvers etc. in the ceilings.
- f. Provide and install Exhaust fans, hoods, motors, fan, equipment, penetrations, pitch pockets, and applicable accessories for a complete system. Curbs to be provided by the Mechanical Contractor for the General Contractor to install.
- g. Pumps, controls, motor starters, VFDs shall be furnished by the Mechanical Contractor. Disconnects to be provided by Electrical Contractor. Coordinate installation of main power from disconnect/breaker/panel to be performed by Electrical Contractor. Electrical equipment/components, for example VFDs and Motor Starters shall be installed by the Electrical Contractor. Programming of such equipment and installation of all other items for a working system shall be by the Mechanical Contractor.
- h. Provide and install mechanical piping, hangers, joints and applicable accessories including insulation, labels, tags, expansions joints,
- i. Clean existing ductwork prior to system startup, replace filters as needed.
- j. Mechanical Contractor to included construction filters and change them out with permanent ones prior to startup/turnover on all equipment.

- k. Provided in wall cores, openings, etc. for system/equipment penetrations. Penetrations for exterior louvers to be laid out by the Mechanical Contractor to be cut out by the General Contractor. General Contractor to provide all required lintels and wall finish repair.
  - l. Provide and install all labeling, startup, cleaning, disinfection, chemicals, testing, inspection, permits, balancing, commissioning etc.
  - m. Salvage and re-install work as applicable.
  - n. Provide Training on new systems and equipment
  - o. Provide and install all required low voltage for HVAC equipment.
  - p. Provide and install all controls components into air and hydronic systems such as, but not limited to;
    - 1. Install motor actuated dampers.
    - 2. Install airflow measuring stations.
    - 3. Install airside temperature and pressure sensors.
  - u. Provide TAB and participate in commissioning work as required for controls of the work of this contract.
  - v. Provide all ductwork as indicated on the drawings outside of the Window scope of work.
  - q. Provide all equipment shown on all equipment schedules.
  - r. Furnish access doors for HVAC access (to be installed by GC)
  - s. Provide the necessary layout for all equipment and penetrations with other Contracts.
  - t. Provide Owner training / commissioning of equipment.
  - u. Installation of the mechanical curbs/dunnage/RTU's will take place after hours or on weekends.
  - v. Supply access doors for all new dampers installed for access in hard ceilings. Turn access doors over to GC for installation.
  - bb. Schedule:  
Provide a second shift for all work associated with the bathrooms to assure work will be completed. shift will be weekdays only and manpower must be adequate to perform the work.
- F. The Work of the HVAC Work Contract includes but is not limited to the Work that is specified in the Project Manual(s) and as shown on the drawings that form the contract plans. The Contractor is directed to examine all drawings since certain details and/or notes may appear anywhere therein that apply to his/her work. This prime contract is defined as, and includes, all Sections in the Divisions indicated by reference, and specific Sections noted:
- 1) Division 0 – Procurement and Contracting Requirement, All Sections.
  - 2) Division 1 – General Requirements All Sections, including Temporary Facilities indicated
  - 3) Division 2 – Existing Conditions - as applicable to work of this contract
  - 4) Division 7 – “THERMAL AND MOISTURE PROTECTION” as applicable to work of this contract
  - 5) Division 23 – “Heating Ventilating and Air Conditioning”, All Sections.
  - 6) Division 27 – “Communications” as applicable to work of this contract

**10. PLUMBING CONTRACT**

Work of the Plumbing Contract includes, but is not limited to, the following: Includes Plumbing as a working finish system such as supply, venting drainage ductwork, housekeeping pads, plus other construction operations traditionally recognized as plumbing work. This includes, but is not limited to, work shown on the following:

A. Drawings:

- a. All "title sheets, general notes, code compliance, life safety and Phasing Drawings" (General)
- b. All "AP", "BP" "DP" series Drawings (Plumbing)
- c. All "G" series Drawings, as it pertains to Work of this Contract.
- d. Applicable "D" series Drawings as it applies to the series above.
- e. All Prefix Letter Above Drawings and any applicable information shown on the "E" "S" "C" "A" "M", drawings, unless noted otherwise. It also includes administrative and coordination responsibilities.
- f. All reference to other drawings from all other drawing listed above

B. Coordination:

- a. Coordination of their scope of work with all other contractors, third parties, Owner activities/agents
- b. Contractor shall obtain and pay for any permits, inspections, or certifications from governing authorities having jurisdiction over the work to be performed, or over the finished product to be installed by this Contractor.
- c. Coordinate with GC contractor to produce a master work schedule for the projects.

C. Demolition

- a. Provide demolition of all plumbing equipment and piping as shown or not shown as required at the existing building. Included any work found abandoned in place or unused adjacent to work scope. Salvage, Store, Protection of equipment for reinstallation as indicated on the drawings.
- b. Coordinate with General Contractor for all cutting and patching necessary for work of this contract, however the Plumbing Contract to include layout, sleeves, coring, debris removal, trenching, etc. for scope associated with the Plumbing system installation. Trenching and excavation by this trade.
- c. Removal and disposal of miscellaneous equipment, including equipment not, shown if impacting work to be demolished.
- d. Provide protection to all materials to remain intact.

D. Temporary Facilities

- a. Provide Temporary Facilities indicated as Work of this Contract in Division 1 "Temporary Facilities and Controls."
- b. Provide a hose bib on site for construction use. Provide as directed by the CM

- E. Construction:
- a. Selective demolition.
  - b. Coordinate with EC and GC on utility stub ups.
  - c. Provide and install potable water supply and distribution including valves, hoses, support, insulation, and applicable accessories.
  - d. Provide and install Bathroom fixtures sinks, supports, shutoffs, and applicable accessories.
  - e. Provide and install all-natural gas and propane lines for a complete system
  - f. Provide and install Drains, cleanouts, vents etc. as required.
  - g. Provide and install Hot Water Heater and accessories for a complete system.
  - h. Provide and install Water Fountains for a complete system if applicable.
  - i. Provide and install Water Service testing, connections, and commissioning.
  - j. Provided inwall cores, openings, etc. for system/equipment penetrations, firestopping.
  - k. Salvage and re-install work as applicable.
  - l. Provide and install insulation on all new work. Tie into existing lines and insulate up to existing work for a unified insulation performance.
  - m. Provide all testing, inspection, permits.
  - n. Provide and install all cleaning, startup, chemicals, testing, inspection, permits, balancing, commissioning
  - o. Contractor to provide and install new additional valves above and beyond what is shown on the drawings – (5) five ½”, (5) five 1”, (2) two 1 ½”, (2) two 2”, (1) one 3” for pricing purposes. Exact sizes and location to be determined in the field, at the direction of the construction manager.
  - p. Schedule:  
Provide a second shift for all work associated with the bathrooms to assure the work is complete. Second shift will be weekdays only and manpower must be adequate to perform the work.

The Work of the Plumbing Work Contract includes but is not limited to the Work that is specified in the Project Manual(s) and as shown on the drawings that form the contract plans. The Contractor is directed to examine all drawings since certain details and/or notes may appear anywhere therein that apply to his/her work. This prime contract is defined as, and includes, all Sections in the Divisions indicated by reference, and specific Sections noted:

1. Division 0 – Procurement and Contracting Requirement, All Sections.
2. Division 1 – General Requirements All Sections, including Temporary Facilities indicated
3. Division 2 – Existing Conditions - All Sections
4. Division 7 – “THERMAL AND MOISTURE PROTECTION” - As applicable to work of this contract
5. Division 22 – “Plumbing” All Sections
6. Division 23 – “Heating Ventilation and Air Conditioning” - As applicable to work of this contract

### 13. WINDOW/ CURTAIN WALL CONSTRUCTION WORK

- A. The Work of the Window Construction Work Contract includes but is not limited to, the following descriptions:
1. Includes Architectural, Structural, Masonry, plus other construction operations traditionally recognized as Window Construction Work. This includes, but is not limited to, **window/ curtain wall / new louvers / Doors Replacement work shown** on the following:
    - a. Drawings:
      1. All “AG” series Drawings (Site Code Compliance)
      2. All “AA & BA” series Drawings (Architectural)
      3. All “AAA” “BAA” “DAA” series Drawings (Hazardous Material)
2. **Coordination:**
- a. Window / Curtain Wall / Exterior Door Work Contractor are to pay particular attention to coordination of work at all existing and new openings.
  - b. Coordination with the work of all the other contractors.
  - c. Window Contractor is responsible to disconnect and reconnect all ductwork attached to the window system. Coordinate new window layout to include the existing duct to new louver locations and reconnections. Any modifications required to make the duct and window/louver connections will be the responsibility of the window contractor.
  - d. For eth purpose of coordination, “window” and “curtain wall” will mean the same thing for the purpose of coordination.
  - e. Window Contractor to provide internal passageways and pull string for the electrician for electric door hardware wiring before the window/door frame is installed to avoid surface mount wiring. Window Contractor to receive confirmation from electrician prior to install. If no separate prime for electrical is contracted by the owner, the electrical components, scope will be by the window contractor.
  - f. Window lintels and stone sills by Window prime. See allowance for lintels.
  - g. Window Prime to remove and reinstall all the window A/C units at COH. Coordinate with outlet locations.
3. **Demolition:**
- a. Abatement required to perform transite panel and window / curtain wall removal. Removal of asbestos caulk and glazing materials. Asbestos containing material removal as shown in the contract documents and disposal per Code Rule 56. **INCLUDES all exterior abatement associated with the window / curtain wall / replacement work.**
  - b. Construction of necessary barriers separating abatement areas from all other areas.
  - c. Demolition and replacement of existing curtain wall system shall commence after abatement has been completed. The work shall consist of erecting temporary partitions walls as necessary where removal of the existing window /curtain wall cannot be replaced in the same night/day. The new window /curtain wall installation is to follow the demolition work as soon as possible to minimize the exposure of inclement weather. The work of this phase is to be completed according to the milestone schedule.
  - d. Removal and replacement of finishes noted on plans **associated with Window / Curtain Wall / replacements (includes windowsills/stools and ceilings that are connected to the Window / Curtain Wall scheduled to be replaced on Architectural Drawings.**
  - e. Removal and disposal of miscellaneous equipment including all existing wall mounted specialty items and/or equipment not shown if impacting work to be restored / demolished.
  - f. Provide protection to all finishes, casework, doors, and woodwork to remain.

- g. Provide protection to new unit ventilators and existing unit ventilators to remain.
  - h. All cutting and patching necessary for work of this contract, including layout, providing lintels, drywall work, plaster work, grouting, painting, ceiling removal and replacement, etc.
4. Temporary Facilities
- a. In the case that the windows were removed and cannot be replaced in the same day/night, Provide temporary plywood at all existing windows / openings to be replaced. Assure the interior of the building is not exposed to the outside elements.
  - b. Protect exterior wall and interior spaces when performing window replacement.
  - c. Provide all temporary protection at areas where window replacement is to occur. Provide Temporary Facilities indicated as Work of this Contract in Division 1 Section 01 50 00, "Temporary Facilities and Controls"
5. New Construction:
- a. Removal and replacement of existing windows / curtain wall and installation of new windows / curtain wall where shown. Includes the supply and installation of:
    - 1. Glazed aluminum curtain wall system – (Refer to Elevations and Details for locations).
    - 2. Aluminum Windows - (Refer to Elevations and Details for locations).
    - 3. Include the supply and installation of all related products (i.e. flashings, caulking, attachments, accessories, etc.) to replace existing as specified in this Section.
  - b. Provide new windows to be installed at existing **and modified** openings.
  - c. Cleaning and adjustment:
    - 1. All surfaces of window work shall be cleaned of all mortar, plaster, paint and other foreign matter on both inside and outside to present a neat appearance and prevent damage of surfaces. In addition, system shall be washed off with a stiff fiber brush, soap and water, and thoroughly rinsed with clear water. Where aluminum work has become stained, or discolored, it shall be cleaned, or finish restored in accordance with the specifications. Stained, discolored, or abraded items that cannot be satisfactorily repaired shall be replaced with new items at no additional cost to the Owner. Prior to substantial completion and final payment of the project, the Contractor shall promptly replace any damaged material without additional cost to the Owner.
    - 2. Remove all excess glazing or joint sealing materials from exposed surfaces. Clean and polish glass.
    - 3. Adjust hardware for smooth operation as per the manufacturer's recommendations.
  - d. **New exterior louvers at curtain wall / window to be furnished and installed by this contract.** Coordination will be required to assure proper seal to unit ventilator from louver opening.
  - e. Protection: Protect installed product's finish surfaces from damage during construction.
  - f. Personnel: Experienced workman or professional cleaners approved by the Construction Manager.
  - g. Provide your own lifts, machinery and equipment to perform the work of this trade.
6. General Requirements, including but not limited to, additional items specifically indicated as the Work of this Contract.
7. Provide multiple shifts work as needed to complete work as shown on milestone schedule.
- B. The Work of the Window / Curtain Wall Construction Work Contract includes but is not limited to the Work that is specified in the Project Manual(s) and as shown on the drawings that form the contract plans. The Contractor is directed to examine all drawings since certain details and/or

notes may appear anywhere therein that apply to his/her work. This prime contract is defined as, and includes, all Sections in the Divisions indicated by reference, and specific Sections noted:

1. Division 0 – Procurement and Contracting Requirement, all Sections.
2. Division 1 – General Requirements, all Sections, including Temporary Facilities indicated.
3. Division 2 – Existing Conditions, all Sections as it pertains to your scope of work.
4. Division 5 – Metals, all Sections as it relates to the window replacement.
5. **Division 6 – Woods and Plastics, Section 06 61 16, Solid Surface Fabrications as it pertains to Work of this Contract.**
6. Division 7 – Thermal and Moisture Protection, all Sections as required for the completion of this contract.
7. Division 8 – Openings, *all Sections that pertain to New Windows / Curtain Wall installation.*
8. Division 9 – Finishes, *all Sections that pertain to New Windows / Curtain Wall installation.*
9. Division 12 – Furnishings, all sections

### 13. SCHEDULE

- A. Schedule will be night shift when school is in session. One classroom of windows a night is expected to be removed and replaced in its entirety.

### 14. ADDITIONAL SCOPING

- A. Definition of Extent of Prime Contract Work; Additional Prime Contract Work not previously described.
  - a. All Prime Contractors are responsible for reviewing plans and specs in their entirety. As it pertains to their scope of work, scopes of work referenced may be found in multiple locations throughout the plans and specifications.
  - b. Local custom and trade union jurisdictional settlements do not control the scope of work included in each prime contract. When a potential jurisdictional dispute or similar interruption of work is first identified or threatened, the affected prime contracts shall promptly negotiate a reasonable settlement to avoid or minimize the pending interruption and delays.
  - c. All OSHA safety and hazardous materials regulations will be enforced on this project. All Contractors must submit a safety program, a hazardous materials program, (all required data must be maintained at the job site) and attend safety meetings. Toolbox talks will be required from each prime contractor weekly when any work is performed that calendar week.
  - d. All Contractors are responsible for any debris caused by their work. A daily clean-up and disposal is required by each Contractor for the periods during which that Contractor is performing work on site, on a day selected by the Construction Manager. Each trade will assign at least one person to the weekly clean-up; the name of this person is to be submitted to the Construction Manager. Any Contractor not providing personnel will be “back charged” for labor provided by the Construction Manager.
  - e. Multiple Crews: To maintain the project schedule, each Prime Contractor is to provide multiple crews. Each crew is to be furnished with its own supervision, equipment, access and other means necessary to maintain the Project Schedule.
  - f. Supervision: The proposed project manager and field superintendent for the

project is to have at least five years' experience in the proposed position. Each successful bidder shall submit resumes to the Construction Manager for the proposed project manager and field superintendent for the project. This information will be reviewed with the Owner, Architect and Construction Manager for approval. Should the Project Manager and/or Superintendent/Supervisor prove unqualified for the position at any point in the project, the Construction Manager shall issue a letter stating that the person is to be removed from involvement in the project. Action by the Contractor must be made within seven working days of receipt of such letter.

- g. Each prime contractor shall return areas disturbed by their work activities to condition prior to start of work.
- h. Each prime contractor shall maintain within its field office a complete and current set of Contract Documents (including any Addenda, Change Orders, and Modifications thereto), approved shop drawings, samples, color schedules and other data pertinent to the Project.
- i. Each prime contractor is to survey existing work and submit to the Construction Manager a list of damaged areas (i.e. plaster walls, woodwork) prior to commencing work. Any damaged areas not identified prior to the work shall be the responsibility of the Contractor/ Contractors working in that area. Construction Manager shall be provided of photos of existing conditions on file for reference.
- j. Each Contract is required to submit a construction and submittal schedule based on the milestone dates to the Construction Manager for review and comment no later than 2 weeks after a Notice to Proceed for the work is issued.
- k. Unless a specific item or material is noted as to remain the Owner's property or to become the Contractor's property (or similar words), any material having salvage or reuse value shall be inspected by the Owner. If the Owner wishes to retain this material, it shall be turned over to him on the site where directed. If the Owner designates the material as scrap, it shall become the Construction Manager's property and removed from the site. Material having salvage value shall be carefully removed. If the Construction Manager designates the material as scrap/waste, it shall become the Contractor's property and removed from the site by the contractor. Material having salvage value shall be carefully removed.
- l. When the building is occupied and fire alarm and safety system work is in progress, the Electrical Contractor shall continuously maintain the existing building's fire alarm and detection system and exit, and emergency lighting system or provisions must be made by the Electrical Contractor to provide equivalent safety. Electrical Contractor must notify the CM of any non-operating systems or areas.
- m. All personnel required to be on site shall always have all required personnel protective equipment on at all times.
- n. All personnel on site should always have a photo ID displayed where visible. Those without will be removed from site at once. If the same individual fails to have the ID a second time they will be removed from site and not be allowed back on site.

**15. TESTING**

- A. Required testing and test procedures are indicated under each Division of the Technical Specifications. Other testing shall be performed per generally accepted standards.
- B. The Architect shall reserve the right to require additional information as is deemed necessary to fully evaluate testing results.
- C. The Owner shall employ and pay for an independent testing and inspection agency for testing requirements of their work as assigned by this scope of work. All testing shall be per technical specification requirements. The Prime Contractor requiring testing will notify the Construction Manager 48 hours in advance of the required testing to allow for coordination and scheduling. Failure to give sufficient notice will require the prime contractor to pay for alternate testing to satisfy the specification.

**16. WORK SEQUENCE**

- A. The Work will be conducted to provide the least possible interference to the activities of the Owner's activities and personnel.
- B. All contract scopes of work in unoccupied areas of work can be performed weekdays from 7:00 AM to 3:30 PM unless otherwise noted. Work cannot be performed in occupied areas or adjacent to. Work shall be scheduled off-hours, vacations and weekends for occupied areas. A Construction Manager Superintendent must be always on site that work is being performed. Second shift is considered after 4:00PM after school is out. For the purpose of the bid, the scopes of work below are assumed to be second, shift, weekends or off shift times and are included with the bid proposal.
  - a. System shutdowns (water, fire alarm, security, power, HVAC) during occupied days
  - b. Continuation of BMS replacement. Maintain a full-time continuous working system
  - c. Installation of fire alarm and PA-Clock systems for an August Commissioning. Removal of old systems post commissioning.
  - d. Any work **not** completed during the summer months
  - e. Punchlist
- C. For the purpose of this Bid, Contractor shall include within their schedule, work to be performed on Saturdays with ample crews to maintain schedule.
- D. If a contractor fails to maintain the progress as indicated by the milestone schedule by no other fault but their own and requires overtime to complete the work; the contractor shall make arrangements with the Construction Manager 24 hours in advance and pay for a Construction Manager's superintendent at \$150.00 per hour. If the cause for delay is multi-contract, then the costs shall be distributed evenly among contracts. Advise the Construction Manager 48 hours prior to commencing work inside the building.
- E. Coordination of any utility and/or power interruption must be done with the Construction Manager. Shutdowns must occur during off-hours and on days when the building is not occupied by the owner.

- F. Construction access to the site shall be limited to those designated for contractor's personnel, equipment, and deliveries by the Owner. Contractors' staging, parking and storage shall be coordinated by the Construction Manager.
- G. Each Contractor shall inspect the site and review the AHERA report on file for the presence of asbestos. Unless otherwise noted, there will be asbestos containing material in place that will require work to take place in the vicinity of, around and/or next to. Each prime contractor that will be working above ceilings, demolishing, in crawl spaces, boiler rooms and all other areas that may contain asbestos per the AHERA report, shall employ "Allied Trades: certified/licensed tradesman as part of the onsite workforce".

**17. OCCUPANCY REQUIREMENTS**

- A. The General Work Contractor shall provide indoor air quality management as specified by the Department of Labor and OSHA for the building, when the building is enclosed, as determined by the Construction Manager.
  - o. Provide an exhaust air system for the project indoor areas that could produce fumes, VOC's off-gases, gasses, dusts, mists, or other emissions.
  - p. Exhaust air system for the project areas that could produce emissions listed in Paragraph 1 shall be utilized.
  - q. Provide temporary partitions and air seals to prevent the migration of airborne contaminants from unoccupied areas to occupied areas when applicable.
- B. Quality assurance:
  - 1) Maintain a negative pressure between the work area and the space surrounding the
  - 2) Before the start of work, submit a design for the exhaust air system. Do not begin work until approval of the Owner is obtained.
    - a) The number of machines required.
  - 3) Location of the machines in the workspace.
  - 4) Description of the methods used to test air flow and pressure differential.
- C. System operation:
  - 1) Enough exhaust fans in existing window openings or other approved locations shall be operated in accordance with the following applicable standards.
  - 2) The exhaust air system shall operate for a minimum of 72 hours after work is completed, or until all materials have cured sufficiently as to stop out gassing of fumes or odors and area has been ventilated to remove all detectable traces of odors and fumes.
  - 3) Maintain twenty-five (25) feet clearance from all temporary exhaust outlets to all active building outdoor air intakes.

**18. PROJECT MILESTONE SCHEDULE**

See the milestone schedule to be provided in Addendum.

- 1. All Prime Contractors are required to submit a schedule based on the milestone

dates to the Construction Manager for review and comment no later than 10 days after a Notice to Proceed for the work is issued.

**19. ALLOWANCES**

See Specification Section 012100. Allowances are to be included in the base bid.

**20. ALTERNATES**

The Contractor shall state where requested on the Bid Form the amount to be added to or deducted from the base bid for the alternates described in Section 012300 - Alternates.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

## **SECTION 08 51 13 - ALUMINUM WINDOWS**

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. Section includes:
  - 1. Glazed aluminum windows for exterior locations.
  - 2. Glazing louvers installed in aluminum window systems.

#### 1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.
  - 1. Review and discuss the finishing of aluminum windows that is required to be coordinated with the finishing of other aluminum work for color and finish matching.
  - 2. Review, discuss, and coordinate the interrelationship of aluminum windows with other exterior wall components. Include provisions for anchoring, flashing, weeping, sealing perimeters, and protecting finishes.
  - 3. Review and discuss the sequence of work required to construct a watertight and weathertight exterior building envelope.
  - 4. Inspect and discuss the condition of substrate and other preparatory work performed by other trades.

#### 1.4 SUBMITTALS, GENERAL

- A. General: Submit all action submittals and informational submittals required by this Section and by Division 08 Section "Glazing" concurrently.

#### 1.5 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated. Include construction details, material descriptions, glazing and fabrication methods, dimensions of individual components and profiles, and finishes.
  - 1. Hardware.
  - 2. Accessories.
  - 3. Insect screens.

- B. **As-Specified Data:** If the product to be incorporated in the Work is as specified by manufacturer name and product designation in this Specification Section, submit the “**As-Specified Verification Form**” (attached to Division 01 Section “Submittal Procedures”) for each item listed below, otherwise submit full Product Data for the following:
1. Casement windows.
  2. Awning windows.
  3. Fixed windows.
  4. Horizontal sliding windows.
- C. **Shop Drawings:** For aluminum windows.
1. Include plans, elevations, sections, hardware, accessories, insect screens, operational clearances, and details of installation, including anchor, flashing, and sealant installation.
  2. Include details of provisions for assembly expansion and contraction and for draining moisture occurring within the assembly to the exterior.
  3. Show connection to and continuity with adjacent thermal, weather, air, and vapor barriers.
- D. **Samples:** For each type of exposed finish required, in manufacturer's standard sizes.
- E. **Product Schedule:** For aluminum windows. Use same designations indicated on Drawings.
- F. **Sample Warranties:** For special warranties.

## 1.6 INFORMATIONAL SUBMITTALS

- A. **Energy Performance Certificates:** For aluminum windows, from manufacturer.
1. **Basis for Certification:** Energy performance values for each aluminum window meeting specified NFRC requirements.
- B. **Product Certificates:** For rescue windows, certifying clear opening complies with specified minimum clear opening requirements.

## 1.7 CLOSEOUT SUBMITTALS

- A. **Maintenance Data:** For aluminum windows to include in maintenance manuals.
- B. **Warranties:** Executed special warranties.

## 1.8 QUALITY ASSURANCE

- A. **Installer Qualifications:** An installer acceptable to aluminum window manufacturer for installation of units required for this Project.

## 1.9 MOCKUPS

- A. Build mockups to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for materials and execution.
  - 1. Build mockup of typical wall area as shown on Drawings.
  - 2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
  - 3. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

## 1.10 WARRANTY

- A. Special Warranty: Manufacturer agrees to correct or replace aluminum windows that do not comply with requirements or that fail in materials or workmanship within specified warranty period.
  - 1. Failures include, but are not limited to, the following:
    - a. Failure to meet performance requirements.
    - b. Structural failures including excessive deflection, water leakage, condensation, and air infiltration.
    - c. Faulty operation of movable sash and hardware.
    - d. Deterioration of materials and finishes beyond normal weathering.
    - e. Failure of insulating glass.
  - 2. Warranty Period: 10 years from date of Substantial Completion.
- B. Special Finish Warranty, Factory-Applied Finishes: Standard form in which manufacturer agrees to restore finishes or replace aluminum that shows evidence of deterioration of factory-applied finishes within specified warranty period.
  - 1. Deterioration includes, but is not limited to, the following:
    - a. Color fading more than 5 Delta E units when tested according to ASTM D2244.
    - b. Chalking in excess of a No. 8 rating when tested according to ASTM D4214.
    - c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
  - 2. Warranty Period: 20 years from date of Substantial Completion.
- C. Special Finish Warranty, Anodized Finishes: Standard form in which manufacturer agrees to restore finishes or replace aluminum that shows evidence of deterioration of anodized finishes within specified warranty period.
  - 1. Deterioration includes, but is not limited to, the following:
    - a. Color fading more than 5 Delta E units when tested according to ASTM D 2244.
    - b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.

- c. Cracking, peeling, or chipping.
2. Warranty Period: 10 years from date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Source Limitations: Obtain all components of aluminum windows, including accessories, from single manufacturer.

### 2.2 PERFORMANCE REQUIREMENTS

- A. Product Standard: Comply with AAMA/WDMA/CSA 101/I.S.2/A440 for definitions and minimum standards of performance, materials, components, accessories, and fabrication unless more stringent requirements are indicated.
- B. Performance Class and Grade: AAMA/WDMA/CSA 101/I.S.2/A440 as indicated.
- C. Water Infiltration: No uncontrolled water leakage when tested in accordance with ASTM E331 and ASTM E547 at a static air pressure difference of 10 lbf/sq. ft.
- D. Energy Performance: Certified and labeled by manufacturer for energy performance as follows:
  - 1. Thermal Transmittance: NFRC 100 maximum whole-window U-factor as follows:
    - a. For operable windows: 0.43 Btu/sq. ft. x h x deg F.
    - b. For fixed windows: 0.36 Btu/sq. ft. x h x deg F.
  - 2. Solar Heat-Gain Coefficient (SHGC): NFRC 200 maximum whole-window SHGC of 0.38.
  - 3. Air Infiltration: Maximum air leakage rate of 0.3 cfm/sq. ft. when tested in accordance with AAMA/WDMA/CSA 101/I.S.2/A440 at 6.24 psf.
- E. Condensation-Resistance Performance: Provide aluminum windows tested for thermal performance according to either of the following:
  - 1. AAMA 1503, showing a minimum Condensation-Resistance Factor (CRF) of 61, or
  - 2. NFRC 500, showing a minimum Condensation Resistance (CR) of 51.
- F. Thermal Movements: Provide aluminum windows, including anchorage, that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
  - 1. Temperature Change: 120 deg F ambient; 180 deg F material surfaces.

- G. Minimum Clear Opening: Where indicated as “Rescue Window”, provide windows with a minimum clear opening of 6 square feet, and a minimum clear dimension in either direction of 24 inches.

## 2.3 ALUMINUM WINDOWS, GENERAL

- A. Frames and Sashes: Aluminum extrusions complying with AAMA/WDMA/CSA 101/ I.S.2/A440.
  - 1. Thermally Broken Construction: Fabricate frames, sashes, and muntins with an integral, concealed, low-conductance thermal barrier located between exterior materials and window members exposed on interior side in a manner that eliminates direct metal-to-metal contact.
- B. Weather Stripping: Provide full-perimeter weather stripping for each operable sash unless otherwise indicated.
- C. Fasteners: Noncorrosive and compatible with window members, trim, hardware, anchors, and other components.
  - 1. Exposed Fasteners: Do not use exposed fasteners to greatest extent possible. For application of hardware, use fasteners that match finish hardware being fastened.

## 2.4 ALUMINUM WINDOW TYPES

- A. Types: Provide the following aluminum window types in locations indicated on Drawings:
  - 1. Casement: Outswing.
  - 2. Projected, awning.
  - 3. Fixed.
  - 4. Double hung.

## 2.5 CASEMENT WINDOWS (OUTSWING) **TYPE W1 - W4**

- A. Products: Subject to compliance with requirements, available products that may be incorporated in the Work include, but are not limited to:
  - 1. EFCO Corporation; Series PX32 Thermal Casement Out Swing.
  - 2. Kawneer Company, Inc.; Series AA 4325 Itra Thermal Windows – Outswing Casement Windows.
  - 3. YKK AP America Inc.; YOW 350 XT MegaTherm Aluminum Window System.
- B. Overall Unit Depth: 7-1/2 to 8-0 inches.
- C. Minimum Performance Class and Grade: AW-PG80-C.

## 2.6 PROJECTED, AWNING WINDOWS **TYPE W14**

- A. Products: Subject to compliance with requirements, available products that may be incorporated in the Work include, but are not limited to:
  - 1. EFCO Corporation; Series PX32 Thermal Project-Out.
  - 2. Kawneer Company, Inc.; Series AA 4325 Ultra Thermal Windows – Project-Out Windows.
  - 3. YKK AP America Inc.; YOW 350 XT MegaTherm Aluminum Window System.
- B. Overall Unit Depth: 4-1/2 to 5 inches.
- C. Minimum Performance Class and Grade: AW-PG80-AP.

## 2.7 FIXED WINDOWS **TYPE W5 – W9, W12, W14, W15**

- A. Products: Subject to compliance with requirements, available products that may be incorporated in the Work include, but are not limited to:
  - 1. EFCO Corporation; Series FX45 Thermal Fixed.
  - 2. Kawneer Company, Inc.; Series AA 5450 Ultra Thermal Fixed.
- B. Overall Unit Depth: 4-1/2 to 5 inches.
- C. Minimum Performance Class and Grade: AW-PG70-FW.

## 2.8 FIXED WINDOWS **TYPE W11**

- A. Products: Subject to compliance with requirements, available products that may be incorporated in the Work include, but are not limited to:
  - 1. EFCO Corporation; Series FX45 Thermal Fixed.
  - 2. Kawneer Company, Inc.; Series AA 5450 Ultra Thermal Fixed.
- B. Overall Unit Depth: 8 inches.
- C. Minimum Performance Class and Grade: AW-PG70-FW.

## 2.9 DOUBLE HUNG WINDOWS **TYPE W10, W13**

- A. Products: Subject to compliance with requirements, available products that may be incorporated in the Work include, but are not limited to:
  - 1. EFCO Corporation; Series HX45 Thermal Double Hung.
  - 2. Kawneer Company, Inc.; Series AA 5450 Ultra Thermal Double Hung.
- B. Overall Unit Depth: 4-1/2 to 5 inches.
- C. Minimum Performance Class and Grade: AW-PG65-H.

## 2.10 WINDOW HARDWARE

- A. General: Provide manufacturer's standard hardware fabricated from aluminum, stainless steel, carbon steel complying with AAMA 907, or other corrosion-resistant material compatible with adjacent materials; designed to smoothly operate, tightly close, and securely lock windows, and sized to accommodate sash weight and dimensions.
  - 1. Exposed Hardware Color and Finish: As selected by Architect from manufacturer's full range.
- B. Casement and Projected Window Hardware:
  - 1. Gear-Type Rotary Operators: Complying with AAMA 901 when tested according to ASTM E405, Method A. Provide operators that function without requiring the removal of interior screens or using screen wickets.
    - a. Type and Style: As selected by Architect from manufacturer's full range of types and styles.
  - 2. Hinges: Non-friction type, not less than two per sash.
  - 3. Lock: Concealed multipoint lock operated by single lever handle or lift-type throw.
  - 4. Limit Devices: Concealed friction adjustor, adjustable stay bar limit devices designed to restrict sash opening.
    - a. Limit clear opening to 4 inches for ventilation; with custodial key release.
- C. Hung Window Hardware:
  - 1. Counterbalancing Mechanism: Complying with AAMA 902, concealed, of size and capacity to hold sash stationary at any open position.
  - 2. Locks and Latches: Allow unobstructed movement of the sash across adjacent sash in direction indicated and operated from the inside only.
- D. Horizontal-Sliding Window Hardware:
  - 1. Sill Cap/Track: Manufacturer's standard of dimensions and profile indicated; designed to comply with performance requirements indicated and to drain to the exterior.
  - 2. Locks and Latches: Allow unobstructed movement of the sash across adjacent sash in direction indicated and operated from the inside only.
  - 3. Roller Assemblies: Low-friction design.

## 2.11 GLAZING

- A. Glass: Comply with Division 08 Section "Glazing."
- B. Glazing System: Manufacturer's standard factory-glazing system that produces weathertight seal.

## 2.12 ACCESSORIES

- A. Subsills: Thermally broken, extruded-aluminum subsills in configurations indicated on Drawings.
- B. Receptor System: Two-piece, snap-together, thermally broken, extruded-aluminum receptor system that anchors windows in place.
- C. Rescue Window Labels: Provide the following labels on the interior side of designated rescue windows in each space of pupil occupancy.
  - 1. Color: Bright yellow background with black letters.
  - 2. Size: 3 inches by 6 inches.
  - 3. Text: "RESCUE WINDOW", readable from each side of window.
    - a. Add label with window operating instructions if not readily apparent.

## 2.13 INSECT SCREENS

- A. General: Fabricate insect screens to integrate with window frame. Provide screen for each operable exterior sash. Screen wickets are not permitted.
  - 1. Type and Location:
    - a. Full, inside for outswing casement.
    - b. Full, inside for projected, awning.
    - c. Full, outside for double-hung.
    - d. Half, outside for sliding sashes.
  - 2. At rescue windows, provide hinged screens operable from the interior with one hand and without the use of a key or other device.
    - a. Provide continuous aluminum piano hinge with finish to match window framing.
    - b. Provide sill and jamb clips to allow proper closure of screen.
- B. Aluminum Frames: Manufacturer's standard aluminum alloy complying with SMA 1004 or SMA 1201. Fabricate frames with mitered or coped joints or corner extrusions, concealed fasteners, and removable PVC spline/anchor concealing edge of frame.
  - 1. Tubular Framing Sections and Cross Braces: Roll formed from aluminum sheet.
- C. Aluminum Wire Fabric: 18-by-16 mesh of 0.011-inch-diameter, coated aluminum wire.
  - 1. Wire-Fabric Finish: Charcoal gray.

## 2.14 LOUVERS

- A. Furnish and install louvers as hereinafter specified where shown on plans or as described in schedules. Louvers shall be stationary type glazing louvers.
  - 1. Louvers shall have a minimum of 50% free area based on a 48" wide x 48" high (1219 x 1219) size. Stationary blades shall be contained within a 1 1/2" (38) frame.
  - 2. Louver components (heads, jambs, sills, blades & mullions) shall be factory assembled by the louver manufacturer. Louver sizes too large for shipping shall be built up by the contractor from factory assembled louver sections to provide overall sizes required.
  - 3. Louver design shall incorporate structural supports required to withstand wind loads indicated on drawings.
- B. Louvers shall be Ruskin Model ELF15J extruded 6063T6 aluminum alloy construction as follows:
  - 1. Frame: 1 1/2" (38) deep .062" (1.6) wall thickness.
  - 2. Blades: .060" (1.524) nominal wall thickness. Blades are positioned at 45° angle and spaced at approximately 1 7/8" (48) center to center.
  - 3. Screen: 5/8" x .040" (16 x 1) expanded, flattened aluminum in removable frame.
- C. Finish: To match type and color of insulated spandrel panels.
- D. Published louver performance data derived from testing in accordance with AMCA 500-L for Air Performance must be submitted for approval prior to fabrication and must demonstrate pressure drop equal to or less than the Ruskin model specified.

## 2.15 FABRICATION

- A. Fabricate aluminum windows in sizes indicated. Include a complete system for assembling components and anchoring windows.
- B. Glaze aluminum windows in the factory.
- C. Weather strip each operable sash to provide weathertight installation.
- D. Weep Holes: Provide weep holes and internal passages to conduct infiltrating water to exterior.
- E. Provide water-shed members above side-hinged sashes and similar lines of natural water penetration.
- F. Mullions: Provide mullions and cover plates, matching window units, complete with anchors for support to structure and installation of window units. Allow for erection tolerances and provide for movement of window units due to thermal expansion and building deflections. Provide mullions and cover plates capable of withstanding design wind loads of window units.
- G. Complete fabrication, assembly, finishing, hardware application, and other work in the factory to greatest extent possible. Disassemble components only as necessary for shipment and installation.

## 2.16 ALUMINUM FINISHES

- A. Clear Anodic Finish: AAMA 611, AA-M12C22A41, Class I, 0.018 mm or thicker.
  - 1. Color: As selected by Architect from full range of industry colors and color densities.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine openings, substrates, structural support, anchorage, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Verify rough opening dimensions, levelness of sill plate, and operational clearances.
- C. Examine wall flashings, vapor retarders, water and weather barriers, and other built-in components to ensure weathertight window installation.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.
- E. Beginning installation constitutes Contractor's acceptance of substrates and conditions.

### 3.2 INSTALLATION

- A. Comply with manufacturer's written instructions for installing windows, hardware, accessories, and other components. For installation procedures and requirements not addressed in manufacturer's written instructions, comply with installation requirements in ASTM E2112.
- B. Install windows level, plumb, square, true to line, without distortion or impeding thermal movement, anchored securely in place to structural support, and in proper relation to wall flashing and other adjacent construction to produce weathertight construction.
- C. Install windows and components to drain condensation, water penetrating joints, and moisture migrating within windows to the exterior.
- D. Separate aluminum and other corrodible surfaces from sources of corrosion or electrolytic action at points of contact with other materials.

### 3.3 ADJUSTING, CLEANING, AND PROTECTION

- A. Adjust operating sashes and hardware for a tight fit at contact points and weather stripping for smooth operation and weathertight closure.
- B. Clean exposed surfaces immediately after installing windows. Avoid damaging protective coatings and finishes. Remove excess sealants, glazing materials, dirt, and other substances.
  - 1. Keep protective films and coverings in place until final cleaning.

- C. Remove and replace glass that has been broken, chipped, cracked, abraded, or damaged during construction period.
- D. Protect window surfaces from contact with contaminating substances resulting from construction operations. If contaminating substances do contact window surfaces, remove contaminants immediately according to manufacturer's written instructions.

END OF SECTION 08 51 13

## **SECTION 08 80 00 - GLAZING**

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. Section Includes:
  - 1. Glass products.
  - 2. Laminated glass.
  - 3. Fire-resistance-rated glazing.
  - 4. Insulating glass.
  - 5. Insulated spandrel panels.

#### 1.3 DEFINITIONS

- A. Fire-Resistance-Rated Glazing: Glazing that prevents spread of fire and smoke and radiant heat; used in rated wall and door applications 60 minutes and above without size limitations (generally to maximum size tested).
- B. Glazing Manufacturers: Firms that produce primary glazing, fabricated glazing, or both, as defined in referenced glazing publications.
- C. Glass Thicknesses: Indicated by thickness designations in millimeters in accordance with ASTM C1036.
- D. IBC: International Building Code.
- E. Interspace: Space between lites of an insulating-glass unit.
- F. SHGC: Solar Heat Gain Coefficient.

#### 1.4 COORDINATION

- A. Coordinate glazing channel dimensions to provide necessary bite on glazing, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances to achieve proper safety margins for glazing retention under each design load case, load case combination, and service condition.
  - 1. Coordinate framing types to provide proper framing fire rating.
  - 2. Coordinate framing types to provide proper framing forced-entry-resistance rating.

## 1.5 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.
  - 1. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress.
  - 2. Review, discuss, and coordinate the interrelationship of glazing with other components, including framing.
  - 3. Review temporary protection requirements for glazing during and after installation.

## 1.6 SUBMITTALS, GENERAL

- A. General: Submit all action submittals and informational submittals required by this Section and by Division 08 Sections "Hollow Metal Doors and Frames", "Flush Wood Doors", "Fire-Rated Glazed Opening Assemblies", "Aluminum-Framed Entrances and Storefronts", "Aluminum Windows", and "Sliding Security Windows," concurrently.

## 1.7 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.
  - 1. Laminated glass.
  - 2. Insulating glass.
  - 3. Insulated spandrel panels.
- B. As-Specified Data: If the product to be incorporated in the Work is as specified by manufacturer name and product designation in this Specification Section, submit the "**As-Specified Verification Form**" (attached to Division 01 Section "Submittal Procedures") for each item listed below; otherwise submit full Product Data for the following:
  - 1. Glass products.
  - 2. Fire-resistance-rated glazing.
- C. Samples: For each type of the following products; 12 inches square.
  - 1. Laminated glass.
  - 2. Fire-resistance-rated glazing.
  - 3. Insulating glass.
  - 4. Insulated spandrel panels.
- D. Glazing Schedule: List glazing types and thicknesses for each size opening and location. Use same designations indicated on Drawings.
- E. Sample Warranties: For special warranties.

## 1.8 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For glazing to include in maintenance manuals.
- B. Warranties: Executed special warranties.

## 1.9 MOCKUPS

- A. Build mockups to demonstrate aesthetic effects and to set quality standards for materials and execution.
  - 1. Install glazing in mockups specified in Division 08 Sections "Aluminum-Framed Entrances and Storefronts" and "Aluminum Windows", to match glazing systems required for Project, including glazing methods.
  - 2. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

## 1.10 PRECONSTRUCTION TESTING

- A. Preconstruction Adhesion and Compatibility Testing: Test each glazing product, tape sealant, gasket, glazing accessory, and framing member for adhesion to and compatibility with elastomeric glazing sealants.
  - 1. Testing is not required if data are submitted based on previous testing of current sealant products and glazing materials matching those submitted.
  - 2. Use ASTM C1087 to determine whether priming and other specific joint-preparation techniques are required to obtain rapid, optimum adhesion of glazing sealants to glazing, tape sealants, gaskets, and glazing channel substrates.
  - 3. Test no fewer than eight Samples of each type of material, including joint substrates, shims, sealant backings, secondary seals, and miscellaneous materials.
  - 4. Schedule enough time for testing and analyzing results.
  - 5. For materials failing tests, submit sealant manufacturer's written instructions for corrective measures including use of specially formulated primers.

## 1.11 DELIVERY, STORAGE, AND HANDLING

- A. Protect glazing materials in accordance with manufacturer's written instructions. Prevent damage to glass and glazing materials from condensation, temperature changes, direct exposure to sun, or other causes.
- B. Maintain protective coverings on glazing to avoid exposures to abrasive substances, excessive heat, and other sources of possible deterioration.

## 1.12 FIELD CONDITIONS

- A. Environmental Limitations: Do not proceed with glazing when ambient and substrate temperature conditions are outside limits permitted by glazing material manufacturers and when glazing channel substrates are wet from rain, frost, condensation, or other causes.
  - 1. Do not install glazing sealants when ambient and substrate temperature conditions are outside limits permitted by sealant manufacturer or are below 40 deg F.

## 1.13 WARRANTY

- A. **Manufacturer's Special Warranty for Coated-Glass Products:** Manufacturer or manufacturer/fabricator, as applicable, agrees to replace coated-glass units that deteriorate within specified warranty period. Deterioration of coated glass is defined as defects developed from normal use that are not attributed to glass breakage or to maintaining and cleaning coated glass contrary to manufacturer's written instructions. Defects include peeling, cracking, and other indications of deterioration in coating.
1. Warranty Period: 10 years from date of Substantial Completion.
- B. **Manufacturer's Special Warranty for Laminated Glass:** Manufacturer or manufacturer/fabricator, as applicable, agrees to replace laminated-glass units that deteriorate within specified warranty period. Deterioration of laminated glass is defined as defects developed from normal use that are not attributed to glass breakage or to maintaining and cleaning laminated glass contrary to manufacturer's written instructions. Defects include edge separation, delamination materially obstructing vision through glass, and blemishes exceeding those allowed by referenced laminated-glass standard. "Laminated Glass", as used in this paragraph, includes clear laminated glass, and fire-resistance-rated laminated glass with intumescent interlayer.
1. Warranty Period: 5 years from date of Substantial Completion.
- C. **Manufacturer's Special Warranty on Tempered Glazing Units with Clear Intumescent Interlayer:** Manufacturer or manufacturer/fabricator, as applicable, agrees to replace units that deteriorate within specified warranty period. Deterioration of tempered glazing units with clear intumescent interlayer is defined as failure of hermetic seal under normal use that is not attributed to glass breakage or to maintaining and cleaning glass contrary to manufacturer's written instructions. Evidence of failure is air bubbles within units, or obstruction of vision by contamination or deterioration of intumescent interlayer.
1. Warranty Period: 5 years from date of Substantial Completion.
- D. **Manufacturer's Special Warranty for Insulating Glass:** Manufacturer or manufacturer/fabricator, as applicable, agrees to replace insulating-glass units that deteriorate within specified warranty period. Deterioration of insulating glass is defined as failure of hermetic seal under normal use that is not attributed to glass breakage or to maintaining and cleaning insulating glass contrary to manufacturer's written instructions. Evidence of failure is obstruction of vision by dust, moisture, or film on interior surfaces of glass.
1. Where laminated glass is used as a component in an insulating-glass unit, deterioration of the laminated glass itself is covered by the paragraph "Manufacturer's Special Warranty for Laminated Glass" above, and deterioration of the insulating glass due to failure of hermetic seal is covered by this paragraph "Manufacturer's Special Warranty for Insulating Glass."
  2. Warranty Period: 10 years from date of Substantial Completion.

- E. Manufacturer's Special Warranty for Glass-Faced Insulated Spandrel Panels: Manufacturer agrees to replace insulated spandrel panels that deteriorate within specified warranty period.
1. Deterioration includes, but is not limited to, the following:
    - a. Delamination of components or other failures of bond.
    - b. Warping of components.
  2. Warranty Period: 10 years from date of Substantial Completion.
- F. Manufacturer's Special Finish Warranty for Insulated Spandrel Panels: Manufacturer agrees to restore finishes or replace insulated spandrel panels that deteriorate within specified warranty period.
1. Deterioration includes, but is not limited to, the following:
    - a. Color fading more than 5 Delta E units when tested according to ASTM D2244.
    - b. Chalking in excess of a No. 8 rating when tested according to ASTM D4214.
    - c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
  2. Warranty Period: 20 years from date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Source Limitations for Glazing: For each glazing type, obtain from single manufacturer.
- B. Source Limitations for Glazing Accessories: For each product and installation method, obtain from single manufacturer.

### 2.2 PERFORMANCE REQUIREMENTS

- A. General: Installed glazing systems shall withstand normal thermal movement and wind and impact loads (where applicable) without failure, including loss or glass breakage attributable to defective manufacture, fabrication, or installation; failure of sealants or gaskets to remain watertight and airtight; deterioration of glazing materials; or other defects in construction.
- B. Structural Performance: Glazing shall withstand the following design loads within limits and under conditions indicated determined in accordance with the IBC and ASTM E1300:
  1. Wind Loads: As indicated on Drawings.
  2. Maximum Lateral Deflection: For glazing supported on all four edges, limit center-of-glass deflection at design wind pressure to not more than 1/50 times the short-side length or 1 inch, whichever is less. Maintain engagement of the glazing edge with an appropriate margin of safety under all conditions.

3. Thermal Loads: Design glazing to resist thermal stress breakage induced by differential temperature conditions and limited air circulation within individual glass lites and insulated glazing units.
- C. Thermal and Optical Performance Properties: Provide glazing with performance properties specified, as indicated in manufacturer's published test data, based on procedures indicated below:
1. For laminated-glass lites, properties are based on products of construction indicated.
  2. For insulating-glass units, properties are based on units of thickness indicated for overall unit and for each lite.
  3. U-Factors: Center-of-glazing values, in accordance with NFRC 100 and based on most current non-beta version of LBL's WINDOW computer program, expressed as Btu/sq. ft. x h x deg F.
  4. SHGC and Visible Transmittance: Center-of-glazing values, in accordance with NFRC 200 and based on most current non-beta version of LBL's WINDOW computer program.

### 2.3 GLAZING PRODUCTS, GENERAL

- A. Glazing Publications: Comply with published recommendations of glazing product manufacturers and organizations below unless more stringent requirements are indicated. See these publications for glazing terms not otherwise defined in this Section or in referenced standards.
1. NGA Publications: "Laminated Glazing Reference Manual" and "Glazing Manual."
  2. IGMA Publication for Insulating Glass: SIGMA TM-3000, "North American Glazing Guidelines for Sealed Insulating Glass Units for Commercial and Residential Use."
- B. Safety Glazing Labeling: Where safety glazing is indicated, permanently mark glazing with certification label of the SGCC or another certification agency acceptable to authorities having jurisdiction. Label shall indicate manufacturer's name, type of glazing, thickness, and safety glazing standard with which glazing complies.
- C. Fire-Resistance-Rated Glazing Labeling: Permanently mark fire-resistance-rated glazing with certification label of a testing agency acceptable to authorities having jurisdiction. Label shall indicate manufacturer's name, test standard, that glazing is approved for use in walls, and fire-resistance rating in minutes.
- D. Insulating-Glass Certification Program: Permanently marked either on spacers or on at least one component lite of units with appropriate certification label of the IGCC.
- E. Thickness: Where glazing thickness is indicated, it is a minimum. Provide glazing that complies with performance requirements and is not less than thickness indicated.
1. Minimum Glass Thickness for Exterior Lites: 6 mm.

2. Thickness of Tinted Glass: Provide same thickness for each tint color indicated throughout Project.
- F. Strength: Where heat-strengthened float glass is indicated, provide heat-strengthened float glass as needed to comply with "Performance Requirements" Article. Where fully tempered float glass is indicated, provide fully tempered float glass.

## 2.4 GLASS PRODUCTS

- A. Clear Annealed Float Glass: ASTM C1036, Type I, Class 1 (clear), Quality-Q3.
- B. Fully Tempered Float Glass: ASTM C1048, Kind FT (fully tempered), Condition A (uncoated) unless otherwise indicated, Type I, Class 1 (clear) or Class 2 (tinted) as indicated, Quality-Q3.
1. Fabrication Process: By horizontal (roller-hearth) process with roll-wave distortion parallel to bottom edge of glass as installed unless otherwise indicated.
  2. Clear Glass:
    - a. Type **FC**: Fully tempered clear float glass.
      - 1) Products: Subject to compliance with requirements, available products that may be incorporated in the Work, include, but are not limited to:
        - a) AGC Glass Company North America, Inc.; Clear Float.
        - b) Guardian Glass, LLC; Clear Float.
        - c) Vitro Architectural Glass; Clear.
      - 2) Minimum Thickness: 6 mm.
      - 3) Safety glazing required.
    - b. Type **FCE**: Fully tempered clear float glass with low-e coating, ASTM C1376.
      - 1) Products: Subject to compliance with requirements, available products that may be incorporated in the Work, include, but are not limited to:
        - a) AGC Glass Company North America, Inc.; Energy Select 28.
        - b) Guardian Glass, LLC; SunGuard SNX 62/27 on Clear Float.
        - c) Vitro Architectural Glass; Solarban 70.
      - 2) Minimum Thickness: 6 mm.
      - 3) Safety glazing required.

- C. Tempered Patterned Glass: ASTM C1048, Kind FT (fully tempered), Type II, Class 1 (clear), Form 3; finish, pattern, and quality as indicated.
1. Type **FCP**: Fully tempered clear patterned glass.
    - a. Products: Subject to compliance with requirements, available products that may be incorporated in the Work, include, but are not limited to:
      - 1) Guardian Glass, LLC; Textures.
      - 2) Pilkington North America; Texture Glass.
    - b. Minimum Thickness: 6 mm.
    - c. Pattern: Basis-of-Design Product: Guardian Glass, LLC Texture - Dew
    - d. Safety glazing required.
- D. Heat-Strengthened Float Glass: ASTM C1048, Kind HS (heat strengthened), Type I, Condition A (uncoated) unless otherwise indicated, Type I, Class 1 (clear), Quality-Q3.
1. Fabrication Process: By horizontal (roller-hearth) process with roll-wave distortion parallel to bottom edge of glass as installed unless otherwise indicated.

## 2.5 INSULATING GLASS

- A. Insulating-Glass Units: Factory-assembled units consisting of sealed lites of glass separated by a dehydrated interspace, qualified in accordance with ASTM E2190.
1. Sealing System: Dual seal, with manufacturer's standard primary and secondary sealants.
  2. Perimeter Spacer: Manufacturer's standard spacer material and construction.
  3. Desiccant: Molecular sieve or silica gel, or a blend of both.
  4. Interspace Content: Argon (90 percent)/air (10 percent) mix.
- B. Insulating Vision Glass:
1. Type **FCE/FC**: Low-e-coated, clear insulating glass.
    - a. Overall Unit Thickness: 1 inch.
    - b. Outdoor Lite: Fully tempered clear float glass with low-e coating, Type FCE.
    - c. Low-E Coating: Sputtered on second surface.
    - d. Interspace Content: Argon.
    - e. Indoor Lite: Fully tempered clear float glass, Type FC.
    - f. Winter Nighttime U-Factor: 0.24 Btu/sq. ft. x h x deg F maximum.
    - g. SHGC: 0.28 maximum.
    - h. Visible Light Transmittance: 62 percent minimum.

2. Type **UFE/UF**: Low-e-coated, ultraclear (low-iron) insulating glass.
  - a. Overall Unit Thickness: 1 inch.
  - b. Outdoor Lite: Ultraclear (low-iron) fully tempered float glass with low-e coating, Type UFE.
  - c. Low-E Coating: Sputtered on second surface.
  - d. Interspace Content: Argon.
  - e. Indoor Lite: Ultraclear (low-iron) fully tempered float glass, Type UF.
  - f. Winter Nighttime U-Factor: 0.24 Btu/sq. ft. x h x deg F maximum.
  - g. SHGC: 0.27 maximum.
  - h. Visible Light Transmittance: 64 percent minimum.

C. Insulating Spandrel Glass:

1. Type **FCE/FCS**: Ceramic-coated, low-e-coated insulating spandrel glass.
  - a. Overall Unit Thickness: 1 inch.
  - b. Outdoor Lite: Fully tempered clear float glass with low-e coating, Type FCE.
  - c. Low-E Coating: Sputtered on second surface.
  - d. Interspace Content: Argon.
  - e. Indoor Lite: Fully tempered clear float glass, ceramic-coated spandrel glass; Type FCS.
  - f. Opaque Coating Location: Fourth surface.
  - g. Glass Unit Performance Values:
    - 1) Winter Nighttime U-Factor: 0.24 Btu/sq. ft. x h x deg F maximum.

## 2.6 INSULATED SPANDREL PANELS

- A. Insulated Spandrel Panels: Laminated, rabbeted, aluminum-faced flat panels with no deviations in plane exceeding 0.8 percent of panel dimension in width or length.
  1. Type **SP**: Basis-of-Design Product: Subject to compliance with requirements, provide Mapes Industries, Inc.; Mapes-R+ 8-ply, or comparable product, including, but not limited to, products by:
    - a. Nudo Products.
  2. Overall Panel Thickness: 2-inch (including 1-inch glazing leg).
  3. Exterior Skin: Aluminum.
    - a. Thickness: 0.032-inch.
    - b. Finish: Clear anodic finish.

- c. Texture: Smooth.
  - d. Backing Sheet: 0.157-inch-thick, cement board.
- 4. Glazing Leg Core: Same as thermal insulation core, with smooth aluminum skin.
- 5. Thermal Insulation Core: Manufacturer's standard rigid, closed-cell, polyisocyanurate board.
- 6. Interior Skin: Aluminum.
  - a. Thickness: 0.032-inch.
  - b. Finish: Color anodic finish.
  - c. Texture: Smooth.
  - d. Backing Sheet: 1/2-inch-thick, gypsum board with proprietary fire-resistance-rated core.
- 7. Overall U-factor: 0.24 Btu/sq. ft. x h x deg F maximum.
- 8. Surface Burning Characteristics: Comply with ASTM E 84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
  - a. Flame Spread Index: 25 or less.
  - b. Smoke-Developed Index: 450 or less.

## 2.7 GLAZING SEALANTS

### A. General:

- 1. Compatibility: Compatible with one another and with other materials they contact, including glazing products, seals of insulating-glass units, and glazing channel substrates, under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.
- 2. Suitability: Comply with sealant and glazing manufacturers' written instructions for selecting glazing sealants suitable for applications indicated and for conditions existing at time of installation.
- 3. Sealant shall have a VOC content of 250 g/L or less.
- 4. Colors of Exposed Glazing Sealants: As selected by Architect from manufacturer's full range of industry colors.

## 2.8 GLAZING TAPES

- A. Back-Bedding Mastic Glazing Tapes: Preformed, butyl-based, 100 percent solids elastomeric tape; nonstaining and nonmigrating in contact with nonporous surfaces; with or without spacer rod as recommended in writing by tape and glazing manufacturers for application indicated; and complying with ASTM C1281 and AAMA 800 for products indicated below:

1. AAMA 806.3 tape, for glazing applications in which tape is subject to continuous pressure.
  2. AAMA 807.3 tape, for glazing applications in which tape is not subject to continuous pressure.
- B. Expanded Cellular Glazing Tapes: Closed-cell, PVC foam tapes; factory coated with adhesive on both surfaces; and complying with AAMA 800 for the following types:
1. AAMA 810.1, Type 1, for glazing applications in which tape acts as primary sealant.
  2. AAMA 810.1, Type 2, for glazing applications in which tape is used in combination with a full bead of liquid sealant.

## 2.9 MISCELLANEOUS GLAZING MATERIALS

- A. General: Provide products of material, size, and shape complying with referenced glazing standard, recommended in writing by manufacturers of glass and other glazing materials for application indicated, including security applications, and with a proven record of compatibility with surfaces contacted in installation.
- B. Cleaners, Primers, and Sealers: Types recommended by sealant or gasket manufacturer.
- C. Setting Blocks:
1. Elastomeric material with Shore A durometer hardness of 85, plus or minus 5.
  2. Type recommended in writing by sealant or glazing manufacturer.
- D. Spacers:
1. Elastomeric blocks or continuous extrusions of hardness required by glazing manufacturer to maintain glazing lites in place for installation indicated.
  2. Type recommended in writing by sealant or glazing manufacturer.
- E. Edge Blocks:
1. Elastomeric material with Shore A durometer hardness per manufacturer's written instructions.
  2. Type recommended in writing by sealant or glazing manufacturer.
- F. Cylindrical Glazing Sealant Backing: ASTM C1330, Type O (open-cell material), of size and density to control glazing sealant depth and otherwise produce optimum glazing sealant performance.

## 2.10 GLAZING ACCESSORIES FOR FIRE-RATED GLAZING PRODUCTS

- A. Provide glazing gaskets, glazing sealants, glazing tapes, setting blocks, spacers, edge blocks, and other glazing accessories that are compatible with glazing products and each other and are approved by testing agencies that listed and labeled fire-rated glazing products with which products are used for applications and fire ratings indicated.

- B. Glazing Sealants for Fire-Rated Glazing Products: Neutral-curing silicone glazing sealant complying with ASTM C920, Type S, Grade NS, Class 50, Use NT. Comply with sealant and glass manufacturers' written instructions for selecting glazing sealants suitable for applications indicated.
  - 1. Colors of Exposed Glazing Sealants: As selected by Architect from manufacturer's full range.
- C. Perimeter Insulation for Fire-Rated Glazing: Product that is approved by testing agency that listed and labeled fire-rated glazing product with which it is used for application and fire rating indicated.

## 2.11 FABRICATION OF GLAZING UNITS

- A. Fabricate glazing units in sizes required to fit openings indicated for Project, with edge and face clearances, edge and surface conditions, and bite complying with written instructions of product manufacturer and referenced glazing publications, to comply with system performance requirements.
  - 1. Allow for thermal movements from ambient and surface temperature changes acting on framing members and glazing components.
    - a. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.

## 2.12 ALUMINUM FINISHES

- A. Clear Anodic Finish: AAMA 611, AA-M12C22A41, Class I, 0.018 mm or thicker.
- B. Color Anodic Finish: AAMA 611, AA-M12C22A42/A44, Class I, 0.018 mm or thicker.
  - 1. Color: As selected by Architect from full manufacturer's range.
- C. High-Performance Organic Finish: Two-coat fluoropolymer finish complying with AAMA 2605 and containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
  - 1. Color and Gloss: As selected by Architect from manufacturer's full range.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine framing, glazing channels, and stops, with Installer present, for compliance with the following:
  - 1. Manufacturing and installation tolerances, including those for size, squareness, and offsets at corners.

2. Presence and functioning of weep systems.
  3. Minimum required face and edge clearances.
  4. Minimum required bite.
  5. Effective sealing between joints of framing members.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.
- C. Beginning installation constitutes Contractor's acceptance of substrates and conditions.

### 3.2 PREPARATION

- A. Clean glazing channels and other framing members receiving glazing immediately before glazing. Remove coatings not firmly bonded to substrates.
- B. Examine glazing units to locate exterior and interior surfaces. Label or mark units as needed so that exterior and interior surfaces are readily identifiable. Do not use materials that leave visible marks in the completed Work.
- C. For fire-rated glazing units, examine glazing units to locate fire side and protected side. Label or mark units as needed so that fire side and protected side are readily identifiable. Do not use materials that leave visible marks in the completed Work.

### 3.3 GLAZING, GENERAL

- A. Comply with combined written instructions of manufacturers of glazing, sealants, gaskets, and other glazing materials, unless more stringent requirements are indicated, including those in referenced glazing publications.
- B. Protect glazing edges from damage during handling and installation. Remove damaged glazing from Project site and legally dispose of off Project site. Damaged glazing includes glazing with edge damage or other imperfections that, when installed, could weaken glazing, impair performance, or impair appearance.
- C. Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction testing.
- D. Install setting blocks in sill rabbets, sized and located to comply with referenced glazing publications, unless otherwise required by glazing manufacturer. Set blocks in thin course of compatible sealant suitable for heel bead.
- E. Do not exceed edge pressures stipulated by glazing manufacturers for installing glazing lites.
- F. Provide spacers for glazing lites where length plus width is larger than 50 inches.
1. Locate spacers directly opposite each other on both inside and outside faces of glazing. Install correct size and spacing to preserve required face clearances, unless gaskets and glazing tapes are used that have demonstrated ability to maintain required face clearances and to comply with system performance requirements.

2. Provide 1/8-inch-minimum bite of spacers on glazing and use thickness equal to sealant width. With glazing tape, use thickness slightly less than final compressed thickness of tape.
- G. Provide edge blocking where indicated or needed to prevent glazing lites from moving sideways in glazing channel, as recommended in writing by glazing manufacturer and in accordance with requirements in referenced glazing publications.
- H. Set glazing lites in each series with uniform pattern, draw, bow, and similar characteristics.
- I. Set glazing lites with proper orientation so that coatings face exterior or interior as specified.
- J. For fire-resistant glazing, set glass lites with proper orientation so that surfaces face fire side or protected side as specified.
- K. Where wedge-shaped gaskets are driven into one side of channel to pressurize sealant or gasket on opposite side, provide adequate anchorage so gasket cannot walk out when installation is subjected to movement.
- L. Square cut wedge-shaped gaskets at corners and install gaskets in a manner recommended by gasket manufacturer to prevent corners from pulling away; seal corner joints and butt joints with sealant recommended in writing by gasket manufacturer.

#### 3.4 TAPE GLAZING

- A. Position tapes on fixed stops so that, when compressed by glazing, their exposed edges are flush with or protrude slightly above sightline of stops.
- B. Install tapes continuously, but not necessarily in one continuous length. Do not stretch tapes to make them fit opening.
- C. Cover vertical framing joints by applying tapes to heads and sills first, then to jambs. Cover horizontal framing joints by applying tapes to jambs, then to heads and sills.
- D. Place joints in tapes at corners of opening with adjoining lengths butted together, not lapped. Seal joints in tapes with compatible sealant approved by tape manufacturer.
- E. Do not remove release paper from tape until right before each glazing unit is installed.
- F. Apply heel bead of elastomeric sealant.
- G. Center glazing lites in openings on setting blocks, and press firmly against tape by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings.
- H. Apply cap bead of elastomeric sealant over exposed edge of tape.

### 3.5 GASKET GLAZING (DRY)

- A. Cut compression gaskets to lengths recommended by gasket manufacturer to fit openings exactly, with allowance for stretch during installation.
- B. Insert soft compression gasket between glazing and frame or fixed stop so it is securely in place with joints miter cut and bonded together at corners.
- C. Installation with Drive-in Wedge Gaskets: Center glazing lites in openings on setting blocks, and press firmly against soft compression gasket by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings. Compress gaskets to produce a weathertight seal without developing bending stresses in glass. Seal gasket joints with sealant recommended in writing by gasket manufacturer.
- D. Installation with Pressure-Glazing Stops: Center glazing lites in openings on setting blocks, and press firmly against soft compression gasket. Install dense compression gaskets and pressure-glazing stops, applying pressure uniformly to compression gaskets. Compress gaskets to produce a weathertight seal without developing bending stresses in glass. Seal gasket joints with sealant recommended in writing by gasket manufacturer.
- E. Install gaskets so they protrude past face of glazing stops.

### 3.6 SEALANT GLAZING (WET)

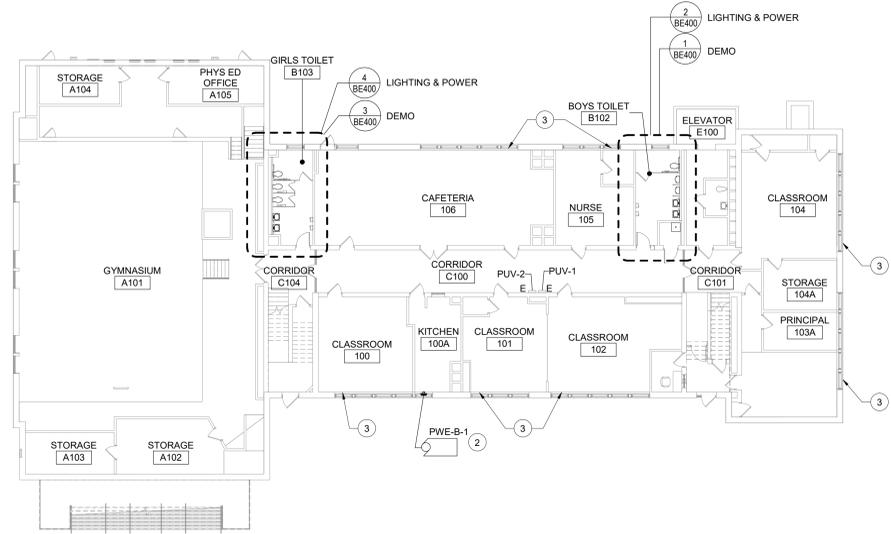
- A. Install continuous spacers, or spacers combined with cylindrical sealant backing, between glazing lites and glazing stops to maintain glazing face clearances and to prevent sealant from extruding into glazing channel and blocking weep systems until sealants cure. Secure spacers or spacers and backings in place and in position to control depth of installed sealant relative to edge clearance for optimum sealant performance.
- B. Force sealants into glazing channels to eliminate voids and to ensure complete wetting or bond of sealant to glazing and channel surfaces.
- C. Tool exposed surfaces of sealants to provide a substantial wash away from glazing.

### 3.7 CLEANING AND PROTECTION

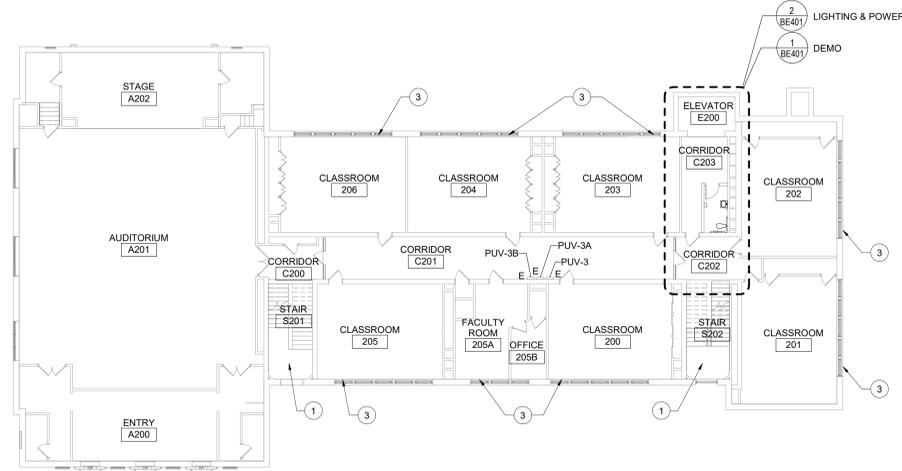
- A. Immediately after installation, remove nonpermanent labels and clean surfaces.
- B. Protect glazing from contact with contaminating substances resulting from construction operations. Examine glazing surfaces adjacent to or below exterior concrete and other masonry surfaces at frequent intervals during construction, but not less than once a month, for buildup of dirt, scum, alkaline deposits, or stains.
  - 1. If, despite such protection, contaminating substances do contact with glazing, remove substances immediately as recommended in writing by glazing manufacturer. Remove and replace glazing that cannot be cleaned without damage to coatings.
- C. Remove and replace glazing that is damaged during construction period.

- D. Wash glazing on both exposed surfaces not more than four days before date scheduled for inspections that establish date of Substantial Completion. Wash glazing as recommended in writing by glazing manufacturer.

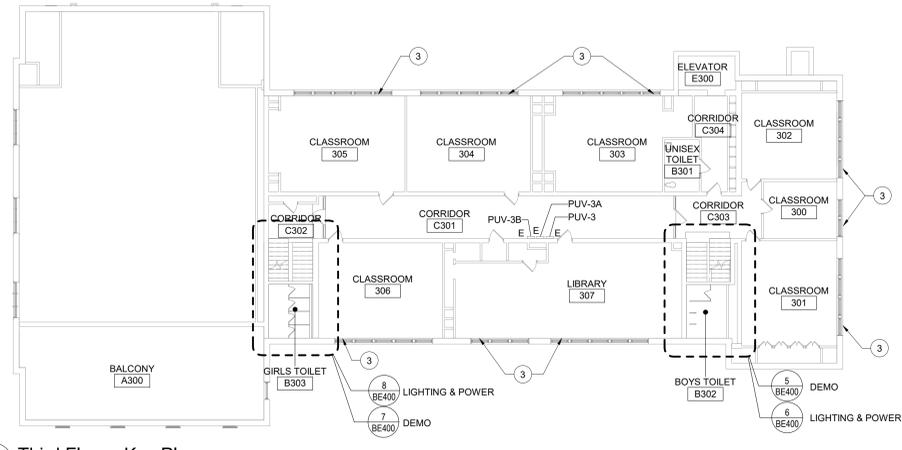
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1 First Floor - Key Plan  
1/16" = 1'-0"



2 Second Floor - Key Plan  
1/16" = 1'-0"



3 Third Floor - Key Plan  
1/16" = 1'-0"

**Demolition General Notes**

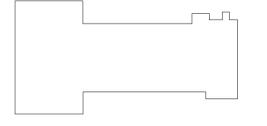
- A. ALL ELECTRICAL DEVICES INTERFERING WITH DEMOLITION WORK SHALL BE DISCONNECTED AND REMOVED. UNLESS OTHERWISE NOTED, EXISTING CIRCUIT WIRING SHALL BE REMOVED BACK TO SOURCE AND PANEL DIRECTORIES MODIFIED ACCORDINGLY.
- B. ANY DEVICE INTERFERING WITH DEMOLITION WORK NOT SHOWN ON THESE DRAWINGS SHALL NOT BE REMOVED WITHOUT WRITTEN AUTHORIZATION FROM THE OWNER'S REPRESENTATIVE OR THE ENGINEER.
- C. ALL ELECTRICAL DEMOLITION WORK SHALL BE PROPERLY COORDINATED WITH ALL OTHER TRADES.
- D. EC IS SOLELY RESPONSIBLE FOR THE SAFE HANDLING AND DISPOSAL OF ALL REMOVED LIGHT FIXTURES AND BALLASTS THAT MAY CONTAIN PCBs (POLYCHLORINATED BIPHENYLS), IN ACCORDANCE WITH ALL APPLICABLE EPA, OSHA, FEDERAL, STATE, AND LOCAL CODES AND LAWS.
- E. EC IS SOLELY RESPONSIBLE FOR THE SAFE HANDLING AND DISPOSAL OF ALL REMOVED FLUORESCENT LIGHT TUBES THAT MAY CONTAIN MERCURY, IN ACCORDANCE WITH ALL APPLICABLE EPA, OSHA, FEDERAL, STATE, AND LOCAL CODES AND LAWS.
- F. COORDINATE EXTEND OF DEMOLITION WITH HAZARDOUS MATERIALS DRAWINGS.

**Keyed Notes:**

- 1 REMOVE, CLEAN AND STORE, OR TEMPORARILY SUPPORT, EXISTING LUMINAIRE(S) IN STAIRWELL TO ACCOMMODATE CEILING WORK. RE-INSTALL STORED LUMINAIRE(S) AFTER COMPLETION OF CEILING WORK.
- 2 DISCONNECT POWER CIRCUITRY TO DEMOLISHED FAN. RECONNECT POWER CIRCUITRY TO REPLACEMENT FAN. MODIFY/EXTEND CIRCUITRY AS NECESSARY.
- 3 DISCONNECT POWER CIRCUITRY AND RECEPTACLE (REMOVE RECEPTACLE AND STORE FOR RE-INSTALLATION) SERVING WINDOW AC UNIT. REMOVE CIRCUITRY FROM WINDOW MULLIONS WHERE NECESSARY. TAG CIRCUITRY FOR RE-USE. AFTER WINDOW INSTALLATION IS COMPLETE, RE-INSTALL RECEPTACLES AND RE-CONNECT POWER CIRCUITRY. COORDINATE FINAL LOCATION OF RECEPTACLES WITH OWNER PRIOR TO INSTALLATION. MODIFY/EXTEND CIRCUITRY AS NECESSARY.

**General Notes**

- A. COORDINATE ALL ELECTRICAL WORK AND POWER OUTAGES WITH OWNER AND OTHER TRADES PRIOR TO THE START OF CONSTRUCTION. NO POWER OUTAGES SHALL OCCUR WITHOUT OWNER'S PRIOR KNOWLEDGE AND CONSENT.
  - B. REFER TO DRAWING G100 FOR STANDARD SYMBOLS AND ABBREVIATIONS.
  - C. CIRCUIT WIRING FOR ALL LIGHTING CIRCUITS SHALL BE IN 1/2" EMT CONDUIT (MIN) OR TYPE MC CABLE CONCEALED ABOVE CEILINGS AND IN WALLS (REFER TO SPECIFICATION SECTION 26 05 33 FOR LOCATIONS WHERE MC CABLE IS ACCEPTABLE). ALL CIRCUIT CONDUCTORS SHALL BE #12AWG COPPER (MIN) 90°C THHN THERMOPLASTIC INSULATION.
  - D. CIRCUIT ALL EXIT AND EMERGENCY LIGHTS TO THE UNSWITCHED HOT LET OF THE LIGHTING CIRCUIT SERVING THE AREA.
  - E. PROPERLY IDENTIFY ALL CIRCUITS AT PANELS AND J-BOXES AND IN ACCORDANCE WITH PROJECT SPECIFICATIONS.
  - F. NEW BREAKERS INSTALLED IN EXISTING PANELS TO BE UL LISTED FOR USE IN PANEL AND MEET OR EXCEED EXISTING AIC RATING OF PANEL.
  - G. PROVIDE ALL ADAPTERS, COUPLINGS AND ASSOCIATED FITTINGS REQUIRED FOR COMPLETE OPERATIONAL SYSTEM.
  - H. WHEN INSTALLING NEW DEVICES IN EXISTING LOCATIONS, REUSE EXISTING CONDUIT/RACEWAY AND BACK BOXES IF IN GOOD CONDITION. EXTEND/INSTALL NEW CONDUIT/RACEWAY AS REQUIRED FOR PROPER MOUNTING OF DEVICE. CONCEAL ABOVE CEILINGS OR WITHIN WALLS WHERE POSSIBLE. REFER TO SPECIFICATION SECTION 26 05 33.
  - I. COORDINATE ALL ELECTRICAL WORK WITH OTHER TRADES.
  - J. TESTS OF ALL ELECTRICAL WORK SHALL BE PERFORMED IN THE PRESENCE OF THE ENGINEER OR ARCHITECT. AS EQUIPMENT IS INSTALLED AND AS SYSTEMS ARE COMPLETED. IN ADDITION AN ELECTRIC APPROVED CERTIFICATE SHALL BE ISSUED BY AN ELECTRICAL INSPECTION AGENCY.
  - K. UNLESS NOTED ELSEWHERE ON THE CONTRACT DOCUMENTS, THE FOLLOWING LIST REPRESENTS THE TYPICAL MOUNTING HEIGHTS FOR THE DEVICES SHOWN.
    - 1. SWITCHES: ..... 48" (TO TOP)
    - 2. RECEPTACLES: ..... 16"
    - 3. FIRE ALARM AUDIO/VISUAL UNITS: ..... 88"
    - \* (OR 6" BELOW CEILING, WHICHEVER IS LOWER)
- THE HEIGHTS INDICATED SHALL BE NOMINAL TO THE BOTTOM OF THE BOX UNLESS NOTED OTHERWISE. MAINTAIN HEIGHT CONSISTENCY BETWEEN NEW AND EXISTING DEVICES.



Key Plan  
N.T.S.

S.E.D. Control No. 44-03-01-06-0-002-017

Rev. No.	Date	Description



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**BID SET**



Cornwall Central School District  
Cornwall, New York

Reconstruction to:  
Cornwall-On-Hudson Elementary School

Key Plans

Drawn By: SAS	Date: 06/28/2024	Drawing Number: <b>BE050</b>
Project No.: 363579-22001.3		