

Ring W. Lardner, P.E.
W. Zachary Crouch, P.E.
Michael E. Wheedleton, AIA, LEED GA
Jason P. Loar, P.E.
Jamie L. Sechler, P.E.

**PENNS WAY RENOVATIONS
NEW CASTLE, DELAWARE
DBF #0999J034.A01 ♦ DEARNG # 2022-04
NOVEMBER 25, 2024**

ADDENDUM NO. 3

The following items shall become a part of the contract documents. Contractor must acknowledge receipt of this addendum on the Bid Form. Failure to do so may subject the Bidder to disqualification.

1. *Question: Drawing C03.09 – Stormwater Construction Details and Notes. There are numerous details on this drawing relating to the temporary sediment basin that do not appear on drawings C03.02 Pre-Construction Stormwater Management Plan or drawing C03.03 Construction Site Stormwater Management Plan. Please provide the location on those plans of the following items detailed from the Delaware ESC Handbook listed on drawing C03.09.*
Response: The numerous details related to the temporary sediment basin were required by DNREC to gain plan approval, but most items do not apply. The intent is to install the stormwater pond as designed with a couple modifications (i.e. skimmer dewatering device) to meet temporary sediment basin requirements.
2. *Question: DE-ESC-3.1.4, Sheet 1 - Principal Spillway. If this item is being used we need the data information for this detail filled out as well.*
Response: This is the outlet structure.
3. *Question: DE-ESC-3.1.4, Sheet 2 - Emergency Spillway.*
Response: There is no emergency spillway.
4. *Question: DE-ESC-3.1.4, Sheet 3 – Trash Rack and Anti-Vortex Device. If this item is being used we need the data information for this detail filled out as well.*
Response: There is a trash rack on the outlet structure.
5. *Question: DE-ESC-3.1.4, Sheet 4 - One-Piece Metal Anti-Seep Collar.*
Response: Not required.
6. *Questions: DE-ESC-3.1.4, Sheet 5 - Two-Piece Corrugated Metal Anti-Seep Collar.*
Response: Not required.
7. *Question: DE-ESC-3.1.4, Sheet 6 - Flexible Anti-Seep Collar. If this item is being used we need the dimensions for this detail filled out as well.*
Response: Not required.
8. *Question: DE-ESC-3.1.4, Sheet 9 - Example Baffle Configurations.*
Response: Not required.

9. *Question: Addendum 2, question #8 response states that “The bottom of the dry-detention pond may have topsoil respread.”*
a. Is topsoil required? “May” indicates this is optional.
Response: Topsoil is required to have topsoil to support stabilization.
10. *Question: Please clarify the following with regards to sitework:
Base Bid includes:*
i. All DelDOT entrance improvements AND all sidewalks shown on DelDOT Plans
Response: Yes
ii. Mill & overlay of existing parking lot/drives **Response: Yes.**
iii. New parking lot is stone only **Response: Yes.**
iv. Extent of curb included in base bid? **Response: Limits of new parking lot**
v. Underground storm piping and basins in base bid? **Response: Yes.**
vi. MV lot and road to that lot are NOT in base bid? These areas shall remain otherwise undisturbed? **Response: Correct.**
vii. Confirm finish grades of stone lot? **Response: Final grades as shown on grading plan.**
viii. Clarify extent of site lighting included in base bid vs. alternates. **Response: Site lighting to be installed within the limits of base bid and alternates.**
11. *Question: Alternate #1*
ix. Add asphalt paving in main lot only **Response: Yes.**
x. Adjust stone sub-base thickness **Response: Yes.**
xi. Extent of curb in alternate #1? **Response: Same as base bid.**
xii. No other elements to this alternate #1? **Response: Correct.**
12. *Question: Alternate #3*
xiii. Construct new MV lot and access road as stone finish only **Response: Yes.**
xiv. Extent of curb in alternate #3 **Response: Limits of this work.**
xv. Confirm finish grades of stone lot. **Response: Final grades as shown on grading plan.**
13. *Question: Alternate #4*
xvi. Add asphalt paving in MV lot only **Response: Yes.**
xvii. Adjust stone sub-base thickness **Response: Yes.**
14. *Question: Please confirm utility building is base bid work.* **Response: Yes.**
15. *Question: Alternate #10 – parking lot canopy*
Is structural steel galvanized or painted? **Response: painted.**
Is lighting on E-401 to be included in alternate #10? **Response: Lighting attached to the canopy will be part of Alternate #10.**
Standing seam metal roofing panel is not eligible for a 20-yr weather tight warranty. **Response: the standing seam metal roof panels are installed on an exterior canopy; they do not need a weather tight warranty.**

16. *Question: Can you confirm if concrete cradle/anti-seep collars are required for the storm pipe flowing into the dry detention basin?*
Response: No.
17. *Question: What is the composition of the existing roof deck?*
Response: Assume Concrete.
18. *Question: What is the composition of the existing roof?*
Response: The existing roof is built up on tapered insulation. Existing roof insulation thickness is not known.
19. *Question: On the weapons vault roof, plan shows 1/2" coverboard, specifications lists 5/8" coverboard, which should be installed?*
Response: Install 5/8" coverboard.
20. *Question: What vapor barrier is required on the vault roof?*
Response: Provide vapor barrier as required by manufacturer recommendations.
21. *Question: 14 ga gutter is too thick for any standard bending machines?*
Response: Provide 21 ga gutters/downspouts.
22. *Question: Roof plan Alt. 8, A-805, shows, what is assumed to be, drain locations, however, there are no slope designations nor crickets shown. Could more information be provided on the intended direction of slope for each section of this building upon roof replacement?*
Response: The new tapered insulation shall be sloped in the direction towards the roof drains. The tapered design shall be by the insulation supplier. The slope shall be 1/8" per foot and the average R-value on the insulation shall be R-30.
23. *Question: Any information on interior signage?*
Response: provide interior signage at Latrines and showers. Typical ADA bathroom signage will be required.
24. *Question: What is the fuel required for the generator?*
Response: The generator should be natural gas powered per the specifications. Include 1-1/2" gas pipe from the boiler room/gas service to the generator location.
25. *Question: addendum# 2 sheet says 24 x 24 Dal Brand Reminiscent series. It's only available in 12 x 24 size.*
Response: Provide the tile as specified in Addendum #2.
26. *Question: Who is the existing Fire Alarm Vendor?*
Response: The DEARNG uses Hoopes for fire alarm.
27. *Question: The Fire Alarm System, spec section 284621.11 – 1.10, states to provide a 5-Year Warranty from date of Substantial Completion. The Mass Notification System, spec section 284700 – 1.7, states to provide a 2-Year Warranty from date of Substantial Completion. What should be provided?*
Response: Contractor shall provide a 2-year warranty.

28. *Question: Provide a specification for metal lockers?*
Response: Metal locker specification is attached.
29. *Question: What window film is required at the bathrooms?*
Response: Window film specification is attached.
30. *Question: Provide a specification for aluminum framed entrances and storefronts?*
Response: Aluminum-framed entrances and storefronts specification is attached.
31. *Question: At the shower stall walls, how high does the ceramic tile get installed and where does it transition to the wainscott?*
Response: Contractor to assume the shower stall walls are 8 feet high. The ceramic tile will be full height at the shower stalls and the walls perpendicular to the wainscott walls.
32. *Question: The finish schedule shows toilet room #202 as having vinyl wall base, confirm?*
Response: All toilet rooms shall be ceramic tile base.
33. *Question: Is a Schluter trim required at the top of the wainscott ceramic tile?*
Response: Yes
34. *Question: Is a Schluter trim required at the floor?*
Response: No

END OF ADDENDUM

SECTION 08 41 13

ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes: Kawneer Architectural Aluminum Storefront Systems, including perimeter trims, stools, accessories, shims and anchors, and perimeter sealing of storefront units.
 - 1. Types of Kawneer Aluminum Storefront Systems include:
 - a. Trifab™ VG 450 Framing System – Interior 1-3/4" x 4-1/2" nominal dimension; Non-Thermal; Center, Structural Silicone or Weatherseal Glazed (Type B); Screw Spline Fabrication.
 - b. Trifab™ VG 451T Framing System – Exterior 1-3/4" x 4-1/2" nominal dimension; Center, Structural Silicone or Weatherseal Glazed (Type B); Screw Spline Fabrication.

1.3 DEFINITIONS

- A. Definitions: For fenestration industry standard terminology and definitions refer to American Architectural Manufacturers Association (AAMA) – AAMA Glossary (AAMA AG).

1.4 PERFORMANCE REQUIREMENTS

- A. Storefront System Performance Requirements:
 - 1. Wind loads: Provide storefront system; include anchorage, capable of withstanding wind load design pressures for this region. The design pressures are based on the International Building Code; 2021 Edition.
 - 2. Air Leakage: The test specimen shall be tested in accordance with ASTM E 283. Air Leakage rate shall not exceed 0.06 cfm/ft² (0.3 l/s · m²) at a static air pressure differential of 6.2 psf (300 Pa) with interior seal, or, rate shall not exceed 0.06 cfm/ft² (0.3 l/s · m²) at a static air pressure differential of 1.6 psf (75 Pa) without interior seal. CSA A440 Fixed Rating.
 - 3. Water Resistance: The test specimen shall be tested in accordance with ASTM E 331. There shall be no leakage at a minimum static air pressure differential of 8 psf (383 Pa) as defined in AAMA 501.
 - 4. Uniform Load: A static air design load of 35 psf (1680 Pa) shall be applied in the positive and negative direction in accordance with ASTM E 330. There shall be no deflection in excess of L/175 of the span of any framing member. At a

- structural test load equal to 1.5 times the specified design load, no glass breakage or permanent set in the framing members in excess of 0.2% of their clear spans shall occur.
5. Seismic: When tested to AAMA 501.4, system must meet design displacement of 0.010 x the story height and ultimate displacement of 1.5 x the design displacement.
 6. Thermal Movements: Allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures:
 - a. Temperature Change (Range): 0 deg F (-18 deg C); 180 deg F (82 deg C).
 - b. Test Interior Ambient-Air Temperature: [75 deg F (24 deg C)] .
 - c. Test Performance: No buckling; stress on glass; sealant failure; excess stress on framing, anchors, and fasteners; or reduction of performance when tested according to AAMA 501.5 for a minimum 3 cycles.
 7. Thermal Transmittance (U-factor): When tested to AAMA Specification 1503, the thermal transmittance (U-factor) shall not be more than:
 - a. Glass to Exterior – 0.560 BTU/hr/ft²/°F.
 - b. Glass to Center – 0.560 BTU/hr/ft²/°F.
 - c. Glass to Interior – 0.560 BTU/hr/ft²/°F.
 8. Condensation Resistance (CRF): When tested to AAMA Specification 1503, the condensation resistance factor shall not be less than:
 - a. Glass to Exterior – 70frame and 69glass (low-e) or 69frame and 58glass (clear).
 - b. Glass to Center – 62frame and 68glass (low-e) or 63frame and 56glass (clear).
 - c. Glass to Interior – 56frame and 67glass (low-e) or 54frame and 58glass (clear).
 9. Sound Transmission Class (STC) and Outdoor-Indoor Transmission Class (OITC): When tested to AAMA Specification 1801 and in accordance with ASTM E1425 and ASTM E90, the STC and OITC Rating shall not be less than:
 - a. Glass to Exterior – 38 (STC) and 31 (OITC).
 - b. Glass to Center – 37 (STC) and 30 (OITC).
 - c. Glass to Interior – 38 (STC) and 30 (OITC).
 10. Windborne-Debris-Impact Resistance Performance: Shall be tested in accordance with ASTM E 1886, information in ASTM E 1996 and TAS 201/203.
 - a. Large-Missile Impact: For aluminum-framed systems located within 30 feet (9.1 m) of grade.
 - b. Small-Missile Impact: For aluminum-framed systems located above 30 feet (9.1 m) of grade.

1.5 SUBMITTALS

- A. Product Data: Include construction details, material descriptions, dimensions of individual components and profiles, hardware, finishes, and installation instructions for each type of aluminum-framed storefront system indicated.
- B. Shop Drawings: Include plans, elevations, sections, details, hardware, and attachments to other work, operational clearances and installation details.
- C. Samples for Initial Selection: For units with factory-applied color finishes including samples of hardware and accessories involving color selection.

- D. Samples for Verification: For aluminum-framed storefront system and components required.
- E. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency for each type of aluminum-framed storefront.
- F. Fabrication Sample: Of each vertical-to-horizontal intersection of aluminum-framed systems, made from 12" (304.8 mm) lengths of full-size components and showing details of the following:
 - 1. Joinery.
 - 2. Anchorage.
 - 3. Expansion provisions.
 - 4. Glazing.
 - 5. Flashing and drainage.
- G. Other Action Submittals:
 - 1. Entrance Door Hardware Schedule: Prepared by or under the supervision of supplier, detailing fabrication and assembly of entrance door hardware, as well as procedures and diagrams. Coordinate final entrance door hardware schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of entrance door hardware.

1.6 QUALITY ASSURANCE

- A. Installer Qualifications: An installer which has had successful experience with installation of the same or similar units required for the project and other projects of similar size and scope.
- B. Manufacturer Qualifications: A manufacturer capable of providing aluminum-framed storefront system that meet or exceed performance requirements indicated and of documenting this performance by inclusion of test reports, and calculations.
- C. Source Limitations: Obtain aluminum-framed storefront system through one source from a single manufacturer.
- D. Product Options: Drawings indicate size, profiles, and dimensional requirements of aluminum-framed storefront system and are based on the specific system indicated. Refer to Division 01 Section "Product Requirements". Do not modify size and dimensional requirements.
 - 1. Do not modify intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If modifications are proposed, submit comprehensive explanatory data to Architect for review.
- E. Pre-installation Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination".
- F. Structural-Sealant Glazing: Comply with ASTM C 1401, "Guide for Structural Sealant Glazing" for design and installation of structural-sealant-glazed systems.
- G. Structural-Sealant Joints: Design reviewed and approved by structural-sealant manufacturer.

1.7 PROJECT CONDITIONS

- A. Field Measurements: Verify actual dimensions of aluminum-framed storefront openings by field measurements before fabrication and indicate field measurements on Shop Drawings.

1.8 WARRANTY

- A. Manufacturer's Warranty: Submit, for Owner's acceptance, manufacturer's standard warranty.
 - 1. Warranty Period: Two (2) years from Date of Substantial Completion of the project provided however that the Limited Warranty shall begin in no event later than six months from date of shipment by manufacturer.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

- A. Basis-of-Design Product:
 - 1. Kawneer Company Inc.
 - 2. Trifab™ VG 450 Interior or Trifab™ 451T Exterior (Thermal) Framing System
 - 3. System Dimensions: 2" x 4-1/2" (50.8 mm x 114.3 mm)
 - 4. Glass: Exterior and Center
 - 5. Doors: 500 – Wide stile with 10" bottom rail.
- B. ASSA Abloy Entrance Systems.
- C. YKK
- D. Substitution Acceptance: Acceptance will be in written form, either as an addendum or modification, and documented by a formal change order signed by the Owner and Contractor.

2.2 MATERIALS

- A. Aluminum Extrusions: Alloy and temper recommended by aluminum storefront manufacturer for strength, corrosion resistance, and application of required finish and not less than 0.070" (1.8 mm) wall thickness at any location for the main frame and complying with ASTM B 221: 6063-T6 alloy and temper.
- B. Fasteners: Aluminum, nonmagnetic stainless steel or other materials to be non-corrosive and compatible with aluminum framing members, trim hardware, anchors, and other components.
- C. Anchors, Clips, and Accessories: Aluminum, nonmagnetic stainless steel, or zinc-coated steel or iron complying with ASTM B 633 for SC 3 severe service conditions or other suitable zinc coating; provide sufficient strength to withstand design pressure indicated.
- D. Reinforcing Members: Aluminum, nonmagnetic stainless steel, or nickel/chrome-plated steel complying with ASTM B 456 for Type SC 3 severe service conditions, or zinc-coated steel or iron complying with ASTM B 633 for SC 3 severe service conditions or other suitable zinc coating; provide sufficient strength to withstand design pressure indicated.
- E. Sealant: For sealants required within fabricated storefront system, provide permanently elastic, non-shrinking, and non-migrating type recommended by sealant manufacturer for joint size and movement.
- F. Tolerances: Reference to tolerances for wall thickness and other cross-sectional dimensions of storefront members are nominal and in compliance with AA Aluminum Standards and Data.

2.3 STOREFRONT FRAMING SYSTEM

- A. Thermal Barrier (Trifab™ VG 451T):
 - 1. Kawneer IsoLock™ Thermal Break with a 1/4" (6.4 mm) separation consisting of a two-part chemically curing, high-density polyurethane, which is mechanically and adhesively joined to aluminum storefront sections.
 - a. Thermal Break shall be designed in accordance with AAMA TIR-A8 and tested in accordance with AAMA 505.
- B. Brackets and Reinforcements: Manufacturer's standard high-strength aluminum with nonstaining, nonferrous shims for aligning system components.
- C. Fasteners and Accessories: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding fasteners and accessories compatible with adjacent materials. Where exposed shall be stainless steel.
- D. Perimeter Anchors: When steel anchors are used, provide insulation between steel material and aluminum material to prevent galvanic action
- E. Packing, Shipping, Handling and Unloading: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.
- F. Storage and Protection: Store materials protected from exposure to harmful weather conditions. Handle storefront material and components to avoid damage. Protect storefront material against damage from elements, construction activities, and other hazards before, during and after storefront installation.

2.4 GLAZING SYSTEMS

- A. Glazing Gaskets: Manufacturer's standard compression types; replaceable, extruded EPDM rubber.
- B. Spacers and Setting Blocks: Manufacturer's standard elastomeric type.
- C. Bond-Breaker Tape: Manufacturer's standard TFE-fluorocarbon or polyethylene material to which sealants will not develop adhesion.
- D. Glazing Sealants: For structural-sealant-glazed systems, as recommended by manufacturer for joint type, and as follows:
 - 1. Structural Sealant: ASTM C 1184, single-component neutral-curing silicone formulation that is compatible with system components with which it comes in contact, specifically formulated and tested for use as structural sealant and approved by a structural-sealant manufacturer for use in aluminum-framed systems indicated.
 - a. Color: Black
 - 2. Weatherseal Sealant: ASTM C 920 for Type S, Grade NS, Class 25, Uses NT, G, A, and O; single-component neutral-curing formulation that is compatible with structural sealant and other system components with which it comes in contact; recommended by structural-sealant, weatherseal-sealant, and aluminum-framed-system manufacturers for this use.
 - a. Color: Matching structural sealant.

2.5 ENTRANCE DOOR SYSTEMS

- A. Entrance Doors: As specified in Division 08 41 13 Section "Aluminum-Framed Entrances and Storefronts".
- B. Entrance Door Hardware: As specified in Division 08 71 00 Section "Door Hardware".

2.6 FABRICATION

- A. Framing Members, General: Fabricate components that, when assembled, have the following characteristics:
 - 1. Profiles that are sharp, straight, and free of defects or deformations.
 - 2. Accurately fit joints; make joints flush, hairline and weatherproof.
 - 3. Means to drain water passing joints, condensation within framing members, and moisture migrating within the system to exterior.
 - 4. Physical and thermal isolation of glazing from framing members.
 - 5. Accommodations for thermal and mechanical movements of glazing and framing to maintain required glazing edge clearances.
 - 6. Provisions for field replacement of glazing.
 - 7. Fasteners, anchors, and connection devices that are concealed from view to greatest extent possible.
- B. Mechanically Glazed Framing Members: Fabricate for flush glazing without projecting stops.
- C. Structural-Sealant-Glazed Framing Members: Include accommodations for using temporary support device to retain glazing in place while structural sealant cures.
- D. Storefront Framing: Fabricate components for assembly using manufacturer's standard installation instructions.
- E. After fabrication, clearly mark components to identify their locations in Project according to Shop Drawings.

2.8 ALUMINUM FINISHES

- A. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.
- B. Factory Finishing:
 - 1. Kawneer Permanodic™ AA-M10C21A31, AAMA 611, Architectural Class II Clear Anodic Coating (Color #17 Clear) (Standard).

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 work. Verify rough opening dimensions, levelness of sill plate and operational clearances. Examine wall flashings, vapor retarders, water and weather barriers, and other built-in components to ensure a coordinated, weather tight framed aluminum storefront system installation.
 - 1. Masonry Surfaces: Visibly dry and free of excess mortar, sand, and other construction debris.
 - 2. Wood Frame Walls: Dry, clean, sound, well nailed, free of voids, and without offsets at joints. Ensure that nail heads are driven flush with surfaces in opening and within 3 inches (76 mm) of opening.
 - 3. Metal Surfaces: Dry; clean; free of grease, oil, dirt, rust, corrosion, and welding slag; without sharp edges or offsets at joints.
 - 4. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Comply with Drawings, Shop Drawings, and manufacturer's written instructions for installing aluminum-framed storefront system, accessories, and other components.
- B. Install aluminum-framed storefront system 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.
- C. Set sill members in bed of sealant or with gaskets, as indicated, for weather tight construction.
- D. Install aluminum-framed storefront system and components to drain condensation, water penetrating joints, and moisture migrating within aluminum-framed storefront to the exterior.
- E. 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. Clean aluminum surfaces immediately after installing aluminum-framed storefronts. Avoid damaging protective coatings and finishes. Remove excess sealants, glazing materials, dirt, and other substances.
- B. Clean glass immediately after installation. Comply with glass manufacturer's written recommendations for final cleaning and maintenance. Remove nonpermanent labels, and clean surfaces.
- C. Remove and replace glass that has been broken, chipped, cracked, abraded, or damaged during construction period.

END OF SECTION

SECTION 08 87 00

ARCHITECTURAL WINDOW FILMS

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Privacy Window Film

1.2 REFERENCES

- A. ASTM International (ASTM)
 - 1. ASTM E 903 - Standard Methods of Test for Solar Absorbance, Reflectance and Transmittance of Materials Using Integrating Spheres.
 - 2. ASTM E 308 - Standard Recommended Practice for Spectrophotometry and Description of Color in CIE 1931 System.

1.3 SUBMITTALS

- A. Manufacturer's Product Data for specified products.
- B. Submit shop drawings showing layout, profiles, and product components, including dimensions, anchorage, and accessories.
- C. Samples: 4 inch by 4 inch Samples of specified texture, color and/or pattern for verification.
- D. Submit operation and maintenance data for installed products, including precautions against harmful cleaning materials and methods.
- E. Mock ups: as required.

1.4 QUALITY ASSURANCE

- A. Obtain all products in this section from a single Manufacturer with a minimum of 10 years' experience.
- B. Installer: Installation shall be performed by a trained and qualified installer, specialized and experienced in work required for this project.

1.5 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver products in manufacturer's original, unopened, undamaged containers with identification labels intact.
- B. Store products protected from weather, temperature, and other harmful conditions as recommended by supplier. C. Product must remain in original plastic bag and boxes and have storage conditions as follows:

1. 40 °F – 90 °F (4 °C – 32 °C)
2. Out of direct sunlight
3. Clean dry area
4. Original container
5. Do not stack boxes over six (6) units high. Excessive weight can damage the film
6. Products are not recommended for interior applications where condensation consistently occurs.
7. Handle products in accordance with manufacturer's instructions.
8. Shelf life: 1 year

1.6 PROJECT/SITE CONDITIONS

- A. Confirm appropriate substrate is suitable for mounting of glass finish components prior to start of installation.
- B. Apply materials when environmental conditions are within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits. Application temperature range is 60 °F – 100 °F (16 °C – 38 °C).
- C. Environmental Limitations: Do not install until spaces are enclosed and weatherproof, wet work in spaces is complete and dry, work above ceilings is complete, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.

1.7 WARRANTY

- A. Manufacturer's Warranty: Submit manufacturer's standard warranty document by authorized manufacturer.
- B. Standard Product Warranty: Refer to the applicable 3M Technical Data Sheet for product warranty.

1.8 EXTRA MATERIALS

- A. Furnish 2 percent extra material at time of installation. Deliver in protective packaging for storage and label contents appropriately.

PART 2 - PRODUCTS

2.1 MANUFACTURER

- A. 3M Company – Commercial Solutions Division [CSD]

3M Center, Building 0220-12-E-04
St. Paul, MN 55144-1000, USA
1-888-650-3497
- B. Or approved equal.

2.2 MATERIAL STANDARD

- A. Design based upon 3M™ FASARA™ Glass Finishes

2.3 MATERIAL PROPERTIES

- A. General: Glass and plastic finishes field-applied application to glass or plastic material as visual opaque or decorative film.
- B. Film: Polyester
- C. Decorative Pattern: Printed

Note: Please verify pattern of FASARA specified.
- D. Adhesive: Acrylic, Pressure Sensitive, Permanent
- E. Liner: Silicone-coated Polyester
- F. Thickness (Average) (Film and Adhesive without Liner): 3.2 mils (80 microns)
- G. Fire Performance: Surface burning characteristics when tested in accordance with ASTM E84: Class A
 - 1. Flame Spread: 25 maximum.
 - 2. Smoke Developed: 450 maximum.

2.4 OPTICAL PERFORMANCE

Gradation

- A. FASARA – Milky Milky (San Marino) Decorative / Privacy Glazing Film applied to 3mm thick clear glass (ASTM E 903, ASTM E 308):
 - 1. Ultraviolet Transmittance: 0.1 percent.
 - 2. Visible Light Transmittance: 21 percent.
 - 3. Visible Light Reflectance - Interior: 43 percent.
 - 4. Solar Heat Transmittance: 25 percent.
 - 5. Solar Heat Reflectance: 34 percent.
 - 6. Shading Coefficient at 90 Degrees (Normal Incidence): 0.44.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrate(s) for compliance. Do not proceed with installation until unsatisfactory conditions have been corrected.

- B. Refer to the applicable manufacturer data sheet to determine compatibility of finish to substrate.
- C. Do not proceed with installation until unsatisfactory conditions have been corrected.
- D. Responsibility for state of surfaces prior to installation to be pre-determined by installation specialist.
- E. Scheduling of installation by Owner or its representative implies that substrate and conditions are prepared and ready for product installation per the recommendations of the installation specialist.
- F. Proceeding with installation implies installer's acceptance of substrate and conditions.

3.2 SURFACE PREPARATION

- A. Comply with all manufacturer's instructions for surface preparation.
- B. Thoroughly clean substrate of substances that could impair the overlay's bond, including mold, mildew, oil, grease.
- C. Re-clean surfaces with appropriate surface prep solvent and remove any haze or surface contamination.

3.3 APPLICATION

- A. Refer to the applicable 3M Installation Guide for specific application instructions.
- B. Application must be performed by qualified installer.
- C. Do not proceed with installation until all finishing work has been completed in and around the work area.
- D. Verify pattern prior to material acquisition.
- E. Comply with manufacturer's installation instructions applicable to products and applications indicated, except where more stringent requirements apply.
- F. Remove the liner and wet the adhesive prior to installation.
- G. Form smooth, wrinkle-free, bubble-free surface for finished installation.
- H. Remove air bubbles, wrinkles, blisters and other defects. Use approved procedures to prevent the formation of air bubbles, wrinkles, blisters and other defects.
- I. Residual water phenomenon may cause small water bubbles or clouding in the film that disappears as the water evaporates.
- J. Refer to the applicable 3M Installation Guide for additional details.

3.4 CLEANING AND PROTECTION

- A. Use cleaning methods recommended by architectural surfacing manufacturer for applicable environment.
- B. Protect completed glass finish during remainder of construction period.
- C. Consult with authorized installation specialist for project specifics.

END OF SECTION

SECTION 10 51 13

METAL LOCKERS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Metal lockers.
2. Locker benches.

1.2 SUBMITTALS

- A. Shop Drawings:** Indicate locker plan layout.
- B. Product Data:** Submit data on locker types, sizes and accessories.

PART 2 - PRODUCTS

2.1 LOCKERS

A. Manufacturers:

1. Art Metal Products.
2. ASI Storage Solutions; ASI Group.
3. DEBOURGH ALL AMERICAN LOCKERS.
4. General Storage Systems Ltd..
5. Hadrian Manufacturing Inc.
6. List Industries Inc.
7. Lyon Workspace Products, LLC.
8. Newline Products, Inc.
9. Penco Products, Inc.
10. Republic Storage Systems, LLC.
11. Shannahan's Manufacturing Limited.
12. Tennsco.
13. Substitutions: Permitted.

2.2 COMPONENTS

- A. Sheet Steel:** ASTM A653/A653M, commercial quality, G60 coating class, stretcher leveled; to the following minimum thicknesses:
1. Body and Shelf: 24 gage .024 inch
 2. Door Outer Face: 18 gage 0.048 inch

3. Door Inner Face: 20 gage 0.036 inch
4. Door Frame: 16 gage 0.060 inch
5. Hinges: 14 gage 0.075 inch
6. Base: 20 gage 0.036 inch
7. Sloping Top: 20 gage .036 inch
8. Trim: 20 gage 0.036 inch

2.3 ACCESSORIES

- A. For Each Locker: Two double prong wall hooks, coat hanger bar, hat shelf.
- B. Locker Benches: Stationary type; bench top of laminated birch species wood, stained, sealed and varnished; pedestals of chrome steel 12 inches high.

2.4 FABRICATION

- A. Locker Units:
 1. Width: 12 inches.
 2. Depth: 12 inches.
 3. Height: 72 inches.
 4. Configuration: double tier.
 5. Mounting: Surface mounted.
 6. Base: Metal base.
 7. Base Height: 4 inch.
 8. Top: Sloped metal with closures.
 9. Locking: Equipped for padlock hasps.
 10. Ventilation Method: Door louvers.
- B. Locker Body: Formed and flanged; with steel stiffener ribs; electric spot welded.
- C. Frames: Formed channel shape, welded and ground flush, welded to body, resilient gaskets and latching for quiet operation.
- D. Doors: Hollow channel construction, 1-3/16 inch thick; welded construction, channel reinforced top and bottom with intermediate stiffener ribs, grind and finish edges smooth.
- E. Hinges: Two for doors under 42 inches (1,050 mm) high; three for doors over 42 inches (1,050 mm) high; weld securely to locker body and door.
- F. Furnish ventilation openings at top and bottom of each locker.
- G. Form recess for operating handle and locking device.
- H. Finish edges smooth without burrs.
- I. Fabricate sloped metal tops, ends and closure pieces.

- J. Furnish perforated end panels and filler strips.
- K. Fabricate 4 inch high steel bases with end closures.

2.5 FACTORY FINISHING

- A. Clean, degrease, and neutralize metal; prime and finish with two coats of baked enamel.
- B. Paint locker units of 1 color throughout.
- C. Color: as selected from manufacturer's standard range.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install lockers plumb and square.
- B. Secure lockers with anchor devices to suit substrate materials.
- C. Bolt adjoining locker units together to provide rigid installation.
- D. Install end panels, filler panels, sloped tops, and bases.
- E. Install accessories.
- F. Replace components not operating smoothly.

END OF SECTION