

NJ DOT PROJECT REFERENCE NUMBER _____
SPECIFICATION

Totowa Yard Window Installation
300 Minisink Road (off Rt.80 Westbound)
Totowa, NJ 07512

The Following is the SCOPE of work for this project as well as pertinent MATERIAL details. Please refer to the attached specifications for specific materials requested for this bid. Please provide all specified materials and associated materials that may be required but not listed for a complete and proper installation.

Scope (Offices, Lounge & Gas House)

- Removal of existing deteriorated windows (5) In Main Office, (2) In Lounge Area, and (1) in Gas House
- Installation of wood blocking and masonry filler in wall void/cavity as required for proper fastening of new window receptor system/ new window assemblies
- Dark bronze sill flashing .032 thickness by Atas International, Inc.
- Installation of Specified FULL PERIMETER RECEPTOR SYSTEM (2 piece head, jamb and sub-sill as per specifications) Thermally broken
- Full perimeter caulk, inside and out (CRL M66- Dark Bronze)
- Installation of Specified Window system as per specifications/description (windows to match current windows being installed state wide)
- Trim out interior of windows as required for professional interior finish
- Removal and re-installation of existing blinds
- Touch-up interior wall with paint (color selected by owners -Sherwin-Williams Superpaint)
- Removal of all trash and debris

Materials (Offices, Lounge & Gas House)

- Finish paint- Sherwin-Williams Superpaint finish coat (color selected by owner)
- Sealant CRL M66 Polyurethane construction sealant (color Dark Bronze)
- Dark Bronze sill flashing .032 thickness by Atas International, Inc. (installed prior to receptor installation)
- Wintech model # 8000HC DH (DOUBLE HUNG WINDOWS) w-3 1/4" framing (Offices, Lounge & Gas House)
- Wintech 2- piece Head & Jamb Receptor & Subsill system (full perimeter system, thermally broken)
- 7/8" thick insulated CLEAR LOW-E TEMPERED GLASS or 7/8" thick insulated OBSCURED LOW-E TEMPERED GLASS (Bathroom & Gas House)
- Full Aluminum Mesh Screen on ALL 8000HC series windows.

- Dark Bronze anodized aluminum finish (windows, receptor system, and screen framing where applicable)

Window sizing (approximate)

TYPE #1- 48"w x 48"h (TWIN) double hung windows. Clear 7/8" tempered insulated low-e glass. Dark Bronze anodized finish. Full perimeter receptor system. Full Aluminum Mesh Screens.

TYPE #2- 48"w x 48"h (TWIN) double hung windows. Obscure 7/8" tempered insulated low-e glass. Dark bronze anodized finish. Full perimeter receptor system. Full Aluminum Mesh Screens.

Breakdown of quantities per area TYPE

Main office- 5 Type #1
Lounge- 2 Type #1
Gas House- 1 Type #2

Totals

QTY- 7 TYPE #1 (TWIN WINDOWS)
QTY- 1 TYPE #2 (TWIN WINDOWS)

Window Tech Systems^{Inc.}

8000HC 2PC RECEPTOR.DWG

THE GRADUATE MODEL 8000HC

ALUMINUM PRIME WINDOW
THERMO MASTER SEAL

DOUBLE HUNG - TILT SASH

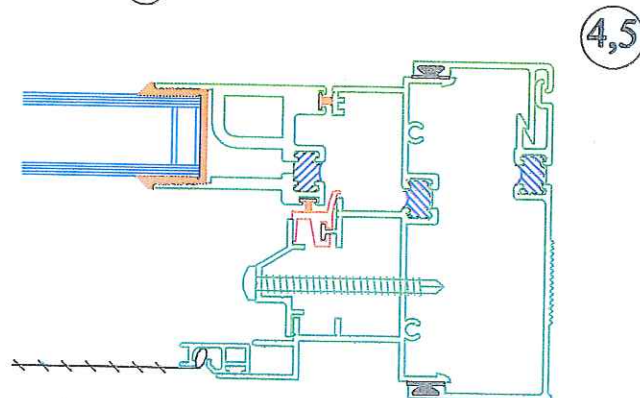
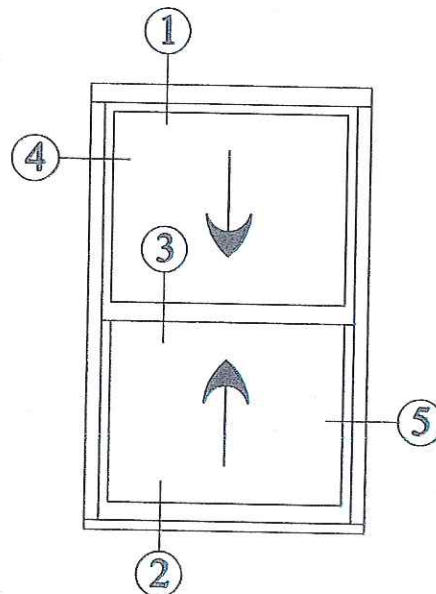
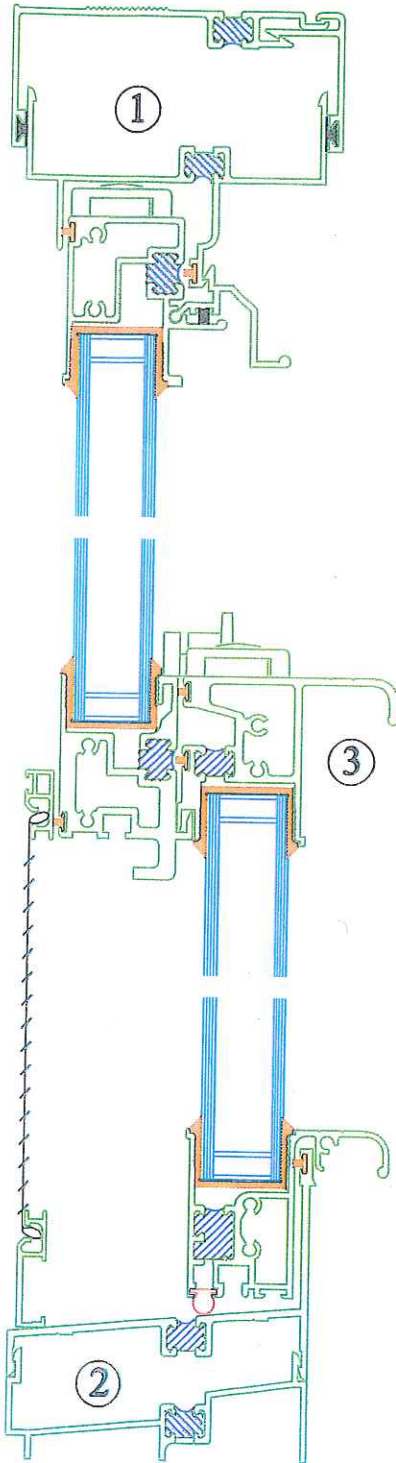
- EQUAL LEG FRAME

- 2 PIECE HEAD & JAMB
RECEPTOR & SUBSILL

- HEAVY COMMERCIAL

H-HC45 (5'0" X 8'0")

H-HC60 (4'6" X 7'0")



OPTION: SASH SILL AUTOLOCK

3 1/4" DEPTH FRAME

1/2 SCALE

Building a better view.

PRODUCT SUMMARY & PERFORMANCE DATA

8000HC DH & 8500 Fixed - Aluminum Window

AAMA Rating	H-HC45	H-HC60	F-HC70
Test Size	5' 0" X 8' 0"	4' 6" X 7' 0"	6' 0" X 6' 0"
Frame Depth	3 1/4"	3 1/4"	3 1/4"
Insulated Glass Thickness	7/8"	7/8"	7/8"
Air Infiltration (25 mph) (cfm/sqft)	0.15	0.15	0.01
Water Test Pressure (psf)	9.0	9.0	12.0
Structural Load (psf)	67.5	90	105
Operating Force (lbf)	45	45	n/a
STC Range	31 - 35		28 - 37
OITC Range	25 - 31		22 - 31

Glazing Configuration	U Value		SHGC		CR	
	8000	8500	8000	8500	8000	8500
Clear/Air	.63	.54	.59	.71	34	39
Low-E/Air	.50	.39	.30	.35	34	43
Low-E/Argon	.47	.35	.30	.35	35	43
Low-E/Argon+Warm Edge	.45	.34	.30	.35	38	45

NCTL-110-15421-01

The Wintech Series 8000 consists of 3 1/4" frame heavy commercial aluminum windows with poured urethane thermal barriers. Model 8000 is a double hung window with ratings of HC45:HC60 and Model 8500 is a fixed window with a rating of F-HC70. Both windows have the versatility of mulling and stacking. Twin or triple double hung windows may be supplied pre-assembled with common jamb mullions and continuous headers and sills. Windows are available with equal leg, 1 1/2" integral frame flanges for replacement or 1" for new construction applications, and are supplemented with a complete line of panning, trim, mullions, and other accessories.



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SPECIFICATIONS

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SECTION 08520 ALUMINUM WINDOWS

PART 1 - GENERAL

1.01 GENERAL PROVISIONS:

A. All Contract Documents and Drawings apply to the Work in this Section.

B. The Work shall be coordinated with that of all construction contractors affected by this Contract to assure the steady progress of the project.

C. All bids shall be based on pre-qualified products. To qualify, the bidder must furnish one complete window unit and additional information as shown below prior to the bid date.

1. This sample shall be identical to the model of the window on which the bid is based, with the finish being the only exception.

2. The prospective bidder shall include the following in the qualification package.

a. The independent laboratory test reports, which certify that the proposed window product meets or exceeds the classification DH-HC45:HC60 for double hung and F-HC70 for fixed windows as specified herein.

b. A Notice of Product Certification from the Administrator/Validator of a Certification Program. This certification shows continuing compliance of the window with the specification requirement.

c. An independent laboratory test report, indicating that the insulated glass units have been tested to the CBA level.

1.02 DESCRIPTION OF WORK:

A. The Work of this Section includes all labor, materials, tools, and equipment needed to furnish and install aluminum windows as shown the Drawings and as specified.

B. The building shall be kept dry, secure, and weather tight throughout the Work.

C. The Work shall include:

1. Field observation and measurements of existing openings and conditions. Replacement of all remaining deteriorated structures.

2. Removal and disposal of existing window components and construction materials.

3. Installation of new factory glazed aluminum windows and accessories in existing rough openings. Application of treated wood blocking, shims, and nailers, as required for a secure installation.

4. Insulation of fiberglass between window frames and adjacent construction.

5. Proper sealing of the exterior of window units, including any required panning, after installation per AAMA 808.

1.03 RELATED WORK:

A. The Contract Documents for requirements, which affect the Work of this Section, shall be carefully examined. All stated functions shall be performed.

B. The Work includes the following related Sections.

1. Section 01730 - Selective Demolition
2. Section 06100 - Rough Carpentry
3. Section 07900 - Joint Sealers
4. Section 08800 - Glass and Glazing

1.04 ITEMS FURNISHED BUT NOT INSTALLED:

A. Architect and/or Specifier should add any applicable requirements to this Section as deemed necessary.

1.05 ITEMS INSTALLED BUT NOT FURNISHED:

A. Architect and or Specifier should add any applicable requirements to this Section as deemed appropriate.

1.06 TESTING AND PERFORMANCE REQUIREMENTS:

A. Standards: Except as otherwise indicated, requirements for all aluminum windows, terminology and standards of performance, and fabrication workmanship are those specified and recommended in AAMA 101/I.S.2-97 and published by AAMA and the AA.

B. Performance and Testing: Except as otherwise indicated, air infiltration test, water resistance test and applicable load test shall meet the AAMA 101/I.S.2-97 requirement for type, rating and classification of the window units.

C. Testing: For manufacturer's standard window units, independent certification shall be provided to indicate compliance with specified test procedures.

1. Windows submitted for tests shall be of manufacturer's standard construction.

a. Test windows shall comply to the following structural requirements.

Class	Product Type	Test Window Size	Rating
HC	Double Hung	5'0" x 8'0"	DH-HC45
HC	Double Hung	4'6" x 7'0"	DH-HC60
HC	Fixed	6'0" x 6'0"	F-HC70

b. Procedures set forth by AAMA 101/I.S.2-97 shall apply.

D. Specific Requirements: Windows shall conform to specified AAMA 101/I.S.2-97 standards or those specified herein, whichever are the more stringent:

1. Operating Force: The sash of the double hung window shall be adjusted to operate, in either direction, with a force not exceeding 45 pounds after the sash is in motion. No further adjustment affecting the operating force shall be made for the balance of the tests.

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2. Air Infiltration Test: The sash of the double hung window shall be in a closed and locked position. The windows shall be subjected to an air infiltration test in accordance with ASTM E283. Air infiltration shall not exceed 0.11 cubic foot per minute, per foot of crack length for the double hung window and 0.01 cubic foot per minute, per foot of crack length for the fixed window, when tested at 1.57 psf.

3. Water Resistance Test: The sash of the double hung window shall be in the fully closed and locked position. The window units shall be subjected to a water resistance test in accordance with ASTM E 547. At water test pressures of 9.00 psf for the double hung and 12.00 psf for the fixed window, no water shall pass the interior plane of the window frames as defined in the ASTM E 547 test procedure.

4. Uniform Structural Load Test: The following minimum exterior and interior uniform loads shall be applied to the entire surface of the test units.

Class	Window	Test Window Size	Minimum Load
HC	Double Hung	5'0" x 8'0"	67.5 psf
HC	Double Hung	4'6" x 7'0"	90.0 psf
HC	Fixed	6'0" x 6'0"	105.0 psf

Tests shall be conducted in accordance with ASTM E 330. At the conclusion of tests, there shall be no glass breakage, permanent damage of fasteners, hardware, or any other damage causing the window to be inoperable.

5. Forced Entry Resistance: The double hung and fixed windows shall be tested to the requirements of ASTM F 588-97 and shall achieve the performance level 10.

6. Condensation Resistance Factor: The double hung and fixed windows shall be tested in accordance with the AAMA 1503-98 and ASTM C 236-91 thermal performance standards and shall yield a condensation resistance factor of no less than CRF 57.

7. Thermal Transmittance "U-Factor" Test: For both the double hung and fixed windows, Thermal Transmittance shall be tested to AAMA 1503-98 and shall produce U Factors no greater than 0.59 for clear glazed and 0.46 for Low-E/Argon glazed windows.

1.07 QUALITY ASSURANCE:

A. The standards set forth in AAMA 101/I.S.2-97 and other referenced standards shall be met.

B. Test Reports shall be provided from an independent laboratory certifying that the performance for air infiltration, water resistance, uniform structural load, condensation resistance and thermal transmittance has been met or exceeds the criterion required by the standards.

1.08 REFERENCES:

- A. American Architectural Manufacturers Assoc. (AAMA)
American Society for Testing and Materials (ASTM)
American National Standards Institute (ANSI)
Aluminum Association (AA)

1.09 SUBMITTAL REQUIREMENTS:

A. General: The following submittals shall be furnished.

1. Product Data: Manufacturer's specifications, suggestions and standard product details for aluminum window units, including independent laboratory certified test report to show compliance with requirements.

2. Shop Drawings: Shop drawings that include typical unit elevations, details of the head, jamb and sill of each product and

typical installation features. Drawings are to show anchor locations, type of glazing, screening, and window finish that will be supplied.

3. Samples: Samples of each required finish of an extruded shape or flat aluminum stock. Additional samples, as requested by Architect, to show fabrication techniques, workmanship, component parts and design of hardware.

1.10 PRODUCT DELIVERY, STORAGE AND HANDLING:

A. Windows, hardware and all related items shall be stored and handled in strict compliance with the manufacturer's instruction.

B. Windows, accessories and related materials shall be adequately protected against damage from the elements, construction activities and other hazards before, during and after installation.

1.11 PROJECT WARRANTIES:

A. Manufacturer's Warranties: Written warranties from window manufacturer shall be submitted for the following:

1. Windows: Windows furnished shall be certified as fully warranted against any defects in material or workmanship, under normal use and service, for a period of one year from date of installation.

2. Weather Stripping: All weather stripping shall be warranted for a period of one year from date of window installation.

3. Finish: The pigmented organic finishes on the aluminum profiles and component parts shall comply with the requirements of AAMA 603. Painted aluminum profiles are to be fully warranted for five years whereas anodized aluminum profiles are to be fully warranted for one year against chipping, peeling, cracking, and blistering from date of installation.

4. Glazing: Insulated glass unit shall be warranted from visual obstruction, due to internal moisture, for a period of five years from date of installation.

1.12 EXTRA MATERIAL

A. Specified extra material shall be furnished and delivered to Owner at the project location for potential future maintenance or replacement.

PART 2 - PRODUCTS

2.01 GENERAL:

A. Manufacturer: Subject to compliance with Contract Documents and Specifications, window products are to be manufactured by Window Tech Systems, Inc.

1. Products: Wintech Model 8000 Double Hung Window and Model 8500 Fixed Window - Heavy Commercial Rated, Thermally Broken.

B. Window Construction: Manufacturer's standard construction, which has been in use on similar window units for a period of not less than ten years and has been tested to the thermal conductance, condensation, and strength requirements of this application, shall be supplied.

2.02 MATERIALS:

A. Frame and Sash Members: Aluminum alloy 6063 extruded shapes, with a minimum tensile strength of 22,000 psi and a minimum yield

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strength of 16,000 psi. Extrusions to meet requirements of ASTM B 221.

B. Hardware:

1. Lock & Keeper: White bronze alloy sweep lock and keeper.
2. Sash Release Tilt Mechanisms: Cast zinc housing and latch units.

3. Tilt Pivot Bar: Heat treated type 410 stainless steel with high strength and rigidity.

C. Fasteners:

1. Stainless steel flat, hexagon, pan or oval head screws.
2. Stainless steel tamper proof tri-wing screws.

D. Weather Stripping:

1. Silicone-treated pile with a polypropylene center fin to AAMA 701.
2. Non-rigid bulb weather seal to AAMA 702.

E. Balance Systems:

1. Alum-Tilt spiral balances.
2. Block and tackle balances.
3. Ultra-lift balances.

F. Balance Shoes: Celcon Acetal pivot lock shoes with glass reinforced nylon cams.

G. Screens: Aluminum alloy 6063-T5 frame half or full screens with aluminum 18 x 16 mesh or fiberglass mesh.

H. Glazing: Marine glazed 7/8" thick sealed insulated glass, consisting of clear or Low-E annealed or tempered flat glass, hot melt butyl sealant, molecular sieve desiccant, anodized aluminum spacers and plastic corner keys. Insulated glass units with CBA level certification.

I. Grid Muntins:

1. Internal: Painted aluminum roll formed rectangular bars.
2. External: Painted aluminum extruded trapezoidal bars.

J. Anchor, Clips and Window Accessories:

1. Fabricated aluminum or stainless steel.
2. Fabricated zinc plated or cadmium plated steel to ASTM B 633 and B 766 respectively.

K. Compression Glazing Strips: Extruded neoprene gaskets and polyethylene foam sealant tape to AAMA 810.

L. Sealant: Permanently elastic, non-shrinking, and non-migrating sealant to ASTM 803.

M. Insulation: Fiberglass to ASTM C 665 Type 1.

2. Heavy Commercial rated fixed aluminum windows with insulated glazed glass units or insulated panels have no operating hardware or equipment.

2.05 FABRICATION AND ACCESSORIES:

A. General manufacturer's standard fabrication and accessories, which comply with the specifications indicated, shall be provided.

B. Window members, including any muntin bars, shall be made of aluminum. Secondary members such as friction tabs, shoes, and weather stripping guides, shall also be made of aluminum or a compatible material.

1. Main frame and sash members shall have wall thicknesses as allowed by AAMA 101/I.S.2-97. The standard wall thickness tolerance as defined by the Aluminum Association shall apply.

2. The master frame shall be no less than 3 1/4" in-depth. The sash shall have hollow extruded sections.

C. Thermal Break: The thermal barrier shall provide a continuous uninterrupted thermal break around the entire perimeter of the frame and sash of the double hung and frame of the fixed windows. All members shall not be bridged by any metal conductors.

D. Construction Assembly: Frame and sash shall be assembled in a secure and workmanlike manner to perform as specified herein. All joints of the main frame and sash shall be of butt type construction, coped and neatly joined with stainless steel screws anchored in integral boss.

1. Frame: Mainframe shall be sealed watertight with joint sealant per AAMA Specification 803. Gaskets shall be used to seal the mechanically fixed frame joints.

2. Tilt Sash: Sash shall be sealed with joint sealant complying with AAMA Specification 803. The meeting rails of the sash shall comprise of two rows of fin seal weather stripping and a metal interlock for locking the sash in the closed position. The sash shall be easily removed from the frame for either cleaning or repair. Reglazing shall be easily accomplished without the use of special glazing tools. The horizontal sash rails of the top and lower sash shall contain full length extruded handles for efficient operation. Sash shall not contain mechanical fasteners such as anti-bow pins to restrict tilt operations.

3. Lock & Keeper: The heavy duty sweep lock and keeper of the double hung windows shall be fastened on the meeting rails to provide a watertight seal and maximum security. Windows over 38" in width shall have two locking assemblies.

4. Sash Release Tilt Mechanisms: The tilt housing and latch units shall be mechanically anchored to the sash rails. The latches shall be spring loaded and afford positive lock into the jamb profile. In a tilted position, the sash shall be removable to the interior.

5. Structural Members: For assembled units with integral mullions, independent mullions, or a combination of frame members, the resulting members shall be capable of withstanding load requirements under the Uniform Load Structural Test.

6. Weather Stripping: Weather stripping shall be capable of meeting the environmental exposure and performance requirements. The solid barrier fin-type weather stripping shall be applied between the sash and frame of the double hung window. The bottom sash rail shall include the non-rigid bulb weather seal, which will compress onto the sill when the sash is closed.

7. Balances: Balances of appropriate size and capacity to ensure proper operation and to hold operable sash stationary in any open position shall be used. Sash balances shall be easily accessible and replaceable in the field without use of special tools. Balances shall comply with the requirements of AAMA Specification 902.

8. Glazing: All glazing units and insulated panels shall be assembled at the factory. Both sash of the double hung window and

2.03 WINDOW CLASSIFICATION:

A. AAMA 101/I.S.2-97 DH-HC45:HC60 Double Hung windows and F-HC70 Fixed windows complying with requirements for AAMA's Classification "HC" for "Heavy Commercial" type windows.

2.04 WINDOW CONFIGURATIONS:

A. General: Operating arrangements for types of sash required in window units and the minimum provisions for each type are hereby specified.

1. Heavy Commercial rated double hung aluminum windows have vertically sliding sash, with spiral balancing or ultra lift balancing mechanisms which appropriately hold the sash in a stationary position when opened to any distance. Balances are accessible and replaceable. Both sash units have latch release mechanisms, which permit the sash to tilt into the building for cleaning of interior and exterior surfaces.

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glazed frame of the fixed window shall be marine glazed. The dimension of the dehydrated air space is dependent on the glass thickness and aluminum spacer used to produce the overall minimum thickness of 7/8" for the sealed insulated glass unit.

9. Grid Muntins: Colonial or diamond internal muntins are available to instill a decorative appearance. These painted aluminum muntins, when installed between the glass panes, improve the ease of cleaning. Colonial exterior muntins may be applied on the outer surface of the insulated glass units to meet historical standards.

10. Screens: Either half or full insect screens shall be supplied for operable sections of the double hung windows. Half screens slide in an external window frame channel and are removable from the inside. Full screens, which are removable to the outside, are secured in the window jamb channel with spring clips. Aluminum or fiberglass mesh screen shall be provided.

2.06 CASING COVER SYSTEM:

A. Exterior Panning: Aluminum panning sections shall be of a one-piece design, which locks around the entire window frame to form a weather-tight connection. Assembly shall allow unrestricted expansion and contraction of panning and window frames. Panning extrusions shall be site assembled and secured at the corners with stainless steel screws in integral screw boss with the joints back sealed per AAMA Spec 803.

B. Exterior Mullions: Mullion covers shall be made of aluminum extrusions or break metal. The covers shall be sealed against panning sections with continuous vinyl bulb weather stripping interlocked within the mullion cover.

C. Interior Trim: Aluminum trim shall be made from extruded profiles. Snap trim shall be supplied in required lengths and attached with clips located within 3" from each corner and 16" on center space intervals, fastened with #10 stainless steel screws.

D. Receptor Systems: If required, the receptor shall be of two piece construction designed to anchor the windows in place. The receptor shall be made from aluminum extrusions and finished to match the window with the polyurethane thermal break.

2.07 ALUMINUM WINDOW FINISHES:

A. Manufacturer's standard electrostatically applied baked enamel coating, as selected by the Architect, shall be supplied. Application of finish shall be made by extrusion manufacturer for all components to ensure match. Manufacturer's standard substrate preparation shall include cleaning, degreasing, and appropriate pretreatment.

1. The Polycron pigment organic coating shall comply with the AAMA 603 standard.

2. High performance Duranar paint to the AAMA 605 standard is available.

3. Clear anodize finish to AAMA 607 and color anodic finish to AAMA 608 also are available.

PART 3 - EXECUTION

3.01 PREPARATION:

A. For replacement applications, existing windows shall not be removed until new windows are on site and ready for immediate installation. All openings shall be protected at the end of the work day, or for extended periods during wind-driven rains or excessively cold weather.

For new construction applications, new windows shall be supplied in sufficient quantities in advance of contractor's building schedule to permit orderly installation.

B. Replacement work shall be removed carefully, avoiding damage of remaining structures.

C. All other functions shall be performed as necessary to prepare openings for proper installation and operation of new windows.

D. Any shipping damages to windows shall be reported to manufacturer within 72 hours of receipt of delivery.

3.02 DISPOSAL:

A. Existing window debris and other materials shall be removed from the site and disposed by the Contractor.

B. Contractors shall comply with applicable laws, regulations, and governing specifications for proper disposal of all debris.

3.03 INSTALLATION:

A. Contractor installers shall comply with manufacturer's specifications and recommendations for installation of window units, hardware, operators and other components. Any attachments to the structure or to components of the window system shall not adversely affect thermal barriers of the windows.

B. Existing window frames, jambs, sash stop and parting strip shall be removed without causing damage to adjacent materials and surfaces. New windows are to be installed as detailed on Drawings specified herein and recommended by manufacturer.

C. Window finish shall be protected to prevent damage during the course of the construction operations. The finish protection shall be removed before final inspection of the windows.

D. Insulation shall be fitted solid in sill, jamb, head, stool, and mullion areas before the window assemblies are installed.

3.04 SETTING AND ANCHORING:

A. Window frames shall be anchored at jambs, head, and sill as detailed on Drawings and as recommended by window manufacturer.

B. Window units shall be set plumb, level and true to line, without warp or rack of frames or sash and anchored securely in place. Aluminum and other corrodible surfaces are to be separated from sources of corrosion or electrolytic action.

C. Window panning and trim shall be properly anchored in a plumb and level condition.

3.05 ADJUST AND CLEAN:

A. Operating sash and hardware of the double hung windows shall be adjusted to provide tight fit at contact points and at weather stripping to attain smooth operation and weather-tight closure.

B. All aluminum surfaces shall be cleaned promptly after installation, exercising care to avoid damage to protective coatings and finishes.

C. All glass shall be cleaned after installation. The contractor has the responsibility to remove labels, excess sealant compounds, dirt and foreign substances.

D. All protection and precautions shall be initiated to ensure that the window systems will be free of damage or deterioration, other than normal weathering, until time of acceptance by Owner.

END OF SECTION

01/01/13

SEALANTS

M66 MODIFIED POLYURETHANE CONSTRUCTION SEALANT

PRODUCT NAME

CRL M66 Modified Polyurethane One Component Elastomeric Construction Sealant with a Grainy Texture Appearance.

PRODUCT DESCRIPTION

CRL M66 is a one-part, medium modulus, moisture curing sealant. CRL M66 offers excellent primerless adhesion on most common construction surfaces, including Kynar™ and coated metals.

CRL M66 CONFORMS TO AND PASSES:

- Federal Specification TT-S-00230C, Type II, Class A.
- ASTM C920-98, Type S, Grade NS, Class 25, Use NT, M, T, A, G, and O.
- ASTM C510, ASTM C639, ASTM C661, ASTM C679, ASTM C717, ASTM C719, ASTM C793, ASTM C794, ASTM C1183, ASTM C1193, ASTM C1246, ASTM D412, ASTM D624, and ASTM G155.
- CAN/CGSB-19, 13-M87, Type MCG-2-25-A-N, QPL # 81026.
- AAMA 808.3-92 Exterior Perimeter, AAMA 802.3-92 Type II Ductile Back Bedding Compound.
- USDA approved for use in meat and poultry areas.

USES

CRL M66 Modified Polyurethane Construction Sealant is specially formulated to outperform traditional VOC solvent polyurethanes for sealing moving joints in concrete, masonry, metal, and other basic perimeter joint applications. It is ideal for all joints between framing (door and window) and the building structure in both storefront and curtain wall applications to secure a watertight installation. This advanced polymer formula offers excellent adhesion to fluoropolymer paint coatings for metal surfaces including Kynar™, Duranar®, and Duranar® Sunstorm™ Coatings, as well as standard metal, aluminum, steel, galvanized steel, plastics, vinyl, glass, wood, concrete, brass, and other common building substrates.

CRL M66 has been used in manufacturing uses such as production of travel trailers, motor homes, mobile homes, and modular prefab houses. Heating and air conditioning companies use CRL M66 on galvanized duct components.

This Eco-Friendly sealant contains no solvents or isocyanates, and is VOC compliant.

FEATURES

- Exceptional adhesion to Kynar™ coated metals.
- VOC Compliant - only 9 g/L (Chemically curing < 3%).
- Eco-Friendly Product - Solvent-Free, Isocyanate-Free, VOC Compliant, Qualifies for LEED Credit for Section EQ (Indoor Environmental Air Quality).
- Low temperature gunning and application above 0°F (18°C).

- Service temperature from -75°F to 300°F (-59°C to 149°C).
- Permanently Flexible - Will not get hard with age like traditional polyurethanes. Remains flexible in low temperatures.
- Fast Cure - Skins over in 30 minutes and continues to cure at a rate of 1/8 inch (3 mm) depth per day.
- Tooling time - approximately 20-40 minutes, depending on temperature and humidity.
- Paintable - Can be painted in only two hours with water-based paints.
- UV Resistant - Will not turn yellow from exposure to the sun.

LIMITATIONS

CRL M66 is not recommended for:

- Horizontal decks, patios, driveway or terrace joints where abrasion or physical abuse is encountered.
- Interior or exterior sealing below the waterline in marine applications.
- Surfaces with special protective or cosmetic coatings without prior consultation of the manufacturer. Such surfaces include, but are not limited to mirrors, reflective glass, surfaces coated, polyethylene or polypropylene.
- CRL M66 should not be applied with wet tooling techniques or by using solvents. Water or detergent/soap solutions are not recommended.
- CRL M66 should not be applied to unpredictably absorptive surfaces such as marble, limestone or granite unless a standard of appearance has been agreed on as a result of testing for stain and/or discoloration.

TECHNICAL DATA

The physical properties of CRL M66 Polyurethane are shown in Table 1.

TABLE 1 - PHYSICAL PROPERTIES

Property/Test Methods	Value
Shore A Hardness - Durometer	35 ± 5
Tensile Strength, ASTM D-412-68	380 psi
Elongation (Ultimate), ASTM D-412-68	675%
Shrinkage	Nil
Weatherometer Atlas Xenon Arc	No Change (4500 hrs)
Adhesion-in-Peel	Aluminum-25 ± 3 pli Concrete-25 ± 3 pli Brick-20 ± 3 pli
Low Temperature Flexibility, ASTM D-746	-40°F
Extrusion Rate.....	35g/min. ± 5, modified 1/8" orifice
Service Temperature Range	-75° - 300°F (-59° - 149°C)
Movement Capability	± 25%

SEALANTS
Polyurethane

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COVERAGE

The following tables indicate the approximate number of linear feet filled by one gallon or one 10.1 fluid ounce cartridge.

ESTIMATING REQUIREMENTS

APPROX. LINEAR FEET PER GALLON								
Depth	Joint Width							
	1/4"	3/8"	1/2"	5/8"	3/4"	7/8"	1"	
1/4"	288	216	144	120	96	84	72	
3/8"	-	144	96	84	72	60	48	
1/2"	-	-	72	60	48	36	24	

APPROX. LINEAR FEET PER CARTRIDGE								
Depth	Joint Width							
	1/4"	3/8"	1/2"	5/8"	3/4"	7/8"	1"	
1/4"	24	18	12	10	8	7	6	
3/8"	-	12	8	7	6	5	4	
1/2"	-	-	6	5	4	3	2	

APPROX. LINEAR FEET PER SAUSAGE								
Depth	Joint Width							
	1/4"	3/8"	1/2"	5/8"	3/4"	7/8"	1"	
1/4"	48	32	24	19	16	14	12	
3/8"	-	21	16	13	11	10	8	
1/2"	-	-	12	10	8	6	5	

PRINCIPLES OF JOINT DESIGN

A variety of factors are considered when designing the joint width and depth. The main areas of concern are maximum expansion, surface materials and their expected thermal change.

When possible, CRL M66 Modified Polyurethane Construction Sealant should be applied when the joint is at its median opening, so as to obtain the greatest efficiency with joint movement. The dimensions of the joint must be established according to expected movement, number and location of joints. The design should be such that movement on any joint should not exceed $\pm 25\%$ maximum. This joint size can be calculated by determining the expected movement within the joint between the high and low temperature extremes and multiplying the change by a factor of four. For example, it is determined the joint will open and close $1/4"$ between temperature extremes, it follows, $4 \times 1/4" = 1"$. The example joint should be a minimum of 1" wide. The depth of the sealant is also a very important consideration. The standard rule of thumb is that the depth should be half the width of the joint, with a maximum depth of $1/2"$ and a minimum of $1/4"$. See Figure 1 and Table 2 for these illustrations.

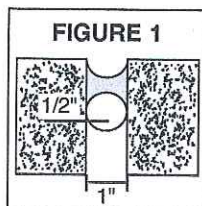


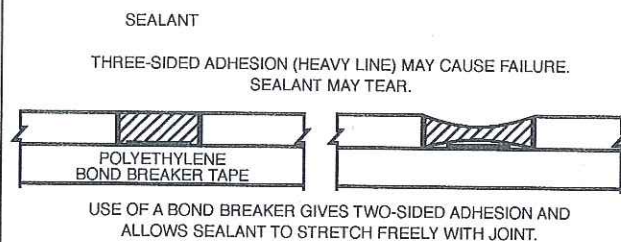
TABLE 2 - JOINT WIDTH AND SEALANT DEPTH

Joint Width	Sealant Depth At Midpoint
1/4" to 1/2"	1/4"
1/2" to 1"	3/8" to 1/2"
1" to 2"	1/2"

In deep joints, the sealant depth should be controlled by the use of backer rod. Other caulks should not be used as fillers. Where depth of joint will prevent use of joint backing, an adhesive backed polyethylene tape must be installed to prevent three sided adhesion. Backer Rod is installed by compressing and rolling it into joint channel without stretching lengthwise. The rod must conform to the manufacturer's recommendations as to size in relationship to joint width. Do not puncture during installation when using closed cell backer rod, and backing must be dry at time of sealant application.

Figure 2 illustrates the use of a bond breaker to prevent three-sided adhesion.

FIGURE 2 BOND BREAKER



INSTALLATION

CLEANING

All surfaces where sealant is going to be applied must be dry, clean, free of loose particles, oil, grease, asphalt, tar, wax, rust, waterproofing coatings, mold release agents, and membrane materials, etc.

- **MASONRY:** Concrete, stone and other masonry must be cleaned with wire brushing, grinding, or sandblasting. A sound surface free of contamination must be achieved before sealant application.
- **METAL:** Metal finishes should be tested for adhesion on all new construction. Scale, rust, oils, grease, oxide, and protective lacquer coatings must be removed prior to sealant application. When using solvents on job sites all E.P.A. recommendations for handling and safety must be followed. Any chemical residue or film must be removed prior to sealant application. Reference S.W.I. and NGA manuals for standard industry cleaning procedures.

PRIMING

M66 is typically applied without the need for any primer. Excellent adhesion to most common building materials, including Kynar™ coated metals.

APPLICATION

Apply CRL M66 using a professional sealant gun loaded at the job site. CRL M66 maintains excellent gunnability over a broad temperature range. Joint should be filled from bottom up. Proper size nozzle and gun angle are extremely important when applying sealant to assist in the wetting out process. Install back-up material or joint filler, spacer shims and tapes as specified. Apply CRL M66 in a continuous operation using a positive pressure adequate to properly fill and seal the joint. Tool the sealant with adequate pressure to spread the sealant against the back-up material and onto the joint surfaces.

A tool with a concave profile is recommended to keep the sealant within the joint.

Excess sealant should be dry-wiped from all surfaces while still uncured, following with a commercial solvent such as mineral spirits, or isopropyl alcohol. Should CRL M66 accidentally begin to cure on adjacent porous surfaces, the excess sealant should be allowed to progress through the initial cure or set-up. It should be then removed promptly by abrasion or other mechanical means.

APPLICATION TEMPERATURE

Moisture on substrates will adversely affect adhesion and can be found at temperatures below 40°F (4°C). Methyl ethyl ketone (MEK) is soluble in water and may be more appropriate for winter cleaning as it helps in removing condensation and frost. CRL M66 Modified Polyurethane Construction Sealant maintains excellent gunnability over a broad temperature range. At 75°F (23°C), 50% Relative Humidity, a durable skin forms in 30 minutes. Curing continues at the rate of 1/8 inch (3 mm) depth per day. The cure rate is reduced at lower temperatures and less humidity. After a complete cure, all chemical components of M66 can be considered inert.

CLEAN-UP

Immediately after use and before sealant has cured, equipment must be cleaned with mineral spirits, or isopropyl alcohol. The cured sealant may be removed by cutting with sharp-edged tool; thin films removed by abrading.

CURED SEALANT IS USUALLY VERY DIFFICULT TO REMOVE WITHOUT ALTERING OR DAMAGING THE SURFACE TO WHICH THE SEALANT HAS BEEN MISAPPLIED.

PACKAGING

CRL M66 Modified Polyurethane Sealant is packaged in 10.1 oz. (300 ml) cartridges, 30/case, and 20 fl. oz. (600 ml) sausages (15/case). Also available upon request are 2 and 5 gallon pails.

PRECAUTION

Uncured sealant may irritate the eyes. Avoid contact with eyes and skin. Contact lens wearers take appropriate precautions. IN CASE OF CONTACT, FLUSH EYES WITH WATER, CALL A PHYSICIAN. Remove from skin with dry cloth or paper towel. KEEP OUT OF THE REACH OF CHILDREN. REFER TO MATERIAL SAFETY DATA SHEET FOR FURTHER INFORMATION.

SHELF LIFE

When stored at or below 80°F (27°C), CRL M66 Modified Polyurethane has a shelf life of one year from date of manufacture.

MAINTENANCE

No maintenance should be needed. If sealant becomes damaged, replace damaged portion. Clean surfaces in damaged area and repair with fresh CRL M66 Modified Polyurethane Construction Sealant.

COLORS

9 standard colors and 23 CRL/U.S. Aluminum special colors. Custom colors available upon request.

TECHNICAL SERVICE

Complete technical information and literature is available from C.R. Laurence Co., Inc. Any technical advice furnished by the company or any representative of the company concerning any use or application of any sealant is believed to be reliable, but the company makes no warranty, expressed or implied, for any use or application for which such advice is furnished.

LIMITED WARRANTY NOTICE

CRL and its manufacturer warrant our products to be of good quality and will replace or, at our election, refund the purchase price of any products proved defective. Satisfactory results depend not only upon quality products but also upon many factors beyond our control in the application process. Therefore, except for such replacement or refund CRL and its manufacturers make no warranty or guarantee, expressed or implied, including warranties of fitness or merchantability, respecting its products. CRL and its manufacturers shall have no other liability with respect thereto. User shall determine the suitability of the product for his intended use and assume all risks and liability in connection therewith. Any authorized change in the printed recommendations concerning the use of our products must bear the signature of the CRL Product Manager.

COOPERATIVE TESTING

Materials submitted for testing should be sent to:

C.R. Laurence Co., Inc.
Technical Sales Department
PO Box 58923
Los Angeles, CA 90058-0923

This program is intended to eliminate potential field problems by pretesting CRL construction sealants with samples of the building materials on which the sealant will be applied. The test will aid in determining the proper surface preparation method, effective solvents for cleaning and whether priming

is necessary to achieve optimum adhesion. Following this procedure will remove many of the unknown variables which affect field success.

Test samples of substrates should be identified as to manufacturer, origin, designed use, building project, person and firm originating the request. Appropriate sketches or drawings showing the intended use can be helpful.

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