



APPALACHIAN HARLEY-DAVIDSON

> Model 20D/35D/50D

Standard Entrances

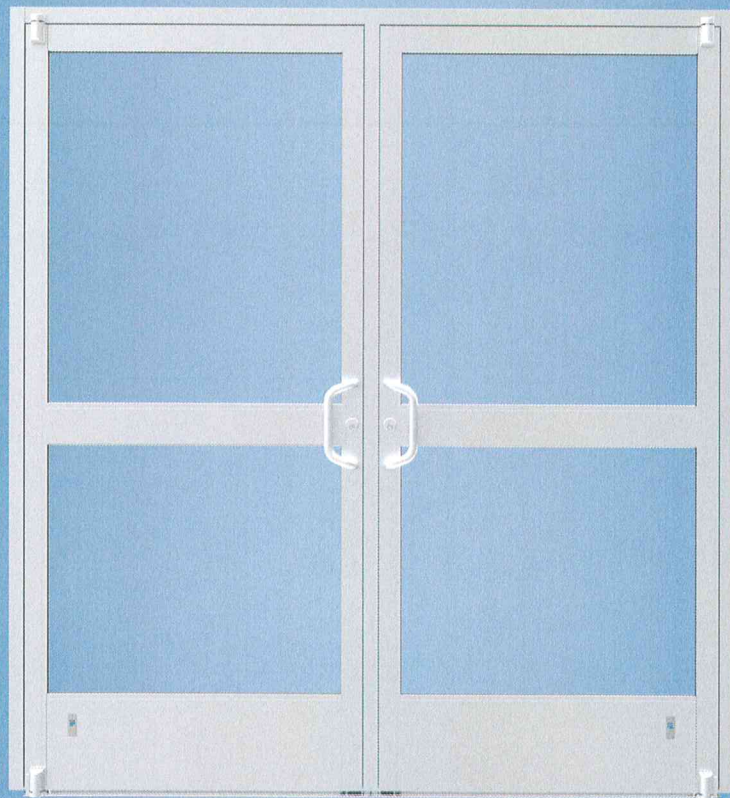
Everyday Performance and Style

Entrance systems by YKK AP offer an abundance of design options. VersaJamb[®], our unique reinforced tubular door frame, allows for side-lite glazing without shear clips while maintaining the structural integrity of transom frames.

Door corners are mechanically joined and welded to ensure that they are more than capable of withstanding today's most demanding conditions. Standard hardware options include the Smart Series Push/Pull and touch bar exit devices. Custom entrances are available with options for one inch glazing, mid rails, high bottom rails and will accommodate most custom hardware.

20D/35D/50D Entrance Doors:

YKK AP standard doors are far above standard quality and performance. These institutional grade entrances provide complete design freedom via varied rail and stile widths. All door corners are mechanically joined and welded — and carry a lifetime warranty.



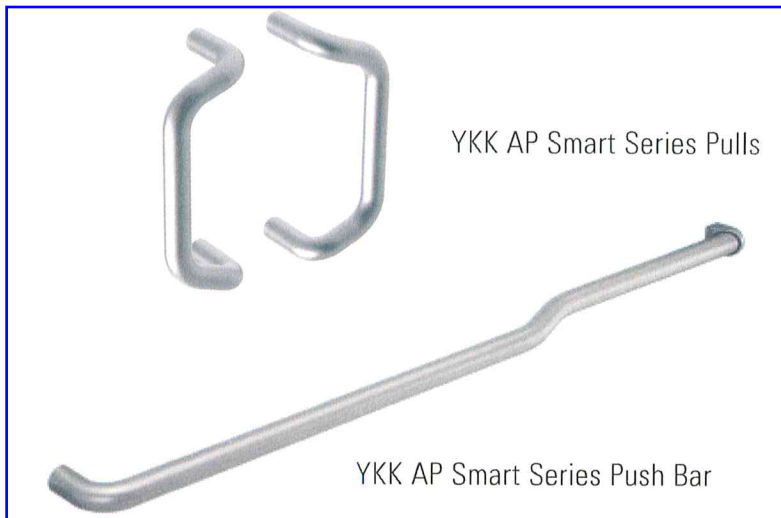
> Model 20D/35D/50D

Standard Entrances

Quoted as MS Lock and Smart Series Push/Pulls

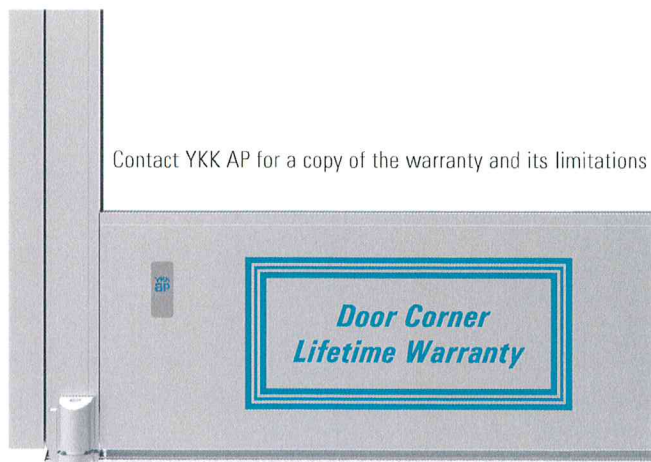
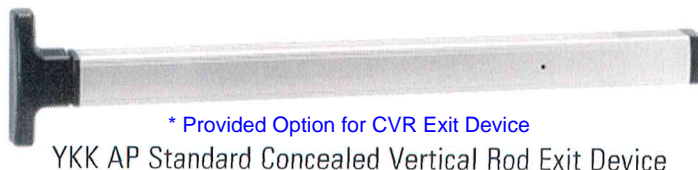
Smart Series Push/Pull

YKK AP's Smart Series one inch diameter Push/Pull provides maximum flexibility and occupant safety. The pull handle is open to permit access to the lock cylinder and is slightly angled to provide a uniquely modern look. The Smart Push starts at the locking stile similar to a typical one inch diameter push bar, but then has an ergonomic "S-Bend" toward the locking stile to bring the bar closer to the door where it is captured by a patented end cap. This innovative push bar easily accommodates custom width openings while subtly informing a pedestrian which side of the door to push on when exiting a building.



YKK AP Standard Exit Devices

The modern and economical YKK AP standard touch bar exit devices are ideally suited for all applications that require emergency egress. The devices are ANSI Grade 1, carry the UL label and are approved for Life Safety. Both the rim and concealed vertical rod devices feature single point dogging and are available with electric actuation.



Stock Entrances

- 20D Narrow Stile 3'-0" and 3'-6" x 7'-0" Singles
- 20D Narrow Stile 6'-0" x 7'-0" Pairs
- Offset Pivot, Butt Hung and Center Pivot
- MS Lock and CVR Exit Device (Offset Pivot only)

Custom Entrances

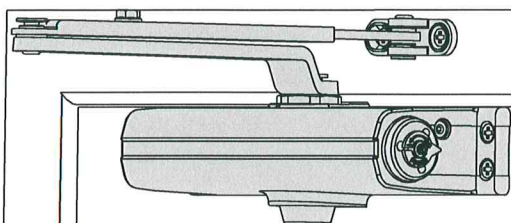
- 20D, 35D, and 50D
- Doors up to 8'-0" Tall
- Standard and Custom Hardware

For additional information on architectural aluminum products offered by YKK AP America Inc. visit our web site at www.ykkap.com.

1260 SERIES

FEATURES

CLOSER MOUNTS *HINGE (PULL) SIDE TOP JAMB (PUSH SIDE) PARALLEL ARM (PUSH SIDE)



*HINGE (pull) side mount shown

The 1260 is a light to medium duty cast iron closer designed to fit into the most common commercial foot print. The 1260 is adjustable for spring sizes 1-5. The 1260 also features a complete line of regular and extra duty arms, LCN's peel-n-stick installation templates, a convenient spring adjust pointer, and an optional Quick Fix™ bracket kit.

- Cast Iron
- All weather fluid
- Non-handed
- Peel-n-stick templates for fast and accurate installation
- UL and cUL listed

- Standard 1260 Series closer shipped with regular arm, a shaft cover, and self reaming and tapping screws. See 1260 Series Pages 8-9 for options.
- Non-sized (1-5) cylinder is adjustable for interior doors to 4'6" and exterior doors to 3'6".
- Closer mounts hinge side, top jamb and parallel arm on either right or left swinging doors.
- Mounts to most common commercial footprint (3/4" x 9-1/16").
- Closer meets ADA requirements. See 1260 Series page 10.
- Optional Quick Fix™ bracket kit.
- Standard or optional custom powder coat finish.
- Optional SRI primer for installations in corrosive conditions. (Available with powder coat finishes only).
- Optional Slim Line cover.
- Tested and certified under ANSI Standard A156.4, grade one.

MOUNTING					FINISH		COVER		CYLINDER			*ARM FUNCTION								
HINGE (PULL) SIDE	TOP JAMB (PULL)	TOP JAMB (PUSH)	PARALLEL ARM	STOP FACE	POWDER COAT	PLATED	PLASTIC	METAL	DESIGNER SERIES	NON-HANDED	NON-SIZED	ACCESSIBILITY	DELAYED ACTION	REGULAR (DOUBLE)	STANDARD (SINGLE)	HEAVY DUTY	HOLD-OPEN	EDA/HEDA	CUSH/HCUSH	SCUSH/SHCUSH
●	●	○	●	○	●	○	●	○	○	●	○	○	○	○	○	○	○	○	○	○
														180°	○	○	180°	120°	110°	110°

● AVAILABLE
○ NOT AVAILABLE

♿ Closer available with less than 5.0 lbs. opening force on 36" door.
* Maximum opening/hold-open point with standard template.

1260 SERIES

MOUNTING DETAILS

TOP JAMB (PUSH SIDE) MOUNTING

MAXIMUM OPENING

To 100°

Ⓐ = 7-1/16" (179 mm)

Ⓑ = 12-15/16" (329 mm)

or 101° to 120°

Ⓐ = 5-9/16" (141 mm)

Ⓑ = 11-7/16" (291 mm)

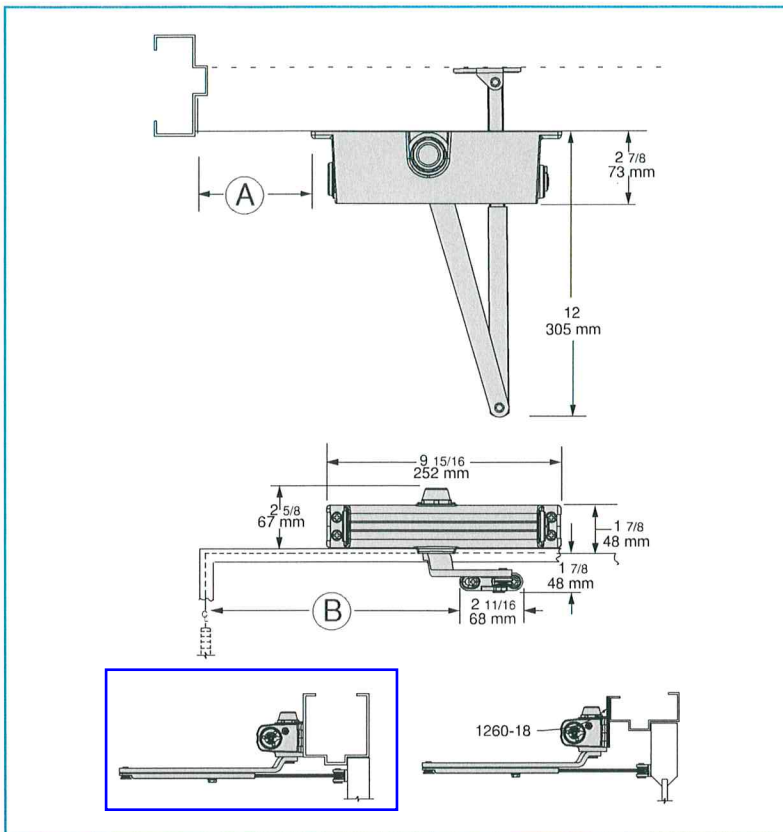
or *121° to 180°

Ⓐ = 3-1/16" (78 mm)

Ⓑ = 8-15/16" (227 mm)

Hold-open points up to maximum opening with hold-open arm.

*Frame and trim permitting.



- **Butt Hinges** should not exceed 5" (127 mm) in width.
- **Auxiliary Stop** is recommended at hold-open point or where a door cannot swing 180°.
- **Reveal**

Arm Type	Maximum Reveal	Opening
Regular Arm	3-1/2"	Up to 120°
Regular Arm	2-1/4"	121° to 180°
Long Arm	7-1/2"	Up to 120°
Long Arm	3-1/2"	121° to 180°
Hold-Open Arm	2"	Up to 120°
Hold-Open Arm	2-1/4"	121° to 180°
Long Hold-Open Arm	4-1/2"	Up to 120°
Long Hold-Open Arm	4-1/2"	121° to 160°

- **Top Rail** requires 1-3/4" (44 mm) minimum. 2-1/2" (64 mm) minimum with closer on PLATE, 1260-18.
- **Head Frame** less than 1-3/4" (44 mm) requires PLATE, 1260-18. For flush ceiling condition with 2" (51 mm) headframe, use PLATE, 1260-18. (Plate requires 1-3/8" (35 mm) minimum.)

Options

- Long arm, hold-open arm.
- Long hold-open arm.
Slim Line cover (SLIM).

Special Templates

Customized installation templates or products may be available to solve unusual applications. Contact LCN Product Support for assistance.

1260 SERIES

* Optional Mounting, but will require Parallel Arm Drop Plates and be visible through the glass doorlite *

PARALLEL ARM (PUSH SIDE) MOUNTING

Optional mounting requires PA SHOE, 1260-62PA for REGULAR or HOLD-OPEN arms. 1260 Parallel arm closer includes 1260-201 FIFTH HOLE SPACER to support PA SHOE.

MAXIMUM OPENING

Regular or hold-open arm can be templated to 100°

(A) = 7-3/16" (183 mm)

(B) = 8-5/8" (219 mm)

or 101° to 130°

(A) = 5-11/16" (144 mm)

(B) = 7-1/8" (181 mm)

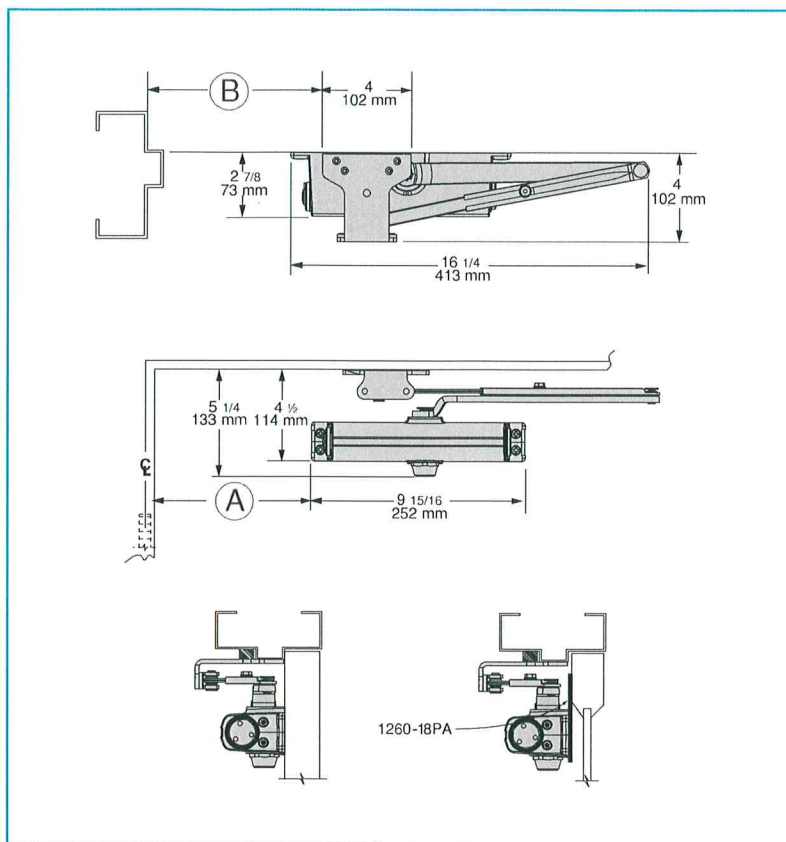
or *131° to 180°

(A) = 3-11/16" (94 mm)

(B) = 5-1/8" (130 mm)

Hold-open points up to maximum opening with hold-open arm.

*Frame and trim permitting.



1260 REGULAR OR HOLD-OPEN MOUNT

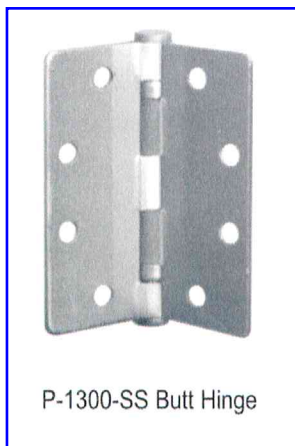
- **Butt Hinges** should not exceed 5" (127 mm) in width.
- **Auxiliary Stop** is recommended at hold-open point, where a door cannot swing 180°, or where CUSH-N-STOP arm is not used.
- **Clearance** for 1260-62PA shoe is 4" (102 mm) from door face.
- **Top Rail** less than 4-3/8" (111 mm) measured from the stop requires PLATE, 1260-18PA.
- **Stop Width** minimum 1" (25 mm).
- **Blade Stop** clearance, requires 1/2" (13 mm) BLADE STOP SPACER, 1260-61.
- **Auxiliary Shoe**, 1260-62A allows installation of regular arm with overhead holder/stop. Special templating required.

Options

- Slim Line cover (SLIM).
- Hold-open PA, HEDA, EDA, CUSH, HCUSH arm.

Special Templates

Customized installation templates or products may be available to solve unusual applications. Contact LCN Product Support for assistance.



P-1300-SS Butt Hinge

STANDARD – BUTT HINGE, 4-1/2" X 4"**Description:**

1. Commercial quality five knuckle, two ball bearing raceway construction type stainless steel; enclosed hinge barrel with button tips incorporating non-rising removable steel pin.
2. Radius corner hinge. Standard template butt, 4-1/2" X 4" X 0.134" thickness (114.3mm by 101.6mm by 3.4mm).
4. Tapped back-up reinforcing plates are provided for each hinge.

Finish:

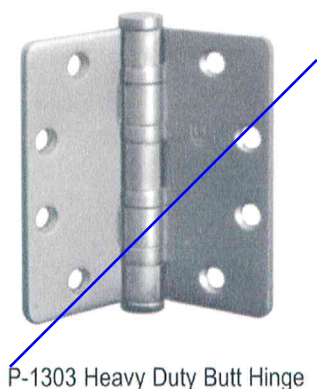
Standard: Stainless Steel for clear anodized.

Optional: 335 Black finish for color anodized and/or painted finished.

Application:

1. Butt hinge fully mortised into door hinge stile and frame hinge jamb.
2. Back-up or reinforcing plates are used in both frame jamb and hinge stile.
3. Use intermediate butt (1-1/2 pair per leaf) for doors in high traffic areas or for doors over 7'-6" high.

For use with: Models 20D/35D/50D, 35XT/50XT, 35H (optional), and 25FD.



P-1303 Heavy Duty Butt Hinge

~~**HEAVY DUTY – BUTT HINGE, 4-1/2" X 4-1/2"**~~**Description:**

1. Grade 1 heavy weight quality. Five knuckle, four ball bearing brass with stainless steel pin. Testing in conformance with ANSI-A156.1-81.
2. Pin is non-rising with optional non-removable (NRP) pin available.
3. Radius corner (RC) hinge. 4-1/2" x 4-1/2" x 0.180" thickness (114.3mm by 114.3mm by 4.6mm)
4. Tapped back-up reinforcing plates are provided for each hinge.

Finish:

628 Clear, for clear anodized or painted surfaces or 335 Black, finish for color anodized and/or painted finished.

Application:

1. Hinge is fully mortised into door hinge stile and frame hinge jamb. On 40M/50M Monumental doors hinge is mortised into the frame, but requires no backer plate for extra strength.
2. Back-up or reinforcing plates are used whenever mortising of hinge is required.
3. Intermediate hinge is standard on all 40M/50M Monumental entrances and recommended on all high traffic applications. Doors over 7'-6" in height also require the use of intermediate hinges.

For use with: Models 40M and 50M.

Optional for Models 20D/35D/50D, 35XT/50XT, 35H, and 25FD.

Exterior Key Cylinder with Interior Thumb-turn

**STANDARD – CYLINDERS****Description:**

1. 5 Pin - mortised, 1-5/32" (29.4mm) diameter.
2. Standard cylinders are key operated on the exterior and thumbturn operated on the interior.
3. Blank cylinders available as an option.
4. Keyed alike cylinders are available, when specified.
5. Master keying and special order keying systems are special order; contact factory.

Finish:

Cylinder caps are either 628 Clear, for clear anodized or painted surfaces or 335 Black, finish for color anodized and/or painted finished..

~~OPTIONAL – CYLINDER GUARD~~**Description:**

1. Adams-Rite® MS 4043 Cylinder Guard; tapered and hardened steel material collar with hardened steel retainer plate.
2. Cylinder guard is collar designed to protect the vulnerable soft brass cylinder. Guard held in place with hardened steel retainer plate for additional security.

Application:

Use with Adams-Rite MS 1850A, MS 1853A-050 or deadlatch series.

For use with: All YKK AP entrances.



Top and Bottom Flush Bolts in Inactive Door

STANDARD – FLUSHBOLT**Description:**

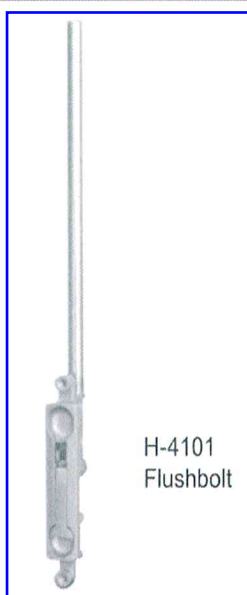
Inactive leaf on door pairs:

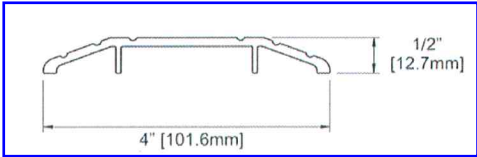
1. Top and bottom bolts in inactive leaf provide two lock points allowing active door leaf to lock into inactive leaf.
2. Flush bolts are flush mounted in door stile "edge."

Finish:

Black for color anodized finishes and aluminum color for clear anodized finishes.

For use with: All YKK AP entrances.



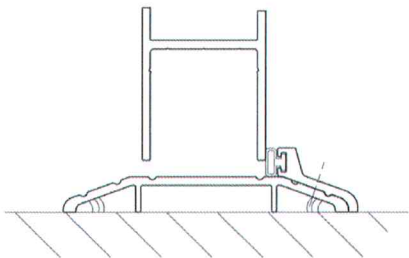


THRESHOLDS

Description:

- 1. Factory fabricated extruded aluminum; factory prepped for specified hinging and locking hardware; (specify).
- 2. Standard threshold: 4" (101.6mm) wide x 1/2" (12.7mm) high by width required.

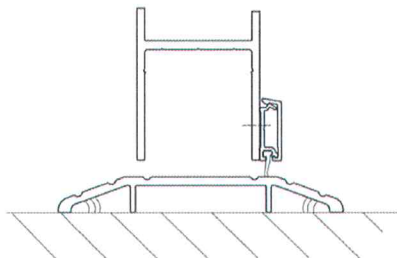
Finish: Mill finish.



~~**THRESHOLD STOP**~~

Description: Surface applied stop. Screw applied with gasket to 1/2" (12.7mm) high threshold.

Finish: Mill finish.



~~**WEATHER STRIPPING**~~

~~**BOTTOM DOOR SWEEPS**~~

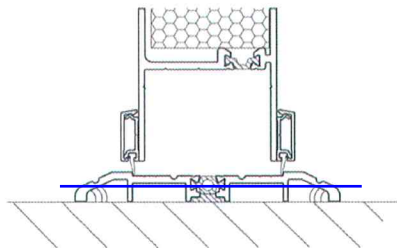
Description: Extruded aluminum, surface applied weather-strip with elastomer sweep and concealed fasteners; applied to bottom interior door rail.

Finish: Clear or black anodized finish. Painted finishes available to match door.

Length: 3'-0" to 4'-0"

H-7107

H-7107 (Finish Code) 0300	3'-0"
H-7107 (Finish Code) 0400	4'-0"



BE9-1535

NOTE: Model 35XT and 50XT require sweeps at interior and exterior.
Model 35H requires sweep at exterior for air and water threshold.



Nylon Brush Sweep
C627




Material
Nylon Brush

Finishes
C627A Anodized Aluminum Gray Brush
C627B Gold Black Brush
C627DKB Dark Bronze Black Brush

Project:
Submitted by:
Date:
Notes: Nylon Brush Door Sweeps on exterior side of opening



1154 North Avenue Beacon NY

Make-up Name	Make-up Icon	Glass 1 & Coating	Glass 2 & Coating	Transmittance		Reflectance			U-Value		Solar Heat Gain Coefficient (SHGC)
				Visible (τ _v %)	Solar (τ _g %)	Visible		Solar	Winter Night (Btu/hr·ft²·°F)	Summer Day (Btu/hr·ft²·°F)	
						ρ _v % out	ρ _v % in	ρ _g % out			
Default Make-up 01		Clear (North America)	N/A	89	81	8	8	8	1.03	0.93	0.84

Calculation Standard: NFRC 2010

* 1/4" Clear Tempered Glass for Doorlites *

Default Make-up 01

Outdoors

GLASS 1

Clear (North America)
Thickness = 1/4" = 6mm

#1 ----
#2 ----

Total Unit (Nominal) = 1/4 in / 6 mm

Slope = 90°

Window Height = 1 meter

Estimated Nominal Glazing Weight: 2.87 lb/ft²

Indoors

Important Notes

The performance values shown above represent NOMINAL VALUES for the center of glass with no spacer system or framing. Slight variations may occur due to manufacturing tolerances, point of manufacture, and type of instrumentation used to measure the optical properties. For configurations that include non-specular (diffuse) components, performance results cannot be verified and should only be used as a general indication of performance. For configurations which include ceramic frit coating, the actual values may vary significantly based upon the thickness and composition of the frit. For configurations with coatings laminated facing the PVB, there may be a noticeable color change. Guardian recommends a full size mock-up be approved. Calculations and terms in this report are based on NFRC 2010.

Please note that the THERMAL STRESS GUIDELINE is only a rough reference to the thermal safety of a glazing. Other factors such as the size of glass areas, shapes and patterns, glass thickness, glass damaged during shipping, handling or installation, orientation of the building, exterior shading, overhangs/fins that reduce wind speed, and areas with high daily temperature fluctuations can all increase the probability of thermal breakage. The results shown are not for any specific glazing installation and do not constitute a warranty against glass breakage.

Explanation of Terms

% **Transmittance Visible or Light Transmittance** (τ_v %) is the percentage of visible light at normal incidence (90° to surface) that is transmitted by the glass.

% **Ultraviolet (UV) Transmittance** (τ_{uv} %) is the percentage of ultraviolet light at normal incidence directly transmitted by the glass. Ultraviolet Light is defined as radiant energy from the sun having a wavelength range of 300 nm to 380 nm.

% **Solar Energy Direct Transmittance** (τ_e %) is the percentage of solar energy at normal incidence directly transmitted by the glass. Solar Energy is the radiant energy from the sun having a wavelength range of 300 nm to 2500 nm.

% **Reflectance Visible Outdoors or Light Reflectance Out** (ρ_v % out) is the percentage of visible light at normal incidence directly reflected by the glass back outdoors.

% **Reflectance Visible Indoors or Light Reflectance In** (ρ_v % in) is the percentage of visible light at normal incidence directly reflected by the glass back indoors.

% **Solar Energy Reflected Outdoors or Solar Direct Reflectance Out** (ρ_e % out) is the percentage of solar energy at normal incidence directly reflected by the glass back outdoors.

% **Solar Energy Reflected Indoors or Solar Direct Reflectance In** (ρ_e % in) is the percentage of solar energy at normal incidence directly reflected by the glass back indoors.

Absorptance (α_e %) (Solar, Visible or UV) is defined as a process in which a range of radiation is retained by a substance and converted into heat energy. The creation of heat energy also causes the substance to emit its own radiation.

U-Factor or U-Value (U_G) is the air-to-air thermal conductance of 39" high glazing and associated air films. US Standard units are Btu/hr.ft².F. and SI / Metric units are W/m²K. Winter night values are 12.3 mph wind at -0.4°F outdoors and 69.8°F still indoor air. Summer values are 0 sun, 6.15 mph wind at 89.6°F outdoors and 75.2°F still indoor air.

Relative Heat Gain (RHG) is the total net heat gain to the indoors due to both the air-to-air thermal conductance and the solar heat gain. Imperial units are Btu/hr.ft². $RHG = [(Summer\ U-Value)(89.6^\circ F - 75.2^\circ F) + (Shading\ Coefficient)(200\ Btu/hr-ft^2)]$. Metric units are W/m². $RHG = [(Summer\ U-Value)(32^\circ C - 24^\circ C) + (Shading\ Coef.)(631\ W/m^2)]$

Shading Coefficient (SC) is the fraction of solar heat, direct (300 to 2500 nm) plus indirect (5 to 40 μ m), transferred indoors through the glass. For reference, 1/8" (3.1 mm) clear glass has a value of 1.00 (SC is an older term being replaced by the SHGC).

Solar Heat Gain Coefficient (SHGC) is the fraction of solar energy incident on the glazing that is transferred indoors both directly and indirectly through the glazing. The direct gain portion equals the direct solar transmittance, while the indirect is the fraction of the solar energy absorbed to the energy reradiated and convected indoors. No heat gain from warmer outdoor air is included. $SHGC = (Direct\ Solar\ Trans) + \{[(Indirect\ Solar\ Heat\ Gain) - (Summer\ U-Value)(89.6^\circ F - 75.2^\circ F)] / (248.209\ Btu/hr-ft^2)\}$

Light-to-Solar Gain (LSG) is the ratio of visible light gain to solar gain. $LSG = (Visible\ Transmittance) / (SHGC)$

Color Rendering Index in transmission, D65 (R_a) is the change in color of an object as a result of the light being transmitted by the glass.

Weighted Sound Reduction Index (R_w) is a single-number quantity which characterizes the airborne sound insulation of a material or building element over a range of frequencies.


Sound Transmission Class (STC) is a single-number quantity which characterizes the airborne sound insulation of a material or building element over a range of frequencies.

Disclaimer

This performance analysis is provided for the limited purpose of assisting the user in evaluating the performance of the glass products identified on this report. Spectral data for products manufactured by Guardian reflect nominal values derived from typical production samples. Spectral data for products not manufactured by Guardian were derived from the LBNL International Glazing Database and have not been independently verified by Guardian. The values calculated by this tool are generated according to established engineering practices and applicable calculation standards. Many factors may affect glass performance, including glass size, building orientation, shading, wind speed, type of installation, and others. The applicability and results of the analysis are directly related to user inputs and any changes in actual conditions can have a significant effect on the results. It is possible to create many different glazing types and glass make-ups using this tool. Guardian makes no guarantee that any glazing modeled by the tool is available from Guardian or any other manufacturer. The user has the responsibility to check with the manufacturer regarding availability of any glass type or make-up. While Guardian has made a good faith effort to verify the reliability of this tool, it may contain unknown programming errors that could result in incorrect results. The user assumes all risk relating to the results provided by the tool and is solely responsible for selection of appropriate products for the user's application. GUARDIAN MAKES NO EXPRESS OR IMPLIED WARRANTY OF ANY KIND WITH RESPECT TO THE PERFORMANCE CALCULATOR. THERE ARE NO WARRANTIES OF MERCHANTABILITY, NON-INFRINGEMENT OR FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO THE PERFORMANCE CALCULATOR AND NO WARRANTY SHALL BE IMPLIED BY OPERATION OF LAW OR OTHERWISE. IN NO EVENT SHALL GUARDIAN BE LIABLE FOR DIRECT, INDIRECT, SPECIAL, CONSEQUENTIAL OR INCIDENTAL DAMAGES OF ANY KIND RELATING TO OR RESULTING FROM USE OF THE PERFORMANCE CALCULATOR.

Program Version: 4.1.0.5419
Database Version: 20170804

1154 North Ave Beacon NY

Make-up Name	Make-up Icon	Outboard Substrate & Coating	Inboard Substrate & Coating	Transmittance		Reflectance			U-Value		Shading Coefficient (sc)	Solar Heat Gain Coefficient (SHGC)
				Visible (τ _v %)	Solar (τ _e %)	Visible		Solar	Winter Night (Btu/hrd ² F)	Summer Day (Btu/hrd ² F)		
						ρ _v % out	ρ _v % in	ρ _e % out				
1" Insulated: 1/4" clear over 1/4" clear		Clear (North America)	Clear (North America)	80	67	15	15	13	0.47	0.50	0.85	0.74

Calculation Standard: NFRC 2010

1" Insulated: 1/4" clear over 1/4" clear

* 1" Insulated Tempered Glass Units for Sidelites *

Outdoors

LITE	Clear (North America)	#1 ----
	Thickness = 1/4" = 6mm	#2 ----
GAP	100% Air, 1/2" = 12.7 mm	
LITE	Clear (North America)	#3 ----
	Thickness = 1/4" = 6mm	#4 ----

Total Unit = 0.942 in / 23.927 mm

Slope = 90°

Window Height = 1 meter

Indoors

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U-Factor or U-Value (U_G) is the air-to-air thermal conductance of 39" high glazing and associated air films. US Standard units are Btu/hr.ft².F. and SI / Metric units are W/m²K. Winter night values are 12.3 mph wind at -0.4°F outdoors and 69.8°F still indoor air. Summer values are 0 sun, 6.15 mph wind at 89.6°F outdoors and 75.2°F still indoor air.

Relative Heat Gain (RHG) is the total net heat gain to the indoors due to both the air-to-air thermal conductance and the solar heat gain. Imperial units are Btu/hr.ft². $RHG = [(Summer\ U-Value)(89.6^\circ F - 75.2^\circ F) + (Shading\ Coefficient)(200\ Btu/hr-ft^2)]$. Metric units are W/m². $RHG = [(Summer\ U-Value)(32^\circ C - 24^\circ C) + (Shading\ Coef.)(631\ W/m^2)]$

Shading Coefficient (SC) is the fraction of solar heat, direct (300 to 2500 nm) plus indirect (5 to 40 μ m), transferred indoors through the glass. For reference, 1/8" (3.1 mm) clear glass has a value of 1.00 (SC is an older term being replaced by the SHGC).

Solar Heat Gain Coefficient (SHGC) is the fraction of solar energy incident on the glazing that is transferred indoors both directly and indirectly through the glazing. The direct gain portion equals the direct solar transmittance, while the indirect is the fraction of the solar energy absorbed to the energy reradiated and convected indoors. No heat gain from warmer outdoor air is included. $SHGC = (Direct\ Solar\ Trans) + \{[(Indirect\ Solar\ Heat\ Gain) - (Summer\ U-Value)(89.6^\circ F - 75.2^\circ F)] / (248.209\ Btu/hr-ft^2)\}$

Light-to-Solar Gain (LSG) is the ratio of visible light gain to solar gain. $LSG = (Visible\ Transmittance) / (SHGC)$

Color Rendering Index in transmission, D65 (R_a) is the change in color of an object as a result of the light being transmitted by the glass.

Weighted Sound Reduction Index (R_w) is a single-number quantity which characterizes the airborne sound insulation of a material or building element over a range of frequencies.

Sound Transmission Class (STC) is a single-number quantity which characterizes the airborne sound insulation of a material or building element over a range of frequencies.

Disclaimer

This performance analysis is provided for the limited purpose of assisting the user in evaluating the performance of the glass products identified on this report. Spectral data for products manufactured by Guardian reflect nominal values derived from typical production samples. Spectral data for products not manufactured by Guardian were derived from the LBNL International Glazing Database and have not been independently verified by Guardian. The values calculated by this tool are generated according to established engineering practices and applicable calculation standards. Many factors may affect glass performance, including glass size, building orientation, shading, wind speed, type of installation, and others. The applicability and results of the analysis are directly related to user inputs and any changes in actual conditions can have a significant effect on the results. It is possible to create many different glazing types and glass make-ups using this tool. Guardian makes no guarantee that any glazing modeled by the tool is available from Guardian or any other manufacturer. The user has the responsibility to check with the manufacturer regarding availability of any glass type or make-up. While Guardian has made a good faith effort to verify the reliability of this tool, it may contain unknown programming errors that could result in incorrect results. The user assumes all risk relating to the results provided by the tool and is solely responsible for selection of appropriate products for the user's application. GUARDIAN MAKES NO EXPRESS OR IMPLIED WARRANTY OF ANY KIND WITH RESPECT TO THE PERFORMANCE CALCULATOR. THERE ARE NO WARRANTIES OF MERCHANTABILITY, NON-INFRINGEMENT OR FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO THE PERFORMANCE CALCULATOR AND NO WARRANTY SHALL BE IMPLIED BY OPERATION OF LAW OR OTHERWISE. IN NO EVENT SHALL GUARDIAN BE LIABLE FOR DIRECT, INDIRECT, SPECIAL, CONSEQUENTIAL OR INCIDENTAL DAMAGES OF ANY KIND RELATING TO OR RESULTING FROM USE OF THE PERFORMANCE CALCULATOR.

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