



Serving the Piedmont Triad area since 1994

## PRODUCT ORDERING GUIDE ©

Office: 336-993-7300

Fax: 336-993-1431

1318 SHIELDS ROAD  
KERNERSVILLE, NC 27284

Email: [info@clearlightglass.com](mailto:info@clearlightglass.com)

Web: [www.clearlightglass.com](http://www.clearlightglass.com)

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# 1 INTRODUCTION

Thank you for choosing Clearlight Glass and Mirror. Our people and industry experience have made us the premier provider for all of your glass and mirror needs. Please visit our website at [www.clearlightglass.com](http://www.clearlightglass.com) for more information on our products and services and to see examples of our quality work.

## ■ Residential Applications

- Framed or Frameless Mirrors
- Custom-fit Mirrors and Mirror Walls
- Beveled Mirror Strips and Corners
- Interior / Exterior / Cabinet Door Panel Inserts with Optional Custom Etching
- Custom Shower Enclosures / Steam Rooms
- Furniture Protection Toppers
- Heavy Glass Table Tops
- Counter and Bar Tops
- Shelving
- Insulated Windows Units

## ■ Commercial Applications

- Interior and Exterior Signs
- Conference Room Table Tops
- Room Dividers
- Mirror Walls
- Glass Panels
- Glass Railings
- Glass Shelving
- Transaction Tops

## ■ Fabrication Options

- Cutting
- Beveling
- Mitering
- Edging
- Drilling
- Notching
- Polishing
- Plate U Grooving
- Etching

## 2 TERMS AND CONDITIONS

This section outlines the terms and conditions of doing business with Clearlight Glass and Mirror. Placing an order with Clearlight or acceptance of product from Clearlight constitutes acceptance of these terms and conditions. Please contact us if you have any questions concerning this document.

### 2.1 Order Acceptance

Orders in writing and via fax are preferred, but telephone orders will be accepted. Any errors in telephone orders that are not confirmed in writing will not be the responsibility of Clearlight. All custom orders will be non-cancelable and non-refundable after 24 hours of order receipt unless approved by Clearlight. Orders are not considered accepted and production will not begin until all questions regarding fabrication have been answered to our satisfaction.

Orders for pattern cuts must be accompanied by a full-size template, which may be rejected at Clearlight's sole discretion. Patterns provided via fax will **not** be accepted. For further details on order requirements, refer to the "Patterns and Template" section of this document.

### 2.2 Prices and Quotations

Prices are subject to change without notice. Quoted prices are good for 30 days unless otherwise specified in writing. Quotes are net and are not subject to further discounts.

### 2.3 Taxes

All orders are subject to North Carolina State sales tax unless a valid, signed, and most current NCDOR resale certificate (E-595E 1-07) is on file in our office. All quotations are priced without sales tax included unless specifically requested.

### 2.4 Payment Terms

All retail orders require a 100% payment at the time of the order. All commercial orders placed without an established line of credit will require a 50% deposit when the order is placed and the balance due upon delivery. Clearlight accepts cash, business and personal checks, and credit cards (Visa / MasterCard / Discover) for payment.

### 2.5 Extension of Credit

Accounts with established firms may be opened at the discretion of Clearlight. After completing the Credit Application Form, Clearlight will establish a credit limit for each customer. Each new account's first order is COD, and subsequent orders are subject to our terms and conditions. If at any time a customer's credit limit is exceeded, all deliveries will be stopped until payment has been made to bring the outstanding balance (orders plus invoices) under the limit. Clearlight also reserves the right to suspend production as well until payment has been made depending on the circumstances.

If an account becomes past due, all deliveries will be stopped until payment for the past due amount has been made. If an account becomes more than 30 days past due, all production orders will be placed on hold until full payment of the past due amount has been made and without prejudice to all available legal remedies. If an account becomes more than 60 days past due, the extension of credit will be revoked – i.e. the account will become strictly COD until such time an agreement can be reached about further credit amounts. Any unpaid balances over 30 days past due are subject to interest charges of 1.5% per month / 18% per year.

## 2.6 Standard Tolerances

The following table reflects the industry standard tolerances for normal fabrication. Note that any glass to be inset must be ordered using plus zero / minus regular tolerance. See the “Critical Tolerances” section in this document for more details.

Thickness:	3/32"	1/8"	3/16"	1/4"	3/8"	1/2"	3/4"
Clean Cut, Seam (+/-)	1/16"	1/16"	1/16"	1/16"	3/32"	3/32"	1/8"
Polish, Bevel (+/-)	1/16"	1/16"	3/32"	3/32"	1/8"	3/16"	1/4"

## 2.7 Critical Tolerances / Hold Dimensions

Clearlight can fabricate to more exacting tolerances if requested for an additional charge. The specifications must be noted on the order before the order is quoted. We are not responsible for any rework that results from the failure to clearly and properly note any critical tolerances on an order. Clearlight cannot guarantee a hold dimension on 1/2" or 3/4" glass due to possible in-flares when cutting these thicknesses of heavy glass. Requests for tighter tolerances on thick glass will be handled on a case-by-case basis.

## 2.8 Quality Control

All products sold by Clearlight are inspected for defects immediately following fabrication using industry-standard guidelines established by the major glass suppliers. Any defect which cannot be seen when the glass is held at eye level in normal room light from a distance of three feet is considered acceptable. If the product does not pass this inspection, then Clearlight will remake the product before delivery to the customer.

## 2.9 Warranties

**Mirror Warranty** – Subject to these terms and conditions, Clearlight provides the following LIMITED WARRANTY for a period of one (1) year following the date of purchase against material defects and defects in workmanship for mirrors. All warranty claims are subject to inspection by Clearlight prior to providing a remedy, if any, for the warranty claim. This Warranty will not apply if after inspection by Clearlight, it is determined that the mirror has not been maintained in a manner consistent with the instructions and guidelines set forth by Clearlight for proper maintenance including but not limited to the use of improper cleaners or failure to maintain proper relative humidity (e.g. not running the air conditioner in an unoccupied house). Clearlight’s responsibility to provide a remedy under this Warranty shall be, at its sole discretion, limited to either to provide a replacement of the affected mirror or refund of the purchase price. The refund or replacement shall constitute the limit and entirety of Clearlight’s liability and obligation. This Warranty specifically excludes labor costs.

**Insulated Glass Unit Warranty** – Subject to these terms and conditions, Clearlight provides the following LIMITED WARRANTY for a period of five (5) years from the date of manufacture. Clearlight warrants the unit(s) shall be free from defects in material and workmanship; Clearlight further warrants the seal of the unit(s) against failure resulting in material obstruction of vision through the unit(s) due to accumulation of dust, moisture or film on internal glass surfaces, with the following exceptions:

THE INSULATED GLASS UNIT WARRANTY COVERAGE DOES NOT EXTEND TO:

Seal failure due to glass breakage; unit(s) which have not been installed in a workmanlike manner and glazed in accordance with at least SIGMA-suggested glazing instructions; unit(s) used or installed in high moisture environments,

such as swimming pool enclosures, greenhouses, solar collectors and refrigeration units; unit(s) used or installed in high vibration environments such as motor vehicles, refrigeration units; unit(s) seal failure or breakage resulting from a film or coating applied to the exterior of the unit, including but not limited to non-acidic-free silicone; unit(s) installed in sloped glazing and skylights; unit(s) which have been improperly handled; unit(s) installed with incompatible sealant materials, including acidic silicone or any other sealant detrimental to the butyl or another part of the unit; any unit(s) exposed to moisture conditions prior to installation will not be covered by this warranty. This Warranty does not include costs of labor.

**Shower Enclosure Warranty** – Subject to these terms and conditions, Clearlight provides the following LIMITED WARRANTY for a period of one (1) year (Alumax products) or three (3) years (CRL products) following the date of installation against material defects and defects in workmanship for the shower hardware. This includes hinges, clamps, handles, bars, and all extruded aluminum components such as tracks and headers. All warranty claims are subject to inspection by Clearlight prior to providing a remedy, if any, for the warranty claim. This Warranty will not apply if after inspection by Clearlight, it is determined in Clearlight's sole discretion, that the shower has not been maintained in a manner consistent with the industry-standard instructions and guidelines for proper maintenance. Clearlight's responsibility to provide a remedy under this Warranty shall be, at its sole discretion, limited to repairing or replacing the affected hardware. The repair or replacement shall constitute the limit of Clearlight's liability and obligation. This warranty specifically excludes labor costs.

**WARNING: Tempered glass has been known to spontaneously break or explode for no apparent reason. This breakage is thought to occur due to the fact that tempered glass is under an internal pressure which can release due to internal defects, thermal stresses, nickel sulfide inclusions, and/or damage during installation, among other reasons. Such spontaneous breakage is inherent to tempered glass and Clearlight specifically excludes such breakage, for whatever reason, from these Warranties and Customer expressly accepts all liability and damages to person and property by assuming all risks associated with spontaneous breakage.**

THESE WARRANTIES ARE IN LIEU OF ALL OTHER EXPRESS WARRANTIES, STATEMENTS OR REPRESENTATIONS, AND ALL WARRANTIES, STATEMENTS, OR REPRESENTATIONS MADE BY ANY OTHER PERSON OR FIRM ARE VOID. ALL IMPLIED WARRANTIES IN CONNECTION WITH THIS SALE, INCLUDING THE WARRANTY OF MERCHANTABILITY SHALL BE OF THE SAME DURATION AS THE WARRANTY PERIOD STATED ABOVE. CLEARLIGHT SPECIFICALLY MAKES NO WARRANTIES AS TO THE SUITABILITY OF THE UNIT(S) FOR ANY PARTICULAR APPLICATION. IN NO EVENT SHALL CLEARLIGHT BE LIABLE UNDER ANY LEGAL THEORY (INCLUDING BUT NOT LIMITED TO CONTRACT, NEGLIGENCE, STRICT LIABILITY IN TORT, OR WARRANTY OF ANY KIND) FOR ANY INDIRECT, SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR EXEMPLARY DAMAGES (INCLUDING BUT NOT LIMITED TO LOST PROFITS).

#### 2.10 Pickup / Delivery / Shipping

Notification will be provided when the work is completed. Clearlight can arrange to deliver the order to the customer's location within our delivery area for a fee, it can be packed and shipped using a third-party transportation company, or the customer can pick up the order at the shop. Any costs for packaging and shipping will be passed through to the customer. Note that we do not deliver to construction sites due to safety and liability issues.

Any customer order not picked up within 30 days after notification of completion may be sold at Clearlight's discretion, and any deposit will be forfeited to cover our costs of labor, material, and storage.

#### 2.11 Receipt of Goods / Inspection

Upon delivery / pick up of orders, the customer is required to visually inspect the product for any damage, shortage, or other problems. If any issue is found, the customer must contact Clearlight immediately to describe the problem and determine the corrective action plan. No credit will be given on merchandise when an inspection is not done when the product is received.

Scratches, chips, and wheel marks which are found to be unacceptable using the above-described industry procedure

(see the “Quality Control” section) will be replaced / repaired at no charge or a refund given at the discretion of Clearlight. Any replacements and/or repairs will be scheduled to be fabricated as soon as possible.

For cased deliveries, notice of damages must be given within 48 hours of delivery. Freight damages are the responsibility of the freight company and must be resolved with them. On large orders of 10 or more pieces, an extended inspection time may be given with prior approval.

For further information, see the “Return Policy” section in this document.

### 2.12 Return Policy

All items rejected by the customer must be available for inspection at the Clearlight offices before replacement begins. Any items that have been moved, transported, resold, installed, modified, or otherwise changed by the customer will be considered accepted and are subject to the full cost of replacement. Returns for any reasons other than poor quality (e.g. scratches or chips) and fabrication accuracy (e.g. does not match the order specifications) will not be accepted, except with prior approval by Clearlight.

### 2.13 Standard Lead Times

Clearlight maintains standard lead times based on the size of the order and the fabrication requirements. Orders are processed daily and any orders received after 2 p.m. will be processed the following business day. Manufacturing will not begin until the Customer confirms the order and, where applicable, has paid for the order per the “Payment Terms” section above. Any changes in normal lead times for larger orders, non-stocked materials, etc. will be communicated at the time of order confirmation. We make every effort to complete orders within our published lead times, but note that these are only projections and **do not represent a guarantee**. If a specific completion deadline is required, see the “Rush Service” section for additional options.

Operation Lead Times in Business Days				
Cut & Seam	Straight Edging / Other Fabrication	Shape Edging	Tempering	Sandblast Etching
2 days	add 3 more	add 5 more	add 5 more	add 5 more

Other fabrication includes pattern cuts, corner treatments, plate grooving, holes, cutouts, and safety backing. Shaped edging always includes time for cut & seam and other fabrication plus shape time. Due to the time- or skill-intensive aspect of specific orders, these lead times may need to be increased substantially.

Using the table above, here are some examples of how to compute the standard lead times:

Type of Edging / Operation	Fabrication Options	Lead Time
None	Cut (& Seamed)	2 business days
None	Cut & Tempered	7 business days
None	Cut & Sandblasted	7 business days
None	Cut & Tempered & Sandblasted	12 business days
Straight / Other Fabrication	Cut & Edged	5 business days

Straight / Other Fabrication	Cut & Edged & Tempered	10 business days
Straight / Other Fabrication	Cut & Edged & Sandblasted	10 business days
Straight / Other Fabrication	Cut & Edged & Sandblasted & Tempered	15 business days
Shaped Edging	Cut & Edged	10 business days
Shaped Edging	Cut & Edged & Tempered	15 business days
Shaped Edging	Cut & Edged & Sandblasted	15 business days
Shaped Edging	Cut & Edged & Sandblasted & Tempered	20 business days

#### 2.14 Rush Service

If the customer requests delivery of an order faster than the published standard lead times, Clearlight will attempt to provide expedited fabrication for a premium above the published pricing schedule. The customer must request this service at the time the order is placed, and must provide the requested delivery date. Clearlight will evaluate its shop schedule and raw material availability at that time to determine if the desired date is feasible. Even if the date is feasible, **delivery by the date is not guaranteed**. The order confirmation will reflect Clearlight's best possible delivery date based on these factors, and will indicate the percent premium for the service. The customer must approve the timing and special pricing of the order before production begins. The up-charge for rush service will vary depending on the requirements and how much quicker than the normal production time the product is needed. Once approved, the customer will be charged regardless of when they take delivery of the product because Clearlight will have already invested its time and energy in completing the order in the agreed upon time frame.

Operation Lead Times in Business Days						
Service Level	Price Premium	Cut & Seam	Straight Edging / Other Fabrication	Shape Edging	Tempering	Sandblast Etching
Level 1	+10%	1 day	add 2 more	add 4 more	add 4 more	add 4 more
Level 2	+25%	1 day	add 2 more	add 3 more	add 3 more	add 3 more
Level 3	+50%	1 day	Add 1 more	add 2 more	add 2 more*	add 2 more
Level 4	+100%	0 days	Add 1 more	add 1 more	add 1 more*	add 1 more

\* NOTE that Clearlight cannot guarantee these times because of the issues inherent with the tempering and other processes. **These represent target times only and customer agrees to pay the rush charges regardless of the actual delivery date.**

#### 2.15 Shipping / Damage Claims

All merchandise is carefully inspected before packaging and is shipped in approved materials when it leaves the shop. All freight damage claims are the responsibility of the consignee. Customers should note any visible damage to the shipping container on the receiving ticket before signing. The customer is protected from concealed damage if a claim is made within 24 hours of delivery. Failure to follow these procedures may result in a denial of the claim and therefore a loss to the customer.



## 2.16 Customer-Owned Glass / Mirror

Clearlight performs fabrication services on customer-owned product, and handles it with the utmost care. However, due to many factors not under our control, we cannot be responsible for any damage that may occur while in our shop, including while tempering. The customer must understand the risks involved before requesting these services. Charges will vary depending on the services performed plus appropriate labor charges.

All customer glass will be inspected by Clearlight upon receipt at the shop, and we will not be responsible for any surface damages that are present at that time. Also, if the glass has been pre-cut to size, Clearlight cannot be responsible for the finished size because the fabrication process may reduce its overall dimensions. It is therefore important that the Customer obtain the gross size specifications from Clearlight that include the required overages so that the final net dimensions can be met. This information must be supplied at the confirmation of the order. Only fabrication quality is guaranteed.

## 2.17 Customer-Owned Material

Clearlight installs our products into customers' material including windows, doors, frames, and furniture. We take all reasonable and prudent steps to safeguard them while in our possession. However, Clearlight is not responsible for any damage that may occur while in our shop. The customer must understand the risks involved before requesting these services. Charges will vary depending on the services performed plus appropriate labor charges.

All customer-owned items dropped off for a quote that is not subsequently ordered must be picked up within 30 days or the items will be discarded due to storage limitations. Orders not retrieved by customers within 30 days of notification of completion will be discarded due to storage limitations.

## 2.18 Application and Use

Clearlight does not warrant the application and use of the products we supply. It is up to the customer to make the determination of applicability and suitability of the requested products for the intended use.

## 2.19 Liability

Clearlight is not responsible for any delays by factors outside the reasonable control of the company such as labor shortages, equipment failure, defective raw materials, vendor delays, vendor error, spontaneous breakage or acts of God. In all cases, Clearlight's liability will not exceed the amount of our invoice. Clearlight does not provide a warranty of merchantability nor warranty the application and/or use of the product provided.

## 3 PLACING AN ORDER

Our friendly and knowledgeable staff is here to help you in any way possible. Please feel free to call us if you have any questions about what products and services we offer, or if you are unsure how best to communicate your requirements to us.

### 3.1 Ordering Methods

There are many ways of placing an order with Clearlight. For simple orders, you may call the office and describe what you need. For orders that have more specifics, a fax will be fine. A hand-drawn diagram is satisfactory as long as it is legible and contains all of the necessary information. For more complex requirements, a formal drawing is requested. See the "Drawing Example" section below to see what information and formats work well for us. Also, see the section on "Patterns and Templates" if a high degree of precision and/or a non-standard shape is required.

Clearlight will process your order and will contact you if there are any questions. A quote will be either sent to you via mail or Fax, or you will be called with the cost and delivery information. Please note that Clearlight will not begin work until you have approved the quote and given permission to start.

### 3.2 Information Required

In order to accurately quote and fabricate an order, Clearlight needs to know the following information:

- Glass / Mirror Type and Color
- Thickness
- Shape, Dimensions, and Corners
- Edgework Type and Size (for each edge)
- Sandblasting and Graphics (as required)
- Special Requirements (holes, cutouts, plate grooves, critical tolerances)
- Special Properties (tempered, insulated units)

### 3.3 Estimating Project Costs

The formulas below along with the current price lists can be used as a quick way to estimate the cost of an order. Any unusual shapes or fabrication requirements should be discussed with Clearlight. Actual prices will be confirmed at the time of the order confirmation by Clearlight.

#### **Step 1 – Raw Material Costs**

To calculate the costs for material, determine the total number of square feet required using the formulas below and round the answer up to the next  $\frac{1}{4}$  square foot. Look up the cost on the price sheet based on the type of glass and thickness and multiply the total square feet by 1.5 (the waste factor for glass unusable after cutting) times price per square foot from the price sheet.

**For straight cuts** – squares or rectangles are cut from a larger piece of glass. Round the length and width measurements to the next full inch. Multiply the length (X) in inches by the width (Y) in inches and divide the results by 144 to get square feet.

**Example 1**

Length (X) 36 inches  
 Rounds up to 36 inches

Width (Y) × 24 inches  
 Rounds up to 24 inches

= 864 square inches

Divide by ÷ 144 inches  
 Equals = 6.00 square feet

Rounds up to 6.00 square feet

**Example 2**

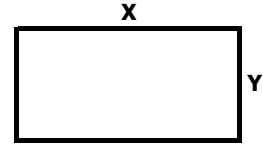
Length (X) 35 1/8 inches  
 Rounds up to 36 inches

Width (Y) × 22 1/2 inches  
 Rounds up to 23 inches

= 828 square inches

Divide by ÷ 144 inches  
 Equals = 5.75 square feet

Rounds up to 5.75 square feet



**For pattern cuts / straight cuts in thick glass** – shapes and heavy glass pieces are cut from an oversized piece that must be slightly larger than the finished dimensions of the product to allow for fabrication. See the table below to determine how much extra is required based on the thickness of the glass to be cut. Round both the length and width to the next full inch, then take the longest length (X) in inches added to the blocking factor, then multiply the results by the longest width (Y) in inches added to the blocking factor and divide the result by 144 to get square feet.

Thickness	3/8"	1/2"	3/4"
Rectangle Blocking Factor	1"	2"	4"

Thickness	3/32"	1/8"	3/16"	1/4"	3/8"	1/2"	3/4"
Pattern Blocking Factor	2"	2"	2"	2"	4"	6"	8"

**Example:**

\*Assumes 1/4" glass

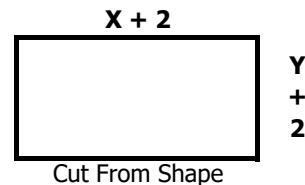
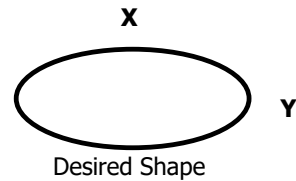
Largest Length (X) 36 inches  
 Plus + 2 inches for blocking  
 Equals = 38 inches length total

Largest Width (Y) 24 inches  
 Plus + 2 inches for blocking  
 Equals = 26 inches width total

38 x 26 = 988 square inches total

Divide by ÷ 144 inches  
 Equals = 6.86 square feet

Rounds up to 7.00 square feet



**Step 2 – Fabrication Costs**

To calculate the costs for machining, determine the total number of linear inches to be worked using the formulas below and round the answer up to the next full inch. Look up the cost on the price sheet based on the type of glass and thickness and multiply the total number of inches times the price per inch from the price sheet.

**For straight cuts** – add the number of inches of all of the sides to be worked. For example, a rectangle 24"x36"

with all edged to be finished = 24" + 24" + 36" + 36" = 120".

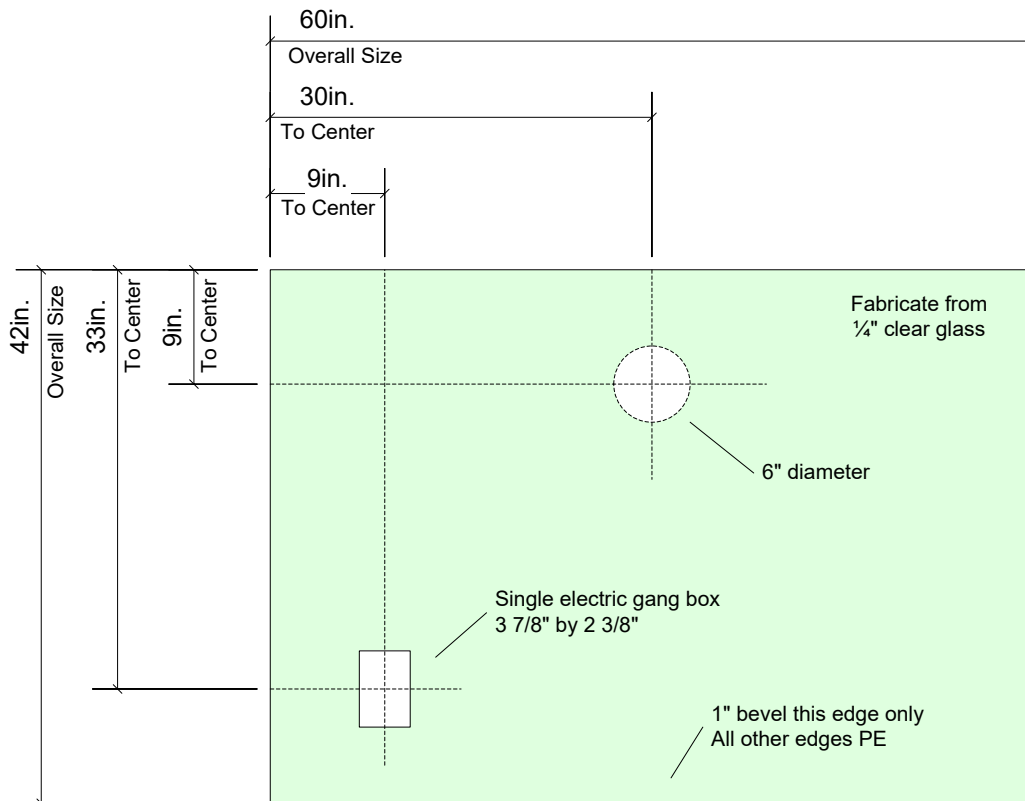
**For round pieces** – multiply the diameter of the piece by 3.14. For example, a 24" round piece = 24" \* 3.14 = 75.36" which rounds to 76".

**For oval pieces** – multiply the longest dimension of the piece by 2.75. For example, a 20" x 36" oval piece = 36" \* 2.75 = 99".

### 3.4 Drawing Example

To best communicate the information needed to accurately fabricate mirror and glass to us, and to assure that what you receive is exactly what you require, please use the diagram below as an example. All edges should be labeled with the desired edge treatment. All dimensions must be given to the center of the hole / cutout with an indication of where the sizes are pulled from. Clearlight cannot guarantee accuracy if the drawings are not in this format. If the drawing received does not provide clear information, the quote / order will be held until clarified.

NOTE all dimensions should be in inches and pulled from the same corner as indicated below.



- Specify thickness, type, and color of glass
- Specify special properties (e.g. tempered)
- Specify any critical tolerances
- Specify edge treatments for all edges
- Specify size and location of all holes / cutouts
- Specify plate groove start and stop dimensions

### 3.5 Graphics for Sandblasting

Sandblasting glass is a 2-color process – either the original glass remains untouched or the glass is etched by the sand. This is an important concept to understand when deciding which design will produce the best results. Also, the customer needs to decide if they want a positive or negative image. In other words, the customer must decide whether the dark part of the image will be etched or the white part. Please indicate this when submitting a request.

Graphics can be given to Clearlight in “photo quality” black and white artwork. This should be on a white paper with solid black print which will then be scanned into the computer. Grayscale drawings do not work because there are more than 2 colors.

Clearlight prefers graphics created and sent via a computer file in the following formats: vector-based (best) = .ai, .eps, .dxf and bitmap (300 DPI or greater) = .tif, .bmp, .jpg. Call for other formats.

Upon receipt of the graphic in one of the approved formats, Clearlight will evaluate the pattern and determine what if any cleanup work is required. This is based on the uniqueness of the design and how it impacts the pattern cutting machine. The time and charges required to make the graphic suitable for sandblasting will be included in the quote. Note that these “make ready” costs are 1 time only, so additional pieces made using the same design will only be charged using the prices on our price list. Also note that some small changes to the artwork may be required to achieve a high-quality result. Also note that bitmap formats will have “pixelization” meaning that the lines are not really lines, but instead are made up of many small dots which do **not** work well and will require a **significant** amount of time to fix, often running into many \$100’s of dollars.

## 4 FABRICATION INFORMATION

This section provides details on all of the products and services that Clearlight provides.

### 4.1 Glass and Mirror Sizes

Clearlight can fabricate orders out of the following material:

Thickness:	3/32"	1/8"	3/16"	1/4"	3/8"	1/2"	3/4"
Glass	✓	✓	✓	✓	✓	✓	✓
Mirror		✓	✓	✓			

### 4.2 Stocked Glass and Mirror

Clearlight keeps popular colors and styles of glass and mirror in various sizes in stock at all times (✓). Other colors and styles are readily available (RA). Please contact Clearlight for additional information for specialty and patterned glass.

Thickness:	3/32"	1/8"	3/16"	1/4"	3/8"	1/2"	3/4"
Clear Glass	RA	✓	✓	✓	✓	✓	✓
Mirror		✓	✓	✓			
Tinted Glass – Bronze		RA	RA	✓	RA	RA	
Tinted Glass – Gray		RA	RA	✓	RA	RA	
Tinted Glass – Blue					RA		
Tinted Mirror – Bronze				RA			
Tinted Mirror - Gray				RA			
Tinted Mirror – Black				RA			
Low Iron				RA	RA	RA	

### 4.3 Standard Tolerances

The following table reflects the industry standard tolerances for normal fabrication. Note that any glass to be inset must be ordered using plus zero / minus regular tolerance. See the "Critical Tolerances" section in this document for more details.

Thickness:	3/32"	1/8"	3/16"	1/4"	3/8"	1/2"	3/4"
Clean Cut, Seam (+/-)	1/16"	1/16"	1/16"	1/16"	3/32"	3/32"	1/8"
Polish, Bevel (+/-)	1/16"	1/16"	3/32"	3/32"	1/8"	3/16"	1/4"

### 4.4 Critical Tolerances / Hold Dimensions

Clearlight can fabricate to more exacting tolerances if requested. The specifications must be noted on the order

before the order is quoted. The charge for meeting these requirements will be an additional 15% of the total price. Clearlight is not responsible for any rework that results from the failure to clearly and properly note any critical tolerances on an order.

Clearlight, however, cannot guarantee a hold dimension on 1/2" nor 3/4" glass. It is necessary to have a tolerance due to in-flares when cutting these thicknesses of heavy glass.

#### 4.5 Oversize Glass

Any single piece of glass weighing 125 pounds or more will be considered oversized and will require extra fabrication time and cost due to the issues involved in processing large sizes of glass and mirror. Clearlight must use extra labor to move the glass throughout the fabrication process and has to run machines at slower speeds which add to the cost of production. Any up charge for oversize glass will be included in the quote provided.

A piece that exceeds the indicated sq. ft. below for the given thickness of the material is oversize:

Thickness:	3/32"	1/8"	5/32"	3/16"	1/4"	3/8"	1/2"	3/4"
Thickness (mm):	2	3	4	5	6	10	12	19
Weight per sq. ft.	1.2 lbs.	1.6 lbs.	2.0 lbs.	2.4 lbs.	3.2 lbs.	4.8 lbs.	6.4 lbs.	9.6 lbs.
Sq. Ft. @ ~125 lbs.	104 sq. ft.	78 sq. ft.	65 sq. ft.	52 sq. ft.	39 sq. ft.	26 sq. ft.	19 sq. ft.	13 sq. ft.

#### 4.6 Minimums and Maximums

Float glass is made in a few stock sizes. The table below indicates the full sheet sizes which influence the maximum size of an individual cut piece. Specialty glass comes in various sizes depending on the style and manufacturer, so please call us for dimensions.

Thickness:	3/32"	1/8"	3/16"	1/4"	3/8"	1/2"	3/4"
6' by 10'			Glass & Mirror	Glass & Mirror	Glass	Glass	Glass
4' by 10'				Mirror			
4' x 7'	Glass	Glass & Mirror					

The table below indicates the **minimums** for the fabrication process:

Thickness:	3/32"	1/8"	3/16"	1/4"	3/8"	1/2"	3/4"
Bevel		2" x 2"	2" x 2"	2" x 2"	2" x 2"	2" x 2"	2" x 2"
Edge Work / Straight					6" x 6"	6" x 6"	
Edge Work / Shaped					4" diameter	4" diameter	
Shaped & Bevel					11" diameter	11" diameter	

Bevel Size / Straight							
Bevel Size / Shaped							




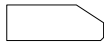



The table below indicates the **maximums** for the fabrication process:

	Thickness:	3/32"	1/8"	3/16"	1/4"	3/8"	1/2"	3/4"
Bevel								
Edge Work / Straight				35 sq. ft.	30 sq. ft.	30 sq. ft.		
Edge Work / Shaped								
Shaped & Bevel					82" diameter	82" diameter	82" diameter	
Bevel Size / Straight		1/2"	1 1/4"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"
Bevel Size / Shaped			1"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"


#### 4.7 Edging and Available Profiles

Unless specified, all edges of glass and mirrors will be seamed at no charge. A seamed edge has been "touched" with a sander on the top and bottom edges to make it safer to handle. The edge will have some sanded and unsanded areas and is not considered a finished edge. It is normally used for glass and mirror that will be put into a frame where the edges will not show. A sanded edge has the entire edge sanded with no unsanded areas, and will have a satin look.

The tables below show what special edge treatments are available for both glass and mirror.

Shape		Thickness:	3/32"	1/8"	3/16"	1/4"	3/8"	1/2"	3/4"
Seamed		NA	✓	✓	✓	✓	✓	✓	✓
Sanded		NA	✓	✓	✓	✓	✓	✓	✓
Flat				✓	✓	✓	✓	✓	✓
Pencil					✓	✓	✓	✓	✓
Bevel				✓	✓	✓	✓	✓	✓
Miter (45°)					✓	✓	✓	✓	✓
Ogee							✓	✓	✓
Bullnose (partial)							✓	✓	
Bullnose (full)									✓



Back Miter (45°)				✓	✓	✓	✓	✓
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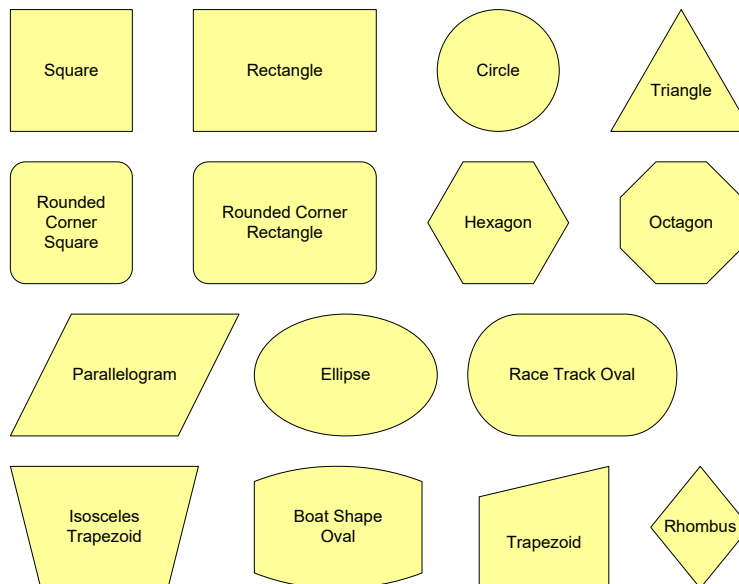
#### 4.8 Standard Bevel Sizes

Below are the standard sizes that Clearlight provides. The standard bevel angle is approximately 5 degrees. Due to the physical differences between the straight line and shape machines, some wider bevels are not available on thinner glass. We can do anything between 0" through 1 1/2" wide. If the customer needs something different than our standard sizes (for example a 7/8" bevel), there will be a 100% upcharge for the edges because it requires a custom setup and production run. Please call us if you need a non-standard size or if you need multiple bevels on the same edge to discuss feasibility and pricing.

Standard Size	3/32"	1/8"	5/32"	3/16"	1/4"	3/8"	1/2"	3/4"
1/2" Bevel	na	Straight Only	✓	✓	✓	✓	✓	✓
3/4" Bevel	na	na	✓	✓	✓	✓	✓	✓
1" Bevel	na	na	✓	✓	✓	✓	✓	✓
1 1/4" Bevel	na	na	Straight only	Straight only	✓	✓	✓	✓
1 1/2" Bevel	na	na	na	na	✓	✓	✓	✓

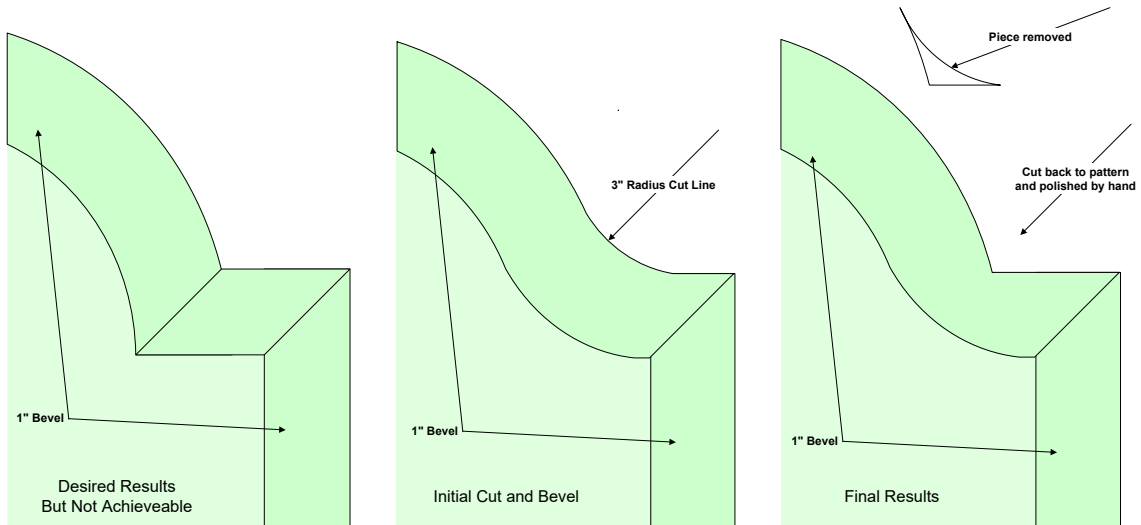
#### 4.9 Shapes

Clearlight can cut the following standard shapes using its computer controlled cutting table without requiring a template. The customer must clearly indicate the proper dimensions when ordering.



#### 4.10 Inside Radius Minimums

Our standard glass beveling machines have a minimum 2" inside radius limitation for polished edges and 3" inside radius for beveling. Therefore, Clearlight cannot do an exact inside right angle nor smaller radius curves. The edge/bevel will follow the radius line as shown in dotted lines below, then it can be cut back to match the pattern.



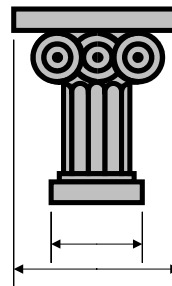
#### 4.11 Measuring Table Tops

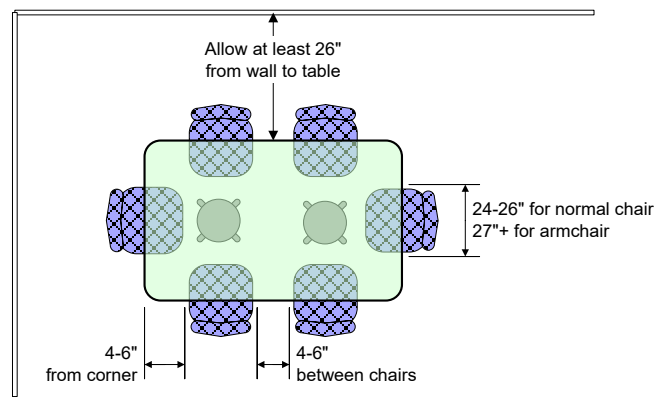
The length, width, and/or diameter of any glass top may be twice the area supported by the single base it sits on. This is a general guideline to prevent the top from tilting when weight is applied. If the top sits on two or more base units, the top may be up to three times the area of the base. NOTE that Clearlight does not warrant the application of its products and it is up to the purchaser to determine the suitability and size of any products ordered.

Always test the actual size of the desired top in the room where it will be placed by tracing the top dimensions on the floor with masking tape for a visual confirmation. See the guidelines below for recommended spacing:

#### IMPORTANT TO REMEMBER!

The span of both the top and bottom of your base is important to consider when determining the size of the top. Calculate the glass size in relation to the *smallest* span of each base unit





#### 4.12 Safety Measures – Tempering and Backing

Clearlight can have a piece of glass tempered if required. Also, the customer has the option to specify if the glass needs to have the tempered logo or not. If a logo is not desired and the customer still requires proof, a “Certificate of Tempering” can be provided at no charge. There is a 3 sq. ft. minimum charge per piece, not per order. Also, due to the tempering process, cutouts and holes must follow certain guidelines (see “Tempering Holes and Notch Fabrication Guidelines” section for details).

NOTE that 3/32” cannot be tempered because it is too thin.

NOTE that tempering 1/2” thick glass may leave small oven roller marks due to the weight of the glass and the back & forth motion. Clearlight is not responsible for these small imperfections and the customer assumes all risks.

NOTE that tempering 3/4” thick glass will most likely leave oven roller marks. Clearlight is not responsible for these small imperfections and the customer assumes all risks.

NOTE that the minimum size is 10” on the diagonal so that the piece does not fall in between the oven rollers.

Mirror cannot be tempered because the heating and cooling processes cause the backing to fail. Clearlight offers a Category 2 Safety mesh that can be applied to the back of any mirror. There is a 3-sq.-ft. minimum charge per piece, not per order. This normally meets or exceeds building codes, but it is up to the customer to determine if this product will pass inspection. Technical information is available upon request.

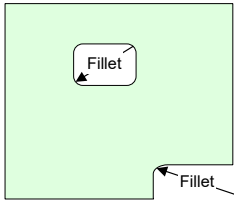
#### 4.13 Tempering Holes and Notch Fabrication Guidelines

The heating and cooling in the tempering process puts significant stress on glass. Holes, notches, beveling, corners, and points provide places where the heat can concentrate (meaning it will be hotter than the surrounding glass), and offers the potential for fractures or explosion. These guidelines are necessary to ensure that your glass can be properly tempered without incident. The tables below cover the majority of the rules, but please feel free to contact us with any questions or requirements that are not addressed here.

Minimum Hole Sizes: +1/16" larger than glass thickness

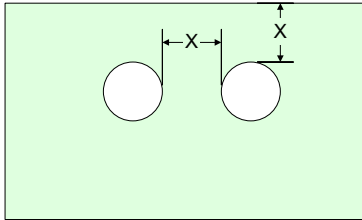
Thickness	Min Hole Diameter
1/8 "	3/16"
5/32"	7/32"
3/16"	1/4 "
1/4 "	5/16"
3/8 "	7/16"
1/2 "	9/16"
3/4 "	13/16"

Minimum Inside Radius For Cutouts: +1/16" larger than glass thickness



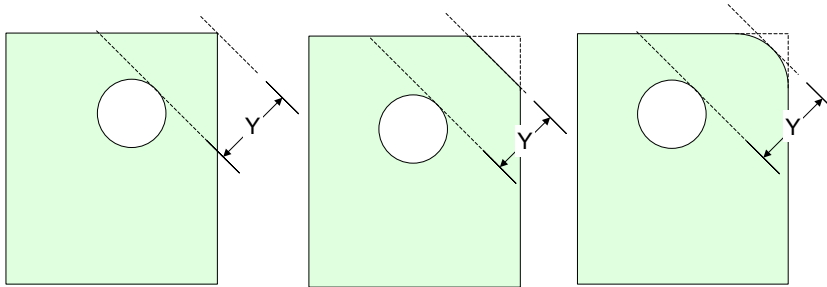
Thickness	Min Fillet Radius
1/8 "	3/16"
5/32"	1/4 "
3/16"	5/16"
1/4 "	3/8 "
3/8 "	9/16"
1/2 "	1 "
3/4 "	1 1/2 "

Minimum Distance From Edge / Between Holes: 2 times glass thickness



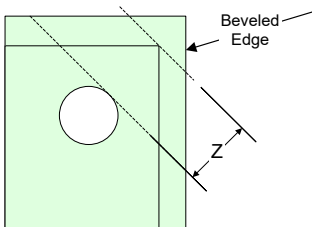
Thickness	Minimum X
1/8 "	1/4 "
5/32"	5/16"
3/16"	3/8 "
1/4 "	1/2 "
3/8 "	3/4 "
1/2 "	1 "
3/4 "	1 1/2 "

Minimum Distance From Corner: 4 times glass thickness



Thickness	Minimum Y
1/8 "	1/2 "
5/32"	5/8 "
3/16"	3/4 "
1/4 "	1 "
3/8 "	1 1/2 "
1/2 "	2 "
3/4 "	3 "

Minimum Distance From Beveled Corner: 4 times glass thickness



Thickness	Minimum Z
1/8 "	1/2 "
5/32"	5/8 "
3/16"	3/4 "
1/4 "	1 "
3/8 "	1 1/2 "
1/2 "	2 "
3/4 "	3 "

#### 4.14 Insulated Glass

Clearlight can custom make IG units in various sizes, shapes, and thicknesses. We use a foam-based spacer that contains a desiccant (to absorb moisture) which we believe to be superior to the standard metal spacers normally found in other factory-built units. There is a 3-sq.-ft. minimum charge per piece, not per order, and each piece is rounded up to the next full square foot.

Our standard finished thicknesses include 3/8", 7/16", 1/2", 5/8", 3/4", 1", and 1 1/4". We carry various colors of spacers, so call for information.

We stock spacers in 3/16", 1/4", 3/8", 1/2", 5/8", and 3/4" thicknesses, so paired with our standard glass thicknesses, we can meet most any thickness requirement. Also, we often bevel the outside pane of the unit resulting in a thinner profile which means we can use thicker glass and fit it into a standard rabbet.

NOTE that our minimum unit thicknesses are 3/8" annealed and 7/16" tempered.

## 5 PATTERNS AND TEMPLATES

Clearlight will produce shaped glass that matches a pattern / template provided by the customer within the normal allowable tolerances for the thickness of glass requested. The better the pattern provided to Clearlight, the better the finished product will be.

### 5.1 Pattern Requirements, Inspection, and Acceptance

All patterns must be full sized and made to the exact required finished dimensions.

It is very important to understand that if you send us a pattern that has flaws, we will match the flaws! Flaws include non-straight lines that should be straight and wavy non-smooth curves. When Clearlight receives a pattern, it is inspected for quality. If it is deemed that the pattern has flaws, we will contact you to discuss the issues and determine what modifications and/or replacement is needed. If you indicate to us to “fix the pattern”, we will do our best to address the issues the best we can, but we cannot be responsible for the finished product. If it is important that the glass be exact, you are responsible for making any changes to the pattern and must provide the final pattern before work can begin. Otherwise, we will cut to your pattern copying any and all flaws.

### 5.2 Submitting Patterns

Patterns can be made from paper, cardboard, masonite, or plywood. No newspaper, glass, or any other material not listed here will be accepted.

Patterns may be folded and mailed to Clearlight, given to a Clearlight driver, or dropped off at the office. Patterns that are to be used for fabrication cannot be submitted via FAX because they get reduced during transmission and therefore will not be accurate. It is OK to fax in a pattern for quote purposes only, but work cannot begin until the full-sized pattern has been received at Clearlight.

Critical size patterns (fit-in) must be made from rigid material and must be identified as such. Clearlight will guarantee a plus 0”, minus normal tolerance for the specified glass thickness.

#### 5.2.1 Submitting Patterns For Glass

Patterns for clear glass can be drawn out and on a substrate that is larger than the final shape because lines can be seen through the glass when cutting. The desired cut line needs to be clearly marked and there should only be 1 line.

#### 5.2.2 Submitting Patterns For Mirror

Patterns for mirrors MUST be cut out to the finished size because the lines cannot be seen through mirror. If patterns are received that are not ready for cutting, there will be an additional charge for cutting your pattern to size. Also, we will not be responsible for any deviation from your desired finished size.

### 5.3 Pattern Labeling Requirements

All patterns must be clearly labeled on the pattern itself and should include the following:

Company name, contact name, PO number, Clearlight quote number (if available), date submitted, type of glass/mirror, thickness, edge treatment, and hold tolerances.

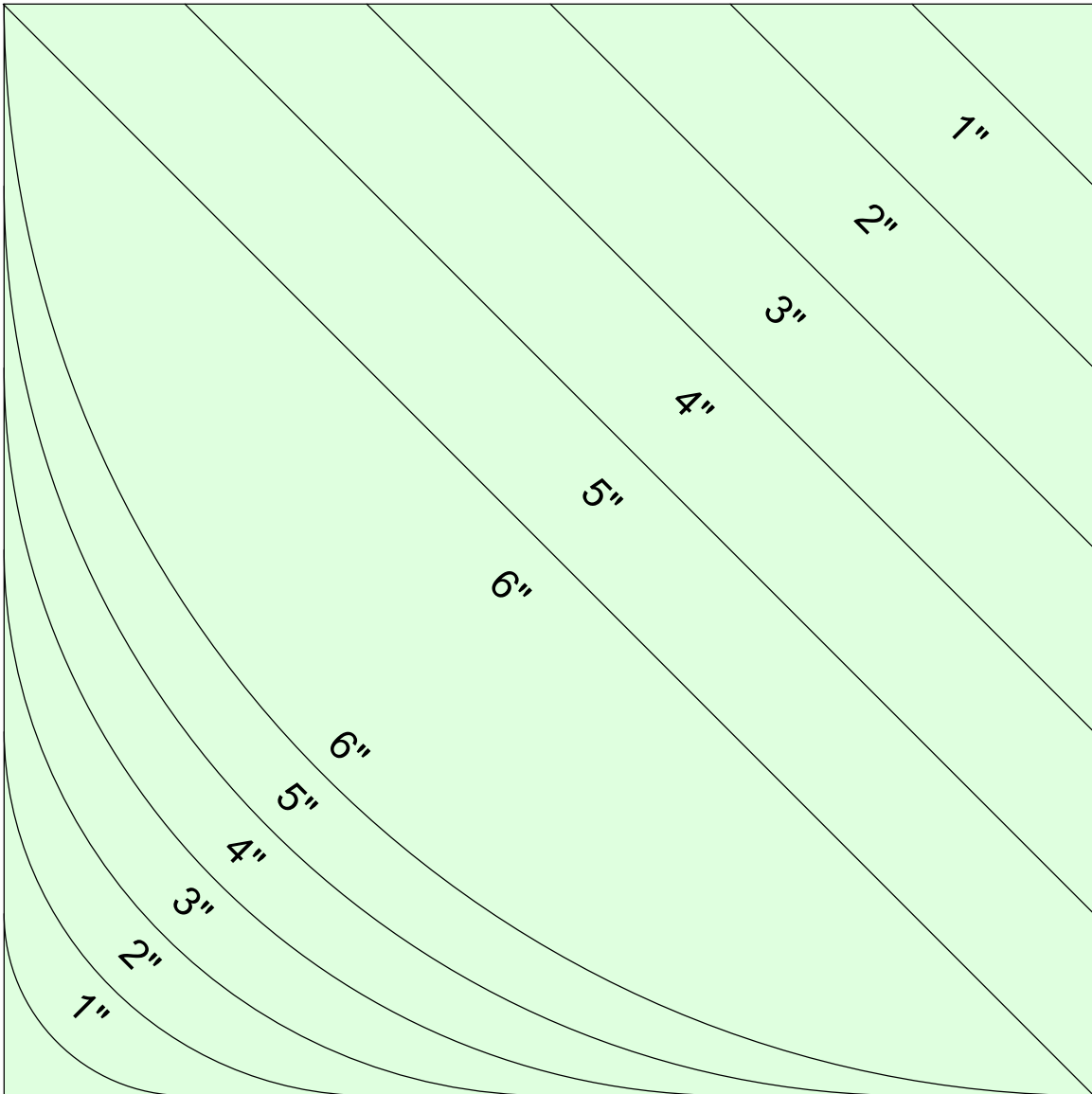
# APPENDICES

## CLEARLIGHT GLASS AND MIRROR

### Corner Illustration

Diagram is Actual Size

Clipped Corners



Radius Corners

# CLEARLIGHT GLASS AND MIRROR

## Care and Protection Of Your Mirror

### \*\*\* Prevent Damage and Black Edge \*\*\*

DO use a clean soft cloth or paper towel when cleaning mirrors.

DO use 5-10% weak methyl, ethyl or rubbing alcohol and water solution.

DO use household or commercial glass cleaners provided they do not contain any abrasives, alkali, ammonia or acids.

DO protect the edges from run-over by applying cleaner to the cloth, rather than the mirror. Also, it is a good final cleanup practice to wipe edges clean and dry.

DO use commercial razor blade as long as it is new with no rough edges. Hold razor blade flat so that corner of blade does not scratch mirror surface.

DO run the air conditioning and ventilation fan in the room with the mirror to keep the humidity low; high humidity and/or constant steaming of mirror will accelerate black edge.

DO understand the corrosive aspects or salty air in coastal areas will accelerate the spoilage of the mirror backing.

DON'T use household vinegar and water solution.

DON'T abuse the edges. Most mirror failures are at the edges - where harsh cleaning solutions, paint, sealants, wallpaper paste and drywall paste are all harmful to the mirror backing.

DON'T use harsh cleaning solutions that contain: abrasives, alkali, ammonia or acid. Remember that the four "A"s are death to your mirror.

DON'T allow water, soapy water or cleaning solutions to stand in the mirror channel.

DON'T use dirty or gritty rags, knives, scrapers, emery cloth, steel wool or other abrasive materials for cleaning.

DON'T attach safety backings or adhesive backed paper to back of mirror unless you know adhesives will not attack mirror backing and have confirmed with laboratory test results.