

Essential Mulls ADM

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General Mull Information

Marvin Essential offers mull options for many of its window and door products. Many assemblies can be built in the factory. Larger assemblies will need to be completed in the field. Factory-mulled assemblies have various levels of certification applied through third-party testing.

Marvin Essential Mull Options

- Mull kits are available for field assembly. Kits include instructions, mull covers, mull plugs, kerf weather strip, and brackets.
- All Essential mull kits will create a 1/2" space mull.
 - Standard Mull: Units are mulled together with a mull pin between the frames that allows for either factory or field assembly of the mullion.
 - Reinforced Fiberglass Mull (MRF): Units are mulled together with a three-piece kit that allows for either factory or field assembly of the mullion.

NOTE: Standard and MRF can only be used horizontally, above the door assemblies.

Mull Anchoring Methods

- Standard Mull: Anchorage provided in the mull kit is two (2) structural brackets per Rough Opening mull end.
- MRF Anchoring: Anchorage provided in the mull kit is three (3) structural brackets per rough opening mull end.

Section Details

Cross sections will illustrate the mulling of two units.

Glossary

PG: Performance Grade - The performance of the mull that is tested to a specific size and all sizes that would fit within that rectangle. In the example below, an assembly with Tributary Width of 56 and Span of 95 was physically tested to a PG40 level.

DP: Design Pressure - This is a calculated performance value based on the Tested Value, the Tributary Width and the Span.

Certified: Third-party tested for air, water, and structural performance. To be certified, must be factory-assembled. Field mulling is not certified.

Calculating Total Opening for Assemblies

WIDTH: Rough Opening = Frame Widths + 1/2" (13) per mull + 1/2" (13), Inside Opening = Frame Widths + 1/2" (13) per mull + 3/8" (10).

Tolerance = 1/4" (6) from Frame to Rough Opening at left and right jamb, 3/16" (5) from Frame to Inside Opening at left and right jamb.

HEIGHT: Rough Opening = Frame Heights + 1/2" (13) per mull + 1/2" (13), Inside Opening = Frame Heights + 1/2" (13) per mull + 1/4" (6).

Tolerance = 1/2" (13) from Frame to Rough Opening at head jamb. 1/4" (6) from Frame to Inside Opening at head jamb.

General Mull Information

To determine the performance level of a mullered unit, you will need to know the Tributary Width and Span.

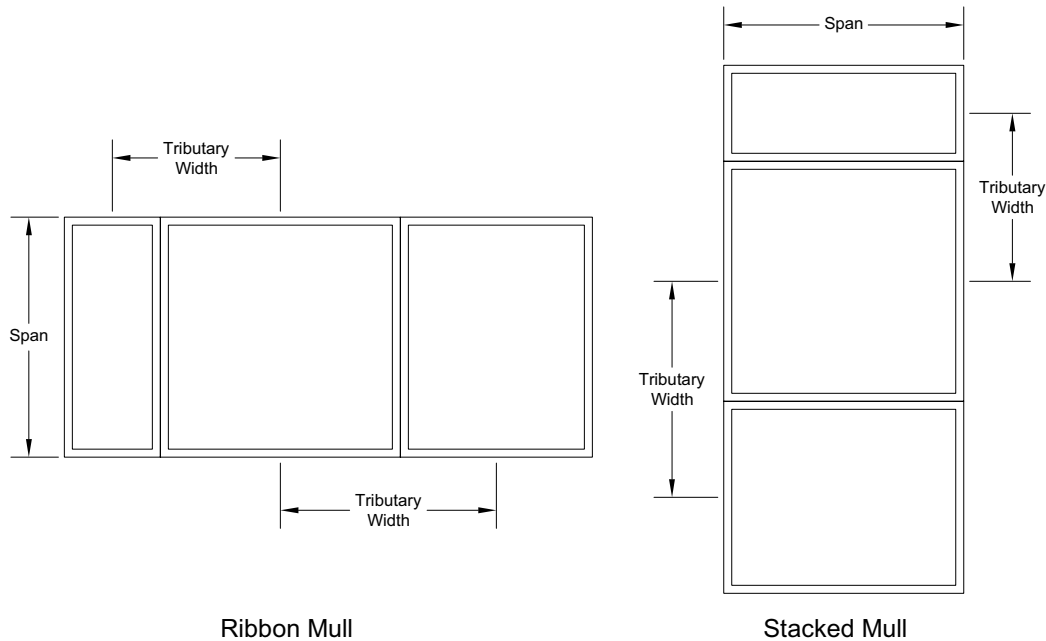
Explaining Tributary Width and Span

Tributary Width is the area supported by the mullion. In the case of a vertical mull, this is equal to the sum of half of the width of each unit on each side of the mull.

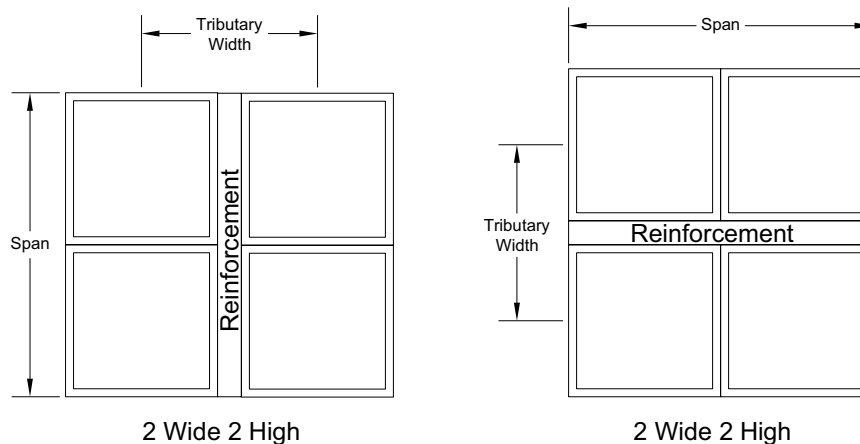
Span is the length of the mullion.

Span (on Multi-High, Multi-Wide assemblies) is equal to the length of the longest continuous mull.

Ribbon and Stacked Mulls



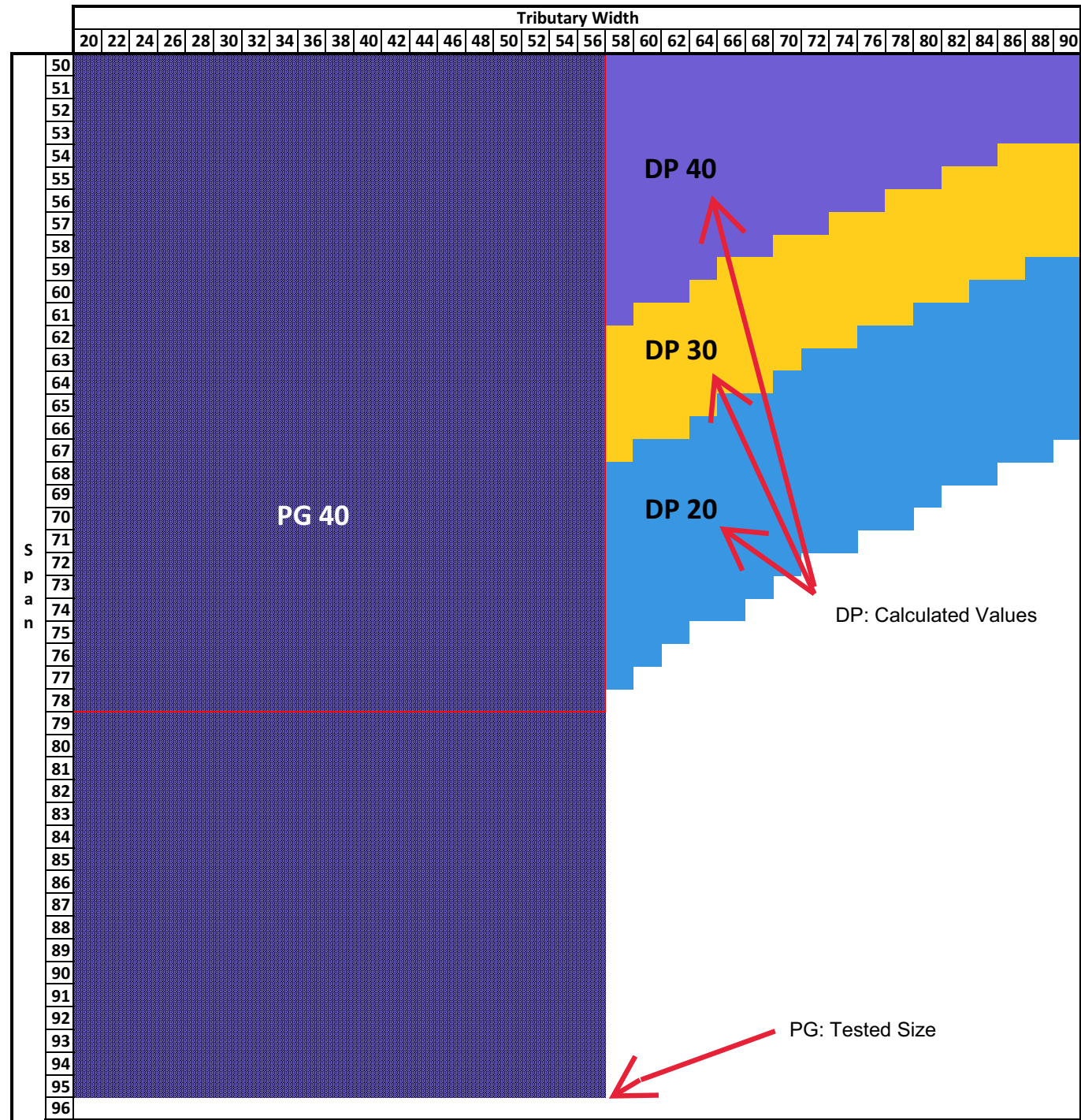
Multi-High, Multi-Wide Mulls



General Mull Information - Mull Performance Charts

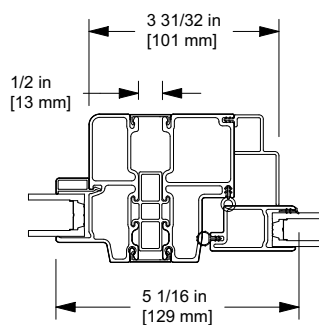
Mullion Performance Charts

In accordance with the International Building Code, mullion performance is determined through either **physical testing** or **calculations**. A combination of both methods has been used to develop the performance charts. Calculated mulls limit deflection to $L/175$ (L =length of mullion) and limit allowable stress to $2/3$ of the mull material's allowable stress. Physically tested mulls often outperform calculations and this will show up on the charts as jumps in performances.

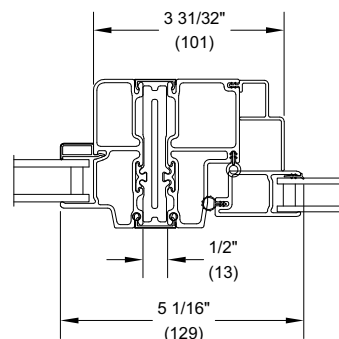


Marvin Essential Mull Types

Mulls displayed with Essential Casement frames, but other products use the same two mull options.



Standard Mull



Mull Reinforcement

Essential Mulling Limits

Essential Mulling Factory Configurations

Product Type	Standard Mull Max RO	MRF Mull Max RO	Assembly Configuration	Maximum Unit Assembly
Casement, Awning, & Picture	114" x 84"	114" x 84"	Ribbon Assembly	6W x 1H
	72" x 114"	72" x 114"	Stacked Assembly	1W x 5H
	72" x 96"	96" x 96"	Multi Wide x Multi High	5W x 5H
Single Hung, Double Hung, & Picture	114" x 78"	114" x 78"	Ribbon Assembly	6W x 1H
	78" x 96"	78" x 96"	Stacked Assembly	1W x 5H
	72" x 96"	96" x 96"	Multi Wide x Multi High	5W x 5H
Glider	114" x 60"	114" x 60"	Ribbon Assembly	3W x 1H
	72" x 96"	72" x 96"	Stacked Assembly	1W x 2H
	72" x 96"	96" x 96"	Multi Wide x Multi High	2W x 2H
Direct Glaze	114" x 96"	114" x 96"	Ribbon Assembly	6W x 1H
	96" x 114"	96" x 114"	Stacked Assembly	1W x 5H
	72" x 96"	96" x 96"	Multi Wide x Multi High	5W x 5H
DG Round Top	n/a	n/a	Ribbon Assembly	n/a
	96" x 114"	96" x 114"	Stacked Assembly	1W x 2H
	72" x 96"	96" x 96"	Multi Wide x Multi High	5W x 2H
DG Round Top (over glider)	n/a	n/a	Ribbon Assembly	n/a
	72" x 78"	72" x 78"	Stacked Assembly	1W x 2H
	72" x 78"	72" x 78"	Multi Wide x Multi High	2W x 2H
Sliding Patio Door	72" x 100"	72" x 100"	Stacked Assembly	1W x 2H
Note: Maximum assembly sizes may be limited due to individual unit size limits				

OR Essential Mulling Certification Limits

Product Type	Standard Mull Max RO	MRF Mull Max RO	Assembly Configuration	Maximum Unit Assembly
Essential Windows	114" x 96"	114" x 96"	Ribbon Assembly	6W x 1H
	96" x 114"	96" x 114"	Stacked Assembly	1W x 5H
	72" x 96"	96" x 96"	Multi Wide x Multi High	5W x 5H
Sliding Patio Door	72" x 100"	72" x 100"	Door Transom Assembly	1W x 2H
Note: Maximum assembly sizes may be limited due to individual unit size limits				

Essential Casement Mull Types

This section is a compilation of mulling options for the Essential Casement product.

Mull Types

- Standard Mull: Two units mulled together with a 1/2" space mull pin which allows for either factory or field assembly.
- 1/2" Mull Reinforcement (MRF): Two units mulled together with a three-piece reinforcement that allows for either factory or field assembly.

Products Included

- Essential Casement
- Essential Awning
- Essential Casement Picture

Certified Mull Installation Methods

- Nailing fin
- Structural brackets
- Through-jamb

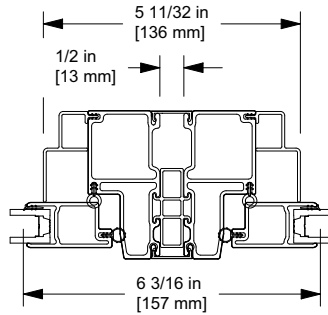
Tributary and Span

See page 2 for definition and illustration of these terms.

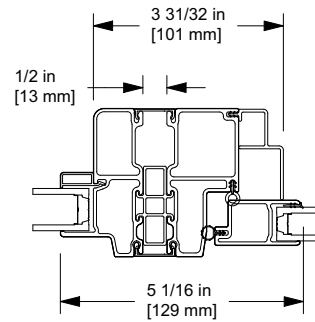
Packaged Terminal Air Conditioner (PTAC) Mulling

- Factory mulled below a Picture unit.
- Mull options can not affect unit or RO size. Height of PTAC window frame will accommodate all PTAC sizes.
- Standard PTAC height is 19 1/4" (489); standard PTAC width will match the upper unit width.
- MAXIMUM ROUGH OPENING ASSEMBLY UP TO 1W2H: 72" (1289) X 96" (2438)

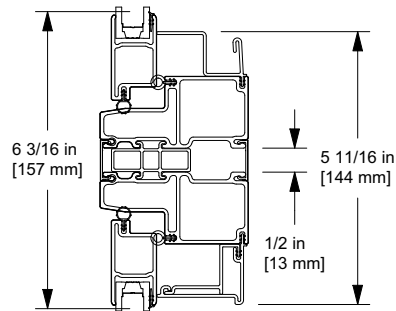
Section Details: Essential Casement Mulling Types



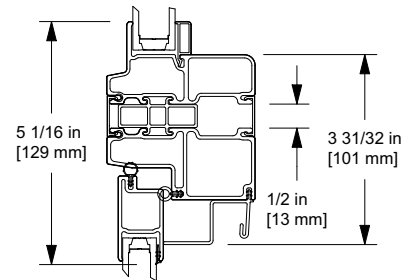
Vertical Mull
Casement/Awning/Picture To
Casement/Awning/Picture



Vertical Mull
Direct Glaze To
Casement/Awning/Picture



Horizontal Mull
Casement/Awning/Picture To
Casement/Awning/Picture

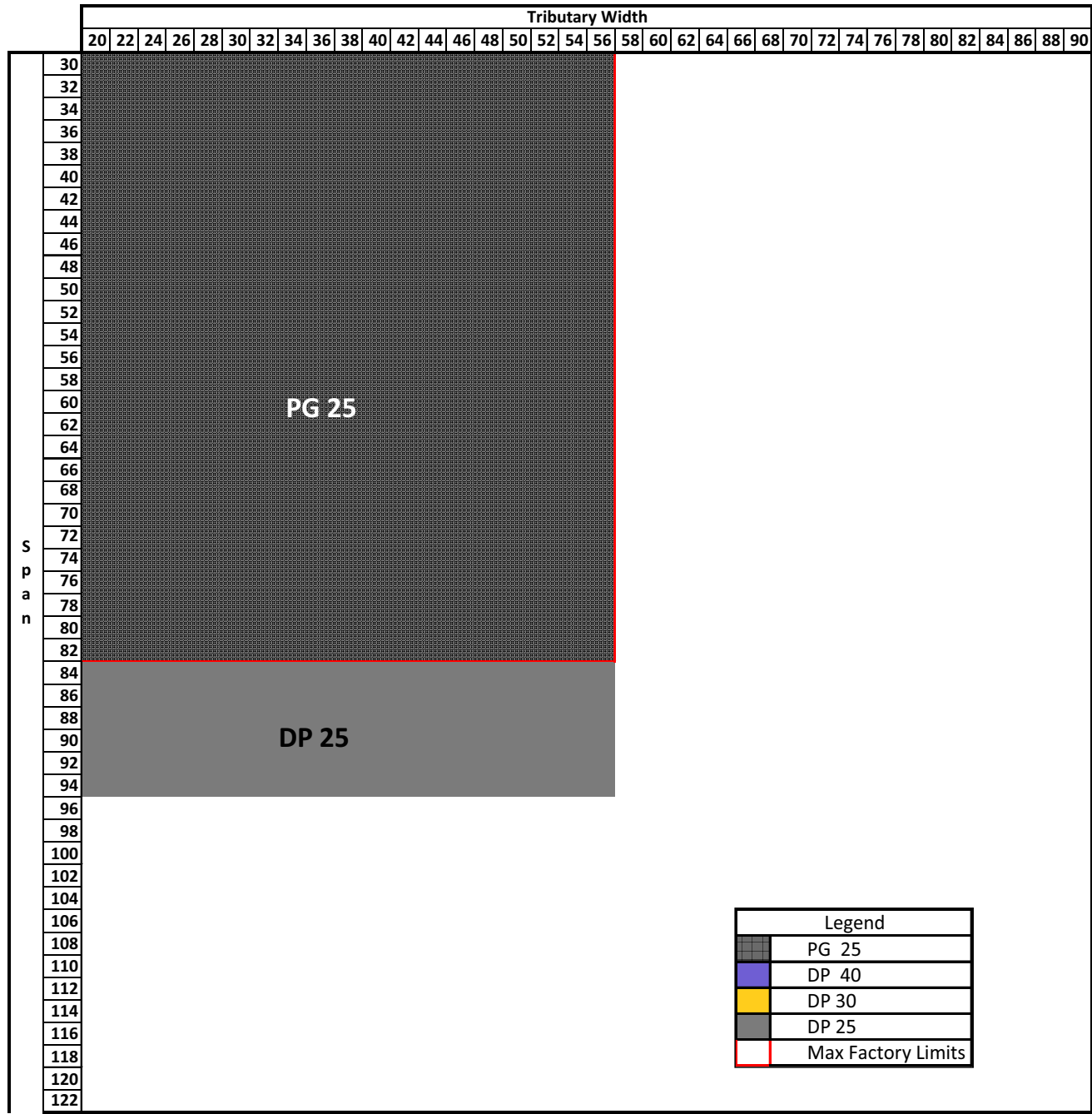


Horizontal Mull
Direct Glaze To
Casement/Awning/Picture

NOTE: Standard and MRF mull pins are available. Dimensions are the same. Standard mulls shown.

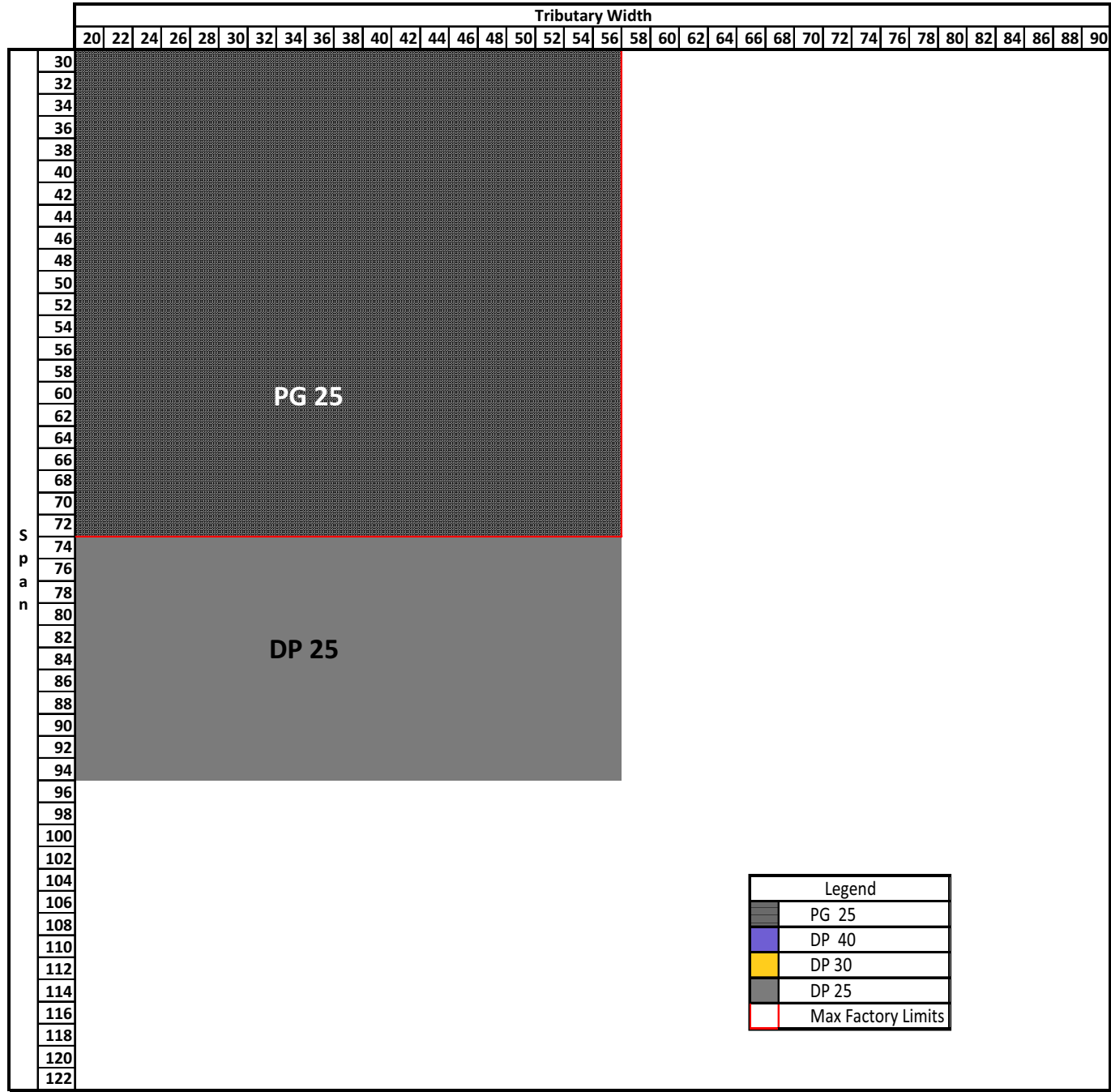
Essential
Casement/Awning Mulling - Standard Mull (Ribbon)

Max Factory Mull is RO 114" x 84" for up to 6W x 1H assemblies (vertical mull)
Max certified Tributary Width x Span (frame size): 57" x 84 1/2".



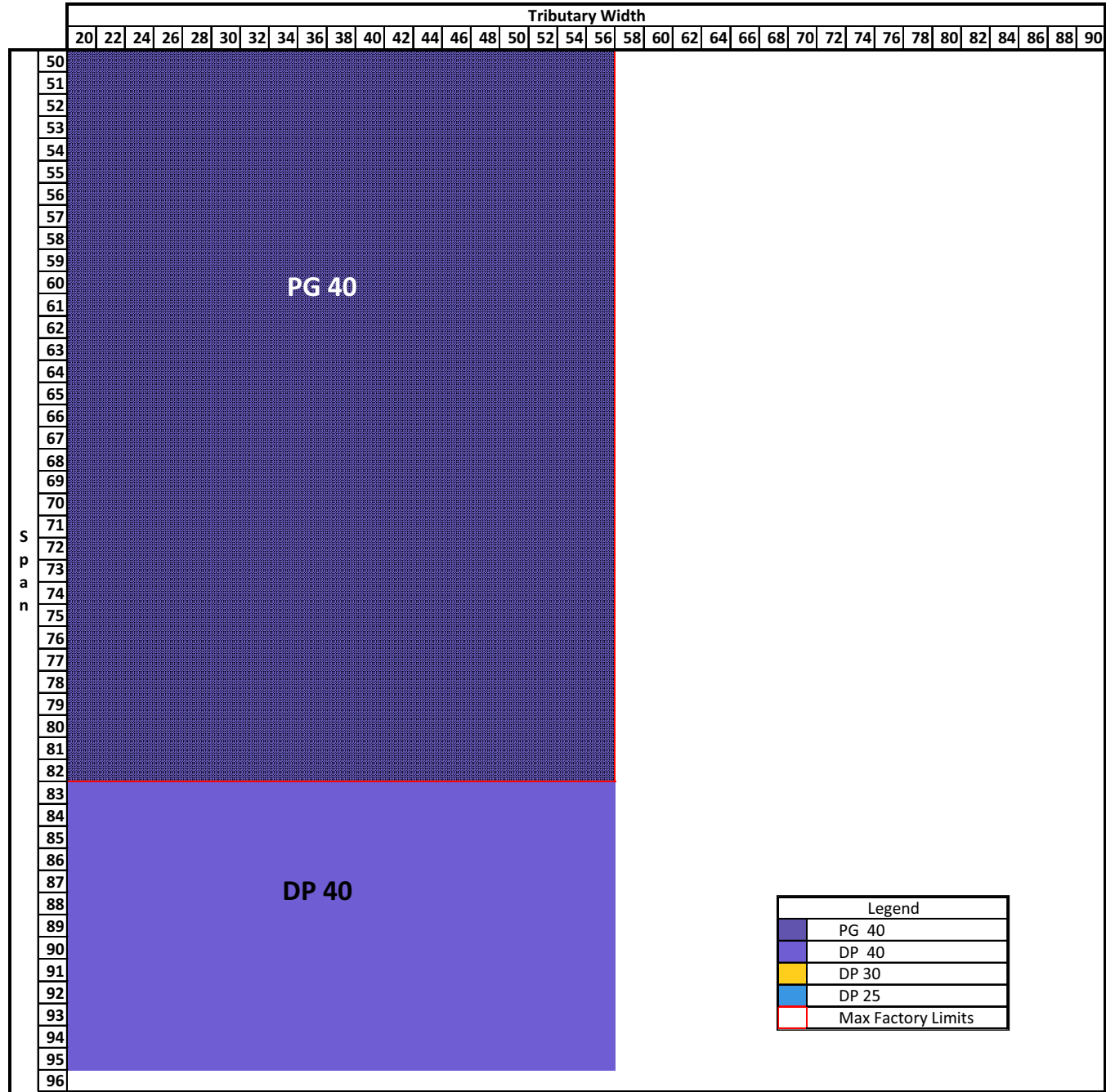
Essential Casement/Awning Mulling - Standard Mull (Stacked)

Max Factory Mull is RO 72" x 114" for up to 1Wx5H assemblies (horizontal mull).
Max Certified Tributary Width x Span (frame size): 57" x 72"



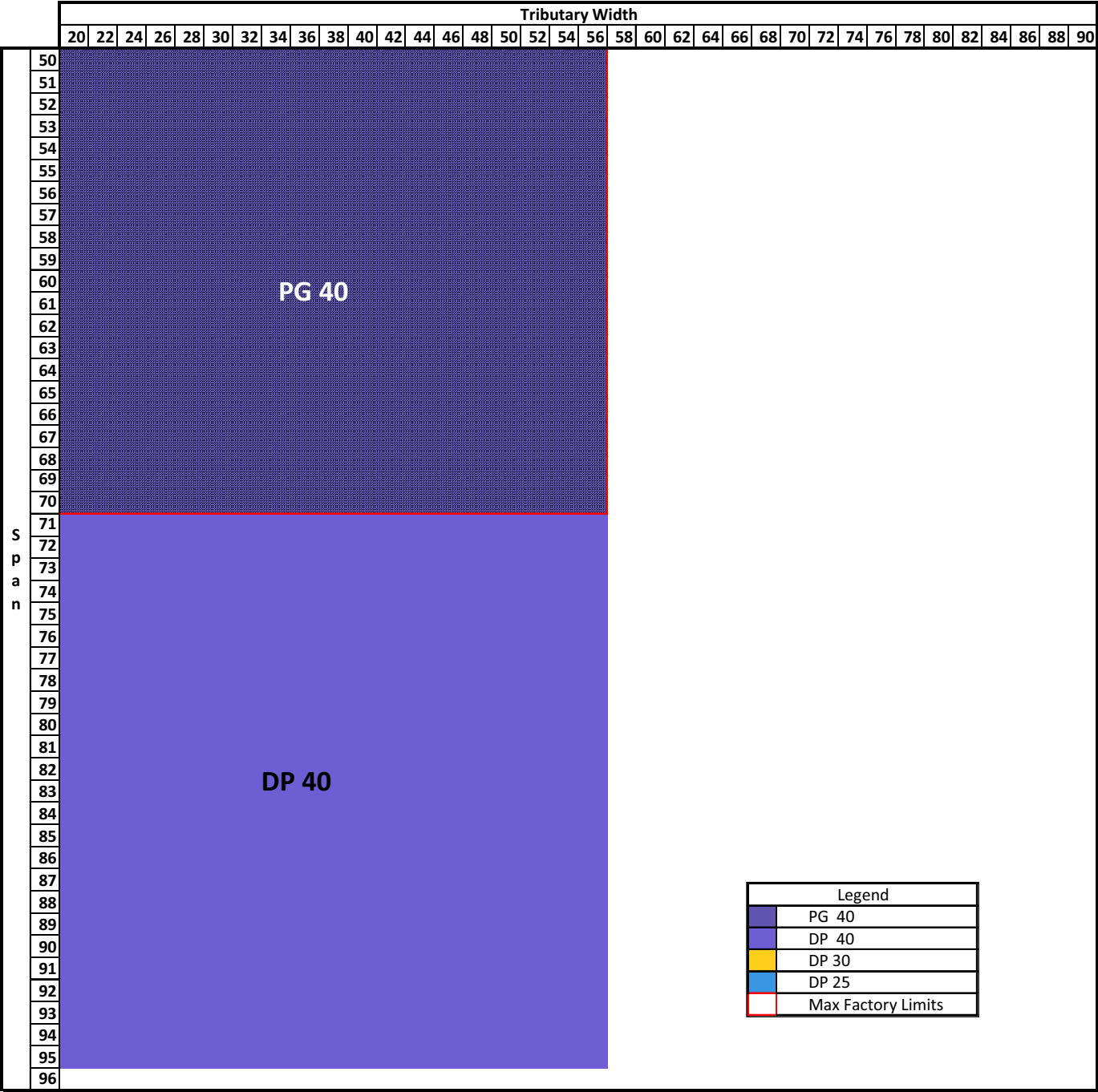
Essential Casement/Awning Mulling - Mulls with Reinforcement (Ribbon Assembly)

Max Factory Mull is RO 114" x 84" for up to 6W x 1H assemblies (vertical mull).
Max certified Tributary Width x Span (frame size): 57" x 83 1/2"



Essential Casement Mulling - Mull with Reinforcement (Stacked Assembly)

Max Factory Mull is RO 72" x 114" for up to 1W x 5H assemblies (horizontal mull).
Max certified Tributary Width x Span (frame size): 57" x 71 1/2"



Essential Double Hung Mull Types

This document is a compilation of mulling options for the Essential Double Hung product.

Mull Types

- Standard Mull: Two units mulled together with a 1/2" space mull pin which allows for either factory or field assembly.
- 1/2" Mull Reinforcement (MRF): Two units mulled together with a three-piece reinforcement that allows for either factory or field assembly.

Products Included

- Essential Single Hung
- Essential Double Hung
- Essential Double Hung Picture

Certified Mull Installation Methods

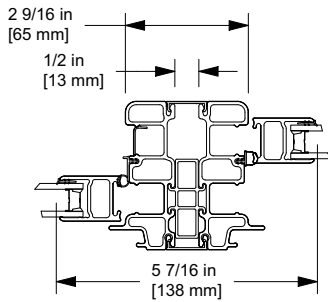
- Nailing fin
- Structural brackets
- Through-jamb.

Tributary and Span

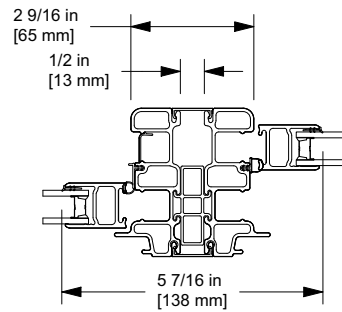
See page 2 for definition and illustration of these terms.

NOTE: Double Hung Operators cannot be mulled above other units.

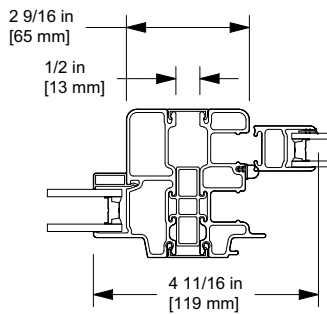
Section Details: Essential Double Hung Mulling Types



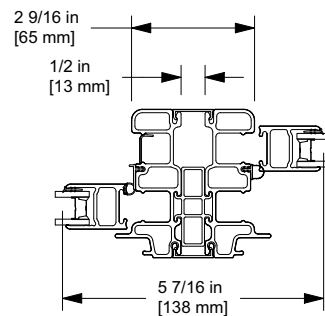
**Vertical Mull
Double Hung To Single Hung**



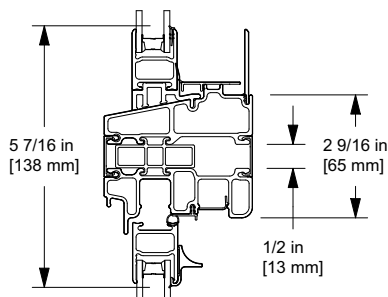
**Vertical Mull
Picture/Transom To Double Hung**



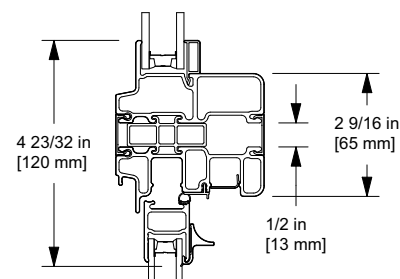
**Vertical Mull
Direct Glaze To Double Hung**



**Vertical Mull
Double Hung To Double Hung**



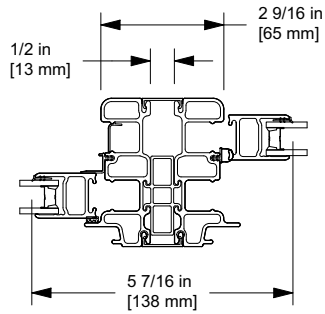
**Horizontal Mull
Picture/Transom To Double Hung**



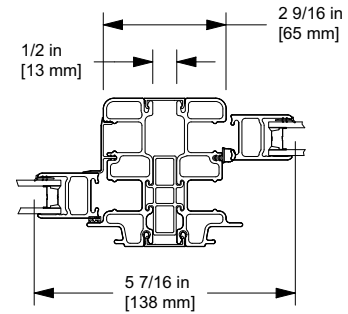
**Horizontal Mull
Direct Glaze To Double Hung**

*NOTE: Standard and MRF mull pins are available. Dimensions are the same. Standard mulls shown.
Double Hung Operators cannot be mulled above other units.*

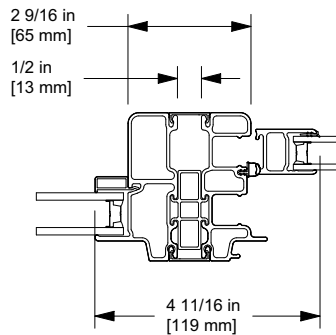
Section Details: Essential Single Hung Mulling Types



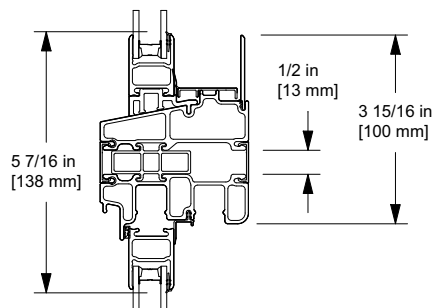
Vertical Mull
Single Hung to Single Hung



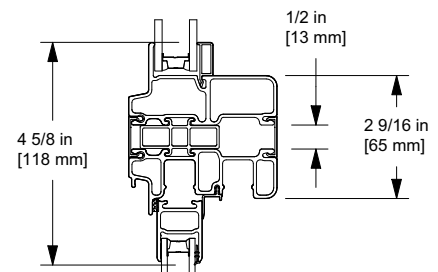
Vertical Mull
Picture/Transom to Single Hung



Vertical Mull
Direct Glaze To Single Hung



Horizontal Mull
Picture/Transom To Single Hung

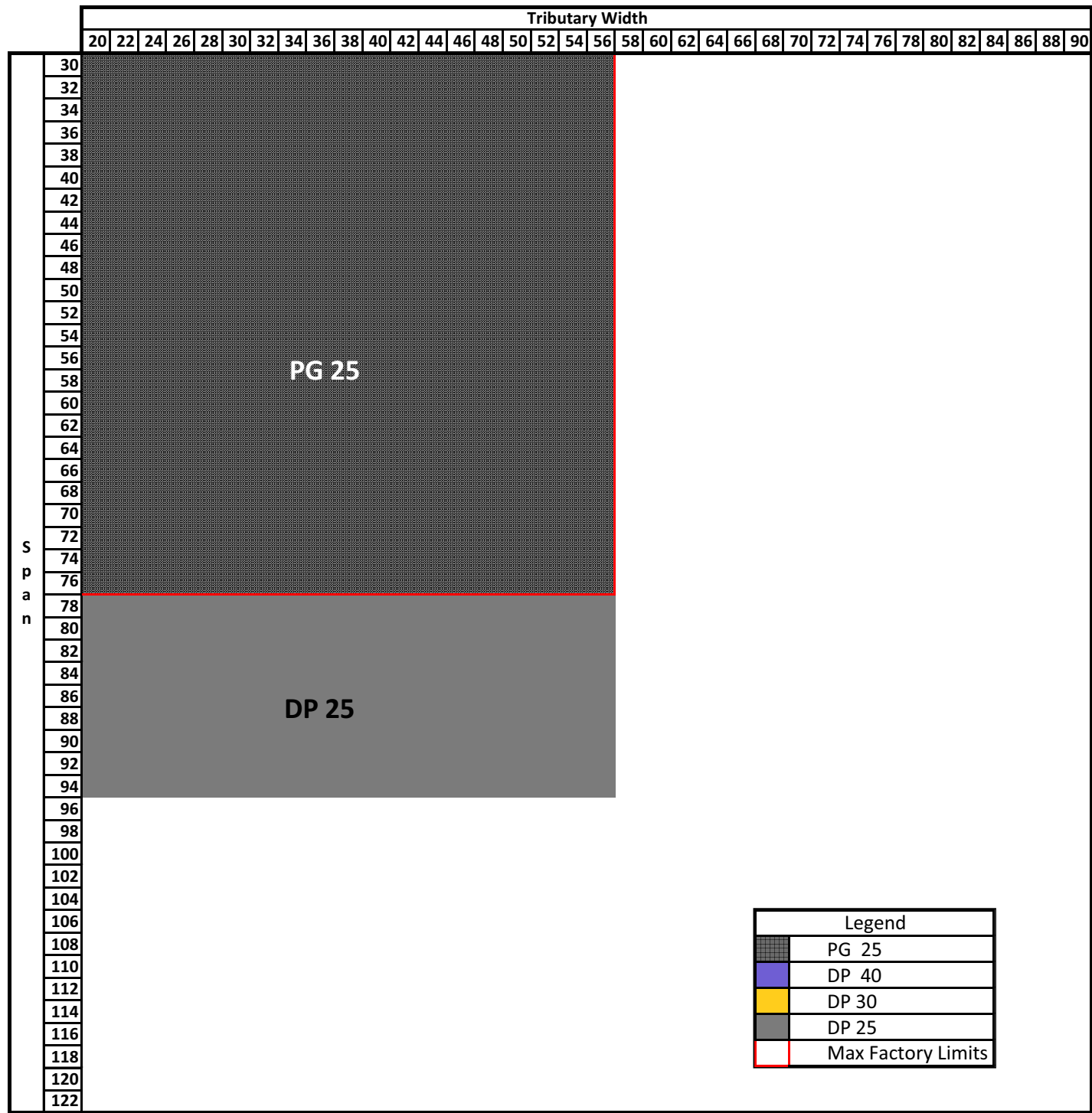


Horizontal Mull
Direct Glaze To Single Hung

*NOTE: Standard and MRF mull pins are available. Dimensions are the same. Standard mulls shown.
Single Hung Operators cannot be mulled above other units.*

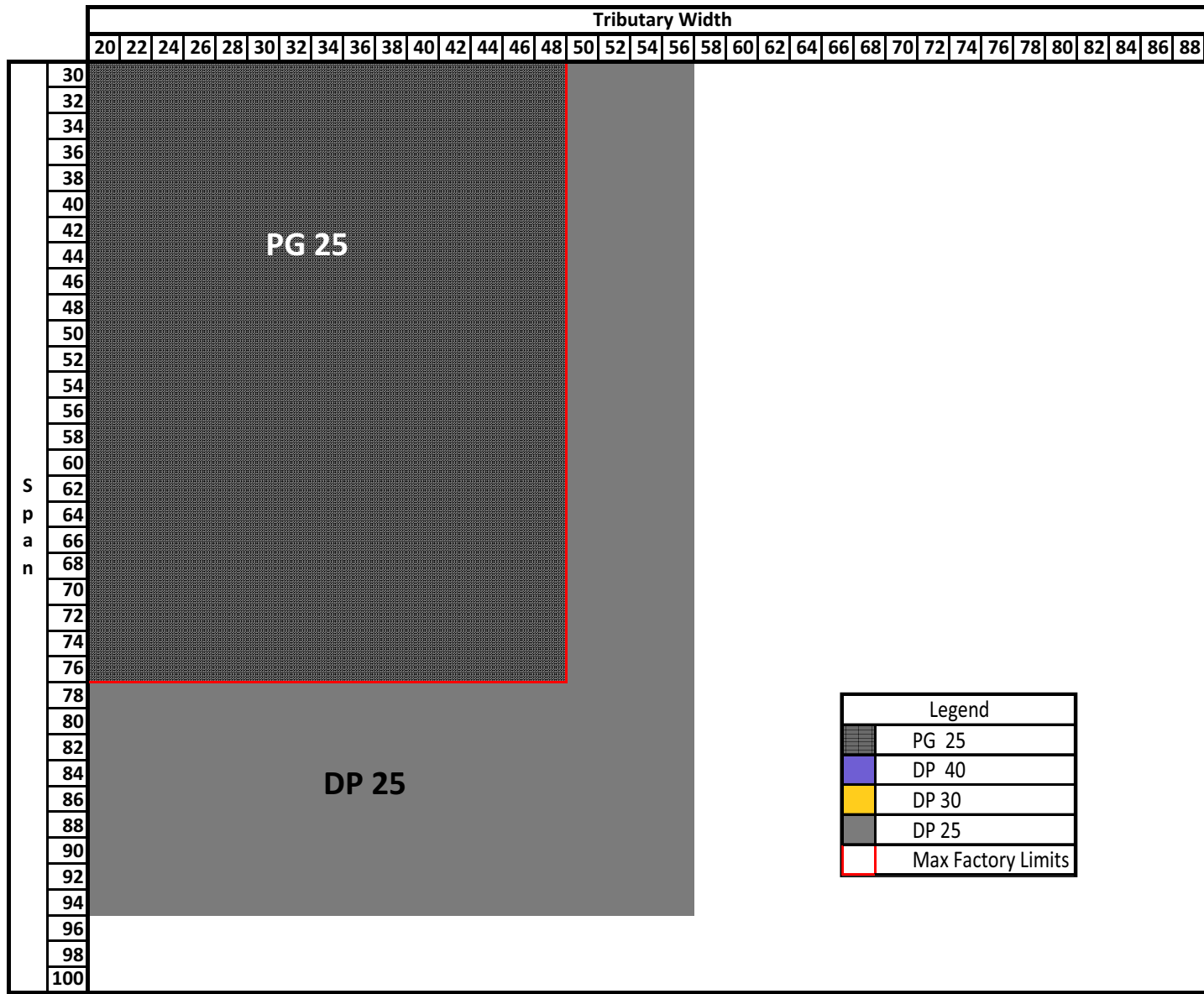
Essential Double Hung Mulling - Standard Mull (Ribbon)

Max Factory Mull is RO 114" x 78" for up to 6W x 1H assemblies (vertical mull).
Max Tributary Width x Span (frame size): 57" x 77 1/2"



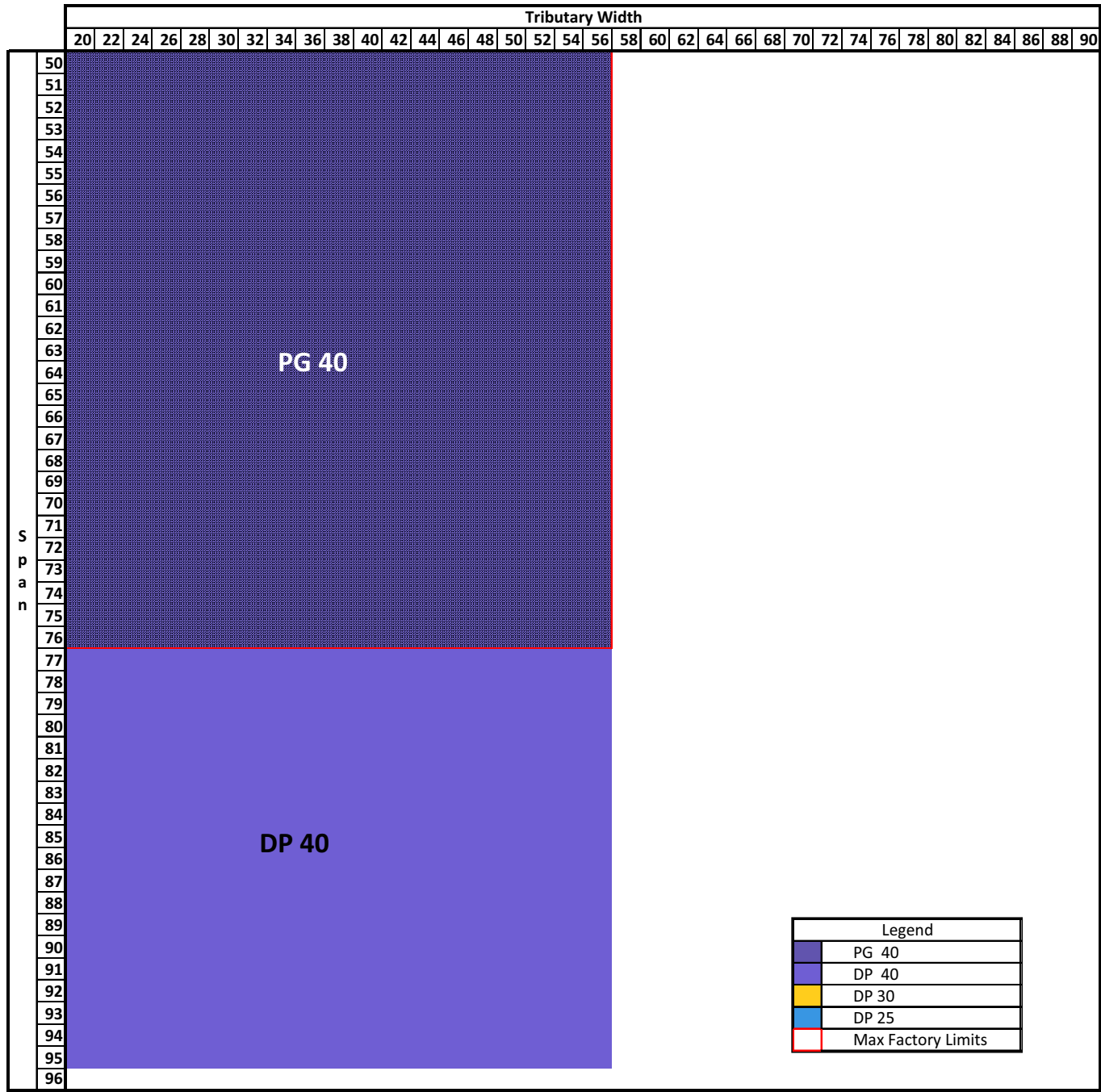
Essential Double Hung Mulling - Standard Mull (Stacked)

Max Factory Mull is RO 78" x 96" for up to 1W x 5H assemblies (horizontal mull).
Max certified Tributary Width x Span (frame size): 57" x 95 1/2".



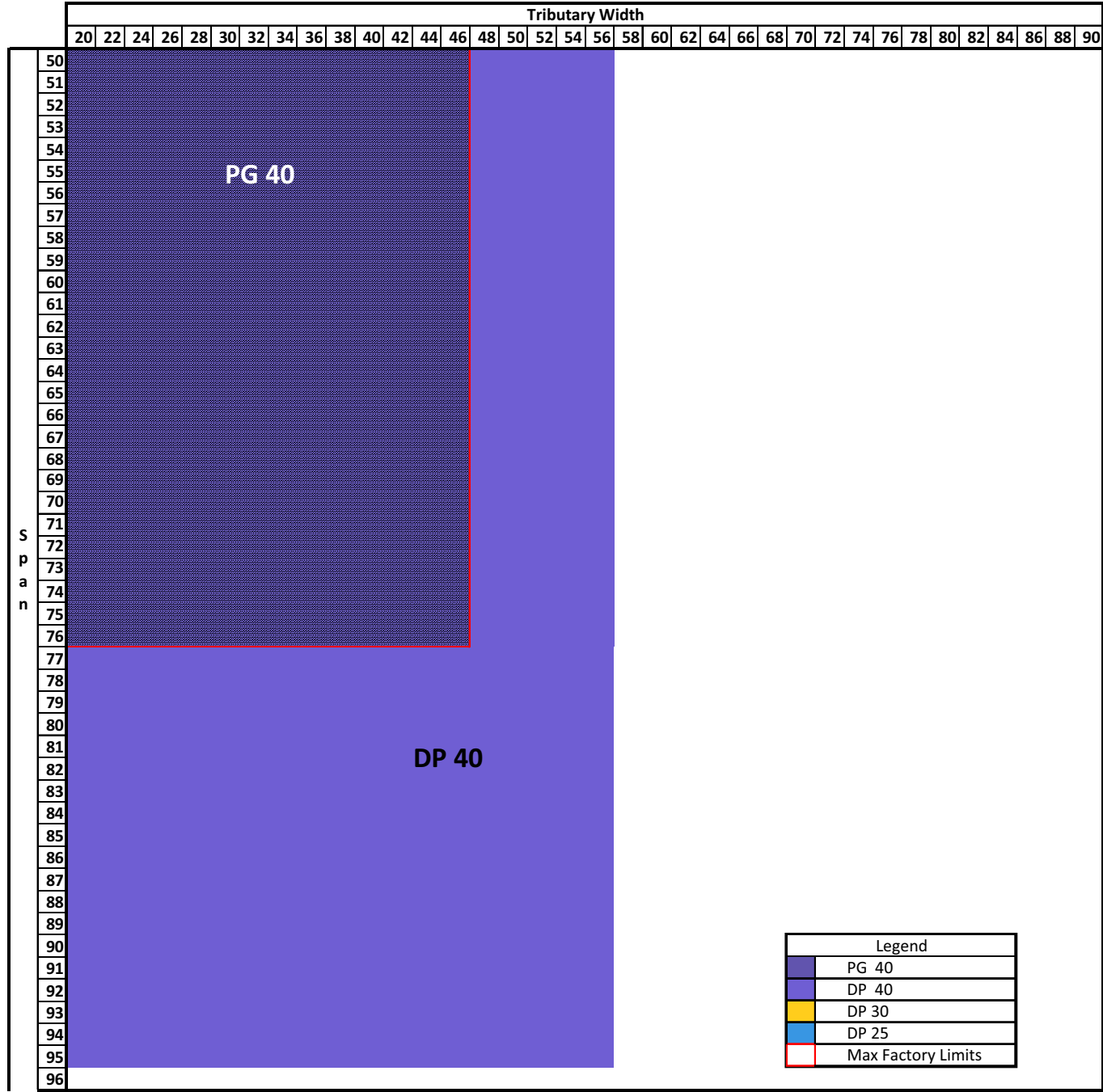
Essential Double Hung Mulling - Mulls with Reinforcement (Ribbon Assembly)

Max Factory Mull is RO 114" x 78" for up to 6W x 1H assemblies (vertical mull).
Max certified Tributary Width x Span (frame size): 57" x 77 1/2"



Essential Double Hung Mulling - Mull with Reinforcement (Stacked Assembly)

Max Factory Mull is RO 78" x 96" for up to 1W x 5H assemblies (horizontal mull).
Max certified Tributary Width x Span (frame size): 48" x 77 1/2"



Essential Glider Mull Types

This document is a compilation of mulling options for the Essential Glider product.

Mull Types

- Standard Mull: Two units mulled together with a 1/2" space mull pin which allows for either factory or field assembly.
- 1/2" Mull Reinforcement (MRF): Two units mulled together with a three-piece reinforcement that allows for either factory or field assembly.

Products Included

- Essential Glider
- Essential Glider Triple Sash

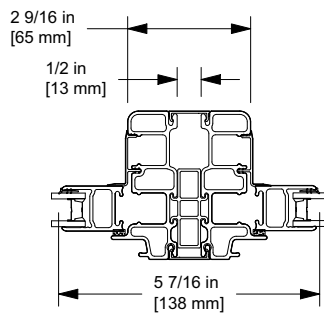
Certified Mull Installation Methods

- Nailing fin
- Structural brackets
- Through-jamb.

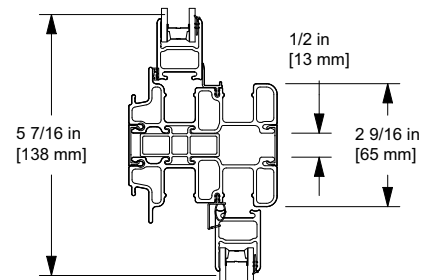
Tributary and Span:

See page 2 for definition and illustration of these terms.

Section Details: Essential Glider Mulling Types



Vertical Mull
Glider to Glider

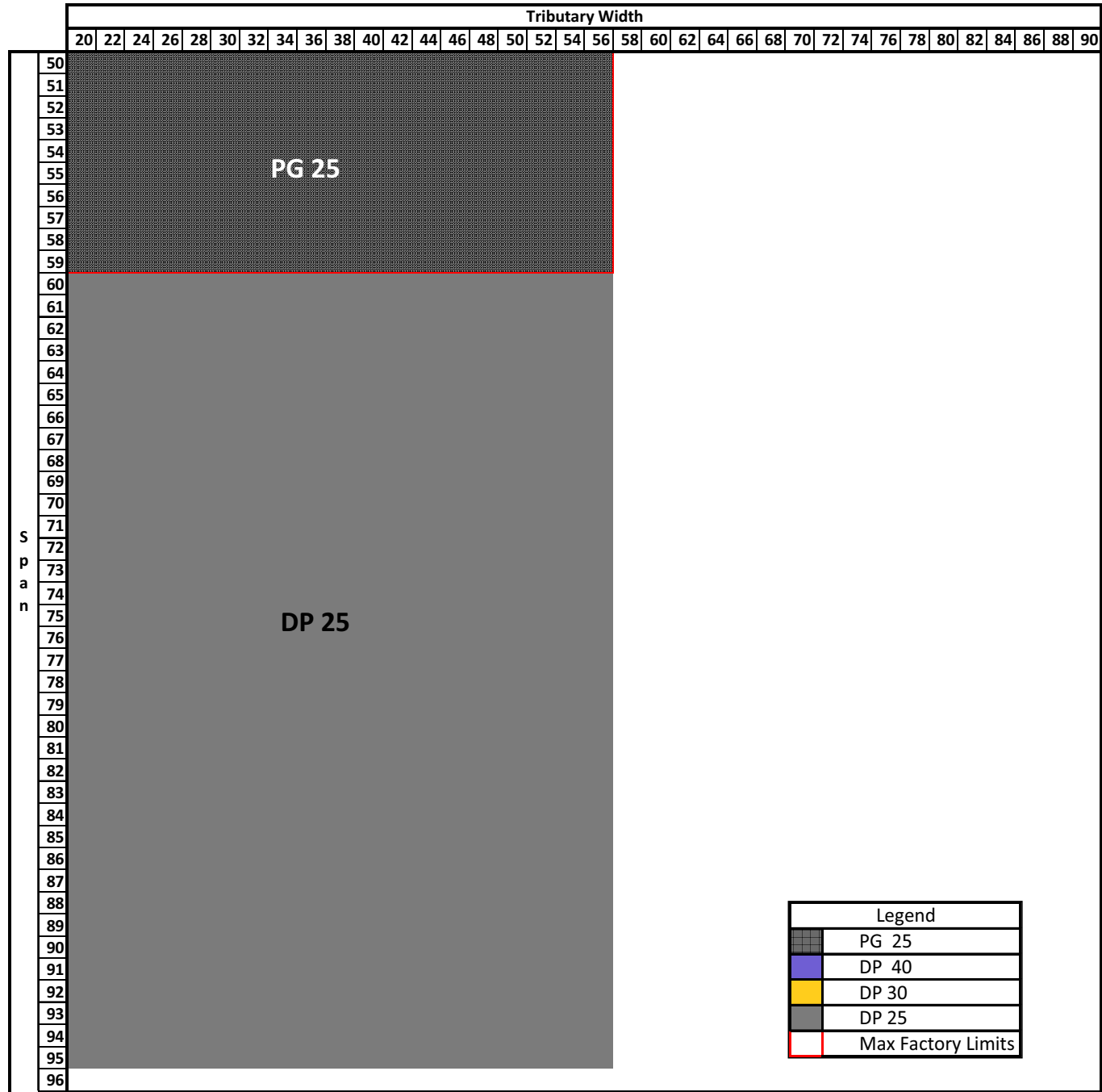


Horizontal Mull
Glider to Glider

NOTE: Standard and MRF mull pins are available. Dimensions are the same. Standard mulls shown.

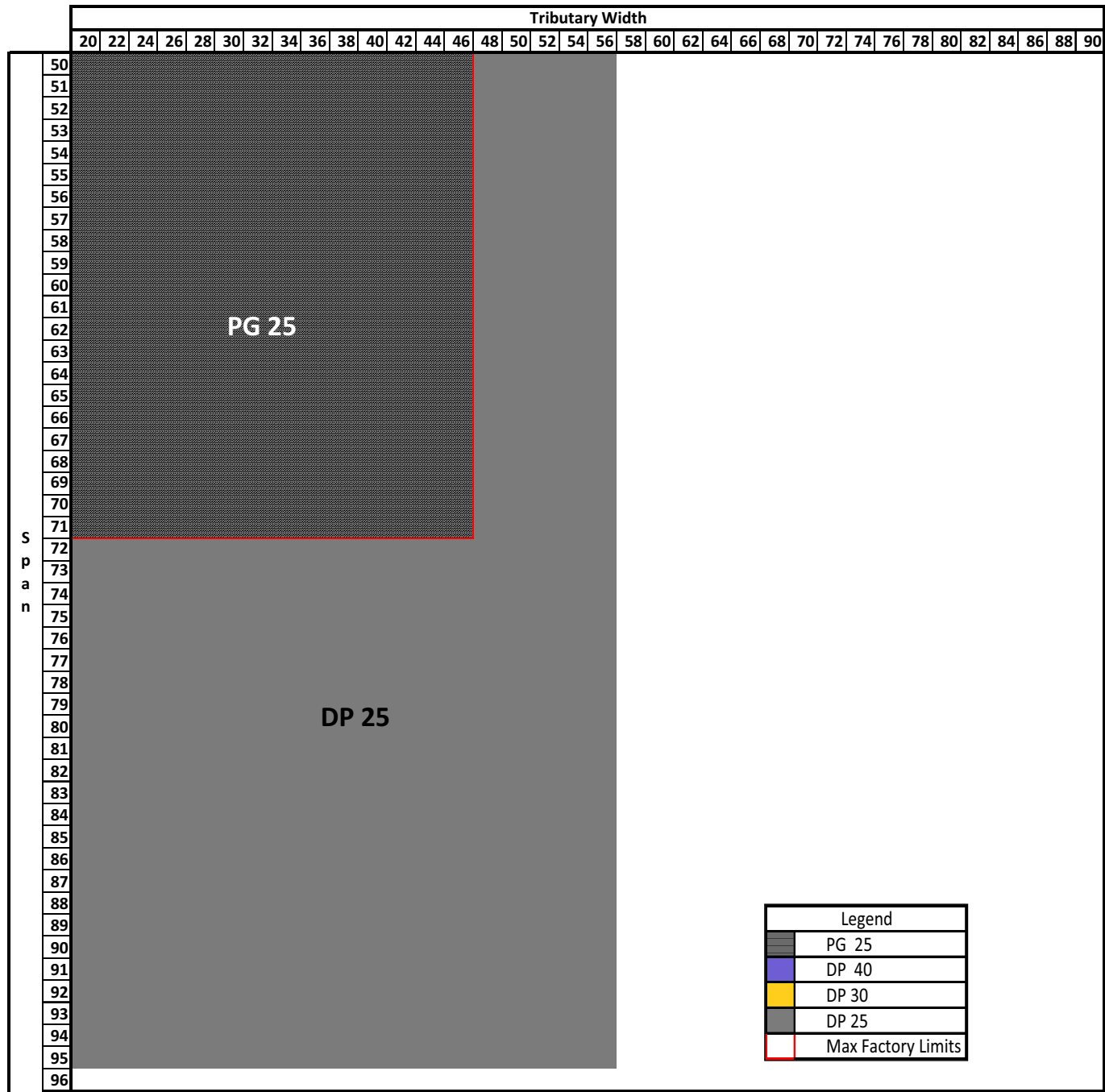
Essential Glider Mulling - Standard Mull (Ribbon)

Max Factory Mull is RO 114" x 60" for up to 3W x 1H assemblies (vertical mull).
Max certified Tributary Width x Span (frame size): 57" x 59 1/2".



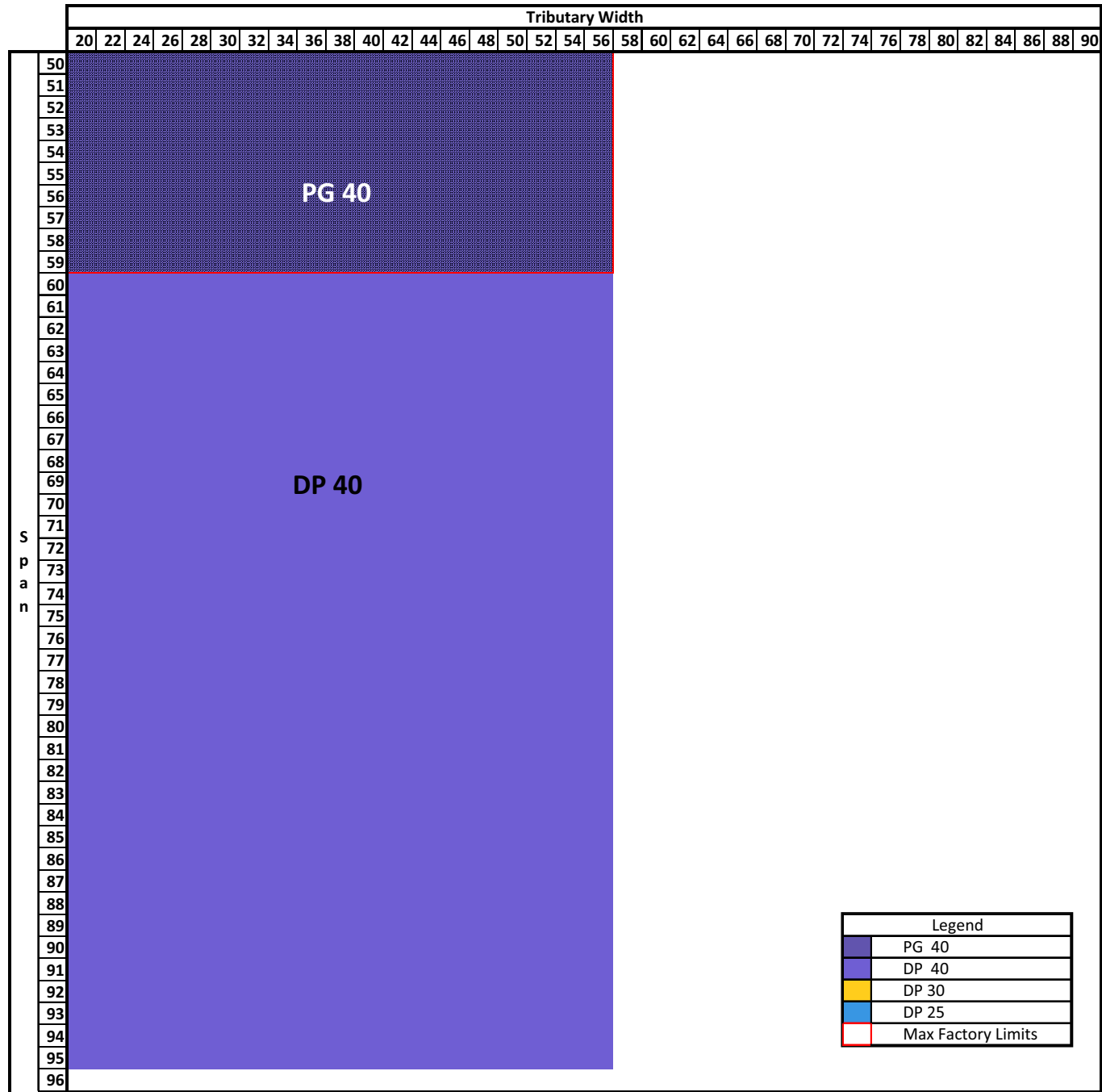
Essential Glider Mulling - Standard Mull (Stacked)

Max Factory Mull is RO 72" x 96" for up to 1W x 2H assemblies (horizontal mull).
Max certified Tributary Width x Span (frame size): 47 1/2" x 71 1/2".



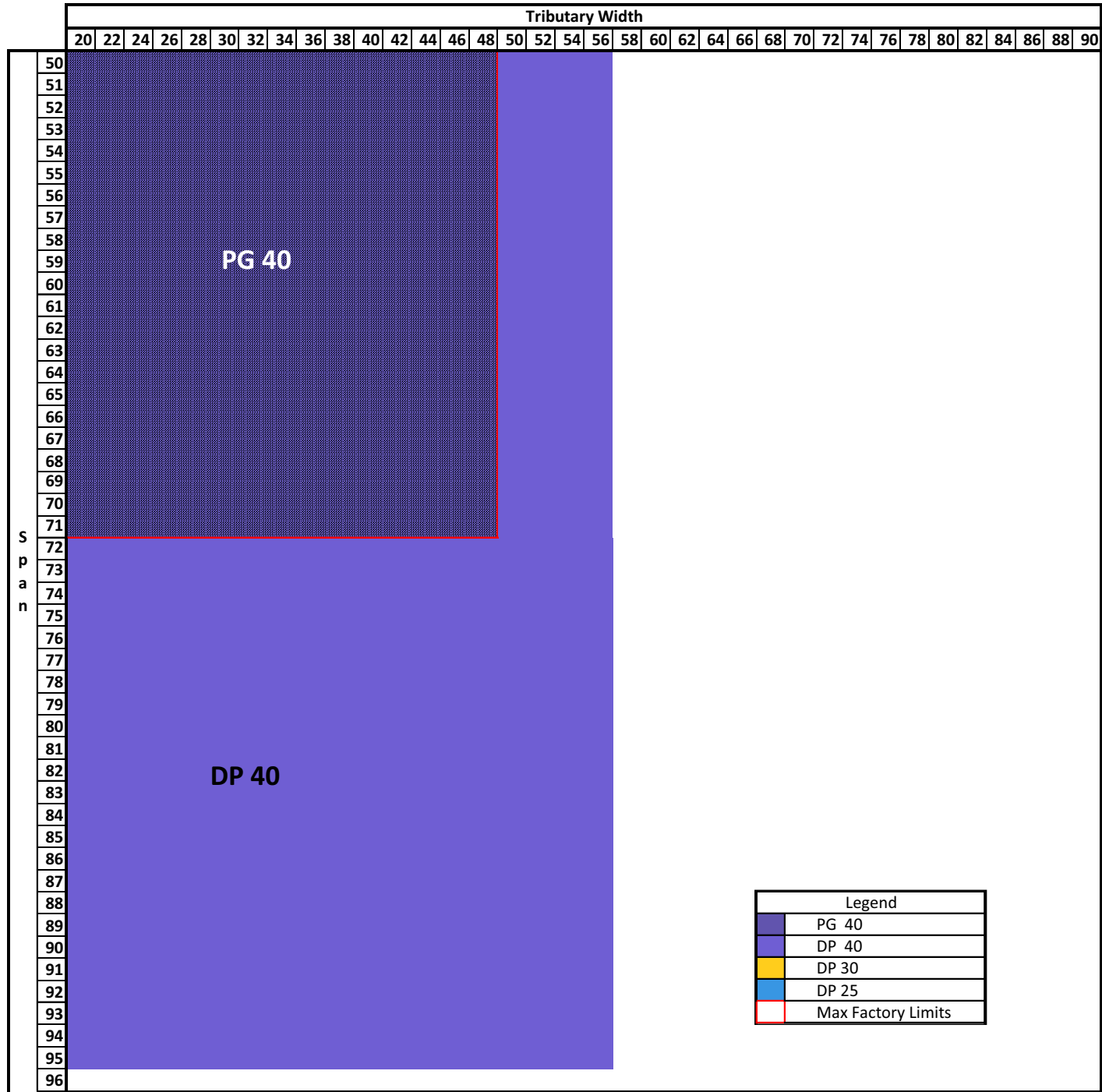
Essential Glider Mulling - Mulls with Reinforcement (Ribbon Assembly)

Max Factory Mull is RO 114" x 60" for up to 3W x 1H assemblies (vertical mull).
Max certified Tributary Width x Span (frame size): 57" x 59 1/2"



Essential Glider Mulling - Mulls with Reinforcement (Stacked Assembly)

Max Factory Mull is RO 72" x 96" for up to 1W x 2H assemblies (horizontal mull).
Max certified Tributary Width x Span (frame size): 57" x 95 1/2"



Essential Direct Glaze Mull Types

This section is a compilation of mulling options for the Essential Direct Glaze product.

Mull Types

- Standard Mull: Two units mulled together with a 1/2" space mull pin which allows for either factory or field assembly.
- 1/2" Mull Reinforcement (MRF): Two units mulled together with a three-piece reinforcement that allows for either factory or field assembly.

Products Included

- Essential Direct Glaze
- Essential Direct Glaze Round Tops

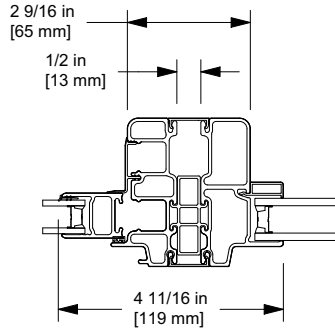
Certified Mull Installation Methods

- Nailing fin
- Structural brackets
- Through-jamb.

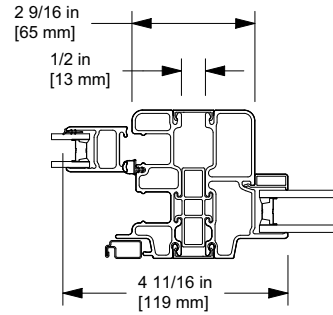
Tributary and Span:

See page 2 for definition and illustration of these terms.

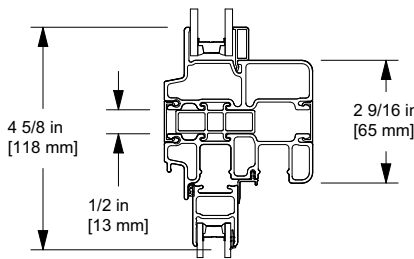
Section Details: Essential Direct Glaze Polygons Mulling Types



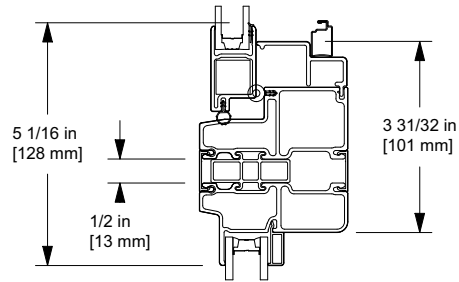
Vertical Mull
Double Hung Picture/Transom To Direct Glaze



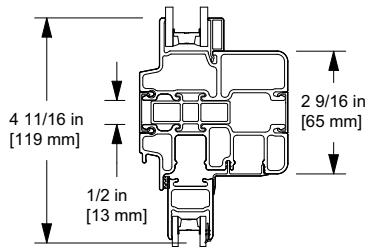
Vertical Mull
Single Hung To Direct Glaze



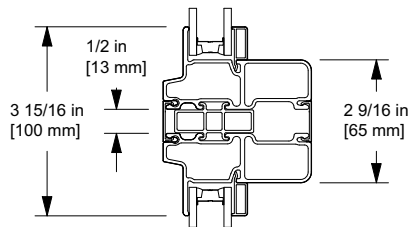
Horizontal Mull
Direct Glaze To Single Hung



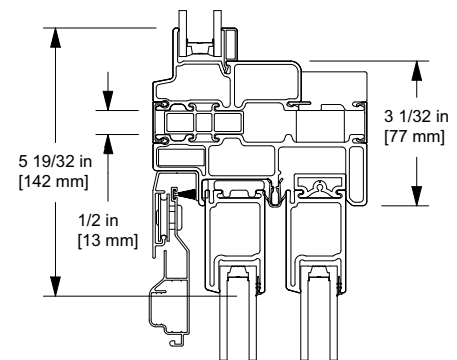
Horizontal Mull
Casement/Awning/Picture/Transom To Direct Glaze



Horizontal Mull
Direct Glaze To
Casement Transom/Picture



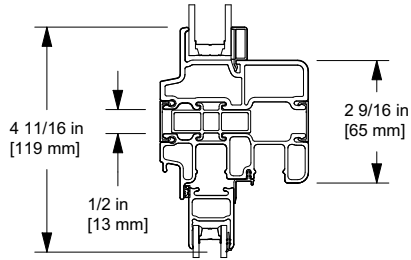
Horizontal Mull
Direct Glaze To Direct Glaze



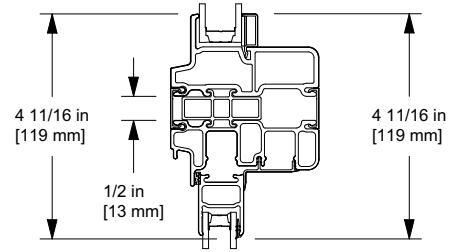
Horizontal Mull
Sliding Patio Door To
Direct Glaze

NOTE: Standard and MRF mull pins are available. Dimensions are the same. Standard mulls shown.

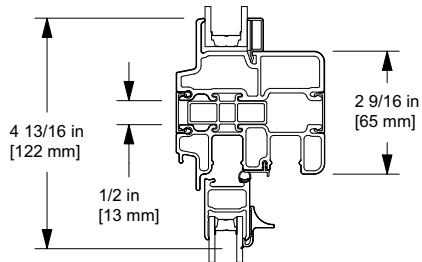
Section Details: Essential Direct Glaze Round Tops Mulling Types



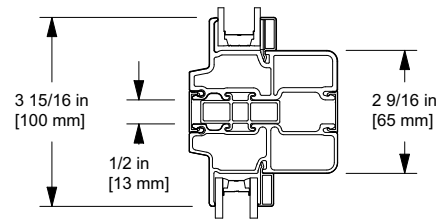
Horizontal Mull
Direct Glaze Round Top To Single Hung



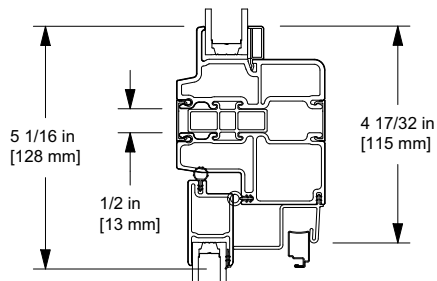
Horizontal Mull
Direct Glaze Round Top To Double Hung Picture



Horizontal Mull
Direct Glaze Round Top To Double Hung



Horizontal Mull
Direct Glaze Round Top To Direct Glaze

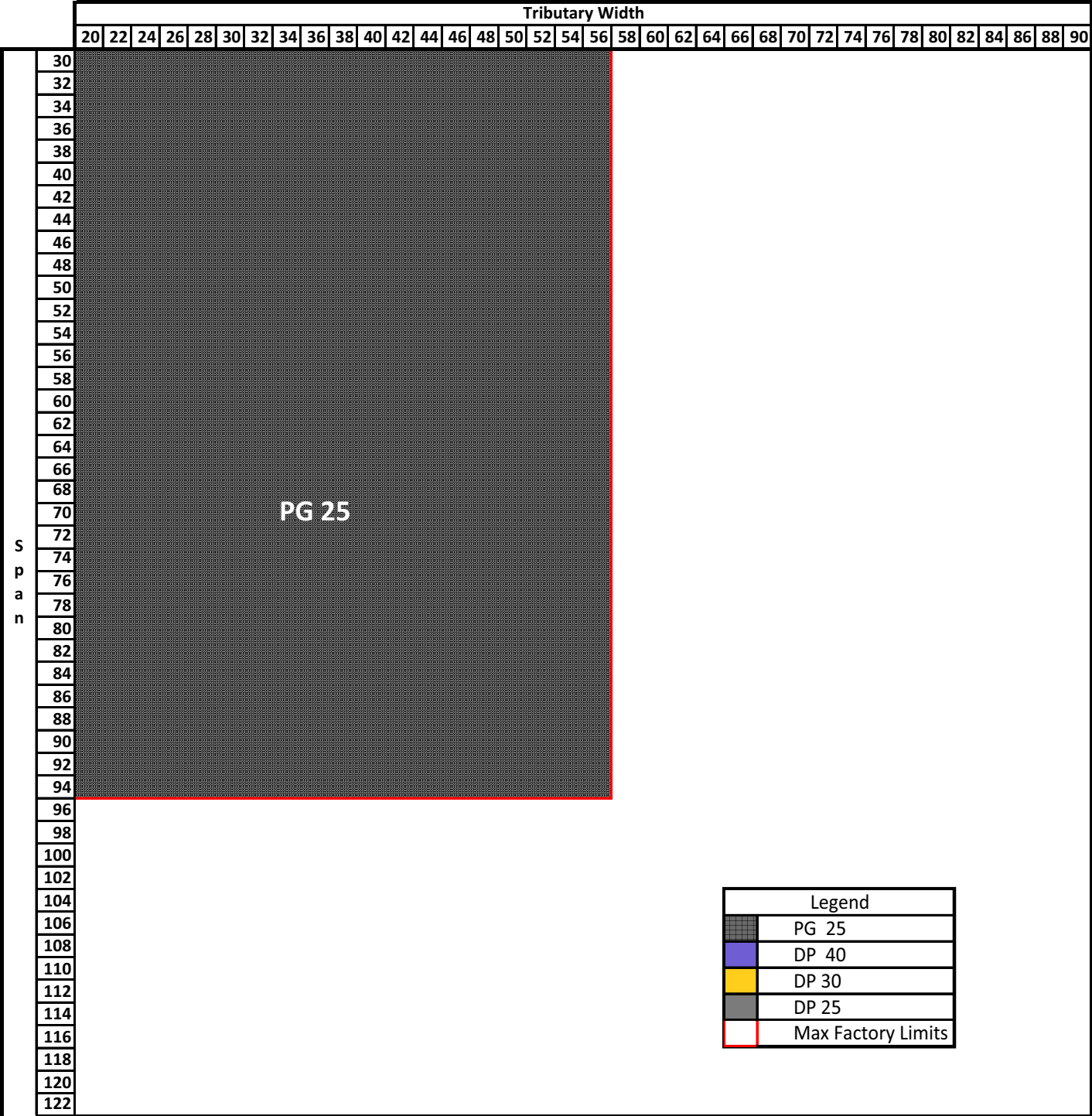


Horizontal Mull
Direct Glaze Round Top To Casement/Awning/Picture

NOTE: Standard and MRF mull pins are available. Dimensions are the same. Standard mulls shown.

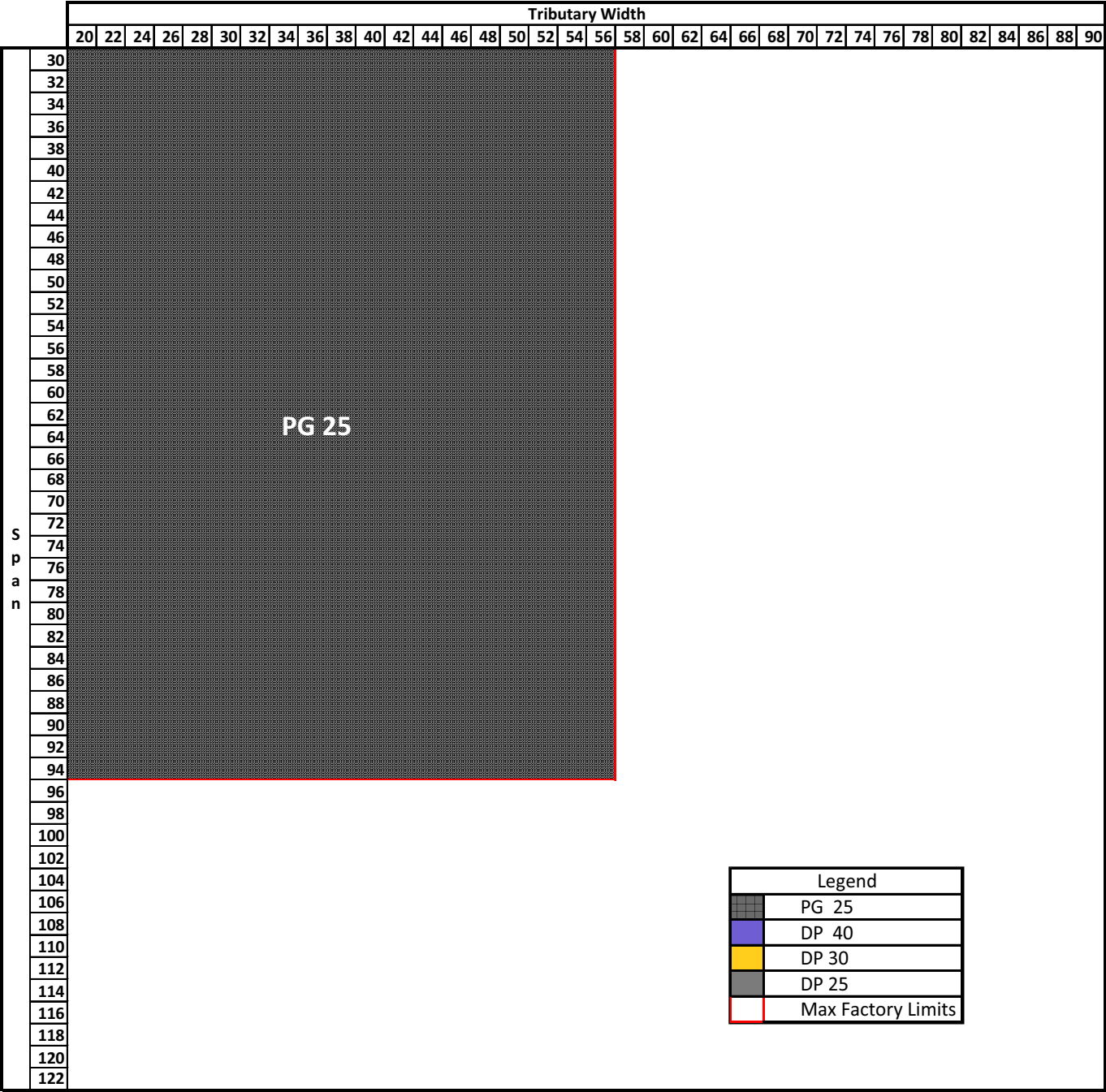
Essential Direct Glaze Polygon Mulling - Standard Mull (Ribbon)

Max Factory Mull is RO 114 x 96" for up to 6W x 1H assemblies (vertical mull).
Max certified Tributary Width x Span (frame size): 57" x 95 1/2".



Essential Direct Glaze Polygon and Round Top Mulling - Standard Mull (Stacked)

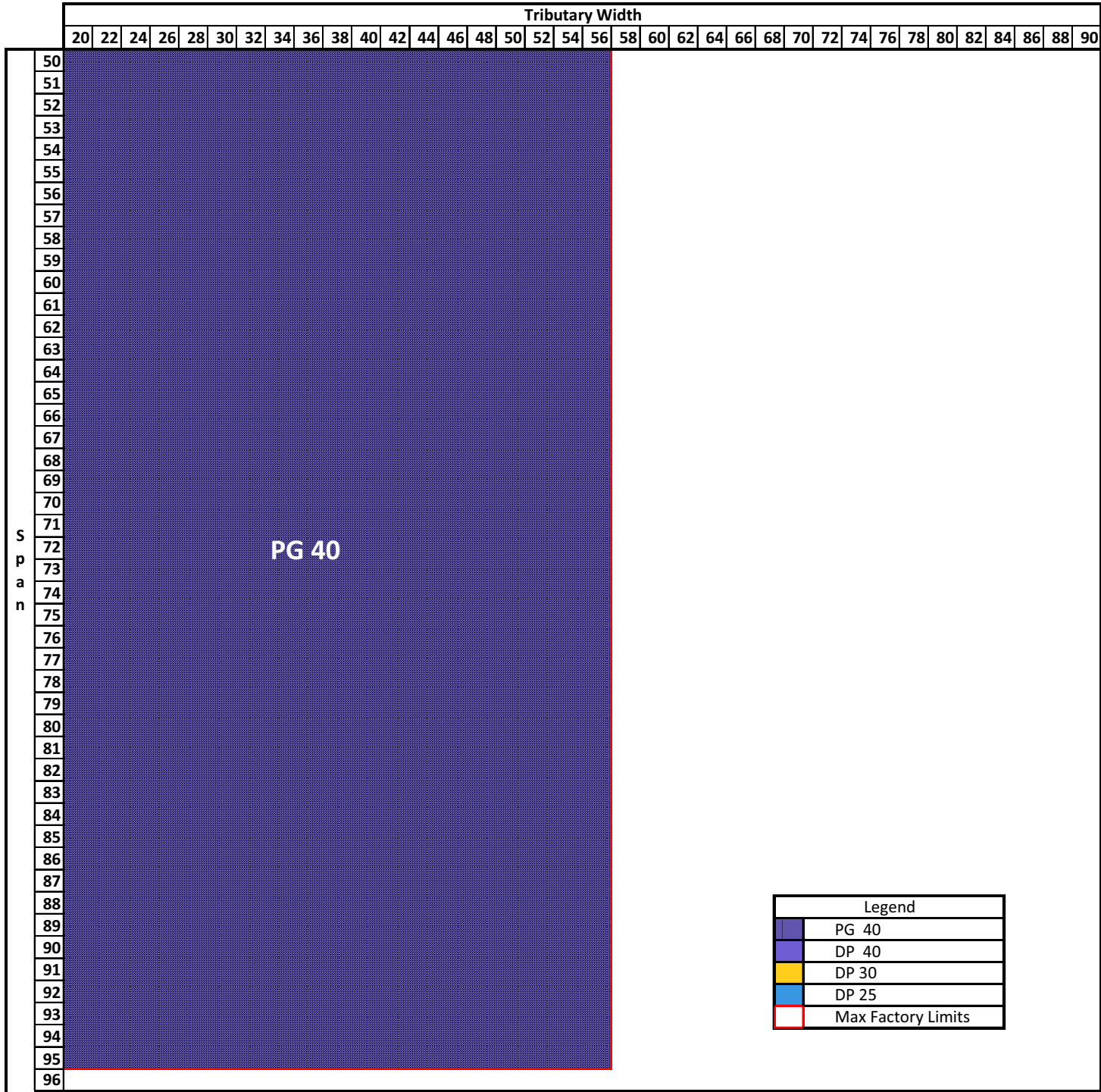
Max Factory Mull is RO 96" x 114" for up to 1W x 5H assemblies for polygons and 1W x 2H for round tops (horizontal mull).
Max certified Tributary Width x Span (frame size): 57" x 95 1/2".



NOTE: RT1 Open Hub defaults to 6.25" radius unless specified, with a 4.5" minimum radius. When ordered as a factory mull, the RT1 Open Hub will align with the lite pattern of the lower unit.

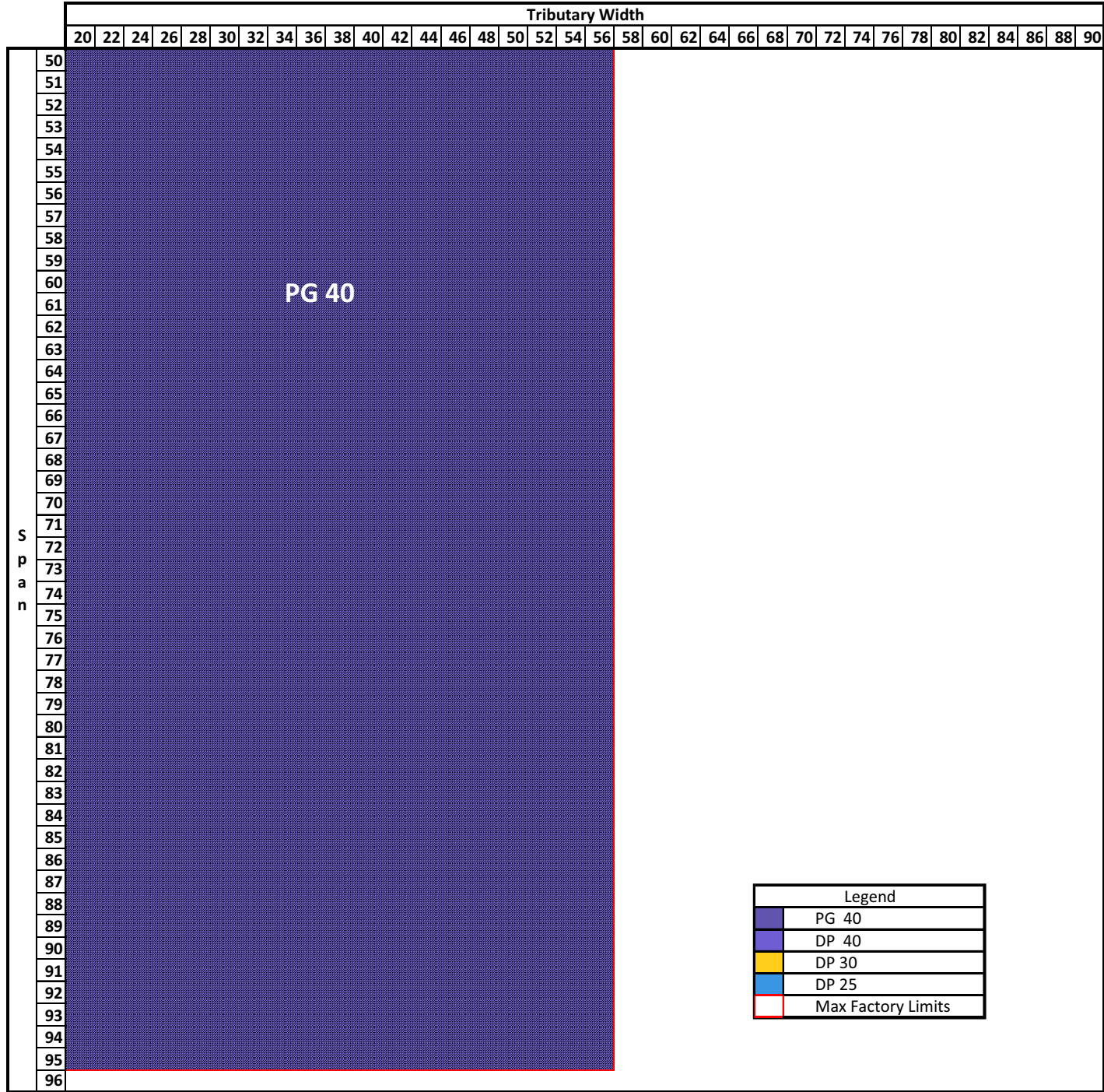
Essential Direct Glaze Polygon Mulling - Mulls with Reinforcement (Ribbon Assembly)

Max Factory Mull is RO 114" x 96" for up to 6W x 1H assemblies (vertical mull).
Max certified Tributary Width x Span (frame size): 57" x 95 1/2"



Essential Direct Glaze Polygon and RT Mulling - Mulls with Reinforcement (Stacked Assembly)

Max Factory Mull is RO 96" x 114" for up to 1W x 5H assemblies for polygons and 1W x 2H for round tops (horizontal mull).
Max certified Tributary Width x Span (frame size): 57" x 95 1/2"



Essential Sliding Patio Door Mull Types

This section is a compilation of mulling options for the Essential Sliding Patio Door product.

Mull Types

- Standard Mull: Two units mulled together with a 1/2" space mull pin which allows for either factory or field assembly.
- 1/2" Mull Reinforcement (MRF): Two units mulled together with a three-piece reinforcement that allows for either factory or field assembly.

Products Included

- Essential Sliding Patio Door

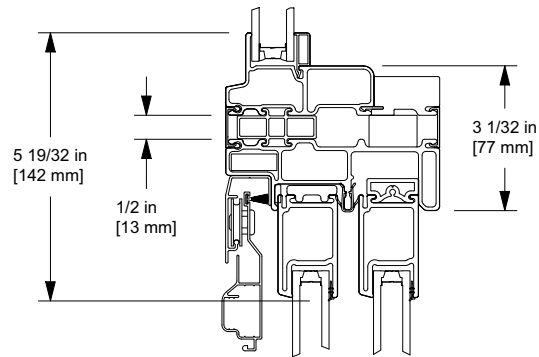
Certified Mull Installation Methods

- Nailing fin
- Structural brackets
- Through-jamb.

Tributary and Span:

See page 2 for definition and illustration of these terms.

Section Details: Essential Sliding Patio Door Mulling Types

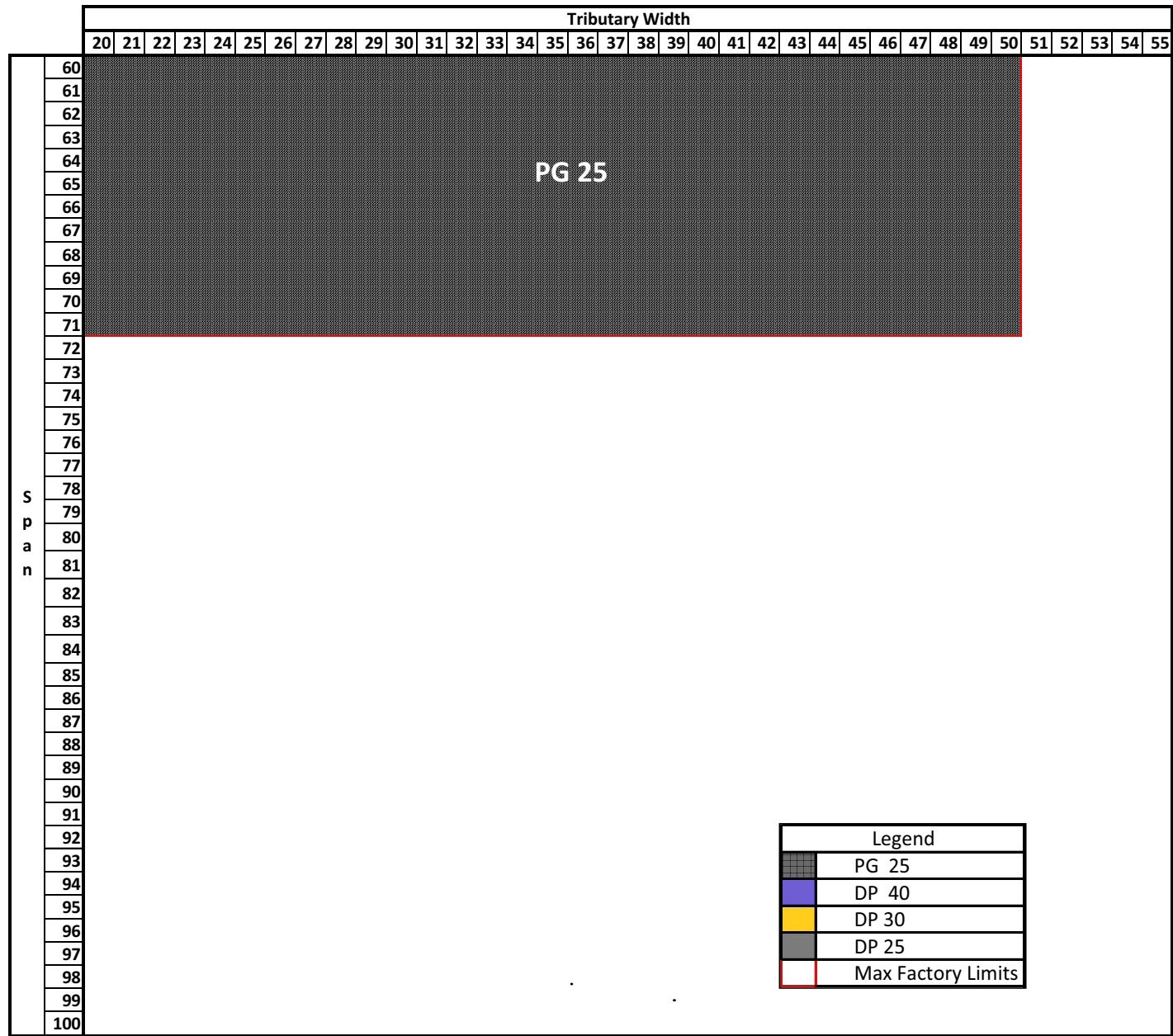


Horizontal Mull
Direct Glaze To Sliding Patio Door

NOTE: Standard and MRF mull pins are available. Dimensions are the same. Standard mulls shown.

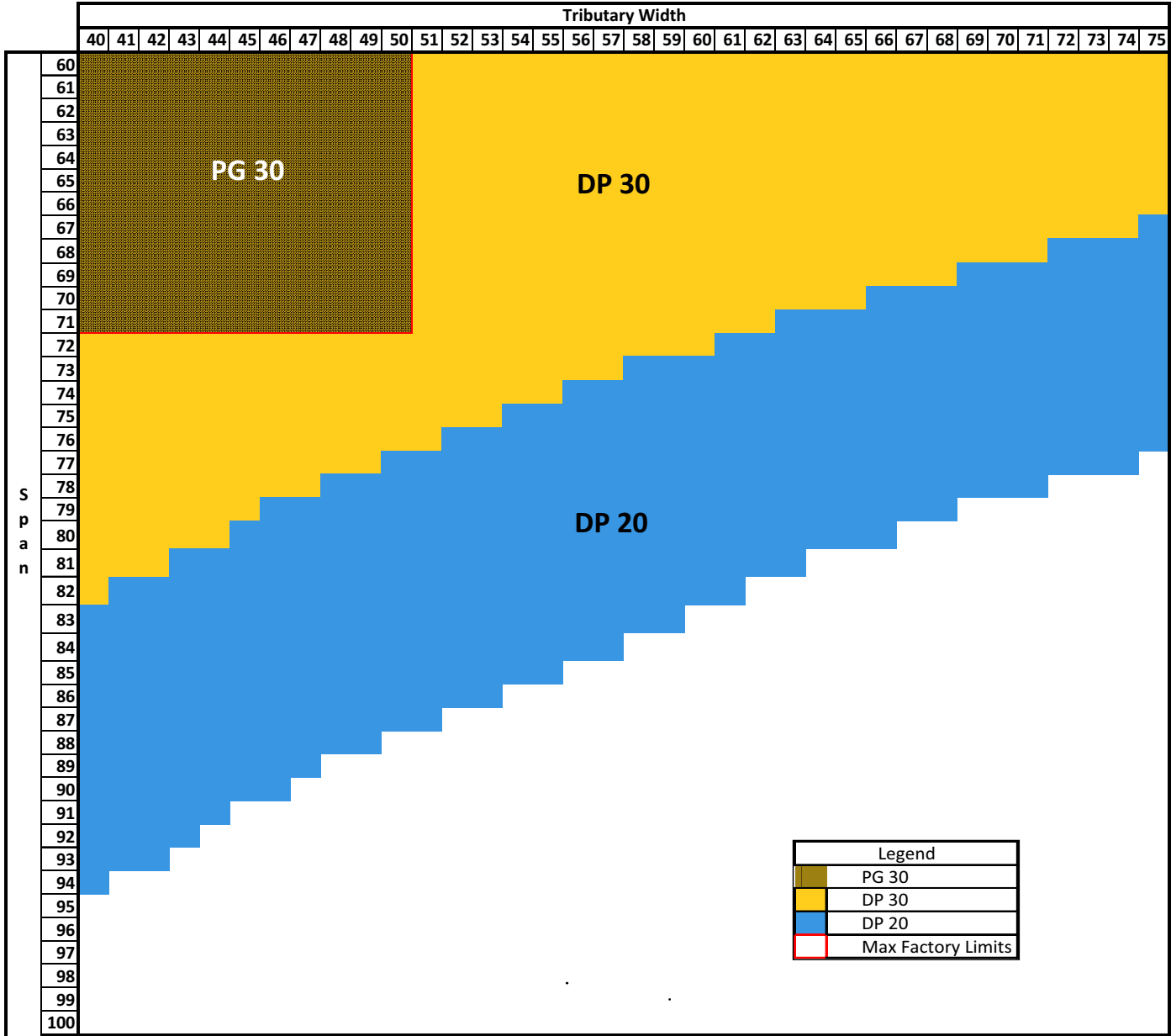
Essential Sliding Patio Door Mulling - Standard Mull (Ribbon)

Max Factory Mull is RO 72" x 100"
for up to 1W x 2H assemblies (horizontal mull)
Max certified Tributary Width x Span (frame size): 48" x 59 1/2"
Field mulling beyond 110" x 112" not recommended.



Essential Sliding Patio Door Mulling - Mulls with Reinforcement

Max Factory Mull is RO 72" x 100" for up to 1W x 2H assemblies (horizontal mull).
Max certified TW x Span (frame size): 50" x 71 1/2"
Field mulling beyond 110" x 112" not recommended.



Essential Products with Multi-Wide, Multi-High Mulling

This section is a compilation of mulling options for the Essential window and door products.

Mull Types

- Standard Mull: Two units mulled together with a 1/2" space mull pin which allows for either factory or field assembly.
- 1/2" Mull Reinforcement (MRF): Two units mulled together with a three-piece reinforcement that allows for either factory or field assembly.

Products Included

- All Essential products

Certified Mull Installation Methods

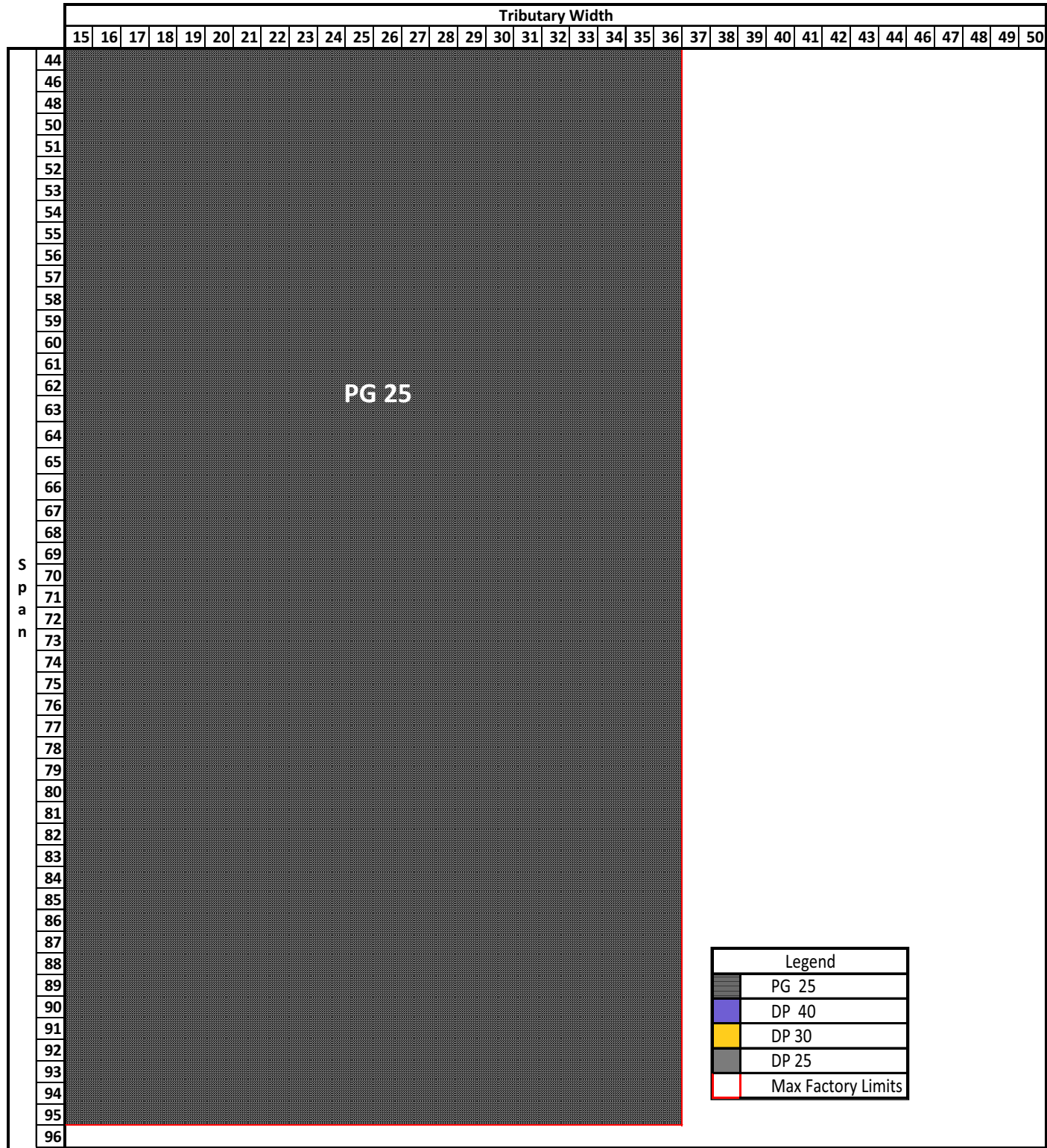
- Nailing fin
- Structural brackets
- Through-jamb.

Tributary and Span:

See page 2 for definition and illustration of these terms.

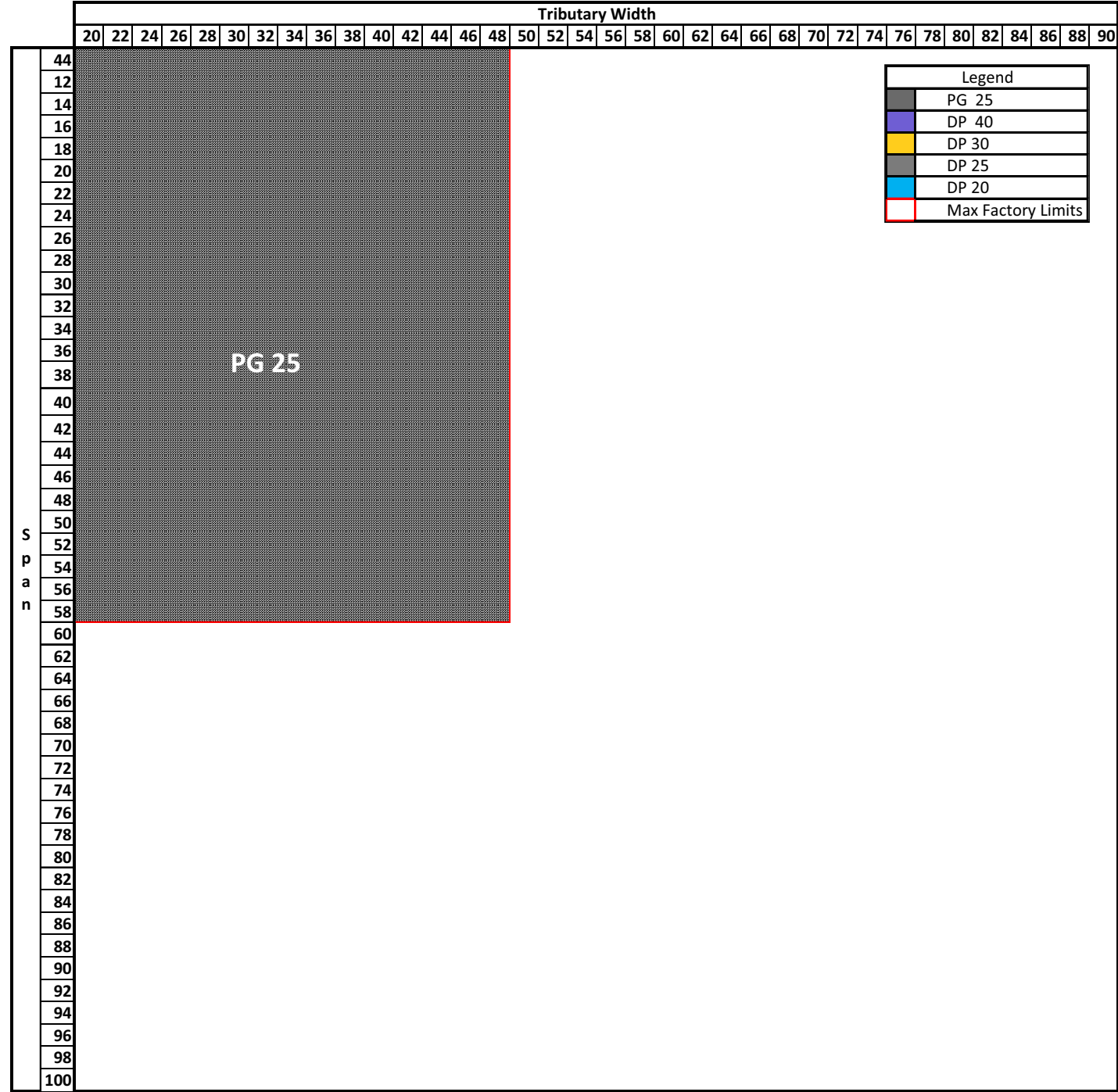
Essential Multi-High, Multi-Wide Mulling - Standard Mull

Max Factory Mull is RO 72" x 96" for up to 5W x 5H assemblies.
Max certified Tributary Width x Span (frame size): 36" x 95 1/2"



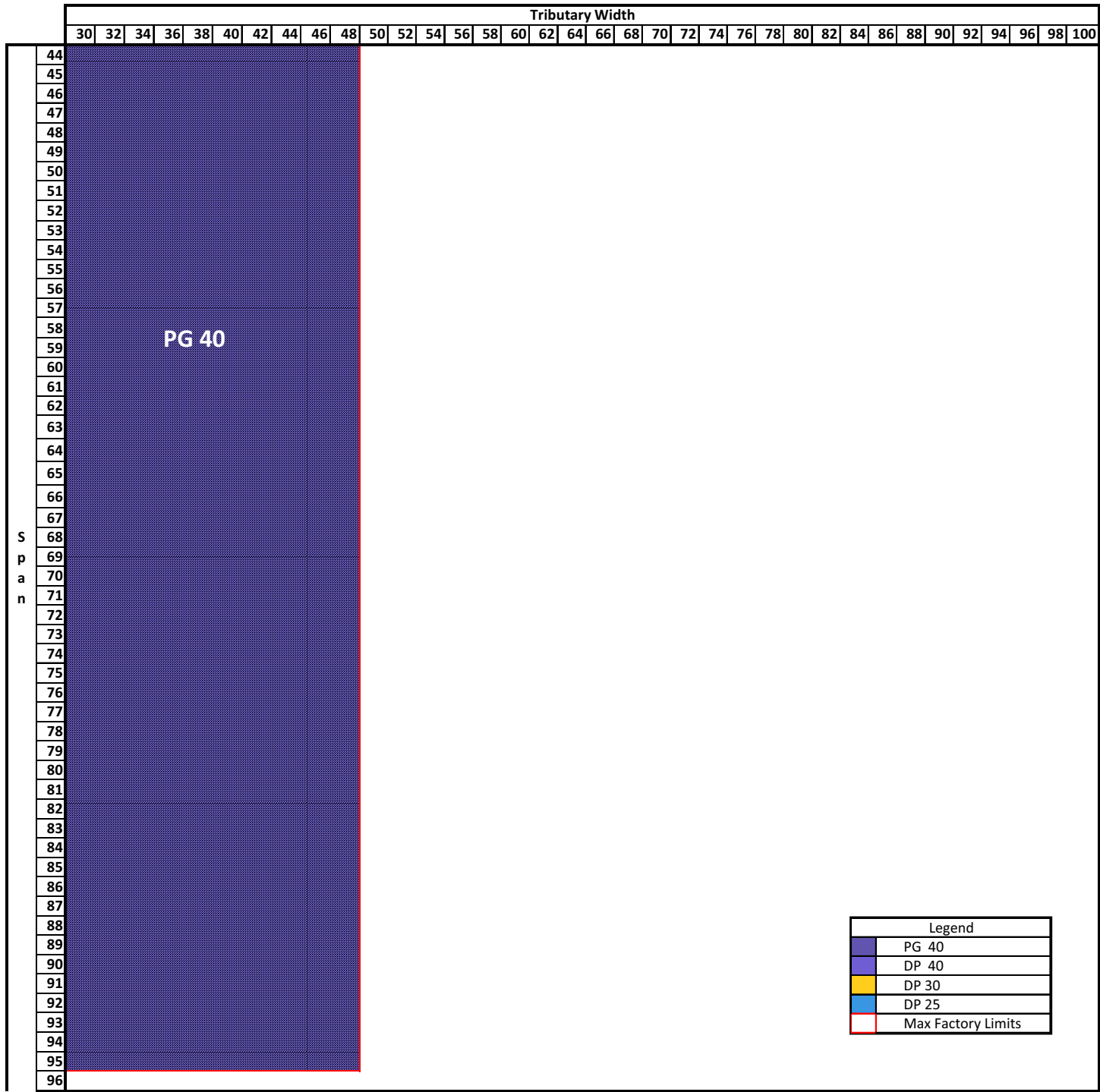
Essential Multi-High, Multi-Wide Mulling - Standard Mull (ESDH Transom over Any Product)

Assumes ESDH TR height of CN20. Any larger is not valid for this table.
Max certified Tributary Width x Span (frame size): 48" x 59 1/2"



Essential Multi-High, Multi-Wide Mulling - Mull with Reinforcement

Max Factory Mull is RO 96" x 96" when selected frame types allow.
Max certified Tributary Width x Span (frame size): 48" x 95 1/2"



Essential Multi-High, Multi-Wide Mulling - MRF (ESDH Transom over Any product)

Continuous Horizontal MRF, Non-continuous Vertical MRF
Assumes ESDH TR height of CN20. Any larger is not valid for this table.
Max certified Tributary Width x Span (frame size): 48" x 59 1/2"

