



Estimating Taper Systems

White Paper
2020



The Taper System Dilemma

The purpose of this document is to outline the process one can use for taper system estimation through Xactimate. Currently, Xactimate does not have tapered insulation options, which means a user must estimate for these materials based solely off of discretion, often times leading to inaccuracy.

Common throughout the industry, taper systems are priced by volume - in many cases, board feet (BF). Taper systems can be designed to accommodate specific roof designs, all of which have a common goal to provide positive roof drainage. In order to receive accurate material proposals for varying taper needs, a contractor will typically submit roof drawings to a local distributor showing the location of roof drains and curbs, which may indicate the need for additional crickets, etc. Once this information is submitted, a proposal is generated that offers multiple options. All taper systems are dependent upon materials used, slope, roof span, as well as other factors.

Once this proposal is received, contractors will add a labor component for installation and add on other material needs, such as roof fasteners or adhesives needed to bond the boards to the roof substrate. Conveniently, Xactimate provides excellent data for estimating these ancillary costs. The issue is how a user can accurately represent taper system material and labor costs that are in-line with local market costs.

The below study was performed in order to provide a comparison between real market costs and Xactware pricing in regard to tapered insulation systems. This study will assist an estimator with accurately pricing tapered systems, and also guide a user through the estimating process within Xactimate.

Background

In order to acquire material costs associated with tapered insulation, C3 Group contacted a local supplier, Gulfeagle Supply, and requested a material quote. C3 Group then compared this quote to a Xactimate estimate. Both the supplier quote and the Xactimate estimate utilized identical specifications.

Specifications for the comparison:

Roof Size: 16' x 16'

Material: Expanded Polystyrene (EPS)

Tapered Area: 2.56 SQ

Minimum Start: 0.00"

Maximum Height: 4.00"

Slope: ¼": 12" (2% gradient)



Distributor Proposal



GULFEAGLE SUPPLY

1565 Northgate Blvd / Sarasota, FL 34234
Tel: 941.358.5682 Fax: 941.351.4207

Tapered System Quote-Form

Fax to: **Scott**
Company: **GULFEAGLE SUPPLY**
4747 S Windemere Street
Englewood, Co 80110

Phone: **303-346-3706**
Fax: **303-346-3704**

Copy to: **0**

Tapered System Specifications:

Project: 16' X 16'	Job Number: 17-2226
Location: Englewood, Co	Quote Date: 9/14/2017

Tapered System: E.P.S.	Minimum Start: 0.0"	Labor Information
Tapered Area: 2.56 Squares	Maximum Height: 4.0"	Total Squares of Material: 2.56
Cricket Area: 0.00 Squares	Fill Insulation: N/A	Total Squares Applied: 2.56
Slope(s): 1/4" /ft	Base Layer: N/A	Average R-Value: 8.34
Cricket Slope: N/A /ft	Overlay: N/A	
	Thermal: N/A	

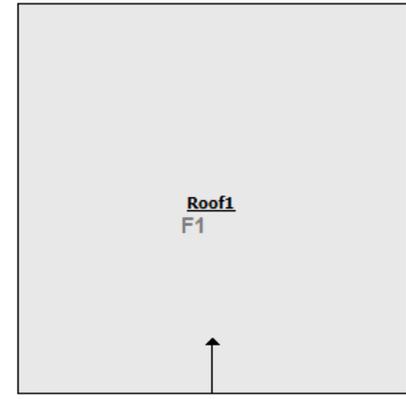
Price: \$ **205**

Quote expires: **12/13/2017**
Project Estimator: Keith Krug
E-Mail: kkrug@gulfeaglesupply.com

As listed above, the material cost for this taper system is \$205.00. This includes only the tapered expanded polystyrene boards - exclusive of labor, fasteners and/or adhesive.

Xactimate Proposal

C3 Group then provided a like-kind and quality material estimate through Xactimate using a price list on or near the date the proposal was received (CODE8X_SEP17).



FACE	SQ FT	# SQs	Slope - Rise / 12
F1	256.00	2.56	0.00
Estimated Total:	256.00	2.56	





C3 Group selected (2) 2" expanded polystyrene (EPS) boards 'RFGIPO2', and changed the action to account for Materials Only 'M' in order to compare to the provided supplier quote.

#	Cat	Sel	Act	Notes	Description	Coverag	Calc	Quantity
4	RFG	IPO2	M		Insulation - polystyrene board, 2"	Dwelling	SQ	2.56
7	RFG	IPO2	M		Insulation - polystyrene board, 2"	Dwelling	SQ	2.56

C3 Group modified the material components of both line items to include only the polystyrene boards. This required the deletion of the fasteners that are included within the line item components.

Item Activity Information

Category: RFG Selector: IPO2 Activity: M (Material Only) Phase: 07 Roofing

Material: \$84.62 → Contractor Supplied \$84.62 + Non-Contractor Supplied \$0.00

Equipment: \$0.00

Retail Labor: \$0.00 → Labor Worker's Wage \$0.00 + Labor Burden \$0.00 + Labor Overhead \$0.00

Market Conditions: \$0.00

Replace Price: \$84.62

Type	Description	Per Unit
Material	Fasteners for rigid roofing insulation - up to 4"	9.023
Material	Polystyrene board roofing insulation, 2"	75.592

Details

Delete

C3 Group then reduced the material amount by 50%. This was completed by subtracting 50% of the listed material component within the Market Conditions field. This change accounts for the volume of a 0"-4" taper by means of extrapolation.

Item Activity Information

Category: RFG Selector: IPO2 Activity: M (Material Only) Phase: 07 Roofing

Material: \$75.59 → Contractor Supplied \$75.59 + Non-Contractor Supplied \$0.00

Equipment: \$0.00

Retail Labor: \$0.00 → Labor Worker's Wage \$0.00 + Labor Burden \$0.00 + Labor Overhead \$0.00

Market Conditions: (\$37.79)

Replace Price: \$37.80

Details

Type	Description	Price Per Unit
Material	Polystyrene board roofing insulation, 2"	75.592

Add... Edit... Delete



After settings were saved, the quantities fields were entered as the square count of the roof, in this case '2.56 SQ' for each line item.

#	Cat	Sel	Act	Notes	Description	Coverag	Calc	Quantity	Unit	Unit Price	Sales Tax	RCV
4	RFG	IPO2	M		Insulation - polystyrene board, 2"	Dwelling		2.56	SQ	\$37.80	\$7.14	\$104.51
8	RFG	IPO2	M		Insulation - polystyrene board, 2"	Dwelling		2.56	SQ	\$37.80	\$7.14	\$104.51

As seen above, the replacement costs value (RCV) is listed at \$104.51 for each line item, coming to a total of \$209.02.

Material Only Pricing for 0"-4" Expanded Polystyrene Taper System	
Gulfeagle Supply:	\$205.00
Xactimate:	\$209.02
Variation:	<2%

Estimation Sequence of Taper Systems Including Labor and Materials

- The estimator determines taper material, along with taper depth based on slope requirements and roof span, or based on like-kind and quality and/or required by manufacturer specification. In this case we will assume a 0"-4" taper is required and/or existing.
- The user will select the proper thickness combination and quantity of board line items to accommodate the taper design required.
- The user will enter the square count of the area, or 'SQ', plus any additional waste factor where that complex roof designs may require.
- The estimator, understanding that taper systems are based on volume, deducts 50% of the insulation board material component, which can be completed within Market Conditions. This accommodates for accurate volume by means of extrapolation (0"-4" taper = 50% of the volume of full-thickness 4" layer).
- The estimator determines the attachment method, e.g. adhesive, mechanical fasteners, etc. and adjusts the default material components accordingly.



Item Activity Information

Category: RFG Selector: IPO2 Activity: M (Material Only) Phase: 07 Roofing

Material: \$84.62 → Material Contractor Supplied \$84.62 + Non-Contractor Supplied \$0.00

Equipment: \$0.00

Retail Labor: \$0.00 → Labor Worker's Wage \$0.00 + Labor Burden \$0.00 + Labor Overhead \$0.00

Market Conditions: \$0.00

Replace Price: \$84.62

Details

Type	Description	Per Unit
Material	Fasteners for rigid roofing insulation - up to 4"	9.023
Material	Polystyrene board roofing insulation, 2"	75.592

Add... Edit... Delete

Item Activity Information

Category: RFG Selector: IPO2 Activity: M (Material Only) Phase: 07 Roofing

Material: \$84.62 → Material Contractor Supplied \$84.62 + Non-Contractor Supplied \$0.00

Equipment: \$0.00

Retail Labor: \$0.00 → Labor Worker's Wage \$0.00 + Labor Burden \$0.00 + Labor Overhead \$0.00

Market Conditions: (\$37.79)

Replace Price: \$46.83

Details

Type	Description	Price Per Unit
Material	Fasteners for rigid roofing insulation - up to 4"	9.023
Material	Polystyrene board roofing insulation, 2"	75.592

Add... Edit... Delete

As seen above, the user deducts 50% of the material component “polystyrene board roofing insulation” (\$37.79) from the Market Conditions field in order to correct volume by means of extrapolation.

Common Questions

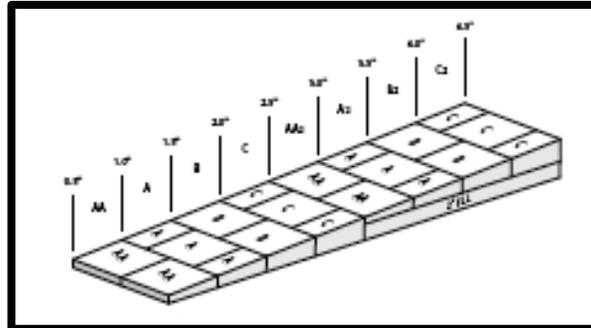
“What about the labor costs?”

The labor components associated with the installation are left as-is. This is due to the fact that labor costs are primarily dependent upon the area of installation, and not the thickness of the board. For instance, each board may be 50% less volume than a full thickness board, but multiple taper system layers are being installed along the entire roof area. If one were to also reduce the labor costs by 50%, it would inaccurately represent installation to only half the roof area.



“Why use two boards and not just one?”

Taper systems are very rarely one solid board, but rather made up of many boards with varying size and thickness. Because of this, additional labor is required to manipulate, place and install up to several layers of boards in order to complete the designed taper. A side view of common taper design can be seen below. An estimator can price tapers by including as many layers as required to accommodate the taper design, e.g. (2) 2” layers for a 4” taper; (1) 2” and (1) 3” layer for a 5” taper, etc. This is ultimately dependent upon the span of the roof section and slope required.



Conclusions

Based on the information presented above, this process has been determined to be an accurate means and method to calculating the true costs of a tapered system. This information is based on a like-kind and quality comparison between cost data provided by Xactware, and proposals offered by a local market supplier.

Ultimately, it is up to the estimator and the parties involved in a job to determine which items to use in an estimate, how they are applied, and the pricing.



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