

# NFRC Certified System U-factors and System Solar Heat Gain Coefficients

NFRC Certified System values are based on a model of the Kalwall panels and system. The model is 79" x 79" and consists of 2 panels, a center batten (varies) as well as head, sill and jamb members for walls, half-ridge and overlap for roofs (sloped translucent panels). Most site built window wall, curtainwall, sloped glazing and skylight systems are modeled at this size, allowing direct product comparisons. For identification purposes we will still refer to the panel U-factors based on the panel only as system values differ depending on face sheets, battens and stiffeners.

The following are our Certified Product U-Factors and SHGCs based on NFRC 100, 200 and 201-2014:

<u>Walls</u>		System U-factor [System SHGC Crystal/Crystal, Crystal/White, White/White]						
	Panel Only (2008)	NFRC Insulation Nomenclature	2" Batten	2 1/2" Batten #12SSSE	2 1/2" Batten #4SSSE	2 3/4" ST TB	3 1/4 IS	
CPD Number: KWC-M-2	<b>TB</b>	Air	<b>0.52</b> [0.44, 0.27, 0.21]				<b>0.53</b> [0.44, 0.27, 0.21]	
		Option 1	<b>0.28</b> [0.29, 0.25, 0.21]	<b>0.28</b> [0.29, 0.25, 0.21]	<b>0.30</b> [0.29, 0.25, 0.21]	<b>0.29</b> [0.29, 0.25, 0.21]	<b>0.32</b> [0.30, 0.26, 0.21]	
		Option 2	<b>0.19</b> [0.17, 0.15, 0.14]	<b>0.20</b> [0.17, 0.15, 0.14]	<b>0.21</b> [0.17, 0.15, 0.14]	<b>0.20</b> [0.17, 0.15, 0.14]	<b>0.23</b> [0.17, 0.16, 0.14]	
		Option 3	<b>0.16</b> [0.12, 0.12, 0.10]	<b>0.16</b> [0.12, 0.12, 0.10]	<b>0.18</b> [0.12, 0.12, 0.10]	<b>0.17</b> [0.12, 0.12, 0.10]	<b>0.20</b> [0.12, 0.12, 0.10]	
		Option 4	<b>0.12</b> [N/A, 0.22, 0.17]	<b>0.12</b> [N/A, 0.22, 0.17]	<b>0.14</b> [N/A, 0.22, 0.17]	<b>0.13</b> [N/A, 0.22, 0.17]	<b>0.16</b> [N/A, 0.23, 0.17]	
CPD Number: KWC-M-3	<b>4" K100</b>	Air	<b>0.53</b> [0.42, 0.26, 0.21]	{2.5" batten}				
		Option 1	<b>0.20</b> [0.09, 0.08, 0.06]	{2.5" batten}	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	
		Option 2	<b>0.15</b> [0.07, 0.04, N/A]	{2.5" batten}				
		Non-TB	Air	<b>0.60</b> [0.50, 0.37, 0.26]		<b>0.60</b> [0.49, 0.36, 0.26]	<b>0.60</b> [0.49, 0.36, 0.26]	<b>0.67</b> [0.50, 0.37, 0.26]
			Option 1	<b>0.35</b> [0.33, 0.26, 0.19]	<b>N/A</b>	<b>0.36</b> [0.32, 0.26, 0.19]	<b>0.37</b> [0.32, 0.26, 0.19]	<b>0.42</b> [0.33, 0.26, 0.20]
Option 2	<b>0.26</b> [0.14, 0.13, 0.10]		<b>0.26</b> [0.14, 0.13, 0.10]	<b>0.27</b> [0.14, 0.13, 0.10]	<b>0.33</b> [0.15, 0.14, 0.11]			
Option 3	<b>0.22</b> [0.10, 0.09, 0.08]		<b>0.23</b> [0.10, 0.09, 0.08]	<b>0.24</b> [0.10, 0.09, 0.08]	<b>0.30</b> [0.11, 0.10, 0.09]			

  

<u>Roofs</u>		System U-factor [System SHGC Crystal/Crystal, Crystal/White, White/White]						
	Panel Only (2008)	NFRC Insulation Nomenclature	2" Batten	2 1/2" Batten #12SSSE	2 1/2" Batten #4SSSE	2 3/4" ST TB	3 1/4 IS	
CPD Number: KWC-M-1	<b>TB</b>	Air	<b>0.56</b> [0.45, 0.27, 0.21]					
		Option 1	<b>0.30</b> [0.30, 0.26, 0.21]	<b>0.30</b> [0.29, 0.25, 0.21]	<b>0.32</b> [0.29, 0.25, 0.21]		<b>0.34</b> [0.30, 0.26, 0.21]	
		Option 2	<b>0.21</b> [0.17, 0.15, 0.13]	<b>0.21</b> [0.17, 0.15, 0.13]	<b>0.23</b> [0.17, 0.15, 0.13]	<b>N/A</b>	<b>0.26</b> [0.17, 0.15, 0.14]	
		Option 3	<b>0.18</b> [0.12, 0.12, 0.09]	<b>0.18</b> [0.12, 0.12, 0.09]	<b>0.20</b> [0.12, 0.12, 0.09]		<b>0.22</b> [0.12, 0.12, 0.10]	
		Option 4	<b>0.14</b> [N/A, 0.22, 0.17]	<b>0.14</b> [N/A, 0.22, 0.17]	<b>0.15</b> [N/A, 0.22, 0.17]		<b>0.18</b> [N/A, 0.23, 0.17]	
CPD Number: KWC-M-4	<b>4" K100</b>	Air	<b>0.59</b> [0.45, 0.27, 0.21]	{2.5" batten}				
		Option 1	<b>0.20</b> [0.10, 0.08, 0.06]	{2.5" batten}	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	
		Option 2	<b>0.14</b> [0.07, 0.04, N/A]	{2.5" batten}				
		Non-TB	Air	<b>0.63</b> [0.49, 0.36, 0.26]		<b>0.62</b> [0.49, 0.36, 0.26]		<b>0.71</b> [0.50, 0.37, 0.26]
			Option 1	<b>0.37</b> [0.32, 0.26, 0.19]	<b>N/A</b>	<b>0.38</b> [0.32, 0.25, 0.19]	<b>N/A</b>	<b>0.45</b> [0.33, 0.26, 0.20]
Option 2	<b>0.28</b> [0.14, 0.13, 0.10]		<b>0.28</b> [0.14, 0.14, 0.10]		<b>0.36</b> [0.15, 0.15, 0.11]			
Option 3	<b>0.24</b> [0.10, 0.09, 0.08]		<b>0.24</b> [0.10, 0.10, 0.08]		<b>0.32</b> [0.11, 0.10, 0.09]			

## Things to remember:

\* NFRC Certified U-factor for 0.05 U panel with 2" batten and thermal cover is 0.09 wall 0.12 roof; SHGC 0.22 c/w and 0.16 w/w

U-factors are for comparison of like products, not energy calculations as actual installed U-factor may vary from the certified value due to size difference.

TB systems use thermally broken perimeter, Non-TB systems use standard aluminum perimeter. A TB panel in non-TB perimeter is not an NFRC certified product.

Certified products may be found listed in the NFRC Certified Products Directory found on line at [www.nfrc.org](http://www.nfrc.org)

NFRC Certified SHGC will differ from other published values due to sample size and test method.

All grid patterns are covered by the above values.

## NFRC Certified System U-factors and System Visible Light Transmittance

NFRC Certified System values are based on a model of the Kalwall panels and system. The model is 79" x 79" and consists of 2 panels, a center batten (varies) as well as head, sill and jamb members for walls, half-ridge and overlap for roofs (sloped translucent panels). Most site built window wall, curtainwall, sloped glazing and skylight systems are modeled at this size, allowing direct product comparisons. For identification purposes we will still refer to the panel U-factors based on the panel only as system values differ depending on face sheets, battens and stiffeners.

**The following are our Certified Product U-Factors and VLTs based on NFRC 100, 200 and 202-2012.**

<u>Walls</u>		System U-factor [System VLT Crystal/Crystal, Crystal/White, White/White]						
	Panel Only (2008)	NFRC Insulation Nomenclature	2" Batten	2 1/2" Batten #12SSSE	2 1/2" Batten #4SSSE	2 3/4" ST TB	3 1/4 IS	
CPD Number: KWC-M-2	<b>TB</b>	Air	<b>0.52</b> [0.45, 0.29, 0.18]				<b>0.53</b> [0.45, 0.29, 0.18]	
		Option 1	<b>0.28</b> [0.27, 0.20, 0.12]	<b>0.28</b> [0.27, 0.20, 0.12]	<b>0.30</b> [0.27, 0.20, 0.12]	<b>0.29</b> [0.27, 0.20, 0.12]	<b>0.32</b> [0.27, 0.20, 0.12]	
		Option 2	<b>0.19</b> [0.11, 0.10, 0.07]	<b>0.20</b> [0.11, 0.10, 0.07]	<b>0.21</b> [0.11, 0.10, 0.07]	<b>0.20</b> [0.11, 0.10, 0.07]	<b>0.23</b> [0.11, 0.10, 0.07]	
		Option 3	<b>0.16</b> [0.07, 0.05, 0.03]	<b>0.16</b> [0.07, 0.05, 0.03]	<b>0.18</b> [0.07, 0.05, 0.03]	<b>0.17</b> [0.07, 0.05, 0.03]	<b>0.20</b> [0.07, 0.05, 0.03]	
		Option 4	<b>0.12</b> [N/A, 0.16, 0.11]	<b>0.12</b> [N/A, 0.16, 0.11]	<b>0.14</b> [N/A, 0.16, 0.11]	<b>0.13</b> [N/A, 0.15, 0.11]	<b>0.16</b> [N/A, 0.16, 0.11]	
CPD Number: KWC-M-3	<b>4" K100</b>	Air	<b>0.53</b> [0.43, 0.28, 0.17]	{2.5" batten}				
		Option 1	<b>0.20</b> [0.13, 0.10, 0.08]	{2.5" batten}	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	
		Option 2	<b>0.15</b> [0.04, 0.04, N/A]	{2.5" batten}				
		<b>Non-TB</b>	Air	<b>0.60</b> [0.47, 0.29, 0.18]		<b>0.60</b> [0.46, 0.29, 0.18]	<b>0.60</b> [0.46, 0.29, 0.18]	<b>0.67</b> [0.46, 0.29, 0.18]
			Option 1	<b>0.35</b> [0.28, 0.21, 0.13]	<b>N/A</b>	<b>0.36</b> [0.28, 0.20, 0.13]	<b>0.37</b> [0.27, 0.20, 0.12]	<b>0.42</b> [0.28, 0.20, 0.13]
	Option 2	<b>0.26</b> [0.12, 0.10, 0.07]		<b>0.26</b> [0.11, 0.10, 0.07]	<b>0.27</b> [0.11, 0.10, 0.07]	<b>0.33</b> [0.11, 0.10, 0.07]		
	Option 3	<b>0.22</b> [0.07, 0.05, 0.03]		<b>0.23</b> [0.07, 0.05, 0.03]	<b>0.24</b> [0.07, 0.05, 0.03]	<b>0.30</b> [0.07, 0.05, 0.03]		
<u>Roofs</u>								
CPD Number: KWC-M-1	<b>TB</b>	Air	<b>0.56</b> [0.47, 0.30, 0.19]					
		Option 1	<b>0.30</b> [0.28, 0.21, 0.13]	<b>0.30</b> [0.28, 0.21, 0.13]	<b>0.32</b> [0.28, 0.21, 0.13]		<b>0.34</b> [0.28, 0.21, 0.13]	
		Option 2	<b>0.21</b> [0.11, 0.11, 0.07]	<b>0.21</b> [0.11, 0.10, 0.07]	<b>0.23</b> [0.11, 0.10, 0.07]	<b>N/A</b>	<b>0.26</b> [0.11, 0.11, 0.07]	
		Option 3	<b>0.18</b> [0.07, 0.06, 0.03]	<b>0.18</b> [0.07, 0.06, 0.03]	<b>0.20</b> [0.07, 0.06, 0.03]		<b>0.22</b> [0.07, 0.06, 0.03]	
		Option 4	<b>0.14</b> [N/A, 0.16, 0.11]	<b>0.14</b> [N/A, 0.16, 0.11]	<b>0.15</b> [N/A, 0.16, 0.11]		<b>0.18</b> [N/A, 0.16, 0.11]	
CPD Number: KWC-M-4	<b>4" K100</b>	Air	<b>0.59</b> [0.47, 0.30, 0.19]	{2.5" batten}				
		Option 1	<b>0.20</b> [0.16, 0.12, 0.10]	{2.5" batten}	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	
		Option 2	<b>0.14</b> [0.06, 0.05, N/A]	{2.5" batten}				
		<b>Non-TB</b>	Air	<b>0.63</b> [0.46, 0.29, 0.18]		<b>0.62</b> [0.45, 0.28, 0.18]		<b>0.71</b> [0.45, 0.28, 0.18]
			Option 1	<b>0.37</b> [0.28, 0.20, 0.13]	<b>N/A</b>	<b>0.38</b> [0.27, 0.20, 0.12]	<b>N/A</b>	<b>0.45</b> [0.27, 0.20, 0.12]
	Option 2	<b>0.28</b> [0.11, 0.10, 0.07]		<b>0.28</b> [0.11, 0.10, 0.07]		<b>0.36</b> [0.11, 0.10, 0.07]		
	Option 3	<b>0.24</b> [0.07, 0.05, 0.03]		<b>0.24</b> [0.07, 0.05, 0.03]		<b>0.32</b> [0.07, 0.05, 0.03]		

### Things to remember:

\* NFRC Certified U-factor for 0.05 U panel with 2" batten and thermal cover is 0.09 wall 0.12 roof; VLT 0.16 c/w and 0.11 w/w

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