

# 400/4000 Series NFRC Thermal Performance Data & ENERGY STAR V6.0



Thermal Performance  
[unit U-Factor, SHGC per NFRC 100,200-2010]

	Double IG Clear [BTU/hr-ft <sup>2</sup> -F]			Double IG 270 Low E [BTU/hr-ft <sup>2</sup> -F]			Double IG 270 Low E w/Argon [BTU/hr-ft <sup>2</sup> -F]			Double IG 366 Low E [BTU/hr-ft <sup>2</sup> -F]			Double IG 366 Low E w/Argon [BTU/hr-ft <sup>2</sup> -F]		
	U-Value	SHGC [No Grid]	SHGC [>1" Grid]	U-Value	SHGC [No Grid]	SHGC [>1" Grid]	U-Value	SHGC [No Grid]	SHGC [>1" Grid]	U-Value	SHGC [No Grid]	SHGC [>1" Grid]	U-Value	SHGC [No Grid]	SHGC [>1" Grid]
	400/4000 Single Hung	0.46	0.63	0.56	0.32	0.30	0.27	0.29	0.29	0.27	0.32	0.22	0.20	0.28	0.22
400/4000 Picture Window	0.45	0.66	0.60	0.31	0.31	0.28	0.27	0.31	0.28	0.30	0.23	0.21	0.26	0.23	0.21
400/4000 Slider	0.46	0.62	0.56	0.32	0.29	0.27	0.29	0.29	0.26	0.32	0.22	0.20	0.28	0.22	0.20
Casement	0.42	0.54	0.49	0.30	0.25	0.23	0.27	0.25	0.23	0.30	0.19	0.18	0.27	0.19	0.17
Patio Door	0.46	0.64	0.56	0.31	0.31	0.27	0.27	0.30	0.27	0.31	0.23	0.21	0.27	0.23	0.20

Climate Zone	Windows		
	U-Factor	SHGC	
Northern	≤0.27	Any	Prescriptive
	=0.28	≥0.32	Equivalent
	=0.29	≥0.37	Energy
	=0.30	≥0.42	Performance

Air Leakage ≤0.3 cfm/ft<sup>2</sup>

Thermal Performance  
[unit U-Factor, SHGC per NFRC 100,200-2010]

	Double IG Clear [BTU/hr-ft <sup>2</sup> -F]			Double IG 270 Low E [BTU/hr-ft <sup>2</sup> -F]			Double IG 270 Low E w/Argon [BTU/hr-ft <sup>2</sup> -F]			Double IG 366 Low E [BTU/hr-ft <sup>2</sup> -F]			Double IG 366 Low E w/Argon [BTU/hr-ft <sup>2</sup> -F]		
	U-Value	SHGC [No Grid]	SHGC [>1" Grid]	U-Value	SHGC [No Grid]	SHGC [>1" Grid]	U-Value	SHGC [No Grid]	SHGC [>1" Grid]	U-Value	SHGC [No Grid]	SHGC [>1" Grid]	U-Value	SHGC [No Grid]	SHGC [>1" Grid]
	400/4000 Single Hung	0.46	0.63	0.56	0.32	0.30	0.27	0.29	0.29	0.27	0.32	0.22	0.20	0.28	0.22
400/4000 Picture Window	0.45	0.66	0.60	0.31	0.31	0.28	0.27	0.31	0.28	0.30	0.23	0.21	0.26	0.23	0.21
400/4000 Slider	0.46	0.62	0.56	0.32	0.29	0.27	0.29	0.29	0.26	0.32	0.22	0.20	0.28	0.22	0.20
Casement	0.42	0.54	0.49	0.30	0.25	0.23	0.27	0.25	0.23	0.30	0.19	0.18	0.27	0.19	0.17
Patio Door	0.46	0.64	0.56	0.31	0.31	0.27	0.27	0.30	0.27	0.31	0.23	0.21	0.27	0.23	0.20

Climate Zone	Windows	
	U-Factor	SHGC
North-Central	≤0.30	≤0.40

Air Leakage ≤0.3 cfm/ft<sup>2</sup>

Thermal Performance  
[unit U-Factor, SHGC per NFRC 100,200-2010]

	Double IG Clear [BTU/hr-ft <sup>2</sup> -F]			Double IG 270 Low E [BTU/hr-ft <sup>2</sup> -F]			Double IG 270 Low E w/Argon [BTU/hr-ft <sup>2</sup> -F]			Double IG 366 Low E [BTU/hr-ft <sup>2</sup> -F]			Double IG 366 Low E w/Argon [BTU/hr-ft <sup>2</sup> -F]		
	U-Value	SHGC [No Grid]	SHGC [>1" Grid]	U-Value	SHGC [No Grid]	SHGC [>1" Grid]	U-Value	SHGC [No Grid]	SHGC [>1" Grid]	U-Value	SHGC [No Grid]	SHGC [>1" Grid]	U-Value	SHGC [No Grid]	SHGC [>1" Grid]
	400/4000 Single Hung	0.46	0.63	0.56	0.32	0.30	0.27	0.29	0.29	0.27	0.32	0.22	0.20	0.28	0.22
400/4000 Picture Window	0.45	0.66	0.60	0.31	0.31	0.28	0.27	0.31	0.28	0.30	0.23	0.21	0.26	0.23	0.21
400/4000 Slider	0.46	0.62	0.56	0.32	0.29	0.27	0.29	0.29	0.26	0.32	0.22	0.20	0.28	0.22	0.20
Casement	0.42	0.54	0.49	0.30	0.25	0.23	0.27	0.25	0.23	0.30	0.19	0.18	0.27	0.19	0.17
Patio Door	0.46	0.64	0.56	0.31	0.31	0.27	0.27	0.30	0.27	0.31	0.23	0.21	0.27	0.23	0.20

Climate Zone	Windows	
	U-Factor	SHGC
South-Central	≤0.30	≤0.25

Air Leakage ≤0.3 cfm/ft<sup>2</sup>

Thermal Performance  
[unit U-Factor, SHGC per NFRC 100,200-2010]

	Double IG Clear [BTU/hr-ft <sup>2</sup> -F]			Double IG 270 Low E [BTU/hr-ft <sup>2</sup> -F]			Double IG 270 Low E w/Argon [BTU/hr-ft <sup>2</sup> -F]			Double IG 366 Low E [BTU/hr-ft <sup>2</sup> -F]			Double IG 366 Low E w/Argon [BTU/hr-ft <sup>2</sup> -F]		
	U-Value	SHGC [No Grid]	SHGC [>1" Grid]	U-Value	SHGC [No Grid]	SHGC [>1" Grid]	U-Value	SHGC [No Grid]	SHGC [>1" Grid]	U-Value	SHGC [No Grid]	SHGC [>1" Grid]	U-Value	SHGC [No Grid]	SHGC [>1" Grid]
	400/4000 Single Hung	0.46	0.63	0.56	0.32	0.30	0.27	0.29	0.29	0.27	0.32	0.22	0.20	0.28	0.22
400/4000 Picture Window	0.45	0.66	0.60	0.31	0.31	0.28	0.27	0.31	0.28	0.30	0.23	0.21	0.26	0.23	0.21
400/4000 Slider	0.46	0.62	0.56	0.32	0.29	0.27	0.29	0.29	0.26	0.32	0.22	0.20	0.28	0.22	0.20
Casement	0.42	0.54	0.49	0.30	0.25	0.23	0.27	0.25	0.23	0.30	0.19	0.18	0.27	0.19	0.17
Patio Door	0.46	0.64	0.56	0.31	0.31	0.27	0.27	0.30	0.27	0.31	0.23	0.21	0.27	0.23	0.20

Climate Zone	Windows	
	U-Factor	SHGC
Southern	≤0.40	≤0.25

Air Leakage ≤0.3 cfm/ft<sup>2</sup>

# 500/5000 Series NFRC Thermal Performance Data & ENERGY STAR V6.0

Thermal Performance  
[unit U-Factor, SHGC per NFRC 100,200-2010]

	Double IG Clear [BTU/hr-ft <sup>2</sup> -F]			Double IG 270 Low E [BTU/hr-ft <sup>2</sup> -F]			Double IG 270 Low E w/Argon [BTU/hr-ft <sup>2</sup> -F]			Double IG 366 Low E [BTU/hr-ft <sup>2</sup> -F]			Double IG 366 Low E w/Argon [BTU/hr-ft <sup>2</sup> -F]		
	U-Value	SHGC [No Grid]	SHGC [>1" Grid]	U-Value	SHGC [No Grid]	SHGC [>1" Grid]	U-Value	SHGC [No Grid]	SHGC [>1" Grid]	U-Value	SHGC [No Grid]	SHGC [>1" Grid]	U-Value	SHGC [No Grid]	SHGC [>1" Grid]
	500/5000 Double Hung	0.46	0.60	0.54	0.33	0.28	0.26	0.29	0.28	0.25	N/A	N/A	N/A	0.29	0.21
500/5000 Single Hung	0.46	0.63	0.56	0.32	0.30	0.27	0.28	0.29	0.26	N/A	N/A	N/A	0.28	0.22	0.20
500/5000 Picture Window	0.45	0.65	0.59	0.31	0.31	0.28	0.27	0.31	0.28	N/A	N/A	N/A	0.26	0.23	0.21
500/5000 Slider	0.46	0.62	0.56	0.32	0.29	0.26	0.28	0.29	0.26	N/A	N/A	N/A	0.28	0.22	0.20
Casement	0.42	0.54	0.49	0.30	0.25	0.23	0.27	0.25	0.23	0.30	0.19	0.18	0.27	0.19	0.17
Patio Door	0.46	0.64	0.56	0.31	0.31	0.27	0.27	0.30	0.27	0.31	0.23	0.21	0.27	0.23	0.20

Climate Zone		U-Factor	SHGC	
Northern	≤0.27	Any		Prescriptive
	=0.28	≥0.32		Equivalent
	=0.29	≥0.37		Energy
	=0.30	≥0.42		Performance

Air Leakage ≤0.3 cfm/ft<sup>2</sup>

Thermal Performance  
[unit U-Factor, SHGC per NFRC 100,200-2010]

	Double IG Clear [BTU/hr-ft <sup>2</sup> -F]			Double IG 270 Low E [BTU/hr-ft <sup>2</sup> -F]			Double IG 270 Low E w/Argon [BTU/hr-ft <sup>2</sup> -F]			Double IG 366 Low E [BTU/hr-ft <sup>2</sup> -F]			Double IG 366 Low E w/Argon [BTU/hr-ft <sup>2</sup> -F]		
	U-Value	SHGC [No Grid]	SHGC [>1" Grid]	U-Value	SHGC [No Grid]	SHGC [>1" Grid]	U-Value	SHGC [No Grid]	SHGC [>1" Grid]	U-Value	SHGC [No Grid]	SHGC [>1" Grid]	U-Value	SHGC [No Grid]	SHGC [>1" Grid]
	500/5000 Double Hung	0.46	0.60	0.54	0.33	0.28	0.26	0.29	0.28	0.25	N/A	N/A	N/A	0.29	0.21
500/5000 Single Hung	0.46	0.63	0.56	0.32	0.30	0.27	0.28	0.29	0.26	N/A	N/A	N/A	0.28	0.22	0.20
500/5000 Picture Window	0.45	0.65	0.59	0.31	0.31	0.28	0.27	0.31	0.28	N/A	N/A	N/A	0.26	0.23	0.21
500/5000 Slider	0.46	0.62	0.56	0.32	0.29	0.26	0.28	0.29	0.26	N/A	N/A	N/A	0.28	0.22	0.20
Casement	0.42	0.54	0.49	0.30	0.25	0.23	0.27	0.25	0.23	0.30	0.19	0.18	0.27	0.19	0.17
Patio Door	0.46	0.64	0.56	0.31	0.31	0.27	0.27	0.30	0.27	0.31	0.23	0.21	0.27	0.23	0.20

Climate Zone		U-Factor	SHGC
North-Central	≤0.30	≤0.40	

Air Leakage ≤0.3 cfm/ft<sup>2</sup>

Thermal Performance  
[unit U-Factor, SHGC per NFRC 100,200-2010]

	Double IG Clear [BTU/hr-ft <sup>2</sup> -F]			Double IG 270 Low E [BTU/hr-ft <sup>2</sup> -F]			Double IG 270 Low E w/Argon [BTU/hr-ft <sup>2</sup> -F]			Double IG 366 Low E [BTU/hr-ft <sup>2</sup> -F]			Double IG 366 Low E w/Argon [BTU/hr-ft <sup>2</sup> -F]		
	U-Value	SHGC [No Grid]	SHGC [>1" Grid]	U-Value	SHGC [No Grid]	SHGC [>1" Grid]	U-Value	SHGC [No Grid]	SHGC [>1" Grid]	U-Value	SHGC [No Grid]	SHGC [>1" Grid]	U-Value	SHGC [No Grid]	SHGC [>1" Grid]
	500/5000 Double Hung	0.46	0.60	0.54	0.33	0.28	0.26	0.29	0.28	0.25	N/A	N/A	N/A	0.29	0.21
500/5000 Single Hung	0.46	0.63	0.56	0.32	0.30	0.27	0.28	0.29	0.26	N/A	N/A	N/A	0.28	0.22	0.20
500/5000 Picture Window	0.45	0.65	0.59	0.31	0.31	0.28	0.27	0.31	0.28	N/A	N/A	N/A	0.26	0.23	0.21
500/5000 Slider	0.46	0.62	0.56	0.32	0.29	0.26	0.28	0.29	0.26	N/A	N/A	N/A	0.28	0.22	0.20
Casement	0.42	0.54	0.49	0.30	0.25	0.23	0.27	0.25	0.23	0.30	0.19	0.18	0.27	0.19	0.17
Patio Door	0.46	0.64	0.56	0.31	0.31	0.27	0.27	0.30	0.27	0.31	0.23	0.21	0.27	0.23	0.20

Climate Zone		U-Factor	SHGC
South-Central	≤0.30	≤0.25	

Air Leakage ≤0.3 cfm/ft<sup>2</sup>

Thermal Performance  
[unit U-Factor, SHGC per NFRC 100,200-2010]

	Double IG Clear [BTU/hr-ft <sup>2</sup> -F]			Double IG 270 Low E [BTU/hr-ft <sup>2</sup> -F]			Double IG 270 Low E w/Argon [BTU/hr-ft <sup>2</sup> -F]			Double IG 366 Low E [BTU/hr-ft <sup>2</sup> -F]			Double IG 366 Low E w/Argon [BTU/hr-ft <sup>2</sup> -F]		
	U-Value	SHGC [No Grid]	SHGC [>1" Grid]	U-Value	SHGC [No Grid]	SHGC [>1" Grid]	U-Value	SHGC [No Grid]	SHGC [>1" Grid]	U-Value	SHGC [No Grid]	SHGC [>1" Grid]	U-Value	SHGC [No Grid]	SHGC [>1" Grid]
	500/5000 Double Hung	0.46	0.60	0.54	0.33	0.28	0.26	0.29	0.28	0.25	N/A	N/A	N/A	0.29	0.21
500/5000 Single Hung	0.46	0.63	0.56	0.32	0.30	0.27	0.28	0.29	0.26	N/A	N/A	N/A	0.28	0.22	0.20
500/5000 Picture Window	0.45	0.65	0.59	0.31	0.31	0.28	0.27	0.31	0.28	N/A	N/A	N/A	0.26	0.23	0.21
500/5000 Slider	0.46	0.62	0.56	0.32	0.29	0.26	0.28	0.29	0.26	N/A	N/A	N/A	0.28	0.22	0.20
Casement	0.42	0.54	0.49	0.30	0.25	0.23	0.27	0.25	0.23	0.30	0.19	0.18	0.27	0.19	0.17
Patio Door	0.46	0.64	0.56	0.31	0.31	0.27	0.27	0.30	0.27	0.31	0.23	0.21	0.27	0.23	0.20

Climate Zone		U-Factor	SHGC
Southern	≤0.40	≤0.25	

Air Leakage ≤0.3 cfm/ft<sup>2</sup>