

Residential Windows Recognized as ENERGY STAR Most Efficient 2023

Below are currently recognized ENERGY STAR Most Efficient 2022 models available for sale in the U.S.

ENERGY STAR Partner Name	Manufacturer Landing Page	Product Line Name	Product Line CPD N	Operator Type	Frame Material
A Window Inc.	http://www.americanwindowsystem.com	Energy Core	AWN-M-14	Horizontal Slider	Vinyl
A Window Inc.	http://www.americanwindowsystem.com	Energy Core	AWN-M-18	Fixed or Picture	Vinyl
A Window Inc.	http://www.americanwindowsystem.com	Energy Core	AWN-M-15	Casement Style (Awning, Pro	Vinyl
A Window Inc.	http://www.americanwindowsystem.com	Energy Core Awning	AWN-M-16	Casement Style (Awning, Pro	Vinyl
A Window Inc.	http://www.americanwindowsystem.com	Energy Core Double Hung	AWN-M-13	Vertical Slider (Single- and D	Vinyl
Andersen Corporation	None	A-Series Casement	AND-N-86	Casement Style (Awning, Pro	Composite
Andersen Corporation	None	A-Series Awning	AND-N-87	Casement Style (Awning, Pro	Composite
Andersen Corporation	None	A-Series Double Hung	AND-N-91	Vertical Slider (Single- and D	Composite
Andersen Corporation	None	A-Series Picture	AND-N-88	Fixed or Picture	Fiberglass
Andersen Corporation	None	A-Series Transom Fixed	AND-N-89	Fixed or Picture	Fiberglass
Andersen Corporation	None	A-Series Transom Venting	AND-N-90	Casement Style (Awning, Pro	Composite
Andersen Corporation	None	Renewal By Andersen® Double Hung	AND-N-184	Vertical Slider (Single- and D	Other
Andersen Corporation	None	Renewal By Andersen® Casement Window	AND-N-102	Casement Style (Awning, Pro	Other
Andersen Corporation	None	Renewal By Andersen® Awning Window	AND-N-103	Casement Style (Awning, Pro	Other
Andersen Corporation	None	Renewal By Andersen® Fixed Casement	AND-N-104	Fixed or Picture	Other
Andersen Corporation	None	Renewal By Andersen® Gliding Window	AND-N-146	Horizontal Slider	Other
Andersen Corporation	None	Renewal By Andersen® Picture Window	AND-N-152	Fixed or Picture	Other
Associated Materials, Inc.		80 Series A680-FS (A682 AWS)	ASO-A-106	Fixed or Picture	Vinyl
Associated Materials, Inc.		80 Series A682	ASO-A-107	Casement Style (Awning, Pro	Vinyl
Associated Materials, Inc.		80 Series A681	ASO-A-108	Casement Style (Awning, Pro	Vinyl
Associated Materials, Inc.		0604 - Shapes	ASO-A-14	Fixed or Picture	Vinyl
Associated Materials, Inc.	None	8001	ASO-A-29	Vertical Slider (Single- and D	Vinyl
Associated Materials, Inc.		Casement - 0971/0171/8071/9071	ASO-A-31	Casement Style (Awning, Pro	Vinyl
Associated Materials, Inc.		Awning - 0951/0151/8051/9051	ASO-A-32	Casement Style (Awning, Pro	Vinyl
Associated Materials, Inc.		0504/0614/0970/0170/8014/9014	ASO-A-33	Fixed or Picture	Vinyl
Associated Materials, Inc.	None	0601	ASO-A-38	Vertical Slider (Single- and D	Vinyl
Associated Materials, Inc.	None	8002/ 8003/ 8009/ 9002/ 9003/ 9009	ASO-A-43	Horizontal Slider	Vinyl
Associated Materials, Inc.	None	0501	ASO-A-47	Vertical Slider (Single- and D	Vinyl
Associated Materials, Inc.		6400-6500 Series - French All	ASO-A-67	Sliding Glass Doors	Vinyl
Associated Materials, Inc.		6400-6500 Series - 5" All	ASO-A-69	Sliding Glass Doors	Vinyl
Associated Materials, Inc.		6400-6500 Series - 3" All	ASO-A-70	Sliding Glass Doors	Vinyl
Associated Materials, Inc.		8001-8E01	ASO-A-71	Vertical Slider (Single- and D	Vinyl
Associated Materials, Inc.		Preservation - 9001-9E01	ASO-A-73	Vertical Slider (Single- and D	Vinyl
Associated Materials, Inc.		Mezzo - 3001	ASO-A-89	Vertical Slider (Single- and D	Vinyl
Associated Materials, Inc.		Mezzo - 3002/3003/3009	ASO-A-90	Horizontal Slider	Vinyl
Associated Materials, Inc.		Mezzo - 3004	ASO-A-91	Fixed or Picture	Vinyl
Associated Materials, Inc.		Mezzo - 03A0	ASO-A-92	Vertical Slider (Single- and D	Vinyl
Associated Materials, Inc.		Mezzo - 03A2	ASO-A-93	Horizontal Slider	Vinyl
Associated Materials, Inc.		Preservation - 9002/9E02/9003/9E03	ASO-A-94	Horizontal Slider	Vinyl
Capitol Glass/Northern Windows	None	3800 Picture Triple Glaze	NRW-A-6	Fixed or Picture	Vinyl
Capitol Glass/Northern Windows	None	3800 Awning Triple Glaze	NRW-A-8	Casement Style (Awning, Pro	Vinyl
Capitol Glass/Northern Windows	None	3800 Casement Triple Glaze	NRW-A-7	Casement Style (Awning, Pro	Vinyl
Champion Window	None	Champion Comfort 365 Extreme E	CHW-A-7	Vertical Slider (Single- and D	Vinyl

Champion Window	None	Champion Comfort 365 Extreme E	CHW-A-8	Horizontal Slider	Vinyl
Champion Window	None	Champion Comfort 365 Extreme E	CHW-A-9	Fixed or Picture	Vinyl
EnergyWall Windows & Doors	None	8400 Picture Window	EWV-M-1	Fixed or Picture	Vinyl
EnergyWall Windows & Doors	None	7020 Double Hung	EWV-M-3	Vertical Slider (Single- and D	Vinyl
EnergyWall Windows & Doors	None	7030 Slider	EWV-M-4	Horizontal Slider	Vinyl
EnergyWall Windows & Doors	None	8530 Slider	EWV-M-5	Horizontal Slider	Vinyl
EnergyWall Windows & Doors	None	7000 Picture Window	EWV-M-6	Fixed or Picture	Vinyl
EnergyWall Windows & Doors	None	8450 Casement Window	EWV-M-9	Casement Style (Awning, Pro	Vinyl
EnergyWall Windows & Doors	None	8405 Casement Picture Window	EWV-M-11	Fixed or Picture	Vinyl
EnergyWall Windows & Doors	None	8520 Double Hung	EWV-M-2	Vertical Slider (Single- and D	Vinyl
EnergyWall Windows & Doors	None	8530 Slider	EWV-M-5	Horizontal Slider	Vinyl
EnergyWall Windows & Doors	None	8400 Picture Window	EWV-M-1	Fixed or Picture	Vinyl
EnergyWall Windows & Doors	None	8405 Casement Picture Window	EWV-M-11	Fixed or Picture	Vinyl
EnergyWall Windows & Doors	None	8450 Casement Window	EWV-M-9	Casement Style (Awning, Pro	Vinyl
EnergyWall Windows & Doors	None	8460 Awning Window	EWV-M-10	Casement Style (Awning, Pro	Vinyl
EnergyWall Windows & Doors	None	7420 Double Hung	EWV-M-14	Vertical Slider (Single- and D	Vinyl
EnergyWall Windows & Doors	None	7430 Slider	EWV-M-15	Horizontal Slider	Vinyl
EnergyWall Windows & Doors	None	7400 Picture Window	EWV-M-13	Fixed or Picture	Vinyl
EnergyWall Windows & Doors	None	7450 Casement Window	EWV-M-17	Casement Style (Awning, Pro	Vinyl
EnergyWall Windows & Doors	None	7460 Awning Window	EWV-M-18	Casement Style (Awning, Pro	Vinyl
Gilkey Window Company	None	Boreal 3390 DH	GWD-M-38	Vertical Slider (Single- and D	Vinyl
Gilkey Window Company	None	1000 Series Casement	GWD-M-28	Casement Style (Awning, Pro	Fiberglass
Gilkey Window Company	None	Boreal 3310 Lift Out Slider	GWD-M-39	Horizontal Slider	Vinyl
Great Lakes Window	None	HarborLight	GLW-M-125	Vertical Slider (Single- and D	Vinyl
Great Lakes Window	None	HarborLight	GLW-M-124	Horizontal Slider	Vinyl
Great Lakes Window	None	HarborLight	GLW-M-123	Fixed or Picture	Vinyl
Great Lakes Window	None	ComfortSmart	GLW-M-126	Vertical Slider (Single- and D	Vinyl
Great Lakes Window	None	ComfortSmart	GLW-M-127	Horizontal Slider	Vinyl
Great Lakes Window	None	ComfortSmart	GLW-M-128	Fixed or Picture	Vinyl
Great Lakes Window	None	ecoSmart	GLW-M-129	Vertical Slider (Single- and D	Vinyl
Great Lakes Window	None	ecoSmart	GLW-M-130	Horizontal Slider	Vinyl
Great Lakes Window	None	ecoSmart	GLW-M-132	Fixed or Picture	Vinyl
Great Lakes Window	None	HarborLight/ComfortSmart/ecoSr	GLW-M-116	Casement Style (Awning, Pro	Vinyl
Great Lakes Window	None	HarborLight/ComfortSmart/ecoSr	GLW-M-114	Casement Style (Awning, Pro	Vinyl
Great Lakes Window	None	HarborLight/ComfortSmart/ecoSr	GLW-M-115	Fixed or Picture	Vinyl
Great Lakes Window	None	ComfortSmart/ecoSmart	GLW-M-103	Sliding Glass Doors	Vinyl
GWD, LTD dba Gerkin Windows and Door	None	Comfort Series	GER-K- 2	Casement Style (Awning, Pro	Vinyl
GWD, LTD dba Gerkin Windows and Door	None	Comfort Series	GER-K- 11	Fixed or Picture	Vinyl
Harvey Industries, Inc.	None	Tribute Double Hung	HII-M-42	Vertical Slider (Single- and D	Vinyl
Ideal Window Manufacturing, Inc.	None	UltraTite	IAP-M-36	Vertical Slider (Single- and D	Vinyl
Ideal Window Manufacturing, Inc.	None	UltraTite	IAP-M-38	Horizontal Slider	Vinyl
Ideal Window Manufacturing, Inc.	None	UltraTite	IAP-M-22	Fixed or Picture	Vinyl
Ideal Window Manufacturing, Inc.	None	PerfectFit/ Majestic/ Lifescapes	IAP-M-25	Vertical Slider (Single- and D	Vinyl
Ideal Window Manufacturing, Inc.	None	PerfectFit/ Majestic/ Lifescapes	IAP-M-24	Horizontal Slider	Vinyl
Ideal Window Manufacturing, Inc.	None	PerfectFit/ Majestic/ Lifescapes	IAP-M-27	Horizontal Slider	Vinyl
Ideal Window Manufacturing, Inc.	None	PerfectFit/ Majestic/ Lifescapes	IAP-M-26	Fixed or Picture	Vinyl
Ideal Window Manufacturing, Inc.	None	3900 Casement	IAP-M-34	Casement Style (Awning, Pro	Vinyl

Ideal Window Manufacturing, Inc.	None	4000 Awning	IAP-M-33	Casement Style (Awning, Pro	Vinyl
Interstate Window & Door Co.	None	9800 DH (CompositWood®)/ 9900	IBM-K-24	Vertical Slider (Single- and D	Composite
Interstate Window & Door Co.	None	9400 DH (Architectural Series)	IBM-K-43	Vertical Slider (Single- and D	Composite
Interstate Window & Door Co.	None	9800 AWN (CompositWood®)	IBM-K-29	Casement Style (Awning, Pro	Composite
Interstate Window & Door Co.	None	9800 PTWIS (CompositWood®)	IBM-K-25	Fixed or Picture	Composite
Interstate Window & Door Co.	None	9400 AWN (Architectural Series)	IBM-K-41	Casement Style (Awning, Pro	Composite
Interstate Window & Door Co.	None	9800 FX (CompositWood®)/ 9800	IBM-K-28	Fixed or Picture	Composite
Interstate Window & Door Co.	None	9800 PT (CompositWood®)/ 9800	IBM-K-38	Fixed or Picture	Composite
Interstate Window & Door Co.	None	9400 FX (Architectural Series)/ 940	IBM-K-40	Fixed or Picture	Composite
Interstate Window & Door Co.	None	9400 PT (Architectural Series)	IBM-K-42	Fixed or Picture	Composite
Interstate Window & Door Co.	None	9800 HS (CompositWood®)	IBM-K-45	Horizontal Slider	Composite
Interstate Window & Door Co.	None	9400 HS (Architectural Series)	IBM-K-47	Horizontal Slider	Composite
Interstate Window & Door Co.	None	9400 PTWIS (Architectural Series)	IBM-K-46	Fixed or Picture	Composite
Interstate Window & Door Co.	None	8800/6800/440 AWN	IBM-K-51	Casement Style (Awning, Pro	Vinyl
Interstate Window & Door Co.	None	8800/6800/440 CS - 8800/6800/4	IBM-K-50	Casement Style (Awning, Pro	Vinyl
Interstate Window & Door Co.	None	8800/6800/440 HS	IBM-K-52	Horizontal Slider	Vinyl
Interstate Window & Door Co.	None	8800/6800/440 PT	IBM-K-53	Fixed or Picture	Vinyl
Interstate Window & Door Co.	None	8800/440 DH	IBM-K-49	Vertical Slider (Single- and D	Vinyl
Interstate Window & Door Co.	None	6800 DH	IBM-K-49	Vertical Slider (Single- and D	Vinyl
JELD-WEN, Inc.	None	Premium Vinyl (V-4500) Side Load	JEL-A-543	Vertical Slider (Single- and D	Vinyl
JELD-WEN, Inc.	None	Premium Vinyl (V-4500) Horizontal	JEL-A-544	Horizontal Slider	Vinyl
JELD-WEN, Inc.	None	Premium Vinyl (V-4500) Fixed wit	JEL-A-545	Fixed or Picture	Vinyl
JELD-WEN, Inc.	None	Premium Vinyl (V-4500) Casement	JEL-A-595	Casement Style (Awning, Pro	Vinyl
JELD-WEN, Inc.	None	Premium Vinyl (V-4500) Awning	JEL-A-596	Casement Style (Awning, Pro	Vinyl
JELD-WEN, Inc.	None	Premium Vinyl (V-4500) Fixed	JEL-A-757	Fixed or Picture	Vinyl
JELD-WEN, Inc.	None	Premium Vinyl (V-4500) Double Sl	JEL-A-773	Horizontal Slider	Vinyl
JELD-WEN, Inc.	None	Premium Vinyl (V-4500) Double H	JEL-A-774	Vertical Slider (Single- and D	Vinyl
JELD-WEN, Inc.	None	Premium Vinyl (V-4500) Double H	JEL-A-799	Fixed or Picture	Vinyl
JELD-WEN, Inc.	None	Premium Vinyl V-4500	JEL-A-697	Sliding Glass Doors	Vinyl
Joyce Manufacturing Co.	None	Insulator INDH	JMC-K-5	Vertical Slider (Single- and D	Vinyl
Joyce Manufacturing Co.	None	Insulator INSL	JMC-K-6	Horizontal Slider	Vinyl
Joyce Manufacturing Co.	None	Insulator INPW	JMC-K-8	Fixed or Picture	Vinyl
Joyce Manufacturing Co.	None	Insulator INCA	JMC-K-9	Casement Style (Awning, Pro	Vinyl
Katerra Inc.	None	2205 Casement	KAT-A-1	Casement Style (Awning, Pro	Vinyl
Katerra Inc.	None	2205A Awning	KAT-A-2	Casement Style (Awning, Pro	Vinyl
Katerra Inc.	None	2102 Single Hung	KAT-A-3	Vertical Slider (Single- and D	Vinyl
Katerra Inc.	None	2101 Horizontal Slider	KAT-A-4	Horizontal Slider	Vinyl
Katerra Inc.	None	2106 Picture Window	KAT-A-6	Fixed or Picture	Vinyl
Kensington HPP, Inc.	None	Casement	KHI-M-22	Casement Style (Awning, Pro	Vinyl
Kensington HPP, Inc.	None	Huntington Picture Window	KHI-M-15	Fixed or Picture	Vinyl
Kensington HPP, Inc.	None	Quantum Picture Window	KHI-M-18	Fixed or Picture	Vinyl
Kensington HPP, Inc.	None	Casement Picture Window	KHI-M-19	Fixed or Picture	Vinyl
Kensington HPP, Inc.	None	Huntington Slider	KHI-M-17	Horizontal Slider	Vinyl
Kensington HPP, Inc.	None	Quantum Slider	KHI-M-21	Horizontal Slider	Vinyl
Kensington HPP, Inc.	None	Quantum Double Hung	KHI-M-23	Vertical Slider (Single- and D	Vinyl
Kensington HPP, Inc.	None	Huntington Double Hung	KHI-M-24	Vertical Slider (Single- and D	Vinyl
Kohltech International, Ltd.	None	Estate/Heritage	KOI-A-1	Fixed or Picture	Vinyl
Kohltech International, Ltd.	None	Estate	KOI-A-19	Vertical Slider (Single- and D	Vinyl

Kohltech International, Ltd.	None	Heritage	KOI-A-19	Vertical Slider (Single- and Double Hung)	Vinyl
Kohltech International, Ltd.	None	Supreme	KOI-A-29	Fixed or Picture	Vinyl
Kohltech International, Ltd.	None	Supreme	KOI-A-51	Horizontal Slider	Vinyl
Kohltech International, Ltd.	None	Supreme	KOI-A-54	Fixed or Picture	Vinyl
Kohltech International, Ltd.	None	Supreme	KOI-A-55	Fixed or Picture	Vinyl
Kohltech International, Ltd.	None	Supreme	KOI-A-56	Casement Style (Awning, Projection)	Vinyl
Kohltech International, Ltd.	None	Supreme	KOI-A-57	Casement Style (Awning, Projection)	Vinyl
Kohltech International, Ltd.	None	Supreme	KOI-A-58	Fixed or Picture	Vinyl
Kohltech International, Ltd.	None	Select	KOI-A-62	Fixed or Picture	Vinyl
Kohltech International, Ltd.	None	6000 Plus	KOI-A-63	Casement Style (Awning, Projection)	Vinyl
Kohltech International, Ltd.	None	6000 Plus	KOI-A-64	Casement Style (Awning, Projection)	Vinyl
Kohltech International, Ltd.	None	6000 Plus	KOI-A-65	Fixed or Picture	Vinyl
Kohltech International, Ltd.	None	Select	KOI-A-66	Casement Style (Awning, Projection)	Vinyl
Kohltech International, Ltd.	None	Select	KOI-A-67	Casement Style (Awning, Projection)	Vinyl
Kohltech International, Ltd.	None	Select	KOI-A-68	Fixed or Picture	Vinyl
Kohltech International, Ltd.	None	Supreme	KOI-A-8	Vertical Slider (Single- and Double Hung)	Vinyl
Kohltech International, Ltd.	None	Supreme Single Glider	KOI-A-86	Horizontal Slider	Vinyl
Kohltech International, Ltd.	None	Supreme Single Hung	KOI-A-87	Vertical Slider (Single- and Double Hung)	Vinyl
Kohltech International, Ltd.	None	Supreme Single Glider PIC	KOI-A-89	Fixed or Picture	Vinyl
Kohltech International, Ltd.	None	2020 Supreme Casement	KOI-A-92	Casement Style (Awning, Projection)	Vinyl
Kohltech International, Ltd.	None	2020 Supreme Awning	KOI-A-95	Casement Style (Awning, Projection)	Vinyl
Kohltech International, Ltd.	None	2020 Supreme Narrow Picture Window	KOI-A-93	Fixed or Picture	Vinyl
Kohltech International, Ltd.	None	2020 Supreme Wide Picture Window	KOI-A-94	Fixed or Picture	Vinyl
Kolbe Windows and Doors	None	Ultra Double Hung Direct Set Transoms	KKM-K-10	Fixed or Picture	Wood and Clad Wood
Kolbe Windows and Doors	None	Ultra Casement 2-1/4" sash	KKM-K-159	Casement Style (Awning, Projection)	Wood and Clad Wood
Kolbe Windows and Doors	None	Ultra Awning 2-1/4" sash	KKM-K-160	Casement Style (Awning, Projection)	Wood and Clad Wood
Kolbe Windows and Doors	None	Ultra Casement Picture 2-1/4" sash	KKM-K-161	Fixed or Picture	Wood and Clad Wood
Kolbe Windows and Doors	None	VistaLuxe Casement	KKM-K-194	Casement Style (Awning, Projection)	Composite
Kolbe Windows and Doors	None	VistaLuxe Awning	KKM-K-196	Casement Style (Awning, Projection)	Composite
Kolbe Windows and Doors	None	VistaLuxe Direct Set	KKM-K-197	Fixed or Picture	Composite
Kolbe Windows and Doors	None	Ultra Beveled/Ogee Direct Set Transoms	KKM-K-30	Fixed or Picture	Wood and Clad Wood
Kolbe Windows and Doors	None	Heritage Double Hung Direct Set Transoms	KKM-N-122	Fixed or Picture	Wood and Clad Wood
Kolbe Windows and Doors	None	Heritage Casement Direct Set Transoms	KKM-N-15	Fixed or Picture	Wood and Clad Wood
Kolbe Windows and Doors	None	Classic Casement Direct Set Transoms	KKM-N-179	Fixed or Picture	Wood and Clad Wood
Kolbe Windows and Doors	None	Ultra EP Pushout Casement Picture Window	KKM-K-232	Fixed or Picture	Wood and Clad Wood
Kolbe Windows and Doors	None	Forgent Sliding Door	KKM-K-250	Sliding Glass Doors	Vinyl
Kolbe Windows and Doors	None	VistaLuxe Casement Picture Direct Set	KKM-K-251	Fixed or Picture	Composite
Kolbe Windows and Doors	None	Ultra / VistaLuxe / Forgent Complete Sliding Glass Door	KKM-N-256	Sliding Glass Doors	Wood and Clad Wood
Kolbe Windows and Doors	None	VistaLuxe Direct Set Geometric	KKM-K-211	Fixed or Picture	Wood and Clad Wood
Marvin Windows and Doors	http://www.marvin.com/plan/en	Integrity Casement	MAR-N-250	Casement Style (Awning, Projection)	Fiberglass
Marvin Windows and Doors	http://www.marvin.com/plan/en	Integrity Awning	MAR-N-251	Casement Style (Awning, Projection)	Fiberglass
Marvin Windows and Doors	http://www.marvin.com/plan/en	Integrity Casement Stationary/Picture Window	MAR-N-252	Fixed or Picture	Fiberglass
Marvin Windows and Doors	http://www.marvin.com/plan/en	Integrity Direct Glaze Polygon	MAR-N-303	Fixed or Picture	Fiberglass
Marvin Windows and Doors	http://www.marvin.com/plan/en	Clad Ultimate Double Hung Picture Window	MAR-N-312	Fixed or Picture	Wood and Clad Wood
Marvin Windows and Doors	http://www.marvin.com/plan/en	Wood Ultimate Double/Single Hung Picture Window	MAR-N-318	Vertical Slider (Single- and Double Hung)	Wood and Clad Wood
Marvin Windows and Doors	http://www.marvin.com/plan/en	Clad Ultimate Double/Single Hung Picture Window	MAR-N-319	Vertical Slider (Single- and Double Hung)	Wood and Clad Wood
Marvin Windows and Doors	http://www.marvin.com/plan/en	Wood Ultimate Double Hung Transoms	MAR-N-327	Fixed or Picture	Wood and Clad Wood
Marvin Windows and Doors	http://www.marvin.com/plan/en	Wood Magnum Tilt-Turn 4 9/16 Jamb	MAR-N-328	Casement Style (Awning, Projection)	Wood and Clad Wood

Marvin Windows and Doors	http://www.marvin.com/plan/en	Clad Ultimate Casement	MAR-N-342	Casement Style (Awning, Pro	Wood and Clad Wood
Marvin Windows and Doors	http://www.marvin.com/plan/en	Clad Ultimate Awning	MAR-N-343	Casement Style (Awning, Pro	Wood and Clad Wood
Marvin Windows and Doors	http://www.marvin.com/plan/en	Clad Ultimate Casement Picture	MAR-N-344	Fixed or Picture	Wood and Clad Wood
Marvin Windows and Doors	http://www.marvin.com/plan/en	Wood Ultimate Casement	MAR-N-347	Casement Style (Awning, Pro	Wood and Clad Wood
Marvin Windows and Doors	http://www.marvin.com/plan/en	Wood Ultimate Pushout Casemen	MAR-N-348	Casement Style (Awning, Pro	Wood and Clad Wood
Marvin Windows and Doors	http://www.marvin.com/plan/en	Wood Ultimate Pushout Casemen	MAR-N-349	Fixed or Picture	Wood and Clad Wood
Marvin Windows and Doors	http://www.marvin.com/plan/en	Clad Ultimate Pushout Casement	MAR-N-350	Casement Style (Awning, Pro	Wood and Clad Wood
Marvin Windows and Doors	http://www.marvin.com/plan/en	Clad Ultimate Pushout Casement f	MAR-N-351	Casement Style (Awning, Pro	Wood and Clad Wood
Marvin Windows and Doors	http://www.marvin.com/plan/en	Wood Ultimate Awning	MAR-N-354	Casement Style (Awning, Pro	Wood and Clad Wood
Marvin Windows and Doors	http://www.marvin.com/plan/en	Wood Ultimate Casement Picture	MAR-N-355	Fixed or Picture	Wood and Clad Wood
Marvin Windows and Doors	http://www.marvin.com/plan/en	Wood Ultimate Casement Round	MAR-N-356	Casement Style (Awning, Pro	Wood and Clad Wood
Marvin Windows and Doors	http://www.marvin.com/plan/en	Clad Ultimate Casement Round To	MAR-N-357	Casement Style (Awning, Pro	Wood and Clad Wood
Marvin Windows and Doors	http://www.marvin.com/plan/en	Wood Ultimate Pushout Awning	MAR-N-358	Casement Style (Awning, Pro	Wood and Clad Wood
Marvin Windows and Doors	http://www.marvin.com/plan/en	Clad Ultimate Pushout Awning	MAR-N-360	Casement Style (Awning, Pro	Wood and Clad Wood
Marvin Windows and Doors	http://www.marvin.com/plan/en	Wood Ultimate Insert DH/SH	MAR-N-364	Vertical Slider (Single- and D	Wood and Clad Wood
Marvin Windows and Doors	http://www.marvin.com/plan/en	Clad Ultimate Casement Venting P	MAR-N-378	Fixed or Picture	Wood and Clad Wood
Marvin Windows and Doors	http://www.marvin.com/plan/en	Clad Simulated Double Hung Hopf	MAR-N-379	Vertical Slider (Single- and D	Wood and Clad Wood
Marvin Windows and Doors	http://www.marvin.com/plan/en	Clad Ultimate Glider	MAR-N-387	Horizontal Slider	Wood and Clad Wood
Marvin Windows and Doors	http://www.marvin.com/plan/en	Wood Ultimate Glider	MAR-N-400	Horizontal Slider	Wood and Clad Wood
Marvin Windows and Doors	http://www.marvin.com/plan/en	Wood Direct Glaze Round Top	MAR-N-418	Fixed or Picture	Wood and Clad Wood
Marvin Windows and Doors	http://www.marvin.com/plan/en	Clad Direct Glazed Polygon	MAR-N-419	Fixed or Picture	Wood and Clad Wood
Marvin Windows and Doors	http://www.marvin.com/plan/en	Clad Direct Glazed Round Top	MAR-N-420	Fixed or Picture	Wood and Clad Wood
Marvin Windows and Doors	http://www.marvin.com/plan/en	Wood Direct Glaze Polygon	MAR-N-421	Fixed or Picture	Wood and Clad Wood
Marvin Windows and Doors	http://www.marvin.com/plan/en	Clad Inswing Casement	MAR-N-422	Casement Style (Awning, Pro	Wood and Clad Wood
Marvin Windows and Doors	http://www.marvin.com/plan/en	Clad Ultimate DH/SH - Next Gener	MAR-N-425	Vertical Slider (Single- and D	Wood and Clad Wood
Marvin Windows and Doors	http://www.marvin.com/plan/en	Clad Ultimate Double Hung Pictur	MAR-N-427	Fixed or Picture	Wood and Clad Wood
Marvin Windows and Doors	http://www.marvin.com/plan/en	Clad Ultimate Double Hung Transd	MAR-N-428	Fixed or Picture	Wood and Clad Wood
Marvin Windows and Doors	http://www.marvin.com/plan/en	Clad Ultimate DH/SH Picture Roun	MAR-N-434	Fixed or Picture	Wood and Clad Wood
Marvin Windows and Doors	http://www.marvin.com/plan/en	Clad Ultimate DH Round Top Pictu	MAR-N-435	Fixed or Picture	Wood and Clad Wood
Marvin Windows and Doors	http://www.marvin.com/plan/en	Wood Magnum Tilt-Turn	MAR-N-44	Casement Style (Awning, Pro	Wood and Clad Wood
Marvin Windows and Doors	http://www.marvin.com/plan/en	Clad Magnum Tilt-Turn	MAR-N-45	Casement Style (Awning, Pro	Wood and Clad Wood
Marvin Windows and Doors	http://www.marvin.com/plan/en	Wood Ultimate Double/Single Hui	MAR-N-68	Vertical Slider (Single- and D	Wood and Clad Wood
Marvin Windows and Doors	http://www.marvin.com/plan/en	Wood Ultimate Double Hung Pict	MAR-N-70	Fixed or Picture	Wood and Clad Wood
Marvin Windows and Doors	http://www.marvin.com/plan/en	Wood Ultimate Double Hung Tran	MAR-N-71	Fixed or Picture	Wood and Clad Wood
Marvin Windows and Doors	http://www.marvin.com/plan/en	Wood Ultimate Double Hung Pict	MAR-N-72	Fixed or Picture	Wood and Clad Wood
Marvin Windows and Doors	http://www.marvin.com/plan/en	Clad Ultimate Insert Double/Single	MAR-N-73	Vertical Slider (Single- and D	Wood and Clad Wood
Marvin Windows and Doors	http://www.marvin.com/plan/en	Wood Ultimate Double/Single Hui	MAR-N-75	Vertical Slider (Single- and D	Wood and Clad Wood
Marvin Windows and Doors	http://www.marvin.com/plan/en	Wood Ultimate Double Hung Pict	MAR-N-76	Fixed or Picture	Wood and Clad Wood
Marvin Windows and Doors	http://www.marvin.com/plan/en	Clad Ultimate Insert Double Hung	MAR-N-77	Fixed or Picture	Wood and Clad Wood
Marvin Windows and Doors	http://www.marvin.com/plan/en	C Ult Casement Poly	MAR-N-437	Casement Style (Awning, Pro	Wood and Clad Wood
Marvin Windows and Doors	http://www.marvin.com/plan/en	C Narrow Frame DG Polygon	MAR-N-440	Fixed or Picture	Wood and Clad Wood
Mathews Brothers Company	http://www.mathewsbrothers.co	Clara Starrett	MBC-M-45	Vertical Slider (Single- and D	Vinyl
Mathews Brothers Company	http://www.mathewsbrothers.co	Clara Starrett	MBC-M-46	Casement Style (Awning, Pro	Vinyl
Mathews Brothers Company	http://www.mathewsbrothers.co	Clara Starrett	MBC-M-47	Casement Style (Awning, Pro	Vinyl
Mathews Brothers Company	http://www.mathewsbrothers.co	Clara Starrett	MBC-M-48	Horizontal Slider	Vinyl
Mathews Brothers Company	http://www.mathewsbrothers.co	Clara Starrett	MBC-M-44	Fixed or Picture	Vinyl
Mercury-Excelum, Inc.	None	Harmony Series	MEX-M-17	Vertical Slider (Single- and D	Vinyl
Mercury-Excelum, Inc.	None	Harmony Series	MEX-M-18	Horizontal Slider	Vinyl

Mercury-Excelum, Inc.	None	Harmony Series	MEX-M-19	Fixed or Picture	Vinyl
MI Windows and Doors	http://www.miwd.com/resources	CertainTeed New Castle Picture Window	MEI-A-130	Fixed or Picture	Vinyl
MI Windows and Doors	http://www.miwd.com/resources	CertainTeed Casement/ 9000 Series	MEI-A-170	Casement Style (Awning, Pro	Vinyl
MI Windows and Doors	http://www.miwd.com/resources	CertainTeed Awning/ Designer Series	MEI-A-171	Casement Style (Awning, Pro	Vinyl
MI Windows and Doors	http://www.miwd.com/resources	CertainTeed Awning Picture Window	MEI-A-181	Fixed or Picture	Vinyl
National Vinyl LLC	None	Northwind III, Trustgard , Destiny,	NVP-K-14	Vertical Slider (Single- and D	Vinyl
National Vinyl LLC	None	Northwind III, Trustgard , Destiny,	NVP-K-15	Horizontal Slider	Vinyl
National Vinyl LLC	None	Northwind III/ Trustgard/ Destiny,	NVP-K-17	Casement Style (Awning, Pro	Vinyl
National Vinyl LLC	None	Northwind III, Trustgard , Destiny,	NVP-K-18	Casement Style (Awning, Pro	Vinyl
National Vinyl LLC	None	Northwind III, Trustgard , Destiny,	NVP-K-19	Casement Style (Awning, Pro	Vinyl
National Vinyl LLC	None	Northwind III, Trustgard , Destiny,	NVP-K-31	Fixed or Picture	Vinyl
NT Window, Inc.	None	E,N,W,X,H,P110	NTW-A-13	Vertical Slider (Single- and D	Vinyl
NT Window, Inc.	None	E,N,W,X,H,P210	NTW-A-18	Vertical Slider (Single- and D	Vinyl
NT Window, Inc.	None	E,N,W,X,H,P140	NTW-A-14	Horizontal Slider	Vinyl
NT Window, Inc.	None	E,N,W,X,H,P150	NTW-A-15	Fixed or Picture	Vinyl
NT Window, Inc.	None	Y110	NTW-A-27	Vertical Slider (Single- and D	Vinyl
NT Window, Inc.	None	Y210	NTW-A-24	Vertical Slider (Single- and D	Vinyl
NT Window, Inc.	None	Y140	NTW-A-22	Horizontal Slider	Vinyl
NT Window, Inc.	None	Y150	NTW-A-23	Fixed or Picture	Vinyl
OKNA Windows & Doors	None	Precision Weld - 400 Series	OKW-K-22	Vertical Slider (Single- and D	Vinyl
OKNA Windows & Doors	None	Precision Weld - 420 Series	OKW-K-24	Horizontal Slider	Vinyl
OKNA Windows & Doors	None	Precision Weld - 410 Series	OKW-K-27	Fixed or Picture	Vinyl
OKNA Windows & Doors	None	Enviro Star - 800 Series	OKW-K-23	Vertical Slider (Single- and D	Vinyl
OKNA Windows & Doors	None	Enviro Star - 820 Series	OKW-K-30	Horizontal Slider	Vinyl
OKNA Windows & Doors	None	Enviro Star - 810 Series	OKW-K-28	Fixed or Picture	Vinyl
OKNA Windows & Doors	None	Starmark - 900 Series	OKW-K-32	Vertical Slider (Single- and D	Composite
OKNA Windows & Doors	None	Starmark - 920 Series	OKW-K-33	Horizontal Slider	Composite
OKNA Windows & Doors	None	Casement - 700 Series	OKW-K-26	Casement Style (Awning, Pro	Vinyl
OKNA Windows & Doors	None	Insul Tec - 520 / 5520 Series	OKW-K-21	Horizontal Slider	Vinyl
OKNA Windows & Doors	None	Insul Tec - 500 / 5500 Series	OKW-K-18	Vertical Slider (Single- and D	Vinyl
OKNA Windows & Doors	None	Insul Tec - 510 / 5510 Series	OKW-K-19	Fixed or Picture	Vinyl
OKNA Windows & Doors		Eco-Pro - 600/6600	OKW-K-37	Vertical Slider (Single- and D	Vinyl
OKNA Windows & Doors		Starmark -EVO -7500	OKW-K-47	Vertical Slider (Single- and D	Composite
OKNA Windows & Doors		HIMARK - 1000	OKW-K-41	Vertical Slider (Single- and D	Vinyl
OKNA Windows & Doors		Eco-Pro - 620/6620	OKW-K-39	Horizontal Slider	Vinyl
OKNA Windows & Doors		Starmark -EVO -7520	OKW-K-46	Horizontal Slider	Composite
OKNA Windows & Doors		HIMARK - 1020	OKW-K-40	Horizontal Slider	Vinyl
OKNA Windows & Doors		Starmark -EVO -7560	OKW-K-50	Casement Style (Awning, Pro	Composite
OKNA Windows & Doors		HIMARK - 1060	OKW-K-43	Casement Style (Awning, Pro	Vinyl
OKNA Windows & Doors		Starmark -EVO -7510	OKW-K-48	Fixed or Picture	Composite
OKNA Windows & Doors		Starmark -EVO -7580	OKW-K-49	Fixed or Picture	Composite
OKNA Windows & Doors		HIMARK - 1010	OKW-K-45	Fixed or Picture	Vinyl
OKNA Windows & Doors		HIMARK - 1080	OKW-K-42	Fixed or Picture	Vinyl
Pella Corporation	http://www.pella.com/windows/	350 Series Casement (Nail Fin)	PEL-N-184	Casement Style (Awning, Pro	Vinyl
Pella Corporation	http://www.pella.com/windows/	350 Series Awning (Nail Fin)	PEL-N-187	Casement Style (Awning, Pro	Vinyl
Pella Corporation	http://www.pella.com/windows/	350 Series Single Hung (Nail Fin)	PEL-N-191	Vertical Slider (Single- and D	Vinyl
Pella Corporation	http://www.pella.com/windows/	350 Series Sliding Window (Nail Fin)	PEL-N-192	Horizontal Slider	Vinyl
Pella Corporation	http://www.pella.com/windows/	350 Series Double Hung (Nail Fin)	PEL-N-190	Vertical Slider (Single- and D	Vinyl

Pella Corporation	http://www.pella.com/windows/	350 Series Fixed Window (Nail Fin	PEL-N-185	Casement Style (Awning, Pro	Vinyl
Pella Corporation	http://www.pella.com/windows/	350 Series Casement (Pocket Fram	PEL-N-188	Casement Style (Awning, Pro	Vinyl
Pella Corporation	http://www.pella.com/windows/	350 Series Awning (Pocket Frame)	PEL-N-189	Casement Style (Awning, Pro	Vinyl
Pella Corporation	http://www.pella.com/windows/	350 Series Single Hung (Pocket Fra	PEL-N-198	Vertical Slider (Single- and D	Vinyl
Pella Corporation	http://www.pella.com/windows/	350 Series Sliding Window (Pocke	PEL-N-201	Horizontal Slider	Vinyl
Pella Corporation	http://www.pella.com/windows/	350 Series Double Hung (Pocket Fr	PEL-N-186	Vertical Slider (Single- and D	Vinyl
Pella Corporation	http://www.pella.com/windows/	350 Series Fixed Window (Pocket	PEL-N-193	Casement Style (Awning, Pro	Vinyl
Pella Corporation	http://www.pella.com/windows/	Pella 250 Series Single-Hung with	PEL-N-208	Vertical Slider (Single- and D	Vinyl
Pella Corporation	http://www.pella.com/windows/	Pella 250 Series Sliding Window w	PEL-N-210	Horizontal Slider	Vinyl
Pella Corporation	http://www.pella.com/windows/	Pella 250 Series Fixed Window wit	PEL-N-209	Fixed or Picture	Vinyl
Pella Corporation	http://www.pella.com/windows/	Pella 250 Series Fixed Window wit	PEL-N-209	Fixed or Picture	Vinyl
Pella Corporation	http://www.pella.com/windows/	Pella Special Shapes with Advance	PEL-N-18	Fixed or Picture	Wood and Clad Wood
Pella Corporation	http://www.pella.com/windows/	Pella Special Shapes with SunDefe	PEL-N-18	Fixed or Picture	Wood and Clad Wood
Pella Corporation	http://www.pella.com/windows/	Pella Special Shapes with NaturalS	PEL-N-18	Fixed or Picture	Wood and Clad Wood
Pella Corporation	http://www.pella.com/windows/	Pella Architect Series Aluminum C	PEL-N-11	Casement Style (Awning, Pro	Wood and Clad Wood
Pella Corporation	http://www.pella.com/windows/	Pella Architect Series Aluminum C	PEL-N-11	Casement Style (Awning, Pro	Wood and Clad Wood
Pella Corporation	http://www.pella.com/windows/	Pella Architect Series Aluminum C	PEL-N-11	Casement Style (Awning, Pro	Wood and Clad Wood
Pella Corporation	http://www.pella.com/windows/	Pella Architect Series Aluminum C	PEL-N-1	Casement Style (Awning, Pro	Wood and Clad Wood
Pella Corporation	http://www.pella.com/windows/	Pella Architect Series Aluminum C	PEL-N-1	Casement Style (Awning, Pro	Wood and Clad Wood
Pella Corporation	http://www.pella.com/windows/	Pella Architect Series Aluminum C	PEL-N-1	Casement Style (Awning, Pro	Wood and Clad Wood
Pella Corporation	http://www.pella.com/windows/	Pella Architect Series Aluminum C	PEL-N-30	Casement Style (Awning, Pro	Wood and Clad Wood
Pella Corporation	http://www.pella.com/windows/	Pella Architect Series Aluminum C	PEL-N-30	Casement Style (Awning, Pro	Wood and Clad Wood
Pella Corporation	http://www.pella.com/windows/	Pella Architect Series Aluminum C	PEL-N-30	Casement Style (Awning, Pro	Wood and Clad Wood
Pella Corporation	http://www.pella.com/windows/	Pella Architect Series Aluminum C	PEL-N-30	Casement Style (Awning, Pro	Wood and Clad Wood
Pella Corporation	http://www.pella.com/windows/	Pella Architect Series Aluminum C	PEL-N-30	Casement Style (Awning, Pro	Wood and Clad Wood
Pella Corporation	http://www.pella.com/windows/	Pella Architect Series Aluminum C	PEL-N-30	Casement Style (Awning, Pro	Wood and Clad Wood
Pella Corporation	http://www.pella.com/windows/	Pella Architect Series Wood Casem	PEL-N-39	Casement Style (Awning, Pro	Wood and Clad Wood
Pella Corporation	http://www.pella.com/windows/	Pella Architect Series Wood Casem	PEL-N-39	Casement Style (Awning, Pro	Wood and Clad Wood
Pella Corporation	http://www.pella.com/windows/	Pella Architect Series Wood Casem	PEL-N-39	Casement Style (Awning, Pro	Wood and Clad Wood
Pella Corporation	http://www.pella.com/windows/	Pella Architect Series Wood Fixed	PEL-N-41	Casement Style (Awning, Pro	Wood and Clad Wood
Pella Corporation	http://www.pella.com/windows/	Pella Architect Series Wood Fixed	PEL-N-41	Casement Style (Awning, Pro	Wood and Clad Wood
Pella Corporation	http://www.pella.com/windows/	Pella Architect Series Wood Fixed	PEL-N-41	Casement Style (Awning, Pro	Wood and Clad Wood
Pella Corporation	http://www.pella.com/windows/	Pella Architect Series Wood Awning	PEL-N-40	Casement Style (Awning, Pro	Wood and Clad Wood
Pella Corporation	http://www.pella.com/windows/	Pella Architect Series Wood Awning	PEL-N-40	Casement Style (Awning, Pro	Wood and Clad Wood
Pella Corporation	http://www.pella.com/windows/	Pella Architect Series Wood Awning	PEL-N-40	Casement Style (Awning, Pro	Wood and Clad Wood
Pella Corporation	http://www.pella.com/windows/	Pella Architect Series Wood Large	PEL-N-40	Casement Style (Awning, Pro	Wood and Clad Wood
Pella Corporation	http://www.pella.com/windows/	Pella Architect Series Wood Large	PEL-N-40	Casement Style (Awning, Pro	Wood and Clad Wood
Pella Corporation	http://www.pella.com/windows/	Pella Architect Series Wood Large	PEL-N-40	Casement Style (Awning, Pro	Wood and Clad Wood
Pella Corporation	None	Pella Lifestyle Series Triple-Pane Ca	PEL-N-245	Casement Style (Awning, Pro	Wood and Clad Wood
Pella Corporation	None	Pella Lifestyle Series Triple-Pane Fi	PEL-N-244	Fixed or Picture	Wood and Clad Wood
Pella Corporation	None	Pella Lifestyle Series Triple-Pane Aw	PEL-N-246	Casement Style (Awning, Pro	Wood and Clad Wood
Pella Corporation	None	Pella 250 Series Casement Triple P	PEL-N-239	Casement Style (Awning, Pro	Vinyl
Pella Corporation	None	Pella 250 Series Fixed Triple Pane	PEL-N-240	Fixed or Picture	Vinyl
Pella Corporation	None	Pella 250 Series Awning Triple Pan	PEL-N-241	Casement Style (Awning, Pro	Vinyl
Pella Corporation	None	Pella 350 Series Triple-Pane Sliding	PEL-N-161	Sliding Glass Doors	Vinyl
Ply Gem Windows	None	West Pro Series 200	PWG-M-120	Fixed or Picture	Vinyl
Ply Gem Windows	None	West Pro Series 200	PWG-M-121	Horizontal Slider	Vinyl
Ply Gem Windows	None	West Pro Series 200	PWG-M-122	Vertical Slider (Single- and D	Vinyl

Ply Gem Windows	None	West Pro Series 700	PWG-M-130	Casement Style (Awning, Pro	Vinyl
Ply Gem Windows	None	West Pro Series 700	PWG-M-131	Casement Style (Awning, Pro	Vinyl
Ply Gem Windows	None	West Pro Series 700	PWG-M-132	Fixed or Picture	Vinyl
Ply Gem Windows	None	Contractor 2000	PWG-M-155	Vertical Slider (Single- and D	Vinyl
Ply Gem Windows	None	Contractor 2000	PWG-M-156	Fixed or Picture	Vinyl
Ply Gem Windows	None	Contractor 2000	PWG-M-157	Horizontal Slider	Vinyl
Ply Gem Windows	None	1500 Vinyl Collection Brickmould	PWG-M-166	Fixed or Picture	Vinyl
Ply Gem Windows	None	1500 Vinyl Collection Brickmould	PWG-M-167	Fixed or Picture	Vinyl
Ply Gem Windows	None	1500 Vinyl Collection Beveled	PWG-M-168	Vertical Slider (Single- and D	Vinyl
Ply Gem Windows	None	1500 Vinyl Collection Beveled	PWG-M-169	Horizontal Slider	Vinyl
Ply Gem Windows	None	1500 Vinyl Collection Brickmould	PWG-M-170	Vertical Slider (Single- and D	Vinyl
Ply Gem Windows	None	East Pro/Premium/Premium EP Re	PWG-M-24	Fixed or Picture	Vinyl
Ply Gem Windows	None	East Pro/Premium/Premium EP Re	PWG-M-25	Casement Style (Awning, Pro	Vinyl
Ply Gem Windows	None	East Pro/Premium/Premium EP Re	PWG-M-26	Casement Style (Awning, Pro	Vinyl
Ply Gem Windows	None	Ecosmart/Uniframe Double Hung	PWG-M-27	Vertical Slider (Single- and D	Vinyl
Ply Gem Windows	None	East Premium/Premium EP Replac	PWG-M-28	Vertical Slider (Single- and D	Vinyl
Ply Gem Windows	None	Premium Replacement Double Hu	PWG-M-29	Vertical Slider (Single- and D	Vinyl
Ply Gem Windows	None	Premium 1000 Double Hung	PWG-M-31	Vertical Slider (Single- and D	Vinyl
Ply Gem Windows	None	Premium Replacement Double Hu	PWG-M-32	Vertical Slider (Single- and D	Vinyl
Ply Gem Windows	None	Ecosmart/Uniframe Horizontal Sli	PWG-M-33	Horizontal Slider	Vinyl
Ply Gem Windows	None	East Premium/Premium EP Replac	PWG-M-35	Horizontal Slider	Vinyl
Ply Gem Windows	None	Pro Replacement Horizontal Slidel	PWG-M-36	Horizontal Slider	Vinyl
Ply Gem Windows	None	Premium Replacement Horizontal	PWG-M-37	Horizontal Slider	Vinyl
Ply Gem Windows	None	Premium Replacement Horizontal	PWG-M-38	Horizontal Slider	Vinyl
Ply Gem Windows	None	Ecosmart/Uniframe Fixed Window	PWG-M-40	Fixed or Picture	Vinyl
Ply Gem Windows	None	East Premium/Premium EP Replac	PWG-M-41	Fixed or Picture	Vinyl
Ply Gem Windows	None	Pro Replacement Fixed Window	PWG-M-42	Fixed or Picture	Vinyl
Ply Gem Windows	None	West Pro Series 960	PWG-M-143	Fixed or Picture	Vinyl
Ply Gem Windows	None	West Pro Series 960	PWG-M-144	Sliding Glass Doors	Vinyl
Ply Gem Windows	None	1500 Vinyl Collection Brickmould	PWG-M-171	Horizontal Slider	Vinyl
Ply Gem Windows	None	Contractor 2000	PWG-M-172	Fixed or Picture	Vinyl
Ply Gem Windows	None	Contractor 2000	PWG-M-173	Casement Style (Awning, Pro	Vinyl
Ply Gem Windows	None	Contractor 2000	PWG-M-174	Casement Style (Awning, Pro	Vinyl
Ply Gem Windows	None	East Premium/Premium EP Replac	PWG-M-45	Sliding Glass Doors	Vinyl
Ply Gem Windows	None	1500 Vinyl Collection	PWG-M-60	Sliding Glass Doors	Vinyl
Polaris Technologies	None	UltraWeld 8420 Double Hung	POL-M-35	Vertical Slider (Single- and D	Vinyl
Polaris Technologies	None	UltraWeld 8430 Slider	POL-M-36	Horizontal Slider	Vinyl
Polaris Technologies	None	UltraWeld 8400 Picture Window	POL-M-34	Fixed or Picture	Vinyl
Polaris Technologies	None	UltraWeld 8405 Casement Picture	POL-M-39	Fixed or Picture	Vinyl
Polaris Technologies	None	UltraWeld 8450 Casement Windo	POL-M-37	Casement Style (Awning, Pro	Vinyl
Polaris Technologies	None	7020 Double Hung	POL-M-22	Vertical Slider (Single- and D	Vinyl
Polaris Technologies	None	7030 Slider	POL-M-21	Horizontal Slider	Vinyl
Polaris Technologies	None	7000 Picture Window	POL-M-20	Fixed or Picture	Vinyl
Polaris Technologies	None	8460 Awning Window	POL-M-38	Casement Style (Awning, Pro	Vinyl
Polaris Technologies	None	7420 Double Hung	POL-M-42	Vertical Slider (Single- and D	Vinyl
Polaris Technologies	None	7430 Slider	POL-M-43	Horizontal Slider	Vinyl
Polaris Technologies	None	7400 Picture Window	POL-M-41	Fixed or Picture	Vinyl

Polaris Technologies	None	7405 Casement Picture Window	POL-M-41	Fixed or Picture	Vinyl
Polaris Technologies	None	7450 Casement Window	POL-M-44	Casement Style (Awning, Pro	Vinyl
Polaris Technologies	None	7460 Awning Window	POL-M-45	Casement Style (Awning, Pro	Vinyl
ProVia Door, Inc.	None	Aeris Wood Clad Vinyl Double Hung	PRD-K-63	Vertical Slider (Single- and D	Wood and Clad Wood
ProVia Door, Inc.	None	Aeris Wood Clad Vinyl Slider	PRD-K-62	Horizontal Slider	Wood and Clad Wood
ProVia Door, Inc.	None	Aeris Wood Clad Vinyl Picture Window	PRD-K-61	Fixed or Picture	Wood and Clad Wood
ProVia Door, Inc.	None	Aeris Wood Clad Vinyl Casement Window	PRD-K-64	Casement Style (Awning, Pro	Wood and Clad Wood
ProVia Door, Inc.	None	Aeris Wood Clad Vinyl Awning Window	PRD-K-65	Casement Style (Awning, Pro	Wood and Clad Wood
ProVia Door, Inc.	None	Aspect/Endure 501/601 Vinyl Double Hung	PRD-K-73	Vertical Slider (Single- and D	Vinyl
ProVia Door, Inc.	None	Aspect/Endure 502/602 Vinyl Slider	PRD-K-74	Horizontal Slider	Vinyl
ProVia Door, Inc.	None	Aspect/Endure 509/609 Vinyl Picture Window	PRD-K-72	Fixed or Picture	Vinyl
ProVia Door, Inc.	None	Aspect/Endure 524/624 Vinyl Casement Window	PRD-K-75	Casement Style (Awning, Pro	Vinyl
ProVia Door, Inc.	None	Aspect/Endure 528/628 Vinyl Fixed or Picture	PRD-K-77	Fixed or Picture	Vinyl
ProVia Door, Inc.	None	Aspect/Endure 531/631 Vinyl Awning Window	PRD-K-76	Casement Style (Awning, Pro	Vinyl
Rosati Windows	None	Rosati Double Hung	ROS-A-6	Vertical Slider (Single- and D	Vinyl
Seaway Mfg. Corp.	None	Encore/Signature	SMA-A-6	Fixed or Picture	Vinyl
Seaway Mfg. Corp.	None	Lighthouse/Commander	SMA-A-21	Casement Style (Awning, Pro	Vinyl
Seaway Mfg. Corp.	None	Encore-Elite/Signature-Gold	SMA-A-25	Fixed or Picture	Vinyl
Seaway Mfg. Corp.	None	Encore-Elite/Signature-Gold	SMA-A-26	Vertical Slider (Single- and D	Vinyl
Seaway Mfg. Corp.	None	Encore-Elite/Signature-Gold	SMA-A-27	Horizontal Slider	Vinyl
Seven D Industries LP	None	7700/7800 Single Hung	SED-A-42	Vertical Slider (Single- and D	Vinyl
Seven D Industries LP	None	7700/7800 Double Hung	SED-A-41	Vertical Slider (Single- and D	Vinyl
Seven D Industries LP	None	7700/7800 Picture Window	SED-A-40	Fixed or Picture	Vinyl
Seven D Industries LP	None	7700/7800 Horizontal Slider	SED-A-43	Horizontal Slider	Vinyl
Simonton Windows, Inc.	None	Reflections 5500/ PerfeXion Platinum	SBP-A-41	Horizontal Slider	Vinyl
Simonton Windows, Inc.	None	Reflections 5500/ PerfeXion Platinum	SBP-A-43	Fixed or Picture	Vinyl
Simonton Windows, Inc.	None	Reflections 5500/ PerfeXion Platinum	SBP-A-44	Vertical Slider (Single- and D	Vinyl
Simonton Windows, Inc.	None	Madeira/Window World 4000/An	SBP-A-56	Vertical Slider (Single- and D	Vinyl
Simonton Windows, Inc.	None	Madeira/Window World 4000/An	SBP-A-55	Vertical Slider (Single- and D	Vinyl
Simonton Windows, Inc.	None	Madeira/Window World 4000/An	SBP-A-59	Horizontal Slider	Vinyl
Simonton Windows, Inc.	None	Madeira/Window World 4000/An	SBP-A-58	Horizontal Slider	Vinyl
Simonton Windows, Inc.	None	Madeira/Window World 4000/An	SBP-A-57	Fixed or Picture	Vinyl
Simonton Windows, Inc.	None	Reflections 5500/ PerfeXion Platinum	SBP-A-61	Casement Style (Awning, Pro	Vinyl
Simonton Windows, Inc.	None	Reflections 5500/ PerfeXion Platinum	SBP-A-62	Casement Style (Awning, Pro	Vinyl
Simonton Windows, Inc.	None	Reflections 5500/ PerfeXion Platinum	SBP-A-69	Fixed or Picture	Vinyl
Soft-Lite LLC	None	Barrington	SLL-A-13	Vertical Slider (Single- and D	Vinyl
Soft-Lite LLC	None	Barrington	SLL-A-10	Vertical Slider (Single- and D	Vinyl
Soft-Lite LLC	None	Barrington	SLL-A-12	Horizontal Slider	Vinyl
Soft-Lite LLC	None	Barrington	SLL-A-46	Horizontal Slider	Vinyl
Soft-Lite LLC	None	Barrington	SLL-A-8	Fixed or Picture	Vinyl
Soft-Lite LLC	None	Bainbridge	SLL-A-9	Vertical Slider (Single- and D	Vinyl
Soft-Lite LLC	None	Bainbridge	SLL-A-36	Horizontal Slider	Vinyl
Soft-Lite LLC	None	Bainbridge	SLL-A-42	Fixed or Picture	Vinyl
Soft-Lite LLC	None	Classic	SLL-A-62	Vertical Slider (Single- and D	Vinyl
Soft-Lite LLC	None	Classic	SLL-A-60	Horizontal Slider	Vinyl
Soft-Lite LLC	None	Pro	SLL-A-64	Vertical Slider (Single- and D	Vinyl
Soft-Lite LLC	None	Pro	SLL-A-61	Horizontal Slider	Vinyl
Soft-Lite LLC	None	Imperial LS	SLL-A-29	Vertical Slider (Single- and D	Vinyl

Soft-Lite LLC	None	Imperial LS	SLL-A-30	Horizontal Slider	Vinyl
Soft-Lite LLC	None	Imperial LS	SLL-A-31	Fixed or Picture	Vinyl
Soft-Lite LLC	None	Elements	SLL-A-27	Vertical Slider (Single- and D	Vinyl
Soft-Lite LLC	None	Elements	SLL-A-28	Horizontal Slider	Vinyl
Soft-Lite LLC	None	Elements	SLL-A-38	Fixed or Picture	Vinyl
Soft-Lite LLC	None	Casement	SLL-A-81	Casement Style (Awning, Pro	Vinyl
Soft-Lite LLC	None	Awning	SLL-A-82	Casement Style (Awning, Pro	Vinyl
Sunrise Windows, Ltd.	None	Sunrise/ Restorations/ Solace/ Van	SUW-K-9	Vertical Slider (Single- and D	Vinyl
Sunrise Windows, Ltd.	None	Sunrise/ Restorations/ Solace/ Van	SUW-K-1	Vertical Slider (Single- and D	Vinyl
Sunrise Windows, Ltd.	None	Sunrise/ Restorations/ Solace/ Van	SUW-K-2	Horizontal Slider	Vinyl
Sunrise Windows, Ltd.	None	Sunrise/ Restorations/ Solace/ Van	SUW-K-6	Horizontal Slider	Vinyl
Sunrise Windows, Ltd.	None	Sunrise/ Restorations/ Solace/ Van	SUW-K-7	Fixed or Picture	Vinyl
Sunrise Windows, Ltd.	None	Sunrise/ Restorations/ Solace/ Van	SUW-K-14	Casement Style (Awning, Pro	Vinyl
Sunrise Windows, Ltd.	None	Sunrise/ Restorations/ Solace/ Van	SUW-K-16	Fixed or Picture	Vinyl
Thermal Windows and Doors	None	DH 9400/9500	TRI-K-67	Vertical Slider (Single- and D	Vinyl
Thermal Windows and Doors	None	PW 9400/9500	TRI-K-68	Fixed or Picture	Vinyl
Thermal Windows and Doors	None	SC / SELLEBRITY II/ CASEMENT	TRI-K-64	Casement Style (Awning, Pro	Vinyl
Thermal Windows and Doors	None	SC / SELLEBRITY II/ AWNING	TRI-K-65	Casement Style (Awning, Pro	Vinyl
Thermal Windows and Doors	None	SC / SELLEBRITY II/ FXCA / PW5	TRI-K-70	Fixed or Picture	Vinyl
Thermal Windows and Doors	None	PW8	TRI-K-43	Fixed or Picture	Vinyl
Thermo-Tech Windows and Doors	None	Classic Awning	TTW-A-4	Casement Style (Awning, Pro	Vinyl
Thermo-Tech Windows and Doors	None	Classic Casement	TTW-A-3	Casement Style (Awning, Pro	Vinyl
Thermo-Tech Windows and Doors	None	Classic Fixed Casement Picture	TTW-A-11	Fixed or Picture	Vinyl
Thermo-Tech Windows and Doors	None	Classic Direct Set Picture	TTW-A-5	Fixed or Picture	Vinyl
Thermo-Tech Windows and Doors	None	Northern Elevations Double Hung	TTW-A-24	Vertical Slider (Single- and D	Vinyl
Thermo-Tech Windows and Doors	None	Northern Elevations Single Hung	TTW-A-23	Vertical Slider (Single- and D	Vinyl
Thermo-Tech Windows and Doors	None	Northern Elevations Slider	TTW-A-25	Horizontal Slider	Vinyl
Thermo-Tech Windows and Doors	None	Northern Elevations Casement	TTW-A-19	Casement Style (Awning, Pro	Vinyl
Thermo-Tech Windows and Doors	None	Northern Elevations Awning	TTW-A-22	Casement Style (Awning, Pro	Vinyl
Thermo-Tech Windows and Doors	None	Northern Elevations Fixed Caseme	TTW-A-20	Fixed or Picture	Vinyl
Thermo-Tech Windows and Doors	None	Northern Elevations Direct Set	TTW-A-21	Fixed or Picture	Vinyl
Thermo-Tech Windows and Doors	None	Classic Fixed Casement	TTW-A-28	Fixed or Picture	Vinyl
Thermo-Tech Windows and Doors	None	Classic Direct Set	TTW-A-29	Fixed or Picture	Vinyl
Thermo-Tech Windows and Doors	None	Thermo-Tech French Door	TTW-A-26	Sliding Glass Doors	Vinyl
Thermo-Tech Windows and Doors	None	Thermo-Tech Slim Door	TTW-A-27	Sliding Glass Doors	Vinyl
Value Windows and Doors, Inc.	None	GS-XO TRIPLE PANE	VWS-A-42	Horizontal Slider	Vinyl
Value Windows and Doors, Inc.	None	GS-PW TRIPLE PANE	VWS-A-37	Fixed or Picture	Vinyl
Value Windows and Doors, Inc.	None	GS-SHT TRIPLE PANE	VWS-A-38	Vertical Slider (Single- and D	Vinyl
Value Windows and Doors, Inc.	None	GS-CM TRIPLE PANE	VWS-A-20	Casement Style (Awning, Pro	Vinyl
Value Windows and Doors, Inc.	None	Eurotek 70 Dual Action Tilt and Tu	VWS-A-48	Casement Style (Awning, Pro	Vinyl
Vector Windows	None	Envision Casement Picture Windo	RRT-K-040	Fixed or Picture	Vinyl
Vector Windows	None	Envision Casement	RRT-K-041	Casement Style (Awning, Pro	Vinyl
Vector Windows	None	Envision Awning	RRT-K-042	Casement Style (Awning, Pro	Vinyl
Vector Windows	None	Envision Picture Window	RRT-K-043	Fixed or Picture	Vinyl
Vector Windows	None	Envision Single Hung	RRT-K-044	Vertical Slider (Single- and D	Vinyl
Vector Windows	None	Envision Glider	RRT-K-045	Horizontal Slider	Vinyl
Vector Windows	None	Envision Double Hung	RRT-K-046	Vertical Slider (Single- and D	Vinyl
Vector Windows	None	Envision Double Glider	RRT-K-047	Horizontal Slider	Vinyl

Vinyl Window Designs Ltd.	None	100 Casement	VID-N-1	Casement Style (Awning, Pro	Vinyl
Vinyl Window Designs Ltd.	None	201 Single Hung	VID-N-3	Vertical Slider (Single- and D	Vinyl
Vinyl Window Designs Ltd.	None	402 Fixed	VID-N-13	Fixed or Picture	Vinyl
Vinyl Window Designs Ltd.	None	452 Fixed	VID-N-14	Fixed or Picture	Vinyl
Vinyl Window Designs Ltd.	None	303 Single Slider Lift-Out/Lift-Out	VID-N-18	Horizontal Slider	Vinyl
Vinylmax LLC	None	Radiance Series	VIM-M-21	Vertical Slider (Single- and D	Vinyl
Vinylmax LLC	None	Sherwood Series	VIM-M-23	Vertical Slider (Single- and D	Wood and Clad Wood
Vinylmax LLC	None	4600/4700/4800 Series	VIM-M-46	Vertical Slider (Single- and D	Vinyl
Vinylmax LLC	None	4600/4700/4800 Series	VIM-M-47	Horizontal Slider	Vinyl
Vinylmax LLC	None	4600/4700/4800 Series	VIM-M-48	Fixed or Picture	Vinyl
Vinylmax LLC	None	Radiance Series	VIM-M-20	Horizontal Slider	Vinyl
Vinylmax LLC	None	Radiance Series	VIM-M-22	Fixed or Picture	Vinyl
Vinylmax LLC	None	Prestige Series	VIM-M-15	Casement Style (Awning, Pro	Vinyl
Vinylmax LLC	None	BluShield Casement	VIM-M-26	Casement Style (Awning, Pro	Wood and Clad Wood
Vinylmax LLC	None	Sherwood Series	VIM-M-24	Horizontal Slider	Wood and Clad Wood
Vinylmax LLC	None	Blushield Prestige PW CA55	VIM-M-41	Fixed or Picture	Vinyl
Vinylmax LLC	None	BluShield Double Hung	VIM-M-49	Vertical Slider (Single- and D	Wood and Clad Wood
Vinylmax LLC	None	BluShield Picture Window	VIM-M-50	Fixed or Picture	Wood and Clad Wood
Vinylmax LLC	None	Prestige Awning	VIM-M-16	Casement Style (Awning, Pro	Vinyl
Vinylmax LLC	None	BluShield Awning	VIM-M-42	Casement Style (Awning, Pro	Wood and Clad Wood
Vinylmax LLC	None	Elegance Door (PD19)	VIM-M-25	Sliding Glass Doors	Vinyl
Vista Window Company, LLC	None	Panorama Awning	VWC-K-5	Casement Style (Awning, Pro	Vinyl
Vista Window Company, LLC	None	Panorama Casement Fixed Window	VWC-K-11	Fixed or Picture	Vinyl
Vista Window Company, LLC	None	Panorama Casement Window	VWC-K-4	Casement Style (Awning, Pro	Vinyl
Vista Window Company, LLC	None	Panorama Double Hung	VWC-K-1	Vertical Slider (Single- and D	Vinyl
Vista Window Company, LLC	None	Panorama Horizontal Slider	VWC-K-2	Horizontal Slider	Vinyl
Vista Window Company, LLC	None	Panorama Picture Window	VWC-K-3	Fixed or Picture	Vinyl
Vista Window Company, LLC	None	Panorama Tilt-N-Slide	VWC-K-16	Horizontal Slider	Vinyl
Vytex Corporation	None	Fortis Series	VYW-M-30	Vertical Slider (Single- and D	Vinyl
Vytex Corporation	None	Fortis Series	VYW-M-29	Horizontal Slider	Vinyl
Vytex Corporation	None	Fortis Series	VYW-M-28	Fixed or Picture	Vinyl
Vytex Corporation	None	Potomac Series	VYW-M-24	Vertical Slider (Single- and D	Vinyl
Vytex Corporation	None	Potomac Series	VYW-M-27	Horizontal Slider	Vinyl
Vytex Corporation	None	Potomac Series	VYW-M-26	Fixed or Picture	Vinyl
Winchester Industries	None	Bristol Double Hung	WCI-K-6	Vertical Slider (Single- and D	Vinyl
Winchester Industries	None	Bristol SNS Slider	WCI-K-7	Horizontal Slider	Vinyl
Winchester Industries	None	Bristol Picture Window	WCI-K-8	Fixed or Picture	Vinyl
Winchester Industries	None	Bristol SL 260 Patio Door	WCI-K-3	Sliding Glass Doors	Vinyl
Wincore Window Company LLC	None	7700, 9900 Series Picture Window	WCW-M-28	Fixed or Picture	Vinyl
Wincore Window Company LLC	None	7700, 9900 Series Casement Pictu	WCW-M-33	Fixed or Picture	Vinyl
Window Mart Mfg. LLC.	None	1000 Picture Window	WMI-K-13	Fixed or Picture	Vinyl
Window Mart Mfg. LLC.	None	2500/3000 Picture Window	WMI-K-8	Fixed or Picture	Vinyl
Window Mart Mfg. LLC.	None	1145 Double Hung	WMI-K-15	Vertical Slider (Single- and D	Vinyl
Window Mart Mfg. LLC.	None	2645/2745 Double Hung	WMI-K-10	Vertical Slider (Single- and D	Vinyl
Window Mart Mfg. LLC.	None	2945 Double Hung	WMI-K-11	Vertical Slider (Single- and D	Vinyl
Window Mart Mfg. LLC.	None	3145 Double Hung	WMI-K-18	Vertical Slider (Single- and D	Vinyl
Window Mart Mfg. LLC.	None	1045 Double Slider	WMI-K-14	Horizontal Slider	Vinyl
Window Mart Mfg. LLC.	None	2545 Double Slider	WMI-K-9	Horizontal Slider	Vinyl

Window Mart Mfg. LLC.	None	3545 Double Slider	WMI-K-19	Horizontal Slider	Vinyl
Thompson Creek Window Company	thompsoncreek.com	7900 Double Hung Window	TCW-K-11	Vertical Slider (Single- and D	Vinyl
Thompson Creek Window Company	thompsoncreek.com	7900 Picture Window	TCW-K-10	Fixed or Picture	Vinyl
Thompson Creek Window Company	thompsoncreek.com	TC 900	TCW-K-13	Casement Style (Awning, Pro	Vinyl
Sunrise Windows, Ltd.	None	Sunrise/Restorations/Vanguard	SUW-K-15	Casement Style (Awning, Pro	Vinyl
Sunrise Windows, Ltd.	None	Sunrise/Restorations/Vanguard	SUW-K-19	Fixed or Picture	Vinyl
MI Windows and Doors, LLC.	None	1650 PVC Double Hung Window	MEI-A-216	Vertical Slider (Single- and D	Vinyl
MI Windows and Doors, LLC.	None	1650 PVC Fixed (Direct Set) Wind	MEI-A-130	Fixed or Picture	Vinyl
MI Windows and Doors, LLC.	None	1685 PVC Horizontal Slider (XX) W	MEI-A-215	Horizontal Slider	Vinyl
MI Windows and Doors, LLC.	None	9660 PVC Operating Awning Wind	MEI-A-171	Casement Style (Awning, Pro	Vinyl
MI Windows and Doors, LLC.	None	9770 PVC Operating Casement Wi	MEI-A-170	Casement Style (Awning, Pro	Vinyl
Milgard Manufacturing, Inc.	None	8220.8230.8370 Single Hung	MIL-A-225	Vertical Slider (Single- and D	Vinyl
Milgard Manufacturing, Inc.	None	8120.8130.8170 Horizontal Slide	MIL-A-224	Horizontal Slider	Vinyl
Milgard Manufacturing, Inc.	None	8520.8521.8530.8531.8570.857	MIL-A-227	Casement Style (Awning, Pro	Vinyl
Milgard Manufacturing, Inc.	None	8420.8421.8430.8431.8470.847	MIL-A-226	Casement Style (Awning, Pro	Vinyl
Milgard Manufacturing, Inc.	None	8320.8330 Picture Window	MIL-A-229	Fixed or Picture	Vinyl
Milgard Manufacturing, Inc.	None	8360/8370 Picture Window	MIL-A-236	Fixed or Picture	Vinyl

Min. U-Factor	Max. U-Factor	Min. SHGC	Max. SHGC	Qualified No	Qualified No	Qualified Sc	Qualified Sc	Performance Grade	Date Recognized	Date Revised
0.15	0.2	0.17	0.26	YES	YES	YES	YES	40	4/4/13	2/12/14
0.13	0.2	0.18	0.3	YES	YES	YES	YES	60	4/4/13	2/12/14
0.15	0.2	0.15	0.23	YES	YES	YES	YES	60	4/4/13	
0.15	0.20	0.15	0.23	YES	YES	YES	YES	60	2/12/14	
0.15	0.20	0.16	0.26	YES	YES	YES	YES	40	2/12/14	
0.20	0.20	0.11	0.34	YES	YES	YES	YES	50	6/11/15	
0.20	0.20	0.11	0.33	YES	YES	YES	YES	50	6/11/15	
0.20	0.20	0.13	0.26	YES	YES	YES	YES	50	6/11/15	
0.18	0.20	0.13	0.41	YES	YES	YES	YES	50	6/11/15	
0.18	0.20	0.13	0.42	YES	YES	YES	YES	50	6/11/15	
0.20	0.20	0.12	0.34	YES	YES	YES	YES	50	6/11/15	
0.20	0.20	0.19	0.29	YES	YES	YES	YES	40	2/21/20	
0.19	0.20	0.17	0.25	YES	YES	YES	YES	40	2/21/20	
0.20	0.20	0.17	0.25	YES	YES	YES	YES	40	2/21/20	
0.17	0.17	0.19	0.30	YES	YES	YES	YES	40	2/21/20	
0.19	0.20	0.18	0.28	YES	YES	YES	YES	40	2/21/20	
0.16	0.17	0.20	0.30	YES	YES	YES	YES	50	2/21/20	
0.14	0.2	0.05	0.36	YES	YES	YES	YES	25	1/25/21	
0.15	0.2	0.05	0.3	YES	YES	YES	YES	65	1/25/21	
0.15	0.2	0.05	0.3	YES	YES	YES	YES	40	1/25/21	
0.14	0.2	0.07	0.4	YES	YES	YES	YES	40	1/25/21	
0.18	0.20	0.23	0.27	YES	YES	YES	YES	20	2/13/13	
0.17	0.20	0.13	0.28	YES	YES	YES	YES	40	2/13/13	1/25/21
0.17	0.20	0.14	0.28	YES	YES	YES	YES	35	2/13/13	1/25/21
0.15	0.2	0.15	0.37	YES	YES	YES	YES	35	1/25/21	
0.18	0.20	0.24	0.27	YES	YES	YES	YES	25	2/13/13	
0.19	0.20	0.23	0.27	YES	YES	YES	YES	25	2/13/13	
0.18	0.20	0.24	0.27	YES	YES	YES	YES	25	2/13/13	
0.16	0.2	0.06	0.31	YES	YES	YES	YES	45	1/25/21	
0.15	0.2	0.05	0.3	YES	YES	YES	YES	35	1/25/21	
0.16	0.2	0.07	0.31	YES	YES	YES	YES	25	1/25/21	
0.17	0.2	0.13	0.4	YES	YES	YES	YES	15	1/25/21	
0.17	0.2	0.13	0.4	YES	YES	YES	YES	20	1/25/21	
0.17	0.2	0.07	0.3	YES	YES	YES	YES	15	1/25/21	
0.17	0.2	0.07	0.31	YES	YES	YES	YES	20	1/25/21	
0.13	0.2	0.07	0.37	YES	YES	YES	YES	40	1/25/21	
0.16	0.2	0.07	0.32	YES	YES	YES	YES	20	1/25/21	
0.16	0.2	0.07	0.35	YES	YES	YES	YES	30	1/25/21	
0.17	0.2	0.13	0.4	YES	YES	YES	YES	15	1/25/21	
0.16	0.16	0.20	0.31	YES	YES	YES	YES	80	1/23/13	
0.19	0.19	0.16	0.23	YES	YES	YES	YES	60	1/23/13	
0.19	0.19	0.16	0.23	YES	YES	YES	YES	65	1/23/13	
0.20	0.20	0.21	0.25	YES	YES	YES	YES	30	3/4/13	

0.20	0.20	0.25	0.25	YES	YES	YES	YES	30	3/4/13
0.18	0.20	0.24	0.25	YES	YES	YES	YES	30	3/4/13
0.13	0.2	0.16	0.5	YES	YES	YES	YES	80	5/29/13
0.17	0.2	0.14	0.35	YES	YES	YES	YES	25	5/29/13
0.17	0.2	0.14	0.33	YES	YES	YES	YES	15	5/29/13
0.17	0.2	0.14	0.33	YES	YES	YES	YES	45	5/29/13
0.14	0.2	0.15	0.47	YES	YES	YES	YES	60	5/29/13
0.15	0.2	0.13	0.31	YES	YES	YES	YES	70	5/29/13
0.14	0.2	0.14	0.41	YES	YES	YES	YES	80	5/29/13
0.15	0.2	0.141	0.35	YES	YES	YES	YES	40	5/16/19
0.16	0.2	0.13	0.3	YES	YES	YES	YES	45	5/16/19
0.13	0.2	0.16	0.4	YES	YES	YES	YES	50	5/16/19
0.14	0.2	0.15	0.36	YES	YES	YES	YES	50	5/16/19
0.14	0.2	0.13	0.31	YES	YES	YES	YES	70	5/16/19
0.14	0.2	0.13	0.31	YES	YES	YES	YES	40	5/16/19
0.15	0.2	0.15	0.36	YES	YES	YES	YES	50	5/16/19
0.16	0.2	0.14	0.34	YES	YES	YES	YES	35	5/16/19
0.14	0.2	0.16	0.38	YES	YES	YES	YES	65	5/16/19
0.15	0.2	0.14	0.34	YES	YES	YES	YES	20	5/16/19
0.15	0.2	0.14	0.34	YES	YES	YES	YES	30	5/16/19
0.17	0.2	0.11	0.25	YES	YES	Yes	YES	40	4/2/20
0.17	0.19	0.11	0.24	YES	YES	YES	YES	90	4/2/20
0.17	0.2	0.11	0.26	YES	YES	YES	YES	50	4/2/20
0.18	0.2	0.17	0.26	YES	YES	YES	YES	55	7/23/20
0.18	0.2	0.17	0.26	YES	YES	YES	YES	50	7/23/20
0.16	0.2	0.18	0.24	YES	YES	YES	YES	55	7/23/20
0.15	0.20	0.15	0.27	YES	YES	YES	YES	45	7/23/20
0.16	0.20	0.16	0.21	YES	YES	YES	YES	50	7/23/20
0.12	0.20	0.14	0.24	YES	YES	YES	YES	55	7/23/20
0.14	0.20	0.14	0.25	YES	YES	YES	YES	50	7/23/20
0.15	0.2	0.15	0.25	YES	YES	YES	YES	45	7/23/20
0.15	0.2	0.15	0.25	YES	YES	YES	YES	60	7/23/20
0.15	0.2	0.13	0.24	YES	YES	YES	YES	70	7/23/20
0.15	0.2	0.13	0.25	YES	YES	YES	YES	70	7/23/20
0.13	0.2	0.15	0.3	YES	YES	YES	YES	45	7/23/20
0.16	0.2	0.11	0.24	YES	YES	YES	YES	45	7/23/20
0.2	0.2	0.26	0.26	YES	YES	YES	YES	40	9/20/19
0.2	0.2	0.2	0.2	YES	YES	YES	YES	70	9/20/19
0.2	0.2	0.22	0.22	YES	YES	YES	YES	35	3/27/13
0.20	0.20	0.22	0.24	YES	YES	YES	YES	45	1/22/13
0.20	0.20	0.21	0.24	YES	YES	YES	YES	25	1/22/13
0.16	0.19	0.24	0.26	YES	YES	YES	YES	40	1/22/13
0.19	0.20	0.22	0.24	YES	YES	YES	YES	35	1/22/13
0.18	0.20	0.22	0.24	YES	YES	YES	YES	25	1/22/13
0.20	0.20	0.24	0.24	YES	YES	YES	YES	30	1/22/13
0.16	0.20	0.23	0.26	YES	YES	YES	YES	35	1/22/13
0.19	0.20	0.19	0.21	YES	YES	YES	YES	60	1/22/13

0.19	0.20	0.19	0.21	YES	YES	YES	YES	60	1/22/13	
0.16	0.20	0.19	0.22	YES	YES	YES	YES	50	2/22/13	3/12/13
0.16	0.20	0.19	0.22	YES	YES	YES	YES	50	2/22/13	3/12/13
0.14	0.20	0.19	0.26	YES	YES	YES	YES	30	2/22/13	3/12/13
0.14	0.19	0.20	0.23	YES	YES	YES	YES	50	2/22/13	3/12/13
0.14	0.20	0.15	0.27	YES	YES	YES	YES	30	3/12/13	
0.14	0.20	0.19	0.26	YES	YES	YES	YES	40	3/12/13	
0.12	0.20	0.21	0.33	YES	YES	YES	YES	50	3/12/13	
0.14	0.20	0.15	0.27	YES	YES	YES	YES	40	3/12/13	
0.12	0.20	0.19	0.34	YES	YES	YES	YES	55	3/12/13	
0.15	0.20	0.17	0.23	YES	YES	YES	YES	40	3/20/13	
0.15	0.20	0.20	0.24	YES	YES	YES	YES	25	1/23/15	
0.15	0.20	0.20	0.23	YES	YES	YES	YES	50	1/23/15	
0.15	0.2	0.21	0.27	YES	YES	YES	YES	50	6/16/17	
0.15	0.2	0.21	0.27	YES	YES	YES	YES	30	6/16/17	
0.17	0.17	0.21	0.23	YES	YES	YES	YES	15	6/16/17	
0.14	0.19	0.23	0.3	YES	YES	YES	YES	20	6/16/17	
0.16	0.16	0.21	0.23	YES	YES	YES	YES	55	6/16/17	
0.17	0.2	0.22	0.24	YES	YES	YES	YES	40	6/16/17	
0.20	0.20	0.15	0.19	NO	YES	YES	YES	35	3/11/13	
0.20	0.20	0.15	0.19	NO	YES	YES	YES	35	3/11/13	
0.16	0.17	0.17	0.31	YES	YES	YES	YES	50	3/11/13	
0.17	0.20	0.13	0.23	YES	YES	YES	YES	50	3/11/13	6/27/14
0.17	0.20	0.13	0.23	YES	YES	YES	YES	50	3/11/13	6/27/14
0.17	0.17	0.17	0.31	YES	YES	YES	YES	50	3/11/13	
0.19	0.2	0.14	0.25	YES	YES	YES	YES	35	3/11/13	4/16/13
0.19	0.2	0.14	0.25	YES	YES	YES	YES	50	3/11/13	4/16/13
0.15	0.19	0.16	0.29	YES	YES	YES	YES	20	3/11/13	
0.20	0.20	0.25	0.25	YES	YES	YES	YES	35	6/11/21	
0.16	0.20	0.16	0.18	NO	YES	YES	YES	50	1/17/13	
0.20	0.20	0.16	0.25	YES	YES	YES	YES	35	1/17/13	
0.18	0.20	0.19	0.27	YES	YES	YES	YES	50	1/17/13	
0.18	0.20	0.15	0.16	NO	YES	YES	YES	60	1/17/13	
0.17	0.2	0.14	0.22	YES	YES	YES	YES	60	7/6/20	
0.18	0.2	0.14	0.2	YES	YES	YES	YES	60	7/6/20	
0.18	0.2	0.17	0.27	YES	YES	YES	YES	50	7/6/20	
0.18	0.2	0.17	0.27	YES	YES	YES	YES	50	7/6/20	
0.14	0.2	0.19	0.3	YES	YES	YES	YES	50	7/6/20	
0.16	0.19	0.12	0.34	YES	YES	YES	YES	55	3/24/14	
0.14	0.20	0.17	0.44	YES	YES	YES	YES	60	3/24/14	
0.13	0.19	0.16	0.44	YES	YES	YES	YES	60	3/24/14	
0.13	0.19	0.14	0.41	YES	YES	YES	YES	60	3/24/14	
0.18	0.20	0.15	0.40	YES	YES	YES	YES	50	3/24/14	
0.18	0.20	0.14	0.39	YES	YES	YES	YES	55	3/24/14	
0.17	0.20	0.14	0.39	YES	YES	YES	YES	55	3/24/14	
0.18	0.20	0.15	0.41	YES	YES	YES	YES	50	3/24/14	
0.17	0.17	0.24	0.24	YES	YES	YES	YES	70	6/25/13	
0.2	0.2	0.23	0.23	YES	YES	YES	YES	70	6/25/13	

0.2	0.2	0.23	0.23	YES	YES	YES	YES	55	6/25/13	
0.18	0.19	0.25	0.49	YES	YES	YES	YES	60	6/25/13	
0.2	0.2	0.24	0.24	YES	YES	YES	YES	40	6/25/13	
0.15	0.2	0.24	0.52	YES	YES	YES	YES	70	6/25/13	
0.16	0.17	0.22	0.46	YES	YES	YES	YES	70	6/25/13	
0.17	0.18	0.18	0.39	YES	YES	YES	YES	70	6/25/13	
0.17	0.18	0.18	0.39	YES	YES	YES	YES	70	6/25/13	
0.15	0.2	0.22	0.46	YES	YES	YES	YES	45	6/25/13	
0.15	0.2	0.22	0.47	YES	YES	YES	YES	70	6/25/13	
0.17	0.17	0.18	0.2	YES	YES	YES	YES	55	6/25/13	
0.17	0.17	0.18	0.2	YES	YES	YES	YES	40	6/25/13	
0.14	0.2	0.24	0.31	YES	YES	YES	YES	70	6/25/13	
0.17	0.18	0.19	0.4	YES	YES	YES	YES	70	6/25/13	
0.17	0.18	0.19	0.4	YES	YES	YES	YES	30	6/25/13	
0.15	0.2	0.22	0.47	YES	YES	YES	YES	70	6/25/13	
0.2	0.2	0.24	0.24	YES	YES	YES	YES	70	6/25/13	
0.18	0.2	0.21	0.62	YES	YES	YES	YES	55	6/21/17	
0.18	0.2	0.21	0.62	YES	YES	YES	YES	65	6/21/17	
0.16	0.2	0.22	0.64	YES	YES	YES	YES	60	6/21/17	
0.15	0.20	0.22	0.46	YES	YES	YES	YES	55	8/18/21	
0.15	0.20	0.22	0.46	YES	YES	YES	YES	55	8/18/21	
0.14	0.20	0.26	0.55	YES	YES	YES	YES	90	8/18/21	
0.15	0.20	0.25	0.52	YES	YES	YES	YES	70	8/18/21	
0.19	0.19	0.18	0.50	YES	YES	YES	YES	65	12/19/13	6/11/21
0.20	0.20	0.14	0.22	YES	YES	YES	YES	65	12/19/13	6/11/21
0.20	0.20	0.14	0.37	YES	YES	YES	YES	45	12/19/13	6/11/21
0.18	0.20	0.16	0.44	YES	YES	YES	YES	65	12/19/13	6/11/21
0.19	0.20	0.13	0.43	YES	YES	YES	YES	50	12/19/13	6/11/21
0.19	0.19	0.13	0.42	YES	YES	YES	YES	50	12/19/13	6/11/21
0.16	0.20	0.18	0.55	YES	YES	YES	YES	50	12/19/13	6/11/21
0.16	0.19	0.18	0.49	YES	YES	YES	YES	75	12/19/13	6/11/21
0.15	0.20	0.11	0.50	YES	YES	YES	YES	80	1/9/15	6/11/21
0.15	0.20	0.12	0.53	YES	YES	YES	YES	75	12/19/13	6/11/21
0.16	0.20	0.14	0.49	YES	YES	YES	YES	75	12/19/13	6/11/21
0.18	0.19	0.15	0.42	YES	YES	YES	YES	65	1/23/20	6/11/21
0.18	0.19	0.14	0.4	YES	YES	YES	YES	40	1/23/20	6/11/21
0.16	0.2	0.14	0.47	YES	YES	YES	YES	50	1/23/20	6/11/21
0.20	0.20	0.15	0.42	YES	YES	YES	YES	35	3/3/22	
0.16	0.19	0.18	0.50	YES	YES	YES	YES	50	3/3/22	
0.19	0.20	0.23	0.27	YES	YES	YES	YES	50	1/1/14	12/9/15
0.20	0.20	0.23	0.27	YES	YES	YES	YES	50	1/1/14	12/23/14
0.18	0.20	0.24	0.31	YES	YES	YES	YES	50	1/1/14	12/9/15
0.17	0.20	0.24	0.32	YES	YES	YES	YES	50	1/1/14	
0.17	0.20	0.15	0.42	YES	YES	YES	YES	50	1/1/14	
0.15	0.20	0.14	0.50	YES	YES	YES	YES	35	1/1/14	12/9/15
0.17	0.20	0.14	0.37	YES	YES	YES	YES	35	1/1/14	12/9/15
0.15	0.20	0.15	0.42	YES	YES	YES	YES	30	1/1/14	12/9/15
0.18	0.20	0.12	0.36	YES	YES	YES	YES	40	1/1/14	12/9/15

0.18	0.20	0.14	0.39	YES	YES	YES	YES	50	1/1/14	12/9/15
0.18	0.20	0.13	0.39	YES	YES	YES	YES	40	1/1/14	
0.15	0.20	0.15	0.45	YES	YES	YES	YES	50	1/1/14	
0.17	0.20	0.13	0.38	YES	YES	YES	YES	50	1/1/14	
0.18	0.20	0.13	0.38	YES	YES	YES	YES	35	1/1/14	
0.15	0.20	0.15	0.44	YES	YES	YES	YES	50	1/1/14	12/9/15
0.19	0.20	0.14	0.25	YES	YES	YES	YES	35	1/1/14	12/9/15
0.16	0.20	0.15	0.45	YES	YES	YES	YES	50	1/1/14	12/9/15
0.18	0.20	0.12	0.36	YES	YES	YES	YES	50	1/1/14	
0.15	0.20	0.15	0.44	YES	YES	YES	YES	50	1/1/14	
0.19	0.20	0.13	0.25	YES	YES	YES	YES	50	1/1/14	
0.19	0.20	0.14	0.25	YES	YES	YES	YES	50	1/1/14	
0.18	0.20	0.12	0.37	YES	YES	YES	YES	30	1/1/14	
0.19	0.20	0.14	0.25	YES	YES	YES	YES	30	1/1/14	
0.19	0.19	0.17	0.29	YES	YES	YES	YES	30	12/23/14	12/9/15
0.15	0.20	0.15	0.45	YES	YES	YES	YES	40	1/1/14	12/9/15
0.20	0.20	0.14	0.26	YES	YES	YES	YES	30	1/1/14	12/9/15
0.18	0.20	0.18	0.31	YES	YES	YES	YES	35	12/9/15	
0.16	0.20	0.17	0.42	YES	YES	YES	YES	35	1/1/14	12/9/15
0.13	0.20	0.17	0.49	YES	YES	YES	YES	50	1/1/14	
0.13	0.20	0.17	0.59	YES	YES	YES	YES	50	1/1/14	12/9/15
0.14	0.20	0.17	0.61	YES	YES	YES	YES	50	1/1/14	12/9/15
0.13	0.20	0.16	0.47	YES	YES	YES	YES	50	1/1/14	
0.20	0.20	0.14	0.20	YES	YES	YES	YES	35	1/1/14	12/9/15
0.15	0.20	0.14	0.37	YES	YES	YES	YES	40	12/23/14	12/9/15
0.18	0.20	0.15	0.42	YES	YES	YES	YES	50	12/23/14	12/9/15
0.18	0.20	0.15	0.43	YES	YES	YES	YES	50	12/23/14	
0.19	0.20	0.14	0.26	YES	YES	YES	YES	50	12/9/15	
0.18	0.20	0.15	0.43	YES	YES	YES	YES	50	12/9/15	
0.17	0.20	0.13	0.38	YES	YES	YES	YES	40	1/1/14	12/9/15
0.20	0.20	0.14	0.25	YES	YES	YES	YES	40	12/23/14	12/9/15
0.15	0.20	0.14	0.37	YES	YES	YES	YES	30	1/1/14	12/9/15
0.17	0.20	0.17	0.46	YES	YES	YES	YES	40	1/1/14	
0.17	0.20	0.18	0.47	YES	YES	YES	YES	40	1/1/14	
0.16	0.20	0.14	0.43	YES	YES	YES	YES	40	1/1/14	
0.20	0.20	0.14	0.26	YES	YES	YES	YES	30	1/1/14	
0.18	0.20	0.16	0.29	YES	YES	YES	YES	30	1/1/14	12/9/15
0.16	0.20	0.14	0.41	YES	YES	YES	YES	60	1/1/14	12/9/15
0.17	0.20	0.15	0.43	YES	YES	YES	YES	40	1/1/14	12/9/15
0.20	0.20	0.14	0.24	YES	YES	YES	YES	50	5/2/18	
0.16	0.20	0.17	0.48	YES	YES	YES	YES	50	5/2/18	
0.19	0.19	0.22	0.25	YES	YES	YES	YES	40	1/23/13	
0.18	0.18	0.20	0.22	Yes	Yes	Yes	Yes	60	1/23/13	
0.18	0.18	0.20	0.22	Yes	Yes	Yes	Yes	60	1/23/13	
0.19	0.19	0.22	0.25	Yes	Yes	Yes	Yes	40	1/23/13	
0.17	0.17	0.26	0.28	Yes	Yes	No	No	60	1/23/13	
0.20	0.20	0.26	0.26	YES	YES	NO	NO	50	1/17/13	
0.20	0.20	0.26	0.26	YES	YES	NO	NO	40	1/17/13	

0.17	0.17	0.29	0.29	YES	NO	NO	NO	45	1/17/13	
0.19	0.19	0.25	0.25	YES	YES	YES	YES	35	2/27/13	
0.18	0.18	0.12	0.20	NO	YES	YES	YES	50	2/27/13	
0.18	0.18	0.18	0.35	YES	YES	NO	NO	40	2/27/13	
0.16	0.16	0.24	0.24	YES	YES	YES	YES	55	2/27/13	
0.16	0.2	0.21	0.24	YES	YES	YES	YES	30	1/28/13	2/7/20
0.16	0.2	0.21	0.24	YES	YES	YES	YES	20	1/28/13	2/7/20
0.17	0.19	0.20	0.23	YES	YES	YES	YES	25	1/28/13	2/22/13
0.17	0.2	0.21	0.23	YES	YES	YES	YES	55	1/28/13	2/7/20
0.17	0.2	0.21	0.23	YES	YES	YES	YES	50	1/28/13	2/7/20
0.13	0.2	0.24	0.27	YES	YES	YES	YES	40	2/7/20	
0.20	0.20	0.17	0.19	NO	YES	YES	YES	35	1/18/13	
0.18	0.18	0.16	0.18	NO	YES	YES	YES	25	1/18/13	
0.18	0.18	0.18	0.18	NO	YES	YES	YES	30	1/18/13	
0.18	0.19	0.18	0.20	YES	YES	YES	YES	50	1/18/13	
0.20	0.20	0.16	0.17	NO	YES	YES	YES	40	1/18/13	
0.20	0.20	0.15	0.17	NO	YES	YES	YES	40	1/18/13	
0.20	0.20	0.16	0.18	NO	YES	YES	YES	35	1/18/13	
0.18	0.18	0.17	0.19	NO	YES	YES	YES	55	1/18/13	
0.2	0.2	0.26	0.26	YES	YES	NO	NO	50	6/11/13	
0.17	0.17	0.25	0.25	YES	YES	YES	YES	35	6/11/13	
0.2	0.2	0.28	0.28	YES	YES	NO	NO	75	6/11/13	
0.16	0.2	0.23	0.25	YES	YES	YES	YES	60	6/11/13	2/11/14
0.2	0.2	0.25	0.25	YES	YES	YES	YES	50	6/11/13	
0.2	0.2	0.27	0.27	YES	YES	NO	NO	75	6/11/13	
0.15	0.2	0.22	0.24	YES	YES	YES	YES	45	6/11/13	
0.15	0.2	0.22	0.25	YES	YES	YES	YES	40	6/11/13	
0.16	0.2	0.22	0.24	YES	YES	YES	YES	70	6/11/13	
0.16	0.2	0.23	0.26	YES	YES	NO	NO	40	6/11/13	
0.15	0.19	0.23	0.26	YES	YES	NO	NO	50	9/4/13	
0.14	0.2	0.24	0.27	YES	YES	NO	NO	75	9/4/13	
0.16	0.2	0.23	0.26	YES	YES	YES	YES	50	10/8/19	
0.14	0.17	0.15	0.25	YES	YES	YES	YES	55	10/8/19	
0.15	0.18	0.22	0.25	YES	YES	YES	YES	55	10/8/19	
0.17	0.2	0.22	0.25	YES	YES	YES	YES	40	10/8/19	
0.15	0.18	0.15	0.25	YES	YES	YES	YES	60	10/8/19	
0.16	0.18	0.2	0.23	YES	YES	YES	YES	60	10/8/19	
0.13	0.16	0.15	0.24	YES	YES	YES	YES	80	10/8/19	
0.15	0.16	0.21	0.24	YES	YES	YES	YES	80	10/8/19	
0.14	0.17	0.16	0.24	YES	YES	YES	YES	70	10/8/19	
0.13	0.16	0.17	0.25	YES	YES	YES	YES	75	10/8/19	
0.12	0.16	0.19	0.25	YES	YES	YES	YES	80	10/8/19	
0.15	0.17	0.18	0.24	YES	YES	YES	YES	70	10/8/19	
0.17	0.20	0.18	0.20	YES	YES	YES	YES	60	2/5/13	3/21/13
0.17	0.20	0.18	0.20	YES	YES	YES	YES	60	2/5/13	3/21/13
0.17	0.20	0.22	0.24	YES	YES	YES	YES	60	2/5/13	3/21/13
0.18	0.19	0.22	0.24	YES	YES	YES	YES	40	2/5/13	3/21/13
0.18	0.19	0.21	0.24	YES	YES	YES	YES	60	2/5/13	3/21/13

0.15	0.19	0.24	0.27	YES	YES	YES	YES	40	2/5/13	3/21/13
0.17	0.20	0.18	0.20	YES	YES	YES	YES	60	3/21/13	
0.17	0.20	0.18	0.20	YES	YES	YES	YES	55	3/21/13	
0.17	0.20	0.22	0.24	YES	YES	YES	YES	40	3/21/13	
0.18	0.20	0.22	0.24	YES	YES	YES	YES	40	3/21/13	
0.18	0.20	0.21	0.24	YES	YES	YES	YES	40	3/21/13	
0.15	0.20	0.24	0.52	YES	YES	YES	YES	60	3/21/13	
0.20	0.20	0.22	0.25	YES	YES	YES	YES	50	9/19/14	
0.20	0.20	0.22	0.25	YES	YES	YES	YES	25	9/19/14	
0.19	0.20	0.24	0.27	YES	YES	YES	YES	50	9/19/14	
0.20	0.20	0.43	0.47	YES	NO	NO	NO	50	9/19/14	
0.14	0.20	0.23	0.29	YES	YES	YES	YES	60	1/23/15	
0.14	0.20	0.17	0.22	YES	YES	YES	YES	60	1/23/15	
0.15	0.20	0.37	0.49	YES	YES	NO	NO	60	1/23/15	
0.19	0.20	0.21	0.23	YES	YES	YES	YES	50	1/23/15	
0.19	0.20	0.16	0.17	NO	YES	YES	YES	50	1/23/15	
0.19	0.20	0.36	0.39	YES	YES	NO	NO	50	1/23/15	
0.17	0.20	0.21	0.27	YES	YES	YES	YES	30	1/23/15	
0.17	0.20	0.16	0.20	YES	YES	YES	YES	30	1/23/15	
0.17	0.20	0.35	0.44	YES	YES	NO	NO	30	1/23/15	
0.19	0.20	0.21	0.23	YES	YES	YES	YES	50	1/23/15	
0.19	0.20	0.16	0.17	NO	YES	YES	YES	50	1/23/15	
0.19	0.20	0.36	0.39	YES	YES	NO	NO	50	1/23/15	
0.19	0.20	0.21	0.23	YES	YES	YES	YES	40	1/26/15	
0.19	0.20	0.16	0.17	NO	YES	YES	YES	40	1/26/15	
0.19	0.20	0.36	0.39	YES	YES	NO	NO	40	1/26/15	
0.18	0.20	0.19	0.23	YES	YES	YES	YES	50	1/23/15	
0.17	0.20	0.15	0.17	NO	YES	YES	YES	50	1/23/15	
0.18	0.20	0.32	0.39	YES	YES	NO	NO	50	1/23/15	
0.16	0.20	0.21	0.27	YES	YES	YES	YES	30	1/23/15	
0.16	0.20	0.16	0.20	YES	YES	YES	YES	30	1/23/15	
0.16	0.20	0.35	0.45	YES	YES	NO	NO	30	1/23/15	
0.18	0.20	0.19	0.23	YES	YES	YES	YES	50	1/23/15	
0.18	0.20	0.15	0.17	NO	YES	YES	YES	50	1/23/15	
0.18	0.20	0.32	0.39	YES	YES	NO	NO	50	1/23/15	
0.18	0.20	0.19	0.23	YES	YES	YES	YES	40	1/26/15	
0.18	0.20	0.15	0.17	NO	YES	YES	YES	40	1/26/15	
0.18	0.20	0.32	0.39	YES	YES	NO	NO	40	1/26/15	
0.2	0.2	0.2	0.22	YES	YES	YES	YES	50	3/29/19	
0.19	0.2	0.23	0.25	YES	YES	YES	YES	50	3/29/19	
0.2	0.2	0.2	0.22	YES	YES	YES	YES	50	3/29/19	
0.2	0.2	0.19	0.2	YES	YES	YES	YES	50	5/28/19	
0.19	0.2	0.23	0.26	YES	YES	YES	YES	50	5/28/19	
0.2	0.2	0.19	0.21	YES	YES	YES	YES	50	5/28/19	
0.19	0.2	0.21	0.23	YES	YES	NO	NO	50	1/7/20	
0.15	0.20	0.12	0.29	YES	YES	YES	YES	45	4/17/13	7/27/20
0.19	0.20	0.11	0.26	YES	YES	YES	YES	40	4/17/13	7/27/20
0.19	0.20	0.11	0.26	YES	YES	YES	YES	40	4/17/13	7/27/20

0.19	0.20	0.12	0.22	YES	YES	YES	YES	60	4/17/13	7/27/20
0.18	0.20	0.12	0.22	YES	YES	YES	YES	50	4/17/13	7/27/20
0.17	0.20	0.15	0.28	YES	YES	YES	YES	50	4/17/13	7/27/20
0.16	0.2	0.17	0.26	YES	YES	YES	YES	55	4/17/13	7/27/20
0.15	0.2	0.18	0.24	YES	YES	YES	YES	55	4/17/13	7/27/20
0.17	0.2	0.17	0.26	YES	YES	YES	YES	50	4/17/13	7/27/20
0.16	0.2	0.14	0.28	YES	YES	YES	YES	55	4/17/13	7/27/20
0.15	0.2	0.13	0.28	YES	YES	YES	YES	55	4/17/13	7/27/20
0.17	0.2	0.12	0.26	YES	YES	YES	YES	50	4/17/13	7/27/20
0.19	0.2	0.12	0.25	YES	YES	YES	YES	50	4/17/13	7/27/20
0.16	0.2	0.12	0.26	YES	YES	YES	YES	50	4/17/13	7/27/20
0.13	0.2	0.15	0.3	YES	YES	YES	YES	50	4/17/13	7/27/20
0.15	0.2	0.13	0.24	YES	YES	YES	YES	70	4/17/13	7/27/20
0.15	0.2	0.13	0.25	YES	YES	YES	YES	70	4/17/13	7/27/20
0.15	0.20	0.12	0.25	YES	YES	YES	YES	25	4/17/13	
0.16	0.2	0.14	0.25	YES	YES	YES	YES	50	4/17/13	7/27/20
0.17	0.20	0.15	0.27	YES	YES	YES	YES	35	4/17/13	
0.16	0.20	0.15	0.27	YES	YES	YES	YES	15	4/17/13	
0.16	0.20	0.15	0.27	YES	YES	YES	YES	50	4/17/13	
0.15	0.20	0.13	0.26	YES	YES	YES	YES	15	4/17/13	
0.16	0.20	0.14	0.25	YES	YES	YES	YES	45	4/17/13	7/27/20
0.18	0.20	0.15	0.23	YES	YES	YES	YES	30	4/17/13	
0.16	0.20	0.15	0.27	YES	YES	YES	YES	45	4/17/13	
0.17	0.20	0.15	0.27	YES	YES	YES	YES	30	4/17/13	
0.13	0.20	0.14	0.27	YES	YES	YES	YES	45	4/17/13	
0.12	0.20	0.14	0.29	YES	YES	YES	YES	55	4/17/13	7/27/20
0.14	0.20	0.19	0.24	YES	YES	YES	YES	55	4/17/13	
0.15	0.20	0.12	0.29	YES	YES	YES	YES	45	7/27/20	
0.19	0.2	0.1	0.23	YES	YES	YES	YES	40	7/27/20	
0.19	0.2	0.12	0.25	YES	YES	YES	YES	50	7/27/20	
0.13	0.2	0.15	0.24	YES	YES	YES	YES	50	7/27/20	
0.15	0.2	0.13	0.23	YES	YES	YES	YES	70	7/27/20	
0.15	0.2	0.13	0.23	YES	YES	YES	YES	70	7/27/20	
0.16	0.2	0.11	0.24	YES	YES	YES	YES	45	7/27/20	
0.2	0.2	0.15	0.24	YES	YES	YES	YES	50	7/27/20	
0.15	0.20	0.14	0.35	YES	YES	YES	YES	40	1/17/13	4/29/19
0.16	0.2	0.13	0.3	YES	YES	YES	YES	45	1/17/13	4/29/19
0.13	0.2	0.16	0.4	YES	YES	YES	YES	50	1/17/13	4/29/19
0.14	0.2	0.15	0.36	YES	YES	YES	YES	50	1/17/13	4/29/19
0.14	0.2	0.13	0.31	YES	YES	YES	YES	70	1/17/13	4/29/19
0.17	0.20	0.14	0.35	YES	YES	YES	YES	25	3/8/13	
0.17	0.20	0.14	0.35	YES	YES	YES	YES	15	3/8/13	
0.14	0.20	0.15	0.47	YES	YES	YES	YES	60	3/8/13	
0.14	0.2	0.13	0.31	YES	YES	YES	YES	40	4/29/19	
0.15	0.2	0.15	0.36	YES	YES	YES	YES	50	4/29/19	
0.16	0.2	0.14	0.34	YES	YES	YES	YES	35	4/29/19	
0.14	0.2	0.16	0.38	YES	YES	YES	YES	65	4/29/19	

0.13	0.2	0.16	0.38	YES	YES	YES	YES		65	4/29/19	
0.15	0.2	0.14	0.34	YES	YES	YES	YES		20	4/29/19	
0.15	0.2	0.14	0.34	YES	YES	YES	YES		30	4/29/19	
0.16	0.20	0.17	0.25	YES	YES	YES	YES		50	11/8/16	
0.17	0.18	0.17	0.24	YES	YES	YES	YES		50	11/8/16	
0.14	0.19	0.19	0.28	YES	YES	YES	YES		50	11/8/16	
0.16	0.20	0.16	0.23	YES	YES	YES	YES		50	11/8/16	
0.16	0.20	0.16	0.23	YES	YES	YES	YES		50	11/8/16	
0.16	0.19	0.18	0.27	YES	YES	YES	YES		50	11/8/16	
0.16	0.19	0.18	0.26	YES	YES	YES	YES		30	11/8/16	
0.14	0.18	0.19	0.28	YES	YES	YES	YES		50	11/8/16	
0.14	0.18	0.18	0.26	YES	YES	YES	YES		60	11/8/16	
0.13	0.17	0.20	0.29	YES	YES	YES	YES		45	11/8/16	
0.15	0.18	0.18	0.26	YES	YES	YES	YES		60	11/8/16	
0.19	0.20	0.20	0.24	YES	YES	YES	YES		65	3/5/13	
0.15	0.20	0.22	0.27	YES	YES	YES	YES		75	3/31/15	
0.16	0.20	0.18	0.22	YES	YES	YES	YES		45	3/31/15	
0.13	0.19	0.23	0.27	YES	YES	YES	YES		60	4/21/17	
0.16	0.20	0.23	0.26	YES	YES	YES	YES		55	4/21/17	
0.16	0.20	0.22	0.25	YES	YES	YES	YES	55/35		4/21/17	
0.18	0.18	0.25	0.27	YES	YES	NO	NO		50	2/5/13	
0.19	0.19	0.24	0.27	YES	YES	YES	YES		50	2/5/13	
0.16	0.17	0.28	0.29	YES	YES	NO	NO		50	2/5/13	
0.17	0.18	0.25	0.28	YES	YES	YES	YES		30	2/5/13	
0.19	0.20	0.15	0.24	YES	YES	YES	YES		55	5/10/13	8/4/20
0.15	0.20	0.17	0.26	YES	YES	YES	YES		60	5/10/13	8/4/20
0.18	0.20	0.16	0.24	YES	YES	YES	YES		55	5/10/13	8/4/20
0.17	0.18	0.17	0.26	YES	YES	YES	YES		25	8/4/20	
0.18	0.19	0.16	0.25	YES	YES	YES	YES		30	8/4/20	
0.18	0.2	0.16	0.24	YES	YES	YES	YES		25	8/4/20	
0.17	0.2	0.17	0.26	YES	YES	YES	YES		25	8/4/20	
0.16	0.2	0.18	0.27	YES	YES	YES	YES		30	8/4/20	
0.17	0.2	0.14	0.21	YES	YES	YES	YES		55	8/4/20	
0.17	0.2	0.14	0.21	YES	YES	YES	YES		55	8/4/20	
0.15	0.2	0.16	0.25	YES	YES	YES	YES		60	8/4/20	
0.18	0.20	0.18	0.27	YES	YES	YES	YES		40	2/5/13	
0.18	0.20	0.18	0.27	YES	YES	YES	YES		40	2/5/13	
0.18	0.20	0.18	0.27	YES	YES	YES	YES		40	2/5/13	
0.18	0.20	0.18	0.27	YES	YES	YES	YES		40	2/5/13	
0.16	0.18	0.19	0.28	YES	YES	YES	YES		55	2/5/13	
0.17	0.20	0.18	0.27	YES	YES	YES	YES		40	2/5/13	
0.17	0.19	0.18	0.27	YES	YES	YES	YES		40	2/5/13	
0.15	0.20	0.19	0.28	YES	YES	YES	YES		55	2/5/13	
0.17	0.20	0.18	0.26	YES	YES	YES	YES		35	2/5/13	
0.17	0.20	0.17	0.26	YES	YES	YES	YES		35	2/5/13	
0.17	0.20	0.17	0.26	YES	YES	YES	YES		50	2/5/13	
0.17	0.20	0.17	0.26	YES	YES	YES	YES		35	2/5/13	
0.17	0.20	0.15	0.24	YES	YES	YES	YES		55	2/5/13	

0.17	0.20	0.15	0.24	YES	YES	YES	YES	55	2/5/13
0.14	0.20	0.17	0.27	YES	YES	YES	YES	75	2/5/13
0.16	0.20	0.15	0.41	YES	YES	YES	YES	55	2/5/13
0.16	0.20	0.15	0.24	YES	YES	YES	YES	60	2/5/13
0.13	0.20	0.18	0.29	YES	YES	YES	YES	50	2/5/13
0.15	0.20	0.15	0.37	YES	YES	YES	YES	40	2/5/13
0.15	0.20	0.15	0.37	YES	YES	YES	YES	40	2/5/13
0.18	0.19	0.15	0.23	YES	YES	YES	YES	30	2/12/13
0.17	0.20	0.15	0.25	YES	YES	YES	YES	30	2/12/13
0.17	0.19	0.15	0.25	YES	YES	YES	YES	35	2/12/13
0.17	0.19	0.15	0.25	YES	YES	YES	YES	25	2/12/13
0.15	0.18	0.16	0.26	YES	YES	YES	YES	75	2/12/13
0.17	0.19	0.14	0.23	YES	YES	YES	YES	70	2/12/13
0.16	0.16	0.16	0.23	YES	YES	YES	YES	60	2/12/13
0.17	0.20	0.21	0.23	YES	YES	YES	YES	30	3/22/18
0.14	0.20	0.23	0.25	YES	YES	YES	YES	40	3/22/18
0.16	0.20	0.18	0.21	YES	YES	YES	YES	55	3/22/18
0.17	0.20	0.18	0.21	YES	YES	YES	YES	45	3/22/18
0.18	0.20	0.20	0.25	YES	YES	YES	YES	30	3/22/18
0.14	0.20	0.24	0.25	YES	YES	YES	YES	60	3/22/18
0.18	0.19	0.15	0.24	YES	YES	YES	YES	40	9/4/13
0.18	0.19	0.15	0.24	YES	YES	YES	YES	50	9/4/13
0.16	0.17	0.17	0.28	YES	YES	YES	YES	40	9/4/13
0.16	0.16	0.19	0.31	YES	YES	YES	YES	50	9/4/13
0.18	0.2	0.14	0.41	YES	YES	YES	YES	40	12/18/17
0.17	0.2	0.15	0.43	YES	YES	YES	YES	45	12/18/17
0.17	0.2	0.15	0.44	YES	YES	YES	YES	45	12/18/17
0.16	0.2	0.14	0.38	YES	YES	YES	YES	50	12/18/17
0.16	0.2	0.14	0.38	YES	YES	YES	YES	50	12/18/17
0.14	0.2	0.17	0.45	YES	YES	YES	YES	50	12/18/17
0.14	0.2	0.17	0.49	YES	YES	YES	YES	50	12/18/17
0.15	0.2	0.17	0.51	YES	YES	YES	YES	40	1/7/20
0.14	0.2	0.19	0.57	YES	YES	YES	YES	50	1/7/20
0.18	0.2	0.13	0.44	YES	YES	YES	YES	20	1/7/20
0.17	0.20	0.15	0.50	YES	YES	YES	YES	25	1/7/20
0.19	0.20	0.16	0.18	NO	NO	NO	YES	35	5/2/18
0.18	0.19	0.15	0.19	NO	NO	NO	YES	25	5/2/18
0.19	0.20	0.16	0.18	NO	NO	NO	YES	35	5/2/18
0.20	0.20	0.15	0.16	NO	NO	NO	YES	50	5/2/18
0.17	0.18	0.12	0.16	NO	NO	NO	YES	60	5/24/18
0.15	0.20	0.20	0.31	YES	YES	YES	YES	50	3/12/19
0.17	0.17	0.24	0.27	YES	YES	YES	YES	50	3/12/19
0.17	0.17	0.24	0.27	YES	YES	YES	YES	55	3/12/19
0.16	0.17	0.26	0.29	YES	YES	NO	NO	35	3/12/19
0.17	0.18	0.25	0.28	YES	YES	YES	YES	45	3/12/19
0.17	0.18	0.25	0.28	YES	YES	YES	YES	50	3/12/19
0.18	0.18	0.24	0.27	YES	YES	YES	YES	40	3/12/19
0.18	0.19	0.24	0.26	YES	YES	YES	YES	25	3/12/19

0.18	0.19	0.21	0.23	YES	YES	YES	YES	70	5/24/13	
0.18	0.18	0.26	0.26	YES	YES	NO	NO	55	5/24/13	
0.15	0.19	0.27	0.53	YES	YES	NO	NO	55	5/24/13	
0.16	0.2	0.24	0.47	YES	YES	YES	YES	70	5/24/13	
0.18	0.18	0.26	0.26	YES	YES	NO	NO	50	5/24/13	
0.16	0.20	0.18	0.27	YES	YES	YES	YES	45	8/9/13	3/9/17
0.18	0.20	0.15	0.23	YES	YES	YES	YES	40	8/9/13	3/9/17
0.16	0.20	0.16	0.27	YES	YES	YES	YES	45	3/9/17	
0.15	0.20	0.16	0.27	YES	YES	YES	YES	25	3/9/17	
0.15	0.19	0.17	0.28	YES	YES	YES	YES	50	3/9/17	
0.16	0.20	0.18	0.26	YES	YES	YES	YES	35	3/9/17	
0.14	0.20	0.27	0.30	YES	YES			45	3/9/17	
0.16	0.20	0.16	0.23	YES	YES	YES	YES	50	3/9/17	
0.16	0.20	0.20	0.42	YES	YES	YES	YES	50	3/9/17	6/11/21
0.18	0.20	0.15	0.23	YES	YES	YES	YES	50	3/9/17	
0.15	0.20	0.24	0.27	NO	YES	YES	YES	50	3/9/17	6/11/21
0.13	0.20	0.13	0.22	YES	YES	YES	YES	45	3/30/21	
0.14	0.20	0.15	0.23	YES	YES	YES	YES	45	3/30/21	
0.17	0.20	0.19	0.21	YES	YES	YES	YES	35	6/11/21	
0.16	0.20	0.18	0.22	YES	YES	YES	YES	50	6/11/21	
0.16	0.19	0.17	0.19	NO	YES	YES	YES	20	6/11/21	
0.17	0.20	0.19	0.23	Yes	Yes	Yes	Yes	15	2/12/13	
0.15	0.20	0.22	0.25	Yes	Yes	Yes	Yes	50	2/12/13	
0.17	0.20	0.19	0.23	Yes	Yes	Yes	Yes	50	2/12/13	
0.18	0.20	0.21	0.25	Yes	Yes	Yes	Yes	30	2/12/13	
0.17	0.19	0.22	0.26	Yes	Yes	Yes	Yes	30	2/12/13	
0.14	0.20	0.24	0.39	Yes	Yes	YES	YES	40	2/12/13	
0.19	0.20	0.20	0.24	Yes	Yes	Yes	Yes	15	2/12/13	
0.16	0.2	0.16	0.25	YES	YES	YES	YES	50	3/20/13	
0.16	0.2	0.16	0.25	YES	YES	YES	YES	50	3/20/13	
0.14	0.2	0.18	0.31	YES	YES	YES	YES	90	3/20/13	
0.15	0.2	0.14	0.25	YES	YES	YES	YES	30	3/20/13	
0.16	0.2	0.14	0.25	YES	YES	YES	YES	30	3/20/13	
0.13	0.2	0.15	0.27	YES	YES	YES	YES	40	3/20/13	
0.18	0.2	0.15	0.23	YES	YES	YES	YES	55	3/31/15	8/20/20
0.18	0.2	0.15	0.23	YES	YES	YES	YES	30	3/31/15	8/20/20
0.17	0.2	0.16	0.24	YES	YES	YES	YES	20	3/31/15	8/20/20
0.16	0.2	0.16	0.24	YES	YES	YES	YES	35	8/20/20	
0.16	0.16	0.18	0.19	NO	YES	YES	YES	35	8/22/18	
0.16	0.16	0.17	0.19	NO	YES	YES	YES	35	8/22/18	
0.14	0.2	0.1	0.28	YES	YES	YES	YES	50	12/23/14	
0.19	0.2	0.11	0.27	YES	YES	YES	YES	55	12/23/14	
0.18	0.2	0.09	0.2	YES	YES	YES	YES	45	12/23/14	
0.18	0.2	0.09	0.21	YES	YES	YES	YES	40	12/23/14	
0.19	0.2	0.09	0.21	YES	YES	YES	YES	50	12/23/14	
0.18	0.02	0.1	0.2	YES	YES	YES	YES	45	12/23/14	
0.18	0.2	0.09	0.21	YES	YES	YES	YES	30	12/23/14	
0.18	0.2	0.09	0.21	YES	YES	YES	YES	25	12/23/14	

0.17	0.2	0.11	0.23	YES	YES	YES	YES	25	12/23/14
0.20	0.20	0.22	0.25	YES	YES	YES	YES	55	9/14/22
0.20	0.20	0.23	0.26	YES	YES	YES	YES	55	9/14/22
0.18	0.19	0.21	0.23	YES	YES	YES	YES	50	9/14/22
0.15	0.20	0.14	0.41	YES	YES	YES	YES	55	12/7/22
0.13	0.20	0.10	0.50	YES	YES	YES	YES	60	12/7/22
0.16	0.20	0.08	0.44	YES	YES	YES	YES	30	1/6/23
0.13	0.20	0.09	0.51	YES	YES	YES	YES	45	1/6/23
0.17	0.20	0.08	0.44	YES	YES	YES	YES	15	1/6/23
0.15	0.20	0.07	0.23	YES	YES	YES	YES	35	1/6/23
0.15	0.20	0.07	0.23	YES	YES	YES	YES	50	1/6/23
0.18	0.2	0.19	0.43	YES	YES	YES	YES	25	1/11/23
0.18	0.20	0.19	0.43	YES	YES	YES	YES	40	1/11/23
0.17	0.20	0.17	0.39	YES	YES	YES	YES	60	1/11/23
0.17	0.2	0.17	0.39	YES	YES	YES	YES	40	1/11/23
0.16	0.2	0.2	0.45	YES	YES	YES	YES	40	1/11/23
0.16	0.2	0.2	0.45	YES	YES	YES	YES	50	1/11/23