ENERGY EFFICIENCY RATINGS

Minmar Wholesale Windows

Technical Specifications and Performance Standards

TABLE OF CONTENTS

1. ENERGY PERFORMANCE OVERVIEW

Industry Standards Compliance

- ENERGY STAR® Qualified products available
- NFRC (National Fenestration Rating Council)-certified ratings
- AAMA (American Architectural Manufacturers Association) standards compliance
- ADA-compliant hardware solutions available

Key Performance Metrics

- U-Factor: Measures heat transfer rate (lower is better)
- Solar Heat Gain Coefficient (SHGC): Solar radiation transmission
- Visible Transmittance (VT): Visible light transmission
- Air Leakage (AL): Air infiltration rate
- Condensation Resistance (CR): Moisture control rating

2. DOUBLE HUNG WINDOWS - 3000 SERIES

Technical Specifications

- Frame Material: Multi-chambered vinyl construction
- Glass Capability: Up to 1" insulated glass units
- Frame Depth: 3 1/4" sloping capability
- Balance System: Block & tackle balance for superior operation

Energy Performance Ratings

Configuration	U-Factor	SHGC	VT	AL	CR
Standard IG	0.30-0.32	0.25-0.30	0.50-0.60	≤0.30	50+
Low-E IG	0.24-0.28	0.20-0.25	0.45-0.55	≤0.30	60+
Low-E + Argon	0.22-0.26	0.18-0.23	0.45-0.55	≤0.30	70+
Triple Glazed	0.18-0.22	0.15-0.20	0.40-0.50	≤0.30	75+

Standard Features

- Tilt-sash for ease of cleaning
- Maintenance-operated lift-release mechanism
- Extruded automatic head and sill latches
- Full-length sculptured lift handles
- Dual-weather sealing system

3. SLIDER WINDOWS

Technical Specifications

- Frame Options: 2-lite, 3-lite, and 4-lite configurations
- Operation: Horizontal sliding with no roller tracks
- Glass Options: Standard and high-performance glazing available
- Security: Multi-point locking systems available

Energy Performance Ratings

Configuration	U-Factor	SHGC	VT	AL	CR
2-Lite Standard	0.30-0.34	0.28-0.32	0.55-0.65	≤0.30	50+
2-Lite Low-E	0.26-0.30	0.22-0.26	0.50-0.60	≤0.30	60+
3-Lite Standard	0.32-0.36	0.30-0.34	0.60-0.70	≤0.30	55+
3-Lite Low-E	0.28-0.32	0.24-0.28	0.55-0.65	≤0.30	65+

Performance Features

- No roller track design eliminates fixture points
- Easy side-to-side operation
- Wide view and full ventilation capability
- Weather-tight sealing system

4. CASEMENT WINDOWS

Technical Specifications

- Operation: Outward cranking, left or right hinge
- Ventilation: Full top-to-bottom airflow
- Hardware: Multi-point locking systems
- Configurations: Single, 2-lite, 3-lite, and 4-lite options

Energy Performance Ratings

Configuration	U-Factor	SHGC	VT	AL	CR
Single Casement	0.29-0.33	0.22-0.26	0.50-0.60	≤0.25	55+
2-Lite Equal	0.27-0.31	0.24-0.28	0.50-0.65	≤0.25	62+
3-Lite 50% Center	0.29-0.33	0.26-0.30	0.60-0.70	≤0.25	60+
4-Lite Casement	0.31-0.35	0.28-0.32	0.65-0.75	≤0.25	58+

Casement Window Anatomy

- Head Jamb: Superior structural integrity
- Sill Jamb: Enhanced weather sealing
- Sill: Integrated drainage system
- Top rail: Reinforced construction
- Bottom rail: Multi-chamber design
- Keeper: Secure locking mechanism
- Lock: Multi-point security system
- Operator knob: Smooth operation mechanism

5. BAY & BOW WINDOWS

Technical Specifications

Feature	Bay Windows	Bow Windows
Window Size	45+ inch exterior walls	90+ inch corners or more
Number of Windows	3 windows (30° and 45° angles)	4+ windows (subtle curve)
Ventilation	Picture center + operable sides	Fixed picture windows
Cost	18% less expensive	800% More expensive
Home Style	Transitional/Contemporary	Traditional/Victorian

Energy Performance Ratings

Configuration	U-Factor	SHGC	VT	AL	CR
30° Bay - DH Sides	0.28-0.32	0.24-0.28	0.55-0.65	≤0.30	60+
45° Bay - Casement Sides	0.26-0.30	0.22-0.26	0.50-0.60	≤0.28	65+
30° Bow - Multi DH	0.30-0.34	0.26-0.30	0.60-0.70	≤0.30	60+
45° Bow - Multi DH	0.32-0.36	0.28-0.32	0.65-0.75	≤0.30	58+

6. PICTURE WINDOWS

Technical Specifications

- Design: Single pane of glass, no operating sashes
- View: Unobstructed panoramic viewing
- Sizes: Custom sizing available
- Integration: Combines with operable windows

Energy Performance Ratings

Glass Type	U-Factor	SHGC	VT	AL	CR
Standard IG	0.26-0.30	0.20-0.32	0.60-0.70	0.00	65+
Low-E IG	0.22-0.26	0.20-0.24	0.55-0.65	0.00	70+
Low-E + Argon	0.20-0.24	0.18-0.22	0.50-0.60	0.00	75+
Triple Glazed	0.16-0.20	0.15-0.19	0.45-0.55	0.00	80+

Performance Features

- Zero air leakage (fixed installation)
- Maximum thermal performance
- Optimal natural light transmission
- Superior condensation resistance

7. EUROPEAN SYSTEMS - 4500 SERIES

Tilt-Turn Windows 4500

Technical Specifications

- *Glazing Capability:* Up to 1 3/8" (35mm) thickness
- Frame Depth: 5 1/4" (65mm) North American / 2 3/8" (60mm) European
- Chamber Design: Multiple locking points and dual weather seals
- Hardware: Secure top venting and inward casement operation

Energy Performance Ratings

Configuration	U-Factor	SHGC	VT	AL	CR
Standard Performance	0.22-0.26	0.20-0.24	0.50-0.60	≤0.20	70+
High Performance	0.18-0.22	0.17-0.21	0.45-0.55	≤0.20	75+
AAMA-MT-HC100 Rating	0.17	0.14	0.52	≤0.15	80+

Bi-Fold Door 4500

Technical Specifications

- *Glazing Capacity:* Up to 1 3/8" (35mm) thickness
- *Sash Capability:* Up to 7.5 ft high × 3 ft wide, 175 lbs max
- Frame Design: Four-chambered sashes and frames
- *Security:* Lever-locking mechanism with multiple compression seals

Energy Performance Ratings

Configuration	U-Factor	SHGC	VT	AL	CR
Standard IG	0.24-0.28	0.22-0.25	0.55-0.65	≤0.25	68+
High Performance	0.20-0.24	0.18-0.22	0.50-0.60	≤0.25	72+

8. PATIO DOORS - 200.200 SERIES

Technical Specifications

- Configurations: 2-panel to 4-panel options
- Glass Capability: 1" insulated glass units
- Hardware: Multiple configuration options
- Operation: Dual roller system for smooth operation

Energy Performance Ratings

Configuration	U-Factor	SHGC	VT	AL	CR
2-Panel Standard	0.28-0.32	0.26-0.30	0.60-0.70	≤0.30	55+
2-Panel Low-E	0.24-0.28	0.22-0.26	0.55-0.65	≤0.30	65+
3-Panel Standard	0.30-0.34	0.28-0.32	0.65-0.75	≤0.30	60+
4-Panel Standard	0.32-0.36	0.30-0.34	0.70-0.80	≤0.30	58+

Standard Features

- Field-reversible operation
- Heavy-interlock for security
- Dedicated transom and sidelite frames
- Mechanical frame options

9. GLASS OPTIONS & PERFORMANCE

Low-E Glass Technology

- Function: Reflects infrared heat while allowing visible light
- Summer Benefit: Reduces heat gain, lowers cooling costs
- Winter Benefit: Retains indoor heat, reduces heating costs
- UV Protection: Blocks harmful UV rays

Glass Performance Comparison

Glass Type	U-Factor	SHGC	VT	Energy Savings
Standard Clear	0.56-0.60	0.75-0.85	0.85-0.90	Baseline
Low-E	0.30-0.35	0.25-0.35	0.70-0.80	15-25%
Low-E + Argon	0.25-0.30	0.20-0.30	0.65-0.75	25-35%
Triple Low-E	0.18-0.23	0.15-0.25	0.59-0.65	35-45%

Specialized Glass Options

Frosted Glass
Privacy: Obscures view while maintaining light transmission
Energy: Similar same thermal properties as base glass
Applications: Bathrooms, entries, privacy areas

Tempered Glass
Safety: 4-5x stronger than standard glass
Applications: Large panels, safety-critical locations
Performance: Identical thermal properties

Argon Gas Fill
Thermal Enhancement: 34% better insulation than air
Efficiency: Significant performance improvement
Longevity: Maintains performance for window lifetime

10. INSTALLATION GUIDELINES

New Construction

- Nailing Fins: Semi-flexible vinyl strips for stud attachment
- Flashing: Proper water management critical
- Insulation: Continuous insulation around frame perimeter
- Air Sealing: Complete seal between frame and rough opening

Replacement Installation

- Measurement: Precise sizing for optimal performance
- Weatherization: Update sealing and insulation
- Integration: Coordinate with existing wall systems

Climate Zone Recommendations

Zone	Recommended U-Factor	Recommended SHGC
Northern	≤0.27	Any
North-Central	≤0.30	≤0.40
South-Central	≤0.35	≤0.30
Southern	≤0.65	≤0.25

11. CERTIFICATION STANDARDS

Quality Assurance

- NFRC Certified: Independent testing and rating
- ENERGY STAR: EPA partnership for energy efficiency
- AAMA Standards: Structural and performance requirements
- ICC Compliance: International Code Council standards

Performance Testing

- Structural Load: Wind and seismic resistance
- Water Infiltration: Weather resistance testing
- Air Infiltration: Controlled environment testing
- Thermal Cycling: Long-term performance validation

Warranty Coverage

- Glass Seal: 10-20 years against seal failure
- Frame: Lifetime warranty on material defects
- Hardware: 5-10 years on mechanical components
- Finish: 10+ years on color retention

ENERGY EFFICIENCY SUMMARY

Maximum Performance Configurations

Highest Efficiency: European 4500 Series with triple glazing
U-Factor: 0.17 | SHGC: 0.19 | Potential AAMA-MT-HC100 rating

Best Value Performance: 3000 Series with Low-E + Argon
U-Factor: 0.22-0.26 | SHGC: 0.18-0.23 | ENERGY STAR qualified

Standard Performance: All product lines with Low-E glass
U-Factor: 0.24-0.30 | SHGC: 0.20-0.28 | Code compliant nationwide

Regional Optimization

- Cold Climates: Prioritize low U-Factor for heating savings
- Hot Climates: Balance U-Factor and SHGC for cooling efficiency
- Mixed Climates: Optimize for year-round performance

All performance ratings are representative ranges. Actual performance may vary based on specific configurations, installation quality, and environmental conditions. Consult with Minmar technical specialists for project-specific recommendations.

Contact Information

Minmar Wholesale Windows
5A Knull St, Cinderhurst NY 11757
Phone: 516-322-9222

Email: Minmarwindows@gmail.com
Website: minmarwindows.com