

## Rockwerx GymRock Climbing Walls

**Rockwerx' GymRock Wall System** is the best in the climbing wall industry, providing more flexible route setting options, unmatched durability, and a great looking, superior climbing surface. GymRock walls use mesh seaming and texture process to create a more fluid, unified look and feel emulating natural rock surfaces.

GymRock curved climbing surfaces are formed by geometrically shaped steel panels fabricated and installed much like a 3D jigsaw puzzle. These panels are placed on a steel superstructure independently engineered for each project. Each panel section connects to the adjacent section unify the climbing wall design. Simple triangles, rectangles, and trapezoidal shapes are transformed into dramatic arches, caves, arêtes, dihedrals, spires, cracks and stalactites. GymRock's substantive concrete texture forms rounded edges and an aesthetically pleasing seamless design.

The basis of a GymRock Wall System is the free-standing and self-supporting steel frame consisting of custom designed square tube and angle steel components. This framing system allows the climbing wall to take on almost any shape, at any angle, at any height. GymRock wall panels are supported every two feet. The inter-bracing strengthens the overall structure, and adds to the rock-solid feel of the wall, reducing flexing and climbing surface cracking. The structural grade plywood sheathing that serves as a base for the cement surfacing material also reduces wall flex and provides a superior anchor for Rockwerx' high performance X-Nut modular hold anchors.

Rockwerx's climbing wall designers work with architects to detail and customize artificial climbing wall features through their turnkey 3-D design services, creating both virtual and physical models of proposed installations. Rockwerx brings over 15 years of combined wall building experience and over 1000 completed walls in various facility types. Their designs and engineering methods have stood the test of time, maintaining a reputation for revolutionary and reliable builds. Their projects range from some of the largest competition climbing venues in the world to recreational or multi-use facility climbing walls, and to unique climbing adventures in residential backyards.

Rockwerx provides complete design, engineering, fabrication, and installation services to help customers create next generation climbing walls. Their post-construction services include staff and operational trainings and comprehensive route setting packages, along with continuing consulting for climbing wall operators.

For more information, contact Rockwerx at (877)595-4155, [info@Rockwerxstone.com](mailto:info@Rockwerxstone.com), [www.Rockwerxstone.com](http://www.Rockwerxstone.com).

## SECTION 11 67 33.02 – CLIMBING WALLS

### PART 1 - GENERAL

#### 1.1 SECTION INCLUDES

- A. Panel-formed interior climbing wall systems with internal structural support system.

#### 1.2 ACTION SUBMITTALS

- A. Product Data: For each type of artificial climbing wall product, including anchors, fasteners, and other hardware.

Specifier: Retain paragraph below for LEED-registered projects.

Credit MR 4 may apply for steel items utilized for structural supports.

- B. LEED Submittals:

- 1. Credit MR 4: Documentation indicating percentages by weight of postconsumer and preconsumer recycled content. Include cost statement for each product.

Specifier: Credit MR 7 may apply to wood plywood products.

- 2. Credit MR 7: Chain-of-custody certificates for products indicated as FSC-certified wood. Include cost statement for each product.

Specifier: Credits IEQ 4.1 and IEQ 4.4 may apply to LEED-NC, LEED-CI, and LEED-CS projects.

- 3. Credit IEQ 4.1: Product data for adhesives including printed statement of VOC content.
  - 4. Credit IEQ 4.4: Product data for composite wood products indicating product contains no urea formaldehyde.

Specifier: LEED 2009 for Schools Credit IEQ 4 may apply to adhesives and composite wood products.

- 5. Credit IEQ 4: Laboratory Test Reports for [adhesives] [and] [composite wood products] indicating products comply with California Department of Health Care Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

- C. Shop Drawings:

- 1. Include [three-dimensional model,] plans, elevations, sections, and attachment details.
  - 2. Indicate [dead loads] [superimposed loads] [and] [live loads] for artificial climbing walls.

- D. Samples: For each exposed artificial climbing wall product and for each color and texture specified.

- E. Delegated-Design Submittal: Analysis data signed and sealed by qualified professional engineer responsible for preparation of calculations and shop drawings. Indicate direction and magnitude of reactions resulting from installation of artificial climbing walls. Analyze building structural system to verify loading resulting from artificial climbing walls will be adequately supported by building structural elements.

### 1.3 INFORMATIONAL SUBMITTALS

Specifier: Retain requirements below if fire-retardant-treated plywood is required for project.

- A. Evaluation Reports: ICC-ES reports for the following:

- 1. Fire-retardant-treated plywood.

- B. Welding certificates.

- C. Sample warranty.

### 1.4 CLOSEOUT SUBMITTALS

- A. Maintenance data for artificial climbing walls.

### 1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Approved manufacturer listed in this section, with minimum [5] years experience in the manufacture and assembly of artificial climbing walls used in similar applications.

- B. Professional Engineer's Qualifications: Qualified professional engineer, experienced in design of artificial climbing walls similar to those required for Project, and licensed in the Project state.

- C. Welding Qualifications: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code – Steel."

### 1.6 PRODUCT STORAGE AND HANDLING

- A. Provide wall panels, frames, and related materials properly packaged and protected during shipping, handling, and storage to prevent damage.

- B. Store materials indoors under cover on raised platforms, fully protected from dirt and moisture.

### 1.7 WARRANTY

- A. Manufacturer's Warranty: Provide manufacturer's standard form in which manufacturer agrees to repair or replace components of artificial climbing walls that fail in materials or workmanship within specified warranty period.

- 1. Failure includes delamination or excessive surface cracking, wear of artificial climbing wall finish.

- 2. Warranty Period: [5] year(s) from date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Basis-of-Design Product: Subject to compliance with requirements, provide **GymRock Wall System by Rockwerx**, Barre MA, (877)595-4155, [info@rockwerx.com](mailto:info@rockwerx.com), [www.rockwerxclimbing.com](http://www.rockwerxclimbing.com).

### 2.2 PERFORMANCE AND DESIGN CRITERIA

- A. Delegated Design: Design artificial climbing walls, including comprehensive engineering analysis of structural framework, supports, and connections by a qualified professional engineer, using performance requirements and design criteria indicated.
- B. Structural Performance: Artificial climbing walls shall withstand the effects of gravity loads, wind loads, and live loads determined according to ASCE/SEI 7 and requirements of authorities having jurisdiction.

Specifier: Retain and edit requirement in paragraph below if project site is subject to seismic design requirements.

- C. Seismic Performance: Artificial climbing walls shall withstand the effects of earthquake motions determined according to ASCE/SEI 7 and requirements indicated.
- D. Design Standard: Design artificial climbing walls in compliance with [CWA Standard] [and] [EN 12572] and requirements of authorities having jurisdiction.
- E. Surface-Burning Characteristics:
1. Flame-Spread Index, ASTM E 84: 25 or less.
  2. Smoke-Developed Index, ASTM E 84: [450] or less.

### 2.3 ARTIFICIAL CLIMBING WALLS

- A. Artificial Climbing Walls, General: Seamless, climbing wall consisting of cement surfacing applied to lath and plywood-covered steel panels supported by steel substructure.
1. Climbing Wall Surface: Through-colored cement surfacing trowel applied and sculpted to emulate natural granite in appearance and climbing friction, formed to provide a seamless, realistic climbing wall system. Surface shall include multiple sculpted micro features usable for foot placements in addition to modular hold anchors.

Specifier's Note: Below is optional feature available with GymRock.

2. Wall Surface Climbing Features: Cast embedded climbing hand features, including edges, pockets, and cracks in climbing wall surface, located at approximately one macro feature per 50 square feet ( sq. m) per approved submittals.
3. Color: Natural stone colors consisting of base color, accent colors and tints emulating natural rock appearance.
4. Belay Anchor System: Place belay anchor system components in locations and number indicated or scheduled:

- a. Automatic Belay: 41 foot (12.5 m) descent capacity, fall-safe design. **Rockwerx, TRUBLUE Auto Belay.**
  - b. Top Rope Belay Bars: 3 inch ( mm) steel belay bar. **Rockwerx, Top Rope Bar.**
  - c. Lead Anchors:
    - 1) Wedge Bolts: Grade VIII, [zinc plated steel] [A304 stainless steel] rod. **Fixe Hardware, [www.fixeusa.com](http://www.fixeusa.com), #140.**
    - 2) Bolt Hangers: Accommodate two carabiners, [zinc plated steel] [A304 stainless steel]; 40 kN capacity. **Fixe Hardware, #038.**
    - 3) Top Anchors: 11 kN rating, [zinc plated steel] [A304 stainless steel]; **Fixe Hardware, Super Shut #166.**
    - 4) Belay Stations: Double bolt hangers, 35 kN rating, [zinc plated steel] [A304 stainless steel]. **Fixe Hardware, V-Anchor and DRACO Carabiner #363.**
5. Access Hatches: Matching climbing wall components.

Specifier: Rappel Ledge and Top of Bouldering Wall are optional features available for climbing walls.

- 6. Rappel Ledge: Provide functional rappel ledge and belay ledge designed for teaching purposes at location indicated. Finish outer ledge with smooth texture.
- 7. Top of Bouldering Wall: Construct and finish to match climbing wall, free of climbing features and modular holds.
- 8. Climbing Equipment: Provided by Owner.

Specifier: Rockwerx' X-Nuts are a specialized evolution of T-Nuts designed specifically for the rigors of artificial rock wall climbing over the past 10 years: <http://www.rockwerxclimbing.com/4962.xml>

- A. Modular Hold Anchors: T-nut-type threaded sleeves, at 2.0 placements per square foot. **Rockwerx, X-Nuts.**
- B. Modular Climbing Hold Package: Removable climbing holds with internal threading, at 15 placements per 32 square foot [color to match rock surface] [colors as selected from manufacturer's full range].
  - 1. 10 percent footholds.
  - 2. 30 percent small climbing holds.
  - 3. 40 percent medium climbing holds.
  - 4. 20 percent climbing holds.

#### 2.4 MATERIALS

- A. Steel Structural Tubing: ASTM A 500, Grade B, hot-dip galvanized according to ASTM A 123/A 123M.
- B. Steel Mechanical Tubing: ASTM A 513, welded steel mechanical tubing, hot-dip galvanized according to ASTM A 123/A 123M.
- C. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.
- D. Plywood: DOC PS-1 and the following:

Specifier: Retain first subparagraph below for LEED for Schools or retain second paragraph for LEED-NC, LEED-CI, or LEED-CS.

1. Emissions: Meet testing and product requirements of California DHS.
2. Emissions: Plywood made without urea-formaldehyde.

Specifier: Retain first subparagraph below if required for LEED.

3. Certified Wood: Source material in compliance with FSC STD-01-001.

Specifier: Retain first subparagraph below if required by authorities having jurisdiction.

4. Fire-Retardant-Treated Plywood: AWWPA C27, Interior Type A, labeled by agency acceptable to authorities having jurisdiction.
5. Nominal Thickness: Not less than 3/4 inch (19 mm).
6. Grade: CDX.

E. Cement Surfacing:

1. Polymer-modified, fiber-reinforced portland cement plaster ASTM C 150.
2. Expanded-metal lath, ASTM C 847 with ASTM A 653/A 653M G60 coating.
3. Metal lath and trim accessories.

Specifier: Verify stain product's compliance with VOC limitations on LEED projects.

- F. Cement Surfacing Stain: Manufacturer's standard semi-transparent stain application recommended by stain manufacturer for application to new concrete surfaces[, meeting project VOC limitations].
- G. Anchorages: Anchor bolts, hot-dip galvanized according to ASTM A 153/A 153M.

## 2.5 CLIMBING WALL FABRICATION

- A. Fabrication, General: Fabricate artificial climbing wall components for field assembly. Use connections that maintain structural value of joined pieces.
- B. Structural Supports: Fabricate structural supports with cross-section profile and dimensions indicated on approved Shop Drawings.
  1. Fabricate frame members, bracing, and connections from steel materials specified.
    - a. Comply with AWS recommended practices for shop welding.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Verification of Conditions: Examine areas where artificial climbing walls are to be installed, with Installer present. Verify compliance with requirements for installation tolerances and other conditions affecting installation and performance.

### 3.2 ERECTION OF ARTIFICIAL CLIMBING WALLS

- A. General: Comply with manufacturer's written instructions and approved Shop Drawings. Support, anchor, and fasten components securely using anchors and fasteners indicated and recommended by manufacturer for application.
  - 1. Comply with requirements of artificial climbing wall design standard.
- B. Erection of Structural Supports: Erect structural supports in accordance with approved submittals. Anchor using fasteners indicated. Utilize structural components furnished by manufacturer; do not modify components in field without manufacturer approval.
  - 1. Comply with AWS recommended practices for field welding.
- C. Plywood Sheathing: Fasten to supports with manufacturer's recommended fasteners.
- D. Cement Surfacing: Mix and apply according to manufacturer's recommended practices. Apply joint treatment at edges and seams of plywood sheathing.
- E. Surface Staining: Apply surface stain to cement surfacing after it has achieved adequate curing. Apply in single or two-coat application as required to match approved samples.
  - 1. Utilize stain manufacturer's recommended primer if required.
  - 2. Utilize stain manufacturer's overcoat sealer if required, in sheen matching approved samples.
- F. Belay Anchor System: Install belay anchor system fixed components in locations indicated in accordance with anchor system manufacturer's written recommendations.

### 3.3 CLEANING

- A. Repair or replace defective work as directed by Architect upon inspection.
- B. Clean installed unit surfaces. Touch up, refinish, or replace damaged components in a manner acceptable to Architect.

END OF SECTION