

# NICROS NICROLITE™ CLIMBING WALL SYSTEM SPECIFICATIONS

## Part 1. GENERAL

1.01 GENERAL SCOPE: Provide an artificial climbing wall with a plywood substrate that has a geometric appearance and rocklike texture

### 1.02 DEFINITIONS

- A. ANCHOR POINT: An object used to secure a climber's rope (to belay) during ascent or to lower them during descent.
- B. AUTOMATIC BELAY: A controlled descent device designed specifically for the climbing wall and climbing gym industry. The Auto Belay provides a hands-free belay for the climber, thereby eliminating the need for an additional climber or attendant to serve as belayer. As the climber ascends, the slack rope is pulled taught. Once at the top, or whenever the climber lets go of the wall, the device gently lowers them to the ground.
- C. BOULDERING: A form of climbing performed without the use of ropes, by utilizing secure hand and foot holds.
- D. CLIMBING WALL: Fixed athletic equipment intended for sport climbing, to provide lead climbing, top rope climbing, or bouldering climbing activity.
- E. FLOOR ANCHOR: Floor attachments placed at the base of a climbing wall, used to secure that belayer while either belaying or lowering a climber. The attachments can either be fixed or moveable.
- F. LEAD CLIMBING: A style of climbing where the climber is safeguarded by a rope that is passed through an anchor point as the climber progresses up the climbing wall. The climber must clip the rope into each anchor point as they progress up the climbing wall so that they are safeguarded from ground falls while ascending to the final anchor point at the top. Typically, lead anchor points are placed at spacing of 4 to 5 feet to prevent a long fall.
- G. ROUTE: A climbable surface approximately five feet wide that extends vertically from the base of the wall. The number of potential routes of a climbing wall. The number of potential routes on a climbing wall is normally determined by the total width of the climbing wall at a height of five feet from the floor.

### 1.03 REFERENCED STANDARDS

- A. CLIMBING WALL ASSOCIATION (CWA) of Boulder, CO, P: 720.938.8284, [www.climbingwallindustry.com](http://www.climbingwallindustry.com)
  - 1. CWA's General Specifications for Design and Engineering of Artificial Climbing Structures
  - 2. CWA's Specifications for the Structural Inspection of Artificial Climbing Structures
- B. INTERNATIONAL CLIMBING AND MOUNTAINEERING FEDERATION (UIAA), [www.theuiaa.org](http://www.theuiaa.org)

### 1.04 QUALITY ASSURANCE

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- A. SUB-CONTRACT the Work of this Section to a single entity, who will be responsible for design/engineering as well as the installation of the climbing wall assembly.
- B. MANUFACTURER'S QUALIFICATIONS: A firm with a minimum of ten (10) years of experience in the manufacturer and installation of climbing walls used in similar applications, with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- C. PROFESSIONAL ENGINEER (PE) QUALIFICATIONS: Legally qualified to practice in jurisdiction where Project is located, experienced in design of climbing walls similar to that required for this Project, with minimum Professional Liability Insurance as required in the Supplementary Conditions.
- D. WELDING must conform to AISC and American Welding Society (AWS) Standards Code for Arc and Gas Welding in Building Construction. All welding must be performed by AWS certified welders.

### **1.05 SUBMITTALS**

- A. DELEGATED-DESIGN SUBMITTAL: Provide PE signed and sealed analysis data indicating direction and magnitude of reactions resulting from installation of the climbing wall. Analyze building structural system to verify that loads resulting from the climbing wall will be adequately supported by the building structural elements.
- B. SUBMIT PRODUCT DATA including climbing wall manufacturer's specifications, standard details and installation drawings.
  - 1. Submit sample of climbing wall material, typical 6 inches by 6 inches, showing color and finish.
  - 2. Submit examples of modular climbing handhold in both Urethane and Polyester Resin
- C. SUBMIT PE SEALED SHOP DRAWINGS indicating layout of climbing wall, dimensions of materials and parts, fastening and anchoring methods, and detail and location of joints
- D. SUBMIT MAINTENANCE DATA to be included in Operations and Maintenance Manuals.

1.06 COORDINATION: Climbing wall manufacturer will coordinate installation with the General Contractor and Owner, to ensure climbing wall achieves the specific requirements.

1.07 PRODUCT STORAGE AND HANDLING: Provide wall panels, frames, and related materials properly packaged and protected during shipping, handling, and storage to prevent damage. Store materials indoors under cover on raised platforms, fully protected from dirt and moisture.

1.08 MANUFACTURER'S SPECIAL WARRANTY shall warrant to the original purchaser that its products are free from defects in materials and workmanship.

- A. WARRANTY PERIOD: One (1) year from date of Substantial Completion

## **Part 2. PRODUCTS**

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## 2.01 PERFORMANCE REQUIREMENTS:

- A. STRUCTURAL DESIGN: Design climbing walls including supports and connections to withstand effects of gravity and live loads imposed per requirements of the local building code, and in accordance with the referenced CWA design standard.

## 2.02 MATERIALS

- A. STEEL MATERIALS: Comply with Division-05 “Metal Fabrications” requirements and as follows:

- 1. Steel: ASTM A-36 Shapes,

- B. PLYWOOD: Baltic Birch-veneer plywood in accordance with Division-06 “Rough Carpentry” Section, and as follows:

- 1. Nominal thickness: Not Less than 18mm

- 2. Grade: BB/BB

- C. POLYMER COATING: Polymer coating selected from Nicros Color Palette or custom colors.

- D. ANCHORAGES / ANCHOR BOLTS: Hot dip galvanized according to ASTM A 153

## 2.03 CLIMBING WALL: Modular system of simulated rock textured panels manufactured off-site for field-attachment to metal support framing. Panels must be capable of achieving various orientations and configurations including overhangs, vertical faces, below vertical slabs, arêtes, and dihedrals.

- A. Panel Size: 59.5” x 59.5 panels maximum

- B. Provide modular support elements capable of transferring loads back to the primary vertical structural members.

- C. Fabricate panels with proprietary thin polymer coating bonded to plywood substrate.

- D. BASIS-OF-DESIGN: “Nicrolite” by Nicros, Inc. 651-778-1975 [www.nicros.com](http://www.nicros.com)

## 2.04 TOP ANCHORS: Each top anchor shall be a discrete double point system, consisting of two (2) UIAA approved super shuts attached to two horizontally adjacent mounting brackets. Minimum horizontal distance between super shuts shall be 6 inches.

## 2.05 TOP ROPE BELAY BARS: 8”, 24”, or 48” length Belay bar, configured to prevent rope jump, with wall mounting plate and hardware.

## 2.06 AUTOMATIC BELAY ANCHOR SYSTEM: Three (3) Auto-Belay Systems can be provided by Nicros.

- A. Perfect Descent 828-266-0403 [www.perfectdescent.com](http://www.perfectdescent.com)

- 1. Friction-braking auto-belay system

- B. TruBlue 720-565-6885 [www.headrushtech.com](http://www.headrushtech.com)

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- C. Spectrum 888-563-0163 [www.spectrumsports.com](http://www.spectrumsports.com)
  - 1. Air/pneumatic device that uses hydraulic pressure for both uptake and descent.
- 2.07 BOLT HANGERS: UIAA Approved bolt hanger, 4mm thick, with 9/16" mounting hole, and large enough to accommodate two carabiners.
- 2.08 LEAD ANCHORS: UIAA approved bolt hangers shall be attached to primary steel support structure and mounting bracket in accordance with engineering specifications.
  - A. LOCATION: First anchor placed at location of 10-12' above the impact attenuation floor. Subsequent bolts will be spaced 3'-5' apart up to the top anchor.
  - B. HARDWARE:
    - 1. UIAA Approved Quickdraw
    - 2. Red Etched Washer labeled "Anchor"
    - 3. UIAA Approved 3/8" Bolt hanger
    - 4. 3/8" Grade 8 Bolt
- 2.09 BELAY/RAPPEL ANCHORS: Two (2) sets of Two (2) each UIAA approved Bolt Hangers attached to two horizontally adjacent mounting brackets. For use in multipitch belaying and/or rappelling.
- 2.10 ACCESS HATCHES: Construct access hatches from material matching climbing wall components, capable of supporting weight of functional climbing including attachment of modular holds. Provide complete access to each climbing wall, located to coordinate with design of support structure.
  - A. Basis-of-Design: 3' x 3' Baltic Birch Access Hatch
- 2.11 TOP OF BOULDERING WALL: Reinforced top rail, to ensure secure finish to climbing routes.
- 2.12 LANDING SURFACE: Impact Fall Attenuation Flooring Systems, by Nicos, Inc.
- 2.13 MODULAR HOLD ANCHORS: T-nut type threaded sleeves, 3/8 by 1-inch No. 16 zinc plated steel, at approximately (2) units per square foot for rope walls, and approximately (4) units per square foot for bouldering walls.
  - A. BASIS OF DESIGN: Industrial Gym T-nut by Escape Climbing, LLC.
- 2.14 MODULAR CLIMBING HOLDS: Removable climbing holds from polyurethane or polyester to minimize breakage, with bolt of appropriate length for each hold. Presented as Nicos' Recommended Package. Priced separately from Wall quotation.
  - A. MANUFACTURER: Nicos, Inc.
  - B. QUANTITY: Eight (8) Handholds per 25 square foot and as follows:
    - 1. 10 Percent footholds
    - 2. 30 Percent small climbing holds

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3. 40 Percent medium climbing holds
  4. 20 Percent large climbing holds
  - C. COLORS: as selected from manufacturer's full range of available colors.
- 2.15 CLIMBING EQUIPMENT: Equipment and tools useful for climbing wall operations. Presented as Nicos' Recommended Package. Priced separately from Wall quotation.
- A. CLIMBING ROPES: Dynamic ropes, 1 per climbing lane in sufficient length for wall height.
  - B. CLIMBING HARNESSSES: As indicated, or if not indicated, 2 harnesses per top anchor.
  - C. BELAY DEVICES: Tube style
  - D. LOCKING CARABINERS: Aluminum, large D ring, 25KN Major Axis, 7 KN minor axis, manual locking.
  - E. QUICKDRAWS: (Where lead routes are specified)
    1. Quicklink: 3/8" Quicklink
    2. Carabiners: Stainless Steel, wire or bent gate, 23KN Major Axis.
    3. Sling: 4" sling
- 2.16 FABRICATION: Fabricate climbing wall components for field assembly. Use connections that maintain structural value of joined pieces. Fabricate structural supports with cross-section profile and dimensions as indicated on approved Shop Drawings. Fabricate frame members, bracing, and connections from steel materials specified. Comply with AWS recommended practices for shop welding.

### Part 3. INSTALLATION

- 3.01 EXAMINATION: Examine areas where climbing walls are to be installed, with Installer present. Verify compliance with requirements for installation tolerances and other conditions affecting installation and performance. Verify that conditions meet requirements for tolerances and other requirements of system manufacturer.
- A. Correct unsatisfactory conditions prior to proceeding with installation
- 3.02 ERECTION OF CLIMBING WALL
- A. Comply with manufacturer's written instructions, approved Shop Drawings, and AWS design standard, as applicable.
  - B. Support, anchor, and fasten components to securely using anchors and fasteners indicated and recommended by manufacturer for application.
- 3.03 ERECT STRUCTURAL SUPPORTS in accordance with approved submittals. Anchor using fasteners indicated. Utilize structural components furnished by manufacturer – do not modify components in

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field without manufacturer's approval. Comply with AWS recommended practices for field welding, when required.

- A. Fasten climbing surface to supports with manufacturer's recommended fasteners.
- 3.04 INSTALLATION OF BELAY ANCHOR SYSTEM: install belay anchor system fixed components in locations indicated in accordance with anchor system manufacturer's written recommendations.
- 3.05 CLEANING: Clean installed unit surfaces. Touch up, refinish or replace damaged components in a manner acceptable to the Architect.
- 3.06 REPAIR OR REPLACE DEFECTIVE WORK as directed by Architect