



SECTION 131200 - CLIMBING WALLS (Bouldering wall)

PART 1 - GENERAL

1.1 SUMMARY

A. This section includes the following:

1. Seamless, Textured Substrate Climbing Wall System

B. Related Sections

1. Division 04 Unit Masonry

2. Division 05 Structural Steel Framing for steel framework requirements

1.2 REFERENCES

A. CWA - Climbing Walls Association

B. (IBC) International Building Code - 2003 edition

C. Manual of Steel Construction, Allowable Stress Design, 9th Edition AISC

1.3 SYSTEM DESCRIPTION

A. "Seamless Textured Substrate" artificial climbing wall system is defined as a custom climbing wall erected on the job site in which a hand-sculpted cementitious surface is applied over a substrate, which in turn is anchored to a steel support structure. The surface is sculpted with micro-relief to provide aesthetic and functional climbing terrain.

B. The steel support structure may rely on a component of the facility as its primary structure, or it may be self-supporting, as indicated. The climbing wall shall be designed and installed to CWA standards. Climbing wall shall include all supporting structure necessary to create the wall profiles, climbing surface, belay and handhold fastening systems, and specific equipment as defined below.

1.4 QUALITY ASSURANCE

A. Provide climbing wall systems by a single manufacturer.

B. Substitutions of climbing wall systems and equipment shall conform to Division 01 requirements for substitutions.

C. Manufacturer shall have a minimum of 10 years of experience with the manufacturing and installation of the climbing wall system specified herein. Installers shall have five years of experience installing the specified product.

D. Welding: All welding shall conform to the AISC and the American Welding Society (AWS) Standard Code for Arc and Gas Welding in Building Construction. All welding shall be performed by AWS certified welders. The technique of welding, the workmanship, appearance and quality of welds and the methods used in correcting nonconforming work shall be in accordance with "Section 3 -Workmanship" and "Section 4 -Technique" of the AWS Structural Welding Code-Steel, D1.1. Minimum size of welds shall be 1/8" . Minimum return shall be 1" . All welds shall be executed using E70XX electrodes unless specified otherwise in shop drawings.



1. Surfaces Adjacent to Field Welds: Surfaces within 2” of any field weld location shall be free of materials that would prevent proper welding or produce toxic fumes during welding.

1.5 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of the Contract and Division 1 Specifications Sections.
- B. Product data including manufacturer’ s specifications, standard details, details particular to this project and installation drawings.
- C. Submit one sample of climbing wall substrate with the applied surface, minimum 12” by 12” showing substrate, handhold fastener density, and color and finish.
- D. Shop drawings indicating layout of wall system, descriptions of materials and components, fastening and anchoring methods, and primary and secondary structural systems to be utilized.

1.6 DESIGN

- A. Climbing wall shall be custom designed to suit the facility, and must be specifically crafted to meet the client’s needs and requirements as follows:
 1. Exert no more than 15 lbs/ square foot load vertically or horizontally on wall and floor systems.
 2. Unless otherwise conveyed by Owner or Architect through pre-design discussions, the general climbing wall configuration should be:
 - a. 30% less-than-vertical to vertical in nature
 - b. 40% minimally overhung in nature
 - c. 30% moderate to substantially overhung in nature
 3. Handhold Fastener Density: Supply (2) handhold fasteners per every sq ft of climbing wall surface area.
- B. Climbing wall returns (sides of the climbing wall), shall return to the facility walls seamlessly and conceal the interior structure of the climbing wall and restrict access behind climbing wall.
- C. Initial drafts of the design shall be submitted to owner/architect in the form of three-dimensional CAD models.
- D. Final design shall be submitted to owner/architect in the form of 3D CAD models.

1.7 ENGINEERING

- A. Climbing wall shall be engineered to meet CWA standards for climbing wall construction.
- B. Shop drawings to be delivered to General Contractor for review prior to start of on-site installation.

1.8 DELIVERY, STORAGE AND HANDLING

- A. Protect products during transit, delivery, storage and handling to prevent damage and maintain integrity of components.



B. Climbing Wall Contractor to unload and handle shipped component deliveries.

C. Products shall be stored in accordance with manufacturer's recommendations in an area adjacent to the climbing wall installation.

1.9 WARRANTY

A. Manufacturer shall warrant to the original purchaser for one year from the date of substantial completion that its products are free from defects in materials and workmanship.

1.10 SITE CONDITIONS

A. Building shall be enclosed with permanent HVAC in operation and capable of maintaining a uniform temperature and humidity range. Acceptable ranges are 40-85 degrees F.

B. Climbing wall area shall be supplied with temporary or permanent work area lighting and multiple 110v and 220v electrical power outlets in accordance with the requirements of Division 01 "Temporary Facilities and Controls." Lighting shall be capable of 50 foot candles uniformly at work area, or additional work lights will be provided by General Contractor. Alternatively, General Contractor shall connect (and later disconnect) a temporary power load center (provided by Climbing Wall Contractor) in the area of installation.

PART 2 - PRODUCTS

2.0 CLIMBING WALL MANUFACTURER

A. Subject to compliance with requirements, provide similar and equal products by one of the following manufacturers.

1. High Performance™ Climbing wall system by Eldorado Wall Company (303) 447-0512

2.1 CLIMBING WALL STRUCTURAL SYSTEM

A. All structural steel work performed by Climbing Wall Contractor in accordance with approved shop drawings.

B. The structural frame of the climbing wall is to be welded steel frame construction in accordance with approved shop drawings. Attachment to the facility walls, floor, and ceiling to conform to specified loading limits of the existing facility. Climbing wall manufacturer to provide all additional steel to meet the required climbing wall loads. No wood will be allowed.

C. Quality Control:

1. Quality control procedures, material and workmanship at all times may be subject to inspection by design engineers representing climbing wall manufacturer.

2.2 CLIMBING SURFACE

A. The surface shall be composed of high-friction polymer enhanced cement bonded chemically and/or mechanically to the substrate. The surface shall be hand sculpted, with 3/16" to 2" in coverage. At owner's request, sculpted features, cast in fossils and micro-relief shall be built into the surface.

1. Surface coloration chosen by Architect or Owner.



B. The substrate shall be composed of $\frac{3}{4}$ " plywood or OSB. Unsupported seams shall be tongue and groove, or backed with appropriate blocking to minimize surface cracking at seams.

C. Provide one (1) access door and hardware, allowing passage to the framework of the wall for maintenance and storage. Door to match the surface of the wall and serve as climbable terrain. Recessed hardware flush with climbing surface with no projections to snag climbers.

2.3 CLIMBING WALL FASTENERS

A. Modular Handhold bolts:

1. Shall be $\frac{3}{8}$ " , TPI 16 socket head cap screws or flat head cap screws of appropriate length as suggested by and provided by the manufacturer of the Climbing Wall.

B. Handhold fasteners (T-nuts or Flange nuts)

1. Fasteners shall be accessible for repair and/or replacement behind the climbing wall.
2. Screw-on fastener shall be $\frac{3}{8}$ " - 16 tpi, $\frac{1}{4}$ " wide flange attached to substrate with (3) screws.
3. T-nut screws shall be #8 x $\frac{7}{8}$ particle board screws.

2.4 Climbing Protection/Anchors:

A. Top Rope Belay bars - N/A

2.5 CLIMBING WALL EQUIPMENT [specify quantity or none]

A. Modular Handholds

1. Composed of polyurethane to minimize breakage.
 - a. Acceptable Manufacturers: Eldo Holds
2. Handhold selection shall be made based on strong functionality of the potential user base and shall include:
 - a. Large Holds
 - b. Medium Holds
 - c. Small Holds
 - d. Bolt-on Footholds
3. To include handhold bolt of appropriate length.

B. Rental Shoes:

1. All-purpose climbing shoes of size range to include most popular size for users.
 - a. evolve

C. Auto Belay Systems

1. TRUBLUE™ Auto Belays

2.6 CLIMBING WALL FALL ATTENUATION SYSTEM (FLOORING)



A. Dual durometer open and closed cell foam fall attenuation system with nylon carpet cover. 5.5” total thickness. Custom sized to fall area indicated. Impact absorbing bottom layer comprised of 4” open cell foam. Load distributing top layer comprised of 1 ½” closed cell foam with a flame laminated commercial grade carpet surface layer.

1. Manufacturer:

a. ProTec padding by Eldorado Walls: 303-447-0512 or climbing fall attenuation system approved by Eldorado Walls

B. Custom flip up pads 6” in depth that cover minimum fall zones that can be attached to the wall when not in use.

1. Manufacturers:

a. Flip-Up Pads by Eldorado Walls or approved equal.

C. Color: As selected by Architect from manufacturer’s full range

PART 3 - EXECUTION

3.0 PRE-INSTALLATION INSPECTION

A. Verify that all surfaces are ready to receive work and are within specified tolerances.

B. Verify that layout of the materials or equipment will not interfere with installed climbing wall.

3.1 INSTALLATION

A. Erection of the climbing wall system shall be made by manufacturer with 5 years minimum experience with specified climbing wall installation.

B. Complete wall shall comply with specified tolerances and shop drawing requirements.

3.2 CLEAN-UP

A. Clean area of debris from installation of climbing wall.

B. Separate waste materials in accordance with the construction waste management plan and place in designated areas.

3.3 INSPECTION

A. The completed climbing wall shall undergo a full complete final inspection by a duly trained supervisor of the manufacturer and shall be certified by the manufacturer that the finished product has been built in accordance with the manufacturer’s approved installation drawings and these contract documents.

B. The completed climbing wall shall undergo a full and complete final inspection by the Owner or Owner’s representative at the completion of climbing wall installation.

3.4 TRAINING



A. Climbing Wall Contractor shall provide $\frac{1}{2}$ day training session for the facility operations staff, following the climbing wall installation. Training shall cover the following topics:

1. Climbing wall maintenance and periodic inspections
2. Route-setting methods and management
3. Sample handhold installation and removal
4. Climbing wall operations management

3.5 PROTECTION

A. General Contractor to provide final protection in a manner acceptable to the Owner or Owner's representative that insures the climbing wall will be without damage or deterioration at time of substantial completion.

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