STRUCTURAL PRECAST CONCRETE RAMP, STEP, AND ELEVATED PLATFORM UNITS

PART 1: General

1.1 Summary

A. Provide pre-cast concrete ramp, step and elevated platform units for handicapped access to buildings, classrooms and structures for permanent or temporary use. Pre-cast units shall be complete with prefabricated handrails and guardrails.

B. Units shall be delivered by the Manufacturer to various project sites as directed by the Owner, for installation by the Manufacturer or Owner.

C. Pre-fabricated units furnished under this Section shall comply with current edition of the applicable section of the following listed codes:

American with Disabilities Act (ADA)
American National Standards Institute ANSI A117.1
Life Safety Codes NFPA 101HB
Standard Building Codes SBCCI
American Concrete Institute ACI 318
American Society of Civil Engineers for Wind Loads ASCE 7
International Building Code

1.2 Submittals

A. Product Data: The Manufacturer shall submit complete engineering product data and shop drawings for each item supplied under this Section at the time of the bid. Shop Drawings shall be certified to comply as required by the above referenced codes by a Structural Engineer registered in the state of the installation.

B. The Owner reserves the right to require full sized units for inspection and testing delivered to the facilities yard at no cost to the Owner. These units may be damaged beyond useable condition.

C. Proper installation equipment: The installation organization shall have proper equipment, titled, insured and in working condition to install listed product including:

1. Serviceable tractor and trailer capable of transporting a 50,000 LB gross load.
2. Mechanical lifting devices to transport product items from approved vehicle to pre-determined site with a capability of 5,500 LB gross load.

D. Appropriate insurance: The installation organization shall carry workmen's compensation, public liability insurance on described work and shall be duly licensed by the appropriate state, county, city and/or local authorities, whichever is required.

1.3 Quality Assurance

A. Skilled Workmen: The installer shall submit written information regarding the following:

1. Use a minimum of two (2) skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with specified requirements and the methods needed for proper performance of the work in this section.
2. Workers shall have experience in the fields of carpentry, determination of proper level and drainage slope, installation of metal railings, setting of approved foundation footings, welding and fabricating in the field, and painting experience for final finish and/or touch-up of metal railings.

B. Length of experience: Manufacturing organization shall have a minimum of five (5) years experience in the manufacturing and installation of pre-cast concrete landings, platforms, ramps, steps and railings.

1.4 Design Criteria

A. Steps, ramps, landings, and elevated platforms shall be designed using 100 pounds per square foot live load.

B. Walking surfaces shall be slip resistant and comply with Paragraph 4.5, Ground and Floor Surfaces, ANSI A117.1.

C. Handrail Design Loads

1. Handrails shall be designed for a 200 pound concentrated load applied at any point, in any direction.
2. Handrails and guardrails shall also be designed for a load of 50 plf applied in any direction.
3. The above loads shall not be applied simultaneously but applied to provide maximum stress development.

D. Guardrail Design Loads

1. Guardrails shall be designed for a 200 pound concentrated load applied at any point, in any direction at the top of the guardrail.
2. Guardrails shall also be designed for a load of 50 plf applied horizontally at the required guardrail height and a simultaneous load of 100 plf applied vertically downward at the top of the guardrail.
3. Guardrails shall also be designed to resist a 200 lb. Concentrated horizontal load applied on a 1 ft square area at any point in the system including intermediate rails or other elements serving this purpose.
4. The above loads shall not be applied simultaneously but applied to provide maximum stress development in each of the respective components or any of the supporting components.

E. Rail Mounting Parameters

1. Height: Comply with Local Building Code.
2. End Condition: Comply with Local Building Code.
3. Handrails shall be attached with removable fasteners to allow for disassembly and to allow for ease of handling during relocation.

1.5 Certification

A. The prospective participant certifies that by adherence to these installation procedures that neither it nor its principals are presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any federal department or agency.

B. All bidders must provide:
1. List of projects of previous 12 months.
2. Project references with the following:
   a. Firm/Organization
   b. Address
   c. Telephone Number(s)
   d. Contact Person with Title
3. Status of your current workload

END OF SECTION

PART 2: Product

2.1 Manufacturer

Units shall be equal and similar to items manufactured by:
Leesburg Concrete Company, Inc.
1335 Thomas Ave.
Leesburg, FL 34748
(800) 882-4177
(352) 787-7935 fax

2.2 Materials Specifications

A. Cement: Grey Portland, conforming to ASTM C150 Type I or III.

B. Concrete

1. ASTM C94
2. 4500 psi minimum 28 day compressive strength

C. Aggregate, sand, water, admixtures: Determined by pre-cast fabricator as appropriate to design requirements.

D. Form materials: Machined Steel or equal to assure smooth untextured surface.

2.3 Step Units

A. Units shall be hollow, pre-cast concrete with finished surfaces and attachable steel handrails.

B. Units shall be constructed with or without level landing and a specified number of risers and treads as required by the height of each threshold; each riser shall be 7" and each tread shall have an 11" run.

C. Units with landing shall be cast with step and landing as one complete unit.

D. Units will have nosing on each step and landing as required by applicable code listed above shown in certified shop drawing.

E. Units with landing shall be pre-cast in a single piece with concrete closed risers, sidewalls, and backwalls for skirting in order to eliminate debris, trash and hazardous crawl spaces.

F. Units without landing shall be pre-cast in a single piece with concrete closed risers and sidewalls for skirting in order to eliminate debris, trash and hazardous crawl spaces.

G. All units shall be adaptable to right turn, left turn and straight out installation.

H. Units shall have anti-slip safety treads covering specified areas on steps and landings as per Unit Step design.

I. Units shall have specially designed anchors cast in concrete for the mounting and bolted fasting of the railing system shown on certified shop drawings. This anchoring system will allow for a more efficient installation and future relocation.

2.4 Railings

A. Rail Steel

1. Top rail: ASTM A36 Hand Rail Molding 1621L.
2. Post: 1.0” x 11 gauge square tube carbon steel.
3. Pickets vertical: ½” square size, 4" OC, per code.

B. Handrail Fittings: Elbows, brackets; machined steel.

C. Bolts, Nuts and Washers: Grade 5, Zinc Plated.

D. Paint

1. Clean surfaces of rust, scale, grease, and foreign matter prior to finishing.
2. Primer and paint with Sumter - 111G1647 Electrostati Unipox Primer, color gray/ green and Sumter – 155N600B Nu-Charge-A-Thane, gloss black.

2.5 Fabrication - Handrailing

A. Fit and shop assemble components in component sizes, for delivery to site.

B. Grind exposed joints flush and smooth with adjacent finish surface.

END OF SECTION

PART 3: Execution

3.1 Delivery

A. Units shall be delivered by the Manufacturer to a site designated by Owner at the quoted price per unit.

B. Units shall be off loaded by the Manufacturer at one location on the designated site.

3.2 Finish

Exposed surfaces shall be clean, free of rough areas and with acceptable surfaces without the need for Owner applied cosmetic finishes.

3.3 Installation

A. Installation of each step system with the mounting of required railings to meet codes specified shall be by [owner] [Manufacturer].

B. Use foundation footings as code and site demands.

1. Foundation block, ABS pad or strip footers shall be set on compacted fill or solid base
   rock to prevent settling.
2. Place foundation block or footers to the correct elevations, level and square to the building and pre-cast unit.

C. Place pre-cast concrete step landing in position on the footers and shim level and square to the door sill. (Maximum slope 1:50 to provide positive drainage.)

D. Shim using Presco Shims or equivalent.

END OF SECTION