

***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.
 - 4. Handrails shall accommodate installation for right turn, left turn or straight out site location without fabrication in the field.

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.
5. Guardrails shall accommodate installation for right turn, left turn or straight out site location without fabrication in the field.

E. Rail Mounting Parameters

1. Height: Comply with Americans with Disabilities Act (ADA).
2. End Condition: Comply with Americans with Disabilities Act (ADA).
3. Handrails shall be attached with removable fasteners to allow for disassembly and to allow for ease of handling during relocation.
4. Child rails to be provided as specified by code for elementary school requirements.

1.5 Tests

- A. The Manufacturer shall demonstrate to the Owner that each of the requirements of this specification and the codes listed have been met or exceeded by the units delivered. This shall be accomplished by load tests and/or engineering data assembled and presented in a logical and understandable method.
- B. Faulty units shall be immediately replaced at the site without additional cost to the Owner.

1.6 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. Steel Reinforcement
1. Provide reinforcement as a welded cage whose position is assured and maintained by positive holding methods.
 2. ASTM A615, 60 ksi standard smooth and deformed steel bars.
 3. Provide reinforcement in areas required by engineering calculation using loads required as listed above.
- E. Form materials: Machined Steel or equal to assure smooth untextured surface.

2.3 Ramp Units

- A. Units shall be hollow, reinforced pre-cast concrete 4'8" wide with finished surfaces and attachable handrails.
- B. Units shall have a maximum slope of 1:12.
- C. Units shall be right hand turn, left hand turn or straight out, each with top landing platform and handrails on each side.
- D. Top landing platform minimum 5' x 5' shall comply with code requirements.
- E. Unit sections shall be a maximum of 7'3" long in single pieces.
- F. Units shall have a maximum 29" pre-cast concrete sidewalls and skirting in order to help eliminate debris, trash and hazardous crawl spaces.
- G. Units shall have anti-slip safety treads covering specified areas on ramp surfaces as per Unit Step design.
- H. Units shall have specially designed anchors cast in concrete for the mounting and bolted fastening of the railing system.
- I. Ramp sections shall be pre-cast as single pieces including sidewalls or skirting in order to provide for a more efficient and cost effective method of relocation as prescribed in Installation section of specifications.

2.4 Step Units

- A. Units shall be hollow, reinforced pre-cast concrete 5'-0" wide with finished surfaces and attachable steel handrails.
- B. Units shall have a 5' x 5' 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 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 shall have pre-cast concrete closed risers, sidewalls, and backwalls for skirting in order to eliminate debris, trash and hazardous crawl spaces.
- F. All units shall be adaptable to right turn, left turn and straight out installation.
- G. Units shall have anti-slip safety treads covering specified areas on steps and landings as per Unit Step design.
- H. Units shall have specially designed anchors cast in concrete for the mounting and bolted fastening of the railing system shown on certified shop drawings. This anchoring system will allow for a more efficient installation and future relocation.
- I. Ramp units shall be pre-cast as single pieces including sidewalls or skirting in order to provide for a more efficient and cost effective method of relocation as prescribed in the Installation section of specifications.

2.5 Elevated Platform Units

- A. Units shall be reinforced pre-cast concrete 5'0" wide with finished surfaces and attachable handrails.
- B. Unit section shall be a minimum 8' long in a single piece.
- C. Units shall be adaptable to right turn, left turn, and straight out installation.
- D. Units shall be installed with a maximum slope of 1:50 to provide for positive drainage.
- E. Unit shall have a sidewall a minimum of 8" to allow for rail attachment.
- F. Units shall have anti-slip safety surfaces as per Unit Step design.
- G. Units shall be pre-cast as a single piece to provide for a more efficient and cost effective method of relocation as prescribed in the Installation section of specifications.

2.6 Railings

A. Rail Steel

1. Top rail: ASTM A53 Schedule 40 Pipe.
2. Post: 1.25" x 11 gauge square.
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 Electrostat Unipox Primer, color gray/ green and Sumter - 155N600B Nu-Charge-A-Thane, gloss black.

2.7 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 ramp 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 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 or elevated platform 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
- E. Place remaining pre-cast concrete ramp pieces in position leveling and squaring each piece to the previous piece until all pieces are in place.
- F. Tolerances allowed in joints at door sills as per ADAAG 4.5.2 Fig. 7(C) "Changes in level up to ¼" may be vertical without edge treatment".
- H. Grout for rigidity the full load bearing area of footers using Cormix Gilco construction grout or equivalent. Use bond inhibiting coating on the pre-cast step unit in the area of grouting to permit relocation.

END OF SECTION