SECTION 05 51 00

STAIR TREADS AND NOSINGS

PART 1 - GENERAL

1.01 SUMMARY

* 1. Section includes:
		1. Anti-slip Safety Stair Treads and Nosing’s for new construction and renovation, inside and outside stair applications including extruded aluminum and cast systems.
	2. Related Requirements:
		1. Section 03 30 00 – Cast-in-Place Concrete
		2. Section 05 51 00 – Metal Stairs

1.02 REFERENCES

1. State of California Title 24, Stripping code for the visually impaired
2. American Disability Act (ADA) barrier-free code design
3. Occupational Safety and Health Association (OSHA)
4. International Building Code (IBC)
5. Underwriters Laboratories (UL) 1994 Luminous Egress Path Markings
6. ASTM B 221 Standard Specification for Aluminum and Aluminum Alloy extruded bars, rods, wire, shapes and tubes.

1.03 COORDINATION

1. Coordinate with other trades such as concrete and masonry.

1.04 SUBMITTALS

1. Product Data: Manufacturer's specifications and technical data, including detailed specification of construction, fabrication, and recommended installation instructions.
2. Shop Drawings: Indicate dimensions, description of materials and finishes, general construction, specific modifications, component connections, anchorage methods, hardware, and installation procedures, including specific requirements indicated.
	* + 1. Construction details, sizes of metal sections, thicknesses of metals, profiles, attachments, dimensions and field joints, method of support from structure, finishes, and work to be built-in or provided by other Sections.
			2. Welding: Indicate welded connections, both shop and field, using standard AWS welding symbols. Indicate net weld lengths.
3. Samples for selection and verification purposes. Manufacturer to provide upon request actual sections of stair tread and nosing in a convenient size approximately 6” in length to represent material adequately.

1.05 DELIVERY, STORAGE, AND HANDLING

1. Deliver materials to Project site ready use.
2. Exercise proper care in handling of Work so as not to injure finished surfaces. Protect Work from damage after it is in place.
3. Store materials under cover in a dry and clean location off the ground.

1.06 WARRANTY

1. Provide manufacturer’s standard warranty. Stair treads and nosings shall be free from manufacturing defects in materials, fabrication, and installation for a period of one (1) year from the date of shipment.
2. Should a product fail to function in normal use within this period, manufacturer shall furnish a new part at no charge.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

 Nystrom Inc

 9300 73rd Ave North

 Minneapolis, MN 55428

 PH: 800.547.2635

 FX: 800.317.8770

 Nystrom.com

2.02 ABRASIVE METAL [**NOSINGS**] [**TREADS**] [**AND**] [**THRESHOLDS**]

* + - * 1. Extruded Units: Aluminum, with abrasive filler consisting of aluminum oxide, silicon carbide, or a combination of both, in an epoxy-resin binder. Fabricate units in lengths necessary to accurately fit openings or conditions.

Basis-of-Design Product: Subject to compliance with requirements, provide Nystrom, Inc.; STSB or a comparable product

Provide ribbed bar units, with abrasive filler strips projecting a minimum of 1/16 inch (1.5 mm) above aluminum extrusion.

Specify multiple colors for vision line option.

* 1. Abrasive Colors: **[Black] [UL1994 listed photoluminescent] [Safety yellow] [see manufacturer for available color selections].**

Retain types required and revise to suit Project. Delete all four if configurations are indicated on Drawings.

Nosing Types:

Short Nose Tread: [**1-7/8 inches (48 mm)**] [**3 inches (75 mm)**] [**4 inches (100 mm)**] wide, with 1/2 inch (13 mm) lip for poured concrete applications.

Attachment Method: [**Cast-In, continuous extruded anchor**] [**Drilled Hole, Mechanically Fastened**].

Short Tipped Nose: [**1-7/8 inches (48 mm)**] [**3 inches (75 mm)**] [**4 inches (100 mm)**] wide, with 1/4 inch (6 mm) lip for poured concrete and steel pan applications.

Attachment Method: [**Cast-In, continuous extruded anchor**] [**Drilled Hole, Mechanically Fastened**].

Angled Long Nose Tread: [**1-7/8 inches (48 mm)**] [**3 inches (75 mm)**] wide, with 1-1/8 inch (31 mm) lip, 83 degree angle for sloped risers.

Attachment Method: [**Cast-In, continuous extruded anchor**] [**Drilled Hole, Mechanically Fastened**].

Inset, Square Front and Back: [**1-3/8 inches (35 mm)**] [**3 inches (75 mm)**].

Attachment Method: [**Cast-In, continuous extruded anchor**] [**Drilled Hole, Mechanically Fastened**].

Finish: 6063-T5 aluminum, mill finish.

Specify taped top to prevent concrete from penetrating tread during installation. Painted undersides create a barrier between metal and concrete to avoid adverse reaction.

Options:

Taped Top.

Painted Undersides.

* + - * 1. Extruded Units: Aluminum, with abrasive filler consisting of aluminum oxide, silicon carbide, or a combination of both, in an epoxy-resin binder. Fabricate units in lengths necessary to accurately fit openings or conditions.

Basis-of-Design Product: Subject to compliance with requirements, provide Nystrom, Inc.; STSF or a comparable product

Provide units with full abrasive filler projecting a minimum of 1/16 inch (1.5 mm) above aluminum extrusion.

Specify multiple colors for vision line option.

1. Abrasive Colors: **[Black] [UL 1994 listed photoluminescent] [Safety yellow] [see manufacturer for available color selections].**

Retain types required and revise to suit Project. Delete all four if configurations are indicated on Drawings.

Nosing Types:

Short Nose Tread: [**2-1/8 inches (54 mm)**] [**3-1/8 inches (79 mm)**] [**4 inches (100 mm)**] wide, with 1/2 inch (13 mm) lip for poured concrete applications.

Attachment Method: [**Cast-In, continuous extruded anchor**] [**Drilled Hole, Mechanically Fastened**].

Short Tipped Nose: [**2 inches (50 mm)**] [**3 inches (75 mm)**] [**4 inches (100 mm)**] wide, with 1/4 inch (6 mm) lip for poured concrete and steel pan applications.

Attachment Method: Cast-In, continuous extruded anchor.

Long Nose Tread: [**2-1/8 inches (54 mm)**] [**3-1/8 inches (79 mm)**] [**4 inches (100 mm)**] wide, with 1-1/8 inch (31 mm) lip with 90 degree angle.

Attachment Method: [**Cast-In, continuous extruded anchor**] [**Drilled Hole, Mechanically Fastened**].

Inset, Square Front and Back: 2-1/4 inches (35 mm).

Attachment Method: [**Cast-In, continuous extruded anchor**] [**Drilled Hole, Mechanically Fastened**].

Finish: 6063-T5 aluminum, mill finish.

Specify taped top to prevent concrete from penetrating tread during installation. Painted undersides create a barrier between metal and concrete to avoid adverse reaction.

Options:

Taped Top.

Painted Undersides.

Retain one of first two Subparagraphs below.

Provide anchors for embedding units in concrete, either integral or applied to units, as standard with manufacturer.

Drill for mechanical anchors and countersink. Locate holes not more than 4 inches (100 mm) from ends and not more than 1/2 inch (300 mm) o.c., evenly spaced between ends, unless otherwise indicated. Provide closer spacing if recommended by manufacturer.

Provide two rows of holes for units more than 5 inches (125 mm) wide, with holes aligned at ends and intermediate holes staggered.

Apply bituminous paint to conceal surfaces of cast-metal units.

Apply clear lacquer to concealed surfaces of extruded units.

* + - * 1. Two Part Extruded Units: One part, Sub-channel and plywood insert; second part, Aluminum, with abrasive filler consisting of aluminum oxide, silicon carbide, or a combination of both, in an epoxy-resin binder. Fabricate units in lengths necessary to accurately fit openings or conditions.

Basis-of-Design Product: Subject to compliance with requirements, provide Nystrom, Inc.; **[STTB] [STTF]** or a comparable product

Provide [**ribbed bar**] [**full abrasive units**], with abrasive filler projecting a minimum of 1/16 inch (1.5 mm) above aluminum extrusion.

Abrasive Colors: **[Black] [UL1994 listed photoluminescent] [Safety yellow] [see manufacturer for available color selections]**

Nosing Type:

Short Tipped Nose: 3-3/8 inches (86 mm) wide, with 1/2 inch (13 mm) lip for poured concrete and steel pan applications.

Attachment Method: [**Cast-In, continuous extruded anchor**] [**Drilled Hole, Mechanically Fastened**].

Finish: 6063-T5 aluminum, mill finish.

Specify taped top to prevent concrete from penetrating tread during installation. Painted undersides create a barrier between metal and concrete to avoid adverse reaction.

Options:

Taped Top.

Painted Undersides.

Retain one of first two Subparagraphs below.

Provide anchors for embedding units in concrete, either integral or applied to units, as standard with manufacturer.

Drill for mechanical anchors and countersink. Locate holes not more than 4 inches (100 mm) from ends and not more than 1/2 inch (300 mm) o.c., evenly spaced between ends, unless otherwise indicated. Provide closer spacing if recommended by manufacturer.

Provide two rows of holes for units more than 5 inches (125 mm) wide, with holes aligned at ends and intermediate holes staggered.

Apply bituminous paint to conceal surfaces of cast-metal units.

Apply clear lacquer to concealed surfaces of extruded units.

* + - * 1. Extruded Units for Renovation: Aluminum channel with 1 inch (25 mm) tapered back, abrasive filler consisting of aluminum oxide, silicon carbide, or a combination of both, in an epoxy-resin binder. Fabricate units in lengths necessary to accurately fit openings or conditions.

Basis-of-Design Product: Subject to compliance with requirements, provide Nystrom, Inc.; STRB

Specify multiple colors for vision line options for ribbed treads, STRB.

1. Abrasive Colors: **[Black] [UL1994 listed photoluminescent] [Safety yellow] [see manufacturer for available color selections].**

Retain types required and revise to suit Project. Delete all three if configurations are indicated on Drawings.

Nosing Types:

Long Nose Tread: [**5 inches (127 mm)**] [**9 inches (229 mm)**] [**11 inches (280 mm)**] wide, with 1-1/8 inch (31 mm) lip with 90 degree angle.

Attachment Method: Drilled Hole, Mechanically Fastened.

Angled Nose Tread: [**5 inches (127 mm)**] [**9 inches (229 mm)**] [**11 inches (280 mm)**] wide, with 1-1/8 inch (31 mm) lip with 83 degree angle.

Attachment Method: Drilled Hole, Mechanically Fastened.

Rounded (Bull) Nose Tread: 4 inches (100 mm) wide, with 1-3/16 inch (30.2 mm) lip.

Attachment Method: Drilled Hole, Mechanically Fastened.

Finish: 6063-T5 aluminum, mill finish.

Specify taped top to prevent concrete from penetrating tread during installation. Painted undersides create a barrier between metal and concrete to avoid adverse reaction.

Options:

Taped Top.

Painted Undersides.

* + - * 1. Cast-Metal Units: Cast [**iron**] [**aluminum**], with an integral-abrasive, as-cast finish consisting of aluminum oxide, silicon carbide, or a combination of both. Fabricate units in lengths necessary to accurately fit openings or conditions.

Basis-of-Design Product: Subject to compliance with requirements, provide Nystrom, Inc.; [**STCI**] [**STCA**]

Provide cross-hatched units with silicon carbide abrasive 20 grit, a minimum of 2-1/4 ounces/sq. ft. (687 grams/sq. m), to a minimum of 1/32 inch (0.8 mm) thick.

Retain types required and revise to suit Project. Delete all three if configurations are indicated on Drawings.

Nosing Type:

Short Nose: Cross-hatched units, [**2 inches (50 mm)**] [**3 inches (76 mm)**] [**4 inches (100 mm)**] wide with 1/4-inch (6-mm) lip.

Attachment Method: [**Cast-In, wing anchor and nut**] [**Cast-In bolt**].

Short Tipped Nose: Cross-hatched units, [**2 inches (50 mm)**] [**3 inches (76 mm)**] [**4 inches (100 mm)**].

Attachment Method: [**Cast-In, wing anchor and nut**] [**Cast-In, bolt**].

Long Nose: Cross-hatched units, [**3 inches (76 mm)**] [**4 inches (100 mm)**].

Attachment Method: [**Cast-In, wing anchor and nut**] [**Cast-In, bolt**].

Retain option in "Finish" Subparagraph below to suit Project.

Finish: [**Aluminum, natural metal**] [**Iron, one coat of black paint**].

Specify taped top to prevent concrete from penetrating tread during installation. Painted undersides create a barrier between metal and concrete to avoid adverse reaction.

Options:

Taped Top.

Painted Undersides.

2.06 ACCESSORIES

* 1. Vision Line color accent applied to the leading edge of bar ribbed type treads in any color combination.
	2. Heel Options:
		1. Heel end miter cuts
		2. Recessed for flooring infill
	3. Taped tops- for protection during the initial concrete pour. Tape must be removed after tread sets
	4. Anchoring and installation hardware- Provide required hardware
		1. Recommend wood screws #10x1” flathead stainless steel
		2. Wing Anchors- secured with #10 flathead stainless steel machine screw and nut
		3. Expansion Shields- 1” Nylon Expansion Shields for existing concrete block out applications
	5. Photo luminescent **"Luminous Egress-Path-Marking System"**
1. Photo luminescent stair treads and nosings shall be UL 1994 tested and certified.
2. Photo luminescent abrasive strips shall be 1" wide and an integral part of the stair treads.
3. Photo luminescent pigment should be an integral part of the abrasive and run throughout the abrasive.
4. Photo luminescent strips should have the same coefficient of friction as the entire abrasive stair tread.
5. Photo luminescent stair nosings and treads shall meet code requirements for stair design in public buildings
6. Photo luminescent stair nosings and treads shall meet the 2010 ADA Standards recommendations of slip resistance.

**PART 3 – EXECUTION**

3.01 EXAMINATION

* 1. Verify that preparation and affected dimensions are acceptable. Installer shall not proceed until conditions are acceptable.
	2. Verify tolerances and correct improper conditions.

3.02 INSTALLATION

1. Install stair treads and nosing’s in accordance with the governing regulations, the industry standards applicable to the work and the manufacturer’s written instructions
2. Align work plumb, level and where required, flush with adjacent surfaced and rigidly anchored to the substrate.

3.03 CLEANING

1. Clean exposed surfaces as recommended by the manufacturer.

3.04 PROTECTION

1. Cover during wet-type operation including painting and decorating.

END OF SECTION