



FLIGHT STACK SPEC SHEET

2025

Product Specifications, Connections, Parts, and Drawings
Published April 16, 2025
Version 1.0

FLIGHT Stack

Awe-inspiring artistry.



Specifications

Configurations

Straight
U-Shape
Switchback
90° (L-Shape)

Stringer Support

1/2" Mild Steel Stringers
Stringer Bracket Connectors
Welded Steel Tread Supports

Railing Options

Exclusively Vedera Glass
1/2" Tempered with Cap Rail
9/16" Laminate with Stabilizers

Tread Types

Exclusive 1" Stack Wrap
Other custom Tread Solutions

Upgrades

Grip Strips
LED Treads
LED Handrail

"Steel First" Solutions

Custom 1/2" Plywood Railing to
Confirm Glass Measurements



BIM Files For Architects!



FLIGHT Stack

Configuration Capabilities

STRUCTURE

	Straight	90°	Switchback	U-Shape
Total Rise (Varies depending on configuration type)	- 18 tread max - 151" max floor-to-floor	- 24 tread max (12 lower, 12 upper) - 180" max floor-to-floor	- 24 tread max (12 lower, 12 upper) - 180" max floor-to-floor	- 33 tread max (12 lower, 9 middle, 12 upper) - 180" max floor-to-floor
Column Supports	- Not typical, unless exceeding 15 treads	- Often required for freestanding configurations exceeding 15 treads. May utilize wall connections.		
Landing Supports	- Not typical, unless exceeding 15 treads	- A 90° and U-Shape typically only need a single column support. - A Switchback needs two columns for support.		
Stringer Material	- Mid Steel. Receives Jet Black powder coat finish for additional protection on job site. - Stainless Steel. Receives Jet Black powder coat finish for additional protection on job site.			
Stringer Sizes (Residential)	- Two 11-Gauge Stainless Steel Stringers			
Stringer Connections (Residential)	- Bolted system (standard option) - Welded system (available upon request as part of our "Fine Point Package")			
Stringer Connections (Commercial)	- Welded system (standard for commercial)			
Standard Header/ Footer Connection	- Floor to Wall (bolt connection between the stringer and header template/ footer plate) - Wall to Wall (bolt connection between the stringer and header template/ footer plate)			

TREAD

	Straight	90°	Switchback	U-Shape
Interior Tread Options	- Stack Exclusive Tread (utilized for both residential and commercial) - Range from 1"-4" thick treads - Grip strips can be integrated for commercial applications - Custom tread solution (coordination with on-site contractor required)			
Stack Exclusive Tread	- Choose from 12+ wood species, our Stack Tread is 1" thick. Comes in two miter lock "L-Shapes" to wrap the tread support bracket.			
Tread Finish Options	- All stain options, including standard, custom, and custom color match			
Exterior Tread Options	- Not currently available			

FLIGHT Stack

Configuration Capabilities (continued)

RAILING

	Straight	90°	Switchback	U-Shape
Vedera Glass	<ul style="list-style-type: none"> - Vedera (mounted on outside of tread; hardware hidden by decorative tread cap) - Requires Top Cap Rail or Glass Stabilizers (depending on design and code requirements) 			
Wood Handrail Profiles (Graspable)	<ul style="list-style-type: none"> - 6004 (All wood species except Ipe and Endurance; Residential and Commercial) - 6084 (All wood species except Ipe and Endurance; Residential and Commercial) - 6200 (All wood species except Ipe and Endurance; Residential and Commercial) - 6008 Wood Cap (All wood species except Ipe and Endurance; glass railing exclusive) 			
Wood Handrail Profiles (Non-Graspable)	<ul style="list-style-type: none"> - 6000 Classic (All wood species except Ipe; if used Residential, must have waiver or additional guardrail) - 6001 Ipe (An exterior rated wood specie; if used Residential, must have waiver or additional guardrail) - 6002 Endurance (Thermally treated wood product; if used Residential, must have waiver or additional guardrail) - 6007 Endurance (Thermally treated wood product; if used Residential, must have waiver or additional guardrail) 			
Metal Handrail Profiles (Graspable)	<ul style="list-style-type: none"> - Metal 1"x2" (Aluminum, 304 SS or 2205 SS; Residential and Commercial) - Aluminum 1"x2" Quickslide (Proprietary handrail with a locking channel; Residential and Commercial) - 1.5" Round (316 Stainless Steel; Residential and Commercial) - 2" Round (316 Stainless Steel; Residential and Commercial) - Square Metal Cap Rail (Slim Aluminum cap exclusive for glass railing; Residential and Commercial) 			
Metal Handrail (Non-Graspable)	<ul style="list-style-type: none"> - Aluminum 1"x4" Quickslide Beverage (Proprietary handrail with a locking channel; Residential only and can only be used for level runs of railing) 			
Additional Commercial Handrail Requirements	<ul style="list-style-type: none"> - Post Mounted Versatile Handrail Handrail Brackets (attach to the interior side profile of the post; can be used for some residential applications) - Glass Mount Handrail Bracket (allows you to attach a round handrail to any pre-drilled glass railing system; comes in both round and flat top versions) - Floor Mounted Termination and Continuous Handrail Connectors 			

RAILING INFILL

	Straight	90°	Switchback	U-Shape
3/8" Monolithic Glass	<ul style="list-style-type: none"> - Low Iron Starphire - Requires cap rail or glass stabilizers - Flat polish with beveled edge - Residential only - Hydrophobic Upgrade (invisible shield that protects against water, soil, stains, and corrosion) 			
1/2" Monolithic Glass	<ul style="list-style-type: none"> - Low Iron Starphire or Solar Gray - Requires cap rail or glass stabilizers - Flat polish with beveled edge - Residential only - Hydrophobic Upgrade (invisible shield that protects against water, soil, stains, and corrosion) 			
9/16" Laminated Glass *Frameless Glass	<ul style="list-style-type: none"> - Low Iron Starphire, Solar Gray, or Solar Bronze Frosted - Contains 0.035" stiff interlayer for stabilization - Does not require cap rail or glass stabilizers - Flat polish with beveled edge - Residential and commercial - Hydrophobic Upgrade (invisible shield that protects against water, soil, stains, and corrosion) 			

FLIGHT Stack: Treads

Stains & Species

FIG 9A: STANDARD STAIN LIBRARY APPLIED ON WHITE OAK

WHITE OAK

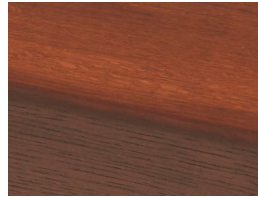
White Oak is a harder, more water-resistant cousin to Red Oak. Often slightly gray or green in color, its grain patterns tend to swirl. It also has longer grain bands than Red Oak. White Oak is the easiest of the hardwood species to stain, and is frequently used for building furniture.



Mesa
(formerly Acorn)



Cedar
(formerly Acres)



Manzanita
(formerly Adoquin)



Spruce
(formerly Almond)



Fieldstone
(formerly Antique Gray)



Orchard
(formerly Antique Java)



Sunset
(formerly Arena)



Boxwood
(formerly Asbury)



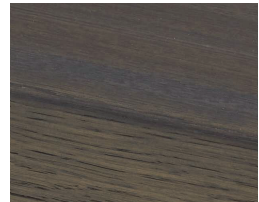
Willow
(formerly Beige)



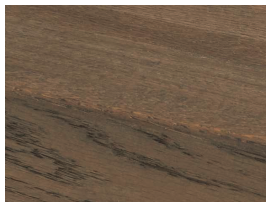
Seagrass
(formerly Bleach)



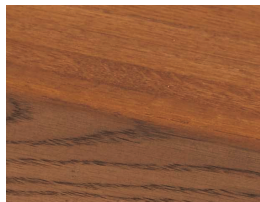
Cobblestone
(formerly Briar)



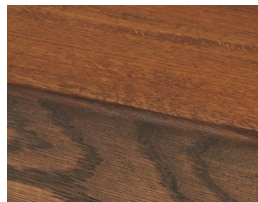
Fog
(formerly Cali Gray)



Granite
(formerly Charcoal)



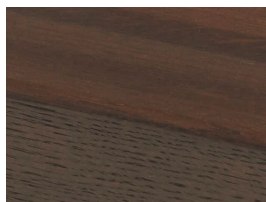
Sandstone
(formerly Chestnut)



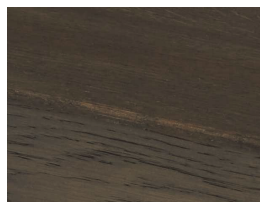
Sequoia
(formerly Chocolate Spice)



Clearcoat



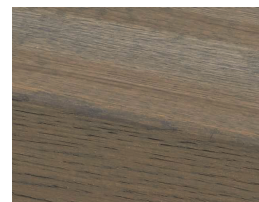
Trailhead
(formerly Dark Chocolate)



Basalt
(formerly Dark Knight)



Oakmoss
(formerly Driftwood)



Lichen
(formerly Gray Fox)

FLIGHT Stack: Treads

Stains & Species

FIG 9B: STANDARD STAIN LIBRARY APPLIED ON WHITE OAK

WHITE OAK (CONTINUED)



Terrace
(formerly Kona)



Timber
(formerly Lama)



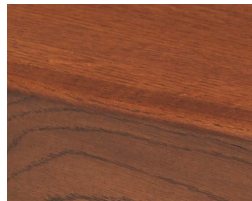
Golden Hour
(formerly Malaguania)



Shade Tree
(formerly Midnight)



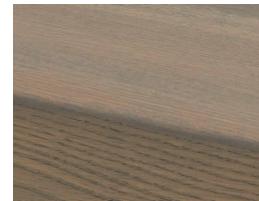
Shoal
(formerly Midnight Blue)



Juniper
(formerly New Carrington)



Shale
(formerly Olive)



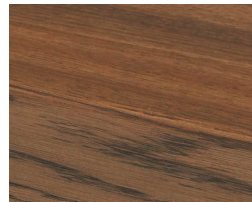
Sea Breeze
(formerly Pewter)



Wheatfield
(formerly River)



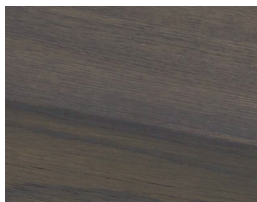
Tumbleweed
(formerly Sealy)



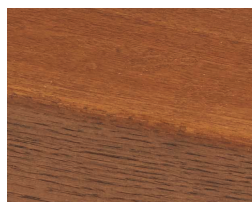
Loam
(formerly Sebruno)



Granite
(formerly Simply Charcoal)



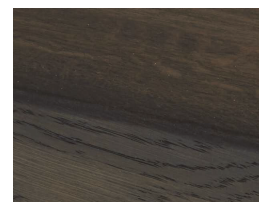
Tidepool
(formerly Storm Gray)



Redwood
(formerly Tawny)



Sagebrush
(formerly Wheat)



Precipice
(formerly Zarco)



Dune
(formerly New Capella)

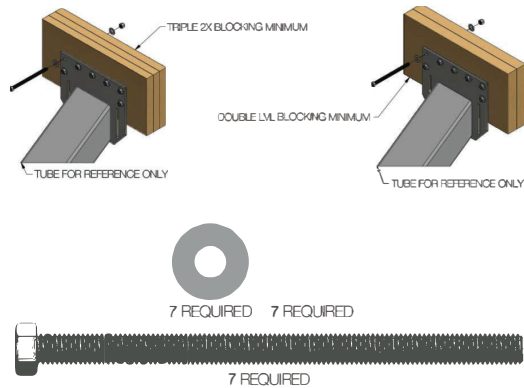
FLIGHT Stack: Connections

Mounting Connection Details

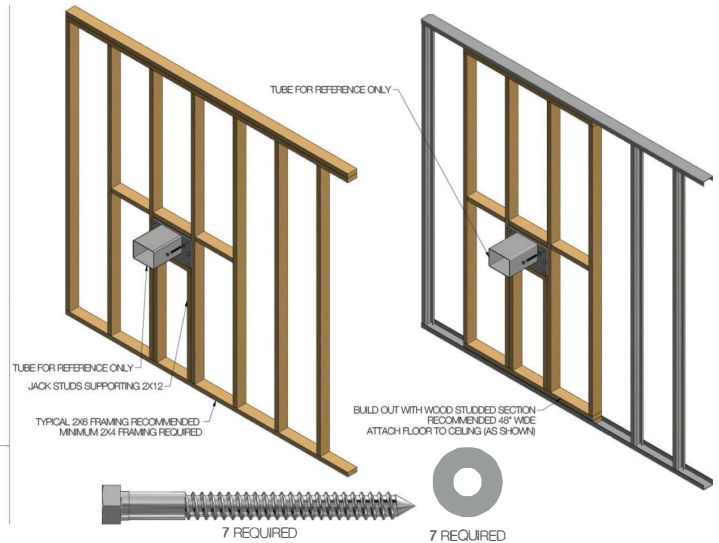
STRINGER- SITE CONNECTIONS

CONNECTION DETAILS WOOD FRAMING

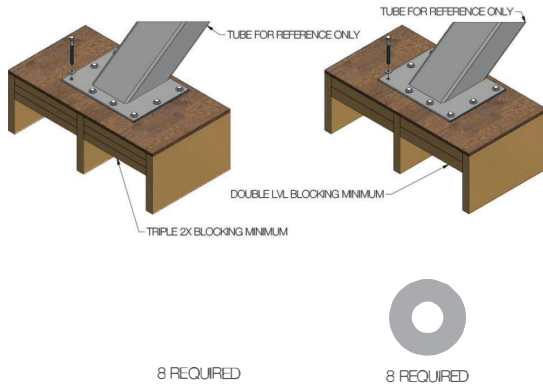
VERTICAL PLATE TO WALL
WOOD FRAMING CONNECTION DETAIL



LOWER STRINGER PLATE TO WALL
WOOD / METAL FRAMING CONNECTION DETAIL



FOOT PLATE TO FLOOR
WOOD FRAMING CONNECTION DETAIL



GENERAL

- CUSTOMER IS RESPONSIBLE FOR ENSURING THEIR FRAMING / STRUCTURE CAN BEAR THE LOAD OF THE VIEWRAIL FLIGHT SYSTEM.
- YOUR TECHNICAL DRAWINGS WILL PROVIDE INFORMATION USED TO LOCATE THE REQUIRED BLOCKING. STANDARD CONSTRUCTION METHODS FOR ADDING BLOCKING SHOULD BE FOLLOWED. IF THERE IS NO ACCESS TO AREAS REQUIRING BLOCKING, FLOOR/WALL BOARD SHOULD BE REMOVED TO GAIN ACCESS.
- ALL HOLES IN MOUNTING PLATES MUST BE POPULATED WITH APPROPRIATE HARDWARE.
- FOR WALL CONNECTIONS, CUT OUT WALL BOARD. HEADER PLATE MUST SIT DIRECTLY AGAINST BLOCKING TO AVOID CRUSHING WALL BOARD AND COMPROMISING STRENGTH.
- FOR FOOT CONNECTIONS, REMOVE COMPRESSIBLE (CARPET) / BREAKABLE (TILE) MATERIALS AND MOUNT DIRECTLY TO SUB-FLOOR (UNLESS MOUNTING DIRECTLY TO FINISHED FLOOR SUCH AS HARDWOOD). HEADER PLATE MUST SIT DIRECTLY AGAINST BLOCKING TO AVOID CRUSHING WALL BOARD AND COMPROMISING STRENGTH.

WOOD OR METAL FRAMED WALL / FLOOR CONNECTION NOTES

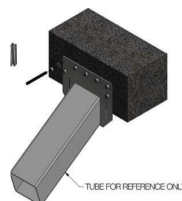
- BLOCKING / LVL MUST BE A MINIMUM OF EITHER DOUBLE STACHED LVL or TRIPLE STACKED DIMENSIONAL LUMBER (2X10, ETC)
- STEEL STUDS ALONE ARE NOT ADEQUATE TO SUPPORT FLIGHT SYSTEMS. SUITABLE WOOD FRAMED SECTIONS MUST BE FRAMED IN AND ATTACHED TO FLOOR / CEILING. (RECOMMENDED 48" WIDE)

CONCRETE WALL / FLOOR CONNECTION NOTES

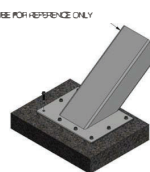
- FOR MOUNTING PLATES TO CONCRETE MINIMUM 4" OF CONCRETE REQUIRED (NOT SUITABLE FOR LIGHTWEIGHT MASONRY SUCH AS BLOCK OR BRICK)
- HIGH STRENGTH, TWO PART STRUCTURAL EPOXY FOR VERTICAL AND HORIZONTAL APPLICATIONS IN CONCRETE AND MASONRY SUBSTRATES IS REQUIRED

MOUNTING TO CONCRETE CONNECTION DETAILS

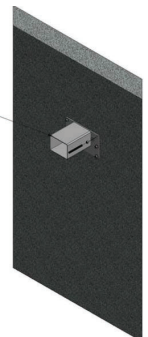
VERTICAL PLATE TO WALL
CONCRETE CONNECTION DETAIL



FOOT PLATE TO FLOOR
CONCRETE CONNECTION DETAIL



LOWER STRINGER PLATE
CONCRETE CONNECTION DETAIL



FLIGHT Stack Standards

ASTM Standards Overview

Viewrail abides by several ASTM standards to ensure the safety, quality, and durability of our products. These standards are critical in maintaining compliance with industry regulations and ensuring the structural integrity of both our stair and railing systems. The following ASTM standards are commonly relevant to our products, and are used for residential and commercial installations:

Relevant ASTM Standards for Viewrail Systems

1. ASTM A36 – Standard Specification for Carbon Structural Steel

Viewrail uses high-quality steel for its railing components, and ASTM A36 outlines the mechanical properties of carbon steel that must be adhered to in order to ensure the strength and safety of the material.

2. ASTM A513 – Standard Specification for Electric-Resistance-Welded Carbon and Alloy Steel Mechanical Tubing

Many of Viewrail's products use welded steel tubing, and ASTM A513 specifies the requirements for welded steel tubing to ensure it meets strength, mechanical, and dimensional criteria.

3. ASTM A500 – Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes

Viewrail often uses structural tubing for their railings. ASTM A500 defines the requirements for cold-formed steel tubing, which is used in various railings and guardrails for its strength and durability.

4. ASTM F2407 – Standard Specification for Guardrails and Handrails

This specification addresses the design, material, and performance requirements for guardrails and handrails, which directly applies to Viewrail's railing systems. This ensures that their products meet safety and structural performance standards.

5. ASTM E935 – Standard Test Method for Fire-Resistant Properties of Building Materials

For certain Viewrail products, especially those used in commercial and industrial applications, fire resistance is crucial. ASTM E935 tests fire-resistant properties of materials to ensure they meet building codes for fire safety.

FLIGHT Stack Standards

ASTM Standards Overview (cont'd)

6. ASTM E1300 – Standard Practice for Determining Load Resistance of Glass in Buildings

When glass is used in Viewrail's systems (e.g., glass railing systems), ASTM E1300 is an essential standard for ensuring the glass used meets the required load-bearing and safety criteria for building applications.

7. ASTM C1048 – Standard Specification for Heat-Treated Flat Glass—Kind HS, Kind FT Coated and Uncoated Glass

For their glass railing systems, Viewrail would ensure that the glass is compliant with ASTM C1048, which specifies the requirements for heat-treated glass to meet strength and durability standards.

8. ASTM B117 – Standard Practice for Operating Salt Spray (Fog) Apparatus

Since many Viewrail products are designed for both indoor and outdoor use, the durability of the materials in salt spray environments is essential for coastal or high-humidity locations. This standard evaluates the corrosion resistance of materials exposed to salt fog.

9. ASTM D4060 – Standard Test Method for Abrasion Resistance of Organic Coatings by the Taber Abraser

If Viewrail's railing systems have a painted or coated finish, this standard tests the abrasion resistance of coatings to ensure that the finishes maintain their appearance and durability over time.

Compliance with Building Codes

In addition to the above standards, Viewrail products must comply with local building codes and other safety regulations, such as:

- IBC (International Building Code)
- IRC (International Residential Code)
- ADA Compliance (Americans with Disabilities Act)

Viewrail abides by multiple ASTM standards to ensure that our stair and railing systems meet the highest standards for safety, quality, and durability. The specific ASTM standards mentioned above apply to the materials, performance, and safety requirements of their products, ensuring they are fit for use in both residential and commercial environments. Always consult with Viewrail directly or review the technical specifications for a particular product to confirm compliance with applicable ASTM standards.