



# **Stairfriend**

**Curved Stairlift**

## **PLANNING GUIDE**

### **Applicable Codes:**

ASME A18.1

CAN/CSA B613

**Part No. 000967  
08-m03-2016**

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## Purpose of This Guide

This guide assists architects, contractors, and lift professionals to incorporate the Stairfriend curved stairlift into a residential or public building design.

The design and manufacture of the Stairfriend Stairlift meets the requirements of the following codes and standards:

- ASME A18.1-2003 Section 4 (Public)
- ASME A18.1-2005 Section 4 (Public)
- ASME A18.1-2008 Section 4 (Public)
- ASME A18.1-2011 Section 4 (Public)
- ASME A18.1-2014 Section 4 (Public)
- ASME A18.1-2003 Section 7 (Private)
- ASME A18.1-2005 Section 7 (Private)
- ASME A18.1-2008 Section 7 (Private)
- ASME A18.1-2011 Section 7 (Private)
- ASME A18.1-2014 Section 7 (Private)
- CAN/CSA B355 S1-02 (Public)
- CAN/CSA B355-09 (Public)
- CAN/CSA B613-2000 (Private)

We recommend that you contact your local authority having jurisdiction to ensure that you adhere to all local rules, regulations and fire regulations pertaining to curved stairlifts.

**IMPORTANT:** This Planning Guide provides nominal dimensions and specifications useful for the initial planning of a stairlift project. **Dimensions and specifications are subject to change without notice due to continually evolving code and product applications.**

Before beginning installation, please consult Savaria Corporation or the authorized Savaria dealer in your area to ensure you receive your site-specific installation drawings with the dimensions and specifications for your project.

Visit our website for the most recent drawings and dimensions.

## How to Use This Guide

- 1 Determine your client's intended use of the lift.
- 2 Determine the local code requirements.
- 3 Determine the site installation parameters.
- 4 Plan for electrical requirements.

## History

November 19, 2013 – Initial release  
February 19, 2014 – Revised picture on page 14  
March 5, 2014 – Revised picture on page 12  
June 18, 2014 – New drawings on pages 13, 16, and 18 to 22  
July 8, 2014 – Revised drawings on pages 17 and 18  
July 17, 2014 – Revised pages 5, 6, 11, 13, 14, 15, 17, 20 and 21  
November 5, 2014 – Revised Applicable Codes on page 3  
January 20, 2015 – Added 2014 codes in section above  
February 27, 2015 – Revised load diagram on page 12  
March 20, 2015 – Revised turning clearances drawing on page 17  
March 27, 2015 – Added new drawings on pages 23 to 41  
July 9, 2015 – Revised lower landing drawing on page 19  
September 24, 2015 – Added Daily Cycle to specifications on page 6  
December 1, 2015 – Revised Turning Clearances on page 17  
March 8, 2016 – Removed copyright from cover page; Savaria Corporation back to Savaria Concord Lifts, Inc.

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## Description of the lift

The Stairfriend curved stairlift is designed to be installed on stairs that feature a curve, an intermediate landing, or when out-of-the-way parking is desired.

The stairlift features a double-rail system for strength and durability and provides a smooth, comfortable ride. The seat features an open, lower back design for excellent comfort while riding in the chair. The lift is easy to operate with controls on the armrest as well as two included radio frequency remote controls.

Savaria custom bends the rail to your exact specifications based on computer-aided design and photo measuring ensuring an accurate installation.

The unit travels along the guide rails at a comfortable speed up to 20 feet per minute (0.1 metres per second).

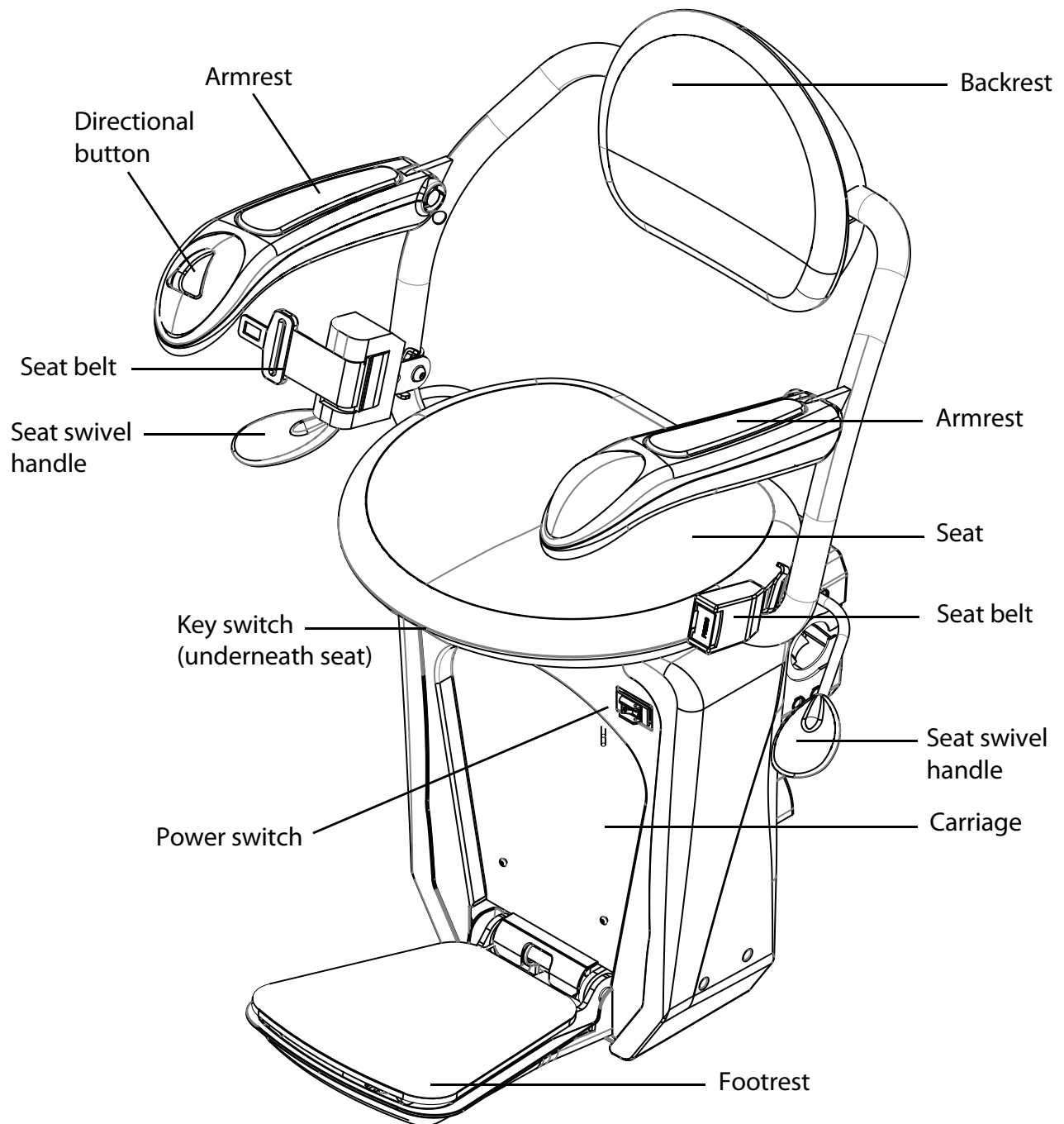
## Features and benefits

- Battery charging at the top and bottom (and optional intermediate landings) to ensure the stairlift is always charged and ready to go, even if there is a power failure
- Choice of seat and backrest with wipe-clean synthetic leather
- Capacity up to 350 lbs (160 kg)
- Seat swivels and locks into position for safe boarding and deboarding (at the top only)
- Retractable seat belt to ensure your safety
- Folds up to less than 15.5" (39.4 cm) to allow easy access to the stairs when the lift is not in use
- On-board controls with soft start and smooth stop operation
- Two radio frequency remote controls included, offering greater range and control of the lift from other rooms
- Overspeed governor and obstruction sensors to stop the chair if it meets an object in both the up or down travel directions
- Reliable rack and pinion drive with sturdy, twin steer tube rail construction
- Custom-built for curves, turns, landings and parking
- Can be mounted on either side of the stairs
- Onboard diagnostics to identify any service issues
- Options: 90° or 180° parking, top or bottom overrun, keyless access, emergency stop button, and extra long seat belt

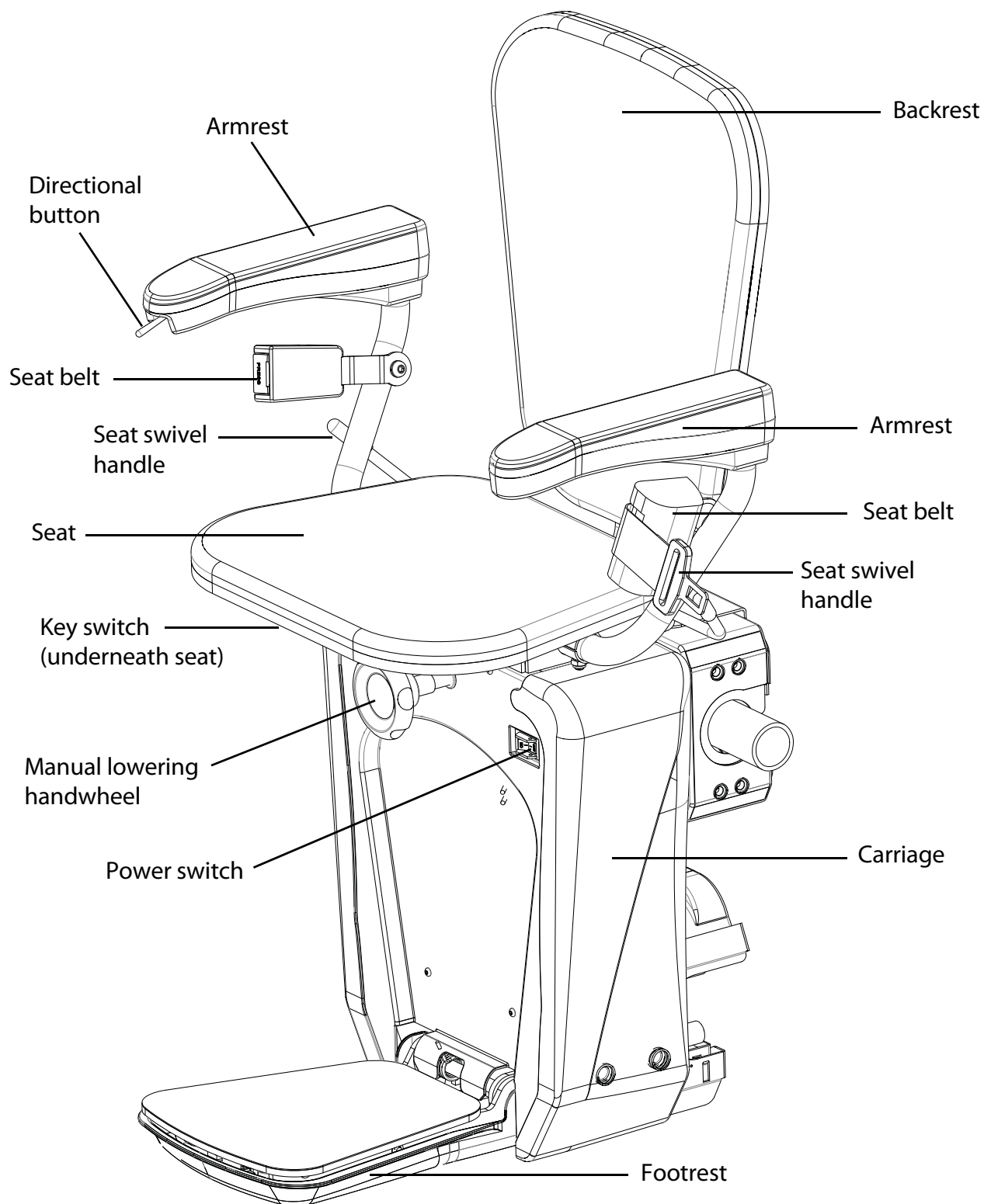
## Specifications of the lift

Specification	Data
Applications	Residential or commercial, indoor, curved stairs
Capacity	350 lb (160 kg)
Nominal speed	20 ft/min (0.1 m/s), 12 ft/min (0.06 m/s)
Drive	Rack and pinion
Motor	1/2 hp, 24V (DC) power that charges on standard household power
Fold-up width	15.5" (39.4 cm)
Fold-out width	25.5" (64.5 cm)
Range of incline	0 to 52°
Daily cycle	Normal: 10 Heavy: 30 Excessive: 50 Maximum starts in 1 hour on standard installation: 5 NOTE: Please consult your Sales Representative if there a chance you may exceed these amounts.
Features	Directional button on the armrest Radio frequency remote controls to call/send the lift Manual lowering capability (using handwheel) Folding seat (with seat belt) Folding footrest Obstruction sensors on the carriage and footrest Locking seat swivel handles

## Lift components (V-seat shown)



## Lift components (L-seat shown)

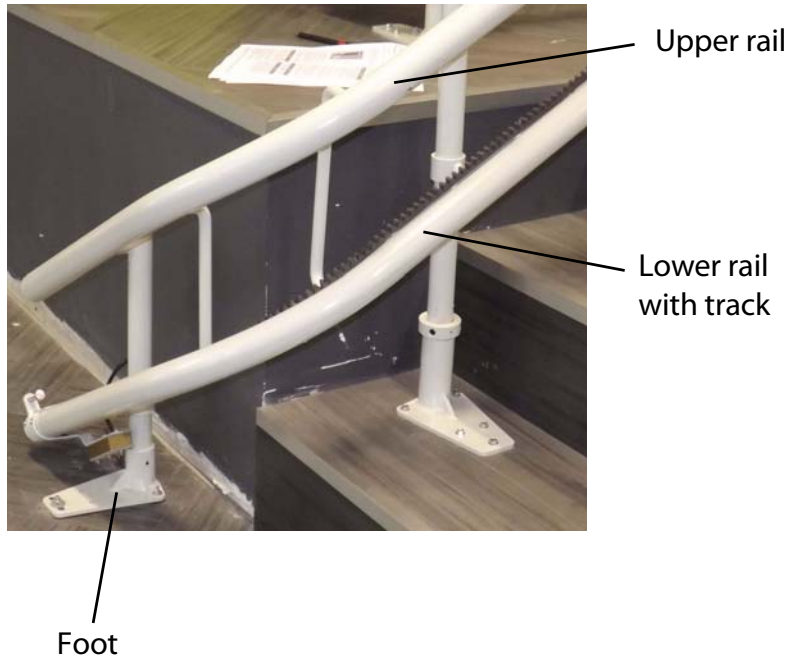




## Guide rails

The lift travels up and down the stairway along two guide rails – an upper rail and a lower rail with a gear track.

The guide rails are mounted on feet at the locations specified in your Installation drawings. Rail sections are connected together at the rail joints using bolts and joint pins. Once all rail sections have been joined together and location is finalized according to the Installation drawings, the feet are then secured to the stairs.



## Safety features



Footrest underpan

Manual lowering handwheel



End stop



### Obstruction sensors

There are sensors inside the carriage bumpers and the footrest underpan that stop the lift if it encounters an obstacle on the stairs.

### Key switch

The key switch is located underneath the seat and must be turned on to activate the stairlift.

### Power switch

The power switch is located on the front of the carriage and turns power on/off to the stairlift.

### End stops

The end stops are mounted on the rail and are used to stop the lift at the upper and lower end of the stairs.

### Overspeed governor

The overspeed governor is a safety device that activates to quickly bring the lift to a stop if it is descending down the stairs too quickly.

### Manual lowering handwheel

You can use the manual handwheel by inserting it on the motor shaft to bring the lift to the next landing in the event of an emergency.

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## Site verification

### Stairway

Due to close running clearances, the Owner/Agent must ensure that the stairs (where provided) are level, plumb (+/-1/8" (3 mm)) and square and are in accordance with the dimensions specified on the site-specific Installation drawings.

### Minimum overhead clearance

The Contractor/Customer must ensure the minimum overhead clearance is in compliance with codes.

### Construction site

The Contractor/Customer is responsible for all masonry, carpentry and drywall work as required, and for patching and finishing (including painting) all areas where walls/floors may need to be cut, drilled or altered in any way to permit the proper installation of the lift.

### Dimensions

The Contractor/Customer must verify all dimensions on the site-specific Installation drawings and report any discrepancies to the Agent or Distributor.

### Installation

The equipment must be installed by a qualified technician in compliance with the codes identified on the front cover of this manual.

The conformity for access to the stairlift is the distributor's responsibility.

## Electrical requirements

### General

Electrical equipment and wiring must comply with Section 38 of CSA C22.1 (Canada) or Section 620 of NEC ANSI/NFPA 70 (USA).

### Main power supply

120 VAC, 15 Amp, 60 Hz single-phase circuit through a fused disconnect.

There must be an electrical outlet for the charger.

### Lighting

Contractor/customer to provide lighting. Lighting must be a minimum of 100 Lux at the platform and landings.

Contractor/customer to provide emergency lighting. Emergency lighting of 2 Lux must be provided for a minimum of one hour on the platform along the travel route.

## Clearance

### Folding/unfolding

The stairlift requires 1" (2.54 cm) clearance when folding and unfolding between two wall.

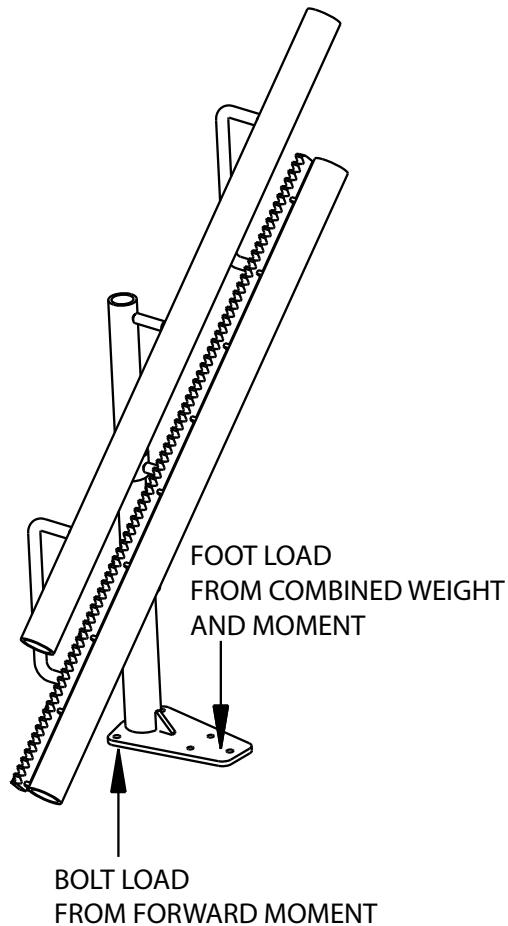
## Structural requirements

### Floor/support wall loads

A structural engineer must ensure that the building and stairway will safely support all loads imposed by the lift equipment. Adequate structural support must be provided at the top landing, bottom landing and throughout the supporting wall along the stairs.

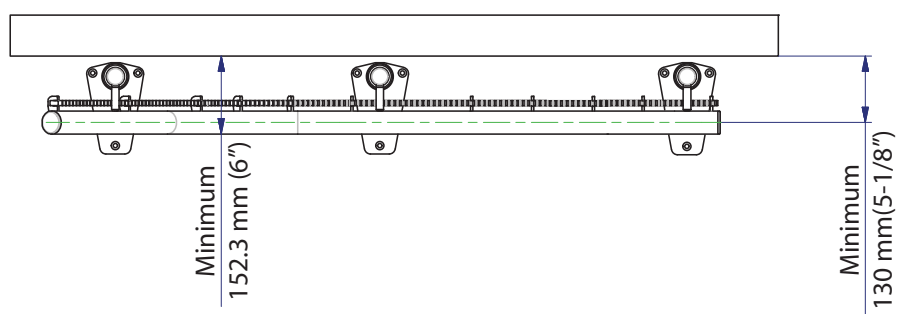
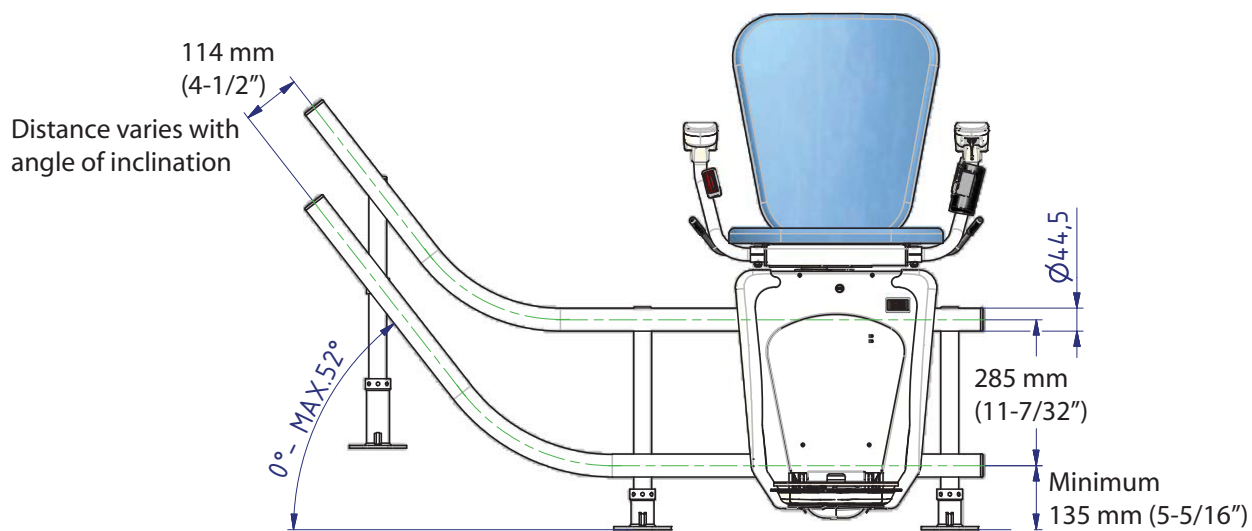
**NOTE:** A foot gasket is required on tile, stone or concrete floor.

### Support load diagram



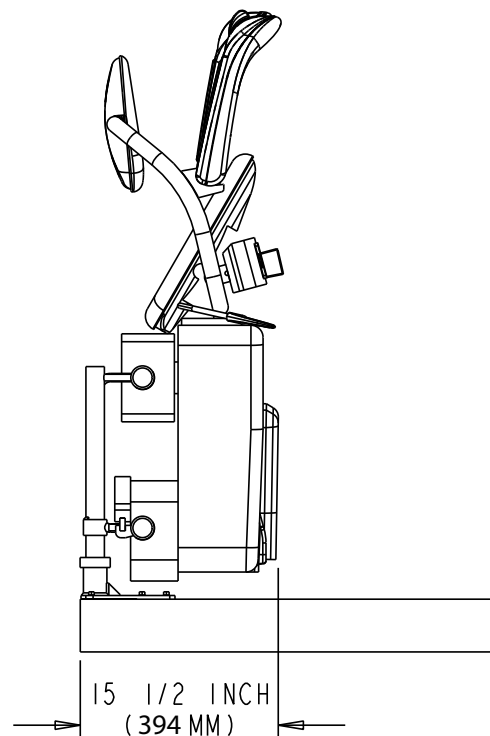
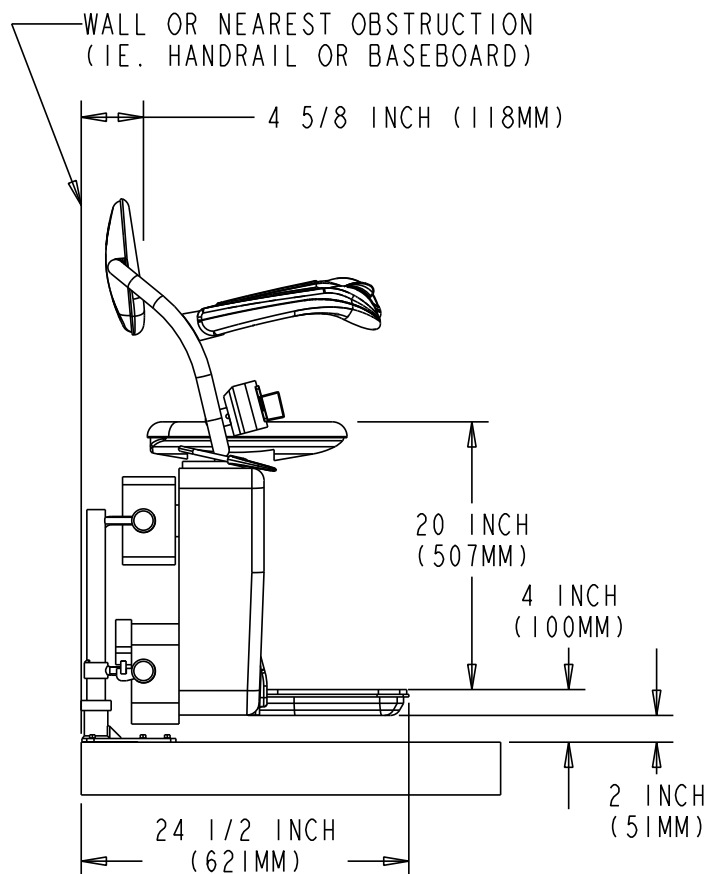
DESIGN FOOT LOADS ARE:  
4684N (1053 LBF) VERTICAL FOOT LOAD  
2344N (527 LBF) BOLT TENSILE LOAD  
AT BACK TWO FASTENER LOCATIONS  
DUE TO FORWARD MOMENT  
-USE THE SAME FASTENERS IN 3 LOCATIONS

## General chair/rail dimensions

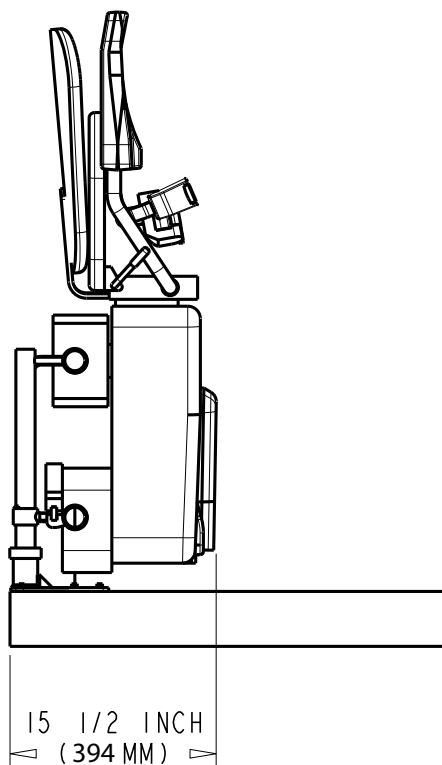
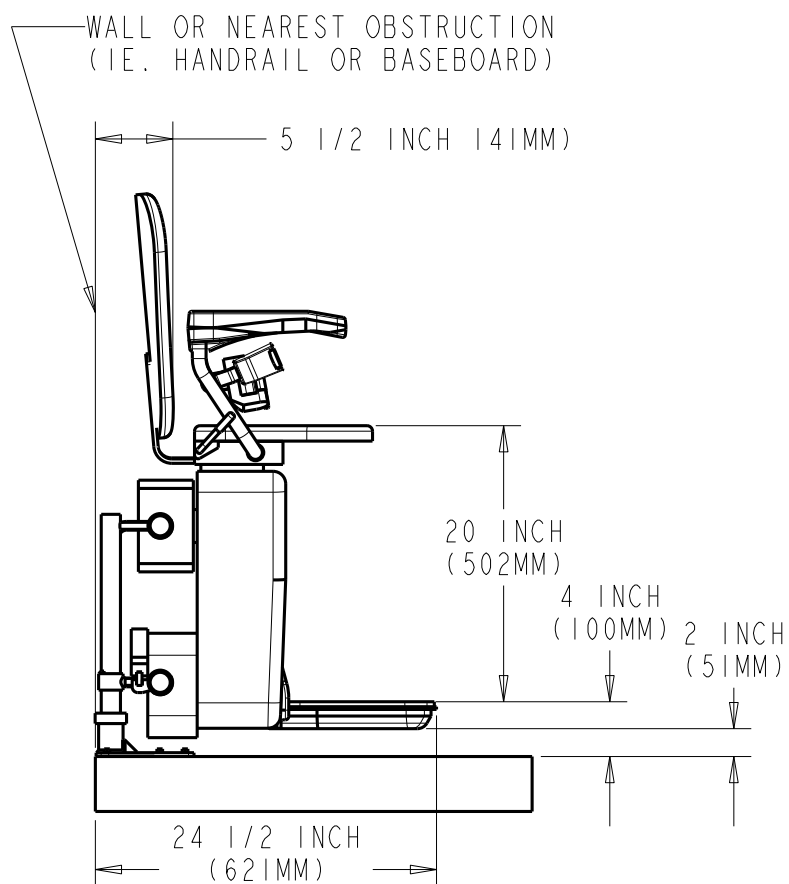


NOTE: Dimensions may differ depending on configuration.

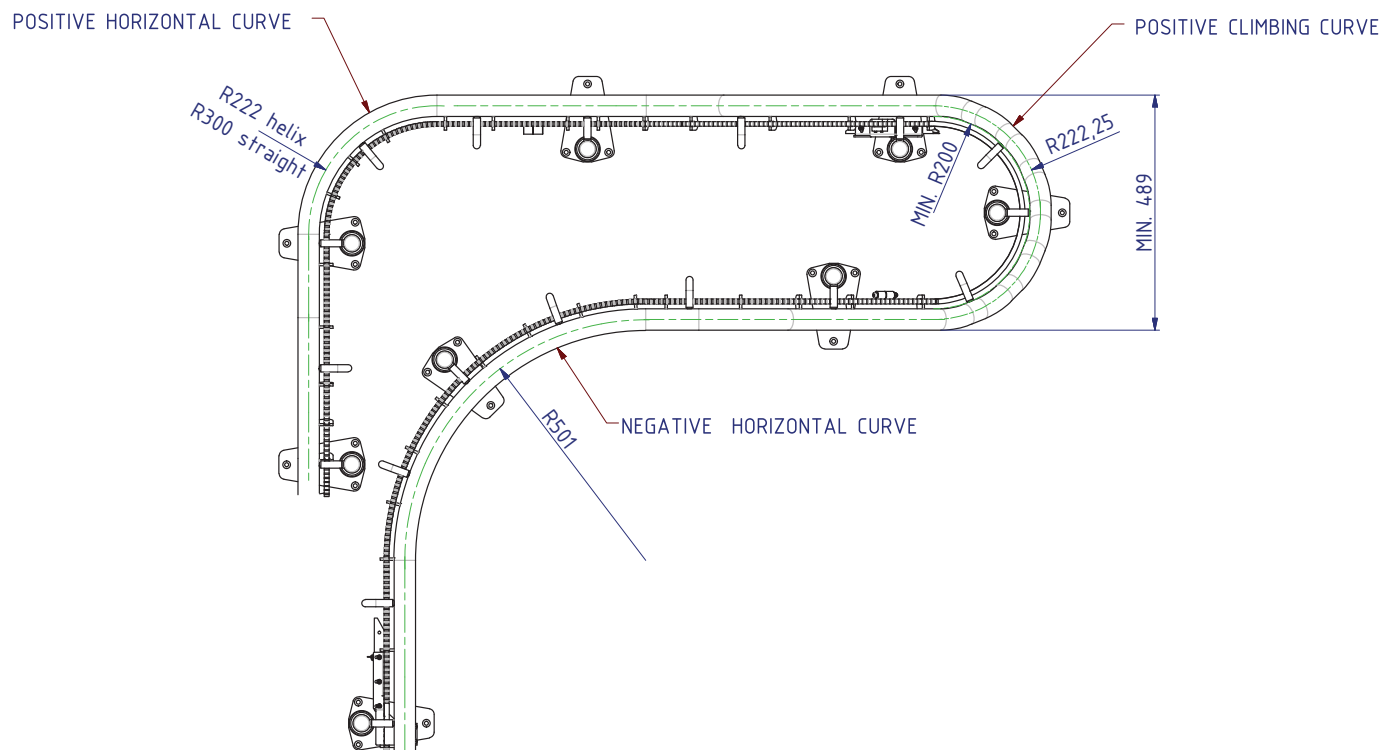
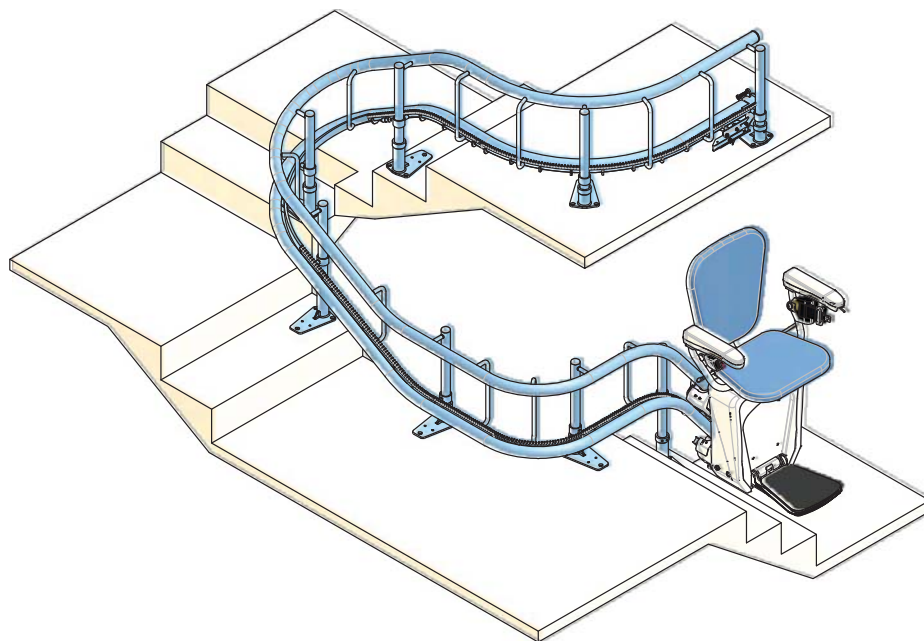
## Folded/unfolded V-seat dimensions



## Folded/unfolded L-seat dimensions

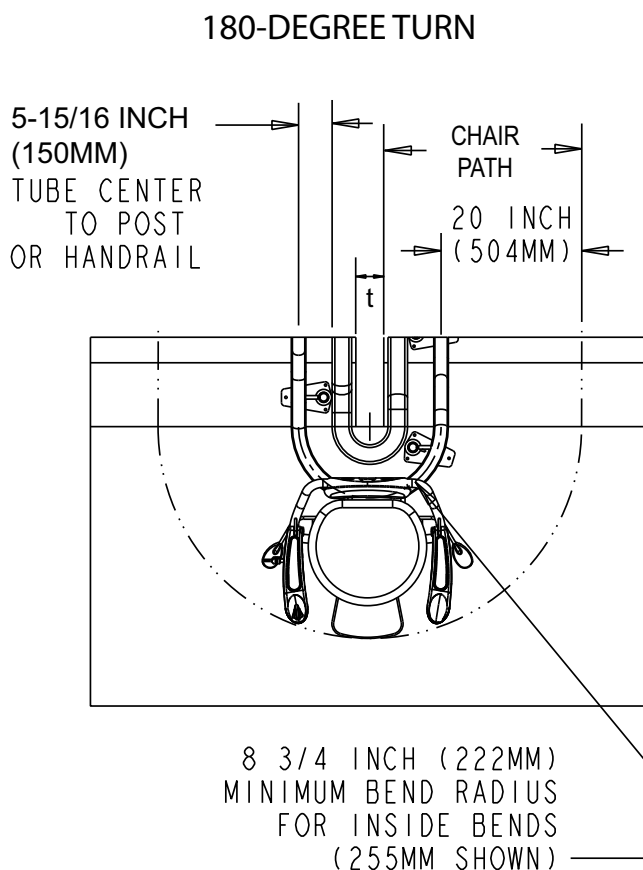
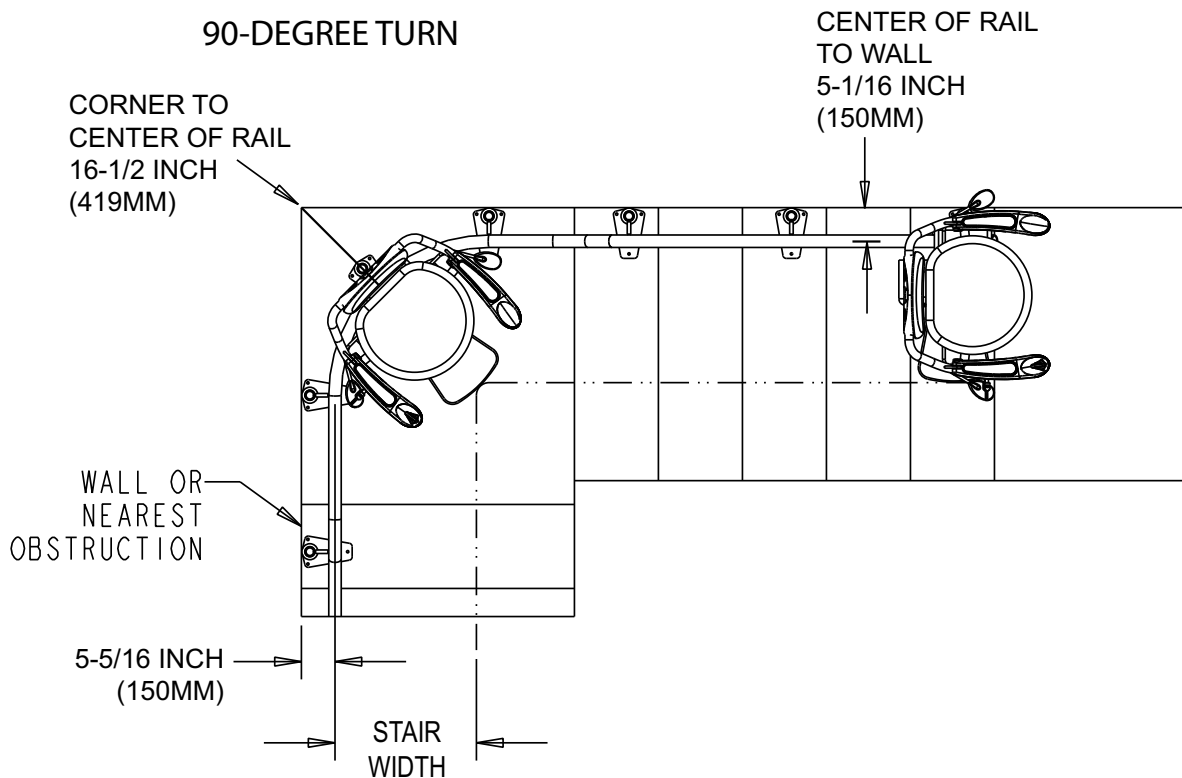


## Curve dimensions





## Turning clearances



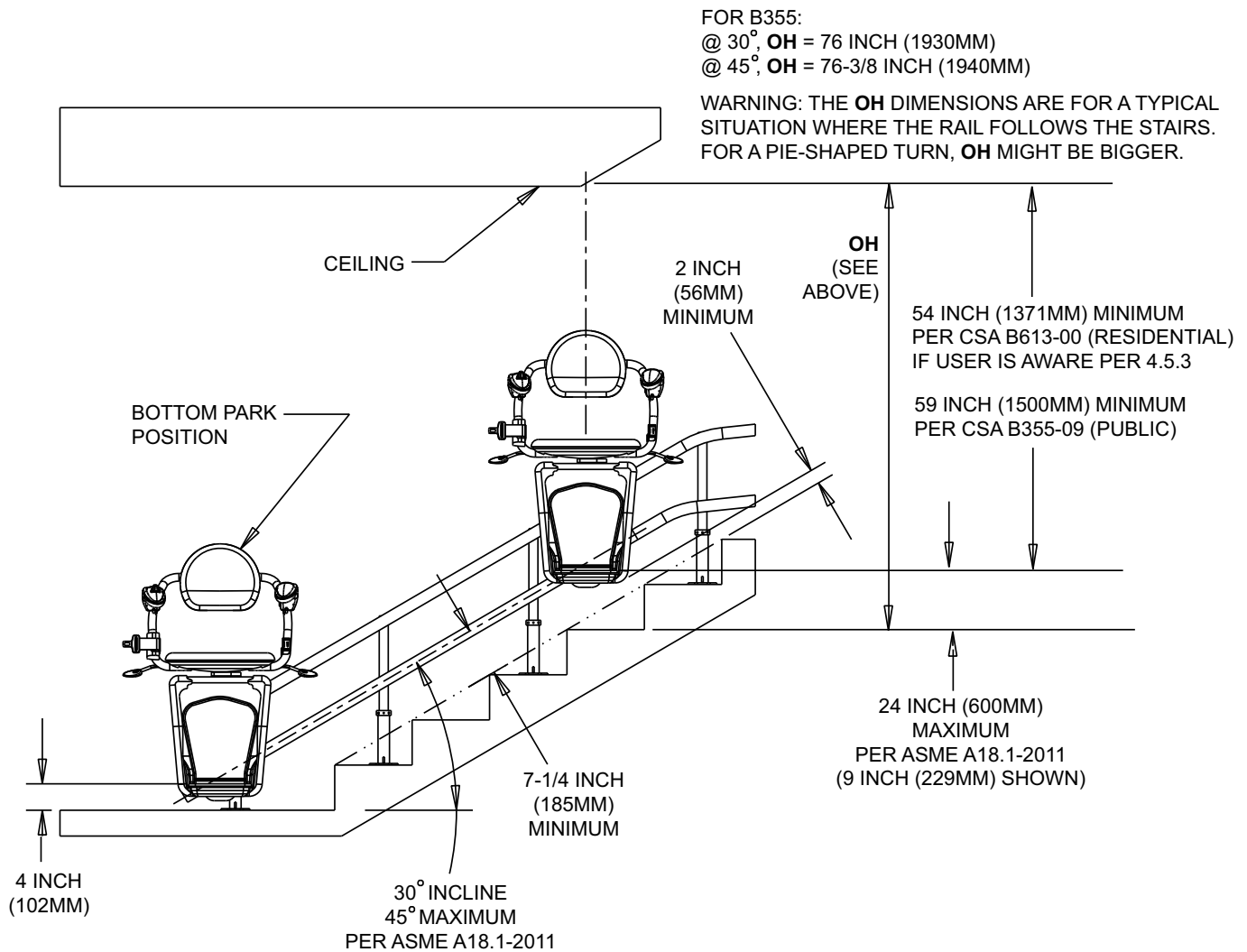
For  $t = 0$ ,  
MINIMUM STAIR WIDTH (CENTRED)  
= 857MM (33-3/4 INCH)

For  $t = 0$ ,  
MINIMUM STAIR WIDTH (NOT CENTRED)  
= 944 MM (37-5/32 INCH) ON ONE SIDE  
= 800MM (31-1/2 INCH) ON THE OTHER SIDE

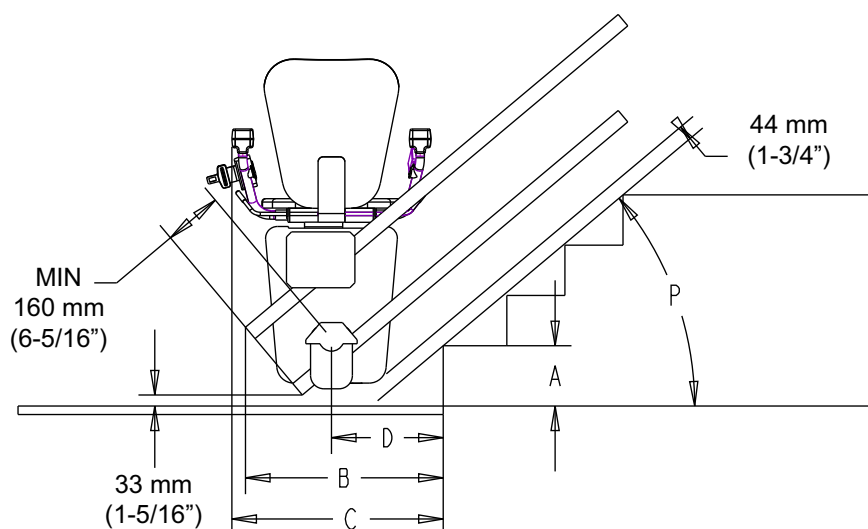
For  $t = 174\text{MM}$  (6-27/32 INCH) OR BIGGER,  
MINIMUM STAIR WIDTH (ALWAYS CENTRED)  
= 826MM (32-1/2 INCH)

NOTE: DIMENSIONS USING A STANDARD PERSON  
HAVING FEET 50MM (2 INCH) PAST THE FOOTREST.

## Overhead and stairway clearances



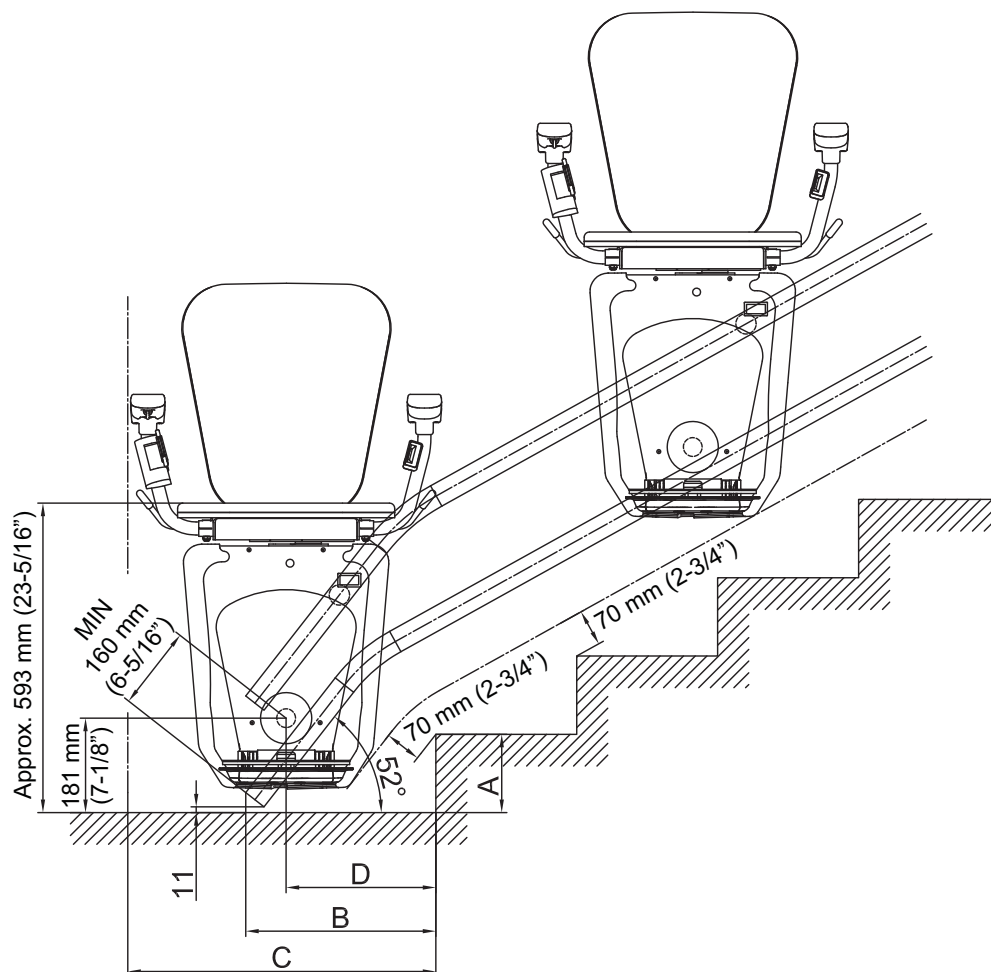
## Lower landing (normal start)



	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
40°	519	20.44	595	23.44	298	11.73	440	21.15	614	24.15	316	12.44	555	21.85	631	24.85	334	13.14
35°	575	22.64	633	24.92	336	13.21	596	23.48	654	25.76	357	14.05	618	24.32	676	26.60	378	14.89
30°	637	25.06	684	26.92	386	15.21	672	26.44	710	27.94	412	16.23	698	27.47	736	28.96	438	17.25
25°	736	28.96	756	29.76	458	18.05	775	30.51	788	31.02	490	19.31	807	31.78	820	32.29	523	20.58
P	B		C		D		B		C		D		B		C		D	
	A		mm		inch		A		mm		inch		A		mm		inch	
			150		5.91				165		6.50				180		7.09	

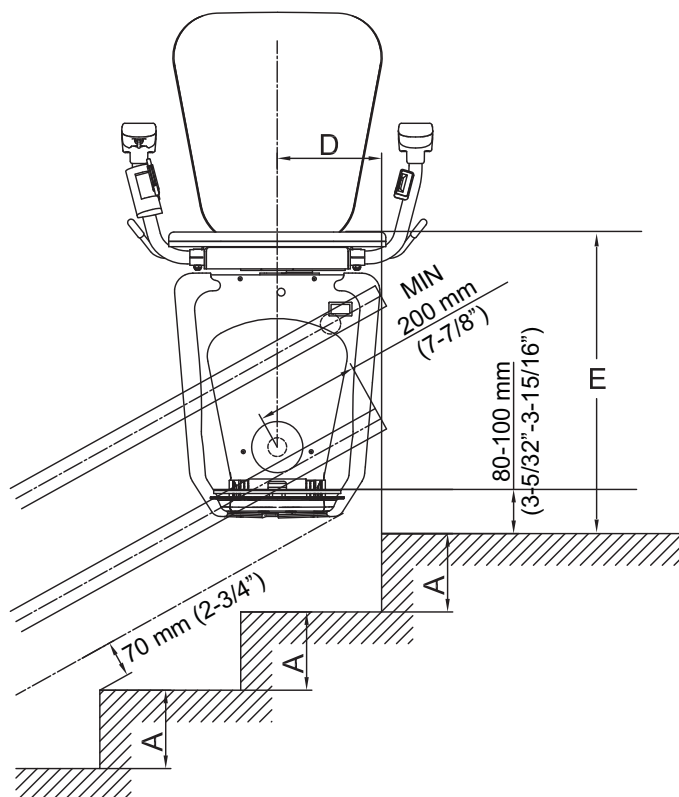
A ... HEIGHT OF THE FIRST STEP  
 B ... RAIL OVERHANG  
 C ... SPACE FOR CHAIRLIFT  
 D ... STOP POSITION  
 P ... STAIRCASE INCLINATION

## Lower landing (steep start)



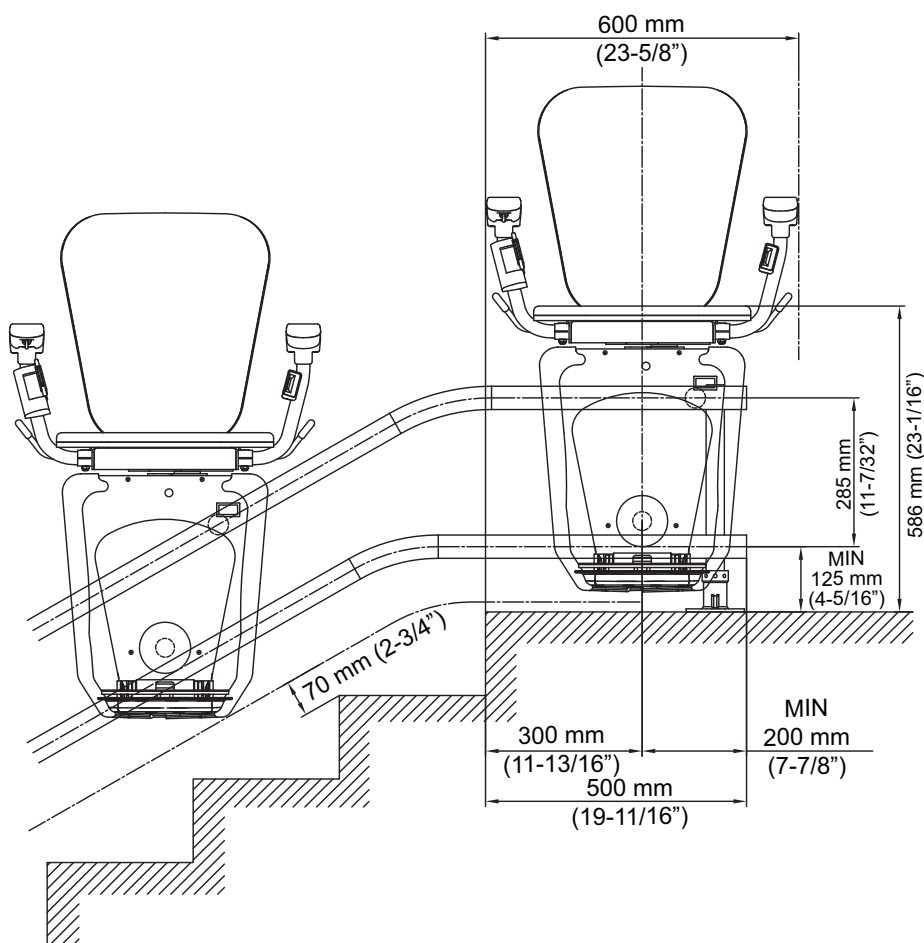
FIRST STEP HEIGHT A		RAIL OVERHANG B		SPACE FOR CHAIRLIFT C		STOP POSITION D	
mm	inch	mm	inch	mm	inch	mm	inch
150	5.91	364	14.33	590	23.23	287	11.30
165	6.50	376	14.80	600	23.62	298	11.73
185	7.28	392	15.43	615	24.21	314	12.36

## Upper landing (stop at edge of last step)



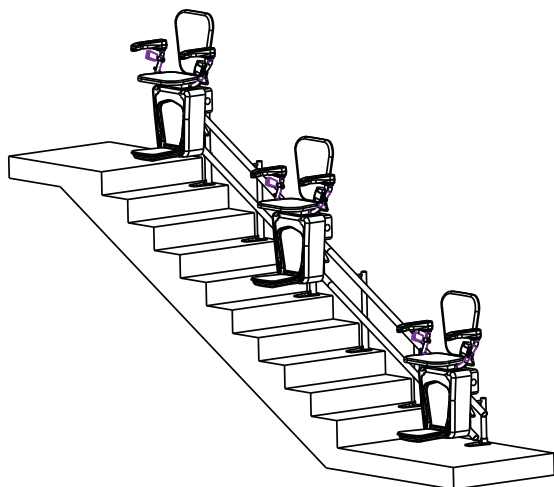
HEIGHT OF STEPS A		STOP POSITION D		CHAIR HEIGHT E	
mm	inch	mm	inch	mm	inch
150	5.91	200	7.87	587	23.11
165	6.50	190	7.48	590	23.23
185	7.28	180	7.09	595	23.43

## Upper landing (stop behind edge of last step on horizontal)

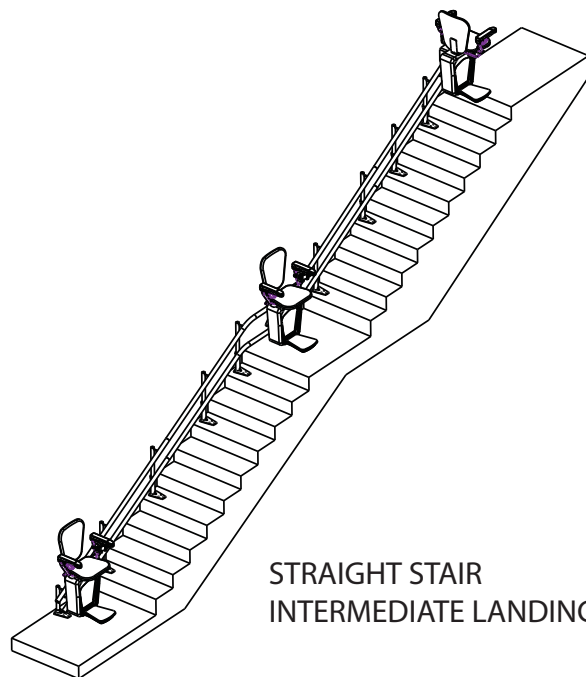


## Configurations (Sheet 1)

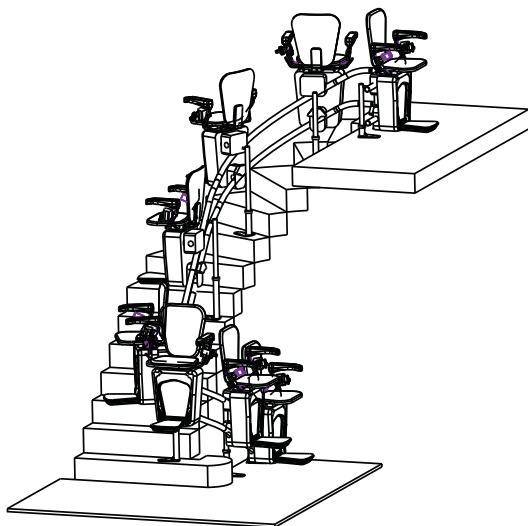
### CONFIGURATIONS (SHEET 1)



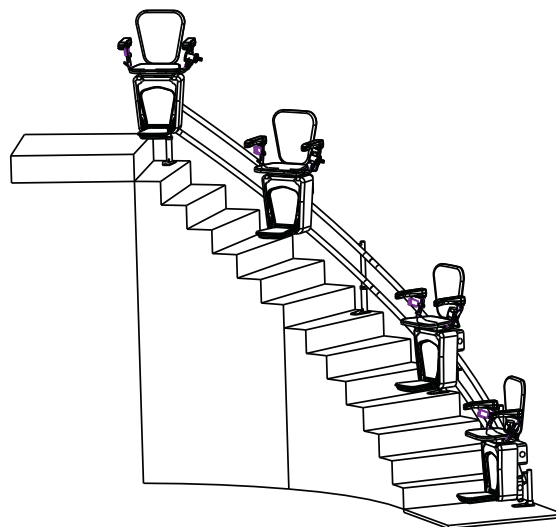
STRAIGHT STAIR



STRAIGHT STAIR  
INTERMEDIATE LANDING



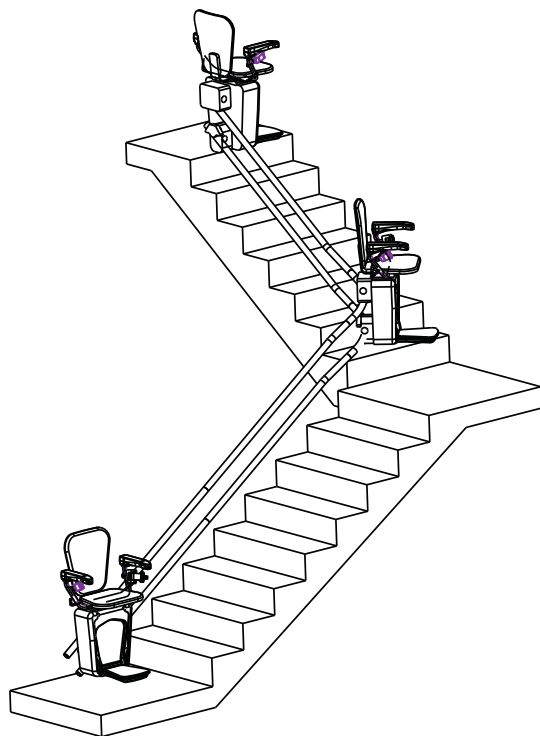
SPIRAL STAIR INSIDE



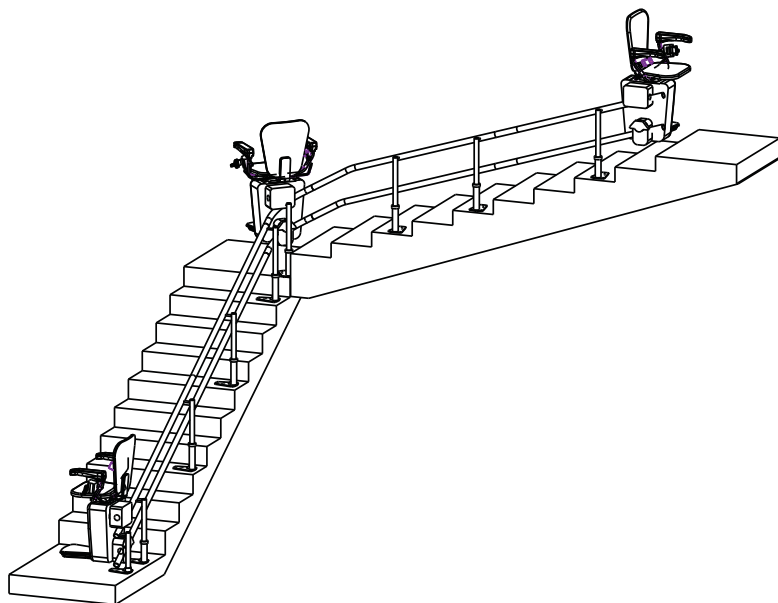
SPIRAL STAIR OUTSIDE

## Configurations (Sheet 2)

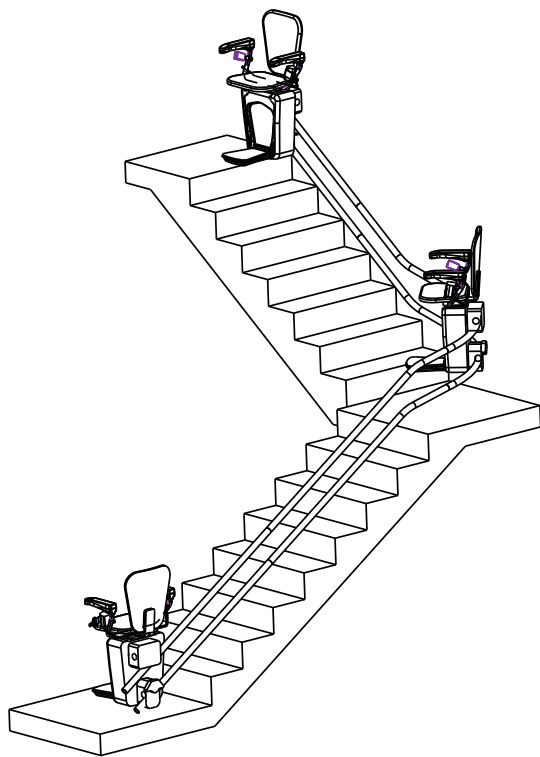
### CONFIGURATIONS (SHEET 2)



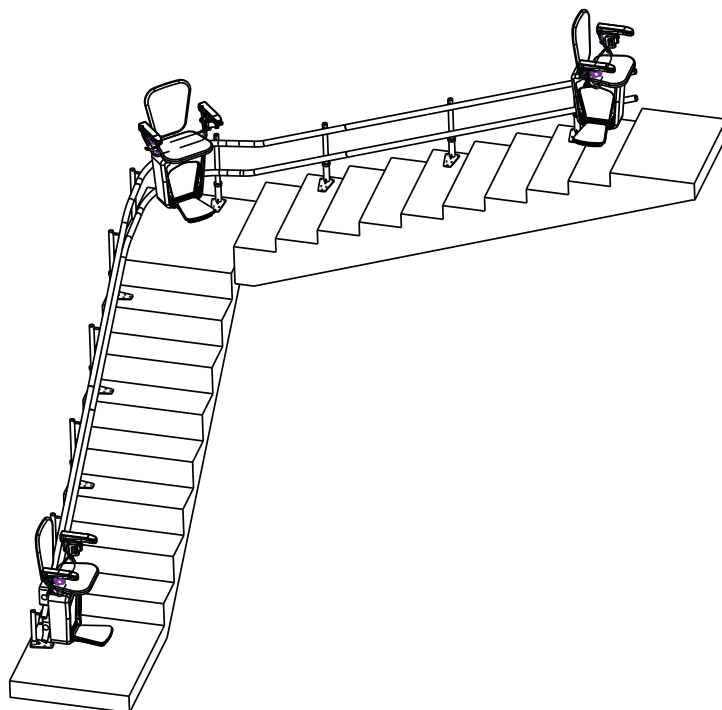
90 DEGREE STAIR INSIDE RAIL LH



90 DEGREE STAIR INSIDE RAIL RH



90 DEGREE STAIR OUTSIDE RAIL LH

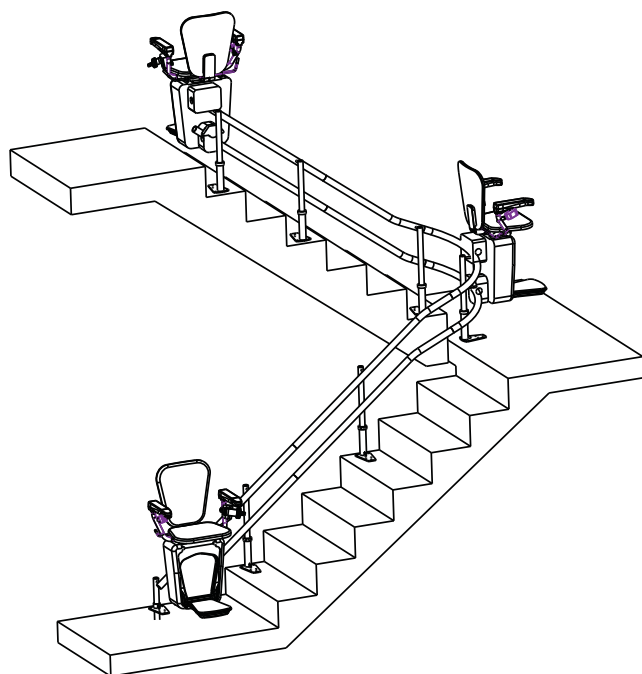


90 DEGREE STAIR OUTSIDE RAIL RH

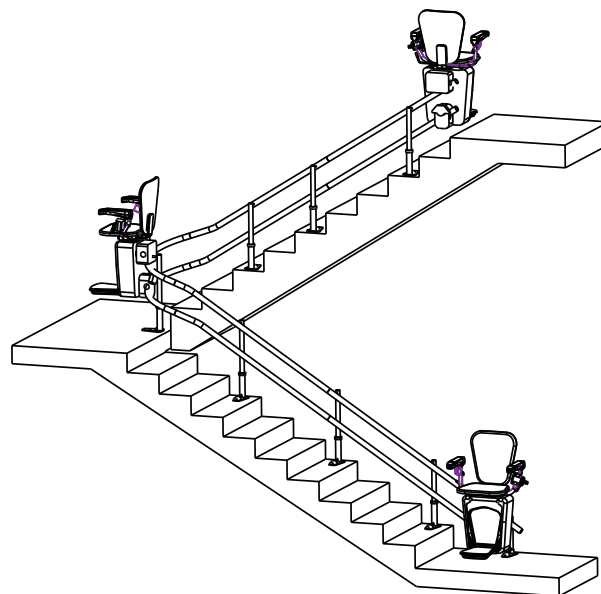


## Configurations (Sheet 3)

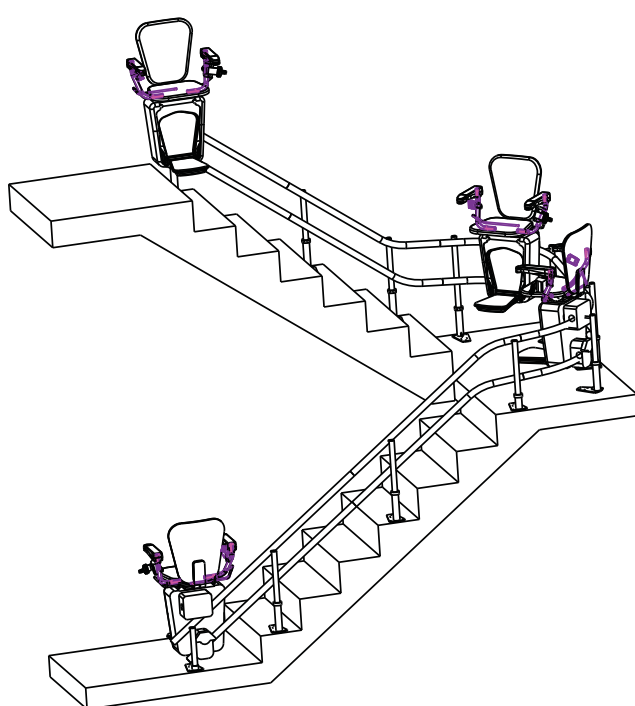
### CONFIGURATIONS (SHEET 3)



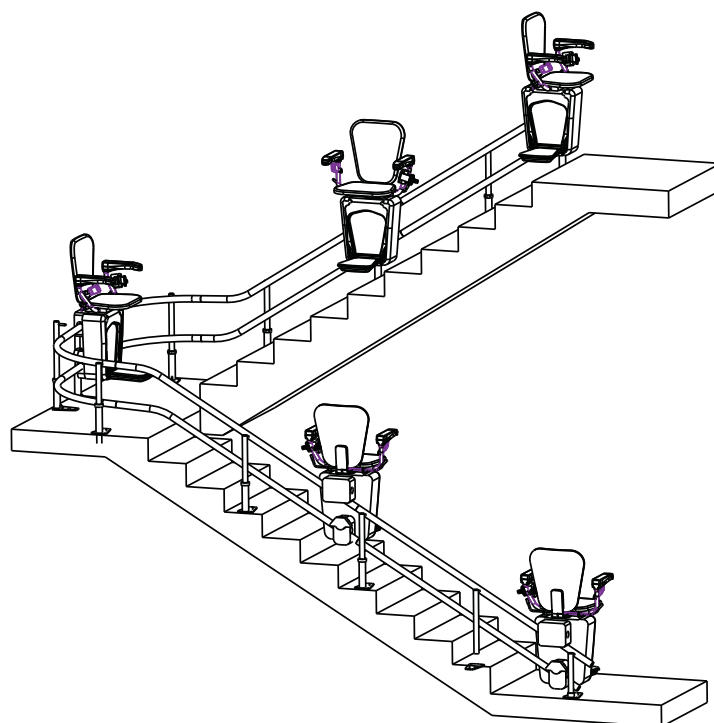
180 DEGREE STAIR INSIDE RAIL LH



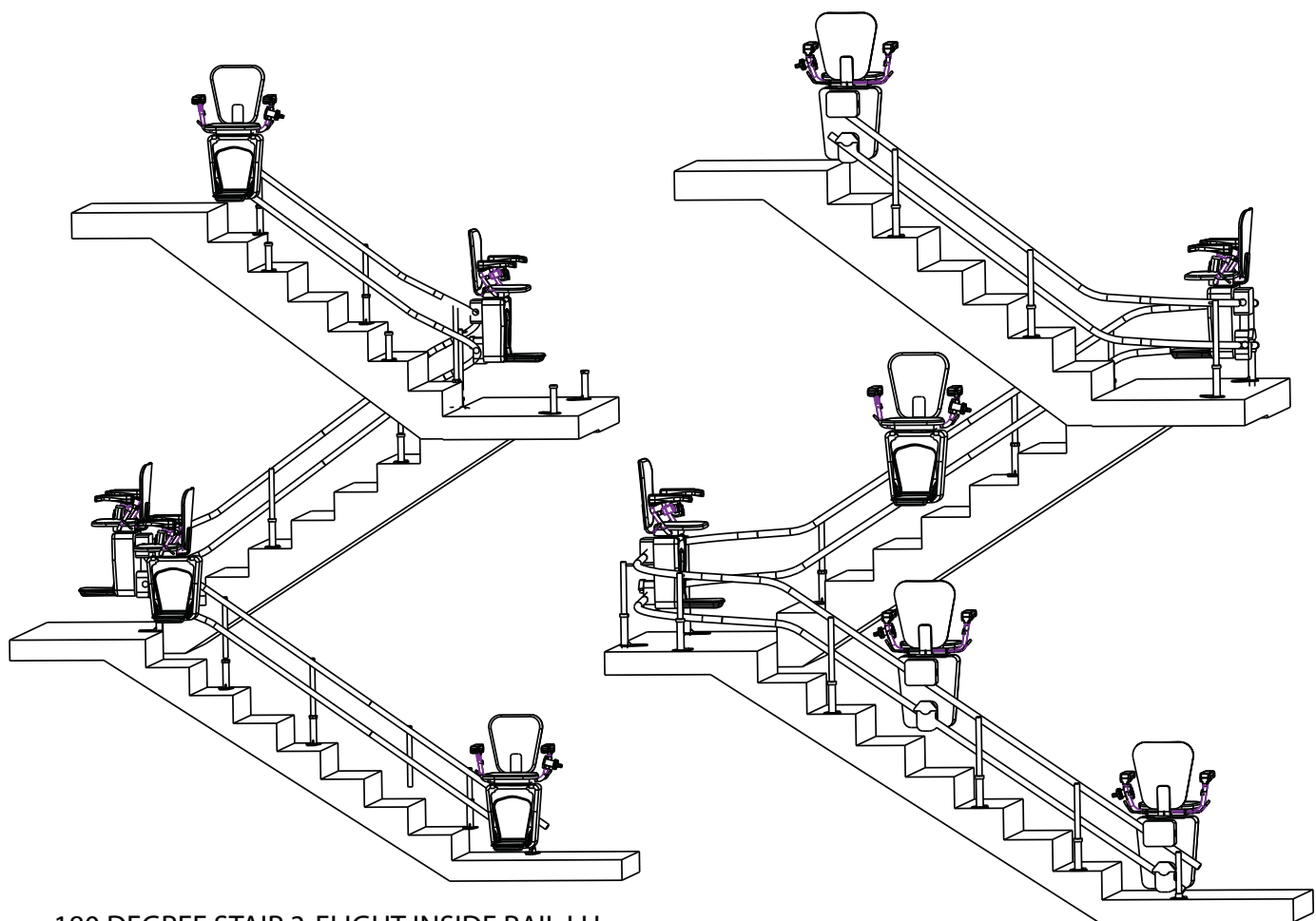
180 DEGREE STAIR INSIDE RAIL RH



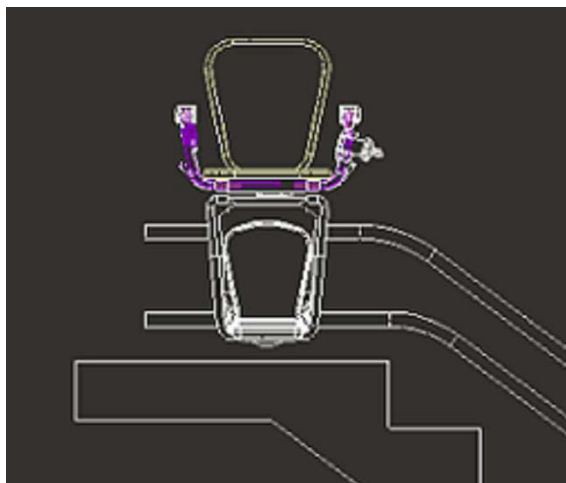
180 DEGREE STAIR OUTSIDE RAIL LH



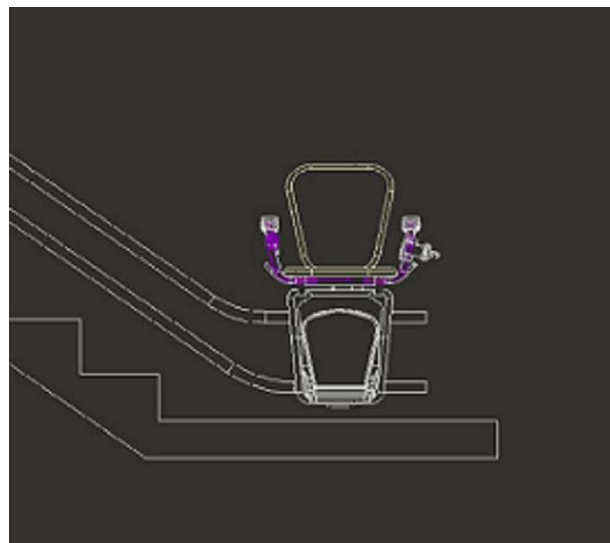
180 DEGREE STAIR OUTSIDE RAIL RH

**Configurations (Sheet 4)****CONFIGURATIONS  
(SHEET 4)****180 DEGREE STAIR 3-FLIGHT INSIDE RAIL LH****180 DEGREE STAIR 3- FLIGHT OUTSIDE RAIL RH**

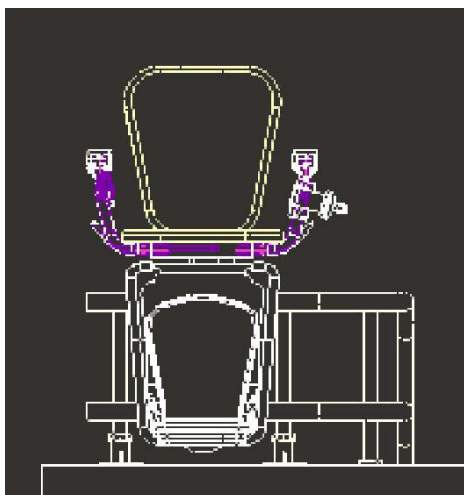
## Overrun and parking



OVERRUN AT TOP



OVERRUN AT BOTTOM



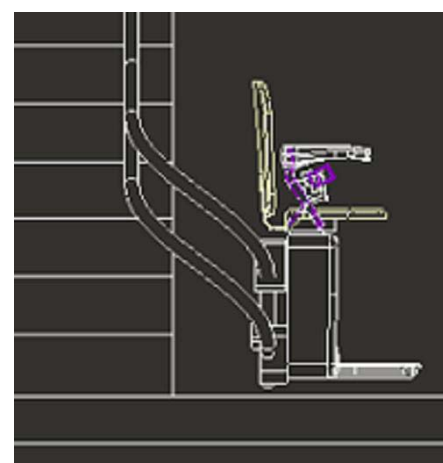
90 DEG PARKING AT TOP



90 DEG PARKING AT BOTTOM

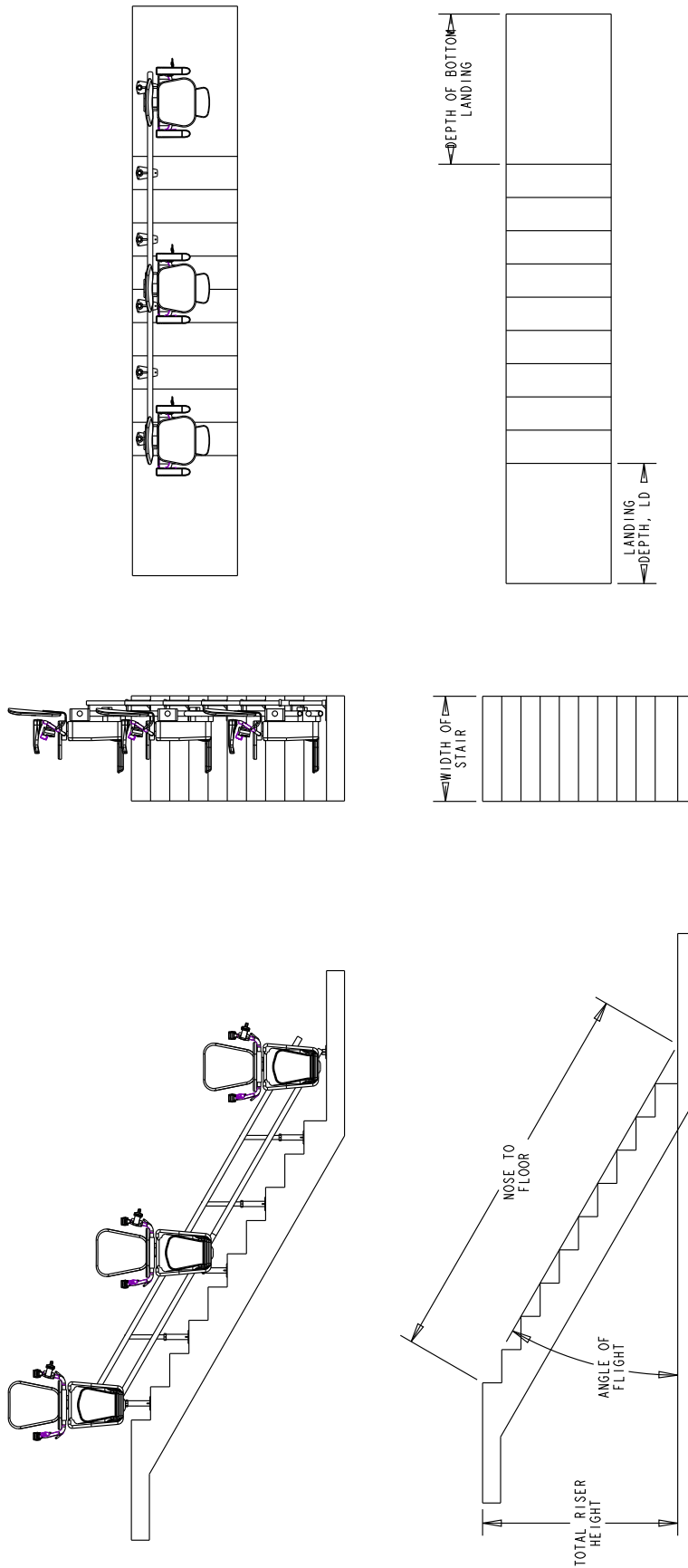


180 DEG PARKING AT TOP

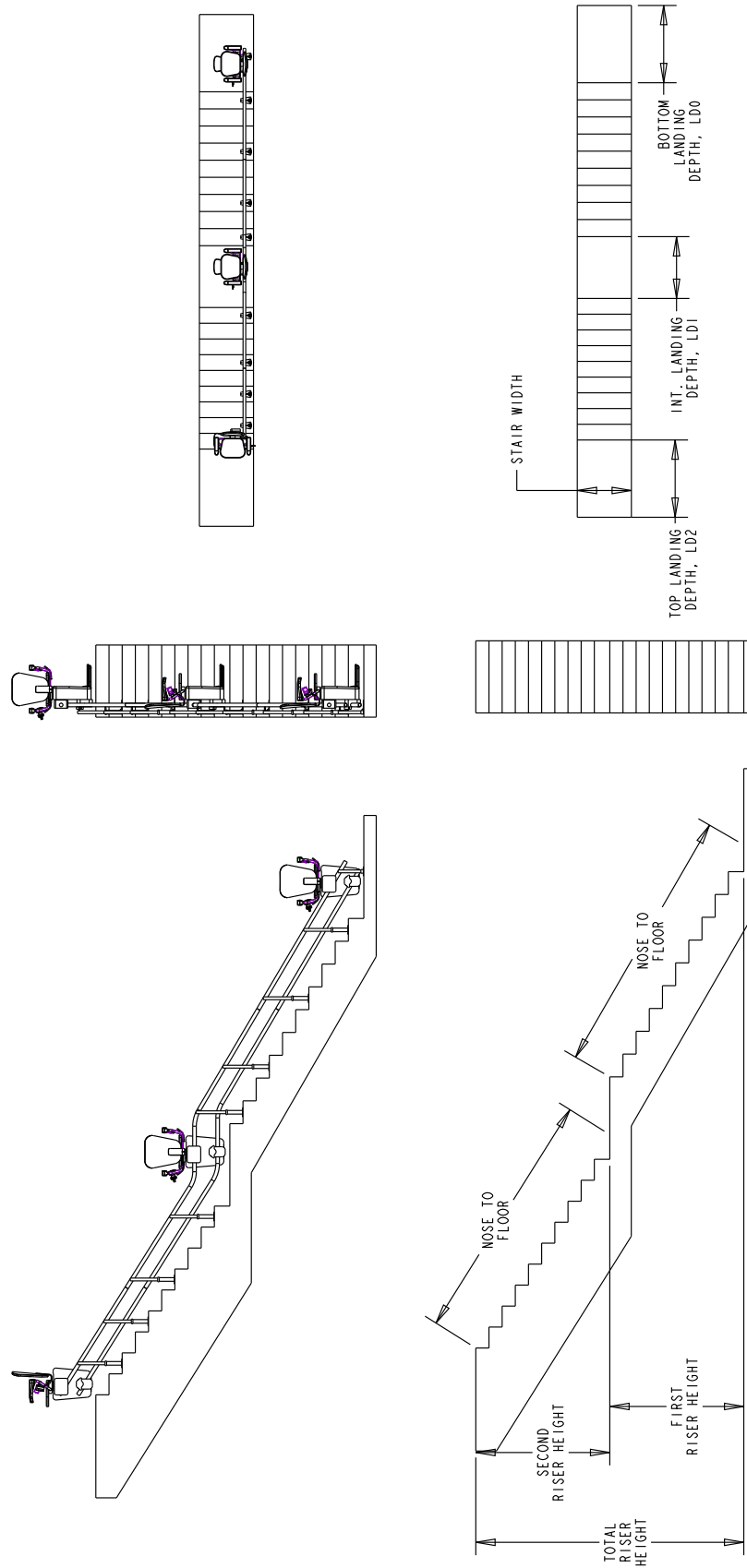


180 DEG PARKING AT BOTTOM

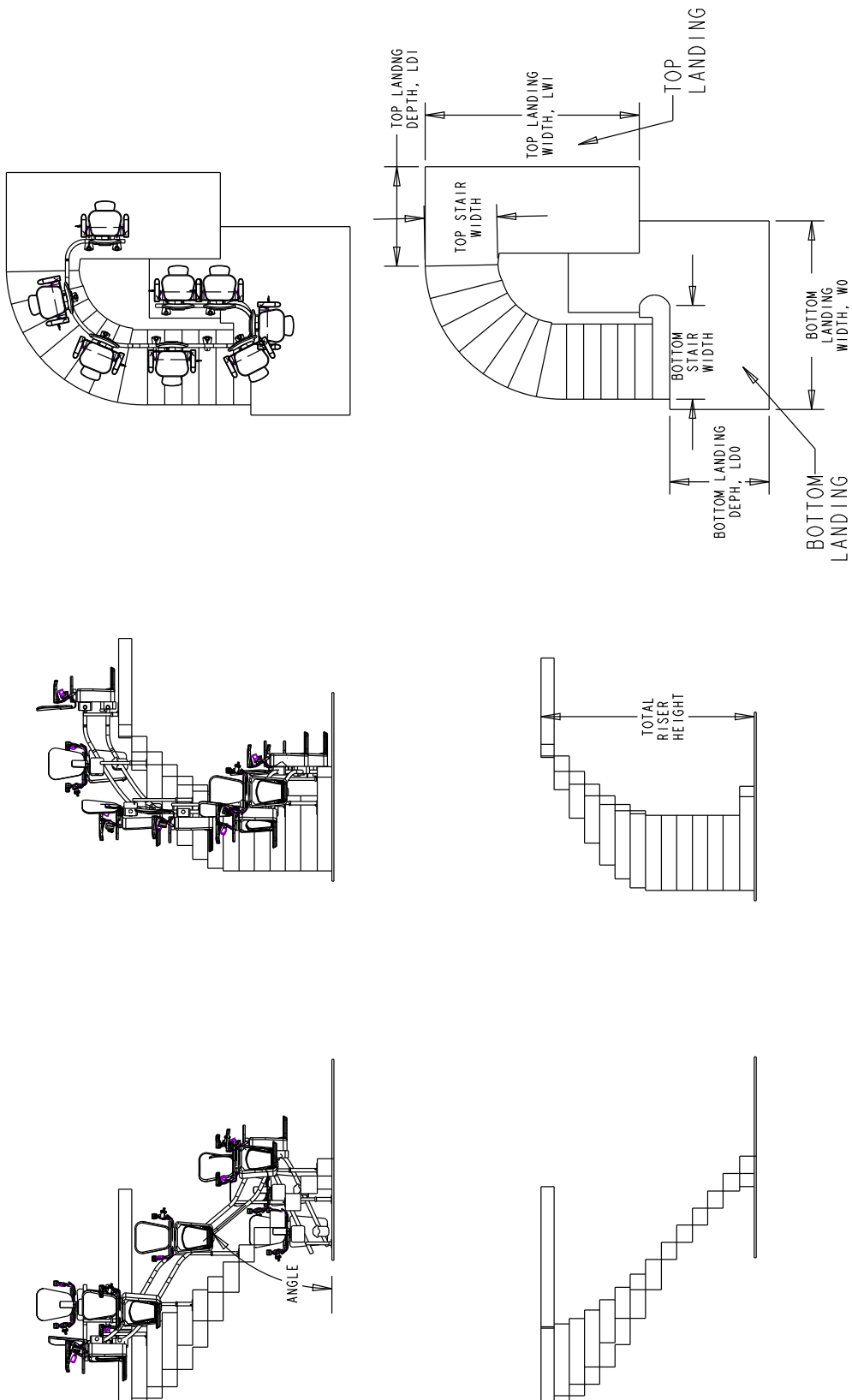
## Straight stair



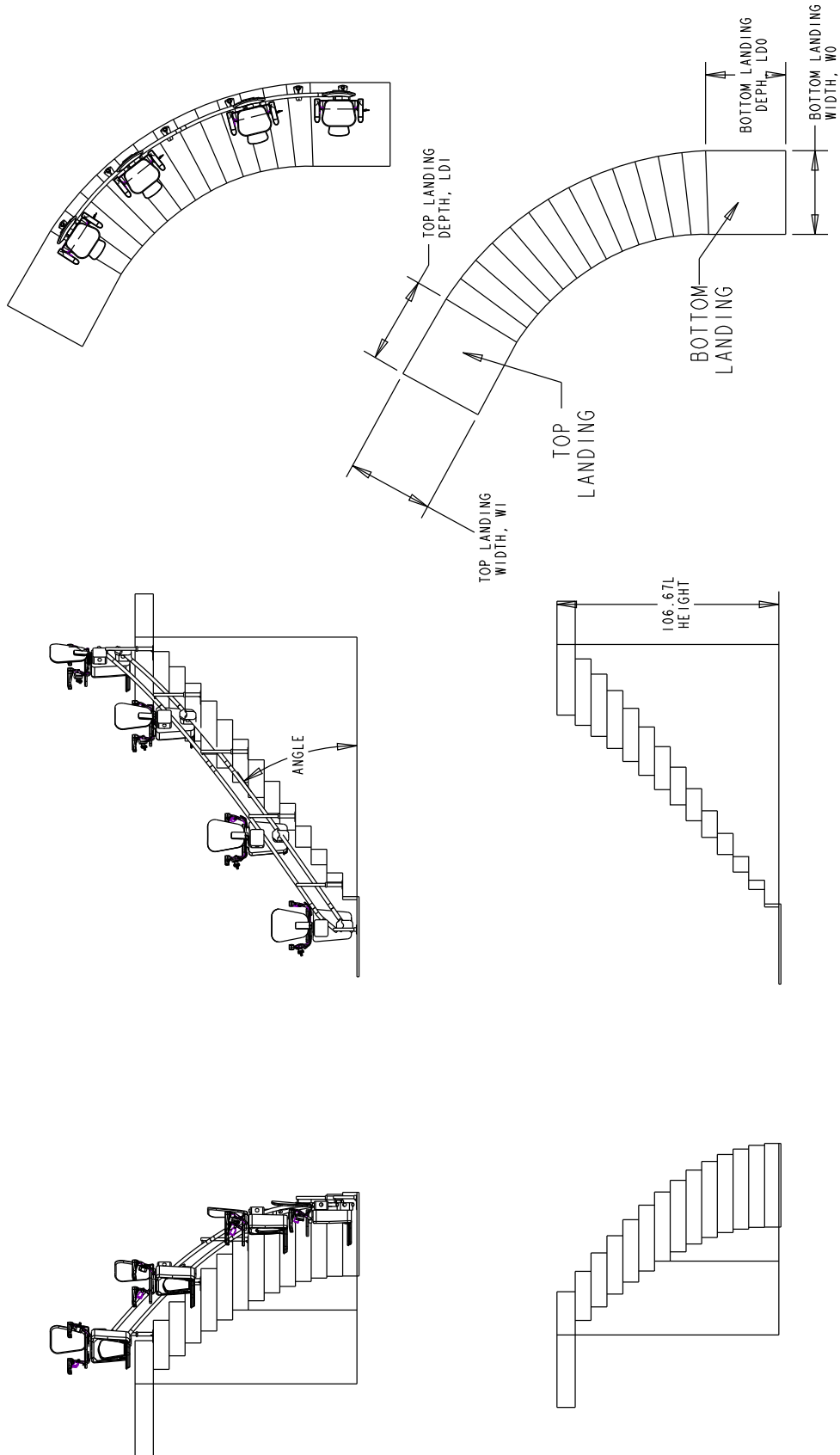
# Straight stair (intermediate landing)



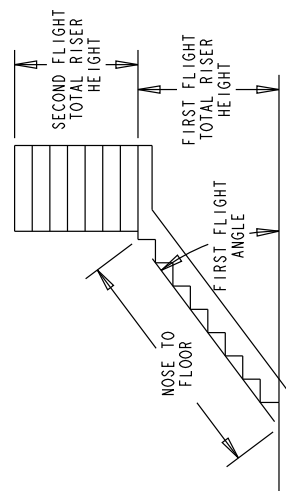
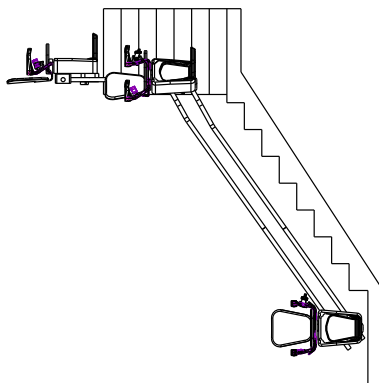
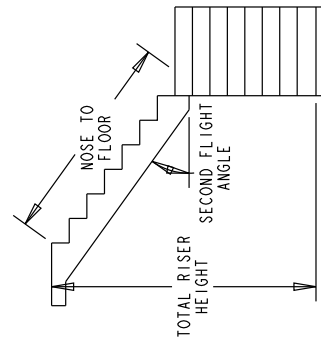
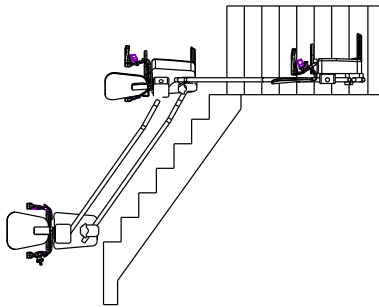
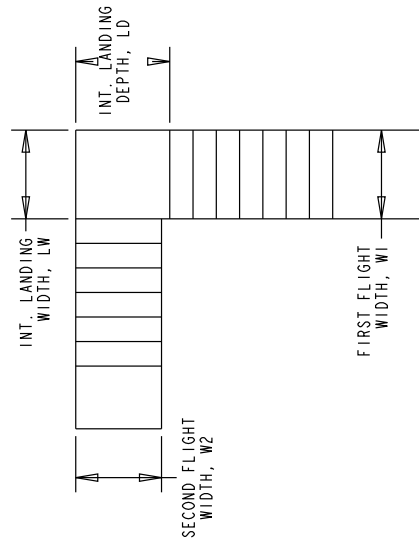
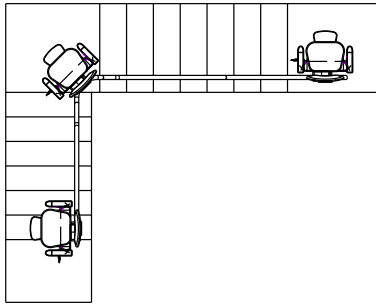
## Spiral stair inside rail



## Spiral stair outside rail

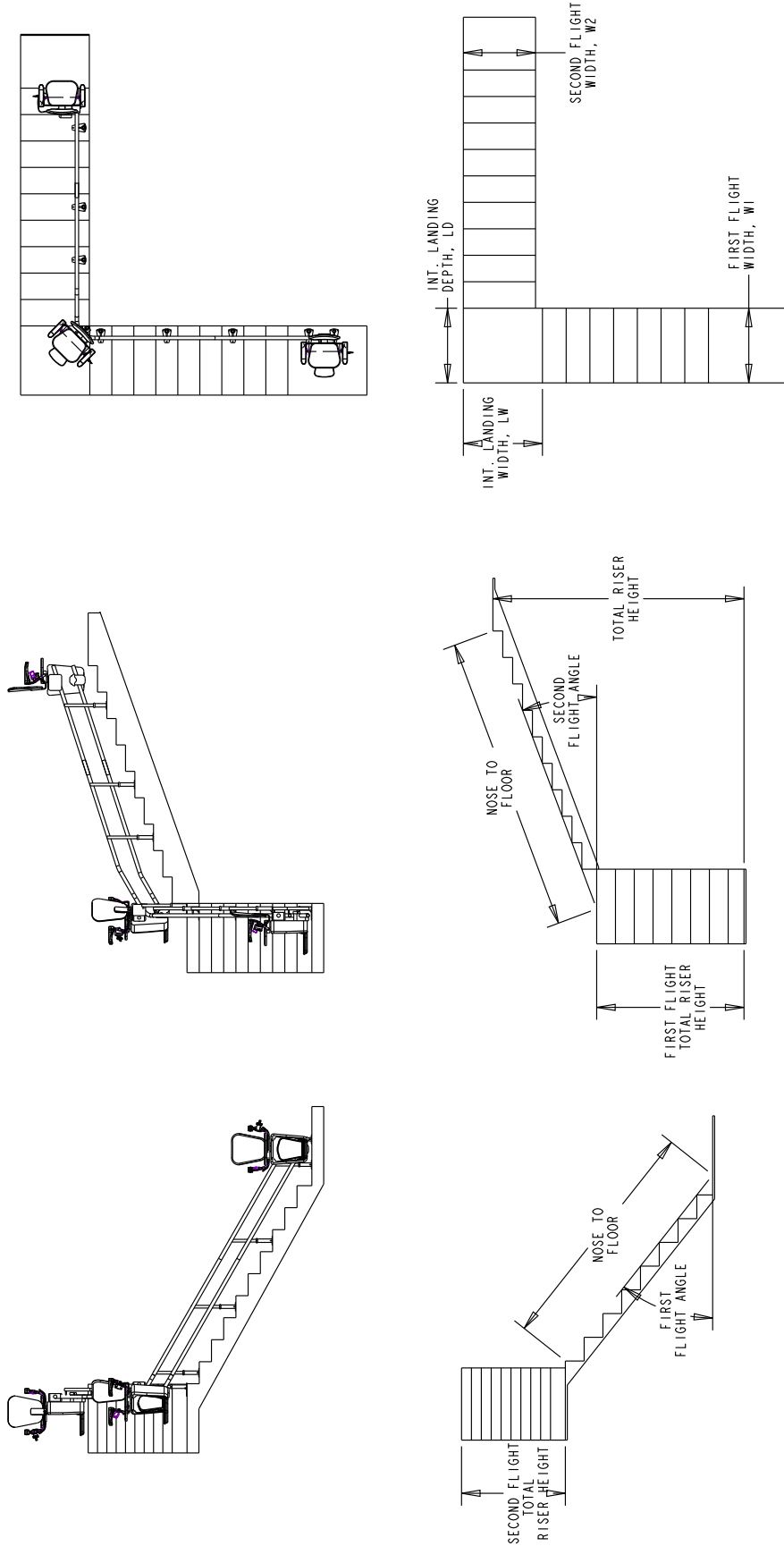


## 90 degree stair inside rail LH

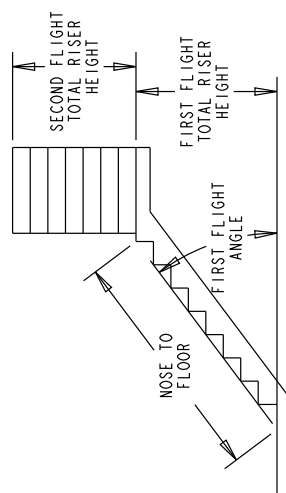
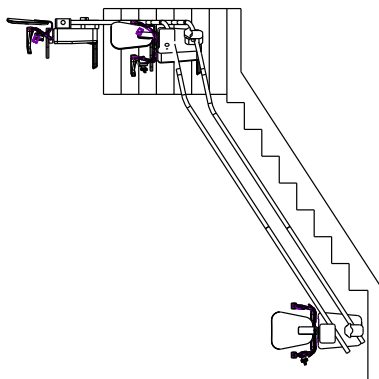
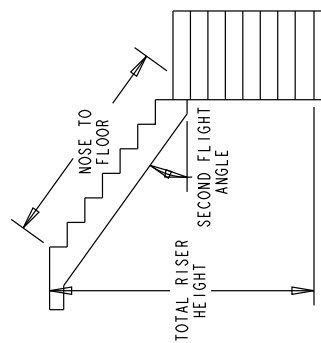
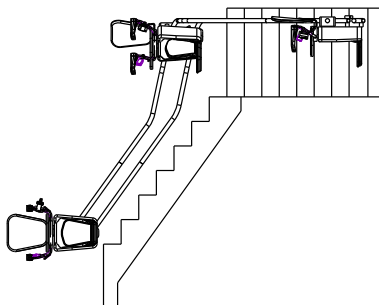
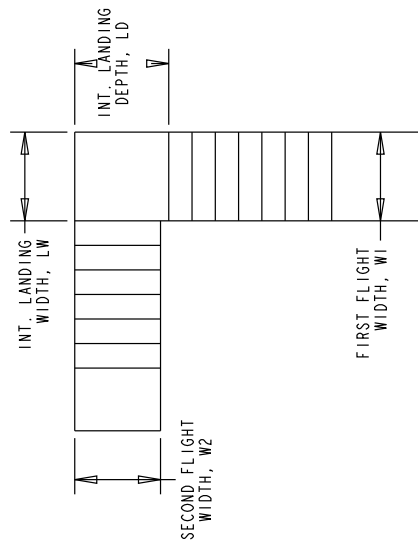
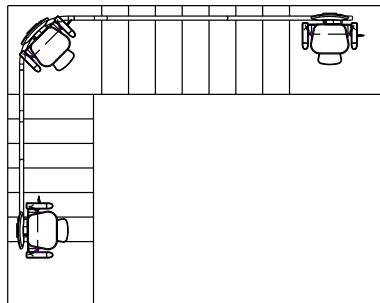




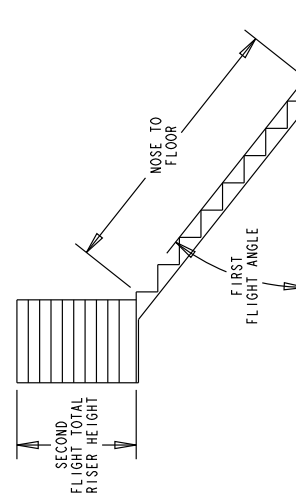
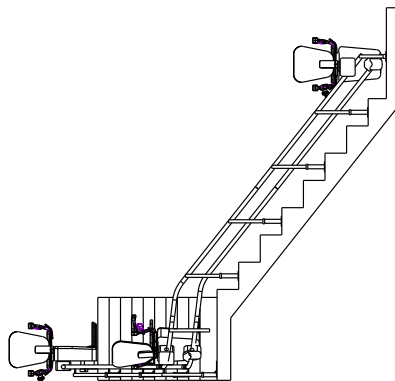
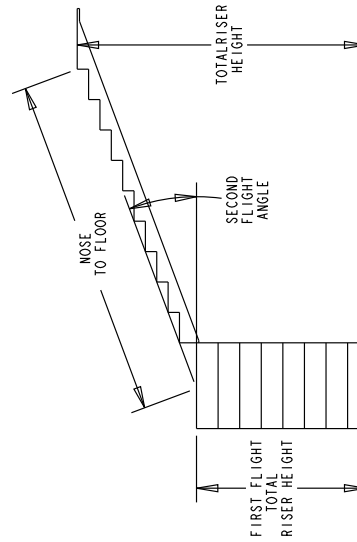
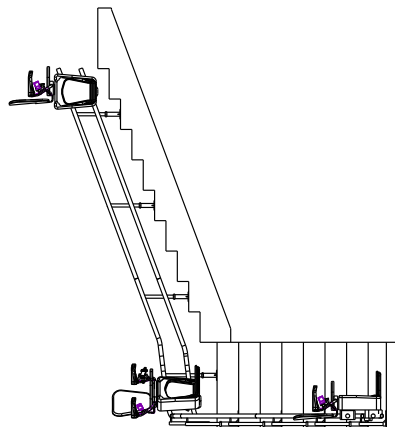
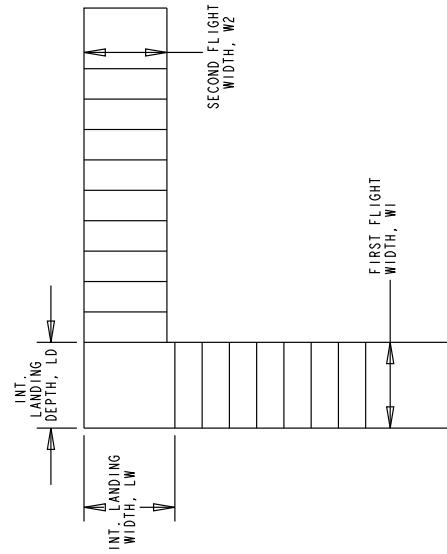
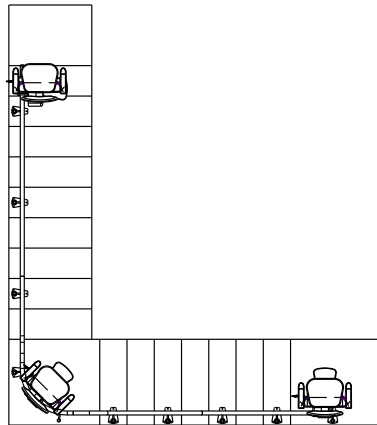
## 90 degree stair inside rail RH



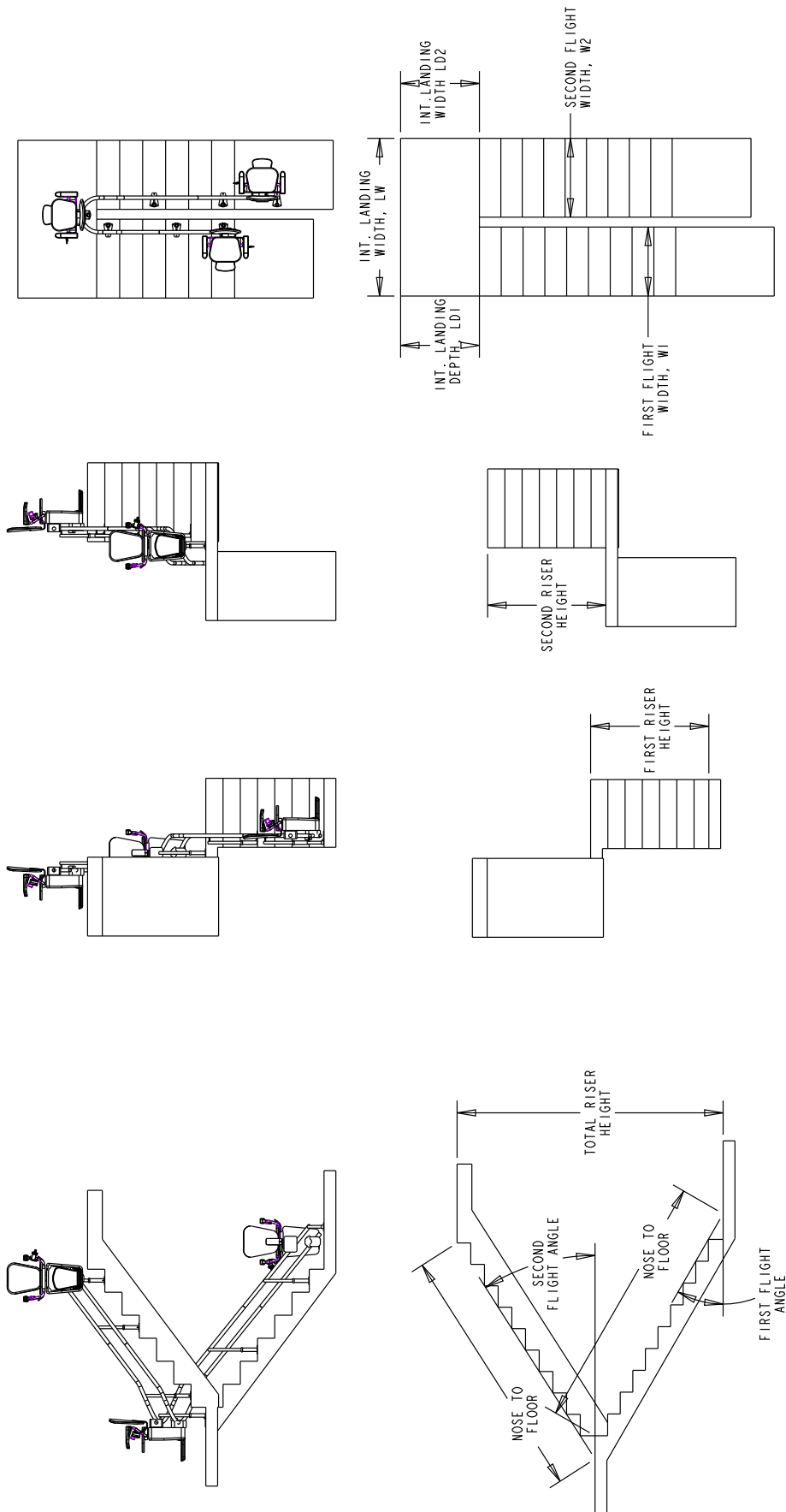
## 90 degree stair outside rail LH



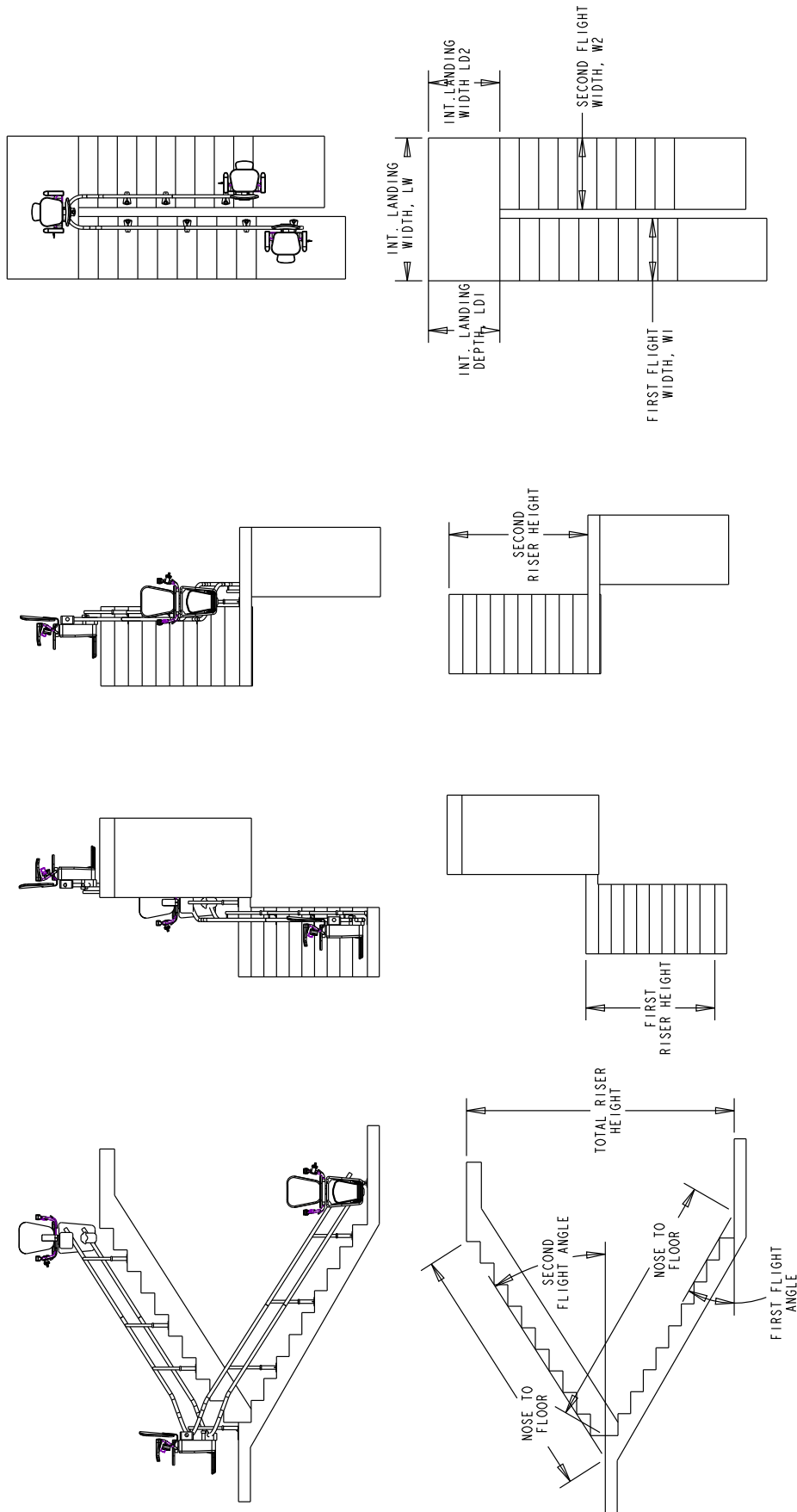
## 90 degree stair outside rail RH



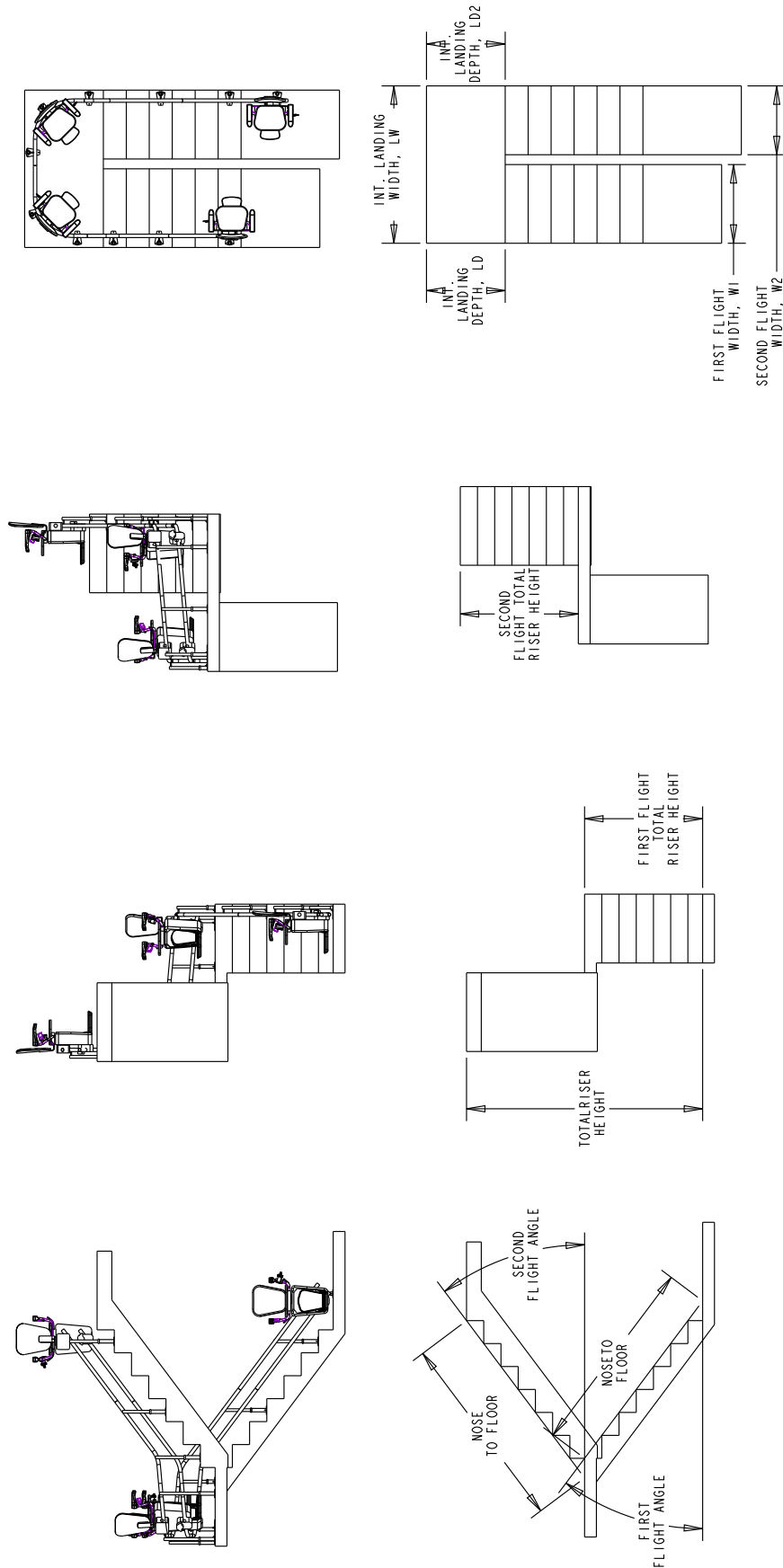
## 180 degree stair inside rail LH



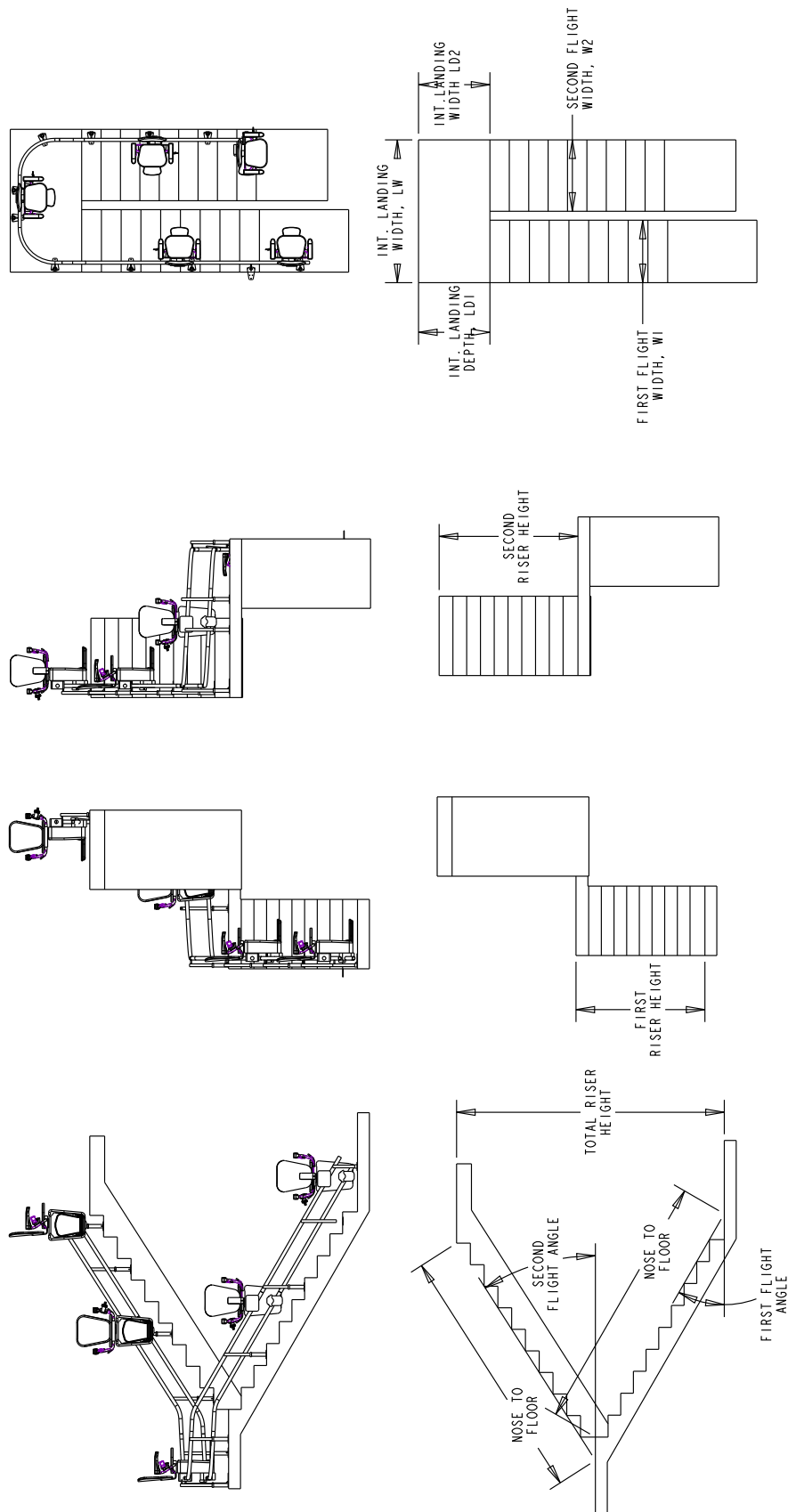
# 180 degree stair inside rail RH



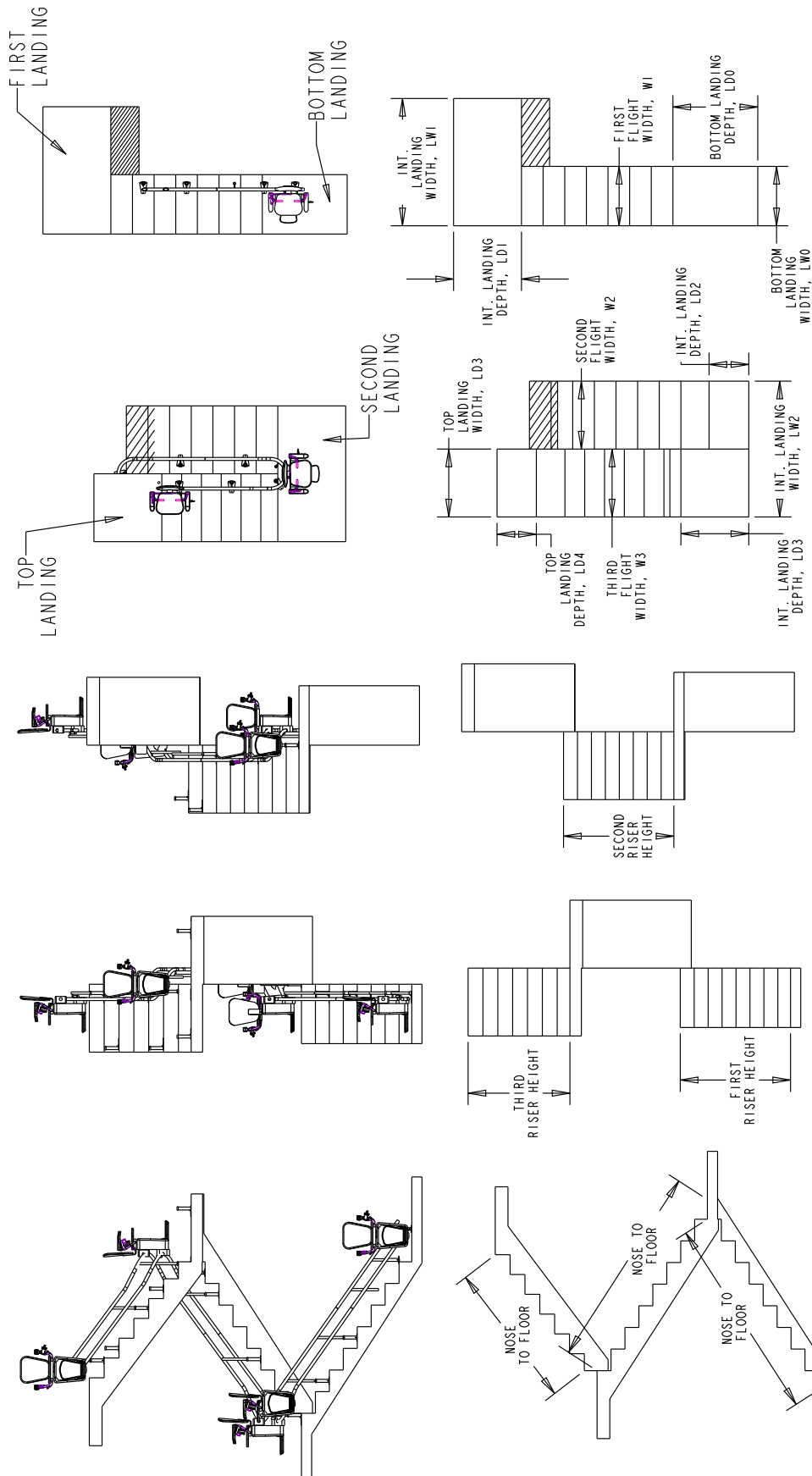
## 180 degree stair outside rail LH



## 180 degree stair outside rail RH

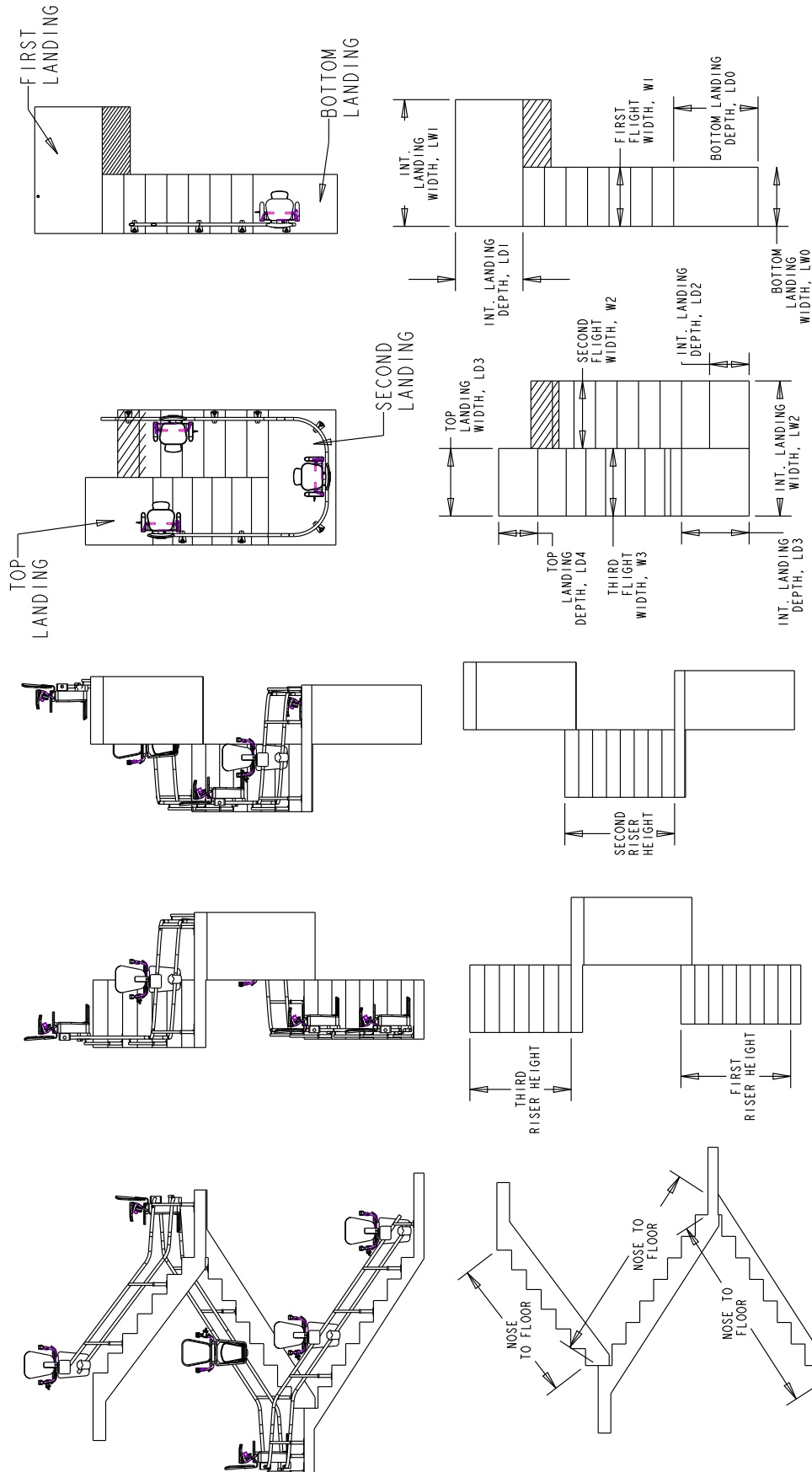


# 180 degree stair 3 flights inside rail RH





# 180 degree stair 3 flights outside rail RH



# **Stairfriend Curved Stairlift PLANNING GUIDE**

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