

## **Butler Mobility Incline Platform Lift**

### **Opportunity Phone Qualification**

These questions are to be asked when you call the customer for the first time. “Pre-qualifying” your customer will save you time and money by determining if the incline platform lift will be a good application in the end users home and if the project is within their budget.

1. What are the width of the stairs?
  - a. Can the customer either measure the width of the stairs from wall to wall or use a magazine or a piece of paper to determine overall stair width?
2. What is the closest obstruction at the bottom landing (wall, room entry, main door swing, etc.) and how many inches is it from the bottom step bull nose?
3. Is there open space enough on either side of the bottom landing for the motor?
4. Mobility device make and model or, overall dimensions (wheelbase, depth/length of device, weight, etc.) of the wheelchair or scooter?
5. What is the weight of the end user? Combined with the mobility device total weight cannot exceed 750 lbs.
6. What is the overall budget for this project?

# BEFORE YOU START

The Butler IPL analysis form requires accurate measurements to ensure proper form, fit, and function. Inaccurate measurements can lead to delays in design and manufacturing, as well as result in costly adjustments/repairs in the field. To assist you, we have provided some helpful tools to ease the process of measuring and calculating dimensions. Follow the QR codes below to download them for free on iOS or Android devices.

## Angle Measurement Tool (iOS or Android)



## Right Angle Calculator

iOS Users



Android Users



# INCLINED PLATFORM LIFT

## ANALYSIS FORM A

Email completed form to:  
engineering@butlermobility.com



**Section 1**

Use 2 carpenter's squares

If stairs or treads are not level, hold the carpenter's squares level

If steps are carpeted, firmly compress carpet

**Section 2**

**Important!**  
R and AA dimensions must be filled out!  
Measure risers & treads of **ALL** middle steps, using 2 carpenter's squares. Put measurements in Form C.  
Add up dimensions of risers and treads. There is one less tread than risers but include "bottom landing tread" (G) ("Invisible tread").  
Risers should add up to H  
Treads should add up to L  
For H (height of "big triangle") and L (length of "big triangle"), use a 4' level or laser level for level and plumb  
Measure in multiple steps if necessary  
which tread is the minimum headroom under?

A  Inch Top riser

B  " Top Tread

C  " Top bullnose

D  " Bottom riser

E  " Bottom Tread

F  " Bottom bullnose

G  " "Landing tread" ("Invisible tread")

H  Inch Height of "big triangle"

I  No. of Risers

J  " Minimum headroom

K  " Length of "big triangle"

R  " Run of "big triangle" (Nose to floor)

AA  ° Angle

KK  which tread is the minimum headroom under?

**Section 3**

**TOP LANDING and staircase width**

If door at top, fill in dimensions

P  Inch

S  "

T  " Width at narrowest point

TT  " Width wall to wall

Platform will be 8" narrower than stairway. Clearance will be 1/2" less. Please call if it seems a little too narrow

Check if there's a handrail

**Section 4**

**Bottom Landing**

Measure to far wall and first obstruction. Also note any other obstructions.

Location of Power Unit  
As seen from bottom looking up

Check if Right  U

Check if Left  V

Sketch any doors that open into bottom landing

**Section 5**

Date  Quote No.

Purchase Order no. or reference

Contact name

Address

Ship to address

Ship via:  Standard  Other

Rails forward (First step down from upper landing)

Pit needed

Through-wall drive Length

Color:  Weathered Chestnut  Sierra Foothills  Coastal Beige  
 Autumn Brown  Shale Gray

Capacity: 750 Lbs

Keyed controls  Side Load Platform

Wheelchair: Width at wheels  Height

**A**

**Risers**

Full height of step  
including tread

**B**

**Treads**

Bullnose to bullnose  
or riser to bullnose  
less bullnose  
overhang

	20	<input type="text"/>	<input type="text"/>
	19	<input type="text"/>	<input type="text"/>
	18	<input type="text"/>	<input type="text"/>
	17	<input type="text"/>	<input type="text"/>
	16	<input type="text"/>	<input type="text"/>
	15	<input type="text"/>	<input type="text"/>
	14	<input type="text"/>	<input type="text"/>
	13	<input type="text"/>	<input type="text"/>
	12	<input type="text"/>	<input type="text"/>
	11	<input type="text"/>	<input type="text"/>
	10	<input type="text"/>	<input type="text"/>
	9	<input type="text"/>	<input type="text"/>
	8	<input type="text"/>	<input type="text"/>
	7	<input type="text"/>	<input type="text"/>
	6	<input type="text"/>	<input type="text"/>
	5	<input type="text"/>	<input type="text"/>
	4	<input type="text"/>	<input type="text"/>
	3	<input type="text"/>	<input type="text"/>
	2	<input type="text"/>	<input type="text"/>



**A**

Top riser



**B**

Top tread



**J**

Number of risers

**Conversion Chart**

1/8	0.125
1/4	0.25
3/8	0.375
1/2	0.5
5/8	0.625
3/4	0.75
7/8	0.875

This form compares the measured height (H) and length (L) of the staircase to the risers and treads to make sure they are correct. We also need risers and treads for several staircase angles. This ensures that the lift will be a good fit for the staircase.

1. Measure the risers and treads (using 2 carpenter's squares) and put the measurements into the boxes at left. Put the bottom riser in box D and the bottom tread in box E. Enter the intermediate steps and then put the top riser and tread (A and B) into the appropriate boxes. Like a staircase, **there is one fewer tread than riser.**

2. Measure the "invisible tread" (the imaginary tread at the base of the stairs, the apex of the triangle) and put the length into Box G.

**There are now an equal number of risers & treads.**

3. Add up the risers and treads. Enter the sum of the risers into the Sum of Risers box and the sum of the treads into the Sum of Treads box.

4. Enter the height (H) and the length (L) of the staircase from Form A into the boxes at bottom.

5. Compare the height (H) to the Sum of Risers and the length (L) to the Sum of Treads. They should agree to within about 1". If they don't, you have made an error in measuring.

6. Once the numbers agree, use a right triangle calculator (there is one on our website) to verify that the triangle is correct. Use the height (H), length (L), run (R) and stairway angle (AA).

Bottom Riser

**D**

**E**

Bottom Tread (bottom step)

**G**

"Invisible Tread"  
("Bottom Landing Tread")

Sum of Risers (in inches)

Sum of Treads (in inches)

**H**

**L**

Height (from Form A) Length (from Form A)

## How to use these analysis forms

The purpose of these forms is to give us a complete and accurate picture of the entire staircase and the top and bottom landings. This will enable us to build a wheel chair lift that will be a perfect fit. In addition to measuring the individual steps, we will ask you to measure the overall staircase (the “big triangle”) and the overall angle of the staircase to verify the individual measurements.

Please pay careful attention to the forms and these instructions to avoid having to go back and re-measure. With correct measurements, we can build a lift that you can install easily, usually in less than one day.

**NOTE:** *It is not unusual to find that the staircase itself is not level. It might slant to one side or the treads may slope from front to back or back to front. The top or bottom landings may not be level. Many basement floors slope toward a drain. If the treads slope from front to back, even by as little as 1/8” per step, it will throw off the sum of the risers. **If the treads are not level front to back, use a torpedo (or other) level to hold the carpenter’s squares level.** See Form A, Section 1.*

## Tools

### Required:

- iPhone/Android app Angle Pro and Triangle Solver
- 4 foot bubble level, or 4 foot straightedge if you have a laser level
- Two 12” x 8” carpenter’s squares
- Tape measure at least 20’ long
- Analysis forms
- Pen or pencil

### Highly recommended

- Laser level that can measure the horizontal and vertical
- Protractor: they can be very inexpensive. *The type that locks the angle is much easier to read.*
- Clipboard

### Optional

- Flashlight
- Torpedo level
- Plumb bob
- 12” ruler
- Pencil and/or post-it notes

We strongly recommend taking some digital pictures (cell phone pictures are fine) and making a sketch

## Analysis Form A, Section 5

Starting with Section 5, on the lower right of the form, please enter your company and contact name, address, ship-to address if known, etc. Enter the quote number (if you have one), and your PO number and/or the client name, to help us keep our quotes straight. Brown or beige are our standard colors or we can provide a custom color. There is an upcharge for a custom color. Enter color. If the client wants keyed controls (for young children or grandchildren), check the box.

If the platform must go into a pit at the lower landing, check the box in section 5. The pit depth will be 3”. We will provide the dimensions and a drawing. Note that the pit must accommodate the power unit.

If the power unit has to go on the other side of a wall, check the box in section 5 and measure the distance through the wall. Standard shaft extensions are 6” or 10” or we can make almost any length.

Make a note in section 5. Be sure to note if there are any obstructions, like a building column, that might interfere with the placement of the power unit. See Form B for additional details and the platform layout drawings.

### **Measure Wheelchair**

In order to ensure that the lift will suite the client's requirements, measure the width of the wheelchair at the wheels and the height of the headrest or the client's head, whichever is higher

### **Bottom Landing, Section 4,**

By convention, when we say left or right, it's as if we are standing at the bottom landing, looking up. The power unit goes at the bottom, either on the right or the left. Check the box U for right or V for left. See Form B for additional details on the platform and power unit, and the platform layout drawings at the end of this document.

The size and shape of the lower landing affects the design of the lift. We need at least 8 or 9 feet for a standard front-load platform (measured from the lowest riser to the wall) or about 5 feet for a side-load.

Measure the distance from the lowest riser to the first obstruction, like a door opening into the space, a support column or post, etc. (if there is one) and put that into dimension W.

Measure to the wall and put that into dimension X.

Make a note of any special circumstances and be sure to take pictures and/or make a sketch. If the distance from the bottom riser to the wall is less than 8 or 9 feet, we may need a side load platform. Check the checkbox in section 5

Take careful note of the path for bringing in the lift. Remember that the rails will be about 2' longer than the nose-to-floor measurement (dimension R) and they don't bend.

### **Width of staircase, Section 3**

Generally speaking, we want a minimum width of 36" in order to fit a 28" platform. The wheelchair clearance will be ½" less.

Measure the width of the staircase at several points and put the narrowest value in dimension T. That is from trim to trim. If the staircase is a little too narrow, measure the width from wall to wall and note it in dimension TT. Give us a call, we can discuss notching the trim or the stringers or other measures to pick up an inch or so.

### **Minimum headroom, Section 2**

Find the place that has the lowest headroom and put that in dimension K. We need a minimum of 5'8".

### **Measure the Staircase, Sections 1 and 2 and Form C**

#### **Risers**

Count the number of risers (not the number of steps). That is dimension J.

## Measure angle of staircase (Dimension AA, Section 2)

To measure the angle of the staircase, place a corner of your 4' level (or straightedge) on the floor at the bottom landing and lay it across several steps. Put your protractor on the straightedge. Note the angle on the form in dimension AA.

## Bottom landing “tread” (“Invisible Tread”) (Dimension G, section 1 and Form C)

Place the 4' straightedge across several steps, as above. Put a pencil mark, a piece of tape or a post-it note at the point where the straightedge meets the floor. Stand up a carpenter's square on the floor with the wide arm flat on the floor and the narrow arm vertical and against the front edge (or the bullnose) of the lowest tread. Measure the horizontal distance from the 0 point on the **outside scale** of the carpenter's square to the point where the straightedge meets the floor. Put the measurement into **dimension G**.

## How to measure treads and risers (Section 1 and Form C)

To measure treads and risers, use 2 carpenter's squares. Start at the bottom landing and the lowest riser and work up.

When you lay the squares on the floor and the lowest tread, you have the run and rise of the lowest step. Then put the squares on the lowest tread and the next one up and you have the run and rise of the second step and so on.

**Details:** Place the wide blade of one square on the landing or a tread with the narrow blade pointing up and against the front edge (or the bullnose) of the next riser. Do the same with the other square on the tread above. Using the **outside scales**, measure the **tread on the wide blade** and the **riser on the narrow blade**.

If the stairs or the treads are not level front to back, use a level to hold the carpenter's squares level.

## Bottom tread and riser (Dimensions D, E and F)

At the bottom landing, put one square on the floor and the other square on the first (lowest) tread. Measure the height of the lowest riser on the narrow blade of the square on the floor and put it into dimension **D**. Measure the length of the lowest tread on the outside scale of the wide blade of the square on that tread. Put that measurement into dimension **E**. Measure the depth of the bullnose and put it in dimension **F**.

Note: Regardless of the number of risers, the **bottom riser is always D**, the **bottom tread is always E** and the length of the apex of the triangle on the bottom landing (the “Bottom Landing Tread” or “Invisible Tread”) is always **G**. Be sure the squares are level.

The lowest riser, like the top riser, is often different from the intermediate risers.

## Intermediate treads and risers (Form C)

Measure each tread and riser, alternately putting one square after another on the tread above. Put the measurements on form C.

## Top tread and riser (Section 1 and Form C)

Using two carpenter's squares or a carpenter's square and a ruler, measure the height of the top riser and put it in dimension **A**. Using two carpenter's squares, measure the length of the top tread and put it in dimension **B**.

Measure the depth of the overhang (the "bullnose"), put it in dimension **C** in section 1.

## Top Landing (Sections 2, 3, and 5)

The layout of the top landing will affect the design of the lift. Normally, the rails extend about 13" into the top landing but they can be manufactured to be flush with the top landing.

If there's a door at the top, enter the measurements into dimensions P and S (Section 3). Measure the length of the top landing. That goes into dimension I (Section 2).

If the top landing is shorter than about 3', or if there's a door at the top of the stairs, or if the wheelchair user must make a sharp right or left turn, or if there's a door to the right or left closer than 13", we will make the tops of the rails flush with the top landing. We call this "**rails forward**." Check the "rails forward" box in section 5. See Analysis Form B.

## The "big triangle" (Section 2)

There is a right triangle at the heart of every staircase. To build the lift correctly, we need the dimensions of the triangle: The height, the length and the nose to floor (also called length of run) of the staircase. We ask you to measure both the height and length AND the risers and treads because it is so easy to make a mistake.

## Height of staircase (Dimension H)

To measure the height of the staircase, dimension **H**, place your laser level at the top landing and shoot a level horizontal line. You may have to shim the laser level to get it right. Measure down to the bottom landing. It isn't always possible to measure all the way to the bottom, so you may have to break it down into several steps, using post-it notes or pencil marks on the wall. That's especially true if you're using a bubble level, not a laser. Use the level (or a plumb bob) to make sure your vertical lines are plumb. Add up the values. The height, dimension **H**, is the vertical leg of the right triangle. **It should agree closely with the sum of the risers.** See Form C.

## Length of staircase (Dimension L)

To measure the length of the staircase, dimension **L**, place your laser level at the top of the staircase and shoot a horizontal line. Measure the distance to the point where the straightedge fell when you measured the length of run (nose to floor). You may have to do this in several steps, using post-it notes or pencil marks. Be careful to keep your tape measure either level or plumb. This is the bottom leg or base of the triangle. **It should agree closely with the sum of the treads.**

## Run of staircase (nose to floor) (Dimension R)

To measure length of run, also called nose to floor, measure from the nose of the top landing to the apex of the triangle on the bottom landing. If you previously marked that point, great. If not, place your straightedge or four foot level across several steps at the bottom of the stairs, touching the floor. Have

someone hold the tang of the tape exactly on the nose of the top landing and measure to the point at which the straightedge meets (or met) the floor.

## **Nose to nose (Dimension N)**

Measure from the nose of the top landing to the nose of the bottom tread. This dimension enables us to calculate (or verify) the “bottom landing tread” (the base of the the apex of the triangle, dimension G). Put the nose to nose measurement in **dimension N**.

## **Analysis Form B**

A standard front-load platform is 48” long and the folding front ramp and guard is 14” long. There will be a gap of at least 10” from the lowest riser to the rear of the platform. (We will provide a filler strip for this space) The total length is about 72” (6’) and the user will need about 3’ enter and exit the platform.

So a front-load platform needs about 8-9’ at the lower landing before any wall.

A side load platform must have an opening of at least 30” - 32” for the wheelchair to turn and enter or exit. The standard platform is 48” and a longer platform (special length platform) may be needed, depending on the placement of the power unit, if it’s a “rail forward” unit and other considerations.

A Butler IPL does not mount to the wall. The rails have mounting brackets at top and bottom and are fastened to the top landing (or top step if rails forward) and bottom landing. Note the materials you will be anchoring the lift to.

Confirm the power requirements and location. (110 Volts 20 Amp.) Installer is responsible to make sure there is an outlet close to the power unit. We (and some jurisdictions) require a separate circuit. Some jurisdictions require a separate disconnect.

If there does not seem to be enough clearance for a lift, fill out the analysis forms, make a sketch, take pictures and send (mail, fax or scan and email) to us for a free evaluation. Email to [engineering@buttermobility.com](mailto:engineering@buttermobility.com) or fax to 717-938-4238.

## **Analysis Form C**

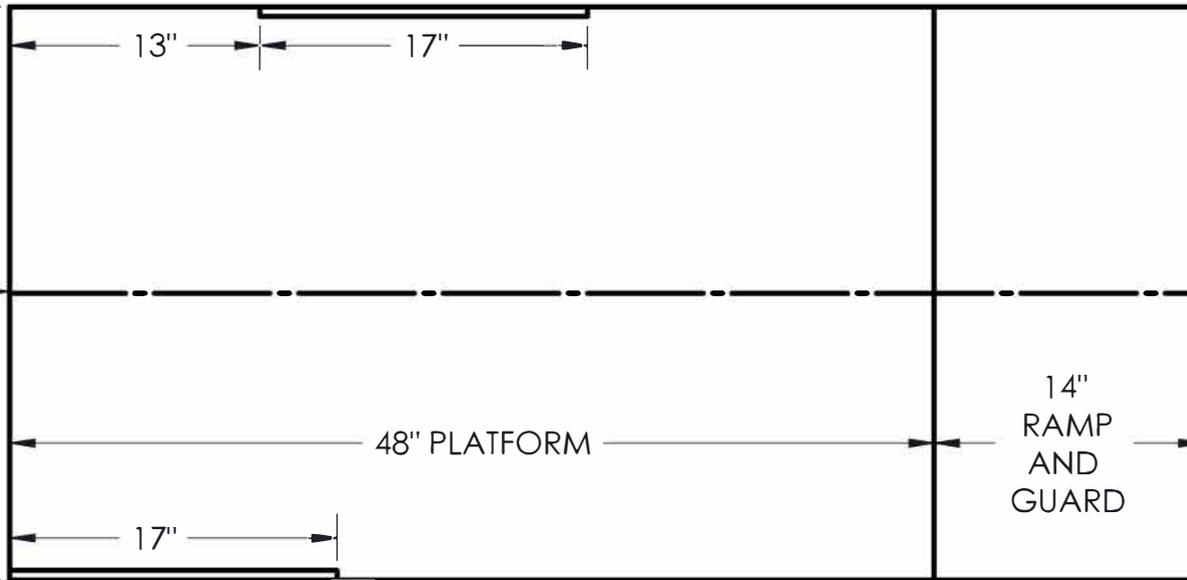
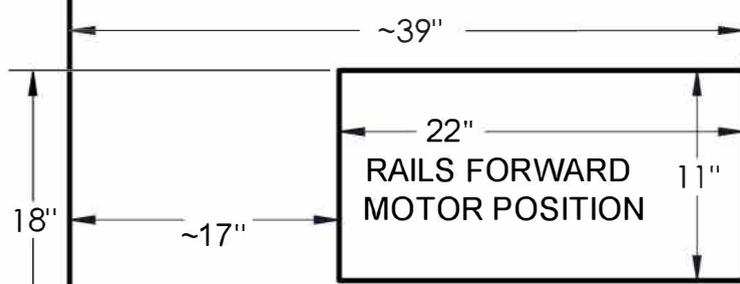
- See instructions on form C
- Note that the treads are measured from a vertical dropped from the bullnoses, not from the risers.
- The risers should add up to dimension H.
- The treads should add up to dimension L
- There is a right triangle calculator on our website that you should use to verify that the measurements are correctly part of a right triangle.
- There is also an iPhone ap and other smartphone aps.
- Call for details.

PLATFORM WIDTH	STAIRWAY WIDTH
28"	36"
30"	38"
32"	40"
CUSTOM	STAIRWAY -8"

RAILS FORWARD

Minimum length of front-load platform with rails forward feature is 43 inches.

LOWEST RISER

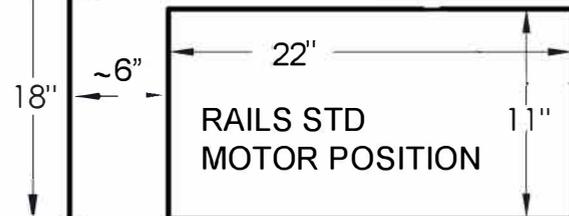


PLATFORM WIDTH  
SEE CHART

14"  
RAMP  
AND  
GUARD

48" PLATFORM

MOUNTING BRACKET



RAILS STD  
MOTOR POSITION

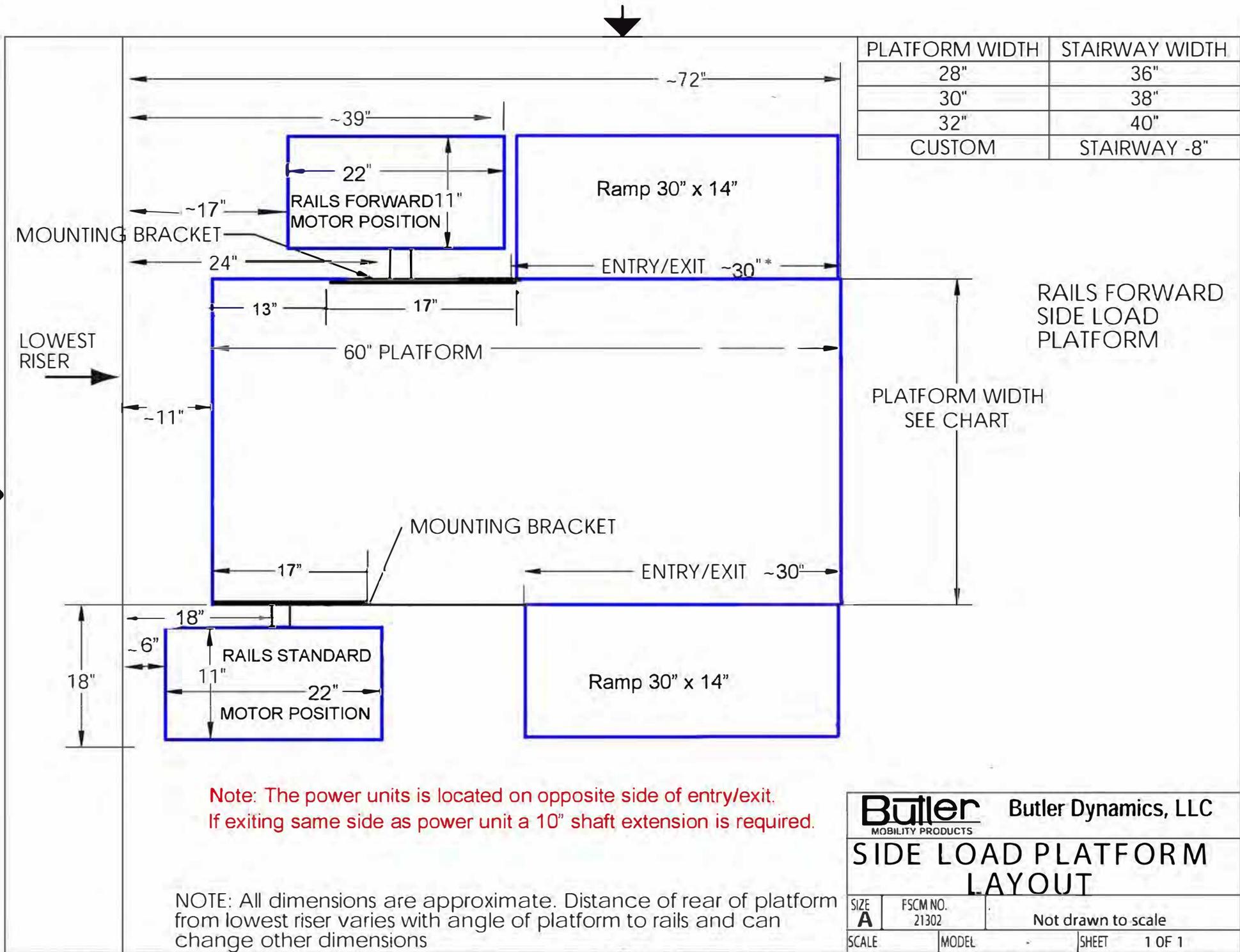
~28"

NOTE: All dimensions are approximate. Distance of rear of platform from lowest riser varies with angle of platform to rails and can change other dimensions

**Butler** Butler Dynamics, LLC  
MOBILITY PRODUCTS

## FRONT-LOAD PLATFORM LAYOUT

SIZE <b>A</b>	FSCM NO. 21302	Drawing not to scale	
SCALE	MODEL	-	SHEET 1 OF 1



Note: The power units is located on opposite side of entry/exit.  
 If exiting same side as power unit a 10" shaft extension is required.

NOTE: All dimensions are approximate. Distance of rear of platform from lowest riser varies with angle of platform to rails and can change other dimensions

**Butler** Mobility Products Butler Dynamics, LLC

### SIDE LOAD PLATFORM LAYOUT

SIZE <b>A</b>	FSCM NO. 21302	Not drawn to scale	
SCALE	MODEL	SHEET	1 OF 1