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## Installation Manual Steel-Over 30" Design

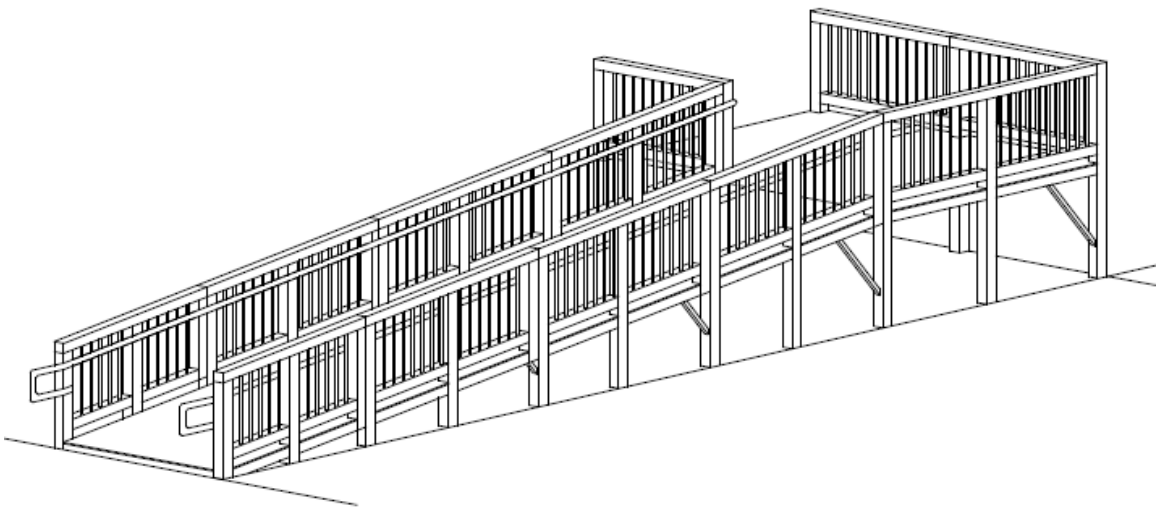


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# Installation Guide

## Tools Required:

- ▣ Generator (or power from building)
- ▣ 1/2" Drill (heavy duty)
- ▣ Abrasive Saw (hot saw)
- ▣ 4 1/2" Grinder
- ▣ Dry Wall Screw Gun for Self Tapping Screws
- ▣ Combination Wrench and Socket Set 9/16"
- ▣ 4' or 6' Level (preferably smart level)
- ▣ C-Clamp (preferably locking type)
- ▣ 3/8" and 5/16" Magnet Drive Hex Bit Attachment
- ▣ 7/16" Drill Bit
- ▣ Measuring Tape
- ▣ String Line (if using optional offset)



## View Packing List:

Each ramp system is shipped with a packing list, TMP layout of the site design, and sales order. Be sure to check that all items are on hand prior to beginning the installation.



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# Getting Started

- A. Unpack ramp. All handrails and hardware are packaged in between ramp and landing sections.



Figure A

- B. Measure from grade to door threshold. This will give you the approximate ramp length.

*Please Note:* Maximum slope is per 1:12 code.

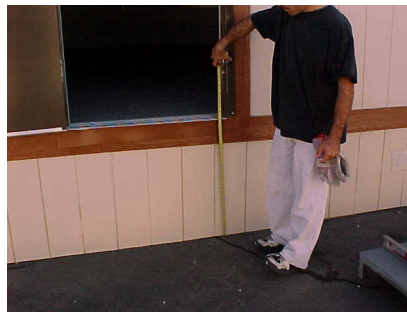


Figure B

- C. Now measure the end of the building in the direction of the ramp, grade to where door threshold would be if door were in that location.



Figure C

- D. If measurement is less than original door threshold measurement, you are gaining grade; your ramp length will be the difference in the two measurements shorter.  
*Example:* Grade to threshold is 30", grade at end of building to threshold is 24", and ramp length will now be approximately 24'. If the reverse is true, grade to threshold is 30", grade at end of building to threshold is 36", and ramp length will now be approximately 36'. (Note: Per code, in a 1:12 slope, any ramp with the length of 30' of more, must have intermediate resting stop, this would make ramp length 42'.)
- E. Lay out landing and ramp sections, as they will approximately be installed.



Figure D

- F. Lay out legs in groups of same length. **You want to use the longer legs at landings and first ramp sections** and sleeve through pockets. Shorter legs for inside leg pockets that do not sleeve through and towards the end of the ramp. Legs with half pads are used for the toe section of the ramp.



Figure E

## Installing First Landing Section

- A. It is important that you get the first landing and the first ramp section set level at connection, as all other sections will follow the same line.
- B. Stand landing section on its side and place the longest legs through the welded pockets (in all four corners). Adjust legs to door threshold measurement. Hand-tighten set screws. Measure from center legs.



Figure F

- C. Place landing with legs attached under threshold. Re-adjust legs to level landing. Make sure door swings over landing section smoothly.



Figure G



- D. Make sure the placement of the landing at threshold leaves a 42" diagonal from the door to the **center of the intersection of landing and first ramp section**. (Please see TMP drawings that show the typical filler detail. Or refer to Figure I and Figure I-1).



Figure H

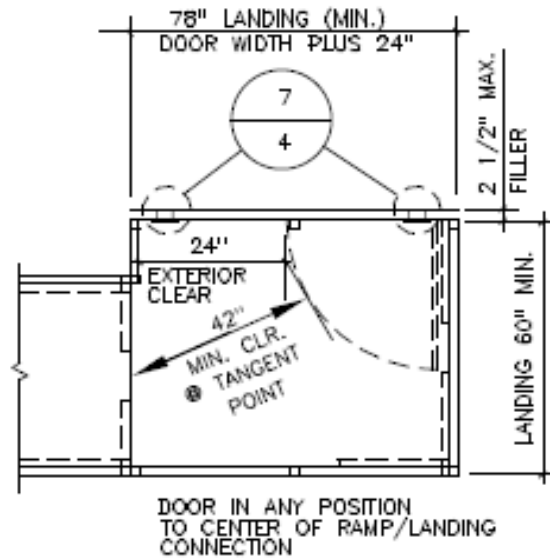


Figure I

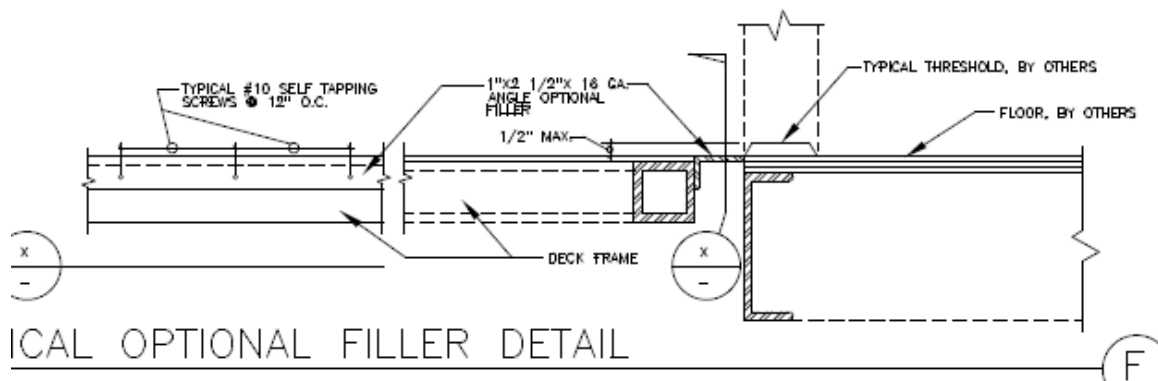


Figure I-1

*Please Note:* Landing must maintain a 60" inside dimension.

- E. Also, when legs sleeve through welded pockets, they must sleeve a minimum of 18” above top of landing deck.



Figure J

- F. Measure for center legs. Measure from top of center leg pockets to grade, and subtract 2” for play. Cut your center legs.

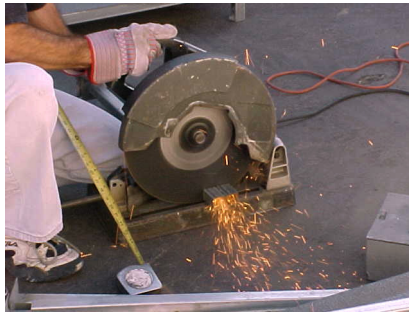


Figure K

- G. Insert your center legs, and hand-tighten screws.



Figure L



- H. Place landing under threshold again, re-level by loosening and tightening setscrews.

*Please Note:* Place 1/8" shim under level to provide drainage, which will give you 1/2" drainage in 6' way from door.



Figure M

- I. Attach (1) angle clip under the landing on each side of door using (2) each 1/4"x4" lags. Use self-tapping screws to 1 1/2" steel landing members.

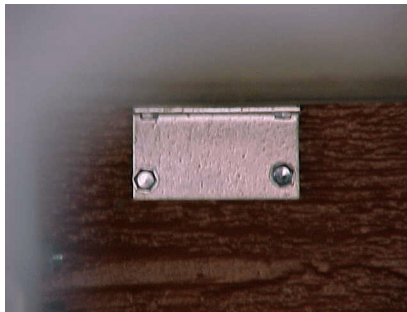


Figure N

- J. Make sure all leg plates are firmly on the ground. Using 1/2" drill with 7/16" drill bit, drill through predrilled holes of all legs underneath landing.



Figure O

- K. Now insert guardrails through legs. For the landing, all guardrails will be plumb straight up and down.

*Please Note:* If you have common landing sections, you will only sleeve (2) out of (3) legs as you are sharing legs at connections.



Figure P

- L. When guardrails are in correctly, bottom of guardrail attachment will be flush with deck at bottom, and top of guardrails will be flush with adjacent guardrail. It is important that top is flush to make continuous guardrail.



Figure Q

- M. Drill through pre-drilled holes and legs directly above and below landing surface. Use 2 ½" bolts and nuts for single legs, and 4" bolts and nuts for two leg connections. Bolt top hole. There should be a total of three holes to be bolted per each vertical. (2) bottom holes must be drilled through legs.

## Installing First Ramp Section:

- A. Clean ramp connector pockets of debris.



Figure R

- B. Using smart level, measure grade drop for 1:12, or approximate 6" drop (ramp section is 6' long). Place legs through welded pockets adjusting for smart level measurement or 6" if approximating. Tighten setscrews.

*Please Note:* You have only 4 legs per ramp section, as you share a leg at top with the landing.

- C. Place ramp section in connecting pockets, and slide ramp section in over approximately 1 1/2", enough to clear when guardrail is assembled.



Figures S

- D. Using smart level, measure 1:12 and adjust legs with setscrews. Be sure to level across ramp.



Figure T

- E. Continue with all ramp sections using steps A-D, until the toe ramp section is reached.

## Installing Toe Section

- A. The last section to be installed is the toe section. This is basically the same as a ramp section, except the last welded pocket is flush with the bottom-framing member.



Figure U

- B. Measure and complete the same as a ramp section. However, since you are at or close to grade, you can only screw in self-tapping screws through welded pocket into legs.

*Please Note:* 6' clearance required at end transition, end transition by others.



Figure V

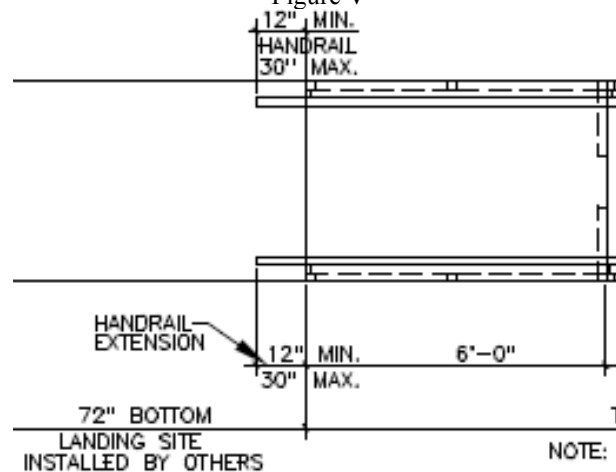


Figure W

## Installing Guardrails

- A. Slide guardrails over bottom and center legs. Put in all handrails down the same row and complete the opposite side as well. Make sure all guardrails are flush. Now you are ready to drill.

*Please Note:* At the top of every ramp section, there is no leg as it is shared with the bottom leg of the section above.

- B. The guardrail that you use for the **toe section** will have the 12” return attached.

*Please Note:* Per code, 12” extension required past end transition of ramp.



Figure X

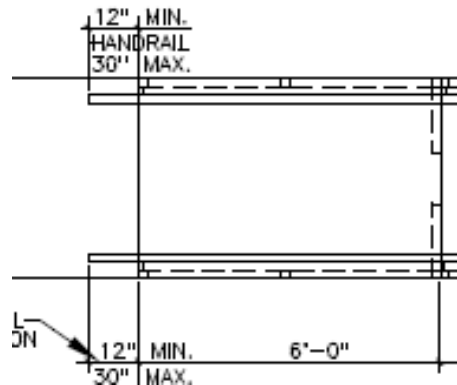


Figure Y

## Drilling Guardrails

- A. Drill in (2) locations as you did in the landing section and bolt in (3) locations. Start with the pre-drilled hole below the deck surface and drill through the inserted legs. Slide in bolt and tighten with nut.
- B. You need to remove the next guardrail in line to drill the center hole. Remove and drill. Replace and add bolt and nut. Add the upper bolt through the pre-drilled holes and tighten.



Figure Z

- C. Continue the same procedure until you put in the last guardrail section. Because the last section (or toe section) is sitting on the ground, you can only secure the bottom leg to guardrail with self-tapping screws.

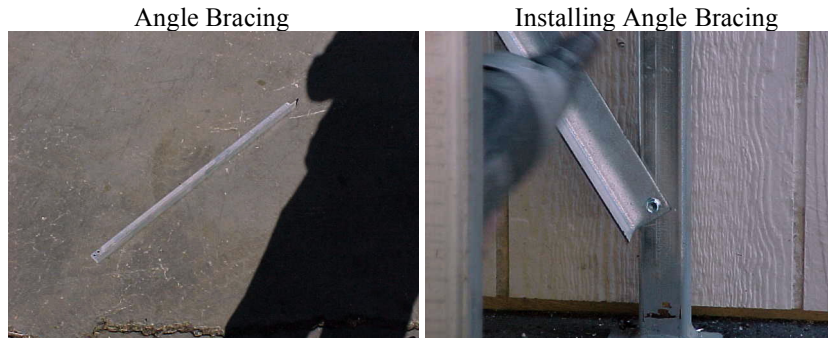


Figure AA



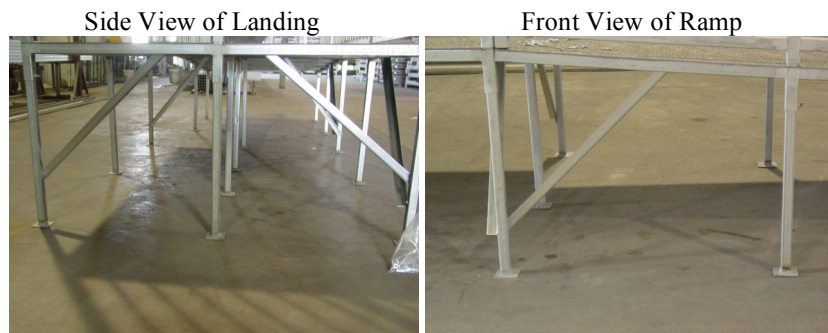
## Installing Angle Bracing

- A. Angle bracing is required when landing or ramp decking is 24" or over. Bracing is required at the corner of each landing and 6' o.c. under the landing. Each ramp section takes (2) outside braces and 6' o.c. under the ramp, since they share legs with either a landing or a ramp. Once the landing surface falls below 24", angle bracing is not required.

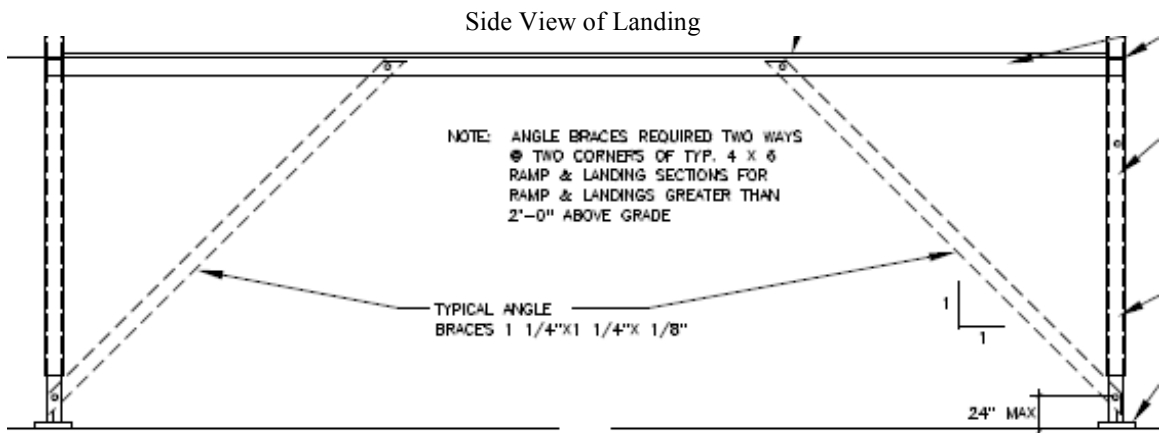


Figures BB

- B. Attach to legs on the inside of landing, so angle support does not stick past the edge of landing, thus allowing for optional skirting.



Figures CC



Figures DD

Front View of Ramp

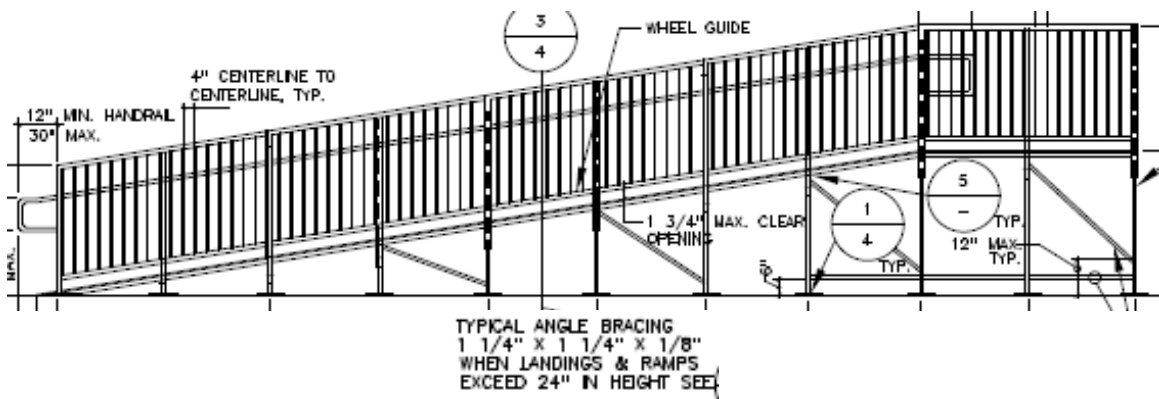


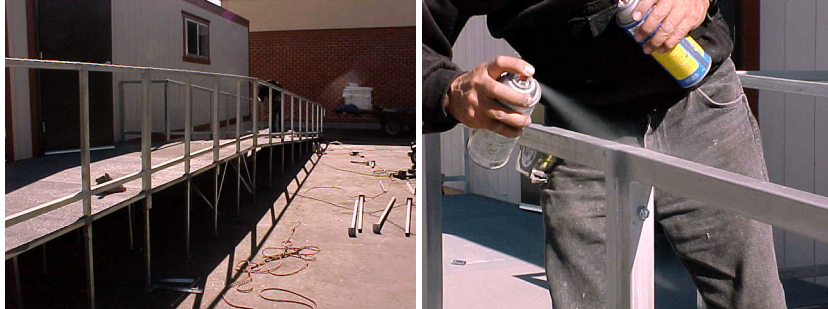
Figure EE

C. Use (2) self-tapping screws, (1) in top and (1) in bottom of each support.

## Touch Up and Completion

- A. You should have completed the ramp. Check handrails for burrs. Run your hands along the handrails. If there are any burrs, take grinder and grind until smooth. Use touch-up paint (98% zinc solution) and touch up areas void of galvanized coating.

*Please Note:* Touch up paint not included.



Figures FF

## Options

### *Optional Off Set:*

- A. Move first ramp section inward 2" from outside landing.
- B. Using string line, attach to top of landing surface, and run to grade at length of ramp sections provided. Attach string line to grade. This will be the slop you set your ramp sections to.  
*For Example:* If threshold height is anywhere from 24" to 30", 30' of ramp is provided, measure your string line out 30'.
- C. When you have the correct slope matching the string line, follow A-G on installing ramp sections.



Figures GG

- D. At the top of landing, install 2"x2" angle at the offset guardrail verticals using self-tapping screws.

*Optional Switchback Landing:*

- A. Stand both 4'x6' level section on its sides. Slide legs through welded pockets and adjust to level all (4) corners.



Figure HH

- B. Clamp 6" spacer to top edge of (1) 4'x6' level landing and use self-tapping screws in pre-drilled holes in spacer.

*Please Note:* Make sure spacer is flush to top of landing surface.



Figure II

- C. Flip landing over to the topside and connect into existing ramp pockets, recheck for level. Clamp spacer to the second 4'x6' level landing and use self-tapping screws in pre-drilled holes in spacer.

*Please Note:* Make sure spacer is flush to top of landing surface.



Figure JJ

- D. Continue following steps A-G on installing ramp sections.

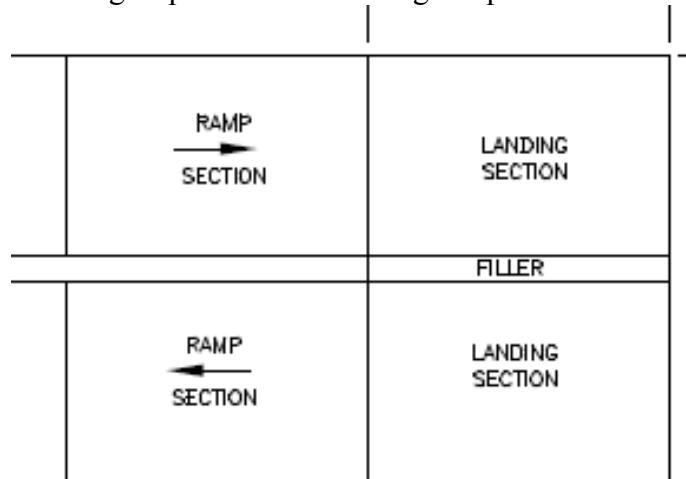


Figure KK



*Optional Level Landing:*

- A. Stand 4'x6' level section on its side. Slide legs through welded pockets and adjust to level all (4) corners.



Figure LL

- B. Flip landing over to the topside and connect into existing ramp pockets, recheck for level.
- C. Continue follow steps A-G on installing ramp sections.

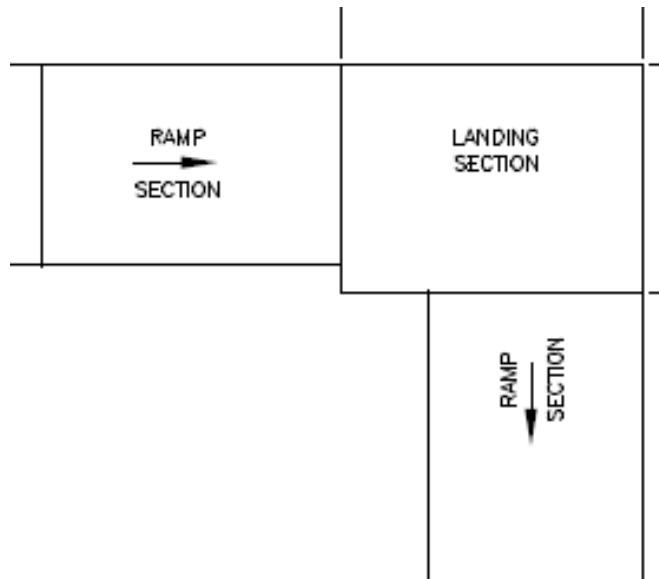
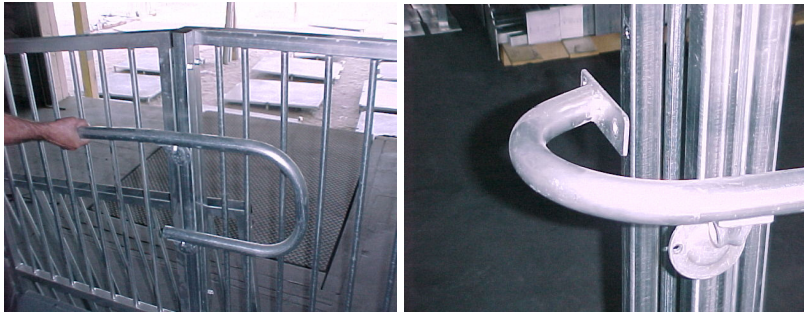


Figure MM

*Optional Grab-Rail Attachment:*

- A. Start at the top with the landing. You either have (1) straight handrail extension and (1) wrap-around handrail extension or (2) wrap-around handrail extensions, depending on the design of the landing.



Figures NN

- B. Insert posts to end of 1 ½” guardrails at top of landing where handrail extensions or wrap-around occur, this makes inside handrail continuous. Drill and bolt.



Figures OO

- C. You will attach handrail brackets first. At each post where 6’ guardrails connect you will add (1) handrail bracket.



Figure PP

- D. When the 1 3/16" tubing is attached on top of that bracket, the top of the tubing-handrail must be between 34" to 38" above the deck surface. Wherever you measure, you must be consistent all the way down. Measure and mark your locations for each bracket, attach with (2) self-tapping screws.

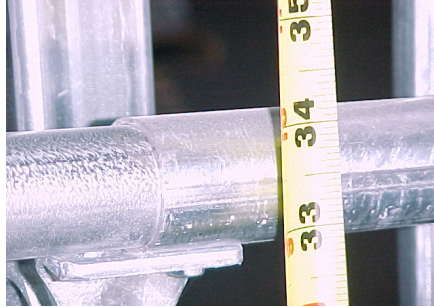


Figure QQ

- E. Handrail pipe is 6' long to fit perfectly between sections. At the top, the extension is attached that either loops down or wraps around. For straight extension loop has a down slope, and at the bottom of the ramp the loops have an up slope. These extensions require extra brackets to attach to the bottom portion of loop.



Figure RR

- F. The wrap-around loop is attached with a bracket and plate that fits between round 4" on center pickets.



Figure SS

- G. Secure top pipe-handrail to brackets starting at top wrap-around or straight loops, with self-tapping screws through bracket into pipe. End of pipe should fit halfway on to bracket, with the internal sleeve placed to accept front end of next pipe section. Use self-tapping screws to secure all the way down, and on both sides. Bottom ramp loops will have two brackets, one at the top and one at the bottom.

*Optional Step Attachment:*

- A. Install landing per instructions on Installing First Landing Section.
- B. Measure outside edge of landing from finished floor to top surface of landing, this will determine your measurement of your step height.
- C. Flip step on side and proceed to sleeve legs in 4 corners of step.  
*Please Note:* One leg with half pad will need to be installed in top sleeve, where it will butt up against outside of landing.



Figure TT

- D. Start at top of step rise and measure to end of base pad on let, measurement should be the same as your landing height.
- E. Flip step over on its stop side and butt against landing. Make sure top of step rise is flush against top surface of landing.  
*Please Note:* Leg with half pad will sit on top of leg with full pad.



Figure UU

- F. Proceed to adjust bottom legs so they are level.

G. Sleeve in step guardrail over legs.



Figure VV

H. Sleeve wrap-around loop and straight extension into inner handrails of step at top of landing, secure with back-plate between round 4" on center pickets.

Straight Extension



Wrap-Around Loop



Figures WW

*Please Note:* If entire grab rails are to be attached, please refer to the Optional Grab Rail Attachment instructions.



- I. After guardrails are installed, screw in self-tapping screws 12” on center at top of step riser.



Figure XX

- J. Follow Up Touch Up Procedures.



Figure YY