Tandem

RiteTouch

Pre-Installation Manual

Table of Contents

CONVENTIONS

Throughout this manual/instruction sheet, the following conventions are in effect:

⚠ DANGER	If this step is not performed as directed, serious bodily injury and/or death WILL result
⚠ WARNING	If this step is not performed as directed, serious bodily injury and/or death MAY result
⚠ CAUTION	If this information is ignored, bodily injury or equipment damage may result
!!IMPORTANT!!	Important information that has more impact than a note-not related to injury or damage
	Helpful tips

Note: General and/or helpful information-not related to injury or damage

!!IMPORTANT NOTICE!!

READ THIS MANUAL COMPLETELY BEFORE ATTEMPTING INSTALLATION.
If problems occur during or after installation, please call PDQ Manufacturing, Inc. and ask to speak to a service technician.

!!IMPORTANT NOTICE!!

Verify presence of all parts prior to installation. Please verify presence of parts against packing slips.

Note: All items not listed as 'site supplied' are included with machine purchase.

Note: DO NOT dispose of this manual.

Note: All drawings and data contained in this manual are subject to change without notice.

Note: For real-time manual updates, go to www.pdqinc.com .

QUICK START LIST

BAY DIMENSION TABLE

DIMENSION	MACHINE OPTIONS	RECOMMENDED	MAXIMUM	MINIMUM (SEE BELOW)
LENGTH	With On-Board or No Dryer	36' (10.97M)	N/A	35' (10.66M)
	With MaxAir Stand-Alone Dryer (with covers)	50' (15.24M)	N/A	39'-3" (11.96M)
WIDTH	Wall Mount	16' (4.8M)	21' (6.40M)	14'-9" (4.49M) (w/o front bridge rail modification) 13'-6" (4.11M) (with front bridge rail modification)
	Freestanding Frame	16' (4.87M)	N/A	
HEIGHT	Any Option	11' (3.35M)	N/A	10'-6" (3.20M)

SITE SUPPLIED REQUIRED PARTS NOT INCLUDED ON ORDER FORM (60 HZ SITES)

Note: The following items ARE REQUIRED for install and not included on PDQ equipment order form. These items are site supplied.

Note: It is recommended to order the below parts prior to equipment arrival.

Note: This is only a quick start list; read entire pre-installation manual for complete details.

QTY	DESCRIPTION	PDQ PART#
	INSTALLATION ITEMS	
1	GROUNDING WIRE FROM BUILDING GROUND TO TOP TUBE OF RUNWAY	N/A
Note:	**Additional wires are included with purchase to fully ground machine, see manual 10060078 Installation, Leg Ground Wire Installation.**	
N/A	IN-BAY AND OUTSIDE TEMPERATURE PROBES	94013
11	CHEMICAL LINES (Length of each to be 40' [12.19M] + distance to equipment room)	23975-CVF
11	FOOT VALVES/WEIGHTS AND SCREENS FOR CHEMICAL LINES	63193
3	1" 200 PSI EPDM HOSE (3 runs, Length of each to be 40' [12.19M] + distance to equipment room)	61031
Note:	**Above EPDM hose feeds the Front/Back Bridges and Spot Free. Run (1) hard plumbed water line to the bay and split. Repeat for the Spot Free.**	
1	1/2" HOSE FOR RECLAIM (with reclaim option; eliminates one 1" hose from above)	61025
16	1/2" CONCRETE FLOOR ANCHORS (for optional freestanding frame)	05090001
6	3/8" CONCRETE FLOOR ANCHORS (for optional undercarriage manifold)	05090004
N/A	MISCELLANEOUS WALL ANCHORS FOR MOUNTING BOXES/SIGNS	N/A
2	3/8" POLYTUBE FOR AIR SUPPLY TO BRIDGE (40' [12.19M] + distance to AIR COMPRESSOR)	23975-NE
Note:	**If super sealant is ordered, 2 air supply hoses above are required; if super sealant is not ordered, 1 hose is required.**	
	CABLE ITEMS	
Note:	**All cables are available in one foot increments. Length required depends on the distance between the center of the left hand bridge rail and the box where the cable is terminated (see manual body for details).**	
2	HIGH FLEX ETHERNET CABLE BELDEN #1752A	01140021
2	ETHERNET CAT 5 TO CAT 5 CONNECTORS (If splicing CAT 5 lines)	N/A
N/A	BOX OF ETHERNET/CAT5 CABLE (for general use)	01140029
1	RS485 CABLE (BELDEN 8760) FOR IN-BAY SIGN COMMUNICATION	01140020
2	SYSTEM STOP CABLE and 24 VAC power cable (BELDEN 8620) 4 conductor 16 Ga	01140034
1	FRONT BRIDGE POWER CABLE (Olflex-891404 14-4 CABLE)	01140025
1	DRYER FEED #1 POWER CABLE (Olflex-890804 (8-4 CABLE) (required for on-board dryer option)	01140024
1	DRYER FEED #2 POWER CABLE (Olflex-890804 (8-4 CABLE) (required for 3 and 4 producer on-board dryer option	01140024
1	BACK BRIDGE POWER CABLE (Olflex-890804 (8-4 CABLE)	01140024

SITE SUPPLIED RECOMMENDED/REQUIRED PARTS INCLUDED ON ORDER FORM

Note: The following items ARE RECOMMENDED OR REQUIRED for install and included on PDQ equipment order form. These items are site supplied.

Note: It is recommended to order the below parts prior to equipment arrival.

Note: This is only a quick start list; read entire pre-installation manual for complete details.

QTY	DESCRIPTION	PDQ PART#
1	REMOTE SYSTEM STOP BUTTON (AS REQUIRED BY LOCAL CODE)	11010113
1	BOOSTER PUMP FOR SPOT FREE (REQUIRED IF CURRENT RO UNIT DOES NOT HAVE A PUMP) (Recommended 24GPM @ 20PSI)	L4060
1	WASH ACTIVATION INTERFACE (REQUIRED WITH NON-ACCESS UNIT)	09030044
1	JUNCTION BOX WITH HARNESS INSTALLATION KIT	11010133 (RT200) 11010134 (RT210) 11010131 (RT300) 11010132 (RT310)

CROSS BEAM REQUIREMENTS (not supplied by PDQ)

Note: Junction Box Kit includes an electrical enclosure with terminal strip that is mounted to the bay wall near the center of the left-hand main machine rail. It allows an electrician installing to install conduit and wire (site supplied) between the other site panels and the junction box. The kits also include all the flexible cables needed to connect the junction box terminals to the Tandem through the e-chain. If the Junction box option is ordered, the flexible cable listed above is not required.

⚠ DANGER

TUBING SIZES BELOW ARE TYPICAL. IT IS THE RESPONSIBILITY OF THE SITE TO HAVE THE TUBE SIZE SPECIFIED BY A QUALIFIED STRUCTURAL ENGINEER. REQUIRED CROSS BEAM SIZE WILL VARY AND ARE SITE DEPDENDENT.

BAY WIDTH	TYPICAL CROSS BEAM DESCRIPTION
13'–6" (4.11M) to 15'–0" (4.57M)	4" (101.60mm) X 4" (101.60mm) X 0.375" (9.52mm) WALL GALVANIZED HSS TUBING
15'–0" (4.57M) to 16'–0" (4.87M)	4" (101.60mm) X 4" (101.60mm) X 0.50" (12.70mm) WALL GALVANIZED HSS TUBING
16'-0" (4.87M)) to 21'–0" (6.41M)	6" (101.60mm) X 6" (101.60mm) X 0.375" (9.52mm) WALL GALVANIZED HSS TUBING

MISCELLANEOUS ITEMS TO NOTE

- Cross Beam Mount (does not include cross beam); Freestanding Mount (includes cross beam)
- Site Supply Voltage Range must be 187V minimum to 264V maximum for proper operation of the Tandem system. Supplying this electrical service is the responsibility of the site.

ADDITIONAL NOTES:

INTRODUCTION

Distributors, contractors, and buyers may use this document to prepare and quote the Tandem RiteTouch installation site. It is recommended to read and complete these requirements prior to Tandem machine installation.

The following informational sections should not be used for actual Tandem machine installation; site installation dimensions may vary and are dependent on options ordered.

PURPOSE OF THIS DOCUMENT

This document provides the following information to the customer:

- Provide information for site planning and building layout
- Establish requirements for electricity, plumbing and structural support
- Describe how the equipment arrives at the site and what is required at the site during arrival
- Tips and things to watch for during planning a site
- Site voltage fluctuations
- Bay materials and interference with ultrasonic sensors

PROCESS DESCRIPTION

This process description provides typical steps to create a running wash site. The customer may use the following guideline to bring their wash from start to finish:

Prior to Equipment Arrival

Prior to equipment arrival, the customer will complete the following:

1. Plan the wash site.
   a) Create a building design.
   b) Create an electrical and plumbing service design.
   c) Apply for and receive all necessary permits.
2. Construct the wash site.
   a) Perform building construction.
   b) Install support equipment:
      i) RO unit
      ii) Water softeners
      iii) Water heaters
      iv) Bay doors
      v) Pavement

Equipment Arrival

After equipment arrival, the customer will complete the following:

1. Install the machine.
   a) Erect the machine frame.
   b) Install the front bridge, dryer and back bridge components.
   c) Route all plumbing and electrical feeds; complete all connections.
   d) Perform machine startup procedure.
2. Open wash.

PRODUCT OVERVIEW

The following are Tandem RiteTouch main wash components, including features and model availability. **Some items shown are optional. Items listed in this section as standard and optional are for information only. Please refer to the order form for the model to determine exact option availability.**

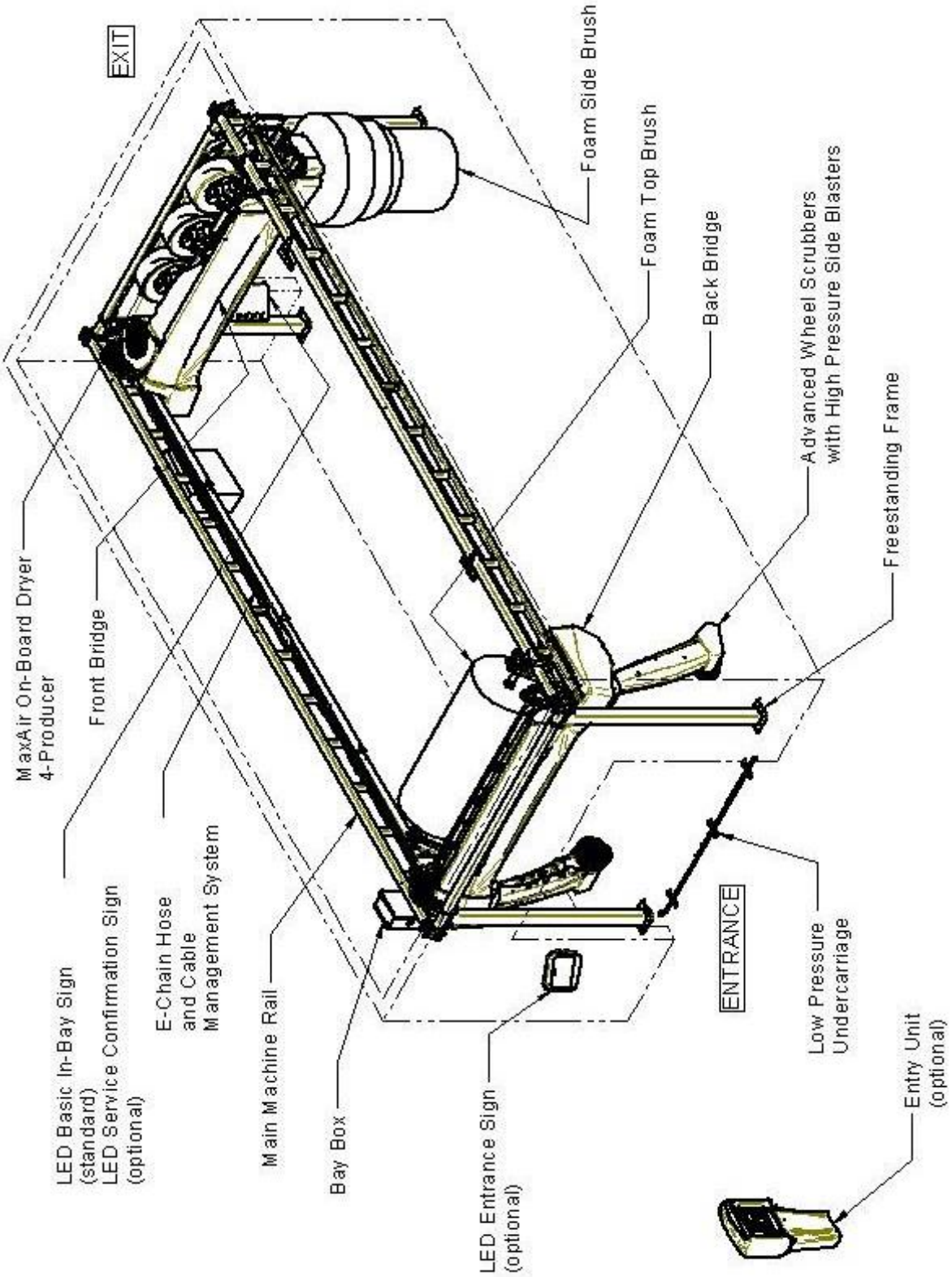


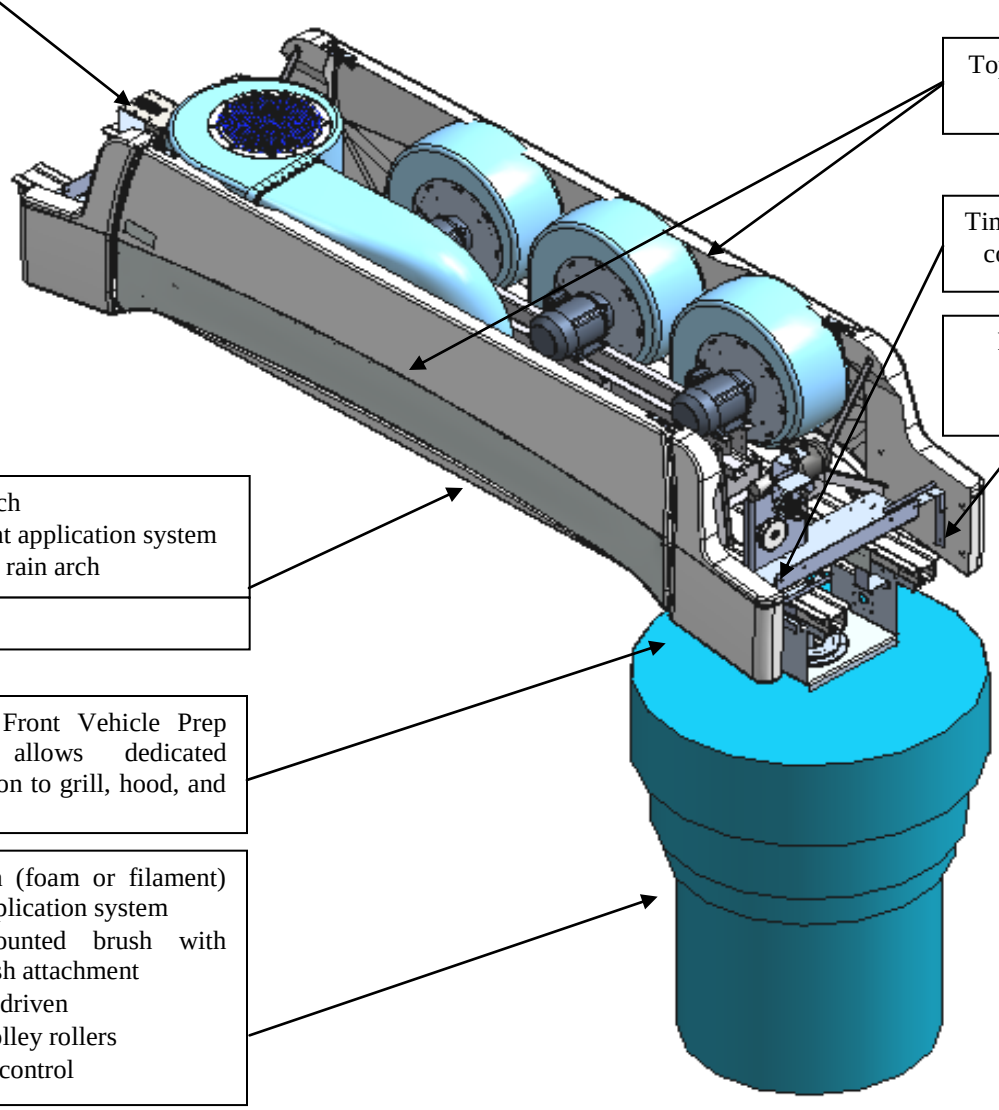
Figure 1-Main Wash Components.

Front Bridge Key Components

E-Chain cable and hose management system for managing hoses (site-supplied) and electrical cables (site-supplied) that feed the bridge.

Note: The E-CHAIN is always mounted on machine LEFT SIDE. All plumbing and electrical feeds must be routed to LEFT side.

- Bridge supplied completely by site water pressure; no separate pumping station required



Top Hinged Front and Back Covers

Timing belt driven and controlled via VFD

Factory Installed Super Sealant Applicators

Rain Arch rinse arch
- Drying agent application system applied thru rain arch

Spot Free Rinse

Trolley mounted Front Vehicle Prep manifold that allows dedicated detergent application to grill, hood, and windshield

Single Side Brush (foam or filament) with brush lube application system
- Trolley mounted brush with flexible brush attachment
- Timing belt driven
- Enclosed trolley rollers
- VFD motor control

Figure 2-Front Bridge Components.

FEATURE	MODEL AVAILABILITY		
	RT200	RT300	RT310
Side Brush with Foam Material	**Standard**	**Standard**	**Standard**
Side Brush with Filament Material	**Not Available**	**Not Available**	**Not Available**
Front Vehicle Prep Applicator	**Standard**	**Standard**	**Standard**
Rain Arch Rinse Manifold with Drying Agent Application	**Standard**	**Standard**	**Standard**
Spot Free Rinse	**Standard**	**Standard**	**Standard**
Super Sealant Applicator	**Not Available**	**Optional**	**Optional**
Virtual Treadle Vehicle Parking System	**Standard**	**Standard**	**Standard**
Ultimate Cover Package (Full Front Bridge Covers)	**Optional**	**Standard**	**Standard**
Front Bridge E-Chain Management System	**Standard**	**Standard**	**Standard**

Table 1-Front Bridge Features and Model Availability.

Back Bridge Key Components

E-Chain cable and hose management system for managing hoses (site-supplied) and electrical cables (site-supplied) that feed the bridge.

Note: The E-CHAIN is always mounted on machine LEFT SIDE. All plumbing and electrical feeds must be routed to LEFT side.

- Bridge supplied by site water pressure and all pumps located on-board; no separate pumping station required

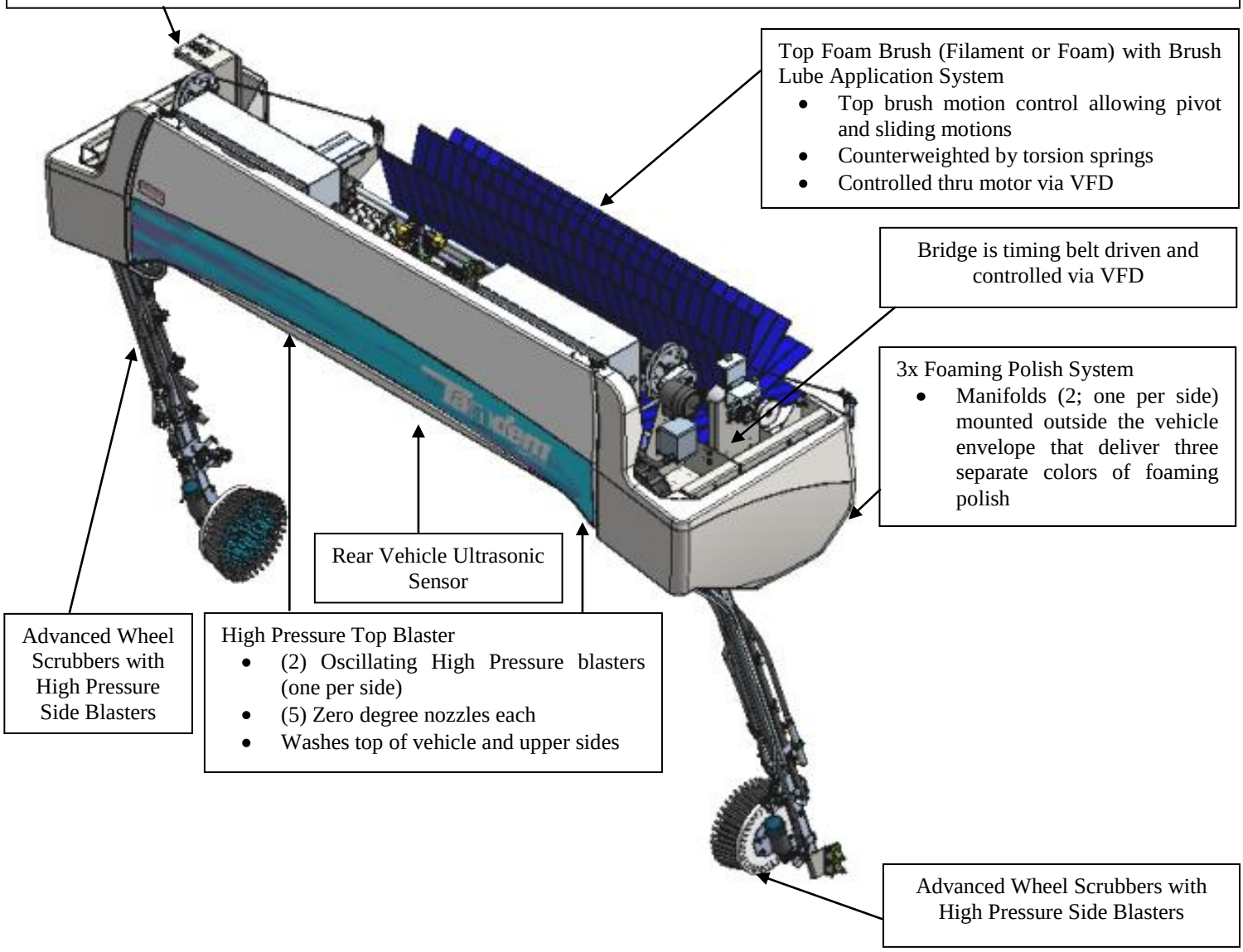


Figure 3-Back Bridge Components.

FEATURE	MODEL AVAILABILITY		
	RT200	RT300	RT310
Top Brush with Foam Material	**Standard**	**Standard**	**Standard**
Top Brush with Filament Material	**Not Available**	**Not Available**	**Not Available**
3x Foaming Polish Applicator	**Optional**	**Optional**	**Optional**
Full Back Bridge Covers	**Standard**	**Standard**	**Standard**
Advanced Wheel Scrubbers with High Pressure Side Blasters	**Not Available**	**Standard**	**Standard**
Basic Wheel Scrubbers	**Optional**	**Not Available**	**Not Available**
High Pressure Top Blaster	**Not Available**	**Optional**	**Standard**
Back Bridge E-Chain Management System	**Standard**	**Standard**	**Standard**

Table 2-Back Bridge Features and Model Availability.

Advanced Wheel Scrubbers with High Pressure Side Blasters (shown without covers)

Component includes profiling side arches (one per side) that focus cleaning on vehicle sides and wheels:

- Dedicated on-board high-pressure pump (5.5 GPM [20.81 LPM] at 600 PSI [41.37 Bar] driven by 3HP motor) for each side arch
- One side arch assembly per side of the vehicle.

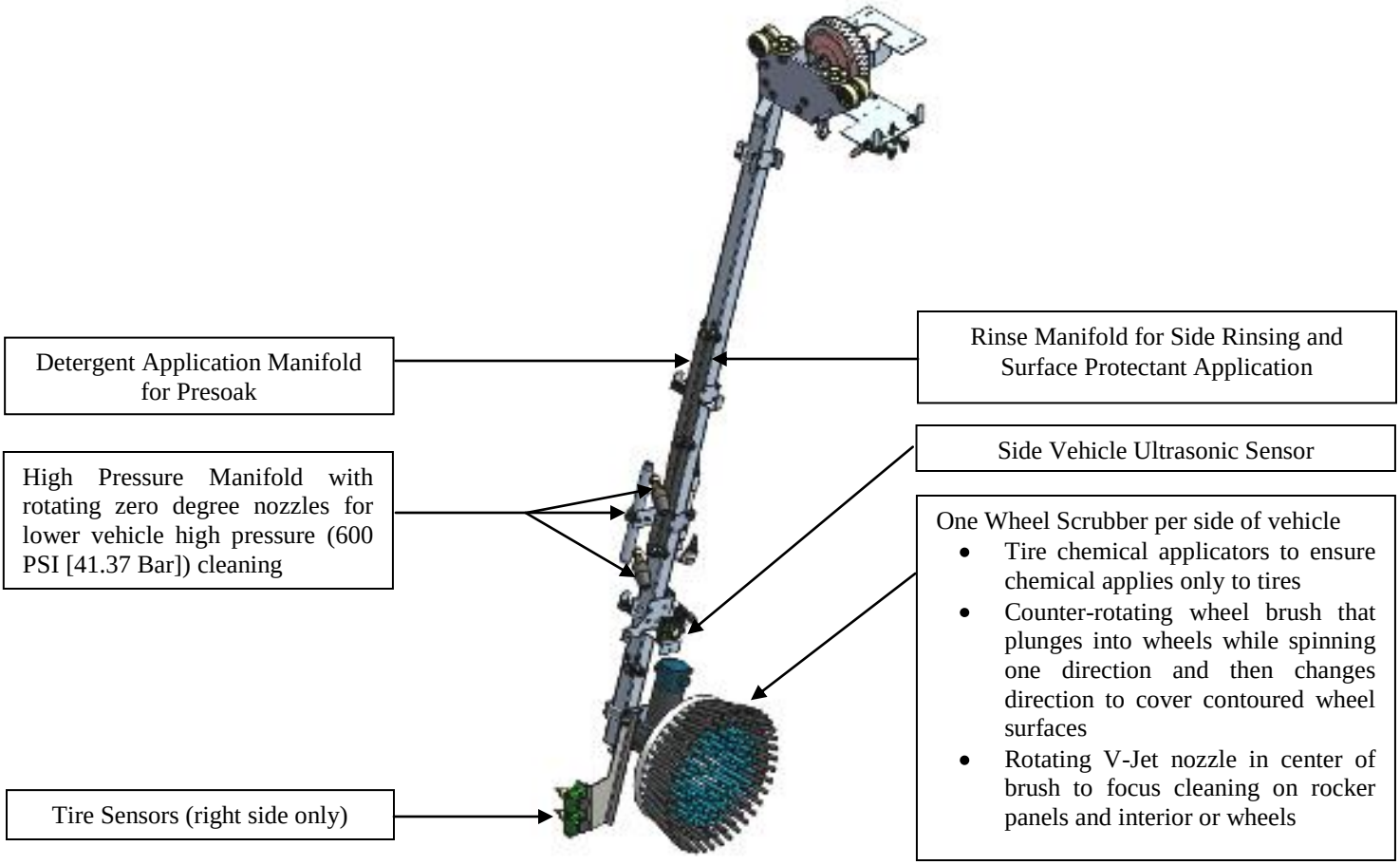


Figure 4-Advanced Wheel Scrubber with High Pressure Blaster Components.

Max Air On-Board Dryer

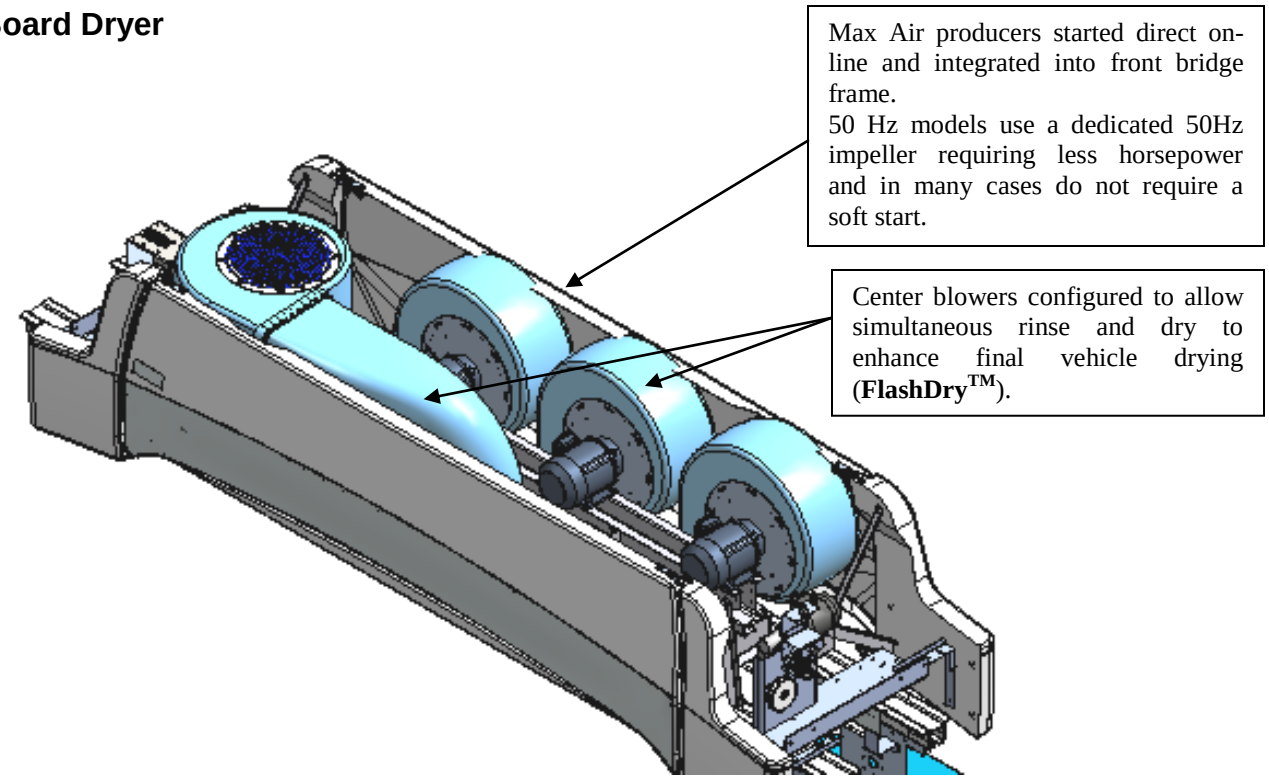


Figure 5-Max Air On-Board Dryer Components.

FEATURE	MODEL AVAILABILITY		
	RT200	RT300	RT310
Four Producer (30 HP) 60 Hz MaxAir On-Board Dryer	Optional	Optional	Not Available
Four Producer (18 HP) 50 Hz MaxAir On-Board Dryer	Not Available	Not Available	Standard
Three Producer (22.5 HP) 60 Hz MaxAir On-Board Dryer	Optional	Optional	Not Available
Three Producer (13.5 HP) 50 Hz MaxAir On-Board Dryer	Not Available	Not Available	Optional
Two Producer (15 HP) 60 Hz MaxAir On-Board Dryer for FlashDry™	Optional	Optional	Not Available
Two Producer (9 HP) 50 Hz MaxAir On-Board Dryer for FlashDry™	Not Available	Not Available	Optional
Four Producer MaxAir Stand-Alone Dryer	Optional	Optional	Optional
Side Producers (2) for MaxAir Stand Alone Dryer	Optional	Optional	Optional
Control Panel for 4 Producer MaxAir Stand Alone Dryer	Optional	Optional	Optional
Control Panel for MaxAir Stand Alone Dryer with Side Producers	Optional	Optional	Optional

Table 3-Max Air On-Board Dryer Features and Model Availability.

Additional Components

Drive Thru Undercarriage System

Component operates at site water pressure.

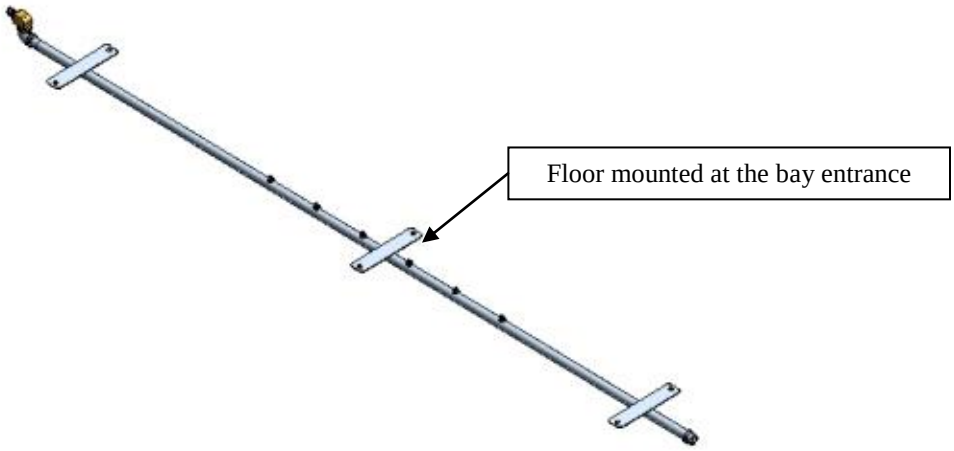


Figure 6-Low Pressure Drive Thru Undercarriage System.

Bay Control Box

Component includes the following:

- Wash control conductor with wash operation software
- Bay node
- Provides outputs for control of signage, doors (optional), undercarriage, dryer countdown timer (optional) and stand-alone dryer (optional)
- Accepts inputs from door eyes (optional) and wash entry unit
- Allows connection of site computer (site-supplied) to access operator interface and wash setup

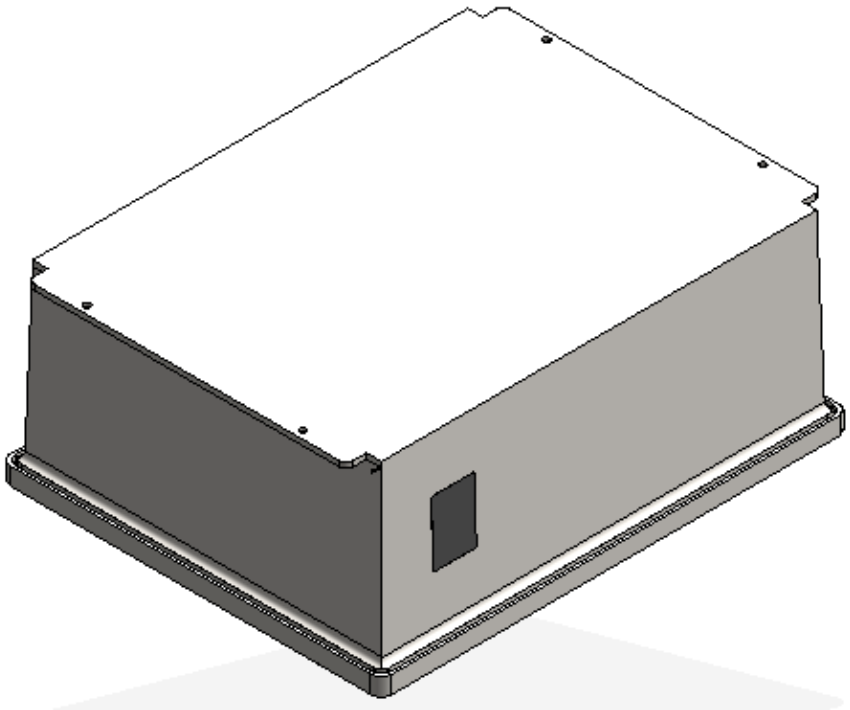


Figure 7-Bay Control Box.

Frame Mounting for Integrated Cross Beam Installation

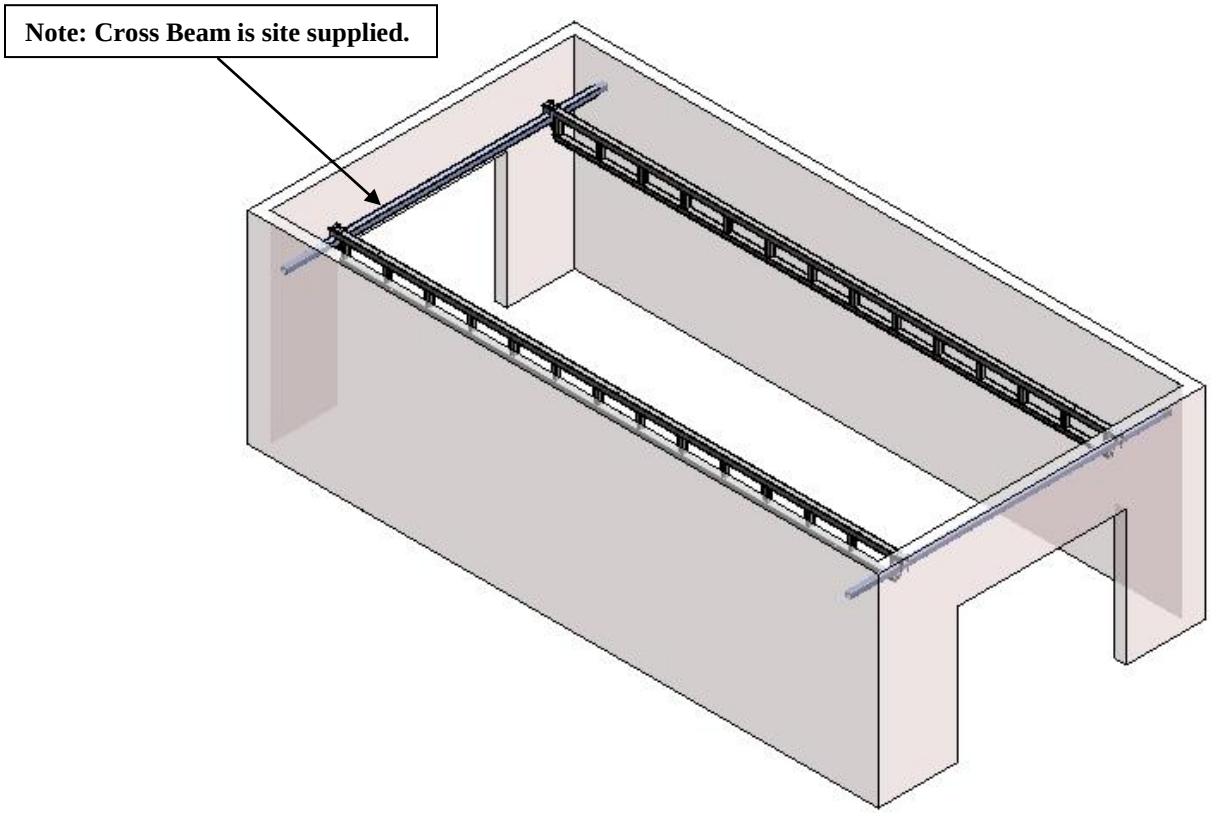


Figure 8-Cross Beam Mount.

Frame Mounting for Freestanding Frame Installation (Freestanding Mount)

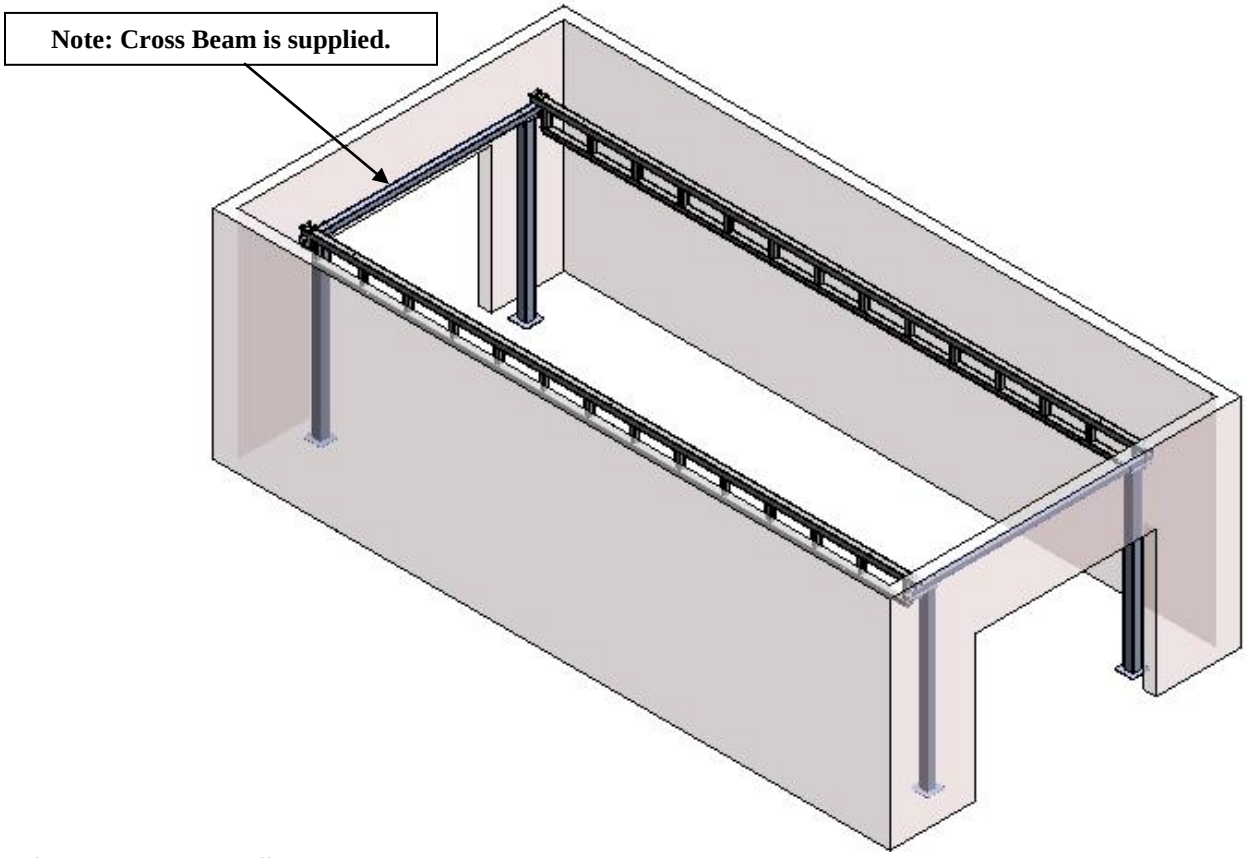


Figure 9-Freestanding Mount.

In-Bay Instructional Sign

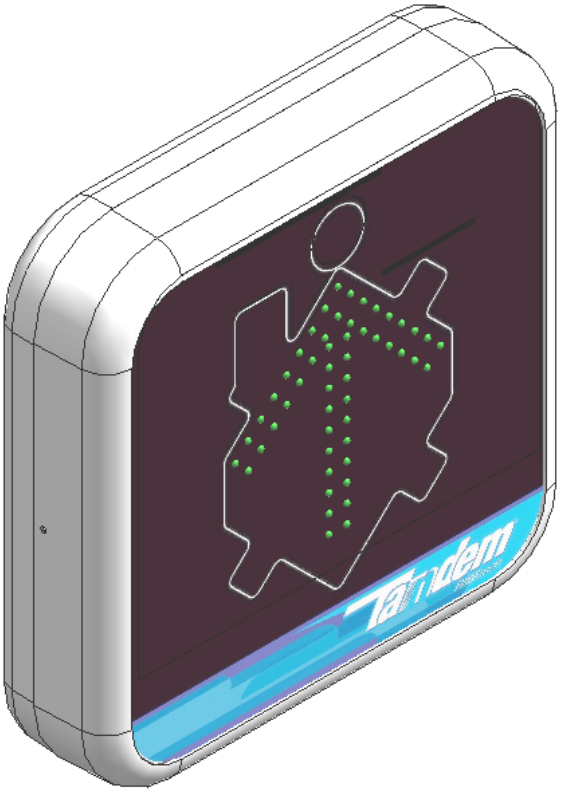


Figure 10-In-Bay Instruction Sign Component.

Wash Entrance Sign

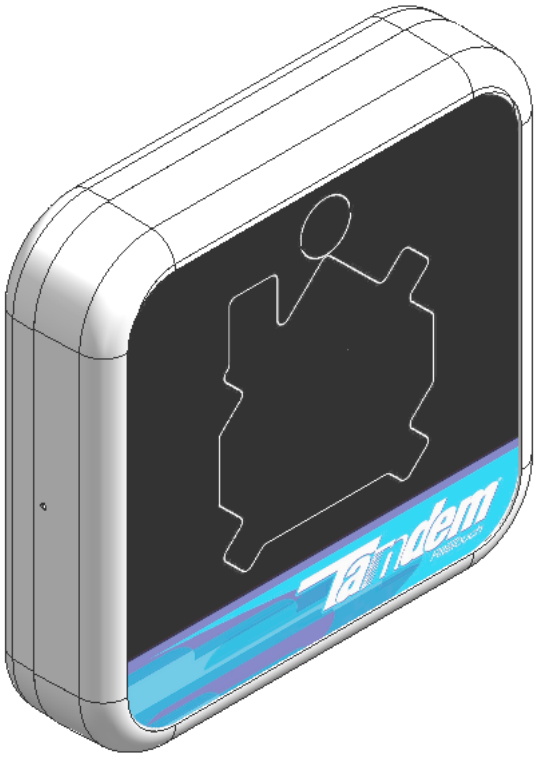


Figure 11-Wash Entrance Sign Component.

Service Confirmation Sign

Figure 12-Confirmation Sign Component.

FEATURE	MODEL AVAILABILITY		
	RT200	RT300	RT310
Low Pressure Drive Thru Undercarriage	Optional	Optional	Optional
Bay Control Box	Optional	Optional	Optional
In-Bay Instruction Sign	Standard	Standard	Standard
Wash Entrance Sign	Optional	Optional	Optional
Service Confirmation Sign	Optional	Optional	Optional
Frame Mounting for Bay Cross Beam Integration	Standard	Standard	Standard
Freestanding Frame	Optional	Optional	Optional

Table 4-Additional Component Features and Model Availability.

OPERATING PARAMETERS

COLD CLIMATE OPERATION

Site Requirements

⚠ CAUTION

In cold climates, the site is responsible to keep bay temperature above 32 ºF (0 ºC) during washes through an adequate bay heating system and doors. If site washes vehicles when bay is below freezing, chances for vehicle and machine damage may increase; causes may include ice buildup on brushes and chemical freezing on vehicle surfaces.

⚠ CAUTION

Prior to installing and/or using a bay heater, refer to required machine dimensions (see Required Tandem Machine Wash Space Envelopes section). DO NOT install heater equipment within the Tandem machine or dryer wash space envelope.
TO PREVENT DAMAGE TO MACHINE COVERS, ensure heater temperature DOES NOT EXCEED the maximum service temperature of 120 ºF (48.88ºC) within the machine or dryer wash space envelope; the site is responsible to keep bay below this maximum temperature within this envelope.

Site must maintain bay temperature above 32 ºF (0 ºC) or machine operation; machine heat systems are not designed into the wash.

Software Weep System

Note: Bay temperature sensor is required for software weep system.

Tandem software contains a weep system to help protect the machine from damage during cold weather. The weep system is not designed to heat the machine and act as the only system in cold climates to keep the wash operational.

The Software Weep system opens the Tandem valves in sequence to allow fluids to flow though the Tandem system. The system spins the side brush and wheel brushes (if applicable) to help prevent freezing. The weep cycle starts when the machine senses a bay temperature lower than a set temperature programmed by the operator during site setup. For more software weep operation modes and setup details, see manual *10060086 Programming*.

WASH USER INSTRUCTIONS

It is recommended a sign be installed at the vehicle entrance to instruct the user how to enter and stop in the wash bay, remain in the vehicle while parked during the wash and exit after the wash is complete. Additionally, this sign should include general instructions regarding vehicle equipment that should be stowed, removed, or not installed when using the Tandem.

PDQ offers an Entrance Instruction Sign (Part# 09020069) as an option available with the purchase of the Tandem. This sign may be used or the owner may choose to develop a sign tailored to the image of the site.

Figure 13-PDQ Entrance Instruction Sign.

NOISE (DBA) LEVELS FOR TANDEM ON-BOARD DRYER

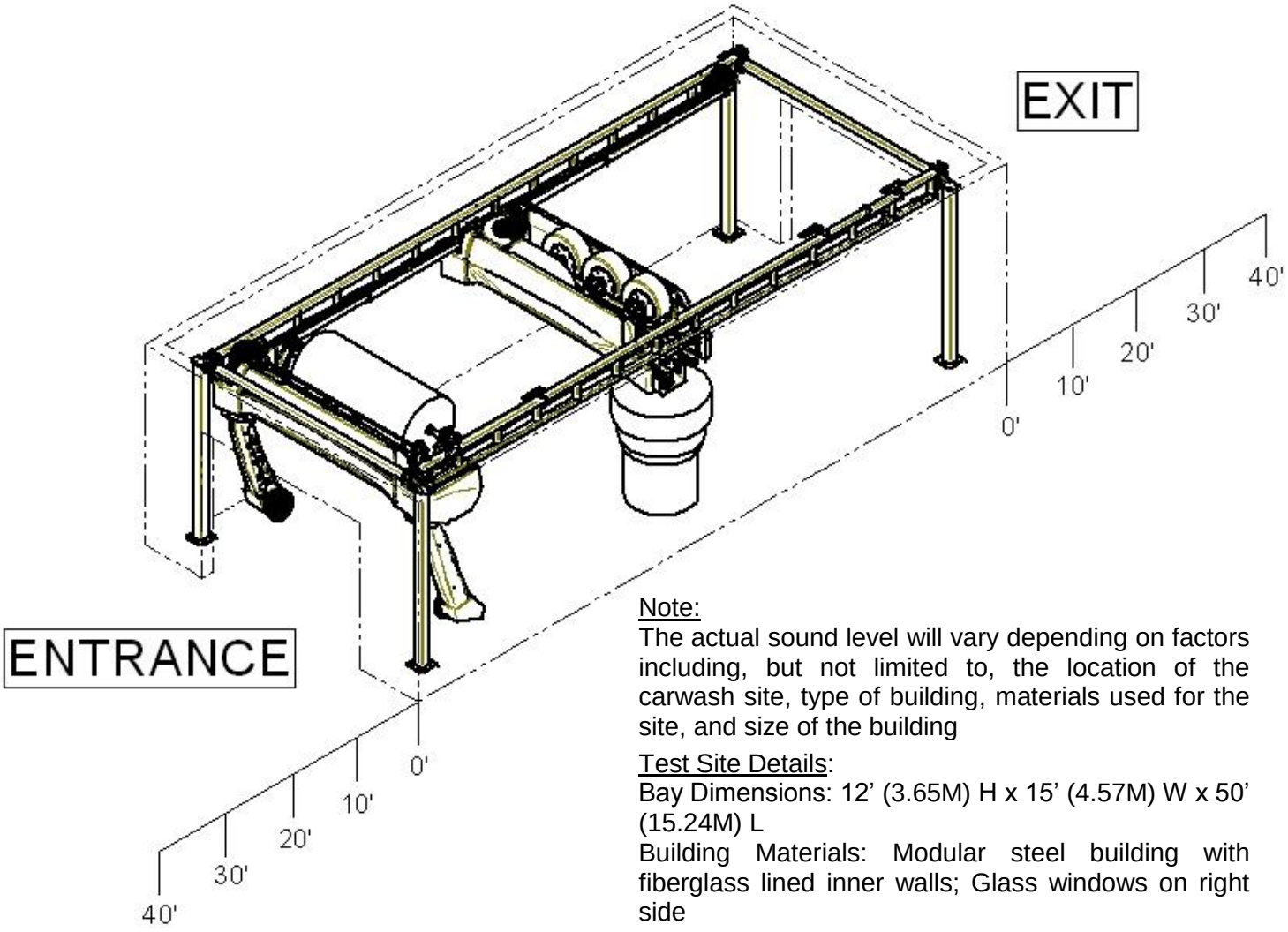
For example readings during a typical installation, see Figure 14.

!!IMPORTANT!!

Actual dBA readings will vary depending on wash site, type of building materials used, and building size.

The following factors affect noise level readings:

- Building size and materials
- Windows and doors
- Structures adjacent to carwash building



Note:
The actual sound level will vary depending on factors including, but not limited to, the location of the carwash site, type of building, materials used for the site, and size of the building

Test Site Details:
Bay Dimensions: 12’ (3.65M) H x 15’ (4.57M) W x 50’ (15.24M) L
Building Materials: Modular steel building with fiberglass lined inner walls; Glass windows on right side

DOOR OPEN/CLOSED	ENTRANCE/EXIT	dBA AT DISTANCE FROM DOOR OPENING				
		0' (0.00M)	10' (3.04M)	20' (6.09M)	30' (9.14M)	40' (12.19M)
BOTH DOORS OPEN	ENTRANCE	88	82	77	73	70
	EXIT	90	84	79	77	74
BOTH DOORS CLOSED	ENTRANCE	75	66	61	59	56
	EXIT	78	71	64	60	59

Figure 14-Sound Levels.

BUILDING REQUIREMENTS

VEHICLE CLEARANCE

The Tandem wash accommodates a maximum 94.5" (2.4M) vehicle height clearance.

In bays not requiring front bridge rail modifications, the side to side capability of washing wide vehicles is designed to accommodate very wide vehicles such as dually pickup trucks (see *Altering the Front Bridge Rail Length to Accommodate Bay Widths from 13'-6" [4.11M] to 14'-9"[4.49M]* section).

In bays not requiring main rail modifications (shortening rails), the side brush is capable of making a full pass around rear of very long vehicles (see *Altering the Main Rail Length to Accommodate Shorter Wash Bays* section).

In some cases depending on the machine setup and location of customer parking in wash bay for longer length vehicles, the side brush may not fully pass around rear of vehicle. This is most likely to happen when washing a vehicle such as a full-size crew cab long box pickup truck. Instead, the wash performs a U-Wash; a U-Wash reverses the side brush direction near the back when it reaches the extent of its travel and moves in the opposite direction along its path and does not pass around the back of the vehicle. The back of the vehicle still receives all other wash services (i.e. chemical applications, rinses), and the site may be configured to use the top brush to do a service where it does a dedicated scrubbing operation on the rear surfaces of the vehicle. The end result is long vehicles receive full chemical, brush scrubbing and rinsing.

WASH BAY DIMENSIONAL SPECIFICATIONS

DIMENSION	MACHINE OPTIONS	RECOMMENDED	MAXIMUM	MINIMUM (SEE BELOW)
LENGTH	With On-Board or No Dryer	36' (10.97M)	N/A	35' (10.66M)
	With MaxAir Stand-Alone Dryer (with covers)	50' (15.24M)	N/A	39'-3" (11.96M)
WIDTH	Cross Beam Mount	16' (4.87M)	21' (6.40M) (See Note)	14'-9" (4.49M) (w/o front bridge rail modification)
	Freestanding Frame	16' (4.87M)	N/A	13'-6" (4.11M) (with front bridge rail modification)
HEIGHT	Any Option	11' (3.35M)	N/A	10'-6" (3.20M)

Note: For wash bays greater than 16' (4.87M) wide where cross beam mounts are used, the 6" rail clamp assemblies may be required in place of the standard rail clamps. For any wall mount situation, a qualified structural engineer must be used to design the cross beam integration.

Note: For shorter wash bays, see section Altering *the Main Rail Length* within this manual.

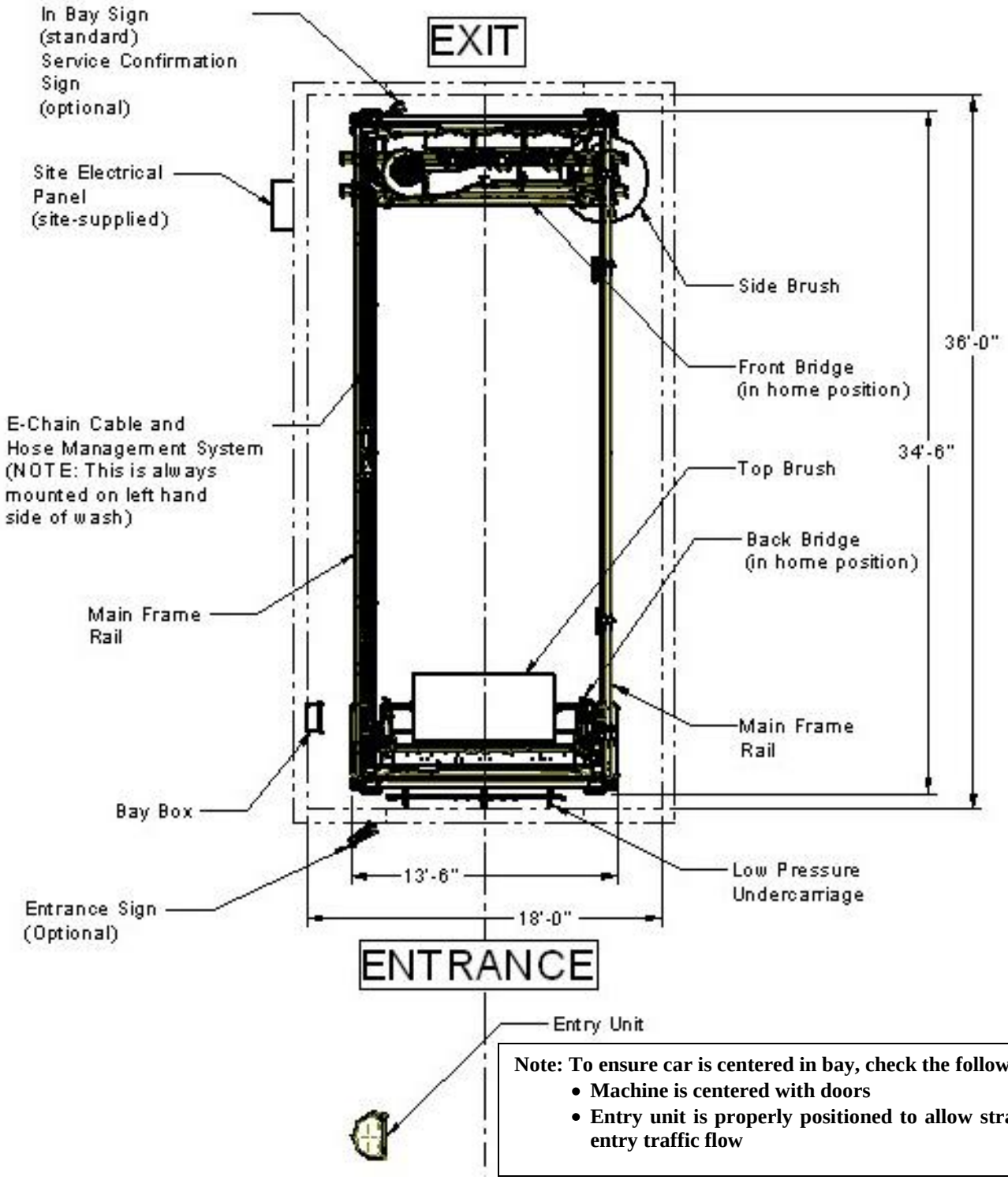
Table 5-Wash Bay Recommended, Maximum and Minimum Dimensions.

REQUIRED DIMENSIONAL SPECIFICATION DRAWINGS

Typical Wash Bay Layout

!!IMPORTANT!!

E-CHAIN CABLE AND HOSE MANAGEMENT SYSTEM MUST BE MOUNTED ON LEFT SIDE OF WASH BAY ONLY. E-CHAIN SYSTEM IS ALWAYS MOUNTED ON LEFT SIDE OF WASH BAY.



Note: To ensure car is centered in bay, check the following:

- **Machine is centered with doors**
- **Entry unit is properly positioned to allow straight entry traffic flow**

Figure 15-Typical Wash Bay Layout.

REQUIRED TANDEM MACHINE WASH SPACE ENVELOPES

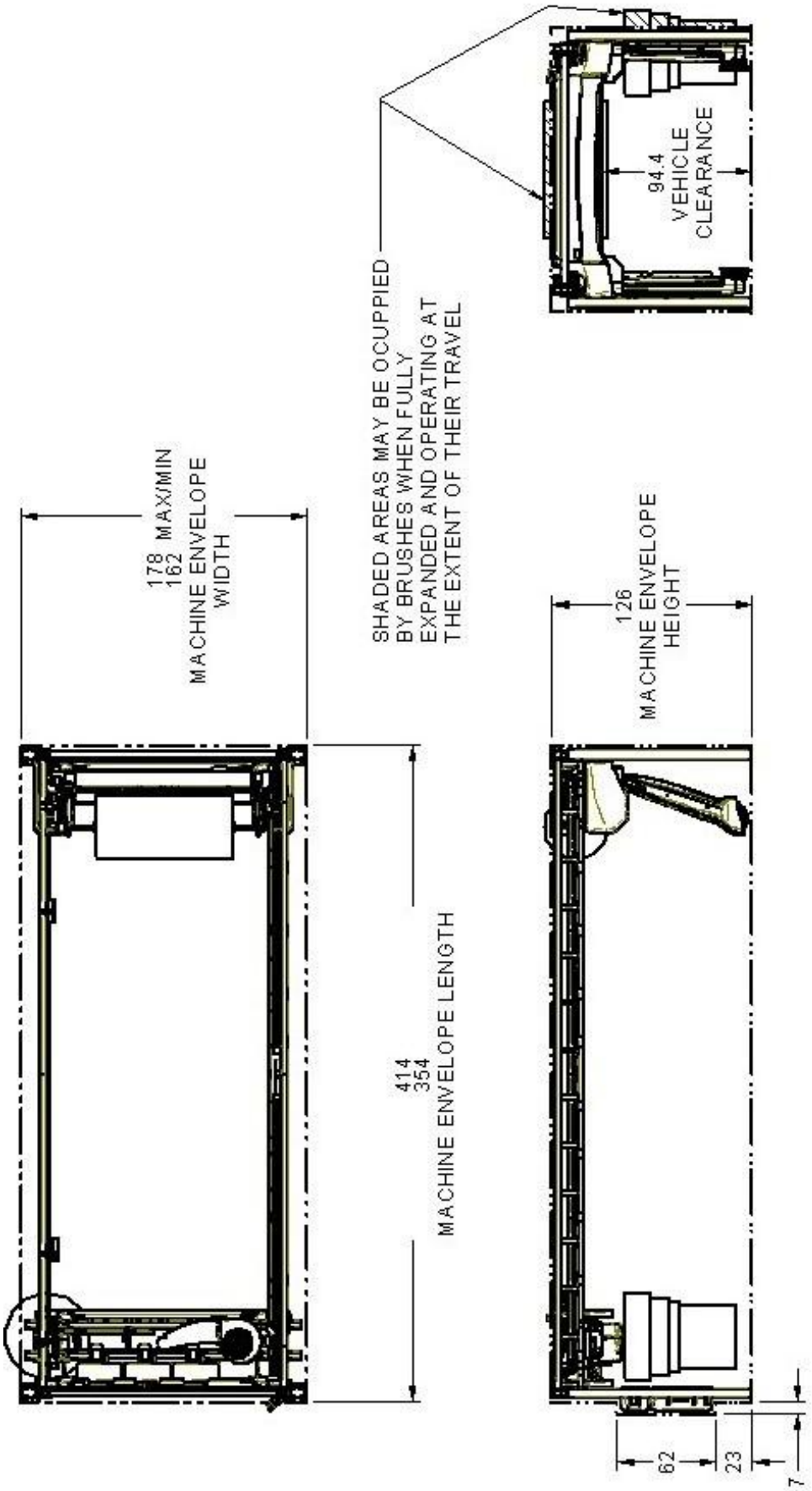


Figure 16-Free Standing Frame with On-Board Dryer.

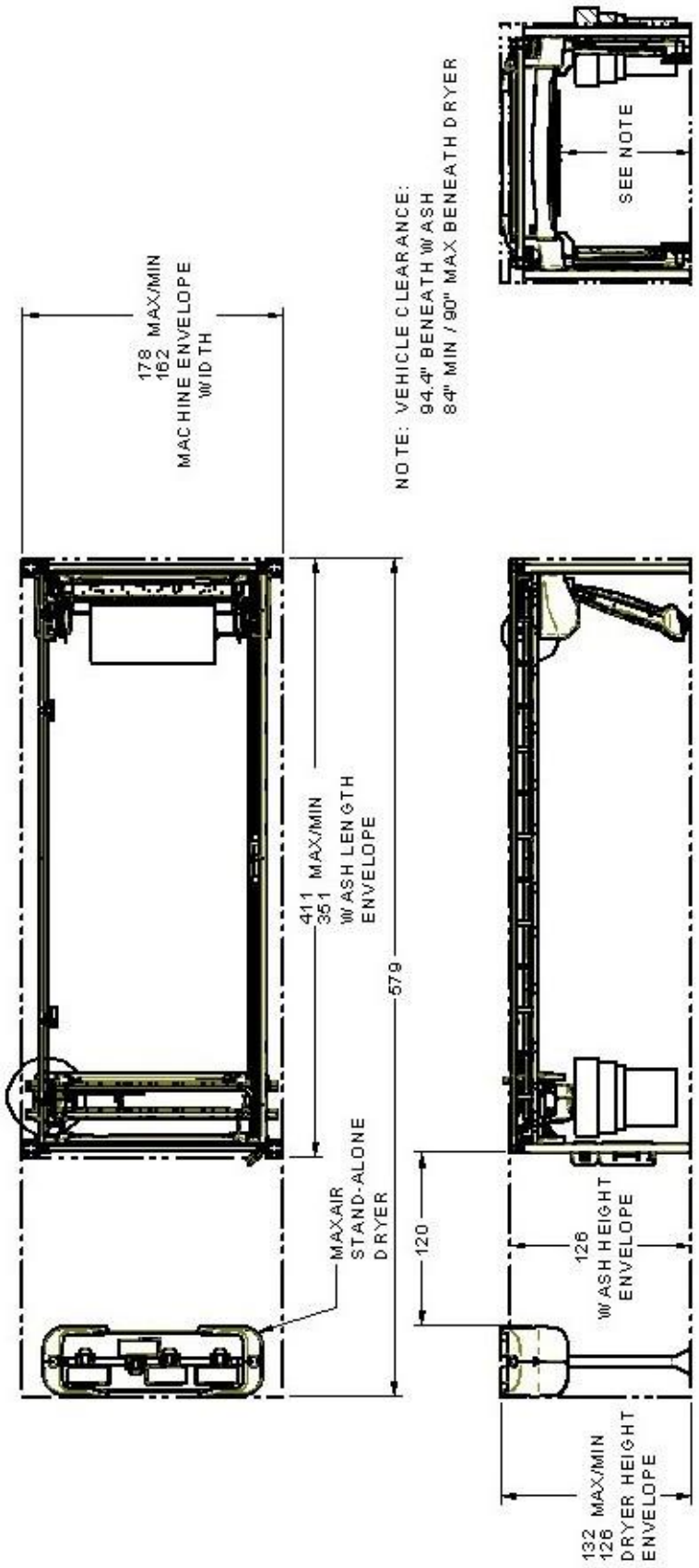


Figure 17-Free Standing Frame with Stand-Alone Dryer.

SENSOR OPERATING ZONES

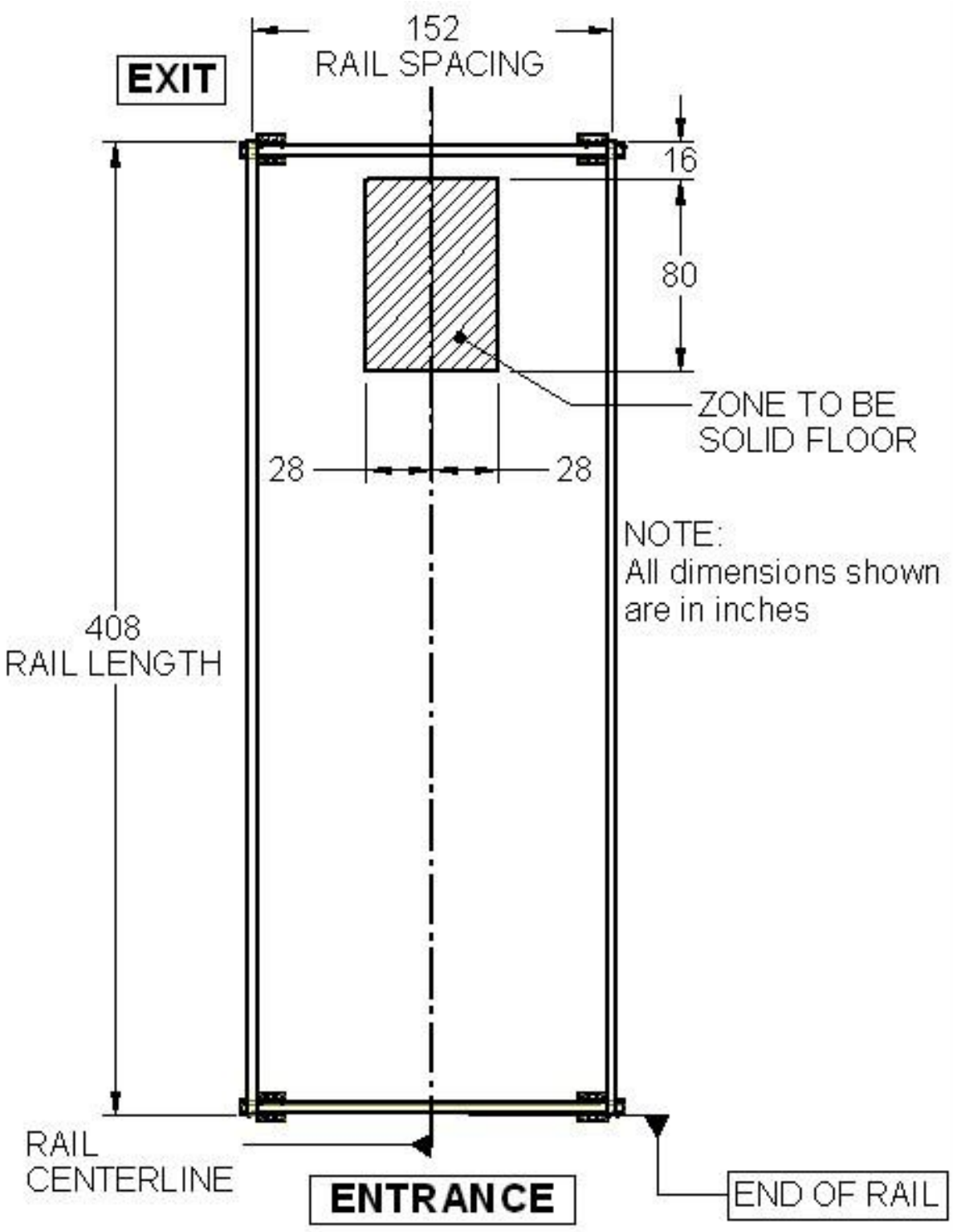


Figure 18-Ultrasonic Sensor Operating Zones.

FREESTANDING MOUNTING ONLY

The following drawings pertain to machines mounted with a freestanding frame only.

Machine Mounting Loads

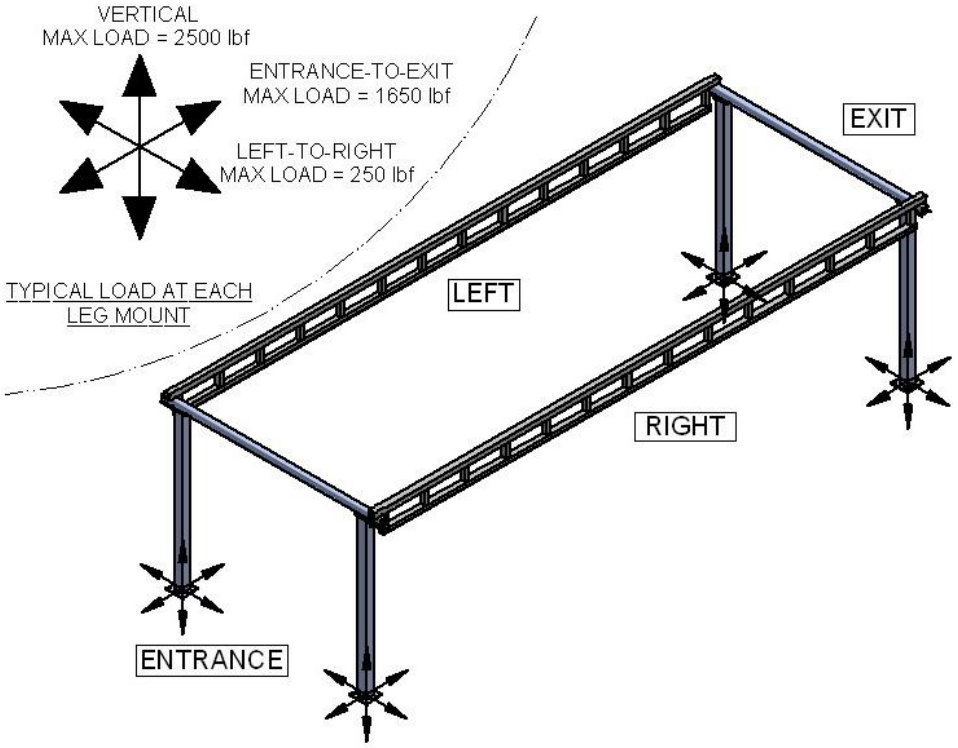


Figure 19-Maximum Forces Exerted on Building Floor, Freestanding Frame.

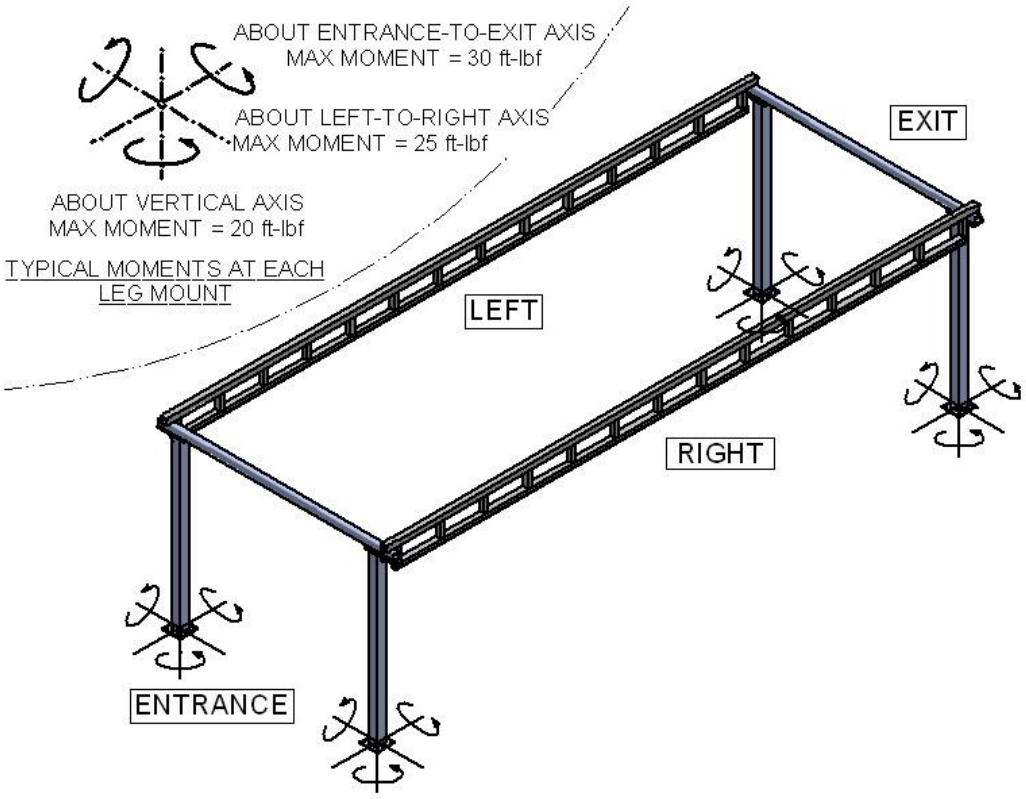


Figure 20-Maximum Moments Exerted on Building Floor, Freestanding Frame.

Freestanding Frame Mounting Plate

The free-standing frame option provides 4 frame mounting plates; these plates mount the frame to the bay floor.

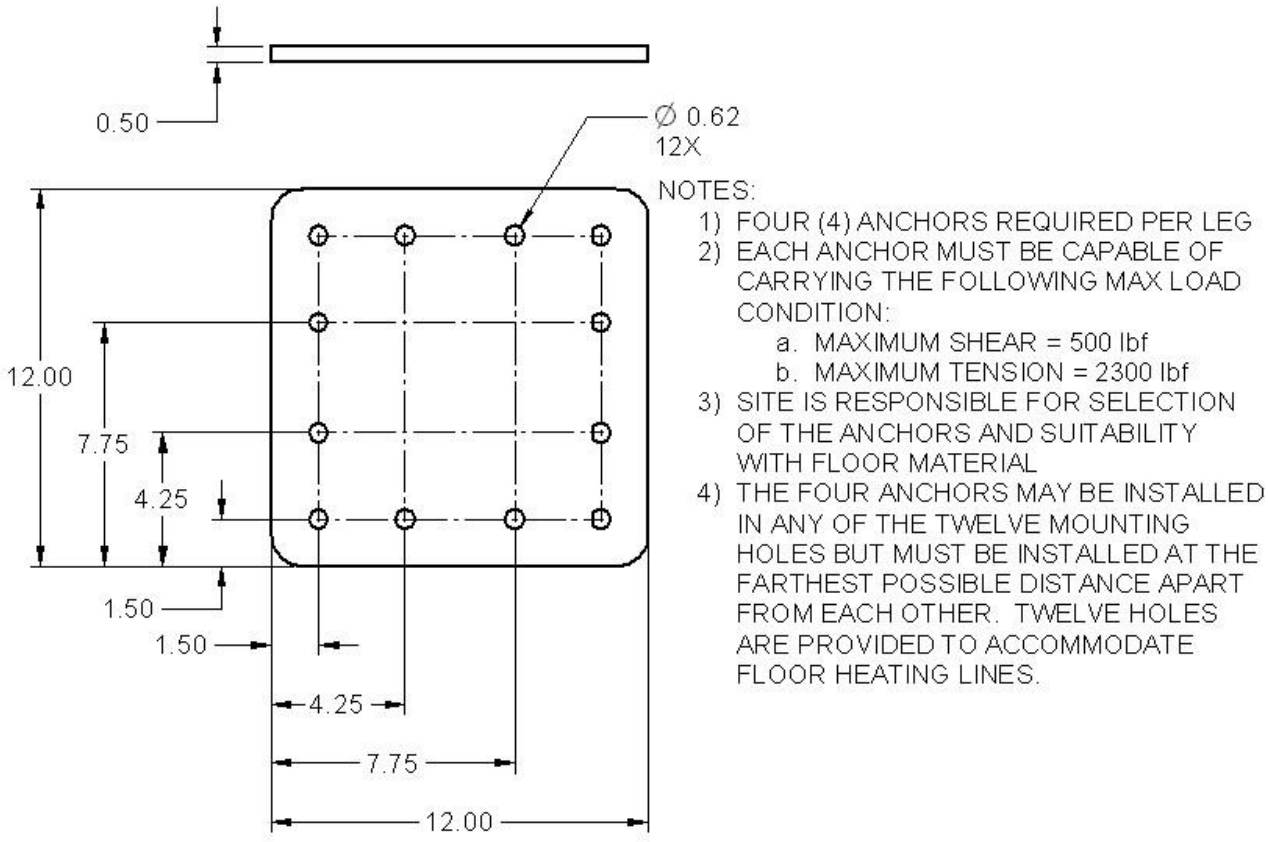


Figure 21-Supplied Frame Mounting Plate with Free-Standing Frame Option.

Floor Heat

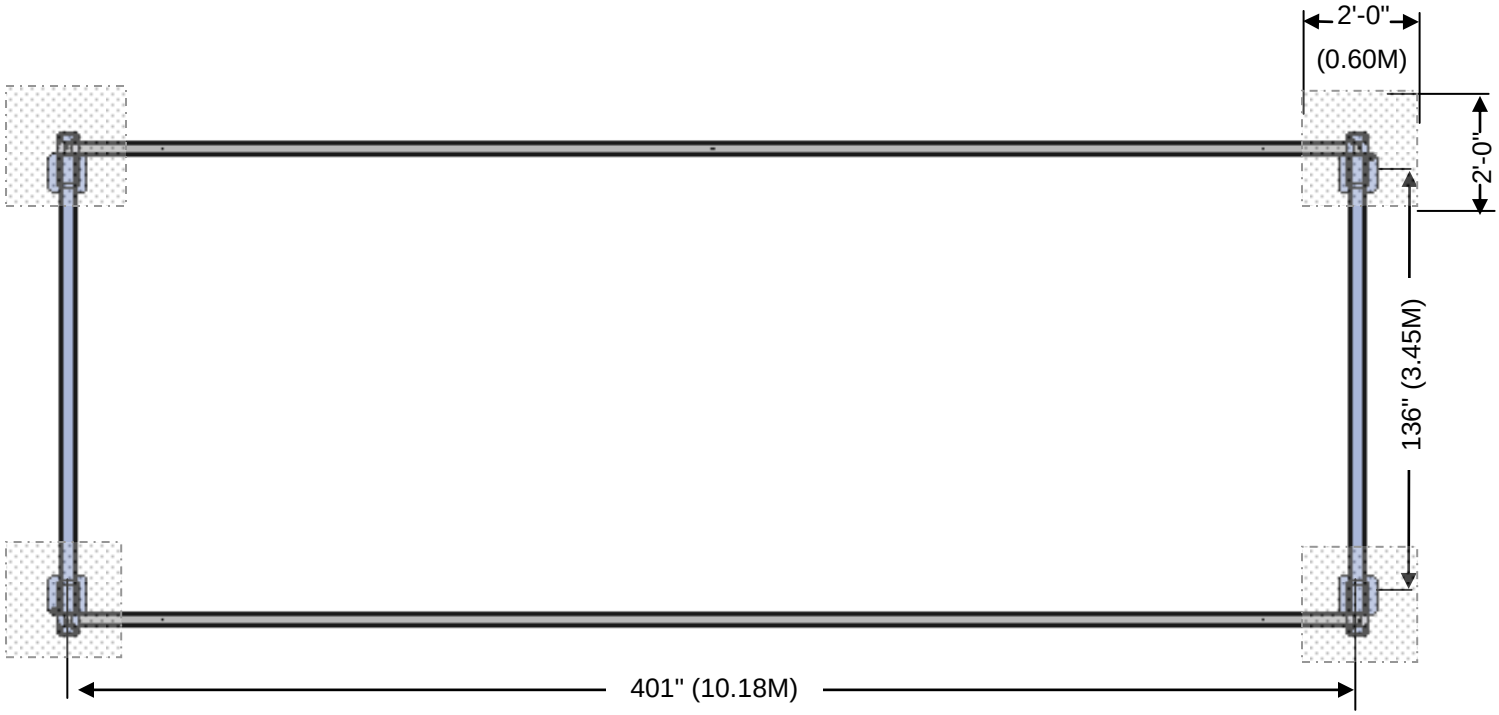


Figure 22-Floor Heat.

Note: The above are general Tandem RiteTouch floor heat dimensions; dimensions will vary and are site specific.

FRAME MOUNTING WITH SITE SUPPLIED CROSS BEAMS ONLY

The following drawings pertain to machines mounted with site supplied cross beams only.

!!IMPORTANT!!

Cross beams are site supplied. Consult a qualified structural engineer for beam design recommendations specific to the wash building.

General Instructions Applicable to all Cross Beam Runway Mounts

DANGER

- **Cross beams and mounting are site supplied. Please refer to the example shown in Figures 25 through 27 for a Typical Cross Beam integration into a building with masonry walls. Figures 25 through 27 represent one potential method of integrating the cross beams into the wash bay wall. Each site will vary; it is the responsibility of the site to consult a qualified structural engineer for beam design recommendations specific to the wash building.**
- **Cross Beam Minimum Requirements (Note: These are typical beam sizes that are ultimately site dependent. Many factors influence the sizing of the cross beams and the integration into the wall of the wash bay including, but not limited to, the materials and condition of the wall and the spacing between walls).**
    - **For wash bays with inside wall to wall dimensions of up to 15 feet (4.57M), typically the cross beams may be made from 4" (101.60mm) x 4" (101.60mm) x .375" (9.25mm) wall galvanized HSS tubing.**
    - **For wash bays with inside wall to wall dimensions of up to 16 feet (4.87M), typically the cross beams may be made from 4" (101.60mm) x 4" (101.60mm) x 0.50" (12.7mm) wall galvanized HSS tubing.**
    - **For wash bays with inside wall to wall dimensions up to 21 (6.40M) feet , typically the cross beams may be made from 6" (152.40mm) x 6" (152.40mm) x .375" (9.25mm) wall galvanized HSS tubing.**
    - **In all cases, it is the responsibility of the site to consult a qualified structural engineer for cross beam sizing and integration design.**
- **Failure to have the cross beam integration to the wall designed by a qualified structural engineer may result in serious bodily injury or death.**

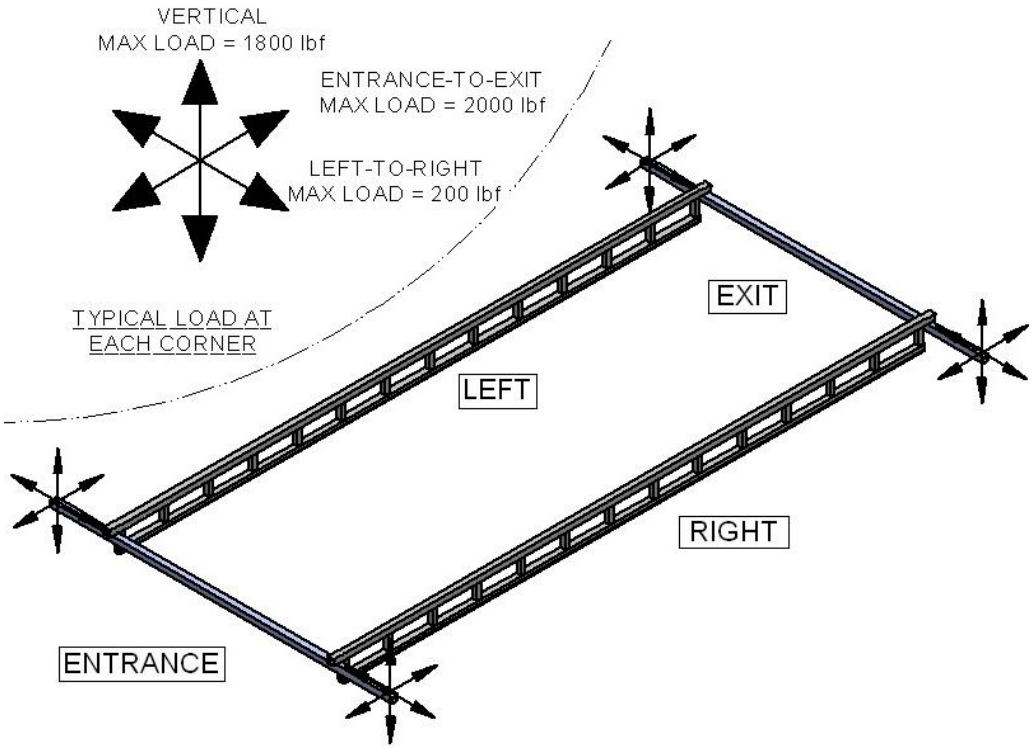


Figure 23-Maximum Forces Exerted on Building Walls, Frame Mounted to Site-Supplied Wall Beams.

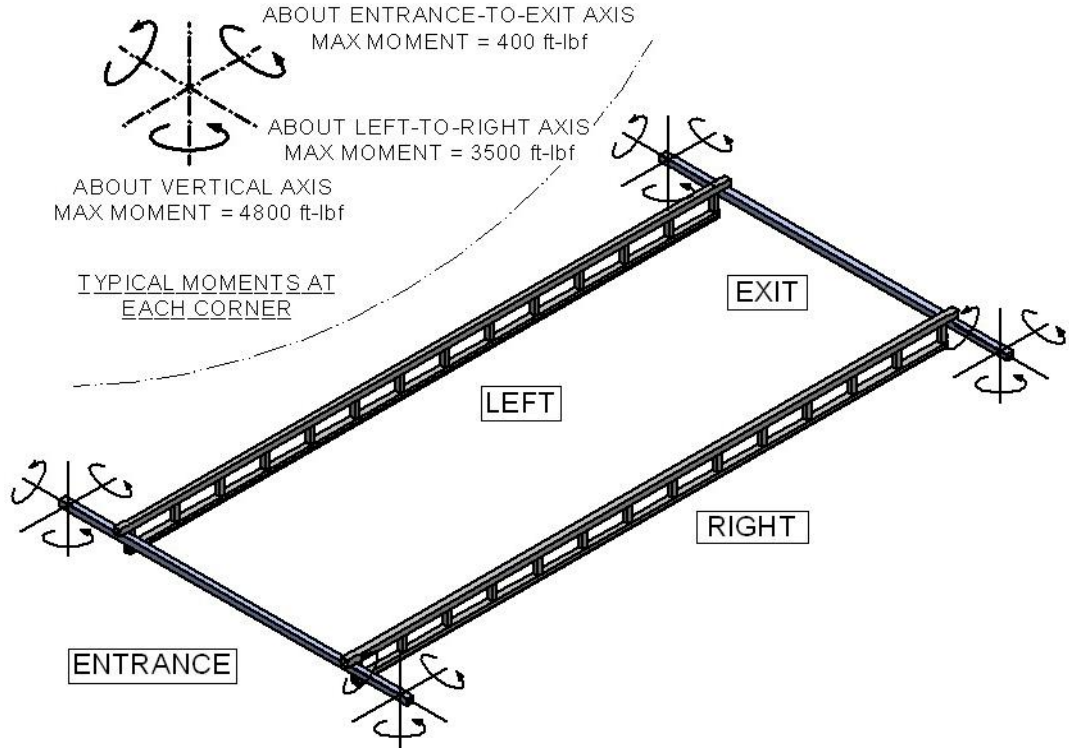


Figure 24-Maximum Moments Exerted on Building Walls, Frame mounted to Site-Supplied Wall Beams.

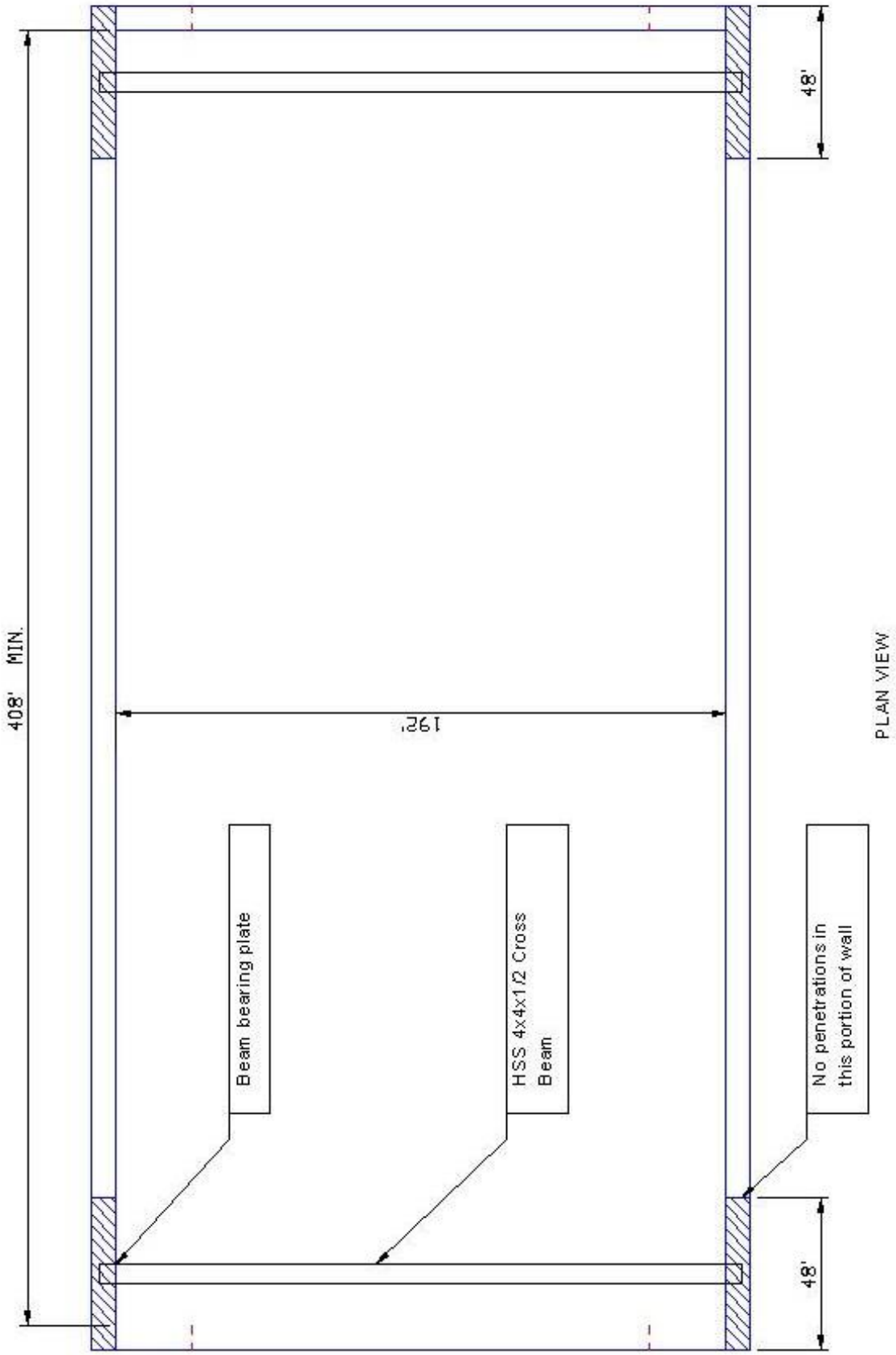


Figure 25-Example of Cross Beam Integration, Plan View.

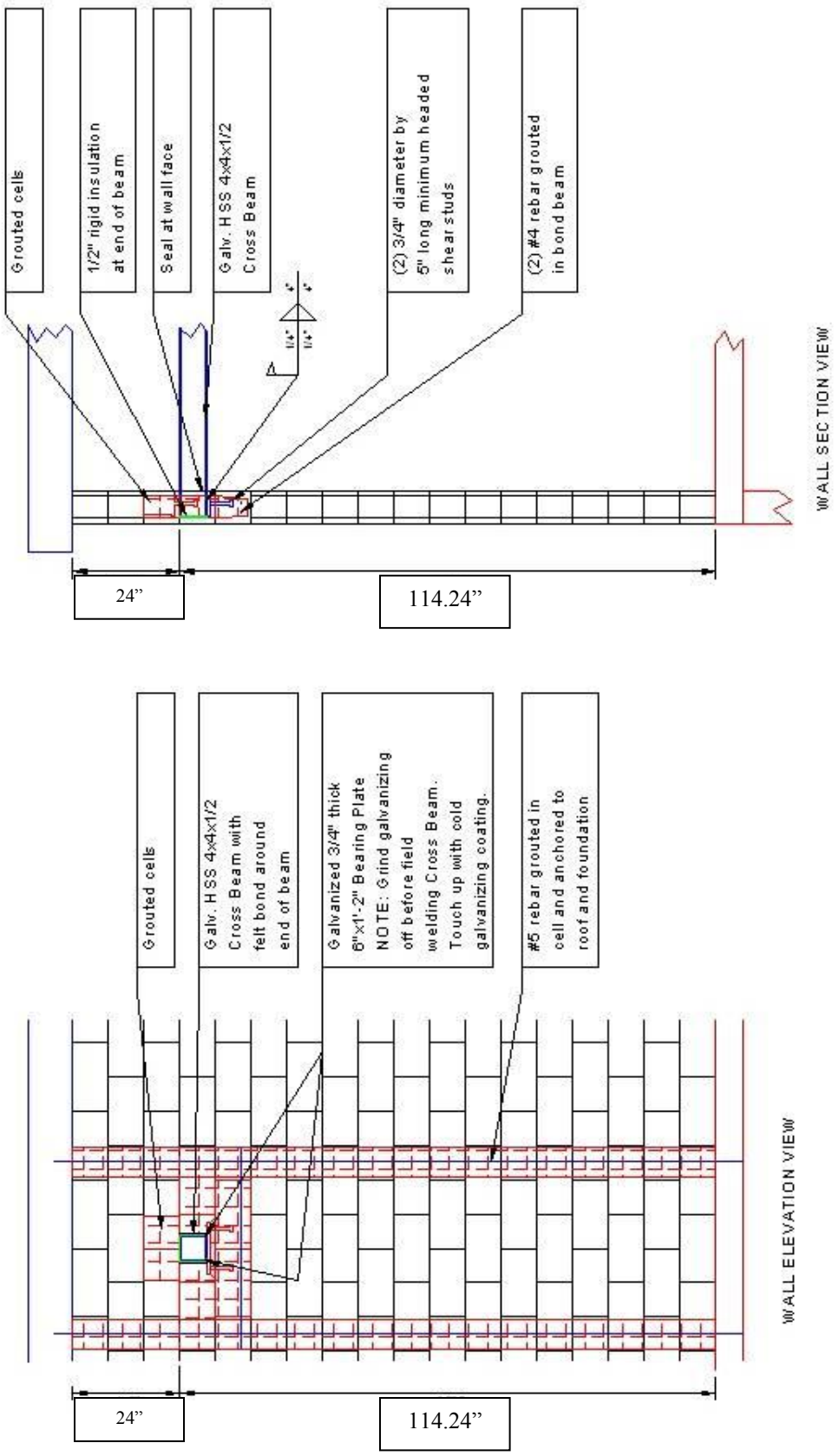


Figure 26-Example of Cross Beam Integration, Elevation View.

Figure 27-Example of Cross Beam Integration, Isometric View.

Cross Beam Mounting Hardware

Each machine ordered (except if the freestanding frame option is ordered) receives a Wall Beam Mounting Hardware Kit (Figure 28). This provides hardware for clamping the two Main Machine Rails to the site supplied Wall Beams in the four corners of the Tandem.

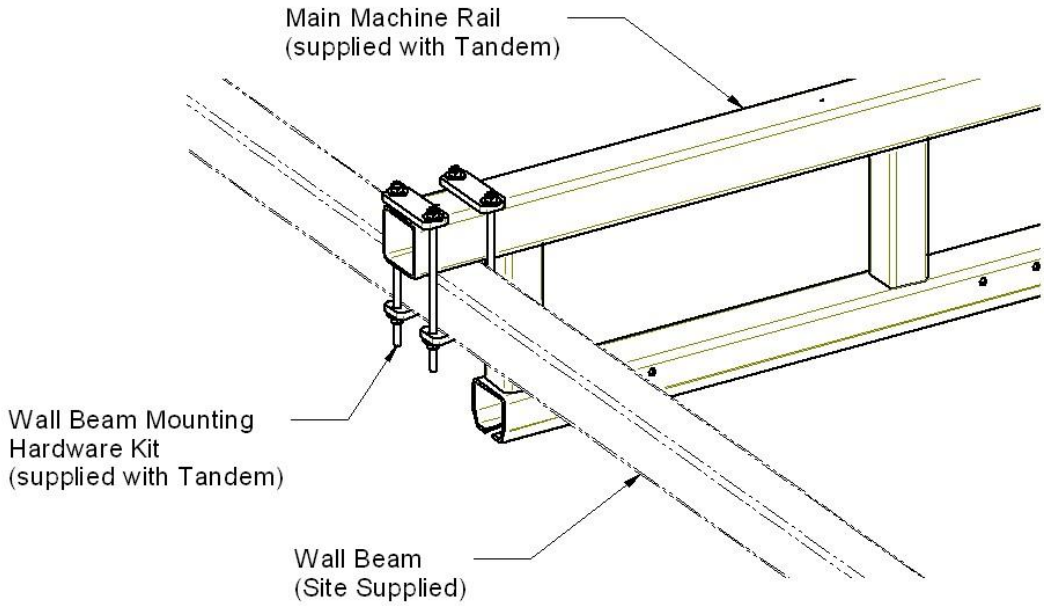


Figure 28-Wall Mount Hardware Supplied with Standard Tandem Wall Mount.

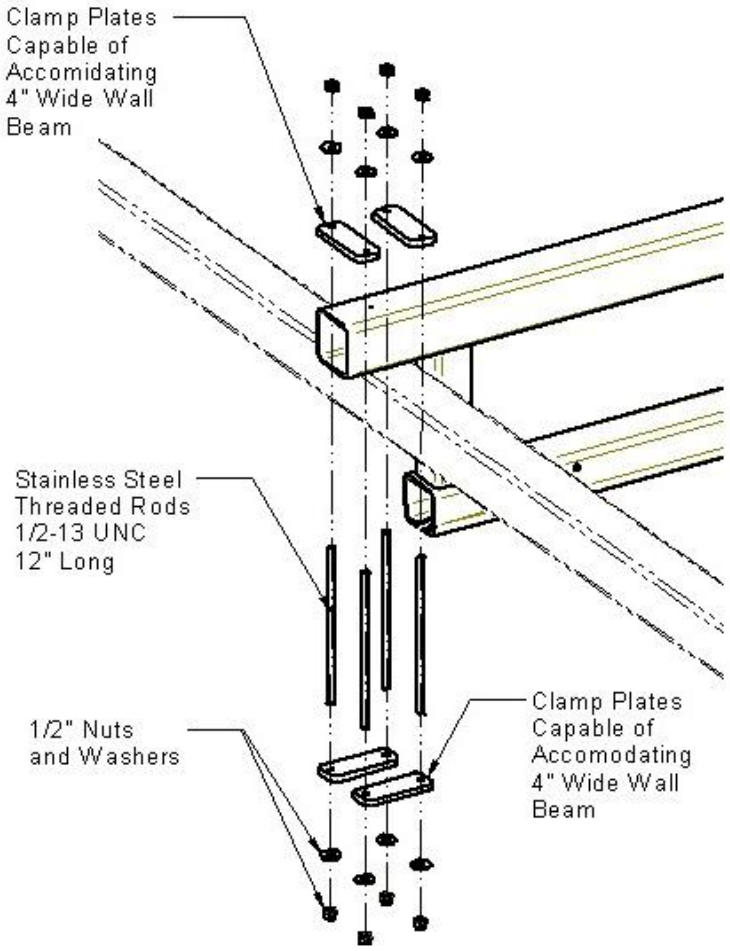


Figure 29-Supplied Hardware with Wall Mounting Kit.

Locating the Site Supplied Cross Beams for Standard Rail Lengths

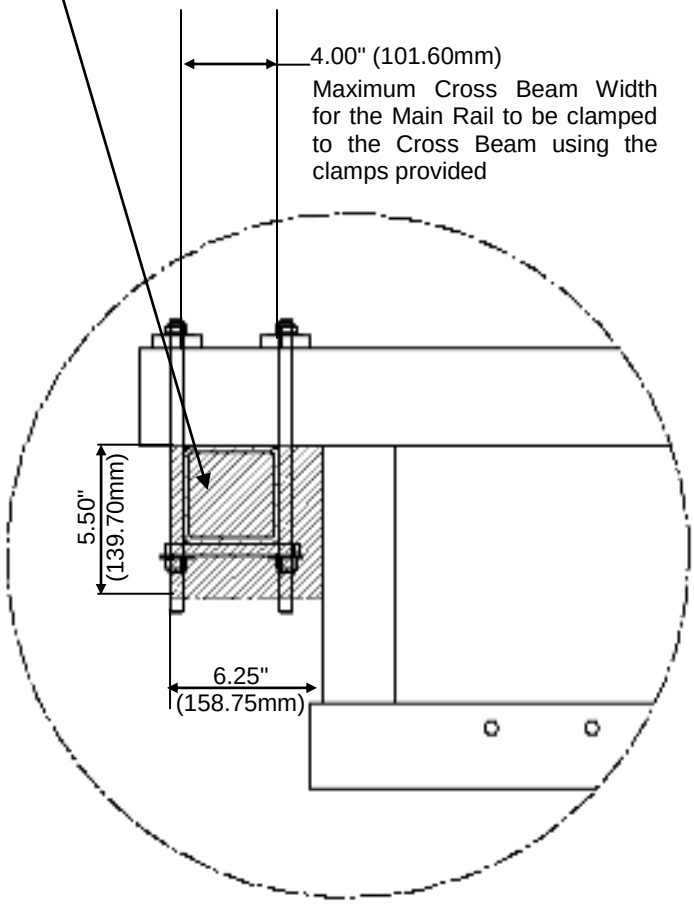
!!IMPORTANT!!

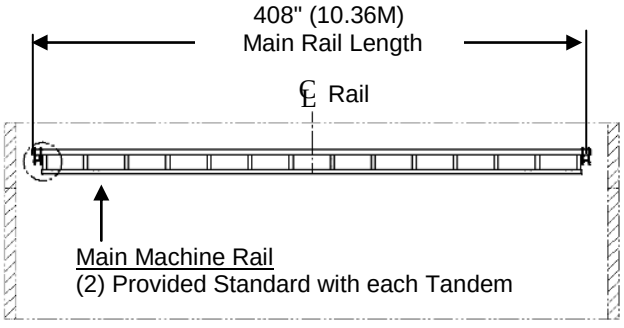
Wall beams are site supplied. Consult qualified structural engineer for beam design recommendations specific to wash building.

For sites where **standard rail length** will fit without modification, Figure 30 shows the proper location for cross beams.

SIDE ELEVATION VIEW

Cross Beams must fit in the shaded zone for the Main Rail to be clamped to the cross beam using the clamps provided. If taller beam is used, longer threaded rods must be used.

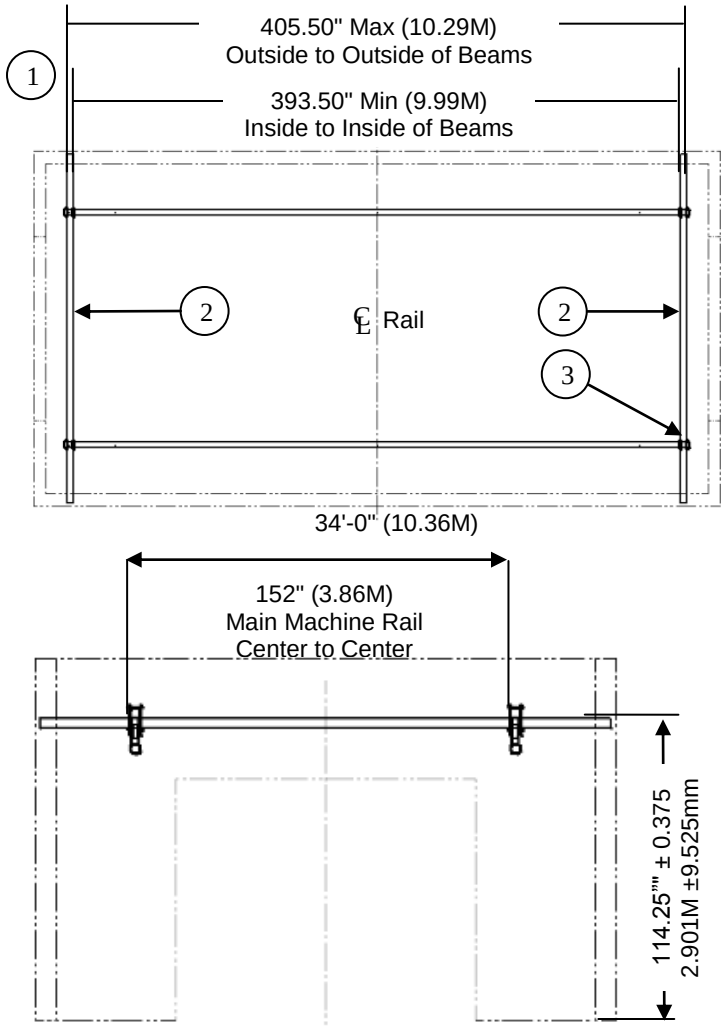




SIDE ELEVATION VIEW
FULL LENGTH RAIL 34'-0" (10.36M)

PLAN VIEW

1-Cross Beams must lie within range shown, each end.
2-Required Cross Beams (2) to be provided by the site.
Note: Cross Beam material size, selection, placement and mounting must be verified by a structural engineer or architect. PDQ is not responsible for structural design of Cross Beams.
3-Main Rail Clamp Set (4) provided standard with each Tandem.
Note: Do not weld Main Machine Rails to Cross Beam. Doing so will void warranty.



Height of Top of Cross Beam.
All (4) mounting corners to be at same height within this tolerance. Main Machine Rails must be shimmed level at installation.

Figure 30-Side Elevation and Plan View, 34' Rail.

ALTERING THE MAIN RAIL LENGTH TO ACCOMMODATE SHORTER WASH BAYS

Note: If the rail length is shortened, the maximum vehicle length washed with a full side brush pass around the rear of the vehicle is reduced. Longer vehicles may still be washed, but the side brush may not pass over the rear surfaces. The wash may be set to wash these longer vehicles with the top brush washing the rear surfaces to achieve full brush cleaning. This service is referred to as a back scrub.

Rail Length, Vehicle Length and Side Brush Relationship (see Table 6 and Figure 31)

The Main Machine Rail length may be altered during installation to fit the wash into a shorter bay length. The rail may be shortened during installation in increments of 30 inches (762mm). Table 6 describes how building length determines rail modifications:

Note: Results will vary.

BUILDING INSIDE LENGTH (inside wall at exit to inside wall at entrance)	DESIRED RAIL MODIFICATION
35' (10.66M) or greater	None
32'-6" (9.90M) to 35' 0" (10.66M)	Cut 30" (762 mm) from one end of each main rail
30' 0" (9.14M) to 32' 6" (9.90M)	Cut 30" (762 mm) from both ends of each main rail

Table 6-Bay Length and Rail Modification Required.

The following chart provides general guidance on how rail length reductions affect typical vehicles that may be washed completely with the side brush and what lengths will typically be washed with a back scrub.

Note: The following chart shows typical results when drivers park normally. If drivers pull further into the vehicle parking zone or not as far into the zone, these results will be different.

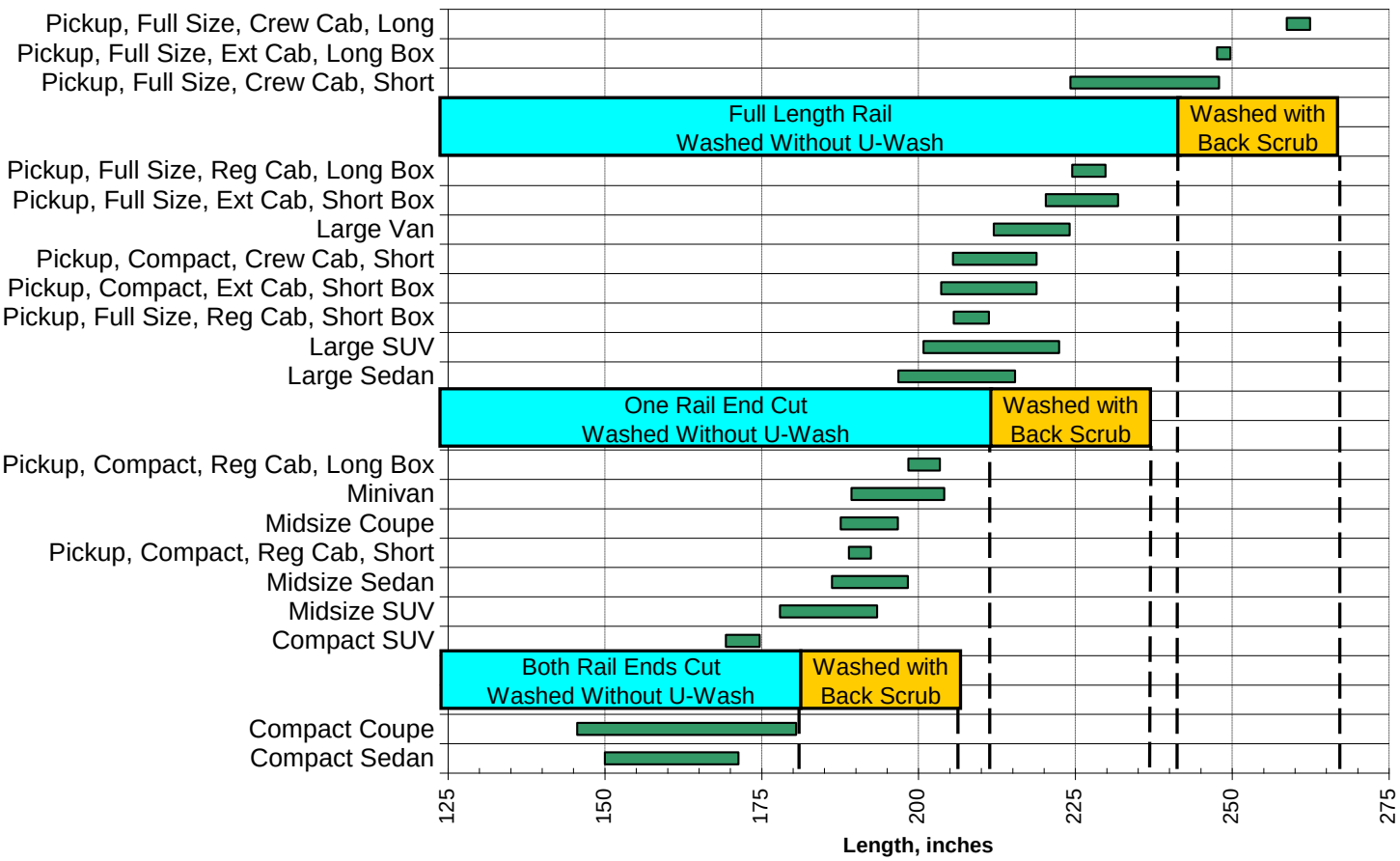


Figure 31-Typical Vehicle Length and Rail Length Comparison.

Example: **A Tandem RiteTouch wash bay with on-board dryer is 33.5 feet (10.21M) long. Based on Table 6, the rail length is modified by cutting 30" (762mm) from one end of each rail.**

The new maximum vehicle length that may be washed with a complete side brush pass around the vehicle rear is approximately 212 inches (5.38M). Vehicles up to 237 inches (6.02M) will be washed with the back scrub service. Vehicles longer than 237 inches (6.02M) will still be washed, but the back scrub service will not be performed and the rear of the vehicle will not receive friction washing.

Referring to Table 6 and Figure 31, this indicates that vehicles as long as most compact pickup trucks with regular cabs would typically receive a wash where the side brush passes completely around the rear of the vehicle. Vehicles such as full size pickups with extended cabs and a short box or full size regular cab pickups would typically receive a wash where the rear surfaces are washed with the back scrub. Vehicles longer than this would not receive friction washing on the rear surface, but may still be washed at this carwash site.

LOCATING THE SITE SUPPLIED CROSS BEAMS FOR MODIFIED RAIL LENGTHS
Installations with One End of Rail Shortened

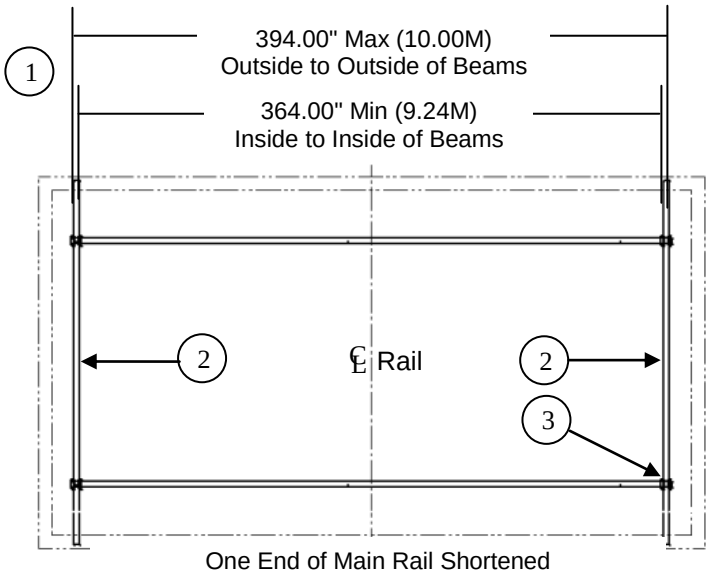
!!IMPORTANT!!

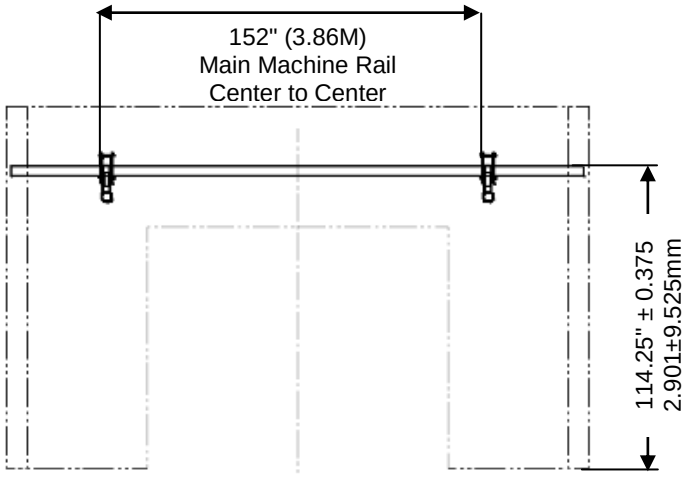
Wall beams are site supplied. Consult qualified structural engineer for beam design recommendations specific to wash building.

For sites **where one end of rail must be cut** to fit in the wash bay, Figure 25 shows the proper location for cross beams.

PLAN VIEW

1-Cross Beams must lie within this range shown, each end.
2-Required Cross Beams (2) to be provided by the site.
Note: Cross Beam material size, selection, placement and mounting must be verified by a structural engineer or architect. PDQ is not responsible for structural design of Cross Beams.
3-Main Rail Clamp Set (4) provided standard with each Tandem.
Note: Do not weld Main Machine Rails to Cross Beam. Doing so will void warranty.





Height of Top of Cross Beam.
All (4) mounting corners to be at same height within this tolerance. Main Machine Rails must be shimmed level at installation.

Figure 32-Side Elevation and Plan View, One End of Main Rail Shortened.

Installations with Two Ends of Rail Shortened

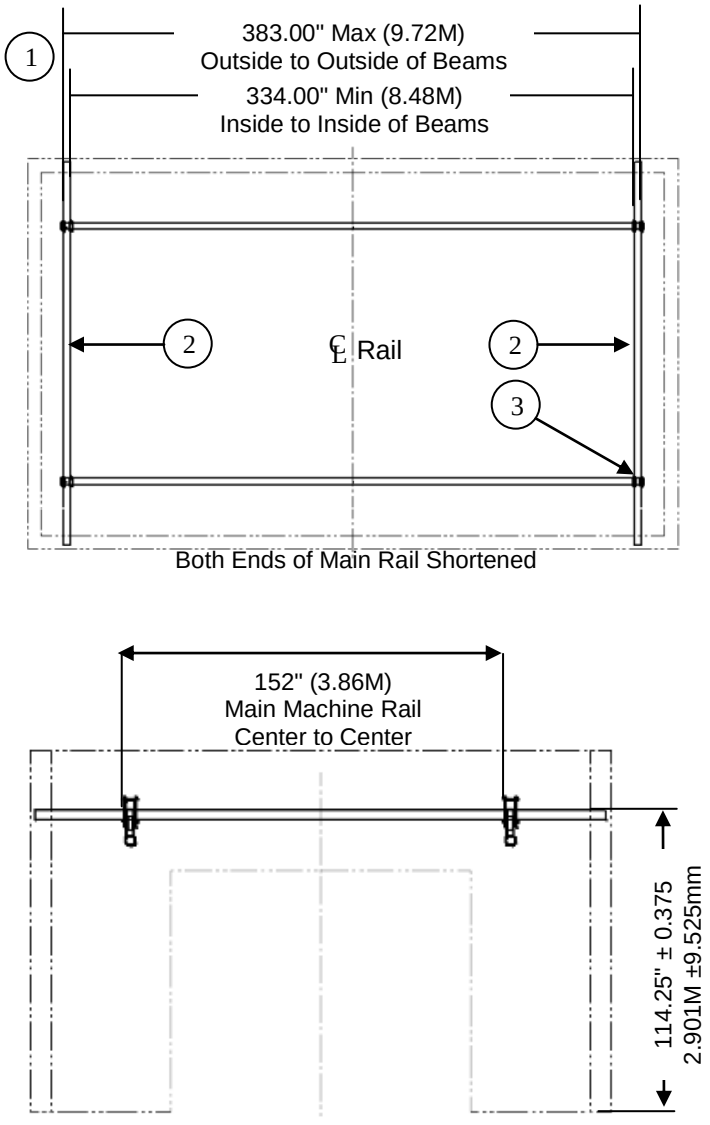
!!IMPORTANT!!

Wall beams are site supplied. Consult qualified structural engineer for beam design recommendations specific to wash building.

For sites **where both ends of rail must be cut** to fit into wash bay, Figure 26 shows the proper location for cross beams.

PLAN VIEW

1-Cross Beams must lie within range shown, each end.
2-Required Cross Beams (2) to be provided by the site.
Note: Cross Beam material size, selection, placement and mounting must be verified by a structural engineer or architect. PDQ is not responsible for structural design of Cross Beams.
3-Main Rail Clamp Set (4) provided standard with each Tandem.
Note: Do not weld Main Machine Rails to Cross Beam. Doing so will void warranty.



Height of Top of Cross Beam.
All (4) mounting corners to be at same height within this tolerance. Main Machine Rails must be shimmed level at installation.

Figure 33-Side Elevation and Plan View, Both Ends of Main Rail Shortened.

ALTERING THE FRONT BRIDGE RAIL LENGTH TO ACCOMMODATE BAY WIDTHS FROM 13'-6" (4.11M) TO 14'-9" (4.49M)

⚠ CAUTION

Alterations performed below the minimum width will affect Tandem capabilities and void warranty (contact PDQ distributor).

When Tandem is installed in a bay width 13'-6" (4.11M) or greater, Tandem will wash any production vehicle in the North American market. When Tandem is installed in a bay width 14'-6" (4.41M) or less, Tandem's side brush will typically contact the bay walls while washing wider vehicles.

Altering Front Bridge Rail Length

!!IMPORTANT!!

In wash bays LESS THAN 14'-9" (177 inches/4.49M) WIDE, USER MUST CUT FRONT BRIDGE RAIL ENDS that support the side brush trolley moving side to side around the vehicle. These aluminum rails may be shortened easily during installation. Standard rail length is 14'-5" (173 inches/4.39M). To ensure side brush trolley rollers are easily serviced, RAILS MUST BE AT LEAST 4 INCHES (101.6mm) SHORTER THAN WASH BAY WIDTH.

Adjusting Front Bridge Trolley and Home Positioning Flags

!!IMPORTANT!!

If necessary, adjust front bridge trolley and home positioning flags to reach maximum side to side travel of front bridge side brush; this increases possible vehicle width.
During flag adjustment, ENSURE BRUSH TRAVEL MINIMIZES CONTACT WITH BAY WALLS during vehicle wash.

In narrow wash bays, front bridge flag positions that limit the side to side travel of the side brush *may also require* adjustment during installation (see manual 10060087 *Start-Up*). Position flags to ensure the following:

- Create maximum side to side front brush travel
- Allow wider vehicles to be washed
- Increase maximum side to side vehicle parking

Side Brush Contact with Bay Walls

⚠ CAUTION

CONTACT WITH BRUSH SIDE WALLS IS ALLOWED WITH NARROW BAYS OF MINIMUM 13'-6" (4.11M); ENSURE CONTACT NEVER EXCEEDS 6 INCHES (152.40mm) OF IMPINGMENT BETWEEN SIDE BRUSH AND BAY WALL. CONTACT BETWEEN SIDE BRUSH AND BAY WALLS MAY CREATE UNEFFECTIVE BRUSH IMPINGEMENT CONTROL ON VEHICLE SIDES.

Typical Vehicle Widths and Required, Preferred and Recommended Bay Widths

Table 7 describes the relationship between wash bay width and various vehicle type widths in North America. The table displays the Preferred Minimum Bay Width needed to wash each vehicle type listed without the side brush contacting the side walls of the bay.

Note: If actual bay width is less than preferred width, vehicle may still be washed; less than preferred width increases chance of side brush contacting bay walls while washing wider vehicles.

VEHICLE TYPE	TYPICAL VEHICLE WIDTH	PREFERRED MINIMUM BAY WIDTH (Prevents Side Brush from Impinging on Wall)	REQUIRED MINIMUM BAY WIDTH	IMPINGEMENT DISTANCE BETWEEN WALL AND SIDE BRUSH AT REQUIRED MINIMUM BAY WIDTH (each side of bay)
Full Size Pickup Truck	81" (2.05M)	14'-6" (4.41M)	13'-6" (4.11M)	6" (152.40mm)
SUV, Minivan	78" (1.98M)	14'-3" (4.34M)	13'-6" (4.11M)	4.5" (114.3mm)
Compact Pickup Truck, Midsize Car	74" (1.87M)	13'-11" (4.24M)	13'-6" (4.11M)	2.5" (63.50mm)
Compact Car	70" (1.77M)	13'-7" (4.14M)	13'-6" (4.11M)	0.5" (12.70mm)

Table 7-Impingement Distance Between Wall and Side Brush at Required Minimum Bay Width.

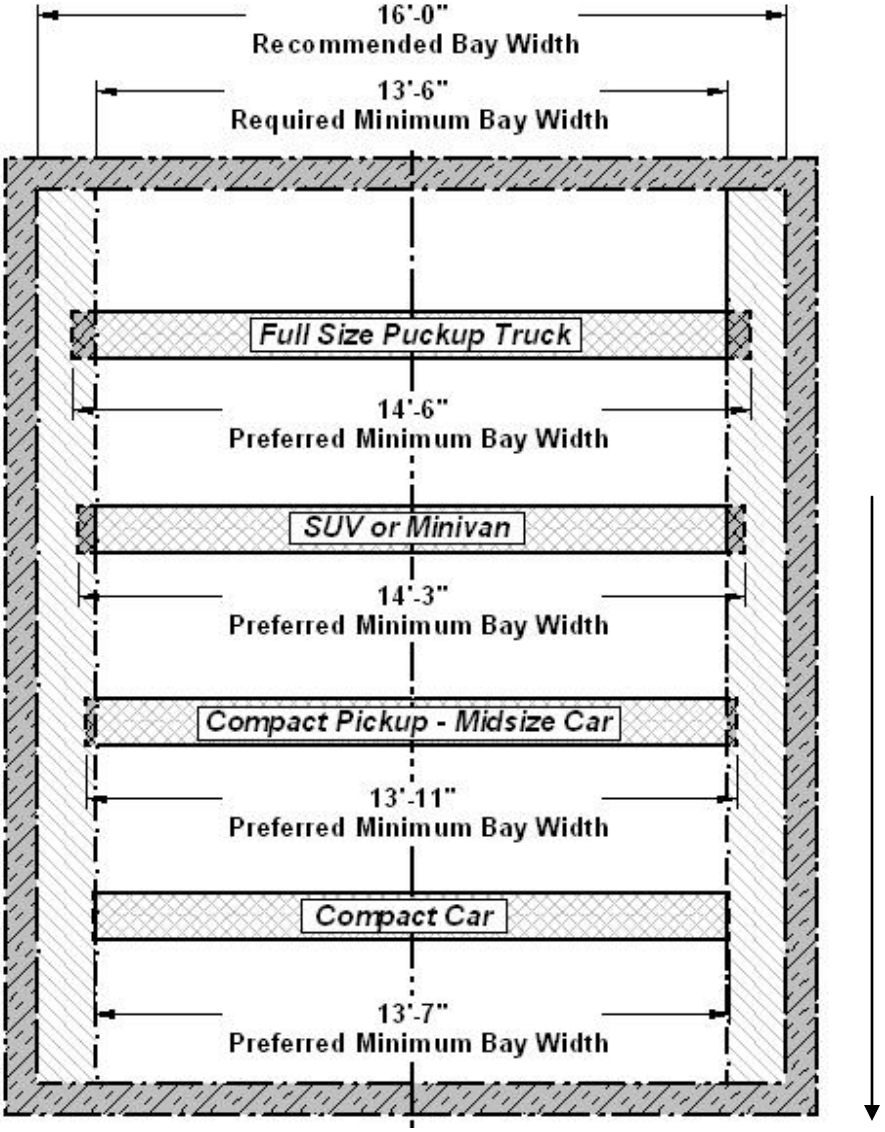


Figure 34-Typical Vehicle Width and Bay Width Comparison.

Example:

The wash bay for Tandem has a 14'-4" (4.36M) bay width. Using Table 7, find Preferred Minimum Bay Width column. This example width falls between 14'-6" (4.41M) and 14'-3" (4.34M) Preferred Minimum Bay Width scenarios. This means the side brush will typically travel around an SUV or Minivan, Compact Pickup-Midsize Car or Compact Car WITHOUT contacting the wash bay walls; during a Full Size Pickup Truck wash, the side brush MAY contact the wash bay walls; this is possible if a vehicle parks crooked or off-center.

Since this example wash bay is wider than required minimum 13'-6" (4.11M) the level of side brush contact to bay wall is less than the maximum recommended 6" (152.40mm).

Also, since this bay width is less than 14'-9" (4.49M) the front bridge rails will require shortening. To maintain the required 2" (50.80mm) of wall clearance per side, the rails will be shortened to 14'-0" (4.26M) by removing 2.5" (63.50mm) from each end of each aluminum rail.

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ELECTRICAL SPECIFICATIONS

!!IMPORTANT!!

It is the sole responsibility of the electrical contractor to meet all applicable electrical building codes. The equipment manufacturer assumes no responsibility for meeting these requirements.
Conduits entering on top of the electrical junction boxes will void warranty. DO NOT DRILL THROUGH TOP OF ELECTRICAL BOXES.
Site Supply Voltage Range must be 187V minimum to 260V maximum for proper Tandem system operation; supplying this electrical service is the responsibility of the site.

Note: If running cables/hoses to bridges, ensure hoses and cables can withstand flexing from e-chain.

TYPICAL BAY CABLE AND WIRE RECOMMENDATION

The tables below provide recommended wire sizes for each of the standard and optional Tandem feeds. This material is site supplied. Where noted, these may be provided by the site electrician as conduit and wire runs or cable may be purchased from PDQ using the part numbers listed below. For bays with long wire runs, the wire size may be required to increase to account for voltage drop. All conduit and wire sizing must be done in accordance with local and national code and the wire sizes listed below are typical to be used as an example.

JUNCTION BOX AND HARNESS INSTALLATION KIT OPTION CONDUIT LAYOUT

Note: This applies only to sites where the optional junction box and harness installation kit is purchased. For sites without this optional kit, proceed to the next diagrams for Wash Power Conduit Layout, Wash Communication Conduit Layout, and System Stop Conduit Layout.

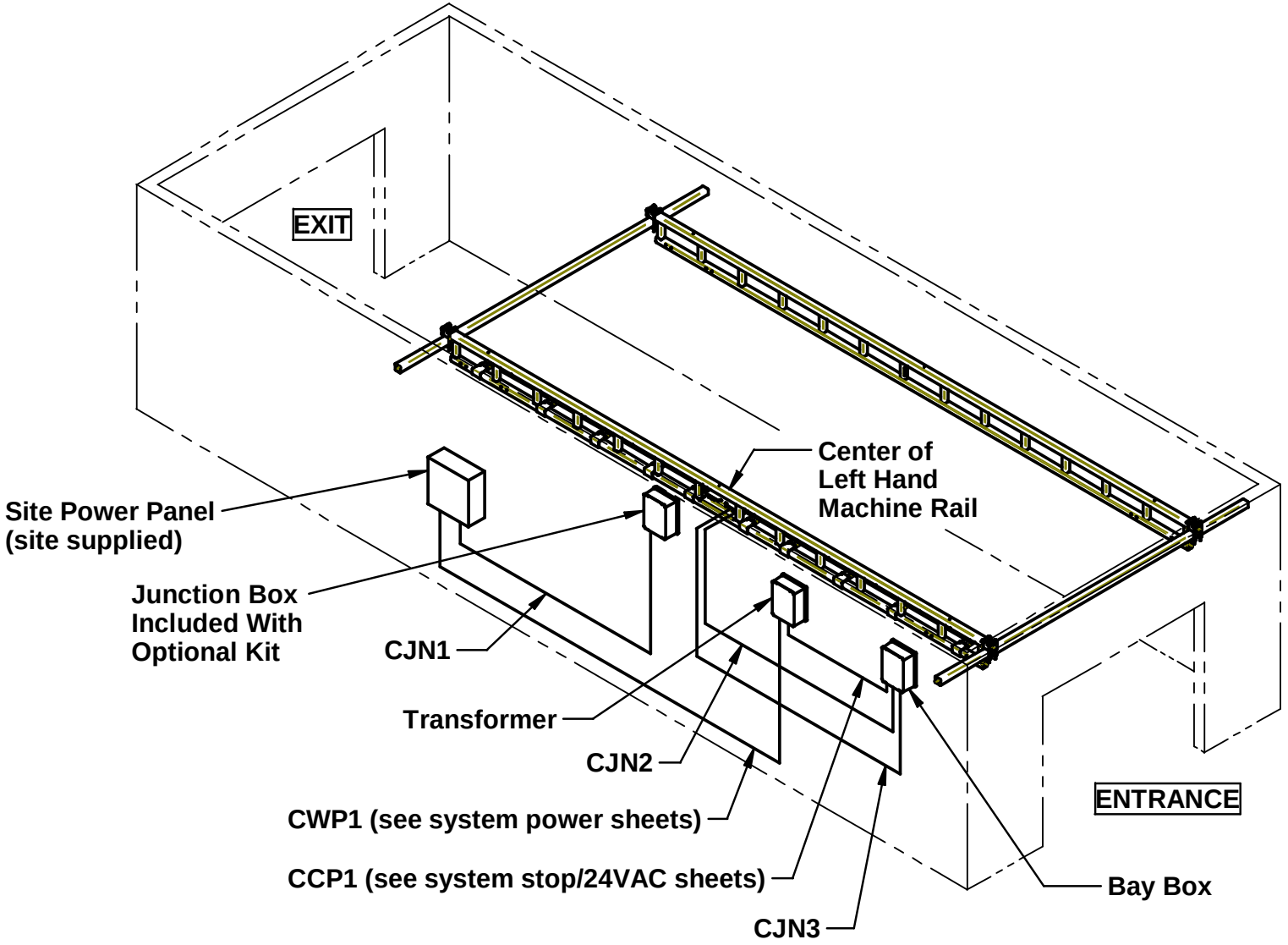


Figure 35-Junction Box Conduit Layout.

CONDUIT	FUNCTION	USAGE (standard vs. optional)	FROM	TO	LOAD	TYPE OF RUN	TYPICAL WIRE/CABLE USED	MAXIMUM WIRE RUN DISTANCE (based on wire type listed & voltage drop of 5%)
CJN1 **(60 Hz)**	Front Bridge Power	Standard on RT200 and RT300	Site Power Panel	Junction Box	14 Amp, 208/230VAC, 3Ø, 60Hz	Electrician Run Conduit and Wire. Each run is routed from the Site Power Panel through the CJN1 conduit to the Junction box	Conductors Required (3); typically 14ga	120 ft (36.6M)
CJN1 **(50 Hz)**	Front Bridge Power	Standard on RT210 and RT310	Site Power Panel	Junction Box	14 Amp, 380VAC, 3Ø, 50Hz		Conductors Required (4); typically 14ga	120 ft (36.6M)
CJN1 **(60 Hz)**	Back Bridge Power	Standard on RT300	Site Power Panel	Junction Box	32 Amp, 208/230VAC, 3Ø 60Hz		Conductors Required (3); typically 8ga	100 ft (30.5M)
CJN1 **(60 Hz)**	Back Bridge Power	Standard on RT200	Site Power Panel	Junction Box	18 Amp, 208/230VAC, 3Ø 60Hz		Conductors Required (3); typically 12ga	100 ft (30.5M)
CJN1 **(50 Hz)**	Back Bridge Power	Standard on RT310	Site Power Panel	Junction Box	32 Amp, 380VAC, 3Ø 50H		Conductors Required (4); typically 8ga	100 ft (30.5M)
CJN1 **(50 Hz)**	Back Bridge Power	Standard on RT210	Site Power Panel	Junction Box	18 Amp, 380VAC, 3Ø 50H		Conductors Required (4); typically 12ga	100 ft (30.5M)
CJN1 **(60 Hz)**	Dryer Power Feed #1	On-Board Dryer Option	Site Power Panel	Junction Box	44 Amp, 208/230VAC, 3Ø, 60Hz		Conductors Required (3); typically 8ga	100 ft (30.5M)
CJN1 **(50 Hz)**	Dryer Power Feed #1	On-Board Dryer Option	Site Power Panel	Junction Box	14 Amp, 380VAC, 3Ø, 50Hz		Conductors Required (3); typically 10ga	100 ft (30.5M)
CJN1 **(60 Hz)**	Dryer Power Feed #2	3 and 4 Prod. On-Board Dryer Option	Site Power Panel	Junction Box	44 Amp, 208/230VAC, 3Ø, 60Hz		Conductors Required (3); typically 8ga	100 ft (30.5M)
CJN1 **(50 Hz)**	Dryer Power Feed #2	3 and 4 Prod. On-Board Dryer Option	Site Power Panel	Junction Box	14 Amp, 380VAC, 3Ø, 50Hz		Conductors Required (3); typically 10ga	100 ft (30.5M)
CJN1	Ground	Standard on All Models	Site Power Panel	Junction Box	200 Amp		Conductors Required (1); typically 6ga	100 ft (30.5M)
CONDUIT	**FUNCTION**	**USAGE (standard vs. optional)**	**FROM**	**TO**	**LOAD**	**TYPE OF RUN**	**CABLE USED**	**LENGTH**

CONDUIT	FUNCTION	USAGE (standard vs. optional)	FROM	TO	LOAD	TYPE OF RUN	CABLE USED	LENGTH
CJN2	System Stop / 24VAC Cable Front Bridge	Standard on All Models	Bay Box	Front Bridge Control Box	13 Amp, 24VAC, 1Ø 60Hz	Electrician run conduit. Cables included with install kit.	16-4 Cable 9W01	80 ft (24.5M)
CJN2	System Stop / 24VAC Cable Back Bridge	Standard on All Models	Bay Box	Back Bridge Control Box	13 Amp, 24VAC, 1Ø 60Hz		16-4 Cable 1W20	80 ft (24.5M)
CJN3	Network Communication Front Bridge	Standard on All Models	Bay Box	Front Bridge Control Box	Ethernet		Cat5e 22W42	80 ft (24.5M)
CJN3	Network Communication Back Bridge	Standard on All Models	Bay Box	Back Bridge Control Box	Ethernet		Cat5e 22W40	80 ft (24.5M)

Table 8-Junction Box Conduit Specifications.

Note: Junction box grounding terminals must be jumper together using a minimum of 10 gauge wire if a single grounding conductor is used. Conduit must be sized by electrician in compliance with local codes.

WASH POWER CONDUIT LAYOUT

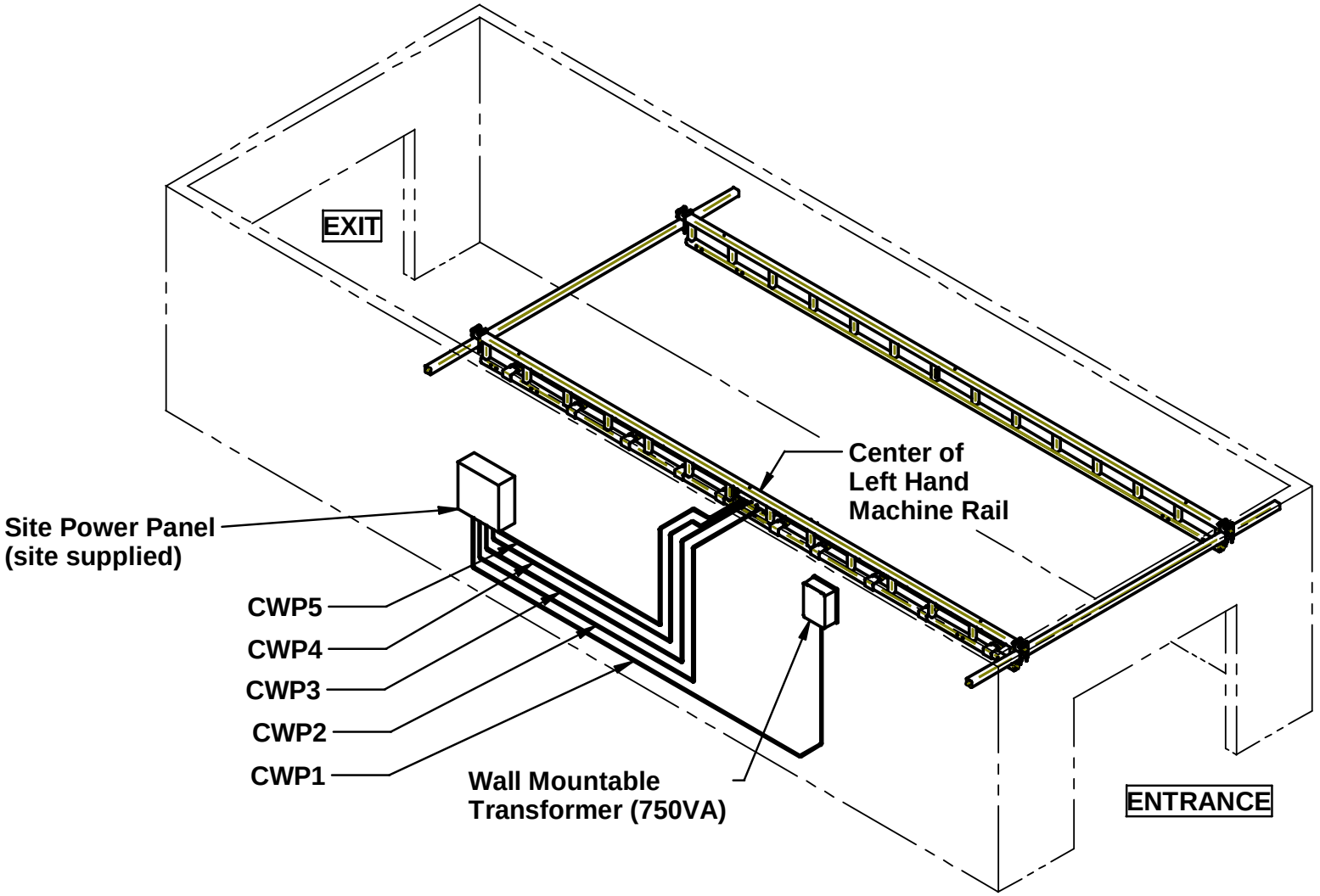


Figure 36-Power Conduit Layout.

CONDUIT	FUNCTION	USAGE (standard vs. optional)	FROM	TO	LOAD	TYPE OF RUN	TYPICAL WIRE/CABLE USED	MAXIMUM WIRE RUN DISTANCE (based on wire type listed & voltage drop of 5%)	PURCHASE FROM PDQ	
									PDQ PART#	MANUFACTURER AND PART#
CWP1 **50/60Hz**	Bay Box Power	Standard on All Models	Site Power Panel	750VA Wall Mountable Transformer	6 Amp, 208/230VAC, 1Ø, 50/ 60Hz	Electrician Conduit Run. Length varies based on site layout and distance between Site Power Panel and transformer. Sized to meet applicable Electrical Code. May run in conduit with other high voltage runs.	16-4 Flexible Cable with 8" minimum bend radius and PVC outer jacket material	300 ft (91.4M)	01140034	Belden 8620
CWP2 **(60 Hz)**	Front Bridge Power	Standard on RT200 and RT300	Site Power Panel	Front Bridge Control Panel	14 Amp, 208/230VAC, 3Ø, 60Hz	Each run is routed through the Tandem E-Chain; 40 ft (12.19M) is routed within e-chain and bridge and must withstand flexing cycles. Additional length required is based on distance to route this run from Site Power Panel to center of left hand frame rail.	14-4 Flexible Cable with 8" minimum bend radius and PVC outer jacket material	120 ft (36.6M)	01140025	Olflex 891404
CWP2 **(50 Hz)**	Front Bridge Power	Standard on RT210 and RT310	Site Power Panel	Front Bridge Control Panel	14 Amp, 380VAC, 3Ø, 50Hz		14-5 Flexible Cable with 8" minimum bend radius and PVC outer jacket material	120 ft (36.6M)	01140033	Olflex 601405
CWP3 **(60 Hz)**	Back Bridge Power	Standard on RT300	Site Power Panel	Back Bridge Control Panel	32 Amp, 208/230VAC, 3Ø 60Hz		8-4 Flexible Cable with 8" minimum bend radius and PVC outer jacket material	100 ft (30.5M)	01140024	Olflex 890804
CWP3 **(60 Hz)**	Back Bridge Power	Standard on RT200	Site Power Panel	Back Bridge Control Panel	18 Amp, 208/230VAC, 3Ø 60Hz		12-4 Flexible Cable with 8" minimum bend radius and PVC outer jacket material	100 ft (30.5M)	01140030	Olflex 891204
CWP3 **(50 Hz)**	Back Bridge Power	Standard on RT310	Site Power Panel	Back Bridge Control Panel	32 Amp, 380VAC, 3Ø 50Hz		8-5 Flexible Cable with 8" minimum bend radius and PVC outer jacket material	100 ft (30.5M)	01140032	Olflex 600805
CWP3 **(50 Hz)**	Back Bridge Power	Standard on RT210	Site Power Panel	Back Bridge Control Panel	18 Amp, 380VAC, 3Ø 50Hz		12-5 Flexible Cable with 8" minimum bend radius and PVC outer jacket material	100 ft (30.5M)	01140031	Olflex 601205
CWP4 **(60 Hz)**	Dryer Power Feed #1	On-Board Dryer Option	Site Power Panel	Front Bridge Control Panel	44 Amp, 208/230VAC, 3Ø, 60Hz		8-4 Flexible Cable with 8" minimum bend radius and PVC outer jacket material	100 ft (30.5M)	01140024	Olflex 890804
CWP4 **(50 Hz)**	Dryer Power Feed #1	On-Board Dryer Option	Site Power Panel	Front Bridge Control Panel	14 Amp, 380VAC, 3Ø, 50Hz		12-4 Flexible Cable with 8" minimum bend radius and PVC outer jacket material	100 ft (30.5M)	01140030	Olflex 891204
CWP5 **(60 Hz)**	Dryer Power Feed #2	3 and 4 Prod. On-Board Dryer Option	Site Power Panel	Front Bridge Control Panel	44 Amp, 208/230VAC, 3Ø, 60Hz		8-4 Flexible Cable with 8" minimum bend radius and PVC outer jacket material	100 ft (30.5M)	01140024	Olflex 890804
CWP5 **(50 Hz)**	Dryer Power Feed #2	3 and 4 Prod. On-Board Dryer Option	Site Power Panel	Front Bridge Control Panel	14 Amp, 380VAC, 3Ø, 50Hz		12-4 Flexible Cable with 8" minimum bend radius and PVC outer jacket material	100 ft (30.5M)	01140030	Olflex 891204

Table 9-Power Conduit Specifications.

WASH COMMUNICATION CONDUIT LAYOUT

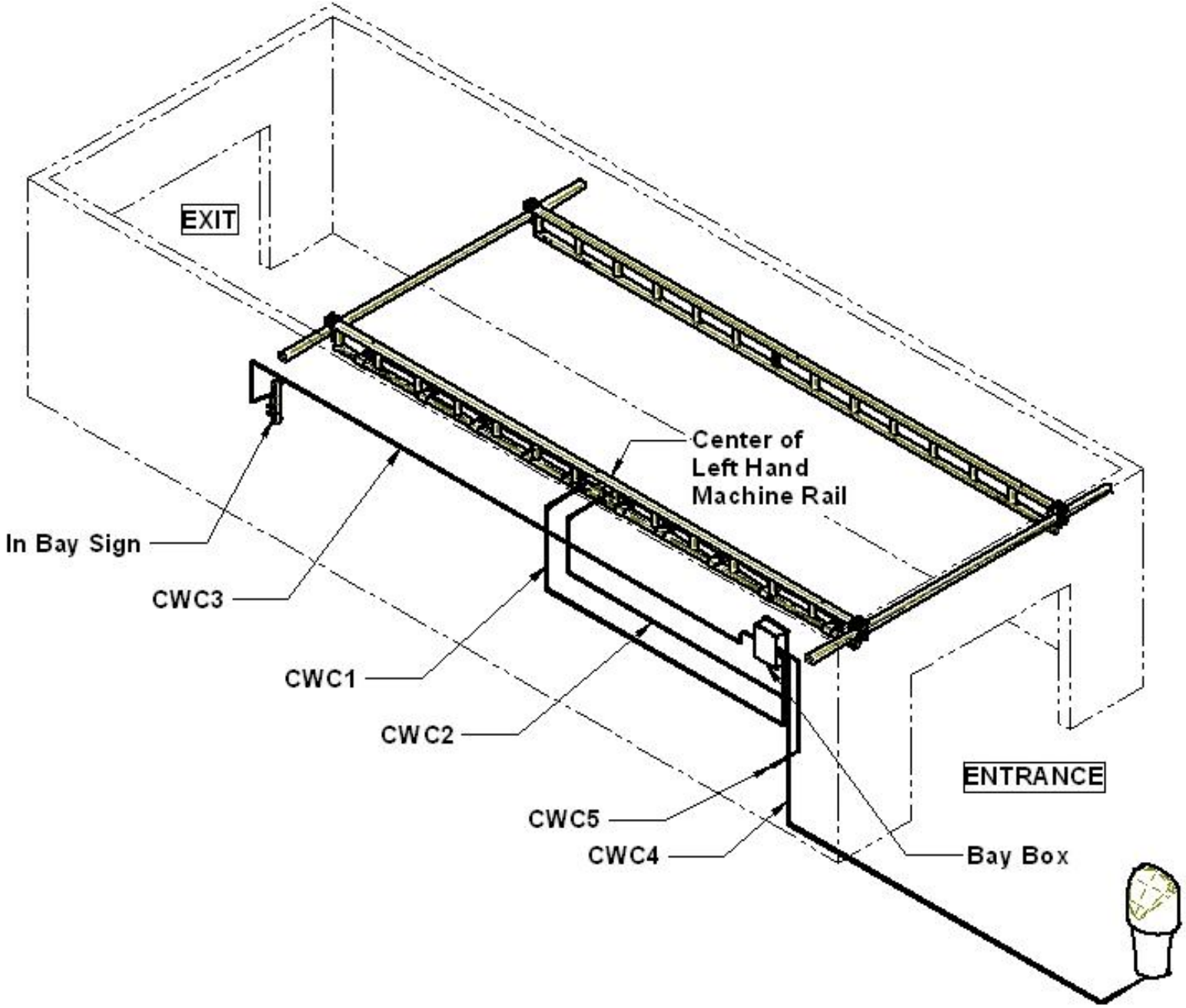


Figure 37-Communication Conduit Layout.

CONDUIT	FUNCTION	USAGE (standard vs. optional)	FROM	TO	LOAD	TYPE OF RUN	TYPICAL WIRE/CABLE USED	MAXIMUM WIRE RUN DISTANCE (based on wire type listed & voltage drop of 5%)	PURCHASE FROM PDQ	
									PDQ PART#	MANUFACTURER AND PART#
CWC1	Front Bridge Communication	Standard on All Models	Bay Box	Front Bridge Panel	Ethernet	Each run is routed through the Tandem E-Chain; 40 ft (12.19M) is routed within e-chain and bridge and must withstand flexing cycles. Additional length required is based on distance to route this run from Bay Box to center of left hand frame rail.	Stranded CAT-5e	300 ft (91.4M)	01140021	Belden 1752A
CWC2	Back Bridge Communication	Standard on All Models	Bay Box	Back Bridge Panel	Ethernet		Stranded CAT-5e	300 ft (91.4M)	01140021	Belden 1752A
CWC3	In Bay Sign Communication	Standard on All Models	Bay Box	In-Bay Sign	RS-485 (shielded twisted pair)	Electrician Conduit Run. Length varies based on site layout and location of Bay Box. Sized to meet applicable Electrical Code. May run in conduit with other similar type runs.	18-2 Shielded, Twisted Pair	100 ft (30.5M)	01140020	Belden 8760
CWC4	Entry Unit Communication	Standard on All Models	Bay Box	Entry Unit	Ethernet for Access unit; other is entry unit dependent		Solid CAT-5e	300 ft (91.4M)	01140029	Belden 1583A
CWC5	Internet Service	Standard on All Models	Bay Box	Modem, Switch, or Hub	Ethernet		Solid CAT-5e	300 ft (91.4M)	01140029	Belden 1583A

Table 10-Communication Conduit Specifications.

SYSTEM STOP/ 24VAC CONTROL POWER CONDUIT LAYOUT

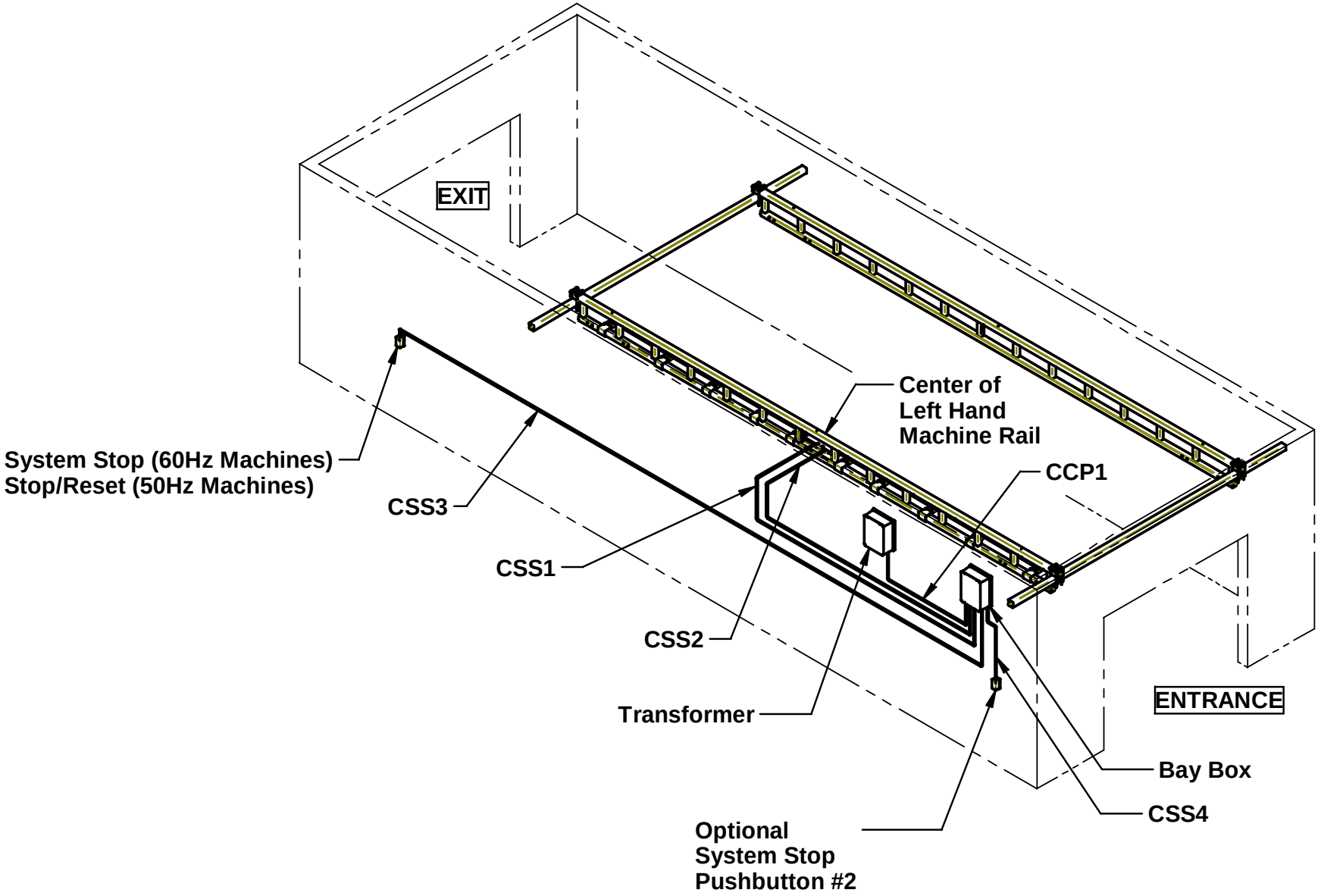


Figure 38-System Stop Conduit Layout.

CONDUIT	FUNCTION	USAGE (standard vs. optional)	FROM	TO	LOAD	TYPE OF RUN	TYPICAL WIRE/CABLE USED	MAXIMUM WIRE RUN DISTANCE (based on wire type listed & voltage drop of 5%)	PURCHASE FROM PDQ	
									PDQ PART #	MANUFACTURER AND PART#
CCP1	24VAC Distribution	Standard on All Models	750VA XFMR	Bay Box	Phase A 25 Amps, Phase B 25 Amps	Electrician Conduit Run. Length varies based on site layout and distance between Bay Box and Transformer.	(4) conductor 10 ga	30 ft (9.1M)		
CSS1	Front Bridge System Stop/ 24VAC Control Power	Standard on All Models	Bay Box	Front Bridge Control Panel	13 Amp, 24VAC, 1Ø, 60 Hz	Each run is routed through the Tandem E-Chain; 40 ft (12.19M) is routed within e-chain and bridge and must withstand flexing cycles. Additional length required is based on distance to route this run from Bay Box to center of left hand frame rail.	(4) conductor 16 ga	80 ft (24.5M)	01140034	Belden 8620
CSS2	Back Bridge System Stop/ 24VAC Control Power	Standard on All Models	Bay Box	Back Bridge Control Panel	13 Amp, 24VAC, 1Ø, 60 Hz		(4) conductor 16 ga	80 ft (24.5M)	01140034	Belden 8620
CSS3	System Stop Pushbutton #1 (60Hz) Stop/Reset Buttons (50HZ)	Optional on RT200 and RT300 (60Hz) Standard on RT210 and RT310 (50Hz)	Bay Box	System Stop Pushbutton	3 Amp, 24VAC, 1Ø, 60 Hz	Electrician Conduit Run. Length varies based on site layout and distance between System Stop Push Buttons and Bay Box. Sized to meet applicable Electrical Code. May run in conduit with other similar type runs.	(2) conductor 18 ga Control Cable (60Hz) (4) conductor 18 ga Control Cable (50Hz)	100 ft (30.5M)	01140007	Belden 7409A
CSS4	System Stop Pushbutton #2	Optional on All Models	Bay Box	System Stop Pushbutton	3 Amp, 24VAC, 1Ø, 60 Hz		(2) conductor 18 ga Control and Instrumentation Cable	100 ft (30.5M)	01140007	Belden 7409A

Table 11-System Stop/24VAC Control Power Conduit Specifications.

SIGN CONDUIT LAYOUT

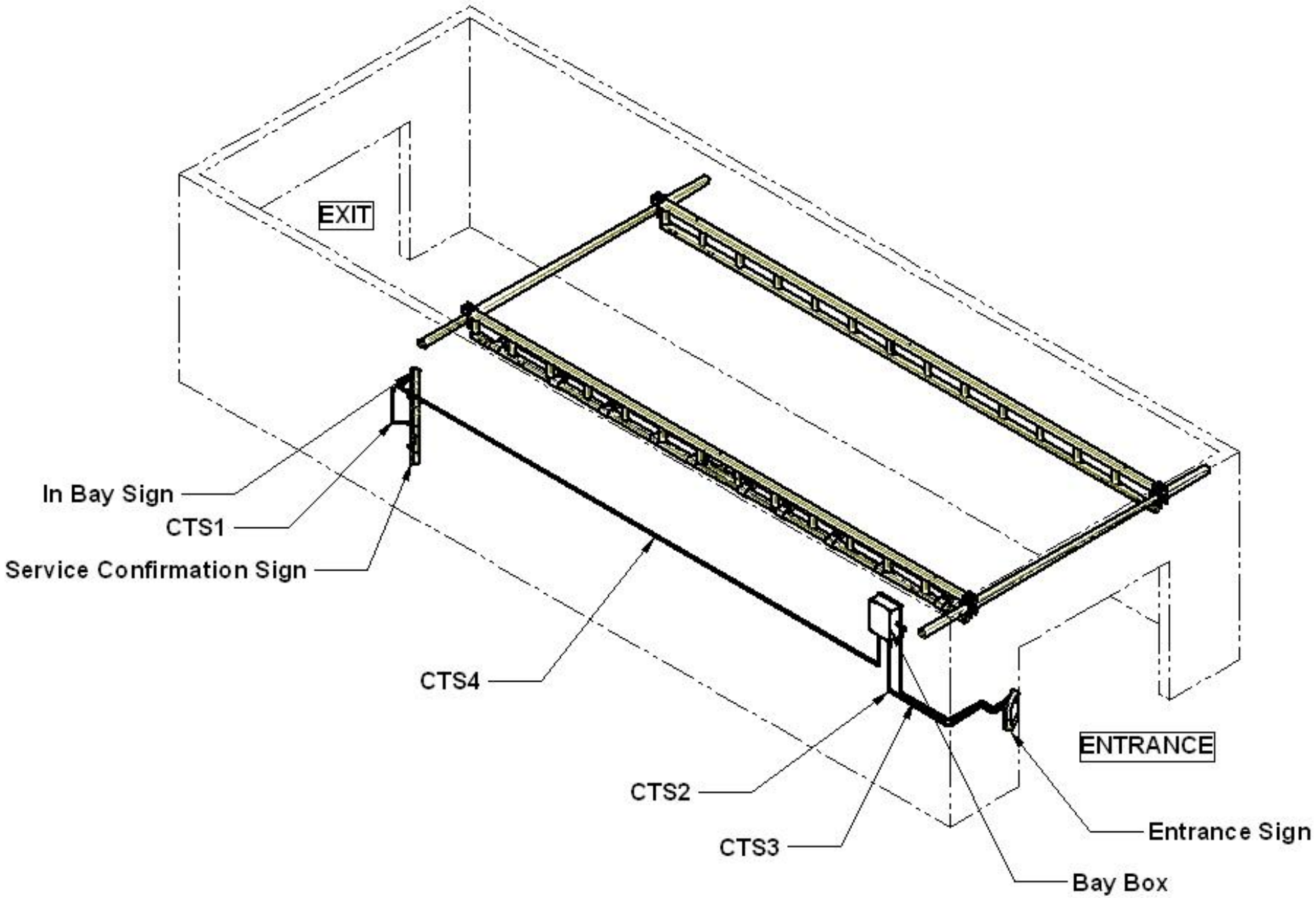


Figure 39-Sign Conduit Layout.

CONDUIT	FUNCTION	USAGE (standard vs. optional)	FROM	TO	LOAD	TYPE OF RUN	TYPICAL WIRE/CABLE USED	MAXIMUM WIRE RUN DISTANCE (based on wire type listed & voltage drop of 5%	PURCHASE FROM PDQ	
									PDQ PART #	MANUFACTURER AND PART#
CTS1	Service Confirmation Sign Feed	Optional; Service Confirmation Sign	In-Bay Sign	Service Confirmation Sign	9 Conductors 2.6 Amp 24VDC	Electrician Conduit Run. Length varies based on site layout and distance between In-Bay Sign and Service Confirmation Sign. Service Confirmation Sign may be positioned on left or right hand side of bay. Sized to meet applicable Electrical Code. May run in conduit with other similar type runs.	Conductors Required (9); Typically 16ga	80 ft (24.4M)	01140028	Belden 9621 or Olflex 601609
CTS2	Entrance Sign Power	Optional; Entrance Sign	Bay Box	Entrance Sign	Phase A: 3 Amp, 24VAC, 1Ø, 60 Hz	Electrician Conduit Run. Length varies based on site layout distance between Bay Box and Entrance Sign. Sized to meet applicable Electrical Code. May run in conduit with other similar type runs.	Conductors Required (2); Typically 16ga	80 ft (24.4M)	01140026	Olflex 601603
CTS3	Entrance Sign Signal	Optional; Entrance Sign	Bay Box	Entrance Sign	2 Amp, 12VDC		Conductors Required (3); Typically 16ga	80 ft (24.4M)	01140026	Olflex 601603
CTS4	In Bay Sign Power	Standard on All Models	Bay Box	In Bay Sign	Phase A: 3 Amp, 24VAC, 1Ø, 60 Hz	Electrician Conduit Run. Length varies based on site layout and distance between Bay Box and In-Bay Sign. Sized to meet applicable Electrical Code. May run in conduit with other similar type runs.	Conductors Required (2); Typically 16ga	80 ft (24.4M)	01140026	Olflex 601603

Table 12-Sign Conduit Specifications.

DOOR CONTROL CONDUIT LAYOUT

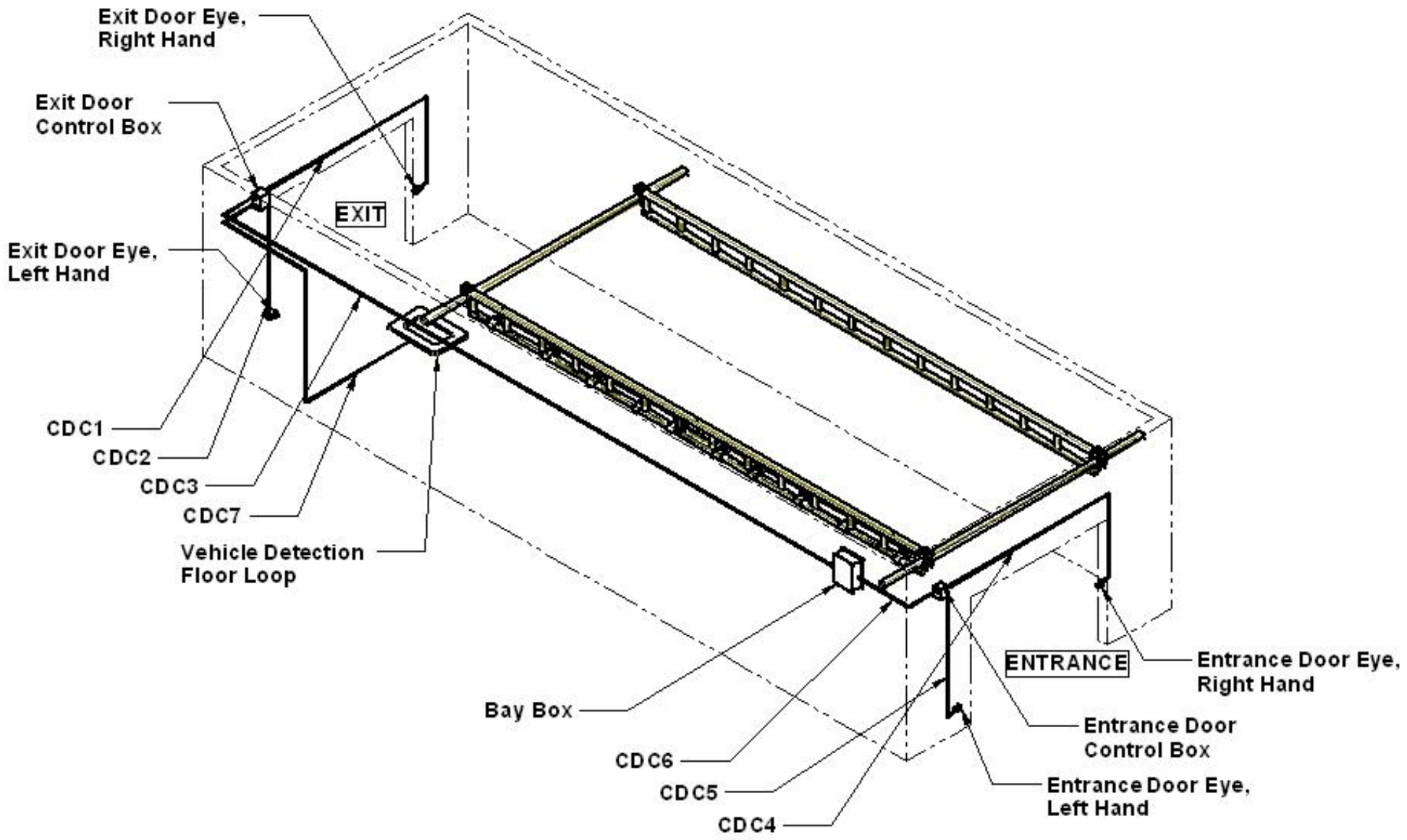


Figure 40-Door Control Conduit Layout.

CONDUIT	FUNCTION	USAGE (standard vs. optional)	FROM	TO	LOAD	TYPE OF RUN	TYPICAL WIRE/CABLE USED	MAXIMUM WIRE RUN DISTANCE (based on wire type listed & voltage drop of 5%)	PURCHASE FROM PDQ	
									PDQ PART#	MANUFACTURER AND PART#
CDC1	Exit Door Eye, Right	Optional; Base, Deluxe, and Ultimate Door Controls	Exit Door Eye, Right Hand	Exit Door Eye Control Box	2 Amp, 12 VDC	Electrician Conduit Runs. Length varies based on site layout and locations of door control components. Sized to meet applicable Electrical Code. May run in conduit with other similar type runs.	Cable included with 09230005, 09110013, 09230004	60 ft (18.3M)	93176	N/A
CDC2	Exit Door Eye, Left		Exit Door Eye, Left Hand	Exit Door Eye Control Box	2 Amp, 12 VDC		Cable included with 09230005, 09110013, 09230004	60 ft (18.3M)	93176	N/A
CDC3	Exit Door Feed		Exit Door Eye Control Box	Bay Box	Power: 2 Amp, 12 VDC Signal: 3 Amp, 24 VAC		Conductors Required (3); Typically 16ga	80 ft (24.4M)	01140026	Olflex 601603
CDC4	Entrance Door Eye, Right	Optional; Deluxe, and Ultimate Door Controls	Entrance Door Eye, Right Hand	Entrance Door Eye Control Box	2 Amp, 12 VDC		Cable included with 09230005, 09110013, 09230004	60 ft (18.3M)	93176	N/A
CDC5	Entrance Door Eye, Left		Entrance Door Eye, Left Hand	Entrance Door Eye Control Box	2 Amp, 12 VDC		Cable included with 09230005, 09110013, 09230004	60 ft (18.3M)	93176	N/A
CDC6	Entrance Door Feed		Entrance Door Eye Control Box	Bay Box	3 Amp, 24 VAC 2 Amp, 12 VDC		Conductors Required (3); Typically 16ga	80 ft (24.4M)	01140026	Olflex 601603
CDC7	Floor Loop Feed	Optional; Ultimate Door Controls	Floor Loop	Exit Door Eye Control Box	3 Amp, 24 VAC 2 Amp, 12 VDC		Cable included with 09110013	50 ft (15.2M)	M540056	N/A

Table 13-Door Control Conduit Specifications.

STAND-ALONE DRYER CONDUIT LAYOUT

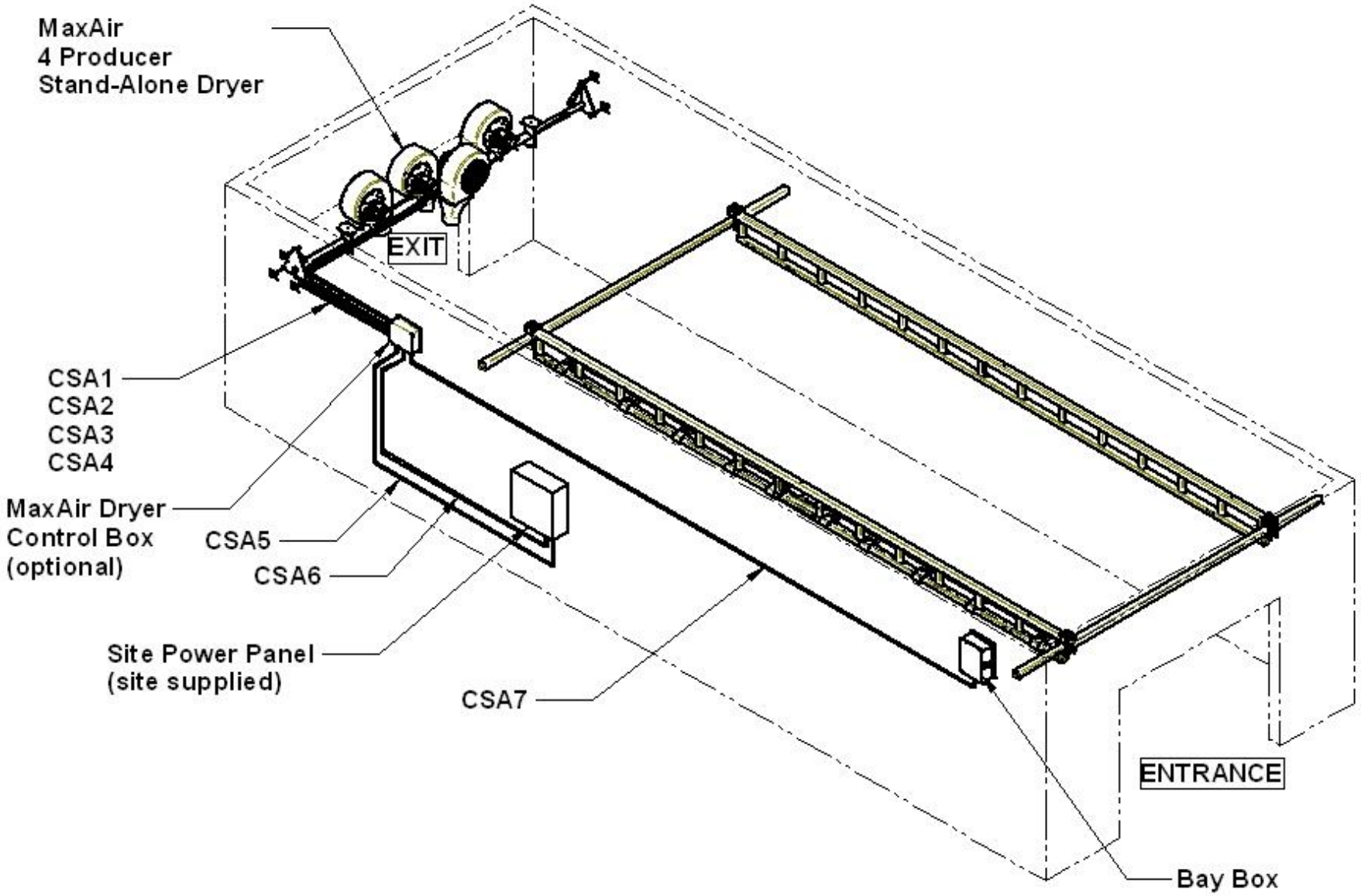


Figure 41-Stand-Alone Dryer Conduit Layout.

CONDUIT	FUNCTION	USAGE (standard vs. optional)	FROM	TO	LOAD	TYPE OF RUN All Runs are made by Site Electrician. Sized to meet applicable Electrical Code. Runs may be combined in a conduit with similar type runs.	TYPICAL WIRE/CABLE USED	MAXIMUM WIRE RUN DISTANCE (based on wire type listed & voltage drop of 5%)	PURCHASE FROM PDQ	
									PDQ PART #	MANUFACTURER AND PART#
CSA1 **(60 Hz)**	Stand Alone Dryer Motor Feed #1	Optional; Max Air Stand-Alone Dryer	Max Air Control Box	Dryer Motor #1	22 Amp, 208/230VAC, 3Ø, 60Hz	16 ft (4.9M) of the run is routed within the dryer to the motor. Additional length required is based on the distance to route from the MaxAir Control Panel and the end of the dryer nearest the Max Air Control Panel.	Conductors Required (4); Typically 10ga	90 ft (27.4M)	01140027	Olflex 601004
CSA2 **(60 Hz)**	Stand Alone Dryer Motor Feed #2	Optional; Max Air Stand-Alone Dryer	Max Air Control Box	Dryer Motor #2	22 Amp, 208/230VAC, 3Ø, 60Hz	12 ft (3.7M) of the run is routed within the dryer to the motor. Additional length required is based on the distance to route from the MaxAir Control Panel and the end of the dryer nearest the Max Air Control Panel.	Conductors Required (4); Typically 10ga	90 ft (27.4M)	01140027	Olflex 601004
CSA3 **(60 Hz)**	Stand Alone Dryer Motor Feed #3	Optional; Max Air Stand-Alone Dryer	Max Air Control Box	Dryer Motor #3	22 Amp, 208/230VAC, 3Ø, 60Hz	12 ft (3.7M) of the run is routed within the dryer to the motor. Additional length required is based on the distance to route from the MaxAir Control Panel and the end of the dryer nearest the Max Air Control Panel.	Conductors Required (4); Typically 10ga	90 ft (27.4M)	01140027	Olflex 601004
CSA4 **(60 Hz)**	Stand Alone Dryer Motor Feed #4	Optional; Max Air Stand-Alone Dryer	Max Air Control Box	Dryer Motor #4	22 Amp, 208/230VAC, 3Ø, 60Hz	9 ft (2.7M) of the run is routed within the dryer to the motor. Additional length required is based on the distance to route from the MaxAir Control Panel and the end of the dryer nearest the Max Air Control Panel.	Conductors Required (4); Typically 10ga	90 ft (27.4M)	01140027	Olflex 601004
CSA5 **(60 Hz)**	Stand Alone Dryer Power Feed #1	Optional; Max Air Stand-Alone Dryer	Site Power Panel	Max Air Control Box	44 Amp, 208/230VAC, 3Ø, 60Hz	Length required is based on the distance to route from the Site Power Panel and the Max Air Control Panel.	Conductors Required (4); Typically 8ga	100 ft (30.5M)	01140008	Olflex 600804
CSA6 **(60 Hz)**	Stand Alone Dryer Power Feed #2	Optional; Max Air Stand-Alone Dryer	Site Power Panel	Max Air Control Box	44 Amp, 208/230VAC, 3Ø, 60Hz		Conductors Required (4); Typically 8ga	100 ft (30.5M)	01140008	Olflex 600804
CSA7 **(60 Hz)**	Stand Alone Dryer Signal	Optional; Max Air Stand-Alone Dryer	Bay Box	Max Air Control Box	3 Amp, 24VAC	Length required is based on the distance to route from the Bay Box and the Max Air Control Panel.	Conductors Required (5); Typically 16ga	60 ft (18.3M)	01140023	Olflex 601403

Table 14-Stand-Alone Dryer Conduit Specifications, For 208/230V 60 Hz Sites.

CONDUIT	FUNCTION	USAGE (standard vs. optional)	FROM	TO	LOAD	TYPE OF RUN All Runs are made by Site Electrician. Sized to meet applicable Electrical Code. Runs may be combined in a conduit with similar type runs.	TYPICAL WIRE/CABLE USED	MAXIMUM WIRE RUN DISTANCE (based on wire type listed & voltage drop of 5%)	PURCHASE FROM PDQ	
									PDQ PART #	MANUFACTURER AND PART#
CSA1 **(50 Hz)**	Stand Alone Dryer Motor Feed #1	Optional; Max Air Stand-Alone Dryer	Max Air Control Box	Dryer Motor #1	7 Amp, 380VAC, 3Ø, 50Hz	16 ft (4.9M) of run is routed within dryer to the motor. Additional length required is based on distance to route from MaxAir Control Panel and end of dryer nearest the Max Air Control Panel.	Conductors Required (4); Typically 12ga	90 ft (27.4M)	01140030	Olflex 601204
CSA2 **(50 Hz)**	Stand Alone Dryer Motor Feed #2	Optional; Max Air Stand-Alone Dryer	Max Air Control Box	Dryer Motor #2	7 Amp, 380VAC, 3Ø, 50Hz	12 ft (3.7M) of run is routed within dryer to the motor. Additional length required is based on distance to route from MaxAir Control Panel and end of dryer nearest the Max Air Control Panel.	Conductors Required (4); Typically 12ga	90 ft (27.4M)	01140030	Olflex 601204
CSA3 **(50 Hz)**	Stand Alone Dryer Motor Feed #3	Optional; Max Air Stand-Alone Dryer	Max Air Control Box	Dryer Motor #3	7 Amp, 380VAC, 3Ø, 50Hz	12 ft (3.7M) of run is routed within dryer to the motor. Additional length required is based on distance to route from MaxAir Control Panel and end of dryer nearest the Max Air Control Panel.	Conductors Required (4); Typically 12ga	90 ft (27.4M)	01140030	Olflex 601204
CSA4 **(50 Hz)**	Stand Alone Dryer Motor Feed #4	Optional; Max Air Stand-Alone Dryer	Max Air Control Box	Dryer Motor #4	7 Amp, 380VAC, 3Ø, 50Hz	9 ft (2.7M) of run is routed within dryer to the motor. Additional length required is based on distance to route from MaxAir Control Panel and end of dryer nearest the Max Air Control Panel.	Conductors Required (4); Typically 12ga	90 ft (27.4M)	01140030	Olflex 601204
CSA5 **(50 Hz)**	Stand Alone Dryer Power Feed #1	Optional; Max Air Stand-Alone Dryer	Site Power Panel	Max Air Control Box	14 Amp, 380VAC, 3Ø, 50Hz	Length required is based on distance to route from Site Power Panel and Max Air Control Panel.	Conductors Required (4); Typically 10ga	100 ft (30.5M)	01140027	Olflex 601004
CSA6 **(50 Hz)**	Stand Alone Dryer Power Feed #2	Optional; Max Air Stand-Alone Dryer	Site Power Panel	Max Air Control Box	14 Amp, 380VAC, 3Ø, 50Hz		Conductors Required (4); Typically 10ga	100 ft (30.5M)	01140027	Olflex 601004
CSA7	Stand Alone Dryer Signal	Optional; Max Air Stand-Alone Dryer	Bay Box	Max Air Control Box	3 Amp, 24VAC	Length required is based on distance to route from Bay Box and Max Air Control Panel.	Conductors Required (5); Typically 16ga	60 ft (18.3M)	01140023	Olflex 601403

Table 15-Stand-Alone Dryer Conduit Specifications, For 380V 50 Hz Sites.

PLUMBING SPECIFICATIONS

RECOMMENDED TANDEM CHEMICALS

- Alkaline Presoak
- Brush Lube
- 3X Color Foam
- Drying Agent/Polysealant
- Wheel Cleaner
- Super Sealant

SITE WATER FEED REQUIREMENTS

Total Fresh Water Supply Required for Machine (both bridges)

- 30 GPM (113.53 LPM) at 20 PSI (1.37 Bar) Minimum
- Supply Pressure Maximum 150 PSI (10.34 Bar)

Spot Free Water Supply for Front Bridge

Note: Most sites using Spot Free water will require a Booster Pump to transfer spot free water to the Front Bridge.

- 24 GPM (90.82 LPM) at 20 PSI (1.37 Bar) Minimum
- Maximum 150 PSI (10.34 Bar)

Optional Reclaim Water Supply

Front Bridge

- 6 GPM (22.70 LPM) at 20 PSI (1.37 Bar) Minimum
- Supply Pressure Maximum 150 PSI (10.34 Bar)
    - Reclaim supply used for side brush lubrication
    - When reclaim option is used *with* the Spot Free option, it replaces the fresh water feed to the front bridge; if reclaim is used *without* the Spot Free option, a second hose must be added to the front bridge e-chain

Back Bridge

- 17 GPM (64.33 LPM) at 20 PSI (1.37 Bar) Minimum for RT300 and RT310 models. For RT200, supply is 6 GPM (22.70 LPM) at 20 PSI (1.37 Bar) Minimum
- Supply Pressure Maximum 150 PSI (10.34 Bar)
    - Reclaim supply used for top brush lubrication, high pressure side blasters, higher pressure wheel scrubbers/rocker panel blasters, and high pressure top blasters.
    - Reclaim option requires a second hose to be added to the back bridge e-chain

Undercarriage

- 14 GPM (64.33 LPM) at 20 PSI (1.37 Bar) Minimum

Water Temperature Range

- 32 ºF (0 ºC) Minimum
- 120 ºF (65 ºC) Maximum

SITE COMPRESSED AIR FEED REQUIREMENTS

Total Compressed Air Supply Required for Machine

- 1.5 SCFM at 10 PSI (0.68 Bar) Minimum 90 PSI (6.20 Bar) Maximum supplied to back bridge
- For Tandem with the super sealant option, this air supply must also be run to the front bridge

INDIVIDUAL WATER FEEDS TO BE SUPPLIED BY THE WASH SITE

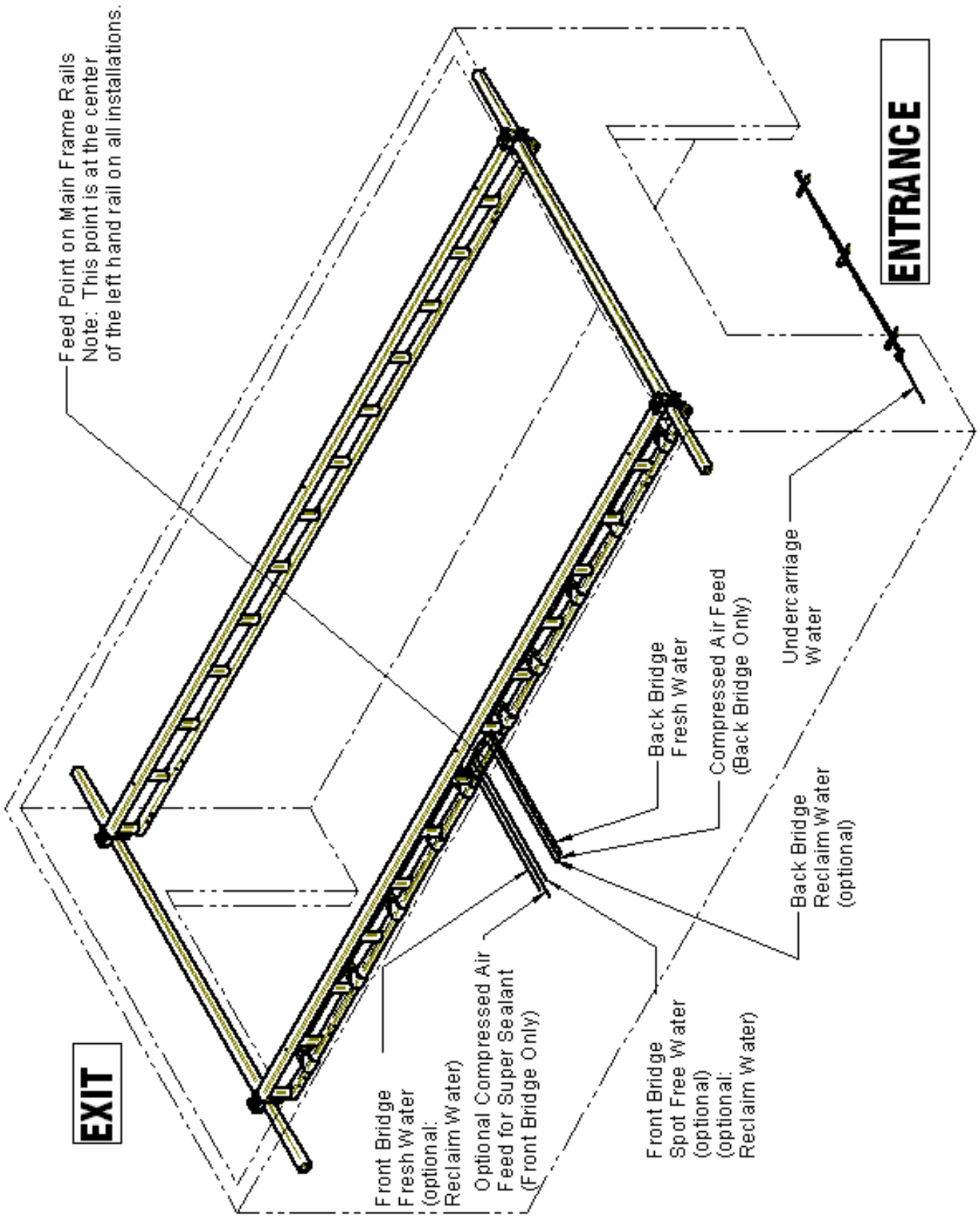


Figure 42-Water and Air Feeds Supplied by Site.

FEED TO		FUNCTION	HOSE SIZE AND PRESSURE RATING	LENGTH (SEE NOTE)	FROM	TO	PDQ PART#	TYPICAL MANUFACTURER
FRONT BRIDGE	1	Fresh Water	1" 200 PSI (13.79 Bar) minimum	33 ft (10.05M) + Note 2	Site Fresh Water Supply	1" Hose Barb on Front Bridge Center Manifold	61031	Goodyear Horizon 200 1" Hose (See Note 1)
	2	Spot Free	1" 200 PSI (13.79 Bar) minimum	33 ft (10.05M) + Note 2	Site Spot Free Water Supply	1" Hose Barb on Front Bridge Center Manifold	61031	Goodyear Horizon 200 1" Hose (See Note 1)
	3	Reclaim (optional)	1/2" 200 PSI (13.79 Bar) minimum	33 ft (10.05M) + Note 2	Site Reclaim Water Supply	1/2" Hose Barb on Front Bridge Reclaim Manifold	61025	Goodyear Horizon 200 1/2" Hose (See Note 1)
BACK BRIDGE	4	Fresh Water	1" 200 PSI (13.79 Bar) minimum	33 ft (10.05M) + Note 2	Site Fresh Water Supply	1" Hose Barb on Back Bridge Center Manifold	61031	Goodyear Horizon 200 1" Hose (See Note 1)
	5	Compressed Air	3/8" Polyethylene Tubing 125 PSI minimum	33 ft (10.05M) + Note 2	Filter/Regulator on Site Air Compressor	3/8" Tee in Center of Back Bridge	23975-NE	Parker Paraflex Polyethylene 3/8 OD .062 wall
	6	Reclaim (optional)	1" 200 PSI (13.79 Bar) minimum	33 ft (10.05M) + Note 2	Site Reclaim Water Supply	1" Hose Barb on Front Bridge Center Manifold	61031	Goodyear Horizon 200 1" hose (See Note 1)
UNDERCARRIAGE	7	Fresh Water or Reclaim (optional)	3/4" 200 PSI (13.79 Bar) minimum	Site Dependent	Site Water Supply (fresh or reclaim)	Control Valve Mounting Location	61030	Goodyear Horizon 200 3/4" Hose
	8	Fresh Water or Reclaim (optional)	3/4" 200 PSI (13.79 Bar) minimum	Site Dependent	Control Valve Mounting Location	3/4" Hose Barb on Bay Entrance Drive Thru Undercarriage Manifold	61030	Goodyear Horizon 200 3/4" Hose

Note 1: PDQ recommends using the Goodyear Horizon hose. The outer covering on this hose is very well suited for ease of installation into the e-chain.

Note 2: Total hose length required for each feed = adding the length in the above table + the hose routing distance between the outlet for the specific water supply and center of the left hand frame rail.

Note 3: All hoses that feed the Front/Back Bridges must be suitable for routing through an e-chain style hose management system.

Note 4: If Reclaim is ordered (optional), the hose indicated for the Back Bridge is added to the Back Bridge e-chain. For the Front Bridge, a maximum of two 1" (25.40mm) hoses may be installed in the e-chain. If the Spot Free option is ordered with reclaim, then the reclaim hose replaces the Fresh Water Hose.

Table 16-Water Feed Specifications (Water Feed Site Supplied).

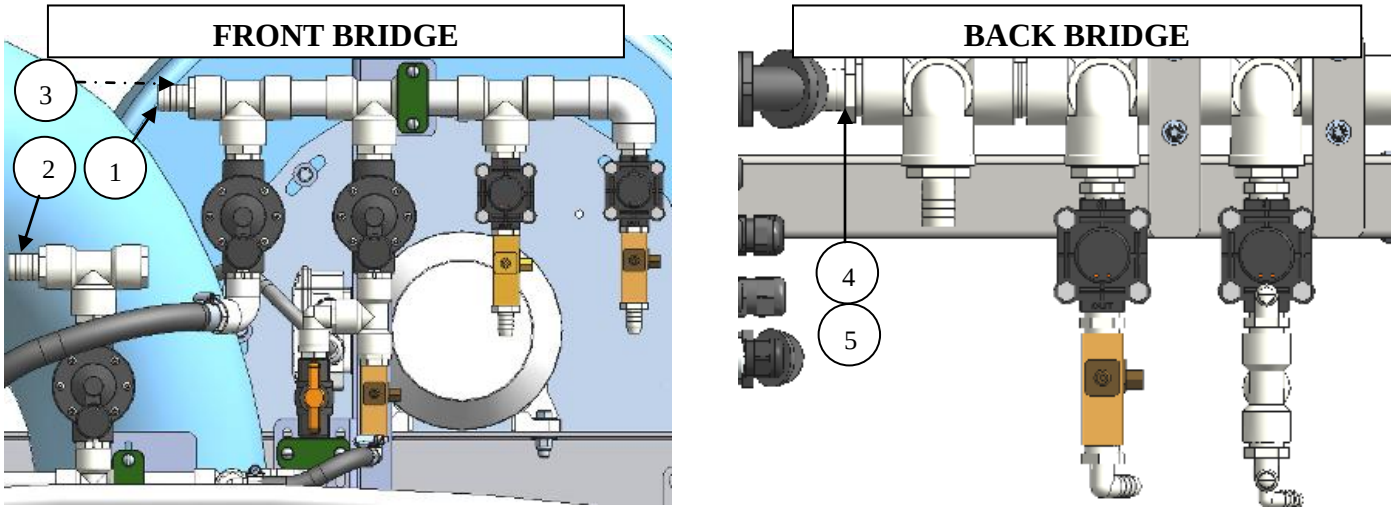


Figure 43-Water Feed Reference Locations, Front and Back Bridge.

SOLUTION FEEDS TO BE SUPPLIED BY THE WASH SITE

Note: This figure represents all available options.

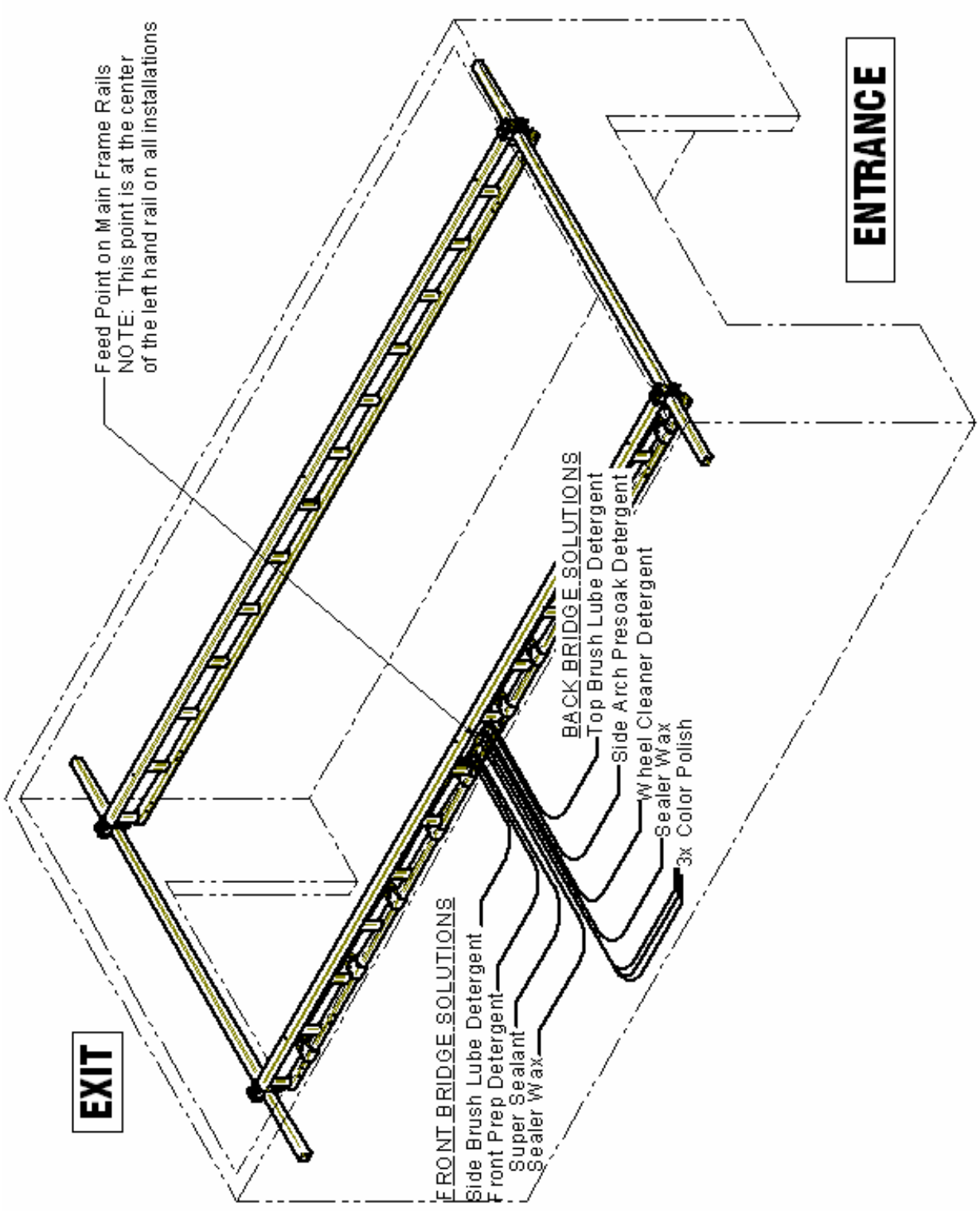


Figure 44-Solution Feeds Supplied by Site.

FEED TO		SOLUTION	TUBING SIZE	LENGTH (SEE NOTE)	FROM	TO	PDQ PART#	TYPICAL MANUFACTURER
FRONT BRIDGE	A	Side Brush Lube Detergent	3/8" OD 1/4" ID Clear Vinyl Tubing	40 ft (12.19M) + Note 2	Site Brush Lube Supply Container	1/4" Hose Barb Injector near Front Bridge Center	23975-CV	Saint-Gobain Durelene 3/8" OD 1/4" ID Clear Vinyl Tubing
	B	Front Prep Detergent	3/8" OD 1/4" ID Clear Vinyl Tubing	40 ft (12.19M) + Note 2	Site Front Prep Detergent Supply Container	1/4" Hose Barb Injector near Front Bridge Center	23975-CV	Saint-Gobain Durelene 3/8" OD 1/4" ID Clear Vinyl Tubing
	C	Surface Protectant	3/8" OD 1/4" ID Clear Vinyl Tubing	40 ft (12.19M) + Note 2	Site Surface Protectant Supply Container	1/4" Hose Barb Injector near Front Bridge Center	23975-CV	Saint-Gobain Durelene 3/8" OD 1/4" ID Clear Vinyl Tubing
	D	Super Sealant	3/8" OD 1/4" ID Clear Vinyl Tubing	40 ft (12.19M) + Note 2	Back Bridge Low Pressure Manifold	1/4" Hose Barb Injector near Front Bridge Center	23975-CV	Saint-Gobain Durelene 3/8" OD 1/4" ID Clear Vinyl Tubing
BACK BRIDGE	E	Top Brush Lube Detergent	3/8" OD 1/4" ID Clear Vinyl Tubing	40 ft (12.19M) + Note 2	Site Brush Lube Supply Container	1/4" Hose Barb Injector near Back Bridge Center	23975-CV	Saint-Gobain Durelene 3/8" OD 1/4" ID Clear Vinyl Tubing
	F	Presoak Detergent	3/8"OD 1/4" ID Clear Vinyl Tubing	40 ft (12.19M) + Note 2	Presoak Supply Container	1/4" Hose Barb Injector near Back Bridge Center	23975-CV	Saint-Gobain Durelene 3/8" OD 1/4" ID Clear Vinyl Tubing
	G	Wheel Cleaner Detergent	3/8" OD 1/4" ID Clear Vinyl Tubing	40 ft (12.19M) + Note 2	Site Brush Lube Supply Container	1/4" Hose Barb Injector near Back Bridge Center	23975-CV	Saint-Gobain Durelene 3/8" OD 1/4" ID Clear Vinyl Tubing
	H	Surface Protectant	3/8" OD 1/4" ID Clear Vinyl Tubing	40 ft (12.19M) + Note 2	Site Surface Protectant Supply Container	1/4" Hose Barb Injector near Back Bridge Center	23975-CV	Saint-Gobain Durelene 3/8" OD 1/4" ID Clear Vinyl Tubing
	I	3x Color Polish (Color #1)	3/8" OD 1/4" ID Clear Vinyl Tubing	40 ft (12.19M) + Note 2	Site Color #1 Polish Supply Container	1/4" Hose Barb Injector near Back Bridge Center	23975-CV	Saint-Gobain Durelene 3/8" OD 1/4" ID Clear Vinyl Tubing
	J	3x Color Polish (Color #2)	3/8" OD 1/4" ID Clear Vinyl Tubing	40 ft (12.19M) + Note 2	Site Color #2 Polish Supply Container	1/4" Hose Barb Injector near Back Bridge Center	23975-CV	Saint-Gobain Durelene 3/8" OD 1/4" ID Clear Vinyl Tubing
	K	3x Color Polish (Color #3)	3/8" OD 1/4" ID Clear Vinyl Tubing	40 ft (12.19M) + Note 2	Site Color #3 Polish Supply Container	1/4" Hose Barb Injector near Back Bridge Center	23975-CV	Saint-Gobain Durelene 3/8" OD 1/4" ID Clear Vinyl Tubing

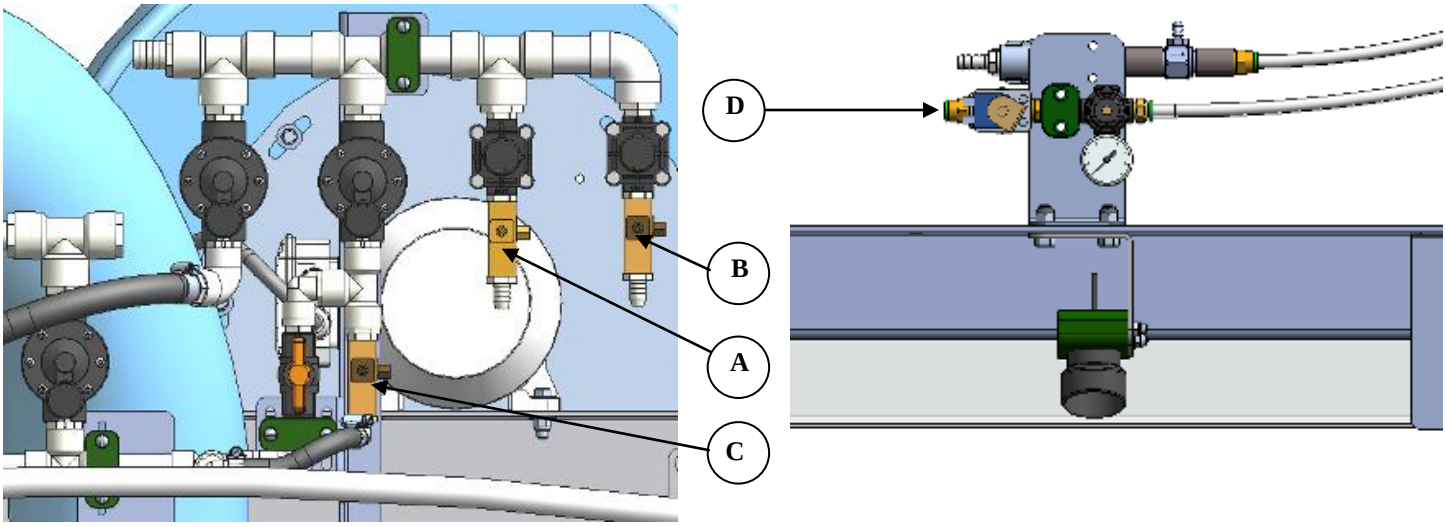
Note 1: All chemical feed lines are site supplied per the following:
A. Must be 3/8" tubing that is suitable for contact with the chemical used for the application.
B. Must be suitable for operation within an e-chain style hose and cable management system.

Note 2: Total hose length required for each solution feed = length in the above table + the tubing routing distance between the site solution supply container and center of the left hand frame rail.

Note 3: Site is responsible for supplying foot valves for solution containers.

Table 17-Solution Feed Specifications (Solution Feed Site Supplied).

FRONT BRIDGE SOLUTION SPECIFICATIONS



BACK BRIDGE SOLUTION SPECIFICATIONS

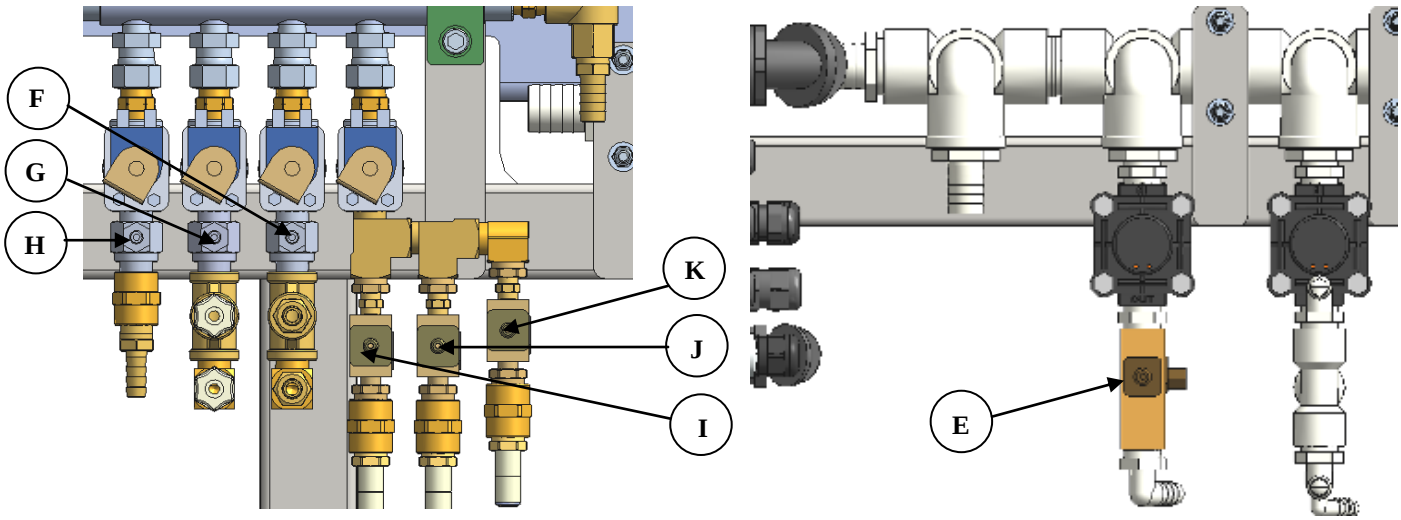
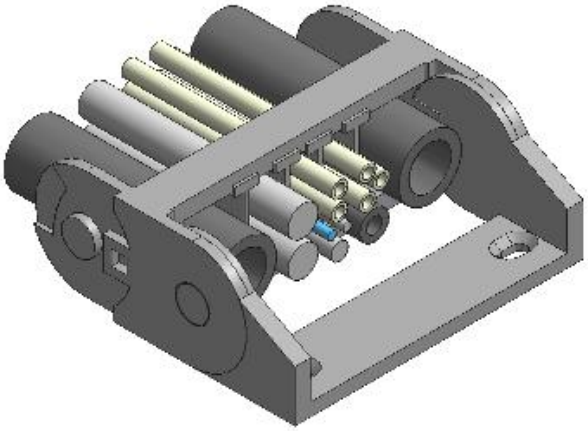


Figure 45-Solution Feed Reference Locations, Front and Back Bridge.

E-CHAIN HOSE AND CABLE FILL DIAGRAM

Front Bridge



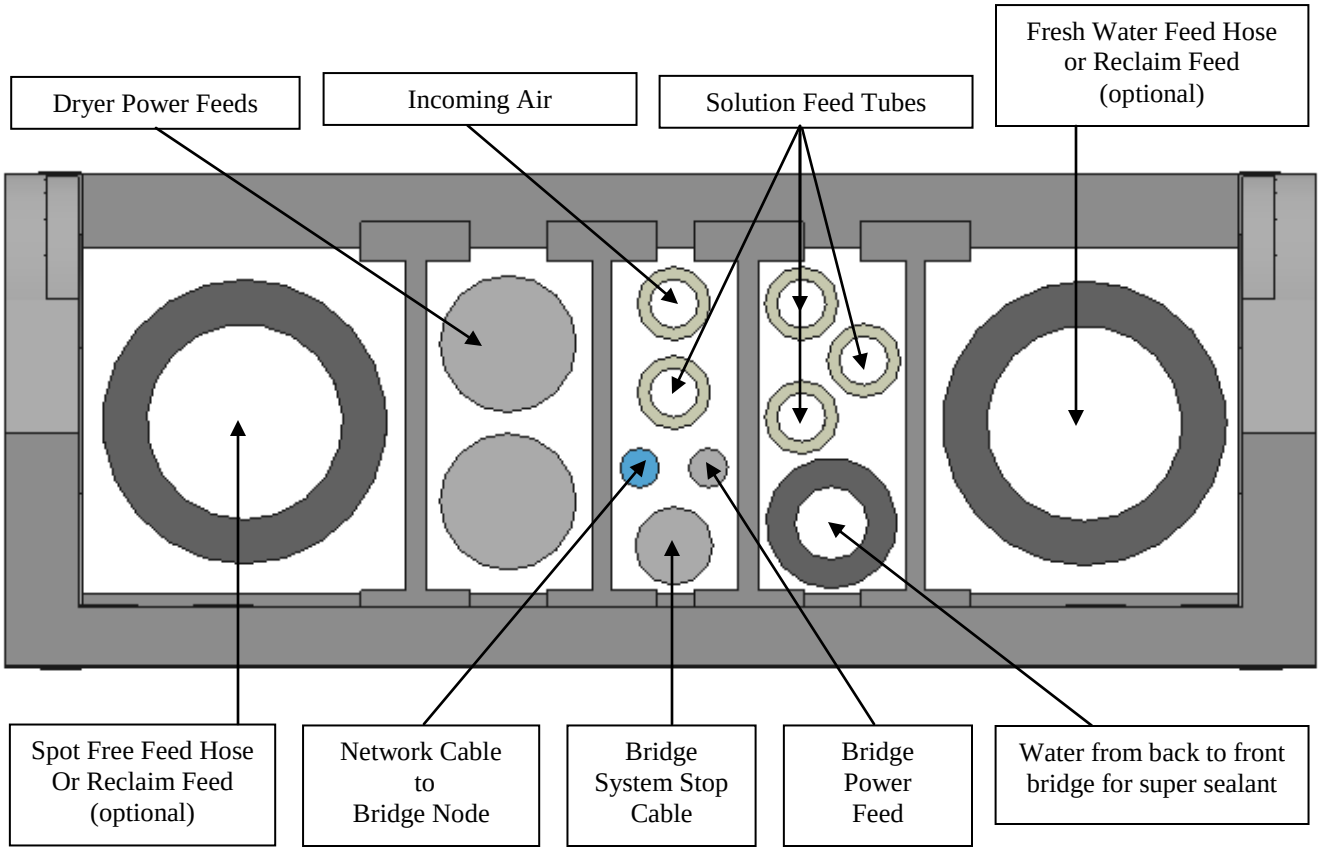
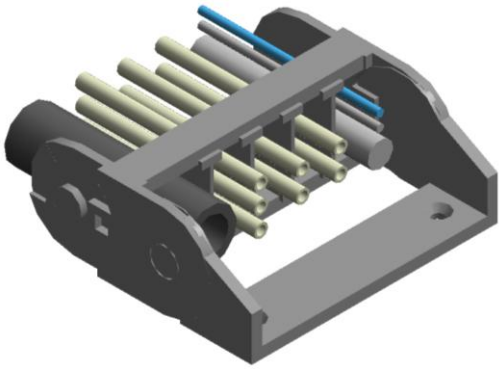


Figure 46-Front Bridge E-Chain and Cables.

Back Bridge

Note: When Reclaim option is ordered, one additional 1" hose is installed in the back bridge e-chain along the side opposite the Fresh Water feed hose.



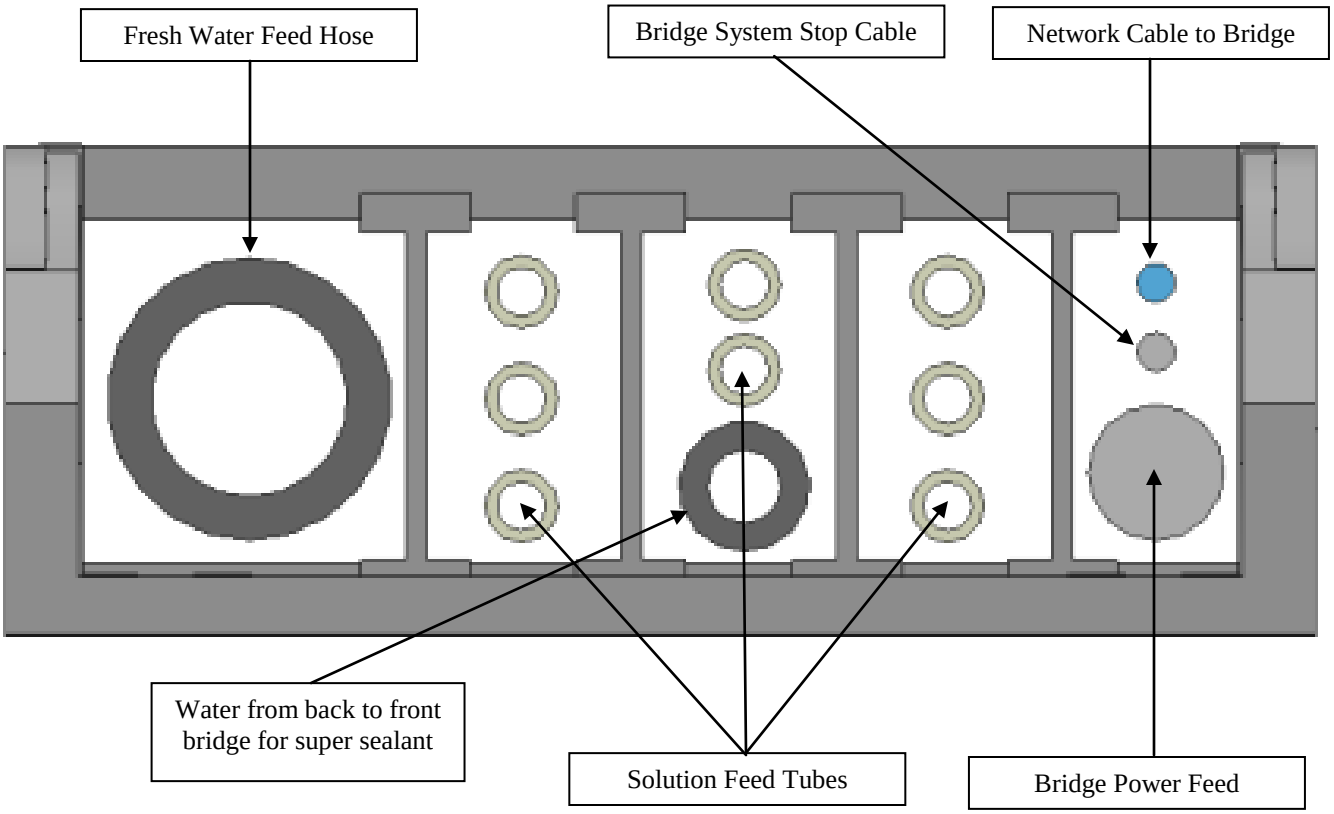


Figure 47-Back Bridge E-Chain and Cables.

APPENDIX

SHIPPING AND STORAGE

- Transport machinery per the National Motor Freight Classification 100-AD, Class 100
- Storage humidity: <90% RH (non-condensing)
- Storage temperature: 32-100°F
- Store machinery in accordance with the temperature and humidity requirements above in covered area to prevent direct contact with the wind, rain or snow