



Aisle-Saver[®]

Synergy Series[™]

Installation Manual



Before proceeding with installation, check dates for the most current version of all sections.

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Aisle-Saver[®]

TABLE OF CONTENTS

- 1.0 INTRODUCTION5
- 2.0 TRACK/RAMP7
- 3.0 DECKING.....25
- 4.0 FIXED CARRIAGES29
- 5.0 MOVABLE CARRIAGES31
- 6.0 DRIVE SYSTEMS & FRAMES.....37
- 7.0 SHELVING47
- 8.0 OVERHEAD ANTI-TILT51
- 9.0 FLOOR LOCK.....53
- 10.0 SYSTEM AUDIT & CLEAN-UP55

4 *Aisle-Saver*[®]

1.0 INTRODUCTION

1.1 GENERAL

The Aisle-Saver® Synergy Series™ system was designed for three types of mobile compact shelving systems:

- The Aisle-Saver® Synergy Series™ manual – push/pull.
- The Aisle-Saver® Synergy Series™ mechanically operated with multiple ratio hand cranks.
- The Aisle-Saver® Synergy Series™ electrically operated.

All types are installed similarly except where noted.

The following steps should be taken before any assembly takes place:

- 1.1.1** Compare the packing slip with material received and confirm that:
- The material is in good condition.
 - The piece count is correct.
 - The equipment received is the equipment ordered by the customer.
- 1.1.2** Compare the floor plan (detailed drawing submitted by salesperson, which may be marked up by Borroughs), to the job site and confirm ALL dimensions necessary to the installation.
- 1.1.3** Confirm access to, or availability of, electrical sources pertinent to the equipment ordered.
- 1.1.4** Confirm with customer and salesperson any special options or alterations specified and pertinent to the equipment ordered.
- 1.1.5** If there are ANY inconsistencies or shortages of material related to the Aisle-Saver® Synergy Series™ equipment, immediately contact Borroughs or the salesperson responsible for the customer's equipment.

The following installation procedures follow a logical order of sequence, although in some instances multiple procedures can be accomplished at the same time.

A supplemental installation manual for the electrically operated Aisle-Saver® Synergy Series™ (Part B) will also be provided when that type of system is ordered.

1.2 SYSTEM DEFINITION

A basic system would be comprised of the following components:

- | | |
|---------------------|--|
| a) Carriages | Manually movable, mechanically assisted, or electrically operated, and fixed (optional). |
| b) Track | Steel rail to support carriages. |
| c) Decking/Concrete | Fills void between and around track. |
| d) Ramp | Provides easy transition between original floor and system deck. |
| e) Storage Units | Four post/library shelving, lateral filing cabinets, stack boxes, racking, etc. |
| f) Options | Accessories to enhance or simplify the system. |

1.3 RECOMMENDED TOOLS

The following list is to be used as a guideline – other tools may be required with varying job site conditions or commitments made. Other tools, hardware, and supplies may be required based on customer requirements and site conditions.

1.3.1 Hand Tools

- Socket set(s):
1/4" drive – from 1/4" to 1/2" with a minimum 10" extension
3/8" or 1/2" drive – from 7/16" to 3/4" with extensions
9/16" socket with magnetic insert
- Allen hex key, L-shaped or fold-up type – from 7/64" to 3/8" and bit type 1/8", 5/32", 3/16" and 1/4" required.
- Wrench set – 1/4" to 3/4"
- Pliers:
Slip joint, needle nose, and locking (vise grip)
- Hammer(s):
16oz. claw; 16/20oz. ball peen and dead blow; or rubber mallet
- Screwdrivers:
Slotted (flat blade) 1/8" and 1/4" wide blades
Phillips #1, #2 & #3

1.3.2 Miscellaneous

Tapered drift pin, crowbar, chalk and chalk line (100ft.), hacksaw, 3/16" x 3" pin punch, snap ring pliers, 25' and 100' tape measures, utility knife, tin snips, step ladder(s) (height depends on storage equipment), grout mixing and spreading tools, square, center punch, extension cables, high speed drill bits, carbide tipped rotary or hammer drill bits: 3/16" x 6" for self-tapping masonry anchor, 3/8" x 6" for seismic type sleeve anchors.

Other tools, hardware, and supplies may be required based on customer requirements and site conditions.

1.3.3 Levels

Torpedo level, 4ft. level, and either a transit or laser level.

1.3.4 Power Tools

3/8" variable speed drill(s), screw gun, cordless drill(s), hammer drill, circular & reciprocating saw.

1.3.5 Hardware

Borroughs does not supply hardware for securing the storage equipment to the carriage base to walls or for unusual circumstances beyond our control and/or where noted. Installers will have to fasten using L-brackets, self-drilling/tapping screws, wall or floor anchors, or other unique fastening hardware dependent upon shelving, racking, cabinets or floor conditions. Some customer sites may require the services of a structural engineer for fastening the system.

▲ Note: See shelving attachment section for recommended attachment hardware.

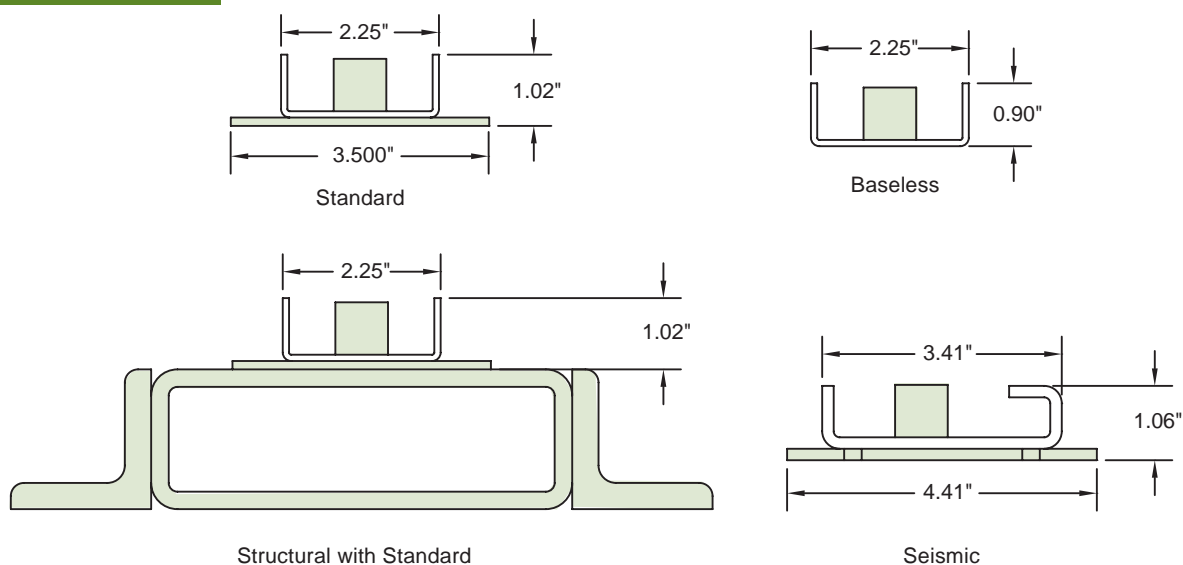
Aisle-Saver®

2.0 TRACK

2.1 DEFINITIONS

Aisle-Saver® Synergy Series™ track comes in various shapes and sizes, all having specific purposes and installation criteria. Only the most commonly used will be described. Standard maximum length of all track is 96".

Figure 2.1



NOTE: Tracks for Use with Safety Floor are 1/4" Higher Than Those Shown

- 2.1.1 Standard Track (15/16" high)** used with manual, mechanical, electrical, and fixed installations.
- 2.1.2 Baseless Track (7/8" high)** used with manual, mechanical, electrical, and fixed installations installed in computer floors.
- 2.1.3 Structural Track** used with manual, mechanical, electrical, and fixed installations where specified by a structural engineer or where the installation site may require the extra height.
- ⚠ Note: Structural Track can be specified to various heights, widths and wall thickness. Borroughs does not provide any type of splicing material for the installer. Field welding of splices may be necessary as determined by a structural engineer (permits, licenses, etc. may be required, check with local municipality).**
- 2.1.4 Seismic Track (1.063" high)** used with manual, mechanical, electrical, and fixed installations where seismic conditions are specified or where approved for anti-tilt.

2.2 APPLICATIONS

Aisle-Saver® Synergy Series™ Track can be installed in various ways with respect to site conditions. The following descriptions relate to the most common applications. Consult factory for any applications other than those described.

All installation sites should be pre-approved by a structural engineer, if required (i.e. for adequate floor load capacities, for pre-stressing, etc.).

⚠ Caution: Installation on wood floors is not recommended.

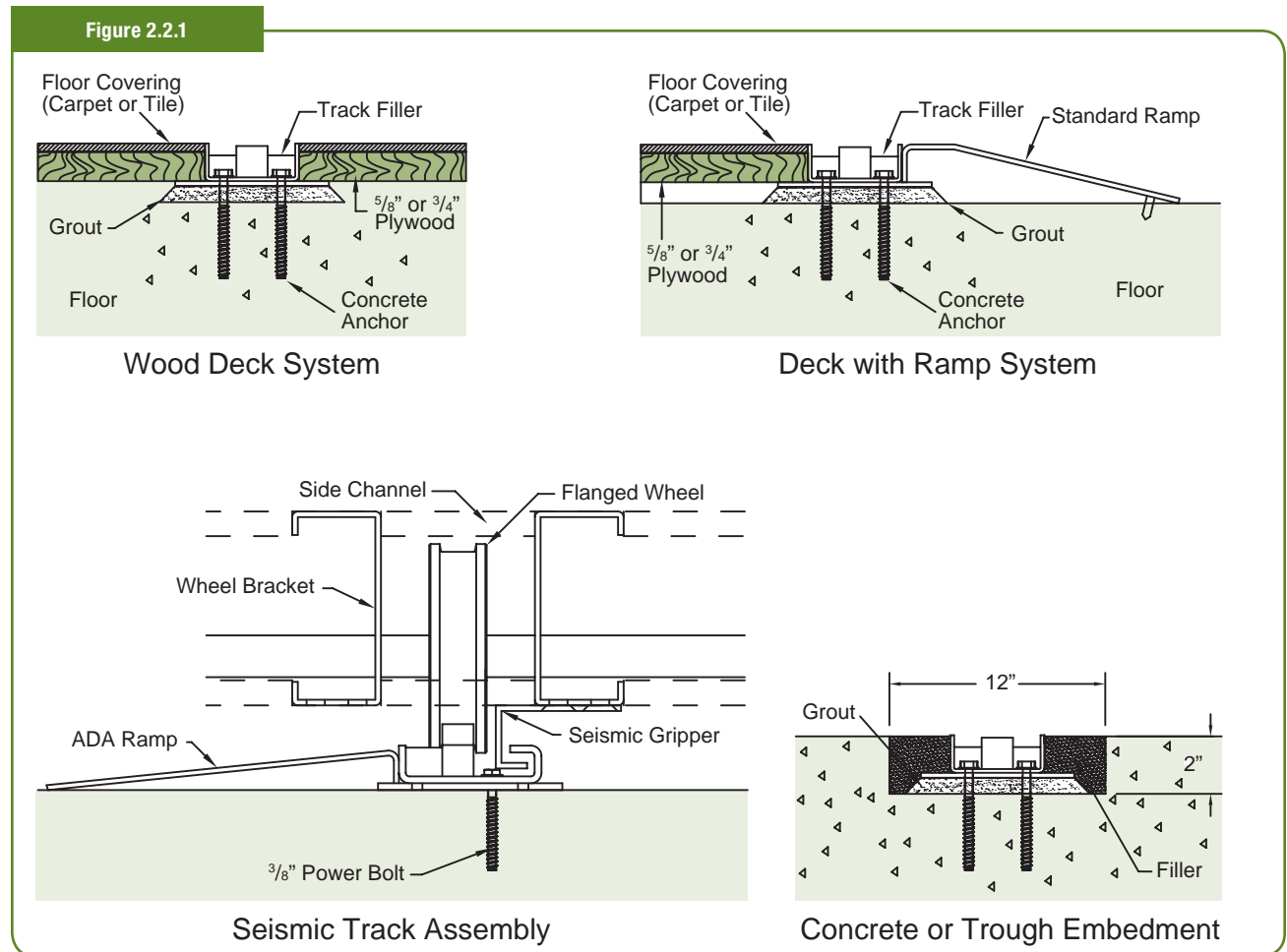
2.2.1 Installation On Top Of Existing Concrete Floor

Carpet or tile must be removed from the area(s) where an Aisle-Saver® Synergy Series™ Track System is to be located.

Surface should be free of heavy dirt and debris.

Area between tracks can be either decked with plywood or filled with concrete.

Level to the highest point in the area where the track system is to be located.



2.2.2 Installation Into Trough

Minimum trough size will be **12" wide x 2" deep**. Troughs are created by either using forms (new construction) or physically removing the concrete where tracks are to be located. Troughs should be wide enough to enable grouting and if existing floor is out of level, then the fill cement can be tapered up to the track. Top of U-channel not to exceed height of floor.

Troughs should always be free of heavy dirt and/or debris. Always level to highest point of EXISTING floor surface, not the trough itself. Track should be grouted first, then back filled with finishing material as specified, NOT TO EXCEED FINISHED HEIGHT OF TRACK.

Remember to allow for carpet or tile, if necessary.

2.2.3 Installation Into a Depressed Area

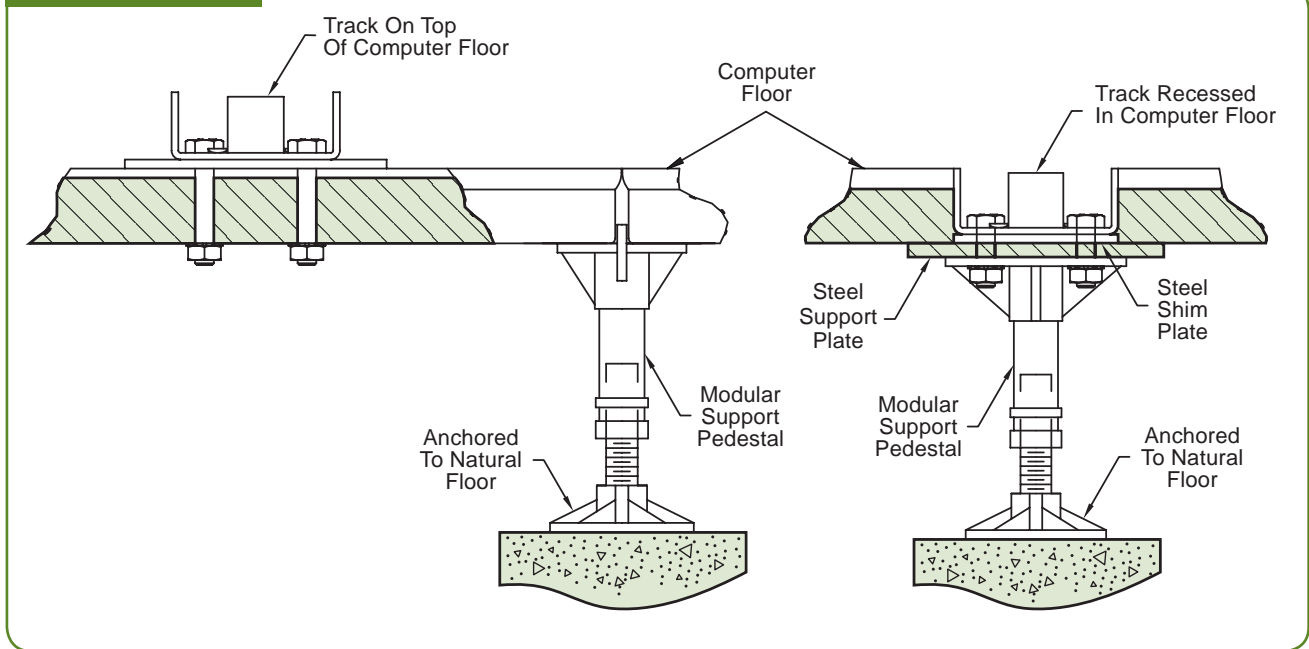
A depressed floor is usually found in new construction where the whole room or system area is less than the finished height. The depressed area should be free of heavy dirt and/or debris. Then the track is leveled to finished height specified by the contractor, architect, or as indicated on the applicable blueprint.

After locating, securing, and grouting the track, the depressed area can be back filled with the finishing material as specified, e.g. cement, wood deck, etc. NOT TO EXCEED FINISHED HEIGHT OF TRACK.

Remember to allow for carpet or tile. If the area between tracks will have wood decking, a vapor barrier should be considered. If the depressed area is going to be back filled with concrete or similar material, consult with professionals in this area.

2.2.4 Installation in a Computer Floor

Figure 2.2.4



This can be accomplished either during the actual computer floor installation or in an existing floor. Only pedestals rated for the system weight should be used.

⚠ Note: *Consult a structural engineer or the manufacturer of the computer floor.*

Borroughs does not supply the material or the hardware for this type of installation. You should be knowledgeable about floor load capacities under the pedestals before following the above guidelines. You should follow engineer's instructions. The guidelines in the next two paragraphs are common procedure.

2.2.4.1 Locate pedestals on 8" centers along the length of each section of track and anchor to the concrete floor. Borroughs recommends using a 1/4" x 6" steel plate as a base for the baseless track (supplied by others).

Level the baseless track to the height of the finished floor using steel shims approximately every 6" or the full length of the track run.

2.2.4.2 Once level, secure the track to the shim(s) and 1/4" thick base plate by drilling through all three materials and fastening with hardened 1/4"-20 bolts and associated hardware. Computer floor tiles may need to be cut in order to fit between tracks.

2.2.5 Installation On Top Of Computer Floor

Consult computer floor manufacturer for load rating of the floor. Track can be laid directly on top of most computer floors. The track can be leveled (if necessary) by either using shims or adjusting the pedestals supporting the floor. Securing the track depends on the type or physical makeup of the floor panels, which is not the responsibility of Borroughs.

Borroughs does not supply hardware for this type of installation. Fill between tracks with plywood decking.

2.3 TRACK INSTALLATION

⚠ Note: *Some systems may have had more than one length carriage incorporated into it. Always refer to your floor plan.*

The distance from the rear of the carriage to the centerline (C/L) of the last track and the distance between all tracks are critical dimensions. It is recommended that an actual carriage or carriages be put down before the track is anchored and grouted to ensure correct centerlines. The carriage(s) should roll free and true, without binding on the tracks.

2.4 TRACK LOCATION

Refer to Borroughs approval drawings provided by authorized Aisle-Saver® dealer.

All published centerlines are for standard carriage lengths. Exceptions must be confirmed by the factory.

Carriage lengths which fall between 6" increments will be adjusted from the rear to centerline of the last track dimension. This may affect compliance with ADA on dual entry systems.

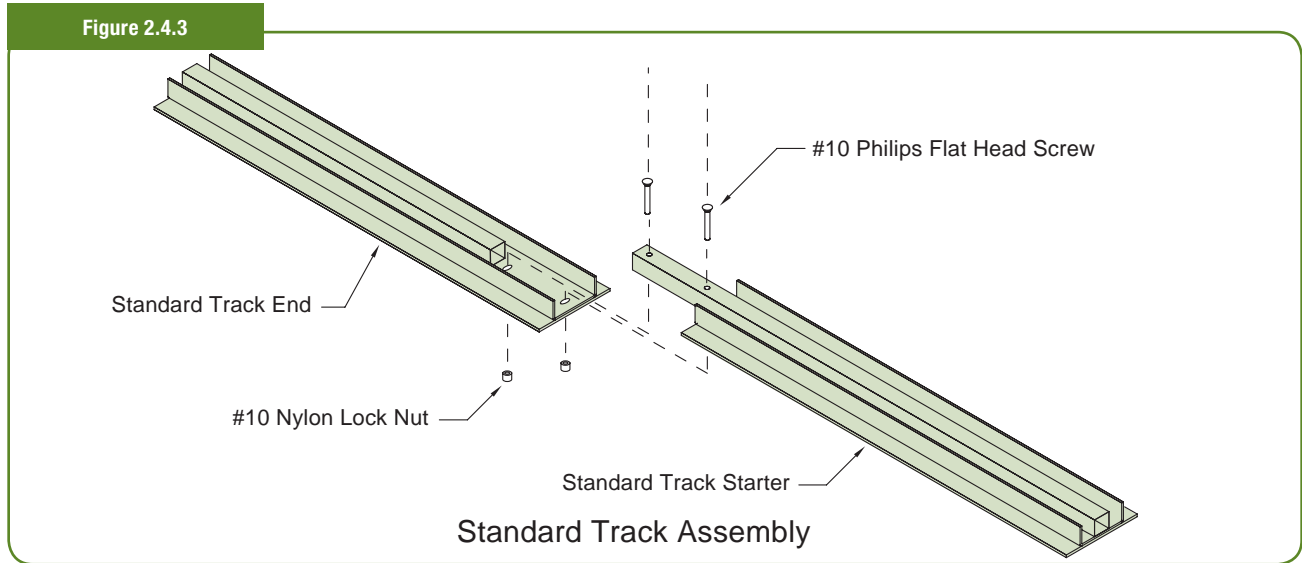
Changes in centerlines due to structural or other reasons must be reviewed by the factory.

When using centerlines to lay track, the dimensions from track to track should be added from the rear centerline as opposed to using center to center.

Example: on a three-track system with centerlines of 6' & 5', the tracks should be placed 2' - 2" from the wall, then 5' from the last track to the center track; then the centerline of the front track would be 11' from the centerline of the last track.

- 2.4.1** Snap a chalk line the appropriate distance from, and parallel to, the rear wall. This line should extend the full length of the track run (and a few inches beyond, where possible).
- 2.4.2** Using the dimensions from the drawing or the chart, mark and snap all the chalk lines necessary on the floor. Be sure to maintain that all the lines are parallel, and that there is one line for every rail. Centerline tolerance not to exceed 1/32". All measurements for succeeding track should originate from rear centerline.
- 2.4.3** Raise track off floor and secure splices using two #10-24 x 1-1/4" screws. Proceed to track leveling.

Figure 2.4.3



Synergy Series™ Track Centerlines

Carriage Length (feet)	Carriage Length (inches)	Number of Tracks	Number of Carriage Sections	Section Lengths (Front to Back)	Distance Between Tracks	Front to CL of First Track	Rear to CL of Last Track
3	36	2	1	36	2	6	6
3.5	42	2	1	42	2.5	6	6
4	48	2	1	48	3	6	6
4.5	54	2	1	54	3.5	6	6
5	60	2	1	60	4	6	6
5.5	66	2	1	66	4.5	6	6
6	72	2	1	72	3.5	24	6
6.5	78	2	1	78	3	24	18
7	84	2	1	84	3	24	24
7.5	90	2	1	90	3.5	24	24
8	96	2	1	96	4	24	24
8.5	102	2	1	102	4.5	24	24
9	108	2	1	108	5	24	24
9.5	114	2	1	114	5.5	24	24
10	120	2	1	120	6	24	24
10.5	126	3	2	48,78	3,4	24	18
11	132	3	2	48,84	3,4	24	24
11.5	138	3	2	48,90	3,5	24	18
12	144	3	2	48,96	3,5	24	24
12.5	150	3	2	60,90	4,5	24	18
13	156	3	2	60,96	4,5	24	24
13.5	162	3	2	72,90	5,5	24	18
14	168	3	2	72,96	5,5	24	24
14.5	174	3	2	84,90	6,5	24	18
15	180	3	2	84,96	6,5	24	24
15.5	186	3	2	84,102	6,6	24	18
16	192	3	2	84,108	6,6	24	24
16.5	198	3	2	108,90	6,6	24	30
17	204	3	2	108,96	6,6	24	36
17.5	210	4	2	108,102	6,5,3	24	18
18	216	4	2	108,108	6,5,3	24	24
18.5	222	4	3	60,72,90	4,6,5	24	18
19	228	4	3	60,72,96	4,6,5	24	24
19.5	234	4	3	72,72,90	5,6,5	24	18
20	240	4	3	72,72,96	5,6,5	24	24
20.5	246	4	3	84,72,90	6,6,5	24	18
21	252	4	3	84,72,96	6,6,5	24	24
21.5	258	4	3	84,72,102	6,6,6	24	18
22	264	4	3	84,72,108	6,6,6	24	24
22.5	270	4	3	108,72,90	6,6,6	24	30
23	276	4	3	108,72,96	6,6,6	24	36
23.5	282	5	4	72,72,72,66	5,6,6,3	24	18
24	288	5	4	72,72,72,72	5,6,6,3	24	24
24.5	294	5	4	84,72,72,66	6,6,6,3	24	18

Synergy Series™ Track Centerlines (Continued)

Carriage Length (feet)	Carriage Length (inches)	Number of Tracks	Number of Carriage Sections	Section Lengths (Front to Back)	Distance Between Tracks	Front to CL of First Track	Rear to CL of Last Track
25	300	5	4	84,72,72,72	6,6,6,3	24	24
25.5	306	5	4	84,72,72,78	6,6,6,4	24	18
26	312	5	4	84,72,72,84	6,6,6,4	24	24
26.5	318	5	4	84,72,72,90	6,6,6,5	24	18
27	324	5	4	84,72,72,96	6,6,6,5	24	24
27.5	330	5	4	84,72,72,102	6,6,6,6	24	18
28	336	5	4	84,72,72,108	6,6,6,6	24	24
28.5	342	5	4	108,72,72,90	6,6,6,6	24	30
29	348	5	4	108,72,72,96	6,6,6,6	24	36
29.5	354	6	5	72,72,72,72,66	5,6,6,6,3	24	18
30	360	6	5	72,72,72,72,72	5,6,6,6,3	24	24
30.5	366	6	5	84,72,72,72,66	6,6,6,6,3	24	18
31	372	6	5	84,72,72,72,72	6,6,6,6,3	24	24
31.5	378	6	5	84,72,72,72,78	6,6,6,6,4	24	18
32	384	6	5	84,72,72,72,84	6,6,6,6,4	24	24
32.5	390	6	5	84,72,72,72,90	6,6,6,6,5	24	18
33	396	6	5	84,72,72,72,96	6,6,6,6,5	24	24
33.5	402	6	5	84,72,72,72,102	6,6,6,6,6	24	18
34	408	6	5	84,72,72,72,108	6,6,6,6,6	24	24
34.5	414	6	5	108,72,72,72,90	6,6,6,6,6	24	30
35	420	6	5	108,72,72,72,96	6,6,6,6,6	24	36
35.5	426	6	5	72,72,72,72,72,66	5,6,6,6,6,3	24	18
36	432	7	6	72,72,72,72,72,72	5,6,6,6,6,3	24	24
36.5	438	7	6	84,72,72,72,72,66	6,6,6,6,6,3	24	18
37	444	7	6	84,72,72,72,72,72	6,6,6,6,6,3	24	24
37.5	450	7	6	84,72,72,72,72,78	6,6,6,6,6,4	24	18
38	456	7	6	84,72,72,72,72,84	6,6,6,6,6,4	24	24
38.5	462	7	6	84,72,72,72,72,90	6,6,6,6,6,5	24	18
39	468	7	6	84,72,72,72,72,96	6,6,6,6,6,5	24	24
39.5	474	7	6	84,72,72,72,72,102	6,6,6,6,6,6	24	18
40	480	7	6	84,72,72,72,72,108	6,6,6,6,6,6	24	24
40.5	486	7	6	108,72,72,72,72,90	6,6,6,6,6,6	24	30
41	492	7	6	108,72,72,72,72,96	6,6,6,6,6,6	24	36
41.5	498	8	7	72,72,72,72,72,72,66	5,6,6,6,6,6,3	24	18
42	504	8	7	72,72,72,72,72,72,72	5,6,6,6,6,6,3	24	24
42.5	510	8	7	84,72,72,72,72,72,66	6,6,6,6,6,6,3	24	18
43	516	8	7	84,72,72,72,72,72,72	6,6,6,6,6,6,3	24	24
43.5	522	8	7	84,72,72,72,72,72,78	6,6,6,6,6,6,4	24	18
44	528	8	7	84,72,72,72,72,72,84	6,6,6,6,6,6,4	24	24
44.5	534	8	7	84,72,72,72,72,72,90	6,6,6,6,6,6,5	24	18
45	540	8	7	84,72,72,72,72,72,96	6,6,6,6,6,6,5	24	24
45.5	546	8	7	84,72,72,72,72,72,102	6,6,6,6,6,6,6	24	18

Synergy Series™ Track Centerlines (Continued)

Carriage Length (feet)	Carriage Length (inches)	Number of Tracks	Number of Carriage Sections	Section Lengths (Front to Back)	Distance Between Tracks	Front to CL of First Track	Rear to CL of Last Track
46	552	8	7	84,72,72,72,72,72,108	6,6,6,6,6,6,6	24	24
46.5	558	8	7	108,72,72,72,72,72,90	6,6,6,6,6,6,6	24	30
47	564	8	7	108,72,72,72,72,72,96	6,6,6,6,6,6,6	24	36
47.5	570	9	8	72,72,72,72,72,72,72,66	5,6,6,6,6,6,6,3	24	18
48	576	9	8	72,72,72,72,72,72,72,72	5,6,6,6,6,6,6,3	24	24
48.5	582	9	8	84,72,72,72,72,72,72,66	6,6,6,6,6,6,6,3	24	18
49	588	9	8	84,72,72,72,72,72,72,72	6,6,6,6,6,6,6,3	24	24
49.5	594	9	8	84,72,72,72,72,72,72,78	6,6,6,6,6,6,6,4	24	18
50	600	9	8	84,72,72,72,72,72,72,84	6,6,6,6,6,6,6,4	24	24
50.5	606	9	8	84,72,72,72,72,72,72,90	6,6,6,6,6,6,6,5	24	18
51	612	9	8	84,72,72,72,72,72,72,96	6,6,6,6,6,6,6,5	24	24
51.5	618	9	8	84,72,72,72,72,72,72,102	6,6,6,6,6,6,6,6	24	18
52	624	9	8	84,72,72,72,72,72,72,108	6,6,6,6,6,6,6,6	24	24
52.5	630	9	8	108,72,72,72,72,72,72,90	6,6,6,6,6,6,6,6	24	30
53	636	9	8	108,72,72,72,72,72,72,96	6,6,6,6,6,6,6,6	24	36
53.5	642	10	9	72,72,72,72,72,72,72,72,66	5,6,6,6,6,6,6,6,3	24	18
54	648	10	9	72,72,72,72,72,72,72,72,72	5,6,6,6,6,6,6,6,3	24	24
54.5	654	10	9	84,72,72,72,72,72,72,72,66	6,6,6,6,6,6,6,6,3	24	18
55	660	10	9	84,72,72,72,72,72,72,72,72	6,6,6,6,6,6,6,6,3	24	24
55.5	666	10	9	84,72,72,72,72,72,72,72,78	6,6,6,6,6,6,6,6,4	24	18
56	672	10	9	84,72,72,72,72,72,72,72,84	6,6,6,6,6,6,6,6,4	24	24
56.5	678	10	9	84,72,72,72,72,72,72,72,90	6,6,6,6,6,6,6,6,5	24	18
57	684	10	9	84,72,72,72,72,72,72,72,96	6,6,6,6,6,6,6,6,5	24	24
57.5	690	10	9	84,72,72,72,72,72,72,72,102	6,6,6,6,6,6,6,6,6	24	18
58	696	10	9	84,72,72,72,72,72,72,72,108	6,6,6,6,6,6,6,6,6	24	24
58.5	702	10	9	108,72,72,72,72,72,72,72,90	6,6,6,6,6,6,6,6,6	24	30
59	708	10	9	108,72,72,72,72,72,72,72,96	6,6,6,6,6,6,6,6,6	24	36
59.5	714	11	10	72,72,72,72,72,72,72,72,72,66	5,6,6,6,6,6,6,6,6,3	24	18
60	720	11	10	72,72,72,72,72,72,72,72,72,72	5,6,6,6,6,6,6,6,6,3	24	24

2.5 TRACK LEVELING

- 2.5.1** Place the track sections along the chalk lines. It is recommended, where possible, that parallel track runs are laid out such that rail joints on the adjacent runs are not at the same point (to prevent all of the wheels from riding on a joint simultaneously).
- 2.5.2** Determine where the high point of the floor is. This should be done with a transit, surveyors (contractors) level, or laser. Once the high point has been determined, add at least 3/8" to that dimension and level the rest of the track to that height (the 3/8" is to allow for grouting later on; reference 2.7).
- 2.5.3** Track can be leveled with one of two methods:

2.5.3.1 Method A (recommended):

Use the 1/4-20 x 1-1/2" thread-forming Phillips-head screws provided. Each 96" section of track has 10 pair of .221 dia. holes into which the thread-forming screws can be inserted. If needed, longer leveling screws would be provided by others.

⚠ Note: *Use a torpedo level to maintain a level condition across the width of each track.*

This first method requires you to place the tracks directly over the chalk lines. Then start your screws and raise the track(s) to the highest point, remembering to add a minimum of 3/8". It may be necessary to partially anchor the ends of the track to maintain its centerline, before leveling. Refer to sub section 2.6 on anchoring. Shims should be used at track joints. Centerline tolerance not to exceed 1/32". All measurements for succeeding track should originate from rear centerline.

⚠ Note: *The leveling screws will have to be removed after the grout sets.*

Shims are for leveling purposes only, grout (explained later) should be the primary support of the tracks. Installation without grout will void warranty.

2.5.3.2 Method B:

Shims can be supplied from Borroughs in three standard thicknesses: 1/32", 1/16", and 1/8". Method B is best accomplished by taking readings and either marking them on the floor, or making a sketch on paper. Readings are best taken as close to where the holes in the track are located for anchoring (these are larger than those used for the self-tapping screws). It may be necessary to partially anchor the ends of the track to maintain its centerlines before leveling. Reference sub section 2.6 for anchoring information.

Determine the thickness of shims needed where each reading was taken in order to bring the track(s) up from the lowest to the highest point (remembering to add the 3/8").

It is important to ensure that the track is firm against the shims while taking readings. It is important to place shims under ALL track joints, even if leveling Method A is being used.

All tracks are to be level to within 3/32" in any module and 1/16" maximum variation between adjacent rails. Maximum variation in a 10 foot run along any rail shall be 1/32".

Shims are for leveling purposes only, grout (explained later) should be the primary support of the tracks. Installation without grout will void warranty.

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2.6 ANCHORING

2.6.1 It is best to anchor only the rear track(s) first.

Tip: If a carriage is available, use it as a guide for placing track.

⚠ Caution: Always double check track centerlines as you proceed. Now is the critical time to re-adjust if necessary. Proper track installation is critical. If it is wrong, it is possible to have end panel misalignment, or improper movement of the carriages, binding, or degradation of the system.

Tip: It is recommended that the track joints be clamped until anchored to ensure uniformity.

2.6.2 Drill through the clearance holes (provided in track) into the floor and secure with anchors.

⚠ Caution: Check local codes to ensure that anchors provided meet code.

- Be sure to anchor the **standard track** at all locations provided.
- Secure the remaining track(s), maintaining the proper centerlines (C/Ls).
- Borroughs normally provides: 1/4" x 2-1/4" hex head self-tapping concrete anchors.

Seismic track has larger mounting holes in the base plate. Track is designed to accept a sleeve type anchor with a 3/8" flat head, which would use a 7/16" x 6" carbide tipped hammer drill bit. Use of all seismic anchor holes may or may not be required. Consult a Structural Engineer for required amount and length of anchors to be used.

2.6.3 Seismic Track for Anti-Tilt Applications

Seismic track also has clearance holes for 1/4" x 2-1/4" hex head self-tapping concrete anchors.

A 3/16" x 6" carbide-tipped rotary or hammer drill bit will be required for tapcon anchors. In this case, anchor the track at all locations provided.

2.6.4 Site conditions requiring different anchors or lengths of anchors, shall be the responsibility of the installer. A rule of thumb for the 1/4" diameter anchors: normally 1" embedment of anchor into the concrete (or 4 times the diameter of the anchor).

Tip: Before proceeding further, we recommend taking the carriage and moving it the entire length of the system. Observe if the carriage moves freely. There shouldn't be any binding, bouncing, or irregular movement of the carriage.

2.7 GROUT

Once the tracks have been leveled and anchored, the grouting process can begin. Minimum of a 3/8" grout bed from the highest point of the floor is required.

Use a fast-drying, non-shrink grout with a compressive strength of at least 5,100 PSI after 24 hours and 8,100 PSI after one month. Portland or non-Portland ingredients are acceptable, except where otherwise specified.

- 2.7.1 Mix the grout in accordance with the directions supplied. Don't mix more than can be worked with in a short amount of time.
- 2.7.2 Pour some of the grout beside the track and work under the track from one side only with a mason's trowel, or similar tool, until it oozes out of the other side.

Be sure that the entire space under the track is completely filled and there are no voids.

Take care not to allow excess grout to get on the base plate ledge or U-channel of the track.

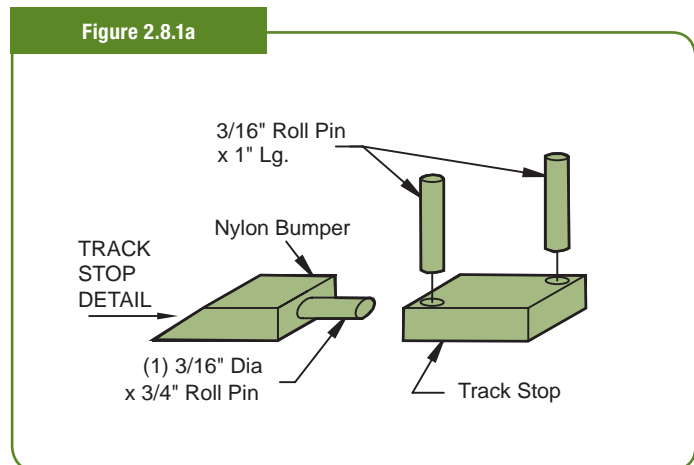
- 2.7.3 Allow the grout to set firmly before continuing.

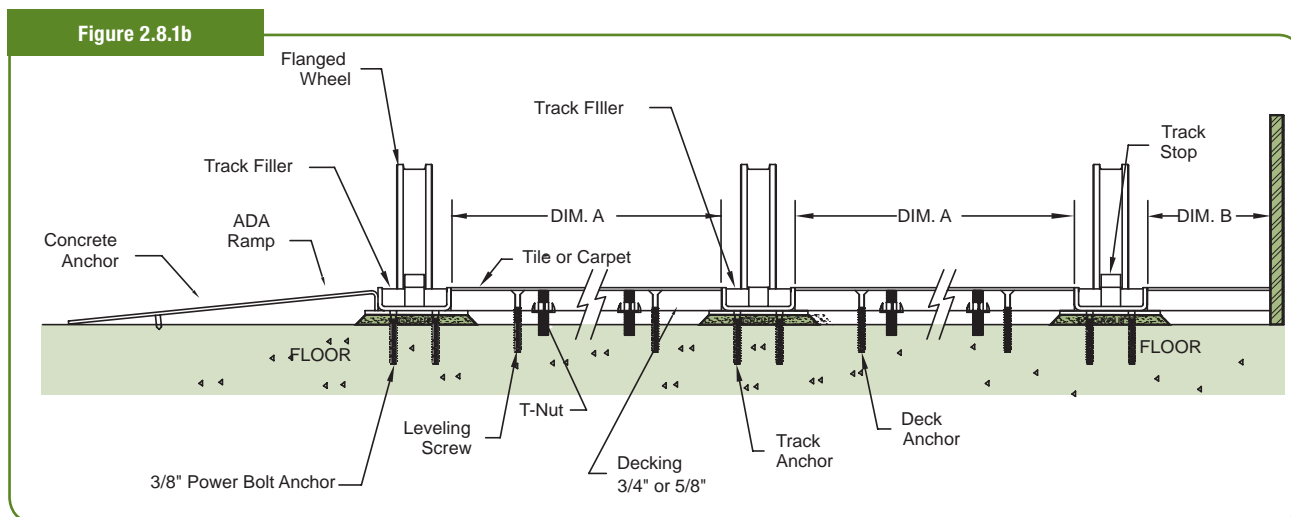
▲ Note: *Warranty is VOID if grout is not used.*

2.8 TRACK STOPS

2.8.1 Specifications

Track stops are required on Aisle-Saver® Synergy Series™ systems when a mobile carriage ends a system.





2.8.2 Locate track stop at desired position on track.

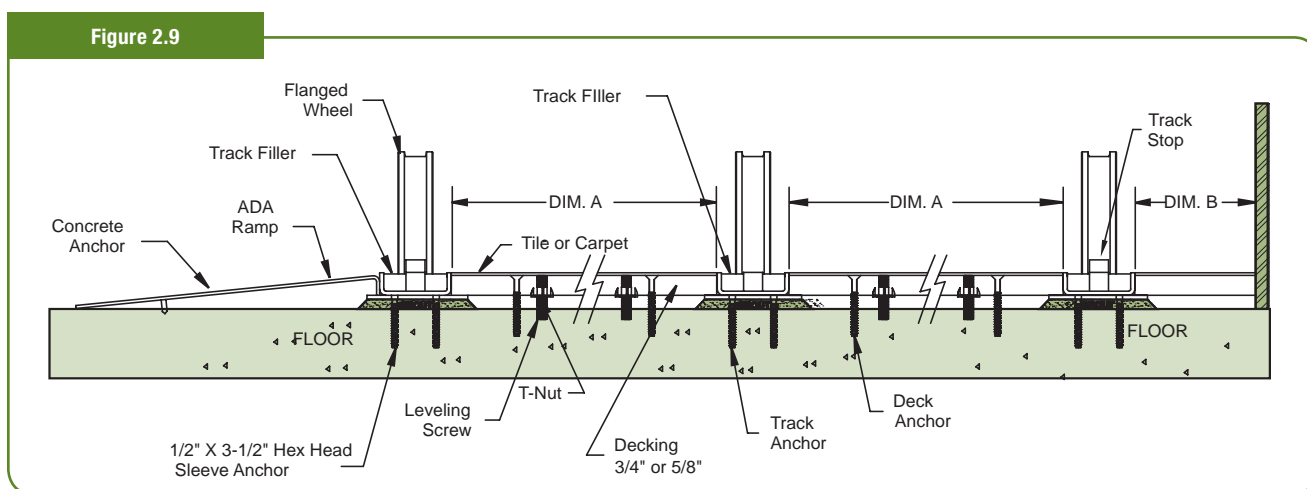
Use the carriage to position the track stops by: placing the stop on the end of the track, then moving the carriage to where it should end, adjust the position of the stop so that it contacts the flanged wheel of the movable carriage, then back the carriage off.

Tip: Using the track stop(s) as a template, drill two 3/16" holes into track.

2.8.3 Secure the track stop(s) by driving the 3/16" x 1-1/4" roll pins (supplied) through the track stop and into the track.

2.9 RAMP

Please check with floor plan and salesperson for intended application (e.g. in some cases carpet must adhere to the ramp; in other cases ramp isn't required at all).



Borroughs provides several types of ramp, in either galvanized or stainless steel in maximum 6' lengths: Standard and ADA compliant. The ramp can also accept tile or carpet. These applications must have been determined prior to shipment from the factory. Consult the tile or carpet manufacturer for the proper adhesive to be used on the ramp.

2.9.1 Standard Ramp

Place the ramp in front of the U-channel of the first/last track (for dual entry systems).

Fasten the ramp with the hardware provided: 3/16" x 1-1/4" Phillips flat head. Drill and 5/32" x 4" masonry/carbide drill bit required.

If substitute hardware is used, it is recommended that the anchor be a flat head, either using a concrete sleeve anchor (threshold flat head), or a plastic plug, and fasten with a #10 sheet metal screw.

Tip: In all cases, the anchor heads should be flush with the surface of the ramp.

2.9.2 ADA Compliant Ramp

This ramp is nominally 22-3/4" deep in standard lengths of 6'. Shorter lengths will be manufactured to sizes required. It is recommended for use where carriages are 7' or longer and the first track is set back nominally 24" from the front/rear.

⚠ Caution: *Ramp requires additional support during installation to ensure it does not bow, flex, or ultimately fail. (example: shims, grout balls, etc.)*

2.10 TRACK FILLER

2.10.1 Insert Filler Strips

Track filler is used to fill the channel on both sides of the solid steel rail of the standard track assembly and on one side in seismic track assembly.

There are two different widths (3/4" standard and 7/8" seismic) of track filler. The track filler is supplied in 4' lengths.

2.10.2 If an alternate anchor with a protruding head is being used, then the foam filler will have to be notched to allow clearance of the anchor heads.

2.11 FIXED CARRIAGE MOUNTS

- 2.11.1** This mount will attach to the top of the C-channel of the track and be installed after the track has been laid, but before the decking is inserted.

In most cases, the decking will need to be trimmed in this area, around the attachment bracket. This bracket will be installed with (6-10) #10 x 3/4" Phillips PH SDS.

After the finish flooring is laid, these mounts will supply the base in which the fixed carriage will be installed. The carriage will mount with (3) 1/4"-20 x 3/4" Hex HD Bolts.

See figure 2.11.1 on page 22.

2.11.2 Fixed Carriage Surface Mount (alternate)

In most cases, the decking will need to be trimmed in this area, around the attachment bracket. This bracket will be installed with (6) 1/4" x 3-1/4" Hex HD Tapcons, for non-seismic installations or (4) 3/8" (recommended) anchor bolts for seismic installations.

After the finish flooring is laid, these mounts will supply the base in which the fixed carriage will be installed. The carriage will mount with (3) 1/4"-20 x 3/4" Hex HD bolts.

See figure 2.11.2 on page 23.

- 2.11.3** If decking is supplied by Borroughs, go to section 3.0.

If decking is supplied by other, go to section 4.0.

Fixed Carriage Mount Installation Cross-Section.

Figure 2.11.1

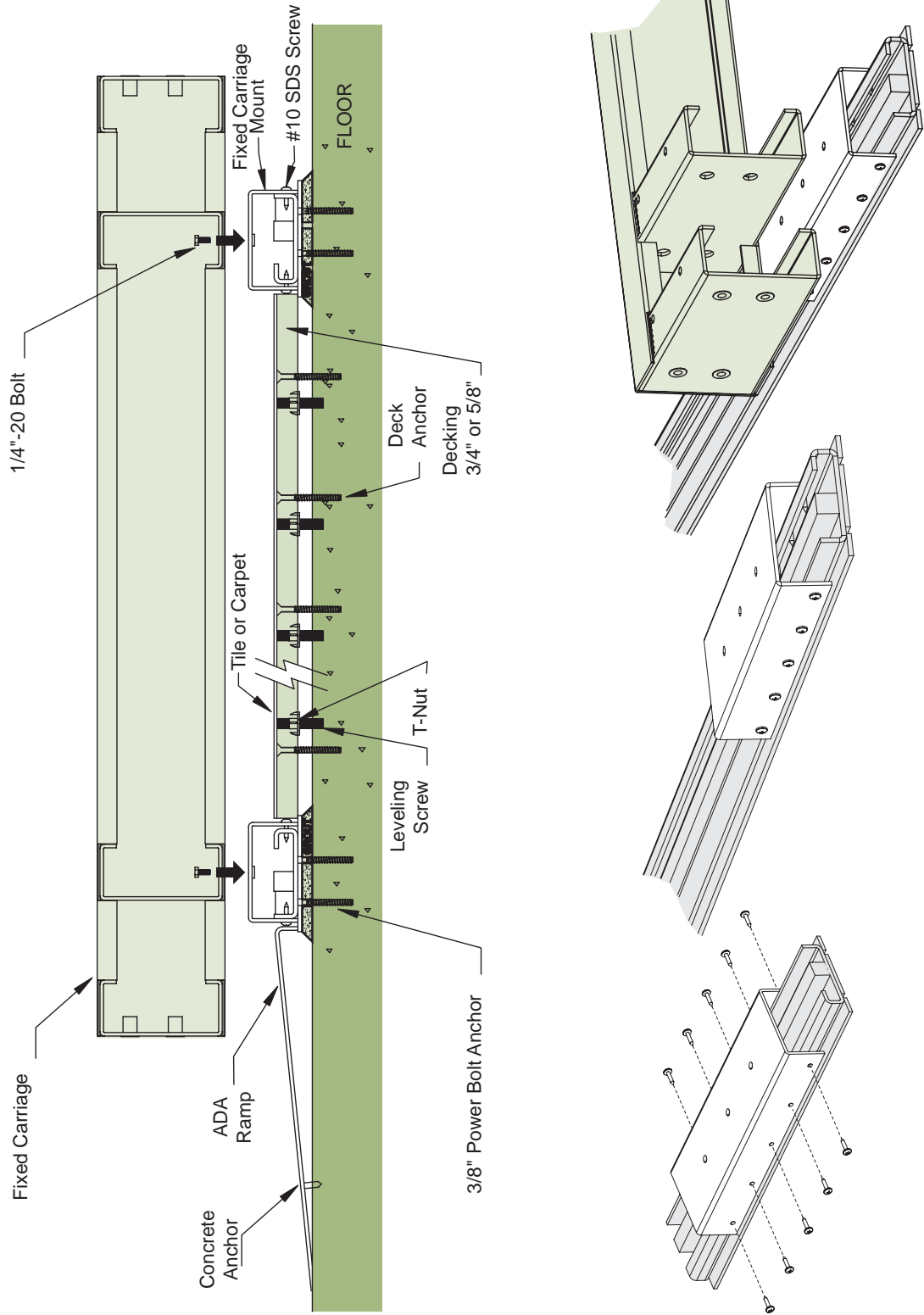
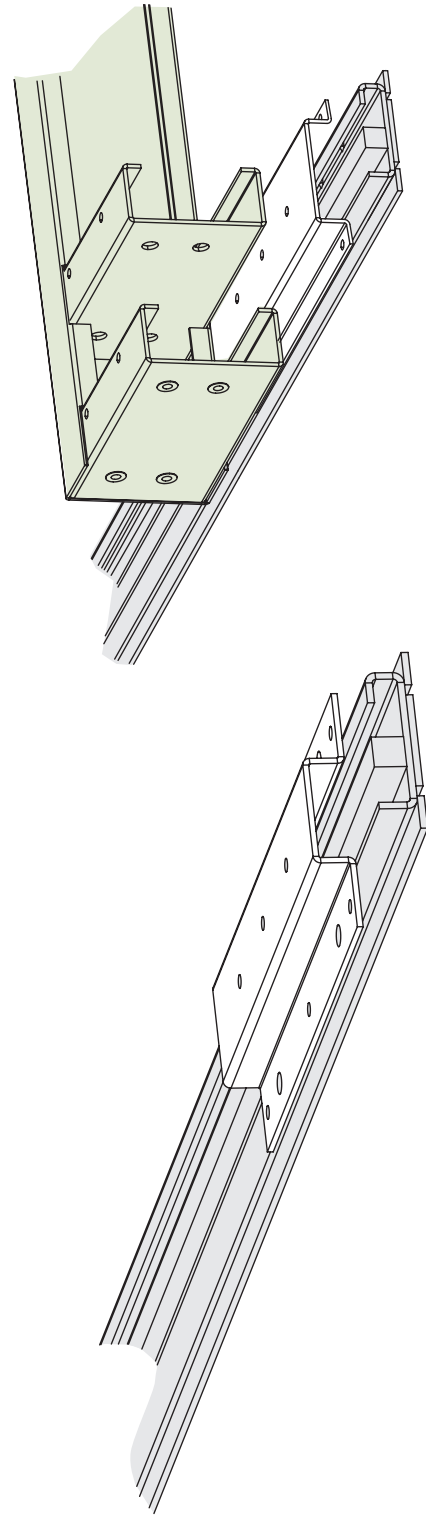
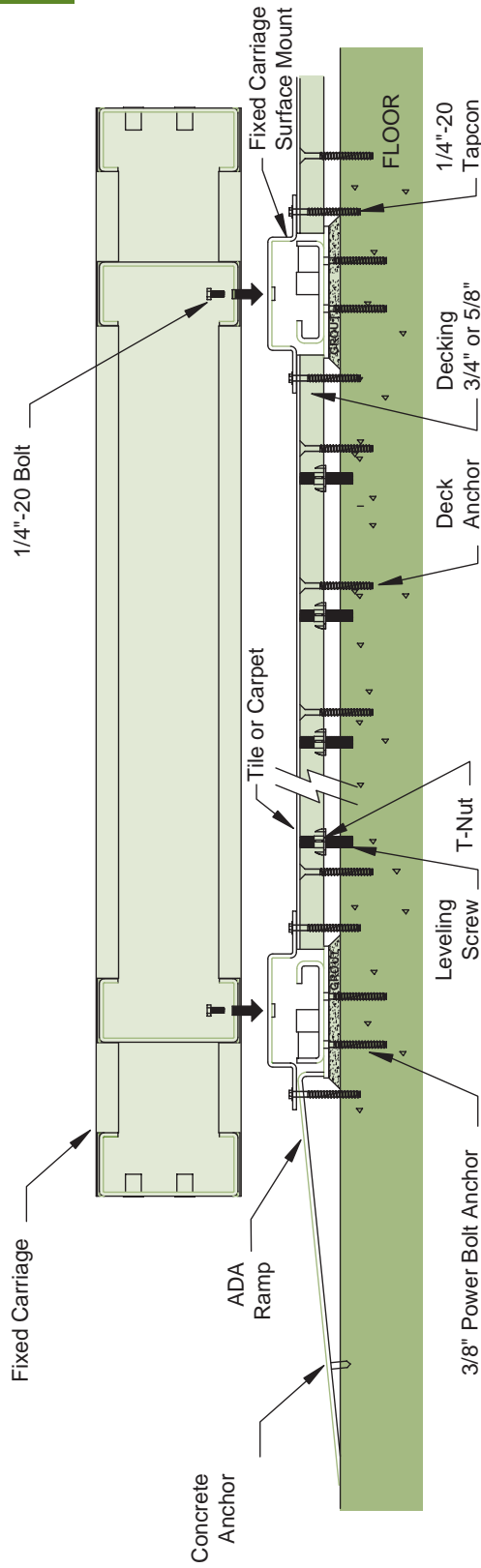


Figure 2.11.2

Fixed Carriage Surface Mount Installation Cross-Section.



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3.0 DECKING

3.1 SPECIFICATIONS

- 3.1.1 Low profile (1/4") carpet can be used on top of the 5/8" deck. Standard 1/8" vinyl tile or thin (1/8") rubber mat can be used on top of the 3/4" deck.
- 3.1.2 Aisle-Saver® Synergy Series™ track has a base plate, which acts as a built-in ledge to support the decking along two sides, although additional support will be required.
- 3.1.3 Decking comes precut as per information taken from the floor plan and detail sheets submitted to Borroughs.

Decking will typically run under the fixed carriages. This is necessary when installing an electrical system with light carpet safeties.

Factory supplied decking will not be notched for fixed carriage mounts or to meet site conditions. (e.g. columns, additional track under fixed carriages).

- 3.1.4 The precut deck will have a special leveling device, called a T-nut. The T-nut has a 5/16"-18 internal thread which is inserted into a 3/8" diameter hole on the bottom side of the decking type ordered. Holes are spaced on 12-16" centers and recessed 2" in from all sides.
- 3.1.5 Leveling screws supplied come in three sizes: 5/16"-18 x 3/4", 1", and 1-1/4". Quantities are based on a formula of multiplying the total square footage divided by two.

Borroughs cannot predict exactly what site conditions will require; therefore, additional quantities of different sizes may be needed (provided by others).

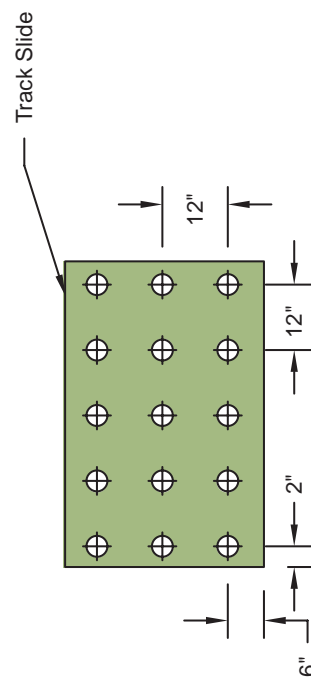
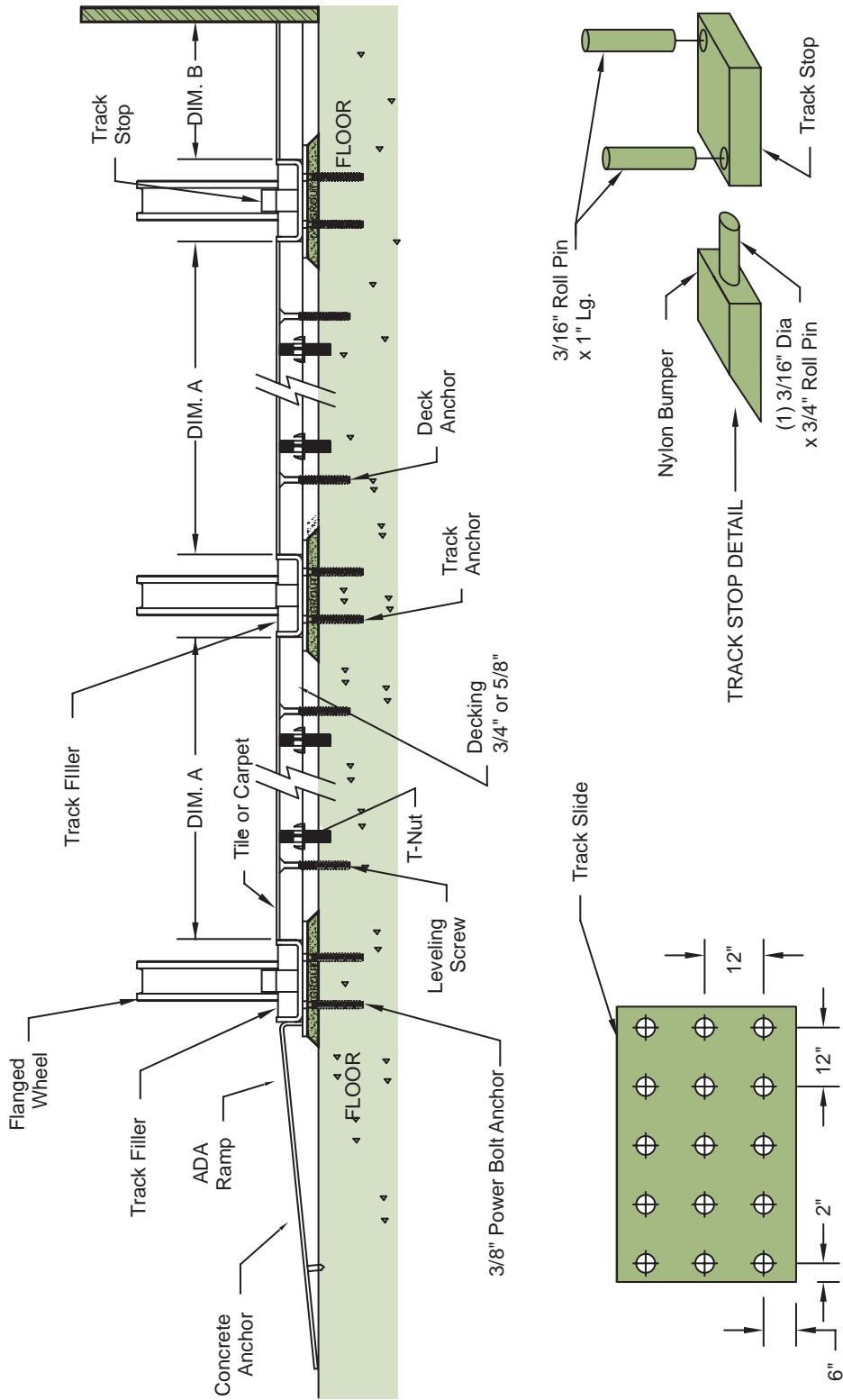
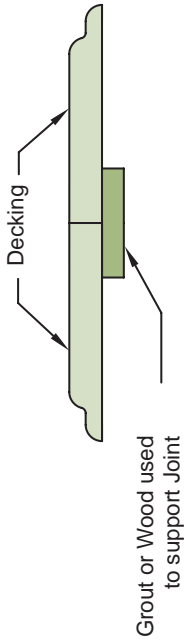
3.2 DECKING INSTALLATION

- 3.2.1 Drop the precut sections into place between tracks and between rear track and wall. The exposed surface of the T-nut should be against the floor. Joints may need to be supported by means of either wood shims or grout. Smooth joints are very important to having a stable deck.

Refer to figures 3.2.1a and 3.2.1b.

Figure 3.2.1a

Dimension A=2-3/8" less than the center to center dimension of tracks
 Dimension B=1-3/16" less than the center line dimension of track to the wall



DECKING LAYOUT FOR LEVELING SCREWS

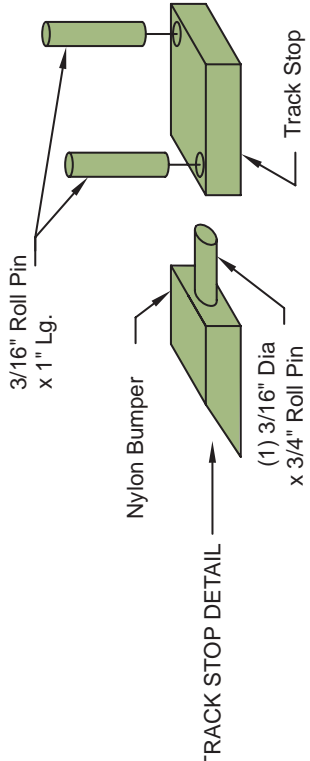
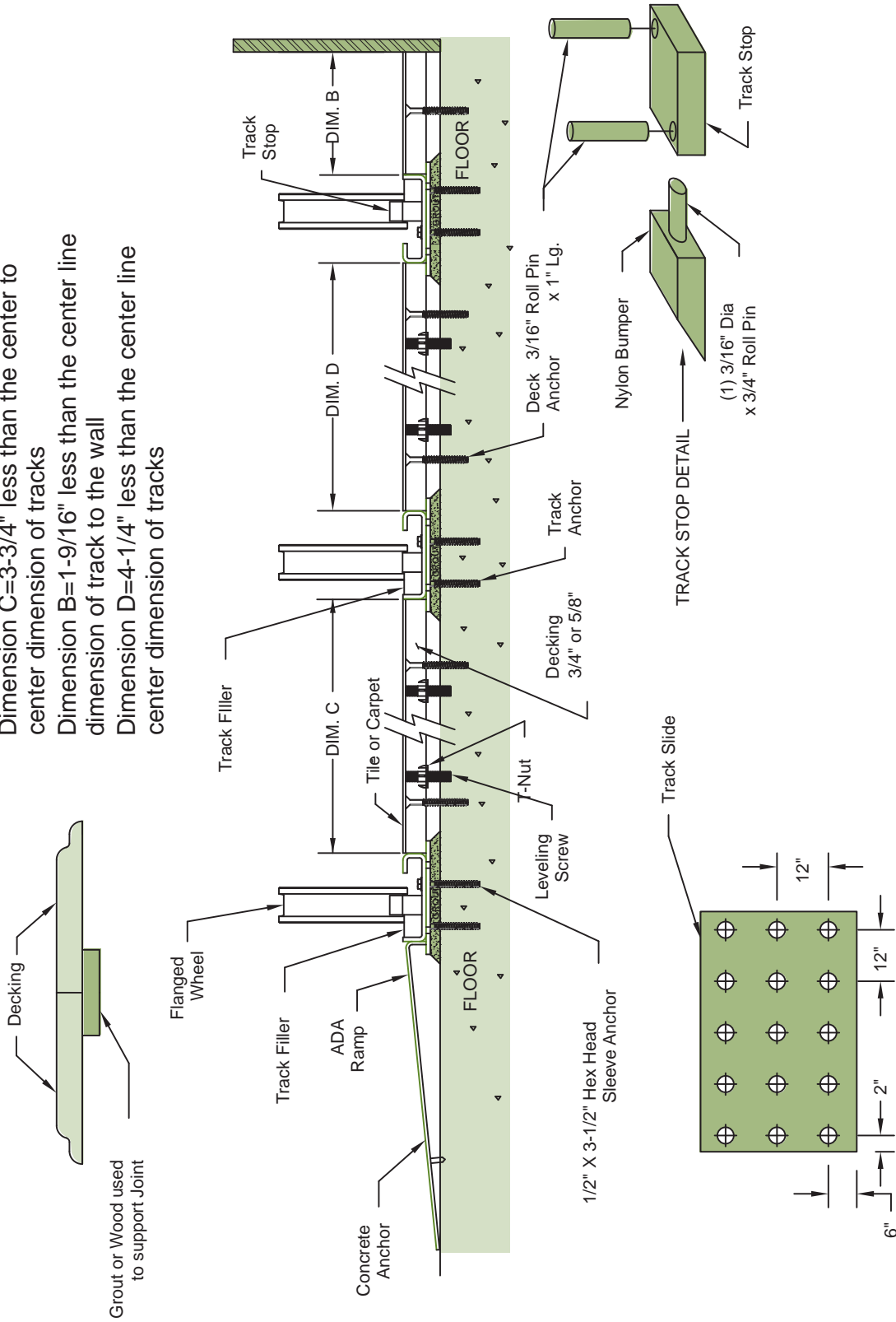


Figure 3.2.1b

Dimension C=3-3/4" less than the center to center dimension of tracks
 Dimension B=1-9/16" less than the center line dimension of track to the wall
 Dimension D=4-1/4" less than the center line center dimension of tracks



- 3.2.2** Secure each section at each corner and along each track ledge. Anchors should not protrude above surface of deck. If any warping is apparent, additional anchoring may be necessary.

Recommended anchoring: Use 1/4" x 3" flat head concrete sleeve anchors or the 1/4" self-tapping Phillips, similar to that used for track anchoring at 12" – 16" centers.

⚠ Note: *Length of anchor depends on prevailing site conditions and is provided by others.*

- 3.2.3** Determine the proper size leveling screw and insert using a 5/32" allen wrench. Run the screws down until the decking is level, making sure that the screw heads do not protrude above the deck.
- 3.2.4** Finish securing deck along butt joints, track edges, and center portion of each section. Finished floor should not have any protrusions, nor should it sag, show warping, or exhibit any type of spring action (bounce), especially along butt joints.

⚠ Caution: *Deck surface MUST be level.*

- 3.2.5** After all floor sections are in place, the area should be swept clean and all debris removed from the tracks.

4.0 FIXED CARRIAGES

4.1 DEFINITION

Fixed carriages are non-movable (i.e. fixed or stationary) carriages designed to be attached to the track at specific locations and to support fixed storage equipment. Fixed carriages are primarily used to end or divide an Aisle-Saver® Synergy Series™ system or systems.

4.2 ASSEMBLY INSTRUCTIONS

4.2.1 These carriages are a welded design; i.e. fixed carriage sections may have to be assembled.

4.2.2 Use 3 1/4"-20 bolts per carriage to secure to fixed carriage mounts.

The longest standard section will be ten feet. Sections will be standard nominal lengths as follows:

- 3' to 10' sections for stand-alone carriages (single section carriages).
- Carriages longer than 10' will be spliced.
- For spliced carriages, reference carriage section line chart for lengths.

⚠ Note: *If back-to-back shelving is being used, please refer to Section 7.0 Shelving.*

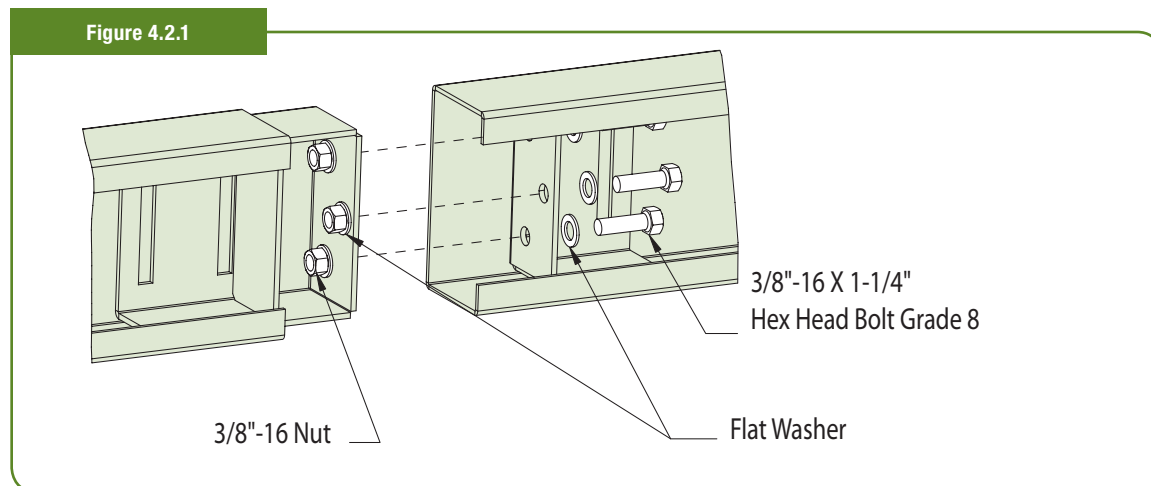
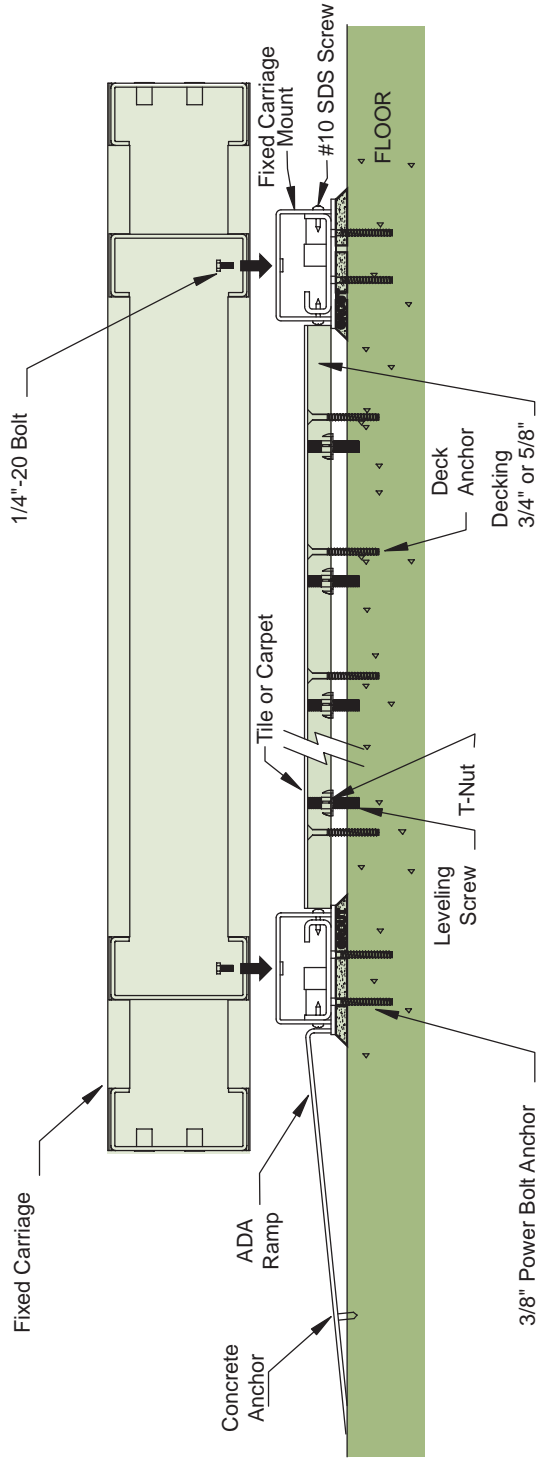


Figure 4.2.2



5.0 MOVABLE CARRIAGES

5.1 DEFINITION

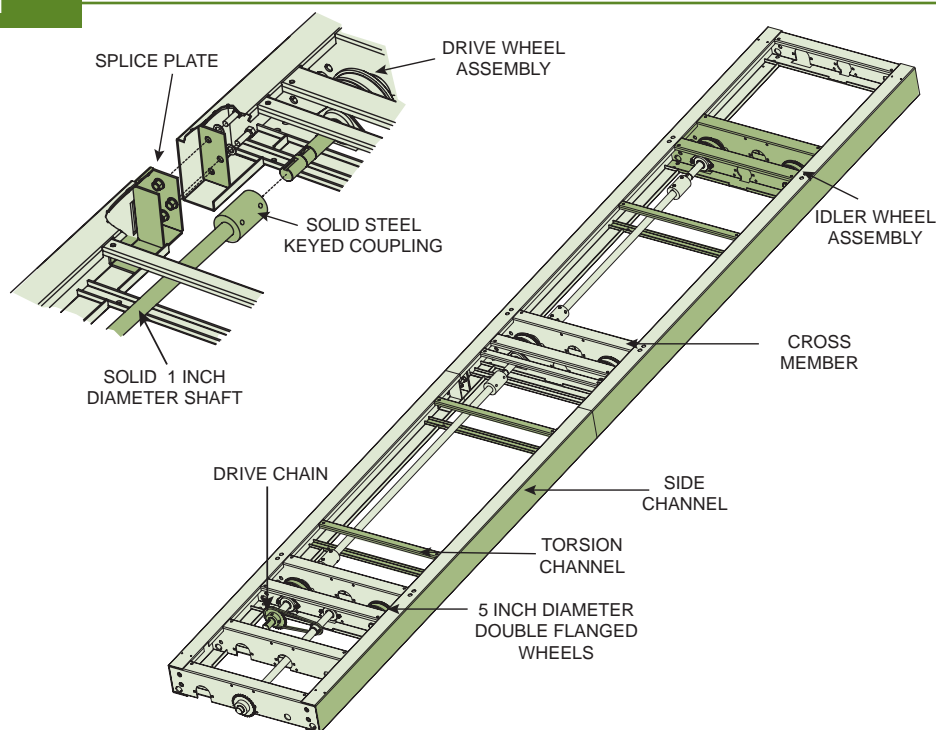
Aisle-Saver® Synergy Series™ Movable Carriages can be provided in three models:

- A) Manual: Manually pushed or pulled to create an aisle.
- B) Mechanical: Mechanically assisted via hand crank with optional gear ratios to facilitate ease of use.
- C) Electrical: A push of a button activates electronic controls to move the carriage. Information on electrical carriages will be provided as a supplement to this manual.

5.2 SPECIFICATIONS

5.2.1 Movable carriages are a welded design; i.e. movable carriage sections may have to be spliced.

Figure 5.2.1



5.2.2 All wheels on the drive side (LEFT side) will be connected with a solid steel shaft, 1" diameter with a keyway at both ends. Splicing of shafts will be accomplished with a 2" diameter by 3" long coupling. The coupling is broached for 1/4" key stock with (4) 3/8"-16 tapped holes for set screws.

5.2.3 The longest standard section will be 10'. Sections will be standard nominal lengths as follows:

- 3' to 10' for stand-alone carriages.
- Carriages longer than 10' will be spliced.
- Spliced carriages will typically have a 4', 5', 6', 7', 8', or 9' starter (front-end) section, 6' intermediate sections, and 5'6" through 9' (in 6" increments) end sections. Reference chart in Section 2 – Track.

5.2.4 For carriage sections layout, please refer to Track Centerline chart in Section 2.

5.2.5 Dual control carriages still have a "true" front. The carriages are oriented so the drive wheels and inter-connecting solid steel shafts are on the left side when facing front.

5.3 CARRIAGE ASSEMBLY

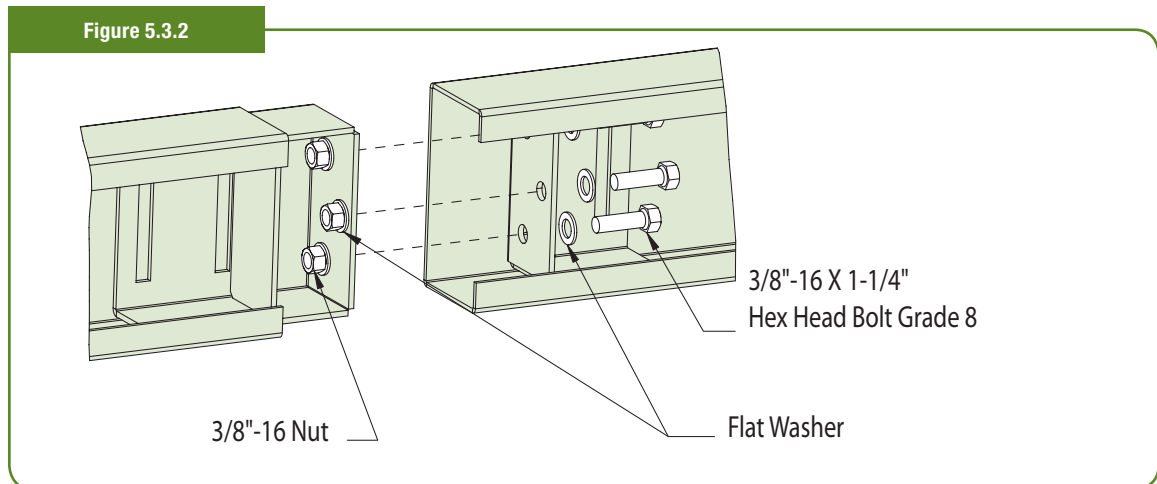
5.3.1 Section Layout

Locate all the drive wheels on left and lay out the carriage sections end to end in proper order for the particular carriage length required. Locate the sections so that the wheels will align with the tracks.

⚠ CAUTION *should be taken so that the painted finish is not damaged.*

5.3.2 Section Connection

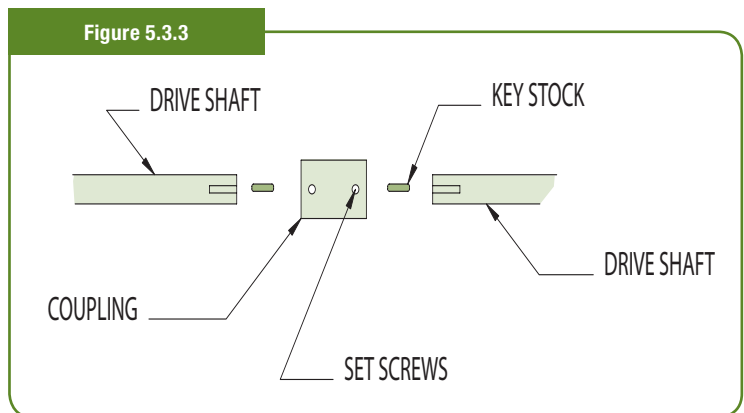
Note: Bolt carriage sections together first, as shown, then connect drive shafts if needed. (Fixed and stand alone carriages do not require assembly of drive shafts.)



⚠ Note: *Make sure sections are butted together so that there are no gaps between sections.*

5.3.3 To Connect the Drive Shafts

Insert the 1/4" x 1/4" x 1-1/4" key stock into the end of the solid shaft from the intermediate or end section and connect to coupler on the starter section.



5.3.4 Tighten all the splice hardware and the set screws on the coupler. Remember there are 2 sets of 3/8"-16 x 1/2" set screws on either side of the coupler, one over the keyway and one 60° away from the key. Make sure set screws are tight on both sides of the coupler.

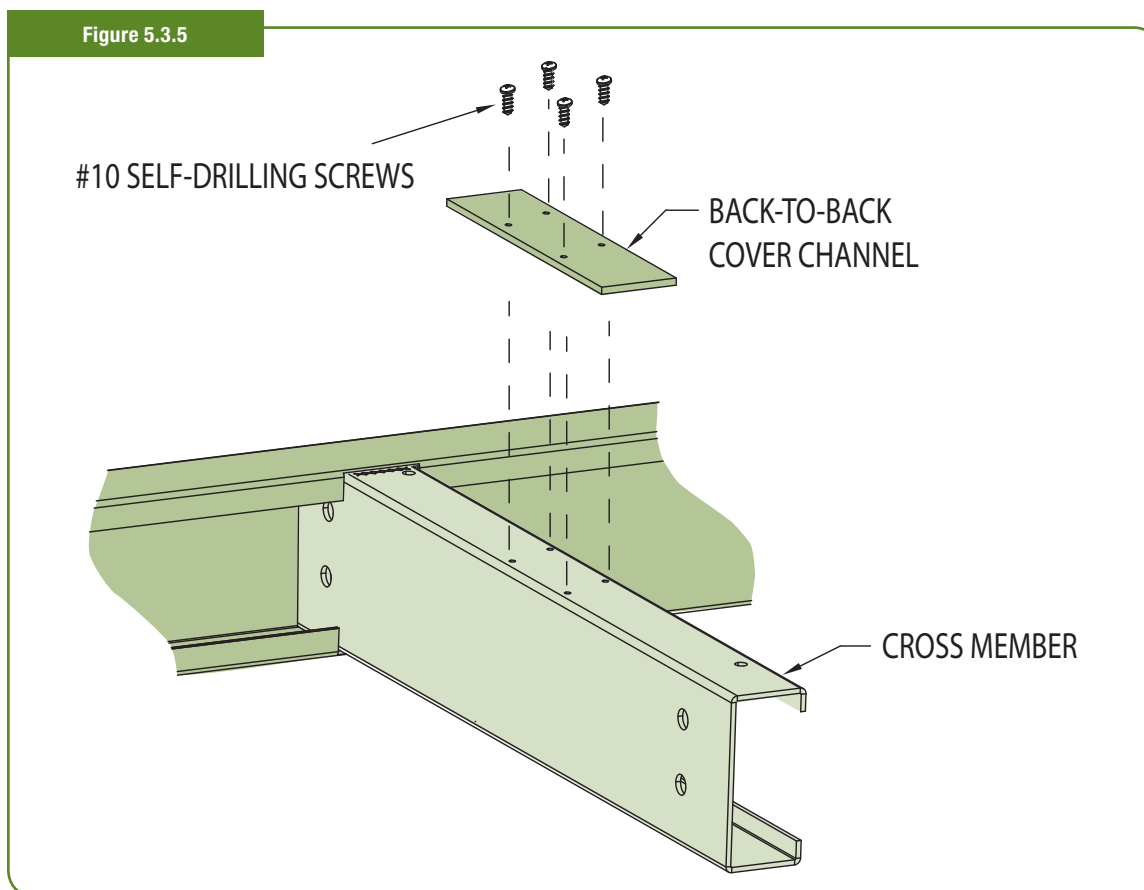
5.3.5 Back-to-Back Connection

Cover plates are used in back-to-back and cantilever shelving applications. Using cover plates allows the cross members to be flush with the carriage channels, keeping the shelving level.

For cross member closest to frame, center the back-to-back cover plate (400121-02) on the cross member cap. Fasten the cover plate to the cross member cap with (4) 10 – 16 x 1/2" Phillips pan head self-drilling screws (150270-00).

For most intermediate cross members, center the back-to-back cover (400121-02) on the cross member. Fasten the cover to the cross member with (4) 10 – 16 x 1/2" Phillips pan head self-drilling screws (150270-00).

Occasionally, a wider cover plate will be required when a shelving post needs to be placed directly above a wheel or splice. These parts will be provided with the carriage and will attach the same way.



5.4 SEISMIC/ANTI-TILT

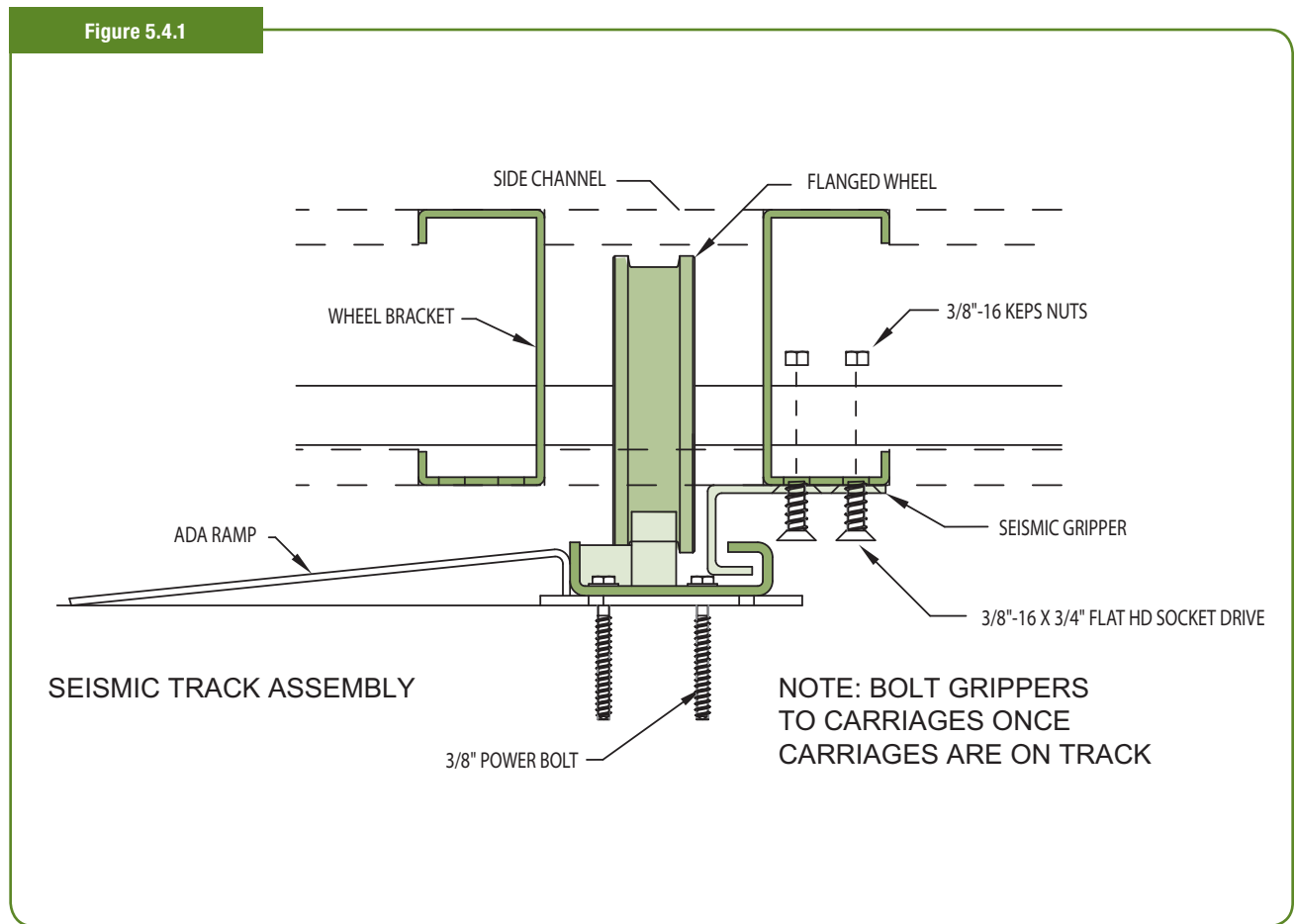
5.4.1 Definition

On systems requiring seismic/anti-tilt track, shaped grippers must be installed. There will be two grippers, mounted parallel to the wheel; one on the left side and one on the right side of the carriage. The grippers will be located on the carriage wherever the seismic/anti-tilt track is installed. On all single section carriages, unless otherwise specified, the open face of the gripper will face the rear of the carriage when mounted on the first track in the system, and face the front on the last track (rear) in the system. For carriages with multiple sections, all grippers will face the rear except for the last track, which will face the front.

5.4.2 Gripper Attachment

Gripper attachment occurs after the carriage has been assembled and is resting on the tracks.

TIP: Attach all grippers to the carriage(s), and then roll carriage(s) down the track to make sure there isn't any binding of the grippers.



5.5 BUMPERS

5.5.1 Definition

Bumpers are used to absorb shock from carriage closure and can also be used to add additional space between carriages.

Bumpers are supplied in one of two basic sizes – Standard and Extended.

5.5.2 Standard

The standard bumper measures 5/8" long x 1-1/2" diameter and is attached using #10 Phillips round head self-drilling machine screws provided.

⚠ Note: *Standard bumpers are supplied unless otherwise specified. One pair of bumpers is supplied with each carriage. Some systems may require the use of bumpers on both sides of the carriage. Additional bumpers can be ordered.*

5.5.3 Extended

The extended bumper can be supplied in 1", 2", or 3" long x 1-1/2" diameter and is attached using 1/4"-20 nut. They can be used where extra aisle space is necessary and specified.

⚠ Note: *Extended bumpers will be provided per customer order.*

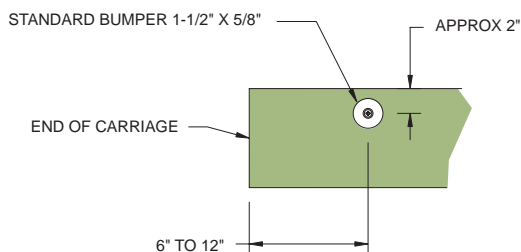
5.5.4 Installation

Locate bumpers 6" to 12" from the ends of the carriage, near the top surface, on the outside face of the carriage.

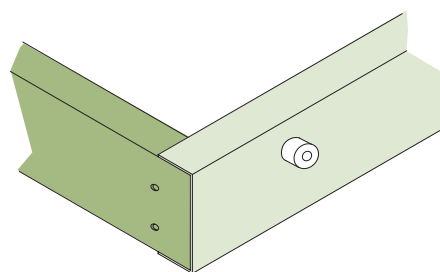
Location of bumpers must be consistent from carriage to carriage, especially if bumpers are specified to be mounted on both sides of all carriages, where they will contact each other when carriages are closed.

TIP: *It is recommended to use a center punch to locate the bumpers. Self-drilling screws have a tendency to walk and will mar the painted surface.*

Figure 5.5



Note: Bumper screw is a #10 x 3/4" self-drilling screw. A center punch is recommended to prevent the screw from wandering.



Note: A quantity of 2 standard bumpers are supplied unless otherwise specified.

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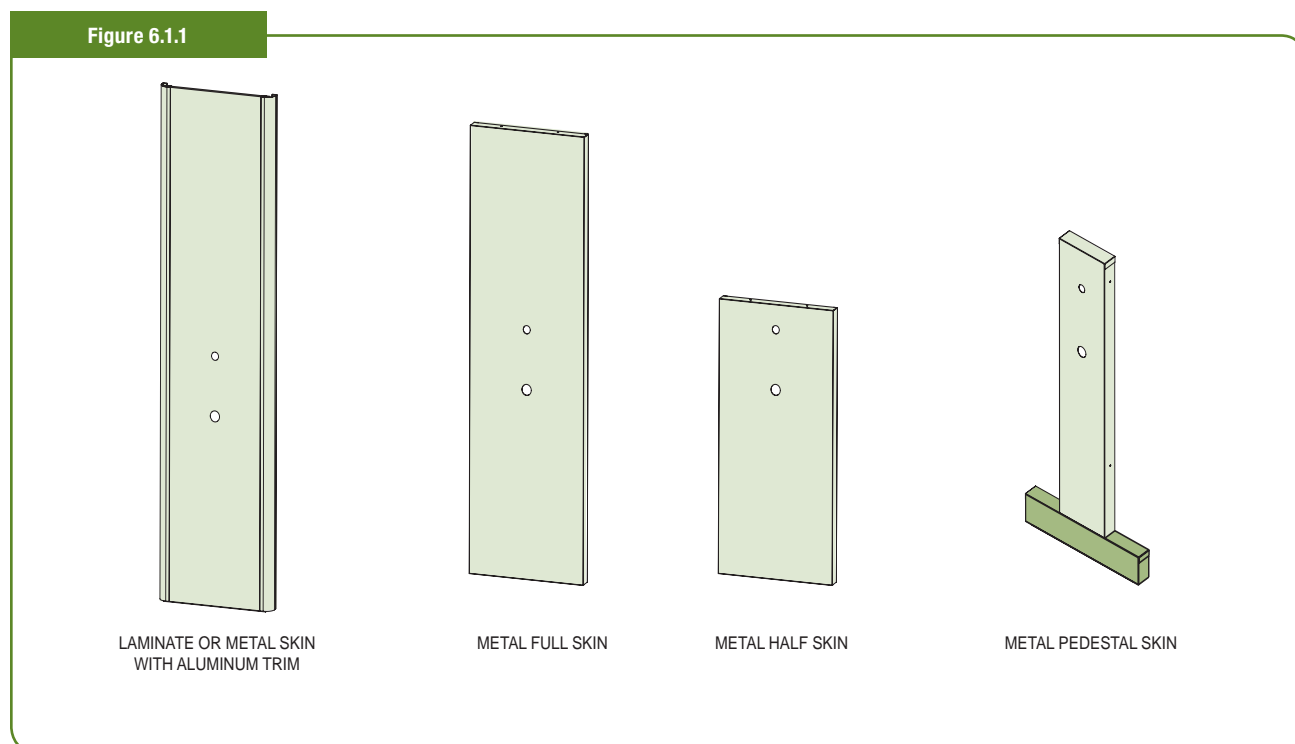
6.0 DRIVE SYSTEMS & FRAMES

6.1 GENERAL

6.1.1 There are four drive end designs for the front of the mechanical carriages:

1. Euro (laminated or steel skin)
2. Half-Height Square Panel (steel skin)
3. Full-Height Square Panel (laminated or steel skin)
4. Pedestal Drive Box (steel skin)

Figure 6.1.1



6.1.2 Carriages wider than 48" may require the use of multiple panels bolted together to make up the special widths. Laminated panels will be a special order. Installation of the drive assemblies will not change.

6.1.3 All designs come with a standard drive ratio of 1:6,000 (e.g. 1 lb. of effort moves 6,000 lbs.). Additional standard ratios include 1:3,000, 1:9,000, and 1:10,000, and are optional.

6.1.4 Dual Control

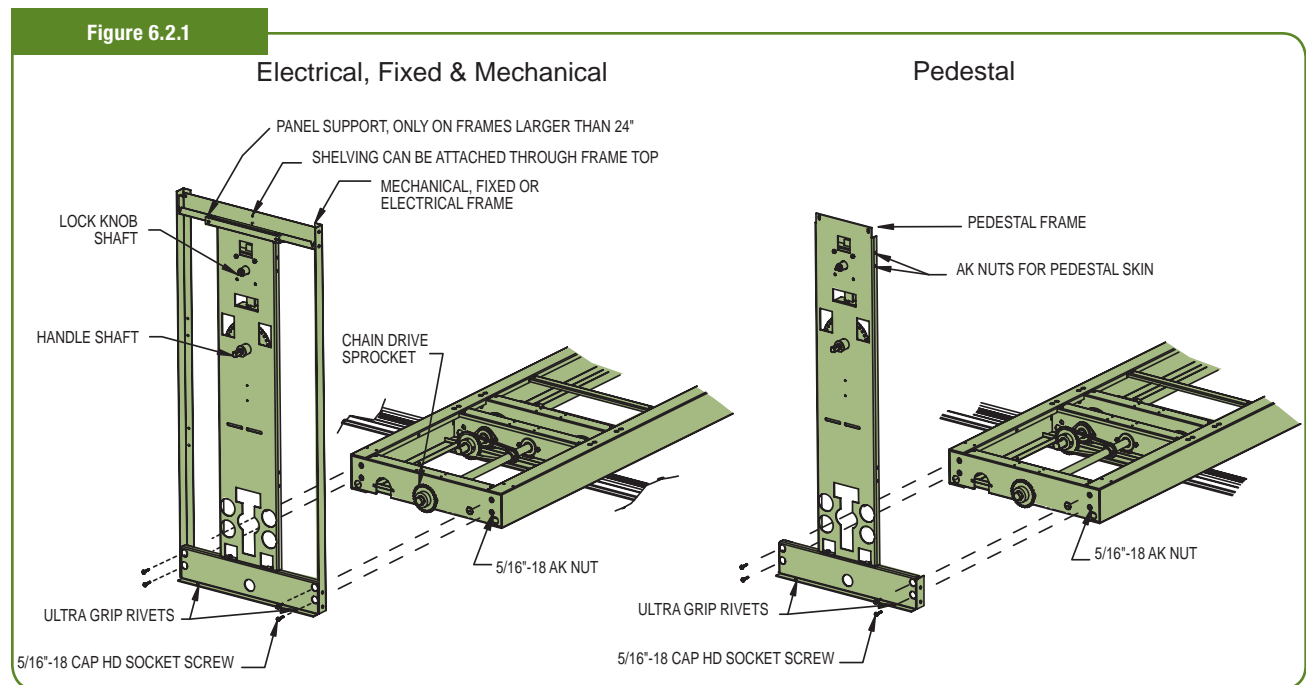
All frame options have the capability to have a dual set of controls added to the rear of the carriage for dual entry systems. Dual controls are optional and must be specified when the order is placed at the factory.

Dual controls can be retrofitted at a later time. Specific information about the system, e.g. original sales order, centerline of the last wheel to the end of the carriage, etc. will be required for add-ons.

⚠ Caution: *Due to carriage growth to accommodate various storage equipment, there may be a small gap between the drive assembly and the storage equipment. It is the installer's responsibility to aesthetically fill all gaps and secure the storage equipment to both the drive assembly and the carriage. Hardware and filler to be supplied by the installer.*

6.2 FRAME INSTALLATION

All style frames attach to carriages using (4) socket head cap screws. Install (1) screw half way in the upper left nut on the carriage and slide frame on. Rotate frame up and install upper right screw. Add bottom screws. Center frame on carriage and tighten.



⚠ Note: *Frames can be put on the carriage before or after the shelving. Fixed, electrical and mechanical frames have uprights and a frame top. A self-drilling screw can be used to attach the frame top to shelving. The pedestal frame does not have the uprights or the frame top. For attaching a pedestal to the shelving use a self-drilling screw through the shelving into the pedestal skin.*

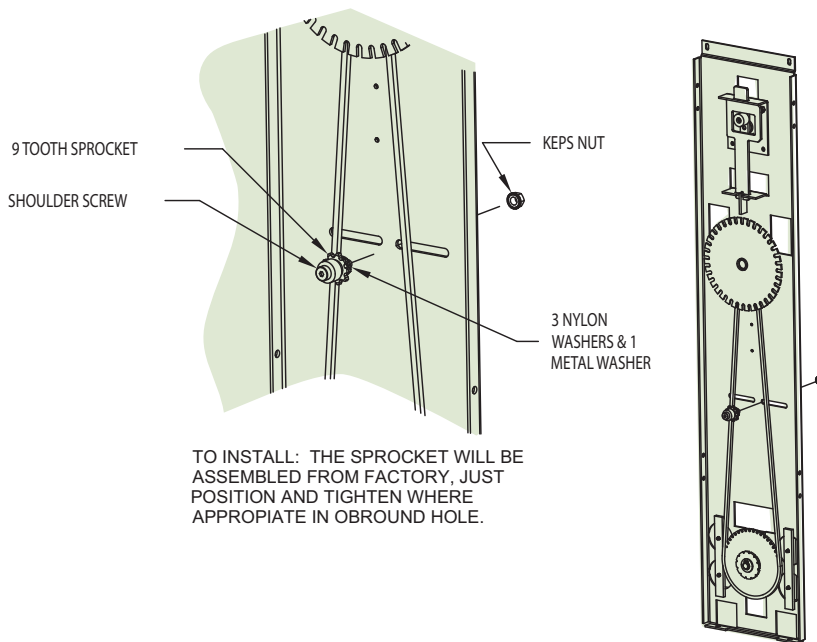
Mechanical frames need the drive chain assembled from the drive sprocket and the carriage to the drive sprocket at the handle shaft.

6.2.2 Crank Chain

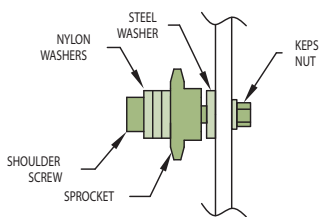
Figure 6.2.2

Sprocket Tensioner

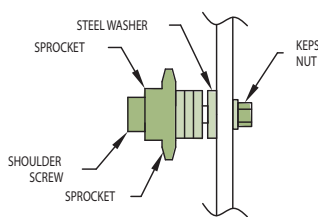
SPROCKET TENSIONER IS USED ON ALL DRIVES



TO INSTALL: THE SPROCKET WILL BE ASSEMBLED FROM FACTORY, JUST POSITION AND TIGHTEN WHERE APPROPRIATE IN OBOURD HOLE.

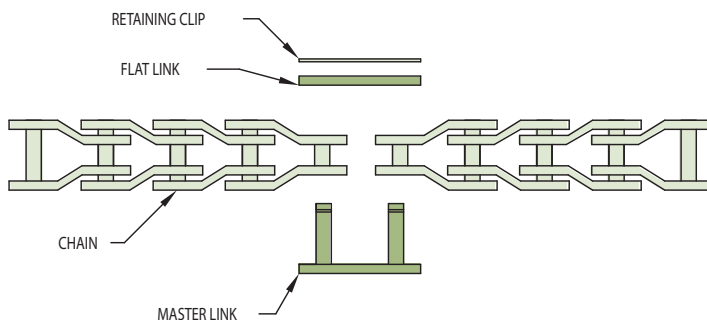


1:6 RATIO CONFIGURATION



1:9 & 1:10 RATIO CONFIGURATION

Chain Assembly



6.3 END PANEL ATTACHMENT

6.3.1 The trim strips attach to the skin/laminate. A rubber mallet can be used to tap trim strips into place.

⚠ Note: Remove panel support from frame when using laminate panels.

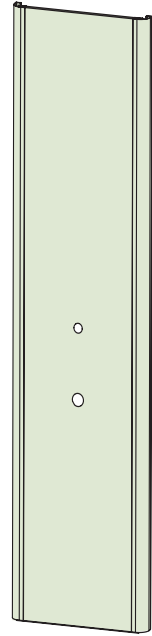
⚠ Caution: Once trim strips are in place, they cannot be removed easily.

Refer to figure 6.1.1.

6.3.2 Half-Height and Full-Height End Panels

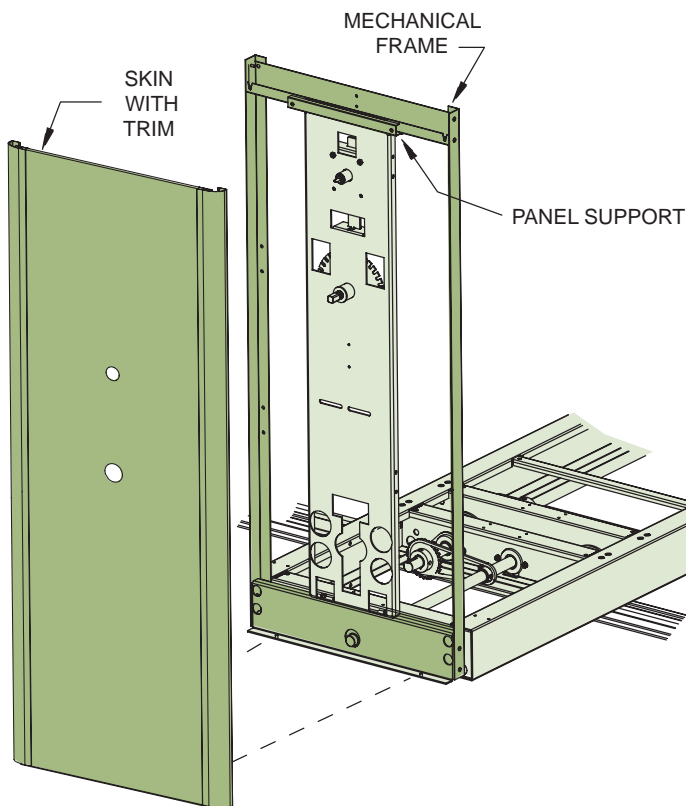
(See figure 6.3.2, below.)

Figure 6.3.1



LAMINATE OR METAL SKIN WITH ALUMINUM TRIM

Figure 6.3.2



Note: All skins or laminates can be put on the frames the same way after the shelving is installed. First, set skin or laminate on the bottom flange of frame and be sure to line up the rivets in frame with the holes in skin (laminate). Second, push skin (laminate) all the way on frame making sure the trim clears the rivet heads on the frame uprights.

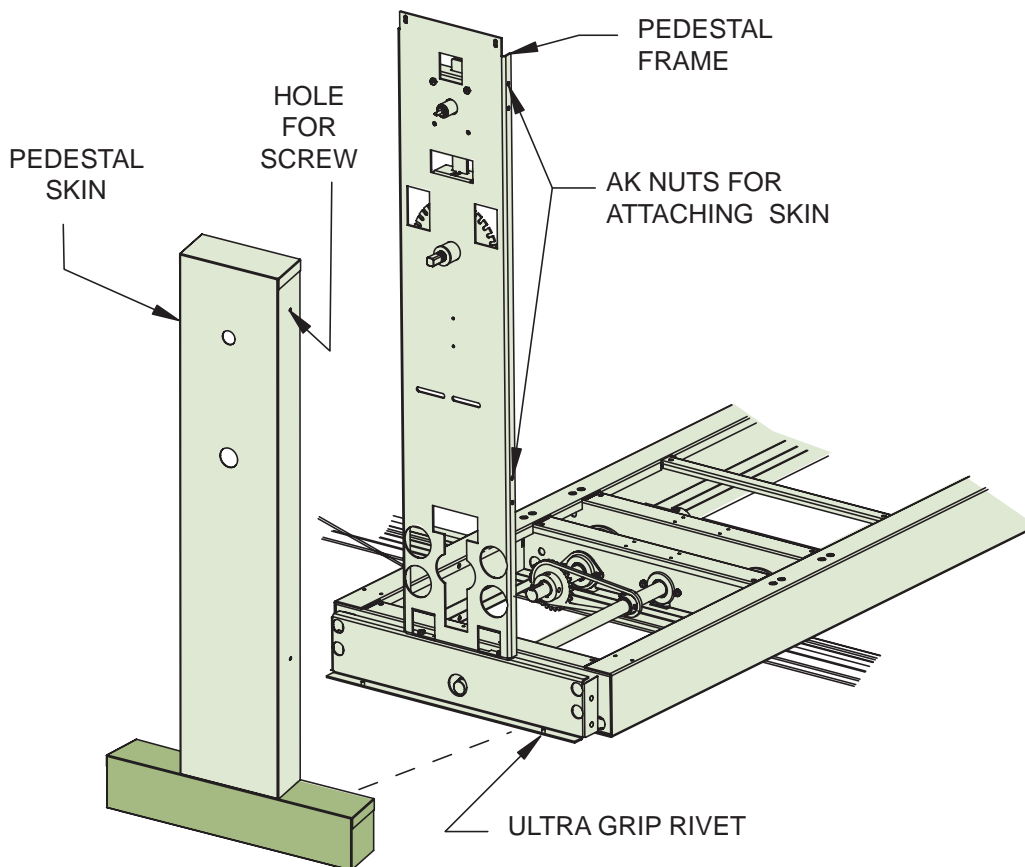
Note: To attach the shelving to the frame or skin use self-drilling screws. Drill through the shelving upright and into aluminum trim or frame top. Library shelving has a bracket that attaches to the top of the first frame for trim attachment.

6.3.3 Pedestal

(See figure 6.3.3, below.)

⚠ Note: *If inner skins are used, please see section 6.4.2, as inner skin must be attached prior to pedestal cover.*

Figure 6.3.3



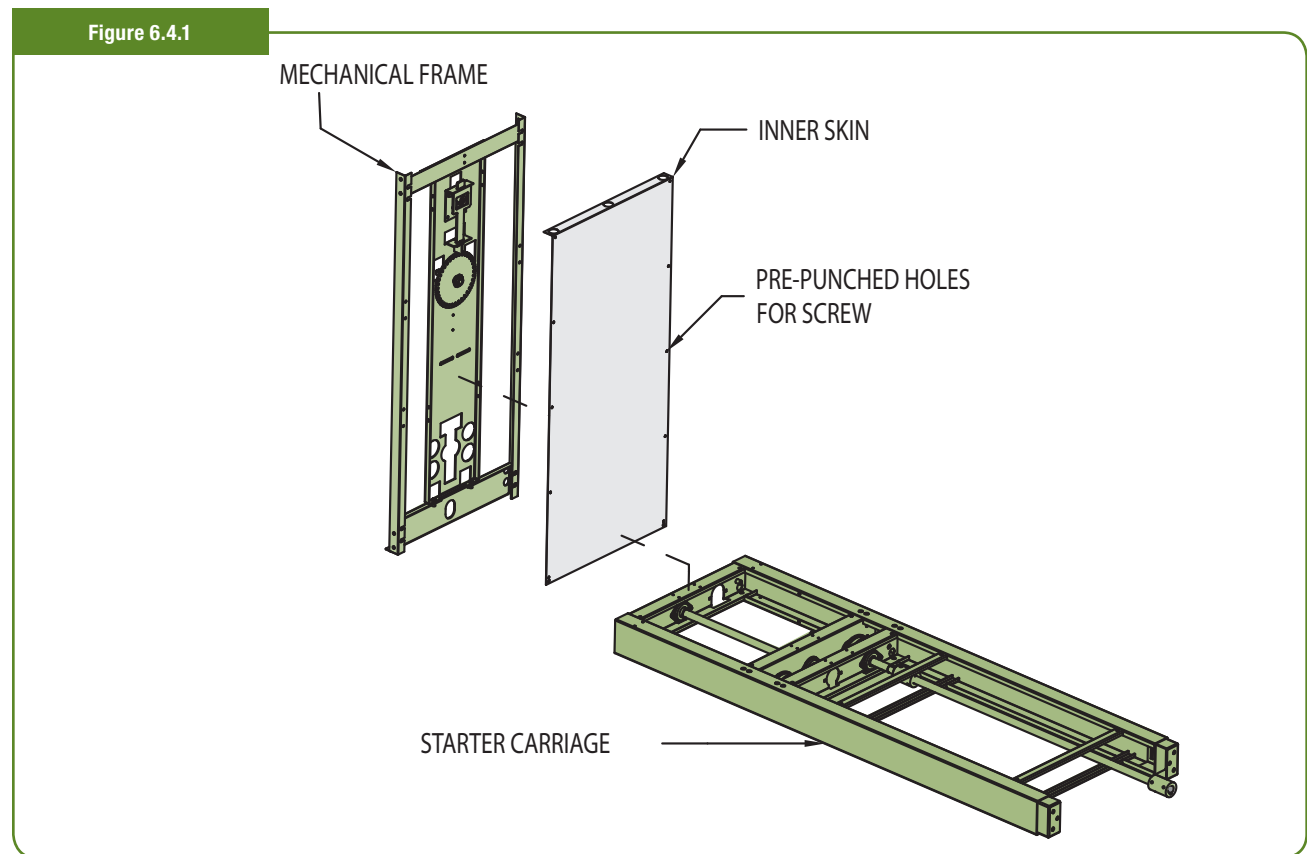
Note: Pedestal skins attach to the pedestal frame by (4) screws through the upright cover into the AK nuts in the pedestal frame.

6.4 INNER SKIN PANELS (OPTIONAL)

Inner skin panels are used to enclose the crank drive mechanism when open shelving uprights are present.

6.4.1 Euro Style Full-Height and Half-Height Inner Skins

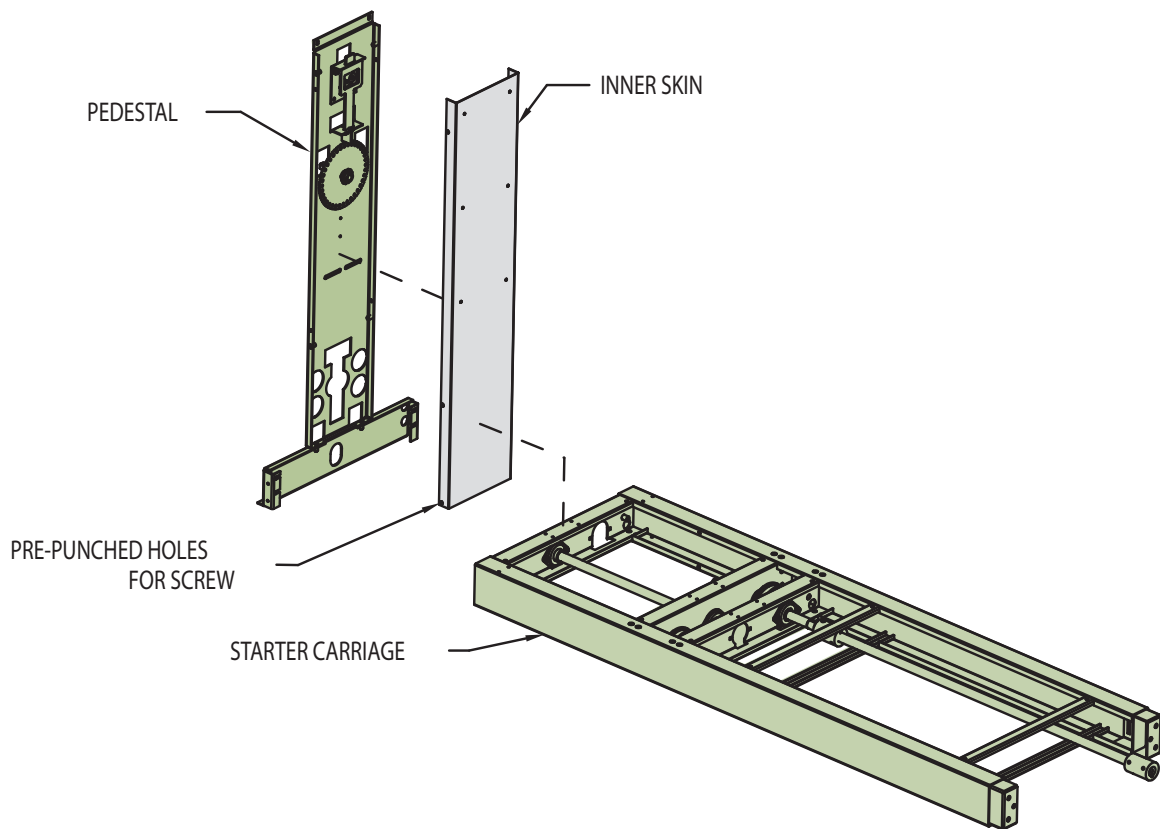
After the frame is mounted to the carriage and before the shelving is installed is when the inner skins should be mounted. Set the inner skin on the frame as the figure shows and use self-drilling screws to attach the inner skin to the frame. There are pre-punched holes in the inner skin for the self-drilling screws to assure proper alignment.



6.4.2 Pedestal Inner Skins

After the pedestal is mounted to the carriage and before the shelving is installed is when the inner skins should be mounted. Set the inner skin on the frame as the figure shows and use self-drilling screws to attach the inner skin to the pedestal. There are pre-punched holes in the inner skin for the self-drilling screws to assure proper alignment.

Figure 6.4.2



6.5 HANDLES AND LOCKS

6.5.1 Lock Knob

Press indicator lock knob(s) onto shaft.

Figure 6.5.1

Line up the flat on the shaft with the flat on the knob and push. To remove, pull knob off.

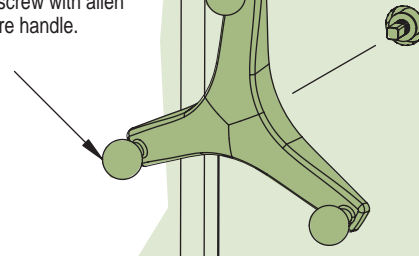


6.5.2 Handle Assembly

Mount the three-spoke crank handle and tighten the set screw onto the crankshaft.

Figure 6.5.2

Line up shaft with cavity in handle and slide on. Tighten set screw with allen wrench to secure handle.



6.5.3 Security Key Lock (optional)

The lock has to be attached to the front panel prior to its attachment to the frame. The L-shaped cam on the lock prevents the cam lock assembly from being disengaged.

Pass the lock through the hole in the panel and slip the backup plate over the barrel.

For laminate panels, there will be wood screws provided to hold the back-up plate in place to prevent the lock assembly from rotating.

Screw on the retaining nut for the lock and tighten.

Attach the L-shaped cam with the retaining screw and lock washer provided.

Attach the front panel per previous instructions, then test the lock for functionality.

TIP: *Crank all carriages and re-set the safety (indicator) lock(s) and test any optional security key locks. Repeat the above procedures for all other carriages and at the rear of the carriage if the dual control option has been ordered.*

6.6 MANUAL & FIXED FRAMES

6.6.1 General

The frames and end panel for these carriages will mount the same as the mechanical carriages. The main difference is that there isn't any crank drive assembly.

6.7 MANUAL PULL HANDLE

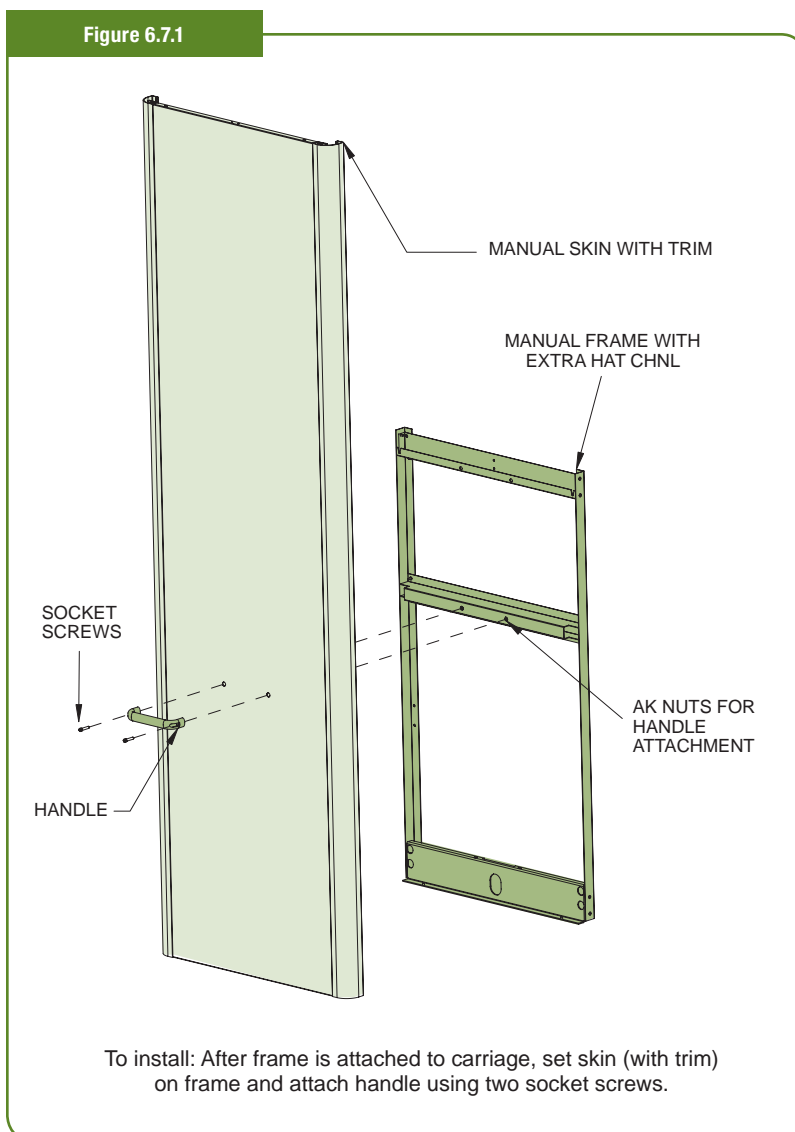
6.7.1 General

While we show the handle being mounted to a drive structure, the procedure would be the same if fastened to laminated wood end panels or directly to the closed end shelving upright.

6.7.2 Installation

See figure 6.7.1. Hardware supplied with handle.

Depending on the gauge of steel, it may be necessary for the installer to add a back-up plate when fastening directly to the shelving upright. Longer machine screws may be required if wooden end panels are used.



Aisle-Saver[®]

7.0 SHELVING

7.1 GENERAL

Aisle-Saver® Synergy Series™ carriages provide a platform to which almost any type of shelving/storage equipment may be attached. You must install in the exact sequence shown for each carriage on your floor plan (e.g. 4', 3', 4' and not 4', 4', 3'). This is especially important for back-to-back and cantilever type shelving where the center posts need to sit on supports. These supports are called cross members. Cross members are welded in place during carriage manufacturing.

It is the responsibility of the installer to make sure that each shelving (or storage equipment) section is secured to the carriage base and the frame/end panel, and also to each other, (especially in back-to-back shelving applications).

⚠ Note: *For back-to-back shelving and storage equipment or cantilever shelving, reference Section 5.3.5 for installation of back-to-back cover plates. These need to be in place before shelving attachment is completed.*

Fastening the shelving to the carriage base or cross members can be accomplished in a number of ways, depending on the type of shelving (or storage equipment) used.

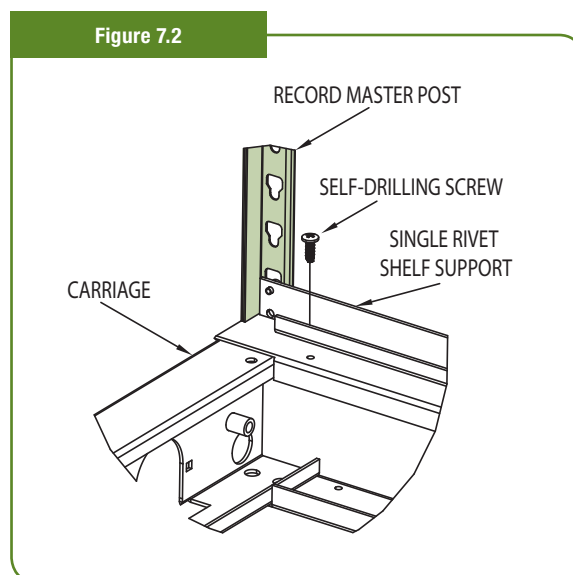
Due to the various types of storage equipment that can be attached to the carriages, hardware is not provided by Borroughs. Some municipalities may require special hardware; e.g. California may require specific hardware for seismic restrictions. Consult a structural engineer for special fastening requirements.

The most common storage equipment is listed below.

7.2 RECORD MASTER®/ FOUR POST SHELVING

Use self-tapping screw through the two existing holes in the single rivet shelf support. Unit needs to be secured at a minimum of four points. See Figure 7.2.

⚠ Note: *Consult a structural engineer for type of fastener to be used.*



7.3 BOX EDGE PLUS®/ INDUSTRIAL SHELVING

7.3.1 Method #1 (Recommended)

Drill a clearance hole in the base of the clip appropriate for the self-tapping screw being used.

Place the shelf clip in the lowest possible position. Drill self-tapping screw through the clip into the carriage.

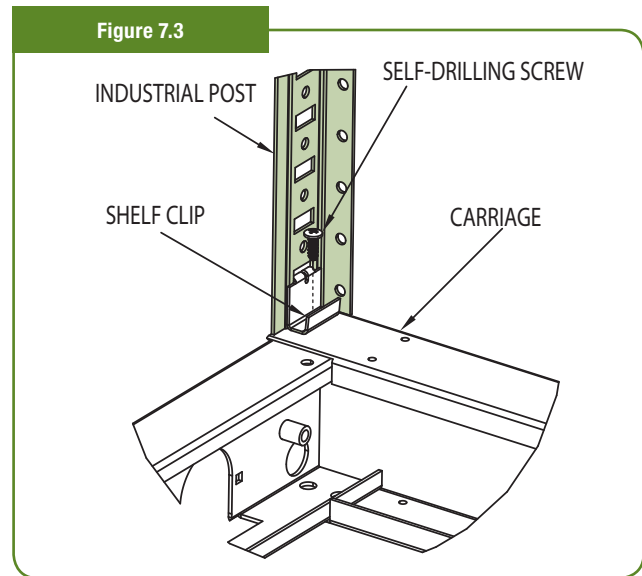
7.3.2 Method #2

Using a 1/4"-20 bolt, connect the post angle bracket with the bottom of the rivet span post.

Drill a self-drilling screw through one of the holes in the post angle bracket. A washer may be needed around the screw head.

7.3.3 Method #3

If a base strip is used, attach to carriage using self-tapping screws. Unit needs to be secured at a minimum of four points.

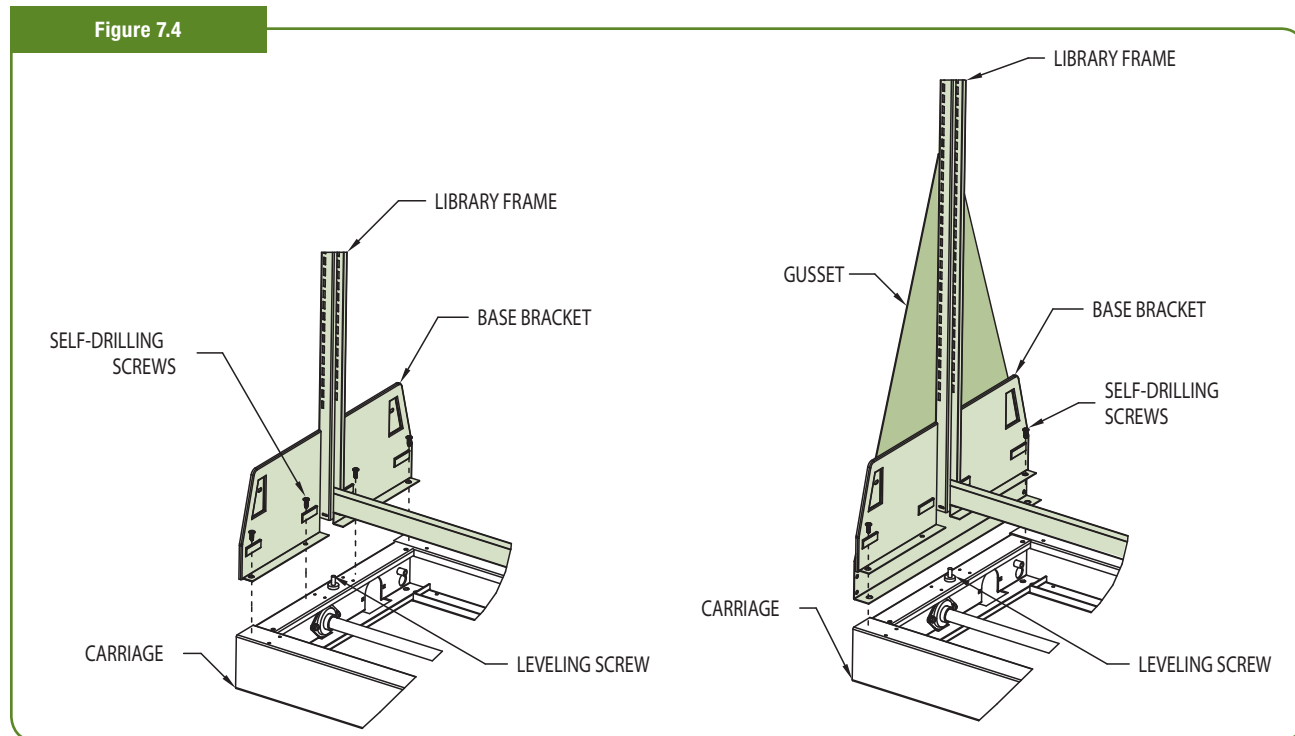


7.4 WILSONSTAK®/CANTILEVER SHELVING

Cantilever frame shelving requires a structural gusset for mounting to mobile carriages.

Gussets are bolted to the cantilever upright and then attached to the carriage base. Most gussets have clearance holes through which self-tapping screws can be used.

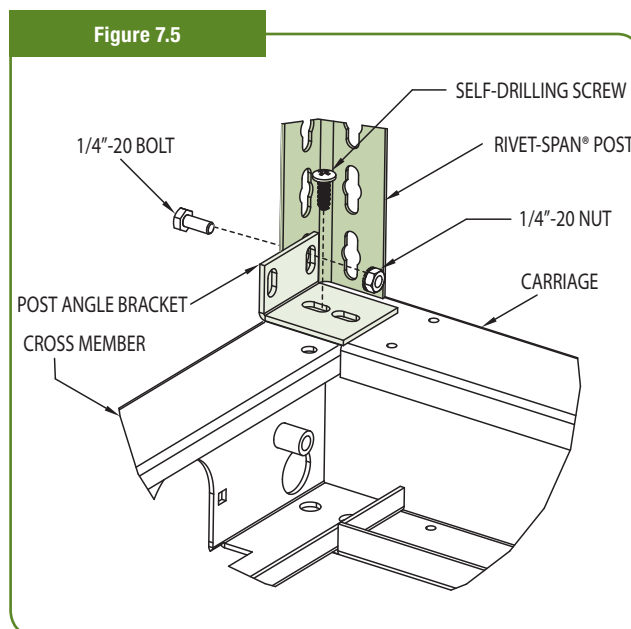
Figure 7.4



7.5 RIVET-SPAN® SHELVING

Using a 1/4"-20 bolt, connect the post angle bracket with the bottom of the Rivet-Span® post. Then drill a self-drilling screw through one of the holes in the post angle bracket. A washer may be needed around the screw head.

Figure 7.5



Aisle-Saver®

8.0 OVERHEAD ANTI-TILT

Figure 8.0a

STEP 1

On all Movable Carriages

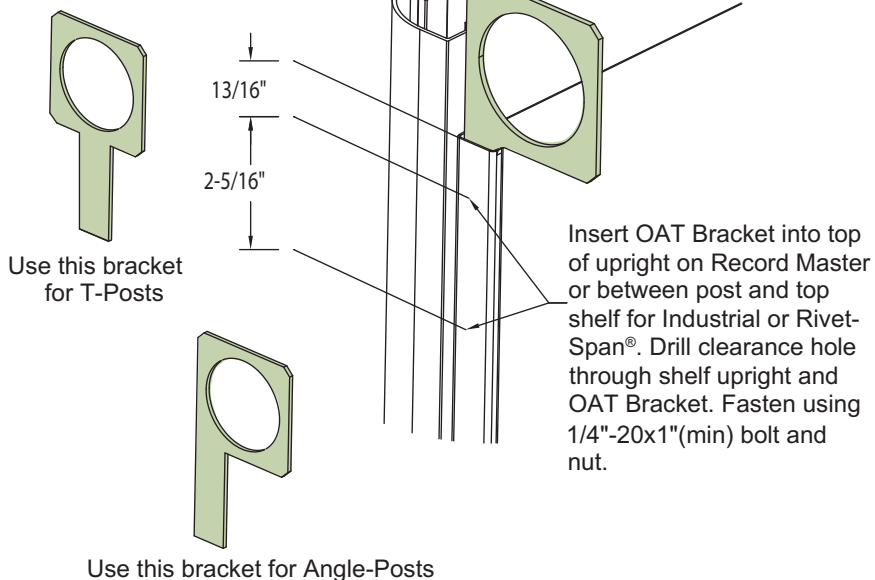
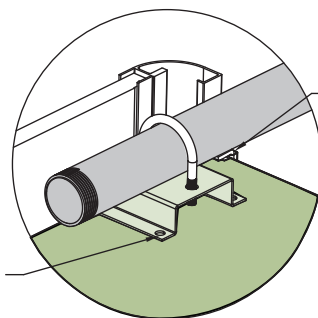


Figure 8.0b

STEP 2

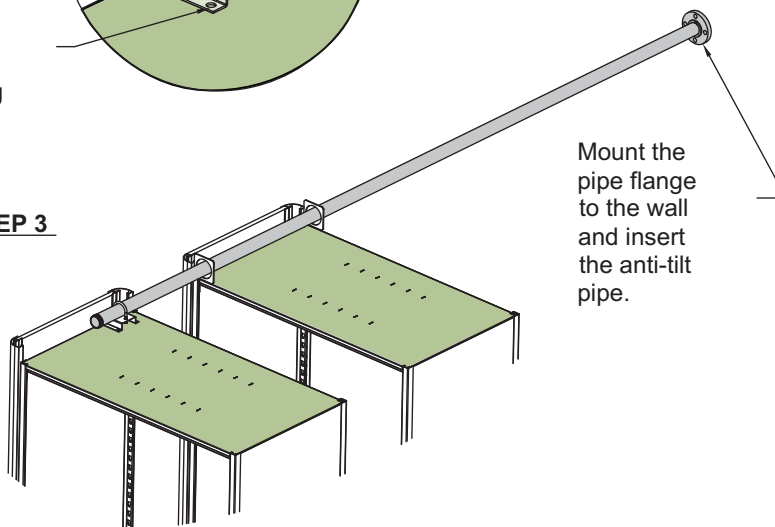
On Fixed Carriage that completes the system

Drill through top shelf, using (4) holes in mounting bracket as template. Fasten using 1/4"-20x3/8" bolt and nut.



Insert OAT Shelf Bracket into top of upright on Record Master, or between post and top shelf for Industrial or Rivet-Span® on all (4) corners of top shelf. Drill clearance hole through shelf upright and OAT Shelf Bracket. See OAT Bracket picture for drill locations. Fasten using 1/4"-20x1"(min) bolt and nut.

STEP 3



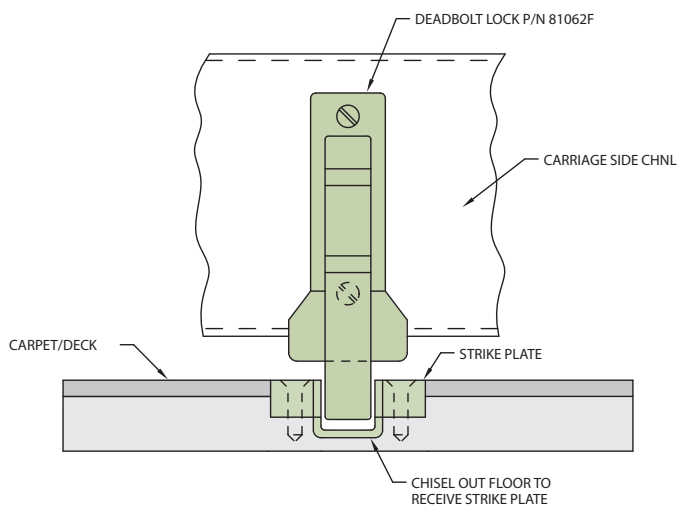
Aisle-Saver[®]

9.0 FLOOR LOCK

9.1 GENERAL

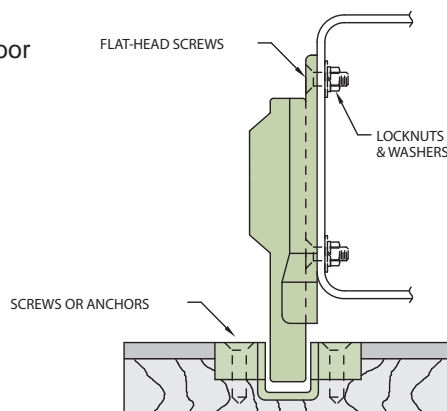
9.1.1 Reference drawing Figure 9.1 for installation of the floor locks.

Figure 9.1



Instructions for Mounting Strike Plate to Floor

- 1) Locate strike plate location and chisel out floor to receive strike plate.
- 2) Fasten strike plate to floor using (4) 1-1/2" screws or anchors.



Instructions for Mounting Floor Lock to Carriage

- 1) Drill two holes in the carriage side channel.
- 2) Fasten floor lock to the carriage using flat-head screws and locknuts.

Aisle-Saver®

10.0 SYSTEM AUDIT & CLEAN-UP

10.1 AUDIT

10.1.1 Final Checks

As stated previously, during any and all installation phases of the Aisle-Saver® Synergy Series™, all components should be checked and rechecked for mechanical reliability and safe continuous operation.

10.1.2 During work and before leaving the site, assure that the following points are addressed:

- Track must be grouted with a bed of at least 3/8".
- Track must be leveled within 1/32" over 10 feet.
- Track centerlines must be within +/-1/32".
- All tracks should be free of debris.
- All joints must be smooth and splicing hardware should be recessed from surface of track bar.
- Decking and ramp must be fully secured and experience no deflection.
- Make sure that all wheels roll freely without binding.
- All hardware tightened appropriately on carriage splices and shaft connections.
- Frames need to be plumb to the track.
- Frames are attached to first shelving upright.
- Drive chains are attached properly to center bottom drive and are not experiencing excessive tension. Master link clip must be fully seated.
- End panel must be seated properly on locating rivets on front of carriage and connected plumb to the shelving upright.
- Set screw on three-spoke handle needs to be tight.
- Lock knob needs to be fully seated on shaft.
- Move each carriage in both directions the full width of the aisle to assure smooth performance.
- Check function of keyed lock (if applicable).
- Ensure that shelving attachment to carriage is secure and appropriate for the application and geographical location.
- Complete System Acceptance Form (section 10.3) for return to the factory.

10.2 CLEAN-UP

10.2.1 Inspection

Upon completion of the Aisle-Saver® Synergy Series™ installation, it is the responsibility of the contractor/installer to make sure the system operates satisfactorily and the system should be left clean and operational.

10.2.2 Cleaning

All tracks and deck should be swept clean of all debris. The end panel and three-spoke crank handles should be touched up where necessary. The carriage bases and shelving should be wiped clean of all dirt or dust left by the installation of the system.

10.3 SYSTEM ACCEPTANCE FORM

The System Acceptance Form (Figure 10.3) must be completed to validate the Aisle-Saver® Synergy Series™ warranty.

Figure 10.3

SYSTEM ACCEPTANCE FORM

Project Number _____

**In order to activate your warranty, please fill out the following section and fax to:
Borroughs Corporation, Attention Aisle-Saver® Technical Support, (269) 342-4161**

Customer Profile Section

Company Name

Street

City State Zip Code

Customer Contact Person Customer Contact Title Email

Customer Phone Number Customer Postal Code

Project Name Date of Installation

System Acceptance Section

The Certificate of Warranty has been reviewed. ____ (initial)

The operation of the system has been thoroughly explained, including uses of safety devices. ____ (initial)

The Owner's Manual and the proper use and improper use list have been reviewed and accepted. ____ (initial)

I have inspected the system and the installation has been completed to my satisfaction. ____ (initial)

System Accepted By Title Date

Dealer Name

Witnessed By Date

10.4 SERVICE LABOR AUTHORIZATION FORM

The Service Labor Authorization Form (Figure 10.4) must be completed and the dealer must receive an Authorization Number from a Borroughs Corporation representative prior to performing any rework or additional field work that may require additional charges or billing back to the company. No monies will be paid without an Authorization Number and approval to proceed. There are no exceptions to this policy. Any additional service charges must be submitted no more than 14 days after job completion.

Figure 10.4

SERVICE AUTHORIZATION FORM

Project Name: _____ Date: _____

Dealer: _____

Description of Problem/Change: _____

Corrective Measures to be Taken: _____

Additional Time Needed to Correct Problem: _____

Additional Man Hours: _____

Rate per Hour: _____

Total Additional Charge: _____

Authorization Number Given: _____

Dealer Signature: _____ Date: _____

This form must be completed and the dealer must receive an Authorization Number from a Borroughs Corporation representative prior to performing any rework or additional field work that may require additional charges or billing back to the company. No monies will be paid without an Authorization Number and approval to proceed. There are no exceptions to this policy. Any additional service charge must be submitted no more than 14 days after job completion.

Fax to: Borroughs Corporation | Attn: Aisle-Saver® Technical Support | (269) 342-4161

Notes:
