Streamlining Construction Procurement: Strategies for Effective Material Management

Design a process of procurement (PoP) that allows your construction org to effectively plan work, manage labor, procure materials, and more.

By Jennifer Daneshgari and Dr. Heather Moore, MCA, Inc.

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Wouldn't you love to have a secret decoder ring for the process of procurement (PoP)? It's much more than simply purchasing material. It spans across management and the project team as well as the full project. Having a system within your company that easily incorporates digitalization, commonization, and interconnection of information across your project reminds you of your next steps and deadlines, and monitors/highlights cash management activities. The steps in the PoP, as shown in the **Figure** on page 16, are:

- Having a procurement plan
- Building a procurement schedule
- Job delivery
- Job material movement and management
- Returns
- Lessons learned and post-mortem

Running a project requires planning the work, managing the labor, procuring materials, managing subcontractors, and confirming you have the right equipment and tools while negotiating between other trades and typically working with the general contractor or construction manager to negotiate the schedule and hit the dates required. Like a full project schedule, it's important to build your own procurement schedule with links to the deadlines for when you must do submittals, get releases, and plan for lead times and deliveries to the job site. While this accounts for much of the spend on your projects, managing labor and how they spend their time is another large component of your profitability. In the space between procuring the material and doing the actual installation, there is the material management phase of the project.

MATERIAL HANDLING: WHAT IS IT, AND WHO IS DOING IT?

Material handling is much more than simply ordering and receiving. Material handling, by definition, based on a study done by MCA, Inc. for Electri International, formerly Electri21, can be as much as 40% of an electrician's time. Recognizing all the items involved in material handling that impact your labor productivity and your project's profitability is shown in **Table** on page 16. This includes:

- Ordering (whether it's a call to your inside sales, done by the project team, or the prefab shop, done online, with a material request form). Are you doing it daily or weekly?
- Receiving (at the job site, at the warehouse, in the office, etc.). Planning this is a large portion of Step 3 of the PoP.
- Waiting (for someone to answer your call or the delivery truck to come).
- Unloading (think of how many people it takes to unload the truck and what happens if you have to pull your crew off to do this).
- Sorting (through the delivery that likely has many items mixed in boxes or individual boxes needing to be opened to confirm everything is there).

SKU-REDUCING, VERSATILE ZINC

MC CABLE FITTINGS

ONE FITTING FITS MULTIPLE CABLE/CONDUIT TYPES & SIZES

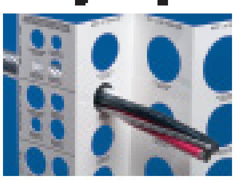
* Aluminum & Steel Flexible Metal Conduits

In addition to MC, PVC-MC and TECK cable, Arlington's MC cable fittings are ***NOW LISTED for use with MCI-A* (HCF MC)****, Tray Cable and Flexible Metal Conduit!*

Available in a variety of sizes, with a *built-in end stop*, each fitting also comes with *additional* end stop bushings that accommodate different size cable bundles.

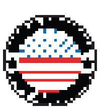
ONE trade size fits SEVERAL cable types and sizes, *plus flexible metal conduit* for super convenience and cost-savings! Reduces inventory and material handling too.

FREE TEMPLATE for selecting bushing size



Patented

Concrete tight when taped



Refer to spec sheet for specific end stop sizes Listed for FMC

Arlington®

PATENTED

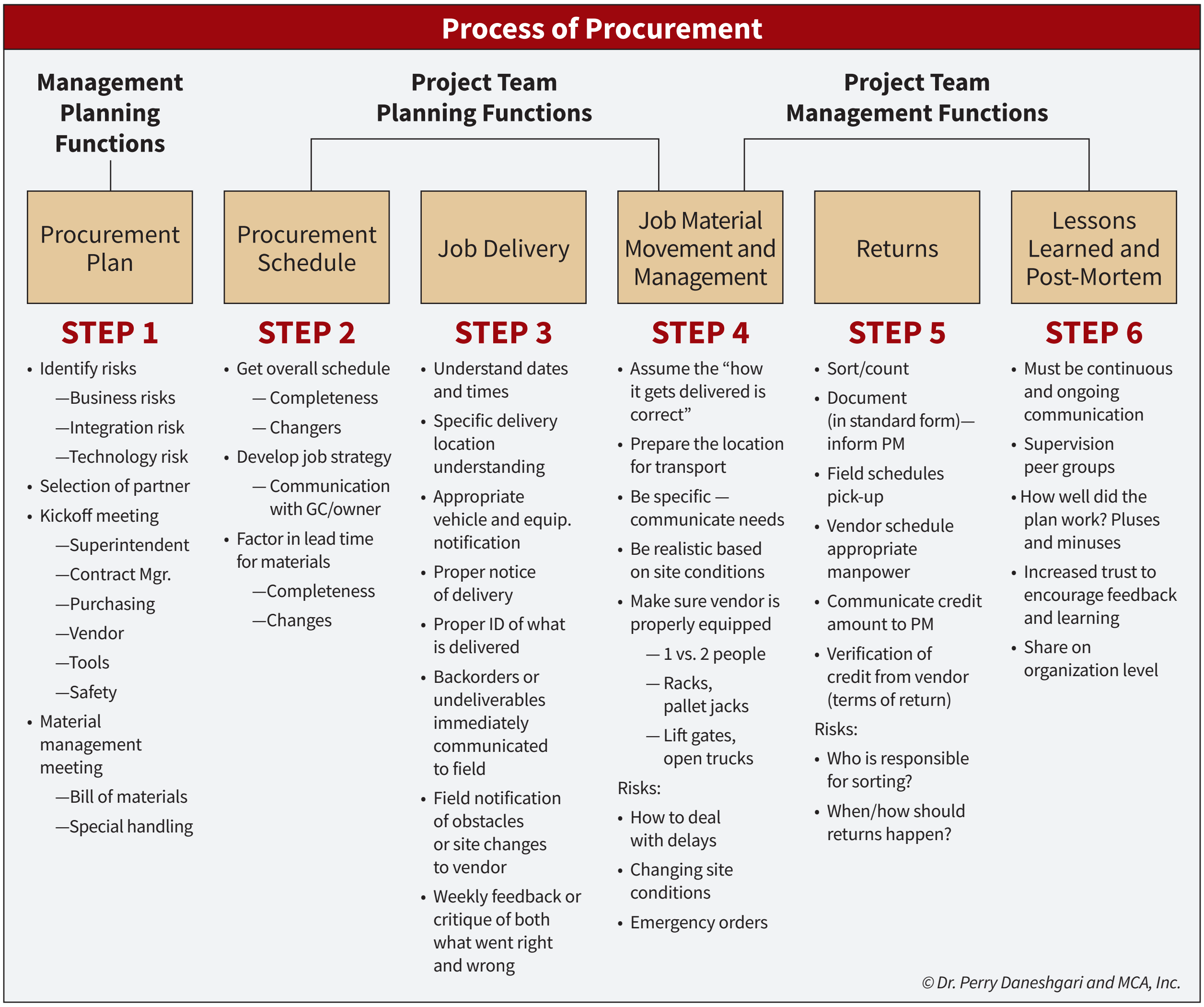
* 8412, 8413 Listed for Interlocked Armor Ground MCI-A & AC90 Cables (Healthcare Facilities MC Cable)

Catalog Number	UPC(08)(RED) Mfg. 018997	Trade(s) Size (in.)	Std Ctn Pkg	Cable ** Outer Dia Min	Cable ** Outer Dia Max	Wire Bundle Outer Dia Min	Wire Bundle Outer Dia Max	FMC Trade size Flex	Fitting and Bushings (A, B, C) Thread Size Fitting	A	B	C	Conductor Size # of Conductors* (AWG/KCMIL)	CSA TECK90 Conductor Size # of Conductors* (AWG/KCMIL/ACWU)
8412 *	08412	1"	20	.780	1.120	.660	1.080	3/4" 1"	1.018	.625	.750	.870	6/3, 6/4, 4-3, 4-4, 2-3, 2-4, 1-3	4/3, 4/4, 6/3
[illegible] *	[illegible]	1-1/4"	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1-1/4"	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8414	08414	1-1/2"	10	1.360	1.770	1.250	1.590	1-1/4" 1-1/2"	1.587	1.175	1.277	1.382	2/0-4, 3/0-3, 3/0-4, 4/0-3, 4/0-4, 250-3, 250-4	2/4, 1/3, 1/4, 1/0-3 1/0-4, 2/0-3
[illegible]	[illegible]	2"	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2"	[illegible]	[illegible]	1.750	[illegible]	[illegible]	[illegible]
8416	08416	2-1/2"	5	2.100	2.700	1.950	2.400	2" 2-1/2"	2.462	1.979	2.194	—	500-3, 500-4, 600-3 600-4, 750-3	4/0-4, 250-3, 250-4, 300-3 300-4, 350-3, 350-4, 500-3
[illegible]	[illegible]	3"	5	[illegible]	[illegible]	[illegible]	[illegible]	2-1/2", 3"	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]
8418	42010	3-1/2"	5	3.300	3.600	3.031	3.500	3-1/2"	3.450	2.662	2.985	3.344	750-3, 750-4, 1000-4	750-3, 750-4, 1000-3

** Listed for MC, PVC, MC, Teck, TC cables
* Example of 3- and 4-conductor cables

www.aifittings.com Scranton, PA 18517 800/233-4717

Product Info https://www.aifittings.com/catalog/8412



There are eight steps in the process of procurement.

• Moving to accommodate job site (you have your location on the job site where you're storing things, but you have to move to the installation location, or move your laydown area when the job progresses).

• Returns (MCA, Inc.'s research shows that the main reason for returns is overordering, which can be caused by finding/moving material on the job site).

• Delivery mistakes (no one's perfect).

• Dealing with damages (items ordered early that get shuffled or actual issues with damage from the manufacturer, vendor, or distributor).

• Storing material that will be used later (linked to moving to accommodate the job site, early ordering can cause issues like noted above, such frequent movement or issues with the elements).

Recognizing what's involved in material management will allow your team to work on tasks where they can excel. Per Step 1 in the PoP, it's also important to consider asking your vendor partners to support you. The key isn't in the labor rate; it's in the productive installation hours of the highly skilled employee. Both employees will work all day and will work hard; however, you'll gain minimal revenue and billing from a lesser-skilled person moving material in contrast to what you can achieve by having the highly skilled electrician complete installation tasks. Highly trained and highly experienced electricians don't want to spend their days moving material; they want to be doing electrical work. Build on/accelerate the support of your highly skilled labor doing what they're best at, love to do, and are trained for! Keeping your teams working on installation is key.

SHOULD WE BUY MORE OFTEN?

The simple answer is no! To reduce material management/handling on job sites, focus on ordering materials that you need now. While electrical distributors are happy to take your order and are likely to even deliver it to you daily, this isn't the most efficient process for specialty trade contractors. MCA's research shows that about three days' worth of material on the job site is the "right" amount. Frequent deliveries can slow you down. They create constant disruptions from unloading, sorting, checking, and staging.

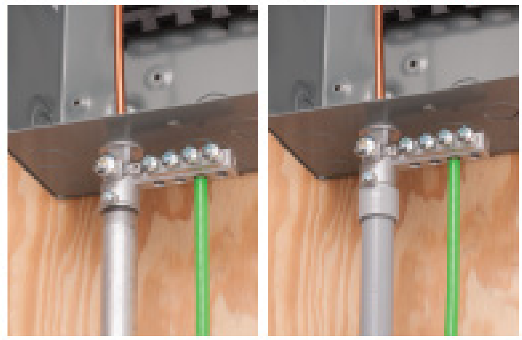
Why? Because, as you know, job sites

RELIABLE INTERSYSTEM BONDING

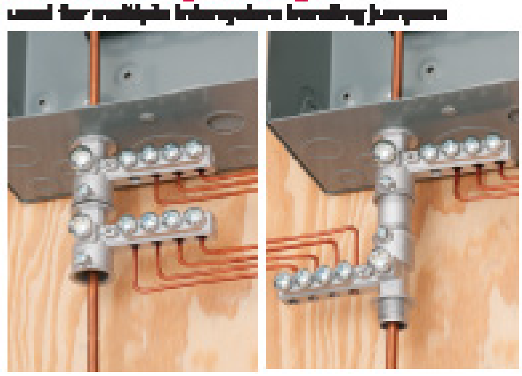
GROUNDING BRIDGE

MULTIPLE ZINC & BRONZE STYLES MEET NEC GROUND REQUIREMENTS

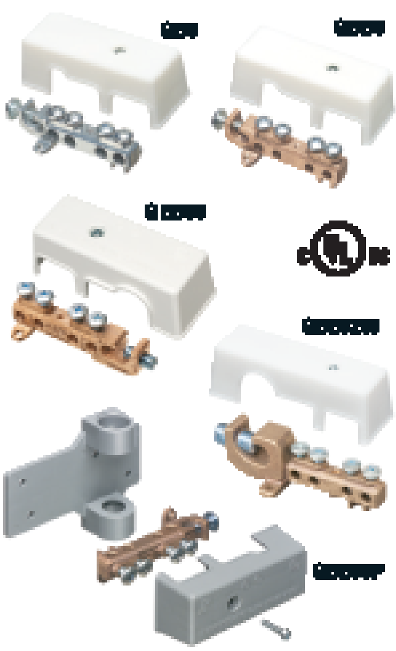
GB5T on Threaded Pipe GB5T on PVC conduit



One or Two GB5T ground bridges
used for multiple intersystem bonding jumpers



Try them ALL!



Arlington's heavy-duty Grounding Bridges provide reliable intersystem bonding between power and communication grounding systems. And handle multiple hookups of communications systems: telephone, CATV and satellite.

Our new GB5T comes with a Combination Threaded and Set-Screw hub for Threaded Rigid – or EMT Conduit.

Arlington's zinc and bronze grounding bridges...

- Four termination points; more than required by the NEC
- Meet 2020 NEC bonding requirements for 250.94
- Fast, simple installation indoors or outside
- Textured, paintable plastic cover (except GB5WC)
- Easy access for inspections

CATALOG NUMBER	DESCRIPTION/SIZE	UNITS/STD PKG
For #4 - #6 CU/AL		
GB5T	Zinc - Threaded & Set Screw, & cover	1/10
GB5	Zinc & cover - MADE IN USA	1/10
GB5WC	Zinc bar only, NO cover - MADE IN USA	[illegible]
GBB5	Bronze & cover	1/10
GB5P	Zinc & cover and conduit adapter	1/10
GBB5P	Bronze & cover and conduit adapter	1/10
For #4 - 1/0 CU/AL		
[illegible]	Bronze only & cover	1/10
[illegible]	Bronze & cover and conduit adapter	1/10
For #4 - 250MCM		
[illegible]	Bronze only & cover	1/10

Arlington®

Product Info [illegible]

Material Handling is:
1. Ordering
2. Receiving
3. Waiting
4. Unloading
5. Sorting
6. Moving to accomodate job site
7. Returns
8. Delivery mistakes
9. Dealing damages
10. Storage to be used later
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There are 10 steps when it comes to material handling.

and job progress are constantly changing in the construction industry. No matter how hard we try, we can't always do everything that we plan each day, not for the whole job and not even for a week or two in advance. In fact, MCA's research has shown that having less than three days' material available for installation leaves you with no ability to adjust to changes in today's conditions.

If you have too little material, then simple redirection starves the labor and reduces productivity. Having material on site too early equates to having too much inventory on the job site. Too much inventory needs to be moved, counted, monitored, and often repaired or replaced. The answer is three days, because three days is about as far ahead as the job conditions are predictable.

Years ago, "just-in-time inventory" was a big craze. The principles and concepts are still with us today, and continue to expand to provide more cost-effective and productivity-supporting material management and logistics practices. The concept is simple; it's based on the Toyota Production System, translated to construction, that to work, you need to have the materials required, when and where the installation is to occur, but not more than that — not more and not less. Not way before and not after you need it. MCA Inc's previous *EC&M* article (November 2024) Logistics – What/Where/When/How is a great reference with a material ordering checklist and some thoughts around getting material from your vendors.

CAN PREFABRICATION IMPACT MATERIAL MANAGEMENT?

You could use kitted prefab solutions, so everything shows up exactly when and how you need it, ready to install with no extra steps. Additionally, you could work with a partner to provide procurement assistance to enhance productivity, ensuring that materials are ordered and delivered in the most efficient manner possible.

It's important to be more expansive and think beyond prefabrication. This could lead to benefits such as:

- Increased safety, reliability, and predictability
- Controlled environment
- Buffer for labor allocation (can do things in parallel vs. in series on the job site)
- Can reduce project duration.
- Get more work in the long run.

Using the eight steps in the PoP in **Fig. 1** and interconnecting information within your company with an easy system allows you to reduce risk and keep your employees focused on labor productivity. As discussed at the start, it requires planning the work, managing the labor, procuring materials, managing subcontractors, and confirming you have the right equipment and tools while negotiating between other trades and typically working with the general contractor or construction manager to negotiate the schedule and hit the dates required. To reduce time and cost spent on material management/handling, it's important to:

- Segregate the on-site electrical work based on experience.
- Optimize orders and deliveries to every three days.
- Use a checklist to get your material as you need it by working with your vendor partners.
- Externalize work as much as possible.

It's really about making a plan and working with your team and the supply chain to have the right people doing what they do best. EC&M

Jennifer Daneshgari is the vice president of financial services at MCA, Inc. She can be reached at jennifer@mca.net.

SNAP²IT® CONNECTORS

EASIEST CABLE INSERTION • NO TOOLS • SECURE HOLD

Fully assembled, SNAP²IT® fittings handle the widest variety of MC cable AND THE NEW MC-PCS cables.

Compared to fittings with a locknut and screw, you can't beat these snap in connectors for time-savings!

- Fits widest range and variety of MC cable 14/2 to 3/3 AC, MC, HCF, MC continuous corrugated aluminum cable and MCI-A cables (steel and aluminum)...*including the new MC-PCS cable that combines power and low voltage in the same MC cable*

  ANY Snap2It Connectors LISTED for MC cable are also LISTED for MC-PCS cable! These products offer the greatest time-savings.

- Fast, secure snap-on installation
- Easy to remove, reusable connector

  From cable: Loosen screw on top. Remove connector from cable.

  From box: Slip screwdriver under notch in Snap-Tite® ring. Twist. Remove connector.

Easy to Snap into Box!

CATALOG NUMBER	DESCRIPTION Snap2It® connectors	CABLE [illegible] (IN)
[illegible]	Snap in, 1/2" KO w insulated throat	.405 to .590
[illegible]	Snap in, 1/2" KO w insulated throat	.590 to .750
[illegible]	Duplex Snap in, 3/4" KO w insulated throat	(2) .590 to [illegible]
[illegible]	Snap in, 1/2" KO	.525 to .765
[illegible]	Duplex Snap in, 1/2" KO	(2) .525 to [illegible]
[illegible]	Duplex Snap in, 3/4" KO	(2) .525 to [illegible]

Arlington®

Patented. Other patents pending.

www.aifittings.com • Scranton, PA 18517 • 800/233-4717

Product Info aifittings.com/landing/snap2it-mc-cable-connectors