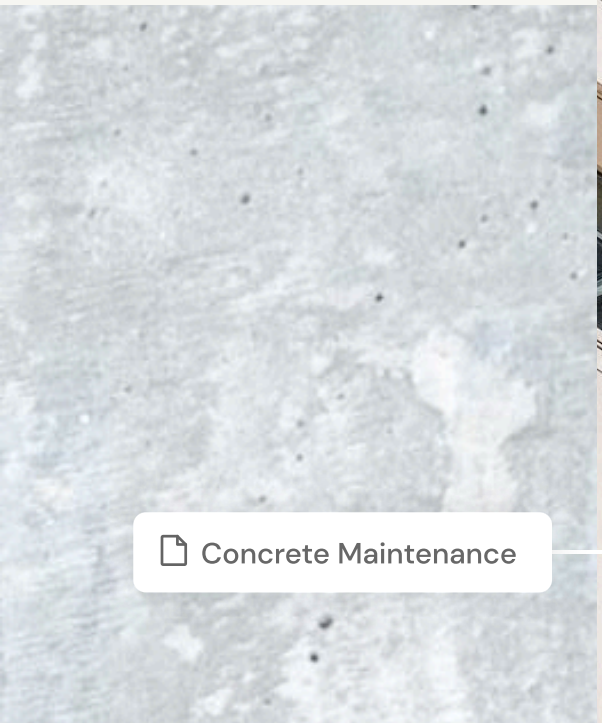
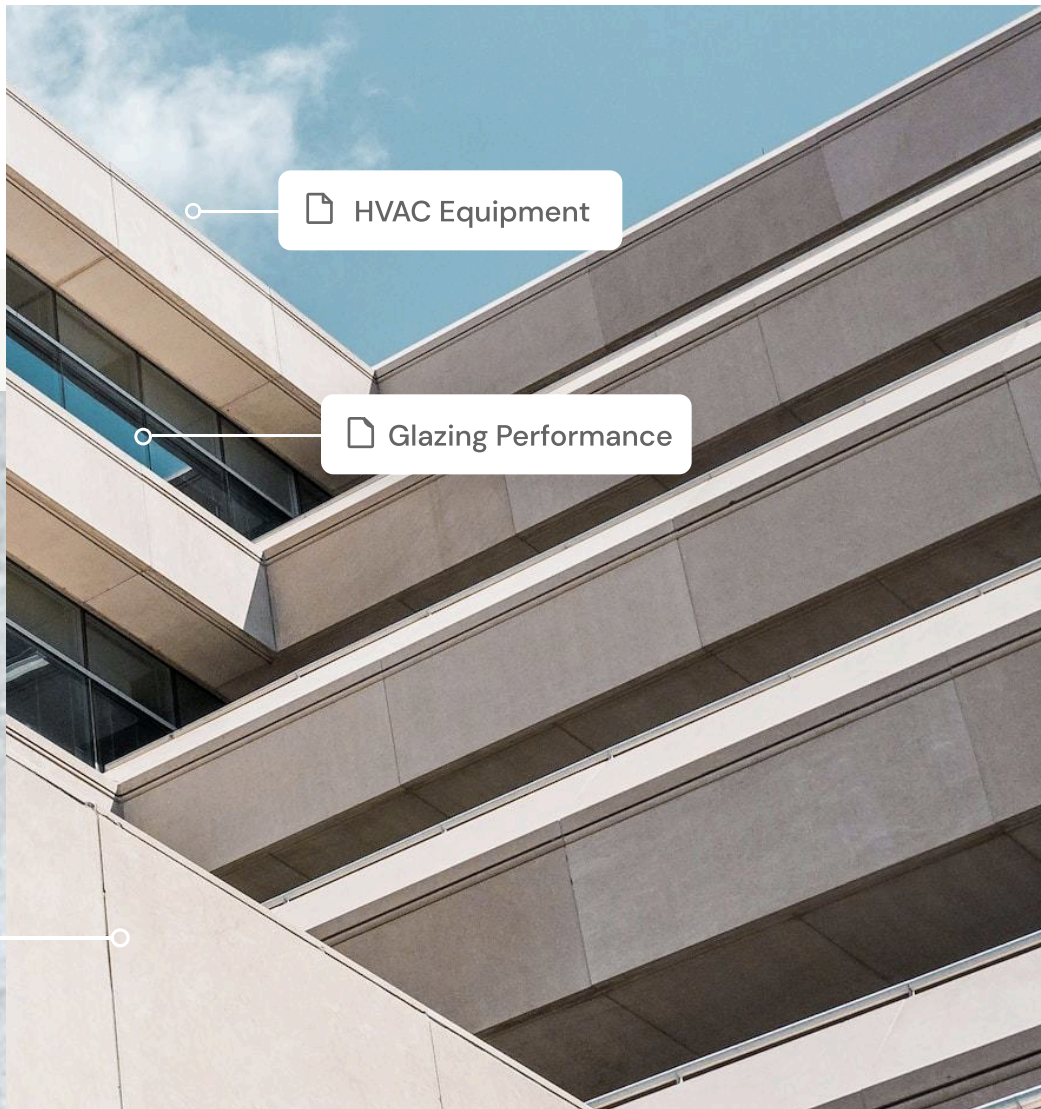
submittal.com™

Closeouts & Handoffs

Creating an O&M Manual that Works for You and Your Owner





Just when you feel like being done — it's closeout time!

Experienced project executives will tell you — start planning for closeout on the very first day of the job. Good advice.

Often, project engineers and managers have to complete and assemble almost as much information for Closeout as they do during the construction phase of a project.

What's more, you have to do this in a compressed time frame, while coordinating a huge number of different activities.

CLOSEOUT REQUIREMENTS

Physical Tasks

Here is a short list of what a project team needs to do before substantial completion:

- **Start-up, testing, and commissioning checks of equipment and systems**
  Elevators, fire suppression, water meters, HVAC, process piping, security, and more.
- **User training**
  Everything from overhead doors, lock maintenance, window shades, fire suppression, HVAC controls, electrical panels, lighting fixtures, fire alarms, and more.
- **Final cleaning**
  Removal of temporary protection and facilities — Get all that stuff out of here!
- **Removal of construction tools, mock-ups and similar elements**
  Removal of surplus materials, rubbish and similar elements
- **Locks and keys**
  Change to permanent.

CLOSEOUT REQUIREMENTS

Submittals

- ✓ **Testing, test** and **balance,** and **commissioning reports**
- ✓ **Operating and Maintenance (O&M) Manuals** and instructions.
- ✓ **LEED data** and **certifications**
- ✓ **Record Documents** — Specifications and as-built drawings.
- ✓ **Warranty documents and schedules**
- ✓ **Spare parts, tools, extra stock** and similar required items.
- ✓ **Meter readings** — Final or initial.
- ✓ **Occupancy Permits**
- ✓ **Other permits and approvals** — Elevator inspections, fire alarm inspections, boiler inspections, and more.

Daunting. It's like running a race. You're moving to pass the baton to the owner, and the owner is not standing still. Having said that, you can make this experience a little easier on yourself while giving the owners what they need.

CLOSEOUT REQUIREMENTS

Where to look in Divsion 1

Division 1 lays out the processes for Submittals and Closeouts in detail. Here are the relevant MasterFormat spec sections:

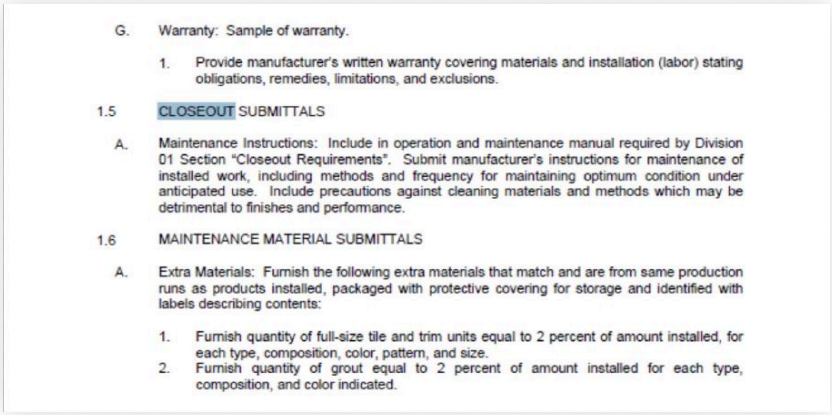
MasterFormat Spec Section	Section Title
01 33 00	Submittal Procedures
01 77 00	Closeout Procedures
01 78 00	Closeout Submittals
01 78 23	Operation and Maintenance Data
01 78 36	Warranties
01 78 39	Project Record Documents
01 78 43	Spare Parts
01 78 46	Extra Stock Materials
01 78 46	Sustainable Design Closeout Documentation

It's important to read these sections carefully so that you know what you need to put together. Specific requirements are found in the individual spec sections, from Divisions 2 through 48.

CLOSEOUT REQUIREMENTS

Where to Look in Divisions 2 through 48

Closeout requirements show up in Part One of a standard three-part spec. The majority of sections require an operations or maintenance submittal. Here are some examples:



G. Warranty: Sample of warranty.

1. Provide manufacturer's written warranty covering materials and installation (labor) stating obligations, remedies, limitations, and exclusions.

1.5 CLOSEOUT SUBMITTALS

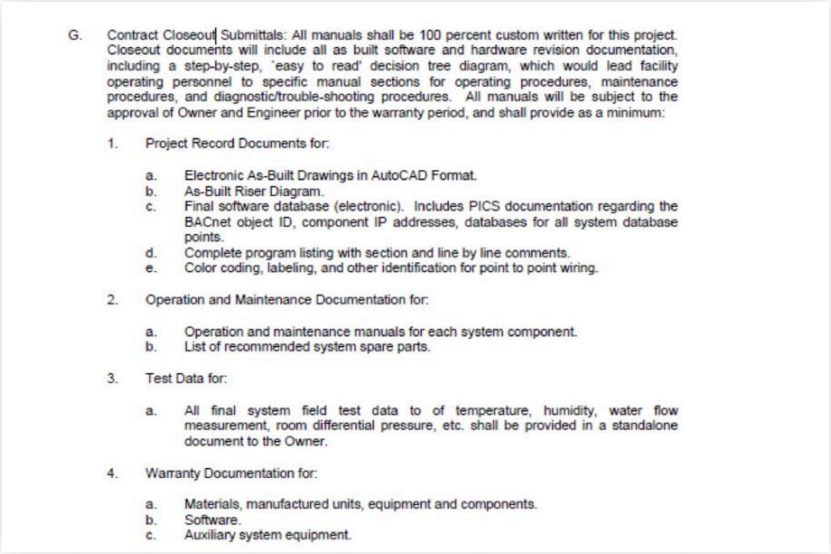
A. Maintenance Instructions: Include in operation and maintenance manual required by Division 01 Section "Closeout Requirements". Submit manufacturer's instructions for maintenance of installed work, including methods and frequency for maintaining optimum condition under anticipated use. Include precautions against cleaning materials and methods which may be detrimental to finishes and performance.

1.6 MAINTENANCE MATERIAL SUBMITTALS

A. Extra Materials: Furnish the following extra materials that match and are from same production runs as products installed, packaged with protective covering for storage and identified with labels describing contents:

1. Furnish quantity of full-size tile and trim units equal to 2 percent of amount installed, for each type, composition, color, pattern, and size.
2. Furnish quantity of grout equal to 2 percent of amount installed for each type, composition, and color indicated.

Closeout requirements for the Tiling section, 09 30 00.



G. Contract Closeout Submittals: All manuals shall be 100 percent custom written for this project. Closeout documents will include all as built software and hardware revision documentation, including a step-by-step, 'easy to read' decision tree diagram, which would lead facility operating personnel to specific manual sections for operating procedures, maintenance procedures, and diagnostic/trouble-shooting procedures. All manuals will be subject to the approval of Owner and Engineer prior to the warranty period, and shall provide as a minimum:

1. Project Record Documents for:
   a. Electronic As-Built Drawings in AutoCAD Format.
   b. As-Built Riser Diagram.
   c. Final software database (electronic). Includes PICS documentation regarding the BACnet object ID, component IP addresses, databases for all system database points.
   d. Complete program listing with section and line by line comments.
   e. Color coding, labeling, and other identification for point to point wiring.
2. Operation and Maintenance Documentation for:
   a. Operation and maintenance manuals for each system component.
   b. List of recommended system spare parts.
3. Test Data for:
   a. All final system field test data to of temperature, humidity, water flow measurement, room differential pressure, etc. shall be provided in a standalone document to the Owner.
4. Warranty Documentation for:
   a. Materials, manufactured units, equipment and components.
   b. Software.
   c. Auxiliary system equipment.

And highly complex Closeout requirements for the HVAC Controls section, 23 09 00

A Few Suggestions from Submittal.com

Here are a few ideas to make your life easier at Closeout time:

- Do **one submittal log** for the project, at the very beginning of the job. The log should capture **all** submittal items: Action Submittals, Informational Submittals, and Closeouts.
- In the log, **tag or otherwise mark** each Closeout item.
- In the log, it also helps to tag the **type** of Closeout Submittal that's required: test reports, O&M Manual, project record document, warranty, permit, etc.
- When you build submittal packages, create **separate packages for the Closeout items**. When you assign these items, either to yourself (for the work you do), or to your subs, set the due dates early enough in the job so that all this Closeout material will come to you in advance of when you need it.

These steps alone will help you considerably.

O&M Manuals — a Big Rock

O&M Manuals are definitely a big rock. The owners may require a single O&M Manual, or they may request multiple O&M Manuals. Here's what was required on one college dorm project:

- **Equipment and Systems Manuals** — For plumbing, HVAC, controls, electrical, fire protection, fire alarm, elevators, and other complex equipment and systems.
- **Architectural Products Manuals** — For the care and maintenance of architectural products, including applied materials and finishes.
- **Moisture Protection and Weather-Exposed Products** — For inspection, maintenance and repair of products exposed to the weather or designed for moisture-protection.
- **General Products Manuals** — For everything else.

Again, the specific requirements for these manuals are described in the individual spec sections, from Divisions 2 through 48.

Manuals almost always have to have a title page, a table of contents, and a description of what's included. Product data, drawings, manufacturer's operating and maintenance instructions, warranties, and service contracts come next.

Annotations

Annotations are almost always required, to show:

- **Specific product used** — When multiple products are shown on a datasheet.
- **Part numbers**
- **Maintenance Frequency**
- **Contacts** — For manufacturer reps and local distributors.
- **Special Maintenance Instructions**
- **Drawing References**
- **Warnings** and **Hazard notices**

In short, it's anything you might want to know if you had to work with or repair the component.

submittal.com™

How Submittal.com can help you get closeouts done

For GCs and Subs

The Specification Takeoff Tool	Puts your Closeout items in the Log right from the specs.
Tagging	You can tag Closeout items up front. Items tagged “Closeout” or “Informational” are automatically highlighted in the log. Types can be tagged by O&M, warranty, testing, certifications, etc. When it comes time to submit your Closeouts, you can filter the log to show Closeouts and identify the documents you still need to get.
Assignment	You can assign Closeout packages to vendors or subs. They’ll get a template that shows exactly what you want. Set early need-by dates, and let Submittal.com track completion for you.
Annotation	The built-in annotation tool is available to everyone. Subs and vendors can do the markups that are required.
Submit	When you submit your Closeout packages, they can be downloaded into .pdfs. Each .pdf has a table of contents and indexed divider pages. You can add cover sheets if you wish.

For the Design Team

View Spec Button

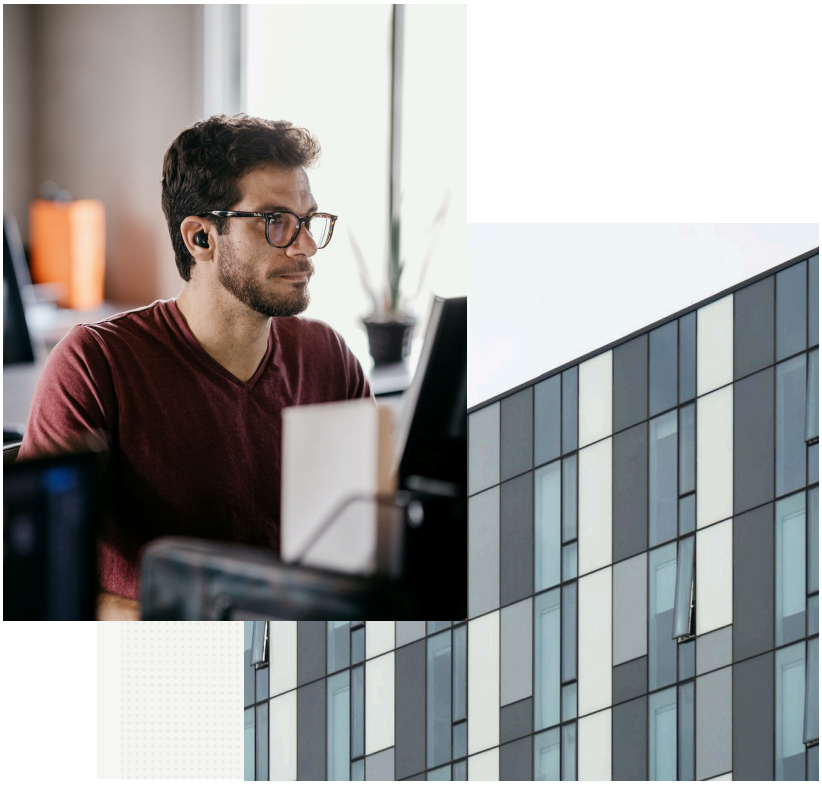
When the GC uses the spec extraction tool, it creates a link to the spec for each item. The link travels with the item throughout the project. When reviewing packages, designers can easily see the exact requirement in the specs.

Line-by-line review

Closeout packages require approval. They can also run to hundreds of pages. With line-by-line review, the architect or engineer can ask for revisions on specific items. The entire 400-page document does not have to go back and forth.

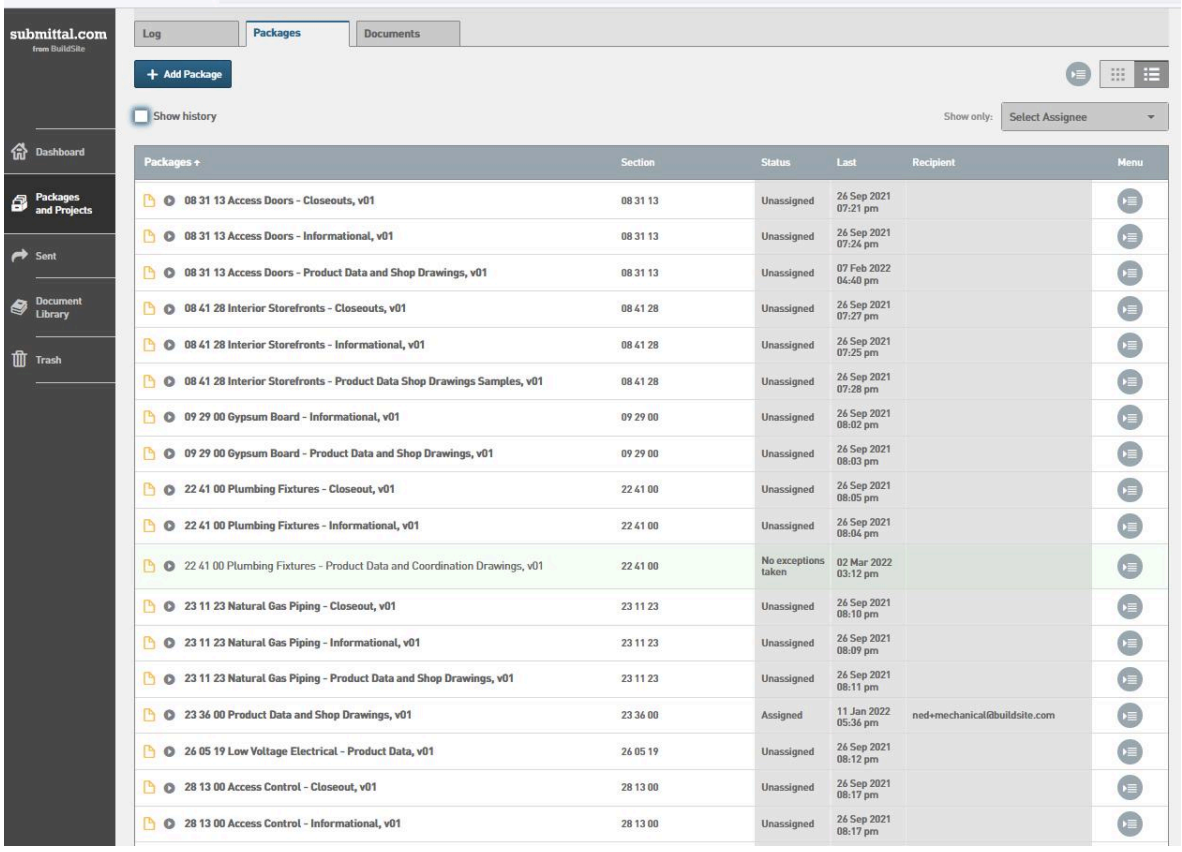
Annotation and stamps

These features are fully available to the design team.



And, lastly, what can Submittal.com help you deliver to the owner?

At Closeout, you will also have a database that's powerful enough to hand off to your owner, not only for their records, but for use in facility management. Every sealant, every valve, and every light fixture will be in it, indexed and easy to find. In many respects, Closeouts will become the final piece of your project BIM model.



Indexed Project Record

The value of doing a superb job on closeouts

What is the value? It's pretty straightforward - it sets you up for getting the next job

When you give the owner a fully indexed Closeout package, they have everything they need for their own records. Your work can also serve as a resource for facility management. Your Closeout work will be there, with your name on it, for the life of the structure. It's part of your legacy on the project.

When the next project comes around, you'll want the owner to call you. Do a superb job on Closeouts, and hand off a beautifully indexed package, and you'll be in a great position to get the call.

Thank you!

Get a Free Trial

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