



The

Broadcasters' Desktop Resource

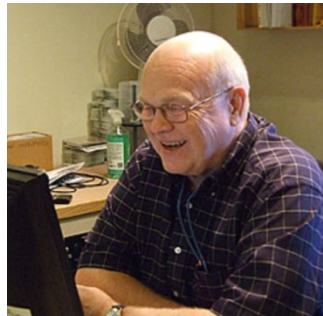
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... edited by Barry Mishkind – the Eclectic Engineer

Broadcast Operations

Planning Your Studio Build

Part 5 – Let The Construction Begin!



by Gordon S. Carter, CPBE, DRB, CBNT

[December 2021] This is the fifth and final installment of Gordon's discussion of ways to ensure the process of building a studio goes smoothly.

Finally! After weeks, if not months, of endless meetings, drawings, changes, and decisions, it is time to begin the actual construction project.

By now you should have been working with various consultants, and possibly even some contractors and suppliers. You should have reasonably finalized drawings of just about everything that will be built. Or course, no matter how “final” anything is at this point, you can be sure there will still be a lot of changes before it is finished.

CHOOSING CONTRACTORS AND SUPPLIERS

Throughout the process so far, you have probably chosen some consultants, and possibly even some suppliers and contractors.

Now you really need to get these players lined up and organized so things can move smoothly. In doing so, be sure to pick people and firms that are up to the task:

- Carefully select those with the resources – and crew – to do the job.
- If sub-contractors are needed for some tasks, make sure that such sub-contractors can and will work with the main contractor to make sure things are done as planned.
- Ensure sure your suppliers are authorized dealers for the equipment you are getting from them. (Some manufacturers will not honor their warranty if the equipment is not purchased from an authorized dealer.)

THE RIGHT PROJECT MANAGER

Choosing a good general contractor and Project Manager can save you a world of problems.

In case you are not familiar with the role of Project Manager, he or she is the person who answers to the client (you) and keeps an eye on the work to make sure everything is done as specified. This person may have the authority to temporarily stop work or make changes, so make sure they understand the full impact of what they are doing. A bad decision by this individual may easily end up costing thousands of dollars!

As mentioned before, talking to other broadcasters may help you identify the right individual for your job – and whom you should avoid!

ORDERING EQUIPMENT

Now is the time to order equipment if you have not done so already.

When ordering, be sure your lists are complete. It is very easy to miss an important item when translating from a parts list to an order. Check everything multiple times and get someone else to help check as well, before you place the order. Ask the people that will work in each room, they may notice something important is missing from your list.

That way you can avoid work coming to a halt while some part is being acquired.

SCHEDULING CONSIDERATIONS

On the other hand, you may well need to make a tactical decision on delivery times.

For instance, you do want to prevent equipment from sitting so long it has to be replaced even before it is installed or the warranty period running out before the equipment is even taken out of the box. Some manufacturers will give you some latitude on this, but some will not, and this could be a real budget problem on some projects.

It may be necessary to schedule delivery of some items due to space limitations during construction – or just to help maintain some order during installation. Especially with large items or large quantities of items, be sure to check and work with the supplier on shipping. It can be costly, and incur some delays as well, if a truck shows up with a delivery and you have no way to unload it properly.

Consider the location carefully. As an example, the delivery truck may turn out to be too large to get to the location where the delivery is to be made. In some cases (usually larger towns and cities) there may be size restrictions on certain streets that prevent a truck from getting close enough or require a re-route to get it in another way.

All of this may delay your delivery and end up costing more.

DOCUMENTATION

As I mentioned at the beginning, by now you should have a mountain of paperwork.

Yes, much of what you have done thus far may have been generated using a computer, but sooner or later hard copies of schematics and parts lists will be necessary. Some of these may have had to be approved by government authorities, but all of them should have been approved by someone in authority over that part of the project.

Nevertheless, your documentation should be as complete as possible.

BE DETAILED AND CLEAR

Everything should be systematically named or numbered, from the building down to the individual piece of equipment and the connectors. This information should all be in the documentation in a manner that is easy to find and interpret.

Your documentation should also include equipment descriptions, serial numbers, IP addresses (if used), and other information that is useful. This information does not have to be all on one document, but must be readily available if needed.

I personally prefer a system that is readily apparent to someone who would see it, rather than “coded” items. The system should allow for easy expansion that makes sense. For instance, a rack that is added after the fact should be numbered in a manner that is consistent with the others. If you have a row of racks numbered 1 to 5, and the added rack is 27, this adds confusion to the system. The added rack should be number 6, but this should require minimum re-numbering of other racks.

Also, when choosing designations, be careful to not contain information that may change. For instance, calling a room “Joe’s office” may make sense now, but in five years it may be Jim’s office, and Joe may be long gone, so a newcomer might see this and wonder where it is. It would be much better to call it room 234, which would not change as people move.

ENSURE CHANGES ARE DOCUMENTED

As contractors and sub-contractors are selected, they will need copies of some of this paperwork.

In some cases they may want to make alterations for various reasons – including requests from your staff. It is critical that any changes they make be approved before any work is done. Often these changes are nothing to be concerned with, but they do need to be checked to make sure.

As work progresses, changes will be made to the actual construction. These changes should be recorded and initialed so there is an “as-built” version of the documents. All changes should be made on the same copy so there is only one “as-built.” Ideally these changes then will be incorporated into a revised as-built final copy.

A tip that may save lots of time and money in the future: it is much easier today than ever before to use a smartphone to take a lot of pictures – both wide angle and close up – to show where/how things are built. Especially with items that are inside walls, or other hard to access points, a picture can sure come in handy if you have to make a repair/replacement, sometimes even avoiding opening up the walls at all.

LABELS

In addition to a lot of pictures, as the project nears completion, *label everything*.

This labeling should include everything from every room down to the smallest connector. There are several reasons to do this, but the most important is to avoid confusion. If everything is labeled, everyone can refer to the same item in the same way, so everyone knows what is being discussed.

Additionally, your local fire department may require labeling on the rooms in case of emergency. With each room labeled and a floor plan strategically placed (usually near the entrance or elevator) it can drastically reduce the time required for first responders to find the problem.

CLARITY IS KEY

Labels should be durable. A label where the writing has faded is no better than no label at all.

When making labels, there are many options as to how to do it. All labels should be made so they are easily readable with no special equipment. Small type should be avoided, but this is always a trade-off as to the size of the label and the amount of information included. It should withstand normal use and possibly even some abuse. The label should be resistant to heat, ultra-violet light (sunlight), wear, and removal.

For most electronic labeling I personally prefer the Brady BMP21-Plus labeler. This unit is self-contained, but needs batteries or a power supply. There are several types of labels available for this unit. I prefer the nylon labels for wire labeling, as they are a bit more flexible and durable than the others. The vinyl labels are good for labeling equipment and other general uses.

... AND CONSISTENTLY

Items should be labeled consistently and placed so they are readily legible.

Each label should be in the same format, and located at or near the same place on the equipment. Ideally everything should be labeled front and back. In today's LAN/WAN-centric universe, if possible, equipment should be labeled with its IP address for easy identification.

Each equipment rack should be labeled, and a consistent system for naming rack space used (bottom to top or top to bottom). All equipment should be labeled as well. Do remember that equipment may be moved, so do not name the equipment using its location.



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WHERE IT COMES FROM, WHERE IT GOES

Even wires and connectors should be labeled.

Wires should indicate what they are connected to both near and far end. Connectors should even be labeled with the mating connector name. Sometimes this is difficult, as space is limited, but it saves lots of time in the long run.

Even power cords should be labeled at both ends. Having the plug end (where it plugs into the outlet) labeled with the piece of equipment is quite helpful when looking for the power cord to a specific piece of equipment in a rack.

CONCLUSION

After everything is finished, it is a good idea to go through all the paperwork and create or edit a series of final “as-built” versions of everything.

These may not have to be printed, but should be readily available. A “master copy” should be available that can be altered as things change, so there is always an up-to-date version available. This will be invaluable as time goes on and your memory fades and staff changes.

A final word of advice: when undertaking a major project, there are no guarantees that nothing will go wrong. On the contrary, you can almost be assured that something will go wrong. However, following the tips given in this series will help minimize the severity of the problems that do arise, and will help give you a facility that will be useful for a long time.

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