If you have ever worked on a health-care facility project, you probably ran into some interesting challenges. And if lack of coordination was at the top of the list and the bottom of the problem, then you are not alone.

“Coordination, coordination, coordination is a must,” insists Bob Burgess, president of Cascade Acoustics in Tualatin, Ore. “We have coordination meetings with the GC and the other subs—or resort to writing nasty letters, but these don’t work as well as a proactive approach to scheduling issues.”

“Our biggest challenge with hospital jobs is meeting the rules and regulations,” adds Barry Gibson, president of Commercial Drywall and Plastering in Ocala, Fla., “especially for one- and two-hour walls, and two-to-four-hour rated walls for stairwells and elevators. Everything has to be built with a UL design and label so we can pass all the inspections, fire ratings and smoke walls, etc. The biggest hurdle to this occurring is being able to coordinate the wall systems with the med gas, mechanical and electrical contractors, so that all the wall penetrations are sealed perfectly. We take care of our own penetrations—the mechanical and electrical contractors have a sleeve in the wall that we seal using a fire-rated caulking material. Anything inside the sleeve is the mechanical or electrical contractor’s responsibility. It’s a lot of very slow, tedious work with an unbelievable amount of coordination required.”

The way Keith Hoffman, estimator at E&K in Phoenix, Ariz., says they handle coordination with the other trades over the large amount of penetrations, is they “frame the walls

By Steven Ferry
and hang the drywall from the top down, to between 4 and 8 feet from the deck, and then let the guys install their electrical. The duct guys can either go under our rack or show us where they want us to cut out openings in the wall.”

For George Kealoha, supervisor at Kealoha Construction in Wailuku, Hawaii, the trick is “a good GC who is aware of the problem and coordinates trades sequence. “AC ducts should go first, as they are tight to the ceiling, then the drain lines, and then the bigger pipes, fire sprinkler etc.; then electrical, because it is much more flexible. Smart contractors share the same carriage down the hallway. Coming to a hallway is a problem area, as pipes have to turn, and that means some pipes have to go above or below others.”

“One of the most critical actions to take is pre-production planning with all parties concerned,” according to Ron Jefford, project manager at Horton Drywall in North Little Rock, Ark. “Subs don’t like doing this generally, but the GCs push the coordination on them as it makes jobs progress so much more smoothly.”

Even with coordination, it seems, projects can be bumpy in Tim Cadenhead’s view (commercial manager at Sides Drywall in Auburn, Ala.). “We think we are ready to hang [wallboard], we have worked out all the problems, and then there will be some other product or assembly that needs to be installed in the wall.” Gibson agrees: “The biggest problem we have with hospitals is the work is never ever finished because of all the items that have to be put in the walls.”

**Hitting the Brakes**

This need for close scheduling with other trades impacts production rate, as do a number of other factors. “Productivity is not as high as in normal construction jobs,” notes Bob Heimerl, president of Mowery-
Thomason Inc. in Anaheim, Calif. “There are too many in-wall accessories that have to be dealt with and cut around.” As Miguel Candelaria, president of MA&O Construction Services Inc. in Atlanta, says so colorfully, “With tenant work, you open up a can of ‘Whoop-Ass’ and get it done, standing up stud and hanging up board right behind it because you have to move fast to come in on budget. In a health care setting, though, it’s not the same.”

Ron Molleur, vice president at EL. Crane and Sons in Hutto, Texas, adds, “You can’t flow as easily when operating in a health-care facility that is in use because you are always working around ongoing operations and their schedule—moving to another area or stopping work. You also have to work cleaner and do more cleaning. So there’s a lot of close coordination with the health-care employees.”

All of which, of course, influences pricing. Kevin Corcoran, president of the Corcoran Company in Ft. Collins, Colo., notes: “Our production levels are about three times slower above the ceiling, and for the whole project, about 20 percent slower. Gibson sees eye-to-eye with these figures. “The above-ceiling and behind-wall work generally cost two to three times regular commercial building projects. But as long as you budget for this extra work and don’t go into these health-care projects thinking they are the same as any another construction, you will stay in business. No matter what the economy is doing, it seems health care facilities are always being built or remodeled.”

“We have to price high,” agrees Hoffman, “as these health care facilities are 25 to 30 percent slower than office work and never make as much money as one expects.”

During the bidding, another thing to look out for, according to Heimerl, is “existing conditions that are not immediately apparent when looking at a job, especially above the ceilings, and which may hamper productivity. There is so much ductwork and so many pipes, etc.
penetrating a new wall area that it may be very difficult to put in a firewall. You’ll have to piece and patch and sometimes even go to a lathe and plaster system to seal it off. So we make sure to investigate thoroughly before bidding.”

“Without knowing these kind of details,” explains Molleur, the project will not be done and lowball bidders will fall on their face. I have had to go in many times and take over a job when the first bidder didn’t know what he was getting into. It doesn’t help anyone.”

Kealoha advises that you “make sure you bid everything carefully, as health care facilities require a lot of specialty items, such as lead liners in X-ray rooms. They usually have different types of ceilings for different rooms with different prices. You have to use different gauge of studs for certain areas and water resistant board, so you have to make sure you have the correct quantities in the correct area. Then you have to match up your labor, because after 9 feet, everything is in pieces. The bottom 9 feet of board take five minutes to put up, and the last 2 feet with all the pipes etc., take an hour. And then you have to create the UL-rated firewalls in the corridors, meaning the drywall has to go all the way up. This is Varsity level drywall, not for the 14-and-under league.”

Two contractors interviewed had the smarts to recognize that hospitals are the big league, saying, “They are very difficult and we are a small company,” and “We steer away from hospitals because of the regulations and inspectors who enforce them. They are so particular that it is very hard to make any money.”

“All in all,” concludes Candelaria, “health care is a very profitable business as long as you make sure you have all your RFIs answered up front. It’s expecting miracles, but labor is the most expensive commodity and can send a project plus or minus unless you create an efficient operating environment.”

Next to Godliness

Touched upon briefly earlier, is the sub-
ject of cleanliness. This extends into keeping distractions to a minimum. According to Heimerl, “In remodeling, you are in a working hospital, so cleanliness is of extreme importance and minimizing disruption of their activity is a prime concern. We are often stopped from working because of noise when we are adjacent to an operating room, surgical lab, etc. So our scheduled work hours may find us installing track anchors, rotor drilling or doing shots and pins in the middle of the night. We try to schedule noise-generating work early. We make sure to call out overtime in the bid documents, especially when we know we will be working adjacent to, above or below a surgical room. They will often handle it on a time ticket, because they may have an emergency surgery that comes in and ask us to stop our work for a period of time.”

On the noise issue, Corcoran adds: “Reducing distraction is not easy, of course, because you distract them just by being there. Avoiding any sort of power overload and outage or communication system failure is especially important, obviously. But an experienced GC will insist on weekly meetings to discuss anything that the hospital staff has attention on, any noises they may have heard, etc. We always use separate entrances, completely removed from the regular entrance. The trickiest times are when we are ready for the tie-ins between a new wing and an existing hallway. The GC has to make sure work is done at the right time—which may not be the nighttime in a hospital, because the patients are trying to sleep then.

“When dealing with life-safety issues,” continues Corcoran, “people cannot be exposed to any forms of bacteria, so we are extra careful about mold, especially in open construction, when the rapid pace of construction has work being done on insulation and drywall before the building has been made completely tight. Moisture does penetrate these buildings, and we have had every issue hit us. We worked on a hospital a couple of years back in which the roof was almost complete but had not been sealed around the perimeter. We had one of those late spring storms that dumped a load of wet snow on the roof. The snow came in through the mechanical shaft and we had to pull out a lot of drywall and insulation and treat the track with bleach before we could rebuild. The mold had not appeared yet, but we knew it would, and so acted, with the owner’s and GC’s blessing.

“The more-subtle mold problem is gypsum drywall absorbing moisture from the air. Even though we are in a semi-arid environment, we have to be careful about hanging moist board when installing board without a mechanical system to circulate air all the time. Board picks up moisture and the guys can feel the board is heavier. When this happens, we either bring in fresh board or hang the board on one side and allow it to dry using fans to circulate the air.

“In the early days, before the idea of speeding up the building process hit, nobody ever hung wallboard before it had dried out completely. But now, they push the limit with fast track and hope that they can keep it dry, but it does not always work.

“We also ensure all the dust is vacuumed out of nooks and crannies before we start to hang board and after finishing. It’s about cleaning as you go to create a sterile environment, much like we used to do in clean rooms for high tech companies.”

**Design Pitfalls to Avoid**

Mold is not the only hazard to keep on one’s radar according to some contractors. “Architects who specialize in hospitals are savvy to the requirements and problems,” notes Heimerl, “but every now and then we run into an architect who has not done much hospital work. We are caught in the middle of his learning curve, because what he has drawn
What’s Harder than Hospitals?

"Hospitals may be among the hardest projects," admits Kealoha, "but the hardest project we have had to face was the local observatory. It’s hard to breathe at 10,000 feet, so your production rate is way down—you have to supply oxygen tanks for the guys working there. And whatever you bring up during the day you have to store away at night, as the wind picks up in the evening and blows everything away: You build a scaffold in the morning, you have to tear it down at the end of every day and take it back down to the storage area at 6,000 feet. And it’s a long commute each day, but it’s a good way to quit smoking."

The Payoff

We try to nip this shortfall in the bud with RFIs during the bidding stage, clarifying possible conflicts in the drawings.

“In California, seismic concerns are paramount, and regulations and inspections are very stringent. We cannot change plans or details materially without approval—basically, we have to put in every bolt, nut and screw on the drawing, because the inspector will surely count them and insist we follow the drawings. When an application that is drawn does not work, we need to take it up with the inspector and architect in the field and receive a revised detail on it. With all the flip tracks and movement requirements, for instance, the head of wall (where the wall meets the underside of the slab above) sometimes becomes confusing, and architects will sometimes mix and match things that don’t work in practice.”

“A key problem is the walls are not designed deep enough to take all the piping from the oxygen and water etc. and have them cross each other,” notes Cadenhead. “If you have a 2.5-inch vent and a 1-inch water supply, that makes 3.5-inches. If you then take up 1.5 inches with your bridging—reinforcement for light gauge metal framing—and then add backing to support a counter or a piece of equipment, the wall is becoming very crowded.

“So architects design the walls too thin, but they also spec gauge metal that is not heavy enough to support everything that needs to be mounted to the wall. Once the wall has been cut to pieces with all the penetrations, it has lost its integrity and strength. Oftentimes, we SHEETROCK a patient or operating room and have to make between 8 and 10 penetrations in a sheet of drywall to accommodate the different piping and implements in the walls. When this kind of a wall has been installed, we sometimes end up furring out one wall and building another to increase the depth and strength of the wall.”

Heimerl makes the same point about heavier studs: “Hospital walls are completely different structures compared to office walls that merely separate one room from another. In a hospital, the walls also include all the medical equipment and needs that require a lot of backing and support systems for cabinetry and accessories that hang on the walk. This calls for heavier stud—16-gauge compared to most other areas that may just require a 20-gauge. But it gets to be quite a mix and match of stud requirement based on what the wall is supporting.”

Highlighting another difference in health-care facilities, Molleur points out: “They require higher-quality paint, epoxy instead of latex, so health care workers can clean the walls regularly. Ceiling tiles standards are more rigid, too, requiring no off-gassing or shedding of fibers.”

About the Author

Steven Ferry is a freelance writer based in Clearwater, Fla.