

AVOIDING COSTLY CHANGE ORDERS IN AN IN-BUILDING WIRELESS IMPLEMENTATION



After weeks or months of completing the tasks needed to start your in-building wireless project there may not be anything more irritating than having your contractor present you with an unanticipated change order. This is especially true if you have a feeling that the change order could have been prevented with proactive due diligence in anticipating pitfalls and establishing owners for key elements of the scope of work.

There may be instances where conditions at the site change and additional costs to the project are warranted. For example, an unanticipated change in the RF environment may result in the need to modify the system design, or access requirements change that necessitate work at night rather than day time hours. But the need for change orders can be mitigated early in the build cycle.

Conducting a thorough site survey (aka site walk) and documenting the site survey findings is an effective measure for avoiding cost overruns.

Critical Components to be Included in an Effective Site Survey

- **A current and accurate set of scaled floor architectural drawings.** These drawing should be in-hand at the time of the walk and readily available to the system designer. The plans should identify the MDF and IDF's, partitions and their composition as well as identify cable tray and pathways for existing or planned networks.
- **Key stakeholders associated with the build.** Stakeholders should include the venue building engineer, project manager, cabling contractor and the designer of the antenna system.
- **Availability of space for the equipment at the proposed time of the installation.** Confirm that space for all headend equipment (signal source, AC, racks, wall space, etc.) will be available at commencement of the install. Know that some time may pass from the time of the site survey to the installation start. Note to that if a system expansion may be needed, space will need to be allocated for equipment.
- **MPOE and availability of required circuits.** If backhaul is required, determine who is responsible for providing and provisioning those circuits.
- **Confirmation of all cable pathways, penetrations and installation requirements.** Will cable need to be independently suspended or run in tray? Is conduit required? Will appropriately sized vertical and horizontal penetrations be available at the time of installation? Are there existing or planned areas requiring man-lifts? Determine who owns these details and who is responsible for any costs associated with them.
- **Confirm the logistical aspects of the install.** Are escorts required? Union or non-union? Hours of installation? Availability of storage space? What about background checks? The venue building engineer should inform the contractor of any work at the site that would result in having to stop work and redeploy at a later date.

- **Verification of the radio frequencies that the network is expected to support.** In conjunction with the survey or on a separate visit, conduct a thorough RF benchmarking study. Identify any existing wireless networks on premises and their operating frequencies. Clearly define which party is responsible for understanding the frequencies needed to meet system performance requirements and who is going to pay for any misses associated with meeting the performance KPIs.
- **Validation of where coverage is needed.** Identify VIP areas and areas that may have a high concentration of wireless users. Confirm the number of occupants in the facility and the principal wireless applications being utilized.
- **Construction status reporting plan.** With principal stakeholders present, the site survey is an excellent time to establish a construction status reporting plan. For example, a weekly call involving all stakeholders can cover installation challenges that can be managed before they turn into a cost overrun. Similarly, it is also a great opportunity to confirm roles and responsibilities. Those discussions should result in a written roles and responsibility matrix that can become part of the construction contract.
- **Confirm the post installation system acceptance deliverables.** The site survey is an excellent opportunity to confirm with the installation team, project manager, and facility manager what processes and documentation are expected to validate that the system was installed and is performing per the scope of work. Those documents should include results of all cable sweep tests, as-built drawings that show the placement of all equipment, and the results of an RF propagation study that validates signal strength and coverage.

The pre-design, pre-construction site survey is a great way to avoid misunderstandings, errors and other misses associated with pricing an in-building distributed antenna system. Don't rush the site walk. Take the time needed to fully understand the physical and RF environment. Then, pull the team together to establish a communication plan and confirm roles and responsibilities to avoid annoying and costly change orders. Document, in writing, the results of the survey and who is pay-off is well worth the time spent up-front.



About the author:

IBW Advisors founder Mike Altman has 18 years of experience facilitating the turn-key deployment of cellular and public safety distributed antenna systems (DAS). The projects he has been involved with have provided enhanced in-building wireless coverage and capacity to venues ranging from executive residences to NFL and MLB stadiums, hospitals, corporate offices and college campuses. Mike created IBW Advisors to help building owners navigate the challenges associated with designing, procuring and implementing these systems.



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