

Project Profile

Hawthorn Suites, 1251 National Parkway, Schaumburg, IL



The Existing Site consisted of hotel building with one existing wireless installation. The existing building is a masonry bearing wall system with precast hollow core floor and roof slabs. The proposed installation needed to meet strict guidelines from the jurisdiction for visibility.



The new structure provides rooftop support steel for 2 to 3 carriers in addition to the existing installation. The Screen wall enclosed the existing installation and the support steel for all proposed installations. The screen wall was constructed using metal siding and frame with exterior finish made with EIFS, designed to match the existing architectural details on the building.



Close-up view of screen wall

Objective:

Client needed a site on this building and due to rooftop management company requirements, had to make provisions for future carriers as well. The local jurisdiction required the proposed installation to be constructed in such a way that all the rooftop equipment, existing and future, is screened from visibility.

Design Challenges, Solutions and Features:

The project initially started out as a typical rooftop installation with steel frame for only one carrier and without any screening requirements. During design review phase the local zoning officials requested that the all the equipment, present and future, be screened by a wall similar in construction to the existing building. Since the rooftop management company intended to put more wireless carriers on the roof, it became necessary to provide structural steel for future carriers and the screen wall.

KCS Corporation revised the design and performed structural analysis with loads due to the proposed and future equipment, and screen wall dead and wind loads. Due to limited capacity of the existing building to withstand additional loads from several carriers, the steel was designed with several supports to distribute the loads more evenly on the roof. In addition the structure was checked for snow and snow drift loads due to the revised roof layout.

The complete structure was modeled on RISA 3D, a Structural software, to design and analyze the structure for various load combinations. The design included assumed loads for future carriers based on our experience working with several wireless carriers. The screen wall was made using metal siding supported by cold formed steel shapes. The cold formed steel was utilized for material and fabrication cost savings. The screen wall was finished using External Insulated Finish System (EIFS) to match the existing building exterior. KCS Corporation worked with a local EIFS distributor during the design phase to determine the type and materials of the existing system and specified new materials accordingly.

The final design drawings consisted of all necessary details for the construction of equipment support platforms and screen walls. Once all the drawings were submitted for platform and screen wall, the permit was approved and the site was constructed and commissioned as scheduled.



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