

Project Profile

Randall Tower at 1314 W. Johnson St., Madison, WI



The Existing Building is a reinforced concrete frame with brick masonry and an irregular geometry. Existing penthouse was a steel frame addition to the original building. No building drawings were available. Site included an existing rooftop wireless installation, several ventilation ducts and vents.



The Penthouse Extension was made using structural steel, stealth siding in front of antennae and metal siding in other areas. Reinforced existing penthouse steel for additional loads due to extension. Provided complete design including structural steel for stealth siding support. Stealth panel manufacturer only provided the RF transparent siding.

Objective:

Client needed a site in this area with tough zoning ordinances and all other alternatives posed equally tough problems. The objective was to provide a stealth installation with the least visual impact and obtain permit in the shortest time.

Design Challenges, Solutions and Features:

Due to the existing wireless installation, it was evident that the proposed installation would have to incorporate some sort of stealth application. Two choices were proposed: a round structure somewhat like a chimney or an extension of existing penthouse. Although chimney-like structure was cheaper and easier to design and build, the idea was quickly abandoned because the building officials preferred an installation that matched the existing building components.

KCS Corporation started the preliminary design with preparation of zoning drawings and upon approval, started the detailed design. Since no building drawings were available, KCS Corporation performed structural mapping of the building as required for the proposed installation. The existing building was analyzed to determine whether the structure can withstand additional loads such as Dead Load of the structure, Live Loads from the operation of the site, snow and snow drift loads generated on the main roof and penthouse roof due to the additional height of the penthouse.

KCS Corporation proposed RF Transparent materials by Stealth Network Technologies, Inc. and provided all details for structural steel supporting the Stealth materials. This process saved a considerable time since all materials were selected from the catalog as is, and no additional engineering was required. In areas where there were no antennae, metal siding with similar profile as existing was proposed.

The final design consisted of all necessary details for the construction of penthouse extension, support steel for equipment and antennae and access to the rooftop site. The drawings also provided details for reinforcement of existing penthouse structure for additional loads. The permit was approved without any comments from the City and the site was constructed and commissioned as scheduled.



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