The Boardwalk Residences at Marina Bay

Fire Protection Design Narrative

Prepared by: Cosentini Associates

November 8, 2012

The water supply to the building will be provided by a 6" service connected to the municipal 12" water main in Victory Road. The fire protection water service will be protected by a double check valve assembly inside the building. A current water flow test conducted On Victory Road revealed a static pressure of 102 psi with a residual pressure of 76 psi while flowing 1293 gpm. Given that this building is not a high rise per the building code the stated flow test results indicate that the water supply will be sufficient to satisfy the building including the most remote demand being the fifth floor light hazard wet sprinkler demand. In addition based on the significant residual pressure (76 psig) recorded while flowing during the flow test indicates that a sprinkler flow at the project will not significantly reduce the water pressure in the current distribution in Victory Road and the city distribution in the related area.

A 6" supply main will feed combination standpipes in each egress stairways, and dry pipe valves for each garage level. Combination risers or standpipes, one per stairwell, will be provided with 2-1/2" outlets with 1-1/2" reducers with caps at each floor landing. Branches to individual sprinkler systems/zones will be provided with monitored control valves and water flow switches as well as a system drain/test connection. All control valves and water flow switches will be annunciated at the fire alarm control panel and at each remote annunciator panel. The fire alarm control panel will be located in the main entrance lobby vestibule. Sprinkler piping in each ground floor Retail tenant area shall be arranged such that each Retail tenant will be capable of sub-zoning the space if so desired. As required by the state building code an automatic sprinkler system shall be provided for the entire building with the exception of the elevator shafts, elevator pits, and elevator machine rooms. The sprinkler system shall incorporate upright sprinklers to protect above the ceiling and pendent sprinklers for below ceiling protection.

The open parking garage is to be provided with a dry type sprinkler system, with separate dry systems for each of the two garage areas. The stairwells will be protected by a wet sprinkler system with a standpipe having a 2½" hose valve with a 1½" reducer and cap.

All retail, offices, lobbies, and corridors will be designed to provide 0.10 GPM per sq. ft. for the most hydraulically remote 1,500 sq. ft. plus 100 GPM for hose streams. Residential units will be designed for use with "quick response" sprinklers to provide 0.10 GPM per sq. ft. for the most hydraulically remote 900 sq. ft. plus 100 GPM for hose streams as allowed by NFPA 13 section 11.2.3.2.3.1. The risers will be connected to a distribution main at the lowest continuous level and fire department connections will be provided. Fire hydrants will be placed on the site as appropriate including one hydrant located within 100 feet of the fire department connection.

The parking garage, storage, and mechanical spaces will be designed to provide 0.15 gallons per sq. ft. for the most hydraulically remote 1,500 sq. ft. plus 250 GPM for hose streams. Minimum density for dry pipe sprinkler systems shall be per wet-pipe sprinkler density with 30% larger area of application.

Two Fire Department Siamese connections will be provided at the building's exterior to enable the Fire Department to pump water directly into each of the systems, should the need arise. These connections will be provided with an automatic ball drip and a check valve to ensure that there is no risk of freezing the water contained in the fire protection system.