

Unique noise control standards developed for mixed-use project



The LegoLand Discovery Center in Assembly Row was designed by Darlow Christ Architects. The development also includes residential, office, and retail space. Photos © Bruce T. Martin

An acoustics consulting firm, **Acentech**, developed project-specific noise control guidelines for Assembly Row—a new mixed-use waterfront development near Boston.

Located on a 18-ha (45-acre) previously underdeveloped site on the Mystic River in Somerville, Massachusetts, Assembly Row's master plan was conceived and coordinated by developer Federal Realty Investment Trust (FRT). It retained Acentech early in the project to address the complex issue of noise control as it related to the mix of uses within four blocks. The acoustic design addressed noise and acoustic issues in buildings and tenant spaces.

Assembly Row's first phase, includes:

- 450 residential apartments;
- a 12-screen movie complex;
- LegoLand Discovery Center;
- restaurants;
- outlet retail stores;
- 9290 m² (100,000 sf) of office space; and
- a 2.4-ha (6-acre) waterfront park.

Succinct and prescriptive noise-emission standards were developed and included in the design and technical manual governing tenant fit-outs. These standards included specific design criteria for noise emissions from rooftop or outdoor mechanical equipment, and noise transmission from ground-level retail to residences above. Similar standards were also applied to base building designs throughout the development. These standards were intended to ensure compliance with the municipal noise code, and serve

to reasonably protect the various properties from each other's noise emissions.

"Assembly Row is a new neighborhood designed to foster a 24/7 lifestyle," said FRT's Brian Spencer. "Less than 10 minutes from Boston, it is the first neighborhood of its kind in the country, offering outlet retail alongside entertainment and eateries, with apartments and office space above, fostering a true neighborhood feel."

Consultants worked with architects and developers of specific buildings and tenant fit-outs to design acoustically favorable spaces and comply with the development's noise emissions standards. The 12-screen movie complex, located above the LegoLand Discovery Center in Assembly Row's Block 3, presented a unique design challenge.

Acoustic consultants worked to ensure each theater within the movie complex would be protected from noise produced by activities at LegoLand, other building tenants, and mechanical equipment. The resulting design includes floating concrete slabs under every screening room, with certain walls and other features supported from the roof structure above. Through careful coordination with the architecture and building structure, these and other design features ensure the screening rooms are not disturbed by activities in surrounding spaces, and likewise, the cinema's neighbors are not disturbed by movie noise.

Another challenge was protecting residential tenants in the upper floors of the development from the noise produced by rooftop mechanical equipment serving restaurant and retail facilities on the ground floor. Planning for judicious placement of visual/acoustical screening around rooftop equipment helped reduce noise impacts from HVAC systems on residents of adjacent buildings. Even within buildings—with both commercial and residential spaces—the careful location and vibration isolation of mechanical equipment has helped reduce noise impacts.