

Case Study: DePaul Theatre School, Chicago, Illinois



The Theatre School's new facility, shown in the artist' rendering

TMI Case Study No. 11052

DePaul University's current "Many Dreams. One Mission" campaign, includes a new theatre school for its students. The University wanted their new theatre facilities to widen artistic horizons, add vitality to the community, and welcome generations of new artists, performers and audiences. To accomplish this vision,, the theatre worked with world renowned architect Cesar Pelli, Senior Principal at Pelli Clarke Pelli and the former dean of Yale University School of Architecture.

DePaul's new construction was targeted LEED Silver Certification, and focused on cre-

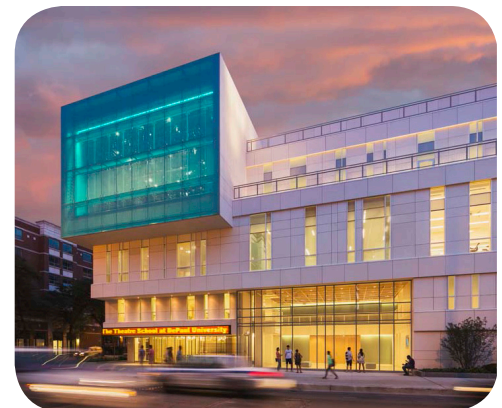


ating positive impacts by increasing energy efficiency, reducing the carbon footprint, and mitigating resource depletion, such as water usage, among many others benefits.

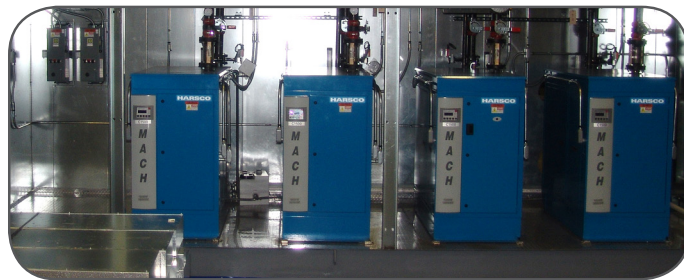


The \$72 Million project includes a 165,000 sq. ft. theatre school building, featuring a 250 seat thrust "Shakespearean" style theatre, a 100 seat black-box theatre, a rehearsal room for all theaters,

design studios and labs, elevators, computer labs, box office, faculty and staff offices, school script library, and even lockers and bath-rooms.

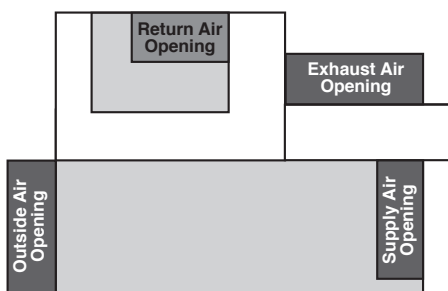


The massive white facade protrudes out above the street allowing many of the inner workings to be visible to pedestrians.. While pedestrians may have clear views into "behind the scenes" inner workings that make every theatrical performance tick, what the neighborhood and students won't hear is the 140,000 CFM TMI Climate Solutions air handling equipment on the roof. Noise pollution is a common problem in poor urban planning, and the threat of noise pollution could undermine the creative planning taken to design a visually stunning new construction in the heart of a campus environment. The goal was to maintain the quality of life with student/residential housing nearby, and also mitigate any potential interference to the acoustics when actual performances were taking place, so sound attenuation was a very important issue.



Our unit incorporated both return inlet sound attenuators and supply air outlet attenuators. Also, TMI's Fan Array format provides quiet and energy efficient fans in a sound attenuated module. In addition to sound attenuation in the enclosure, to insure the piping and equipment didn't cause noise, piping was hung from ceiling with spring isolators and equipment was mounted to inertia bases on the floor.

Sound Levels	Frequency, HZ							
	63	125	250	500	1000	2000	4000	8000
Supply Air Opening	59	67	66	70	65	70	72	73
Return Air Opening	40	51	56	56	55	60	60	67
Casing Radiated	27	48	66	62	59	53	42	31



The sound from FAN ARRAY™ and boiler has been summarized. The accumulated sound from FAN ARRAY™ superseded the sound from boiler and pumps. No effect from the boiler and pumps. SP indicates the casing across the supply plenum.

Efficiency was enhanced by utilizing our VFD controlled Fan Array™ module, containing premium efficiency motors that allows for the ramping up and down of CFMs. The unit also includes an integrated closed loop boiler system that provides hot water to the dual purpose coils, and a special mixing section was incorporated to better blend return air with outside air.



Chicago deservedly is nicknamed, “The Windy City”, and the TMI Climate Solutions’ air handling unit would be setting on the top of the five story building. Wind and snow were a question as to how our unit would perform. TMI solicited a structural engineer to calculate the snow

and wind loads, distribution loads to the building structural steel/curbs and recommendations for intermediate supports under penthouse.

Naturally, building aesthetics were of major importance. Therefore, TMI Climate Solutions worked hand in hand with the development team to provide custom siding on our air handling unit, blending the 3 visible sides of the unit with the building exterior by using the same Eclad exterior stone cladding system as was utilized on the building. This siding provides a fully sealed system with high performance thermal breaks and insulation. The result is an aesthetically pleasing grand appearance, with the energy efficient performance and environmental benefits desired by the University and its development team.



TMI Climate Solutions

Headquarters: 200 Quality Way Holly, MI 48442 | West Coast Office: 12033 Highway 6 Ste. 500 Fresno, TX 77545
P: 888-727-8772 | F: 810-694-5804 | tmiclimate.com