

HIGH-RISE CONDOMINIUM

VRF Noise Control

Using plenum silencers and an acoustic roof screen system to mitigate noise from rooftop VRF units

A new-build residential condominium—located in a densely-packed urban area—was facing a major exterior noise emission challenge emanating from the building’s rooftop VRF unit. The componentry was located on a lower roof terrace, creating compliance concerns with the upper suites within the new building. In addition to regulatory compliance challenges, the building developer had major concerns with the potential of unwanted noise within their new premium suites.

The Project Facility

A high-rise residential building located in a densely-populated urban area

The Noise Source

Rooftop VRF units

The Solution

12 PMA-3-36L-24PL Rectangular Plenum Silencers

PMA ArcMod RT Barrier

Project Team

The Client:
Multiplex Construction Canada Ltd.

Owner:
CentreCourt Developments

Acoustic Consultant:
Thorton Thomasetti

Reason for Mitigation

Compliance with provincial and municipal ordinance for exterior noise emissions



The Challenge

The Parklane team was tasked with bringing the building into full regulatory compliance, ensuring that new suite owners wouldn't be bothered by equipment noise. The downward line-of-site to the VRF units precluded an acoustic screen as a stand-alone option for attenuation. Consideration needed to be given to the noise emanating from the top mounted cooling fans. As these systems operate with very little external static pressure allowance, a low-static, at-source solution was also required.

From a logistical perspective, limited site access posed an immediate hurdle. Our logistics team would need to develop an installation strategy that maintained full site access for the scores of third-party trades working to complete the building as it neared occupancy. Finally, the solution needed to generally blend in with the building's architectural façade.

The Solution



We installed a series of modular plenum silencers to mitigate discharge air noise from the VRF units.

The design required close collaboration with the equipment OEM to ensure the equipment functioned to the manufacturers' specifications and remained serviceable once our sound attenuation components were installed. To further limit sound emanating from the system intake, we erected a customizable PMA AcoustaMod rooftop barrier around the perimeter of the VRF unit—a critical addition given the positioning of the component directly adjacent to the building's rooftop terrace. Pre-finished materials for the roof screen system were selected to match the condominium's façade, while our factory-assembled, modular process allowed us to mitigate the need for an on-site crane during the installation process.

Integral Plenum Section
Provides complete access
for maintenance staff

PMA Plenum Silencer
Attenuates Exhaust Fan Noise



**PMA 'AcoustaMod' Acoustic
RT Barrier (Structure Mounted)**
Attenuates Intake Noise

LG VRF Units

The Result

The sound emission issue was attenuated, with no documented complaints from the new suite owners. Our flexible installation approach and modular assembly process limited installation time and significantly lowered project costs. Most importantly, the condominium's occupancy deadlines were met, mitigating the risk of occupancy delay consequences for the property developer.



Designed Performance

Frequency (Hz)	63	125	250	500	1000	2000	4000	8000
DIL (dB)	2	9	10	18	27	28	16	12
Volumetric Flow Rate, Q (CFM)	47,850							
Linear Flow Rate, V (FPM)	1007							
Pressure Drop, PD (in. wg)	0.04							



Noise Control Simplified

We're dedicated to your success. Whether working with industry, acoustic engineers and consultants, or contractors, we're committed to providing effective solutions to noise and vibration challenges—no matter the size or scope.

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