

ARMACELL SOLUTIONS

# Multi-family

Urbanization is one of the trends driving multi-family construction. In the US more than 80% of our population lives in urban areas where they can be close to employment opportunities, mass transit, better education and healthcare options. And all those people need somewhere to live. Energy efficiency is an important aspect of operating a multi-family complex. Armacell has innovative insulation solutions engineered for multi-family buildings.

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MAKING A DIFFERENCE AROUND THE WORLD





# MULTI-FAMILY SOLUTIONS

Multi-family buildings have different HVAC and plumbing requirements than single-family homes. Design priorities in multi-family living arrangements include managing peak energy load, delivering room-to-room comfort control, and optimizing the overall system for maximum efficiency. Once these issues are dealt with, a designer must also consider overall cost and building aesthetics.

Whether the challenge is a historic building renovation or a new construction high-rise apartment, the proper insulation system can help achieve goals in LEED® certification, best-in-class noise and thermal control, and lower overall utility and maintenance costs.

## POPULARITY AND TRENDS

Energy efficiency and improved performance are two important drivers promoting next-generation product systems for multi-family construction. For example, these concepts have begun conversations on whether or not to use heat pumps in HVAC applications, tank-less water heaters, and complete Wi-Fi control of all utility systems! Apartments, student housing, mixed-use buildings, and age-restricted living arrangements are all focusing on similar goals in providing smarter, healthier, and all-inclusive living environments.

# 32%

of property managers  
say energy efficiency  
is their top challenge.

Maintenance at 31%<sup>1</sup>

<sup>1</sup> Click this link to Source Information





Empty-nesters, young families, and individuals alike make up the growing population of multi-family dwelling members. Approximately 1 in 5 US citizens choose multi-family living because of its affordability and amenity inclusion. Investors relish the opportunity to build and manage these properties because of their growing popularity and manageable return on investment. The attractiveness to both investor and tenant is almost entirely reliant on the modern quality and reliability of the living arrangement's components and make-up. Insulation may seem a small factor in helping provide these qualities, but make no mistake, the insurance of an innovative and modern insulation system is undeniable.

## HEATING/COOLING METHODS

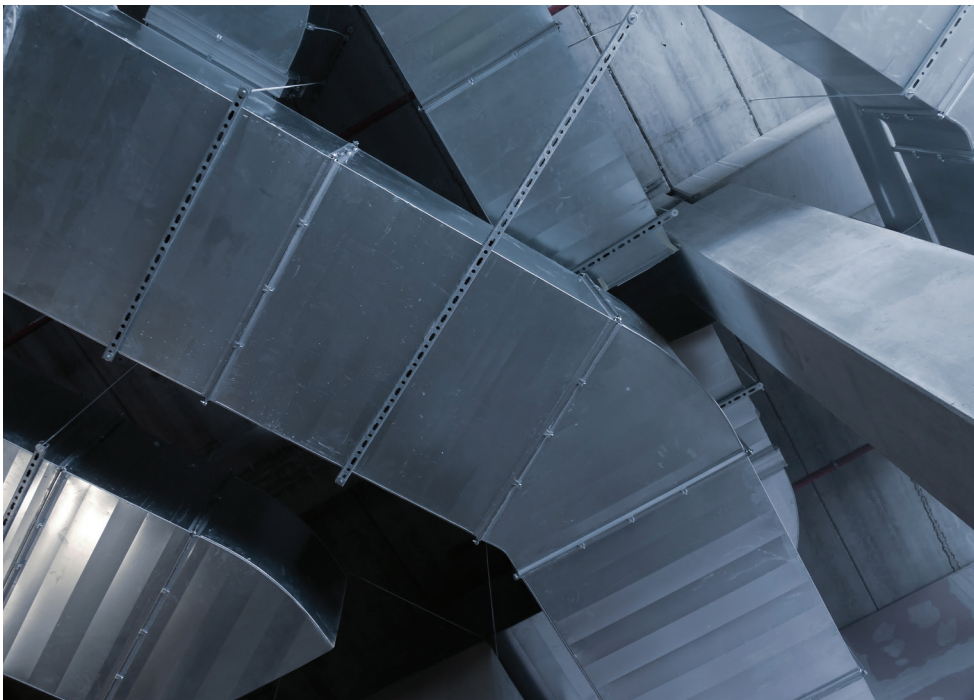
Heating and cooling challenges within multi-family buildings are abundant. Vertically and horizontally oriented building designs create distinct design challenges. Although heating and cooling requirements will vary per building and room, the end-goal of meeting efficiency and space requirements while maintaining sustainable practices in the structure, is paramount. A building may be required to operate with a particular program during the day and then an alternate program at night.

Multi-family buildings could require a number of heating and cooling solutions



operating as an integrated system. Within the same building, a condenser water system could service residential floors via water-source heat pumps with VAV (variable air volume) in the recreation floors and common areas. Additionally, VRF (variable refrigerant flow) could be used to cool management offices while the resultant hot

and cold water is used to heat and cool the lobby area via radiant technologies. A top priority for multi-family building design is management and reliability of these systems. Simplicity in design, ease of installation, and immediate access for operational maintenance remain areas of particular importance.



Given the increased usage of varied ducting and plumbing within vertical multi-family structures, issues of moisture intrusion can reach unmanageable levels during operation if not properly accounted for. If, for instance, insulation gets wet then that moisture could lead to mold problems that may go undetected for months or even years simply as a result of the physical constraints of the construction envelope. Additionally, refrigerant piping is a constant culprit for condensation build up and even refrigerant leaks over time. As this piping traverses the inner workings of a building, the risk of moisture damage increases exponentially. Designing a system with the most protective insulation barrier is insurance any designer can afford.

Since multi-family buildings can contain scores of different air-conditioning technologies, it is safe to assume that the





noise from the fans and blowers inherent to these technologies will bring along unpleasant noises and acoustic ailments. While insulation can be used to preserve air quality and temperature, the acoustic benefits should not be taken for granted in designs mitigating confined spaces. For example, air-handling units cooling a fitness center require specific acoustic conditioning to maintain the acoustic comfort of occupants in a neighboring residential area. Lining and wrapping ductwork with closed cell insulation helps manage audio frequencies specific to air-handlers and potential microbial growth common to open-cell insulation types.

## INNOVATIONS

It is important for designers to note the increasing population choosing apartment and multi-family living. Innovation will be required to manage the residual effects of increased population density and resource demand in these facilities. Topics like passive fire control, uniform equipment systems, and increased integration of dissimilar technologies already present opportunities for innovation in the mixed-use design of today. As custom HVAC and plumbing solutions become increasingly sought after, designer reliability and consistency will become an increasingly important standard by which these facilities are developed.

LEED certification is also increasingly popular. While it is a benefit for building owners and tenants, demanding limitations will be placed on technology selection and implementation. Appropriate selection of materials and equipment that help qualify buildings for LEED certification is necessary if an owner wishes to achieve long-term durability and lower maintenance costs. Insulation systems should provide both of these things. **At Armacell, innovation gets you there.**

## INSULATION DESIGNED FOR THE CHALLENGES OF MULTI-FAMILY BUILDING APPLICATIONS

The one thing all of these design variables have in common is the need for proper insulation. Armacell's insulation systems are ideal for insulating chilled water piping, chillers, cooling tanks and air handlers. Insulating pipes, refrigeration lines or cooling systems not only promotes energy efficiency, but it also prevents condensation on below-ambient temperature surfaces — a critical issue for multi-family facilities and communities.

Specifying Armacell Systems for multi-family buildings is a smart move. Armacell uses fiber-free, formaldehyde-free, low VOC formulation for its foam insulation, which makes it an excellent option for any

environment, eliminating particulate that can jeopardize air quality and equipment. Closed-cell structures also prevent moisture ingress and naturally resist growth of mold and mildew. Most importantly, the flexible nature of Armacell's insulation means it installs easily in tight spaces in floors, walls or ceilings. You can count on Armacell insulation retaining its thermal integrity over time, lasting well into your future. ■







# MULTI-FAMILY BUILDINGS RELY ON OUR PROVEN SOLUTIONS

## PROJECTS WON

- **40 West 12th Autograph Condominiums** – Atlanta, GA
- **601 West 29th Street Residential Tower** – New York, NY
- **888 Bellevue Tower/Mixed-Use** – Bellevue, WA
- **Artistry One River Plaza Apartment & Retail** – Cincinnati, OH
- **Aston Martin Residences** – Miami, FL
- **E6 Rye Street Residential** – Baltimore, MD
- **Front & York at 85 Jay Street** – Brooklyn, NY
- **Hudson Yards-555 West 38th Street Residential Tower** – New York, NY
- **Jefferson at Central Apartments** – Dallas, TX
- **Luma at Miami World Center** – Miami, FL
- **Metropica Apartments, Garage & Pool - Tract A Building D** – Sunrise, FL
- **One Hundred Apartment Tower, Shops & Parking Garage** – Saint Louis, MO
- **Peace Apartments/Mixed-Use** – Raleigh, NC
- **Queens Court Residences** – Arlington, VA
- **Residences @ Collier Center** – Phoenix, AZ
- **River Walk Apartment Tower One - Retail** – Philadelphia, PA
- **The Academy at Reno** – Reno, NV
- **The Island Residences Apartments & Parking Garage** – Edina, MN
- **The Waverley - Silver Dollar Room** – Toronto, Ontario
- **The Yard Apartments** – Davenport, IA
- **uCity Square Apartment Building** – Philadelphia, PA
- **Union Square/USQ Residential Tower - Phase 1** – Somerville, MA
- **Vara/Grand Residences/Mixed-Use** – Los Angeles, CA
- **Waterfront Station II Mixed-Use Development** – Washington, D.C.
- **Wolf Point South Tower B Office Salesforce** – Chicago, IL

## SMART SOLUTIONS FOR YOUR BUSINESS

Armace'll's Solutions Portfolio groups insulation products into comprehensive packages aimed at making the specification of the right insulation for mechanical systems easier than ever before. Mechanical engineers, insulation contractors, building owners, or distributors can easily identify the best insulation products for use in an air plenum, on HVAC/R mechanical piping, chilled, or plumbing – the key places where insulation is critical to the performance of the equipment. Packages offer two levels of cost and service: High and Superior Performance with a 10- or 15-year warranty.

All data and technical information are based on results achieved under typical application conditions. It is the customer's responsibility to verify if the product is suitable for the intended application. The responsibility for professional and correct installation and compliance with relevant building regulations lies with the customer. By ordering/receiving product you accept the Armacell General Terms and Conditions of Sale applicable in the region. Please request a copy if you have not received these.

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## ABOUT ARMACELL

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As the inventor of flexible foam for equipment insulation and a leading provider of engineered foams, Armacell develops innovative and safe thermal and mechanical solutions that create sustainable value for its customers. Armacell's products significantly contribute to global energy efficiency making a difference around the world every day. With more than 3,300 employees and 27 production plants in 19 countries, the company operates two main businesses, Advanced Insulation and Engineered Foams. Armacell focuses on insulation materials for technical equipment, high-performance foams for acoustic and lightweight applications, recycled PET products, next-generation aerogel technology and passive fire protection systems.

For more information, please visit:  
[www.armacell.us](http://www.armacell.us)

