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Why Choose Closed-Cell Foam Over Fiberglass Wrap for Crawlspace Ductwork in New Orleans

In New Orleans' Climate Zone 2, where extreme humidity and high water tables create the perfect storm for insulation failure, closed-cell spray foam isn't just superior to fiberglass—it's essential for long-term ductwork protection.

Extreme Moisture Resistance in America's Most Humid City

New Orleans experiences some of the most challenging moisture conditions in the United States. Current humidity levels routinely exceed 80%, with summer months bringing sustained periods of 90%+ humidity[1]. Combined with the Gulf South's high water table, crawlspace moisture levels can reach 70-75% humidity even when outdoor levels are lower[2][3].

Closed-cell foam maintains its insulating properties regardless of these extreme moisture conditions. Unlike fiberglass wrap, which can absorb moisture and lose up to 50% of its R-value when wet, closed-cell foam's dense structure prevents moisture infiltration entirely[4]. Research shows that fiberglass insulation becomes completely ineffective in high-moisture environments, particularly when humidity exceeds 60% for extended periods[5].

In New Orleans' crawlspaces, where the **water table can be as shallow as 27 inches below ground surface**[6], traditional fiberglass wrapping becomes saturated and loses thermal performance within months rather than years. Closed-cell foam, with its **R-value of 6.5-7.0 per inch**, maintains consistent thermal performance regardless of the 80%+ humidity levels common in local crawlspaces[7].

Superior Air Barrier Properties in High-Moisture Climates

Louisiana's humid subtropical climate creates the perfect conditions for condensation formation on ductwork. When cool air-conditioned air moves through ducts surrounded by warm, humid crawlspace air (often 10-15 degrees warmer than ductwork surfaces), condensation is inevitable with traditional fiberglass insulation[8].

Closed-cell foam serves as both an insulation and vapor barrier, preventing the air infiltration that destroys fiberglass performance in humid climates. When applied at 1.5 inches or thicker, closed-cell foam creates a **complete vapor barrier with permeance ratings below 1 perm**[4], effectively sealing ductwork from New Orleans' moisture-laden air.

This air-sealing capability is crucial in Gulf Coast crawlspaces where **temperature differentials between cool ductwork and warm, humid air create ideal conditions for condensation year-round**. Studies of similar climate conditions show that even small gaps in fiberglass wrap allow air movement that can reduce R-value by 10-40% in humid environments[9].

Eliminates Condensation and Sweating in Extreme Humidity

Ductwork condensation is a persistent and severe problem in New Orleans crawlspaces, where outdoor humidity levels of 90%+ combine with high water tables to create saturated crawlspace conditions. LSU AgCenter research specifically addressing Louisiana's raised floor homes found that **moisture problems under insulated floors are endemic** due to the state's high water table and flood-prone conditions[8].

The combination of **New Orleans' 80-90% humidity levels with cool air-conditioned ductwork** creates perfect conditions for sweating ducts. This condensation leads to:

- **Extensive mold growth** in crawlspaces within 48-72 hours of sustained moisture exposure[10]
- **Accelerated corrosion** of metal ductwork in the salt-air environment
- **Structural damage** from chronic moisture exposure to floor framing[11]
- **Indoor air quality problems** as moisture-laden air enters the home through ductwork leaks

Closed-cell foam's superior insulating properties and moisture barrier characteristics prevent the surface temperature conditions that lead to condensation even in New Orleans' extreme humidity. The foam acts as a thermal break, keeping duct surfaces above the dew point temperature even when crawlspace humidity reaches 90%+ during summer months[12].

Infinite Lifespan vs. Rapid Replacement in Gulf Coast Conditions

In New Orleans' harsh crawlspace environment, fiberglass duct wrap typically fails within 3-5 years rather than the 10-15 years seen in drier climates. The combination of **high humidity,**

temperature swings, and saltwater intrusion accelerates fiberglass degradation dramatically[13].

Louisiana contractors report finding **fiberglass insulation that has completely fallen from ducts, become moldy, or lost structural integrity** within just 18-24 months of installation in high-moisture crawlspaces[14]. The state's **frequent flooding and storm surge events** further compromise fiberglass performance, requiring complete replacement after each major weather event.

Closed-cell polyurethane foam can last 80-100 years when properly installed, essentially a lifetime solution even in New Orleans' challenging conditions. This durability stems from its **plastic polymer composition, which resists degradation from moisture, salt air, and temperature fluctuations**[15].

Protection Against New Orleans-Specific Crawlspace Challenges

New Orleans crawlspaces face unique environmental stressors that make closed-cell foam not just preferable but necessary:

Extreme Moisture Management: With **average annual humidity of 74%** and routine summer peaks above 90%[3], crawlspaces commonly experience humidity levels that render fiberglass completely ineffective. Closed-cell foam's impermeable structure prevents moisture absorption entirely.

High Water Table Effects: New Orleans' **shallow water table (often 2-3 feet below surface)** creates constant moisture pressure from below[6]. This **ground moisture vapor continuously attacks fiberglass insulation** from underneath, while closed-cell foam creates an impermeable barrier.

Salt Air Corrosion: The **Gulf Coast's salt-laden air accelerates corrosion** of both ductwork and fiberglass supports. Closed-cell foam provides **comprehensive protection against salt air penetration** while maintaining adhesion in corrosive environments[10].

Storm Surge Recovery: New Orleans' **flood-prone location** means crawlspaces regularly experience storm surge and flooding events. **Wet fiberglass becomes completely unusable** and must be replaced after each flood, while closed-cell foam can be cleaned and continues performing even after water exposure.

Long-Term Cost Effectiveness in Extreme Climates

The economics of insulation in New Orleans' extreme climate overwhelmingly favor closed-cell foam. Consider these New Orleans-specific factors:

- **Frequent replacement costs**: Fiberglass wrap requires replacement every 3-5 years in local conditions vs. 80+ years for closed-cell foam
- **Storm recovery expenses**: Each major weather event requires complete fiberglass replacement
- **Mold remediation costs**: Fiberglass's moisture absorption leads to frequent mold problems requiring professional remediation
- **Energy penalty**: Degraded fiberglass in humid conditions can increase cooling costs by 15-25%[7]
- **HVAC system stress**: Poor insulation performance forces air conditioning systems to work harder in New Orleans' 7-8 month cooling season

Conclusion: Essential Protection for America's Most Challenging Climate

In New Orleans' Climate Zone 2, replacing deteriorating fiberglass duct wrap with new fiberglass is not just ineffective—it's wasteful. The city's combination of **extreme humidity, high water tables, and harsh coastal environment** will continue to destroy fiberglass performance within months of installation.

Closed-cell foam application represents the only viable long-term solution for ductwork insulation in New Orleans crawlspaces. By providing **superior moisture resistance, air barrier properties, condensation control, and decades-long durability**, closed-cell foam ensures your ductwork investment delivers optimal performance despite the Gulf South's most challenging environmental conditions.

In America's most humid city, closed-cell foam isn't just better—it's the only practical choice for permanent ductwork protection.

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1. https://www.accuweather.com/en/us/new-orleans/70112/current-weather/348585
2. https://southernpestcontrol.biz/crawl-space-and-moisture/
3. https://southernclimatesolutions.com/CRAWL-SPACES-IN-HUMID-CLIMATES/
4. https://www.rlcengineering.com/wp-content/uploads/2019/03/sprayfoam_091908.pdf
5. https://www.greenfiber.com/uploads/documents/PM-6.3-17-Rev-B-Moisture-Control-Sheet.pdf
6. https://thelensnola.org/2015/07/07/experts-on-water-and-subsidence-you-cant-manage-what-you-dont-measure/
7. https://rmlaplaceinsulation.com/what-are-the-best-insulation-practices-for-louisiana-homes/
8. https://www.lsuagcenter.com/portals/communications/news/news_archive/2011/july/headline_news/lsu-agcenter-releases-results-of-raised-floor-insulation-study
9. https://www.retrofoamofmichigan.com/blog/fiberglass-insulation-problems
10. https://www.sunlightcontractors.com/moisture-prevention-new-orleans-homeowners/
11. https://academyhouseleveling.com/top-10-foundation-problems-new-orleans-homeowners-face-and-effective-solutions-to-fix-them/
12. https://sprayfoamsys.com/spray-knowledge/5-tips-for-applying-spray-foam-insulation-in-high-humidity/
13. https://greenstarfoaminsulation.com/uncategorized/outdated-fiberglass-home-insulation-health-risks/
14. https://greenstarfoaminsulation.com/home-insulation/humidity-control-with-louisianas-best-home-insulation/
15. https://aeroflexusa.com/is-closed-cell-foam-insulation-waterproof/