



## Architect & Engineer Create Cutting Edge HVAC Design For 21 Century Gymnasiums.

**Fabric ductwork creates aesthetics and IAQ; separate energy recovery outdoor air dehumidifiers cut HVAC energy costs by 50%.**

Florence, Texas—When architect Randall E. Fromberg recommended fabric HVAC ductwork for the Florence Independent School District's (ISD) new \$2.4 million gymnasium, it raised a few eyebrows.

However, the skeptics were quieted once Fromberg, president of Fromberg Associates Ltd., Austin, Texas, and representatives of construction management firm, Kencon Constructors Inc., San Antonio, brought an entourage of board members and administrators

to another school district to see why fabric duct is the fastest growing air distribution alternative in open ceiling architecture designs.

Architect firm, Fromberg Associates Ltd., Austin, Texas, has fabric duct in over 10 gymnasiums and cafeterias it has designed over the last eight years. "I guess we're a little more cutting edge than some other architects; we are always looking for ways to add value to our client's budget," Fromberg admitted.

The Florence project's consulting engineer, Gil Kent P.E., president of mechanical/electrical/plumbing engineering firm, Kent Consulting Engineers LP, Austin, was no stranger to fabric duct either after specifying it on over two dozen projects.



While Fromberg likes the streamlined aesthetics, Kent specifies fabric duct because of cost-saving benefits as well as performance characteristics. Performance tests prove that fabric duct disperses air more evenly and efficiently than metal duct/register configurations. Thus it fit Kent's energy efficient HVAC system design that uses energy recovery to treat outside air and save Florence over 50 percent in air conditioning operating costs versus conventional DX equipment designs.

Kent specified DuctSox Corp., Dubuque, Iowa, commercial grade Verona fabric duct with Comfort Flow air dispersion that allows 85 percent of the air to flow evenly through linear vents spanning the entire length of duct while the remaining 15 percent flows through the fabric to eliminate condensation and surface dust accumulations—always a problem for Texas gyms and natatoriums. The air distribution configuration consists of two 165-foot-long runs of 36-inch-diameter duct with one L-Vent linear diffuser along the entire length. Unlike metal duct registers every 10 feet, the linear diffusion produces an even air distribution without drafts that efficiently results in less HVAC equipment run-time.

While the continuing escalation in world market metal costs have made fabric ductwork cheaper than double-wall spiral metal duct, Florence saved the bulk of its costs on labor, which according to mechanical contractor, Lockridge-Priest Inc., Temple, Texas, was approximately 50-percent less than installing metal

duct. Installing fabric was also easier than metal even though Kent specified a duct configuration with many radiuses to emulate the slope of the gym's gable roof and keep the ductwork more remote from the basketball/volleyball playing areas. "It only took two days to install because the learning curve was short and once the suspension system is installed, the actual fabric duct installation goes fast," said Jim Kruse, vice president of Lochridge-Priest Inc., which had no prior experience with fabric duct, but plans to use it in the future on future design/build projects.

Florence ISD's Maintenance Director, Barry Clemens, likes the fact that Kent's fabric air distribution design has eliminated cool and hot spots in the space and provided a more even temperature for gym participants as well as spectators.

The ductwork also sports custom school colors of blue and white as well as silk-screened logos of the school's name, the "Buffalos." "When the ventilation is idle it looks like a banner you would typically see in a gym," added Fromberg.

While Ductsox's color matching was exact, Fromberg recommends sending a fabric duct manufacturer a sample color to assure an exact match. In addition to aforementioned benefits, Florence's fabric duct won't fade and the school has the capability to use its own staff to disassemble it and commercially launder it, if needed.

The Florence ISD gym addition is a good example of an architect, consulting engineer and contractor teaming up to save a school district significant construction costs, but without sacrificing critical IAQ and aesthetics in the process.

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