

NEW DATA CENTER
AND MULTIPLE TENANT OFFICE BUILDING

Energy Efficient **LEED** Certified Construction

stafford associates
computer specialists, inc





SOUTH BUILDING ELEVATION



WEST BUILDING ELEVATION

Data Center Design and Construction



LEED Gold

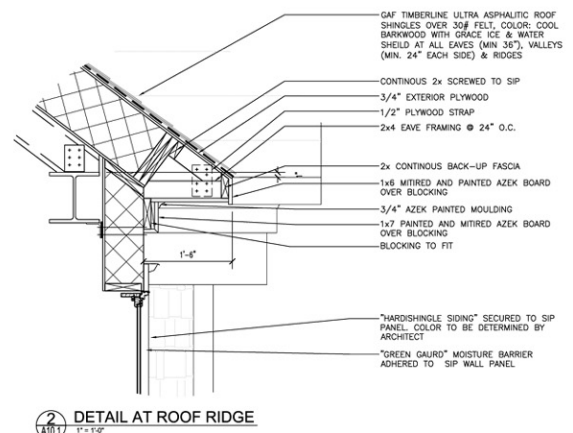
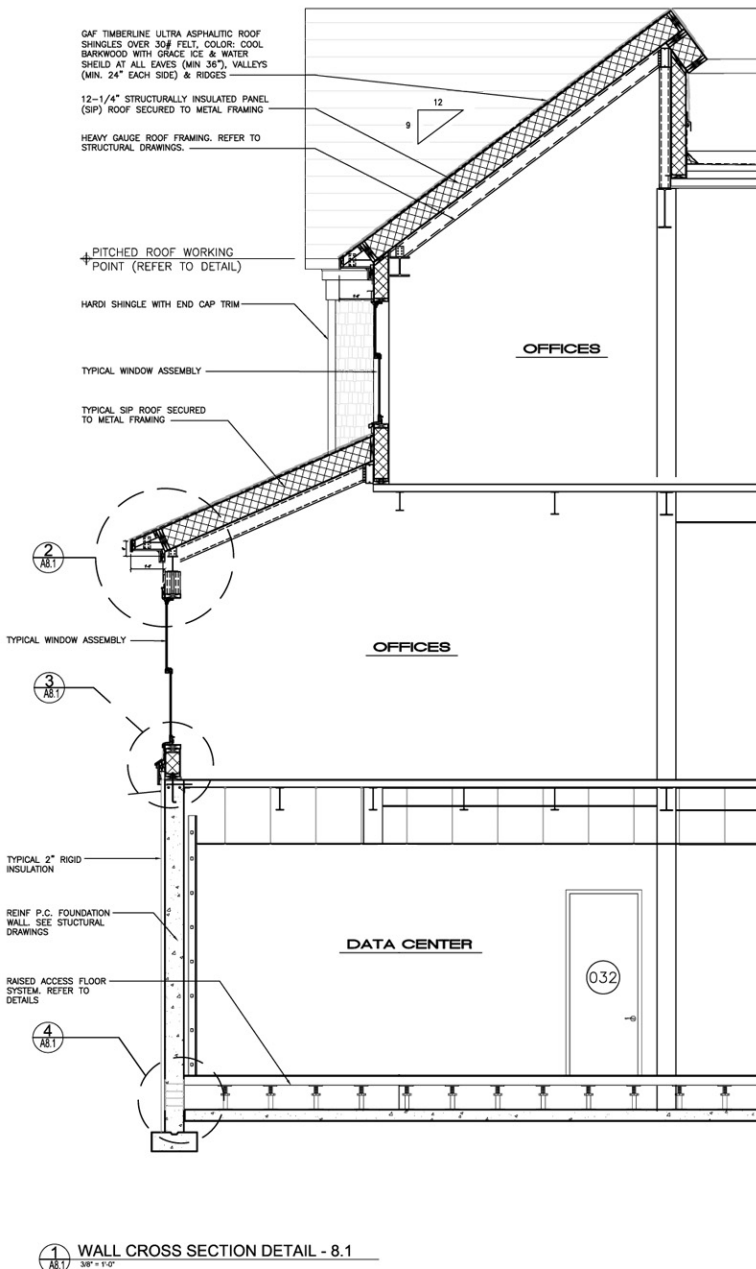


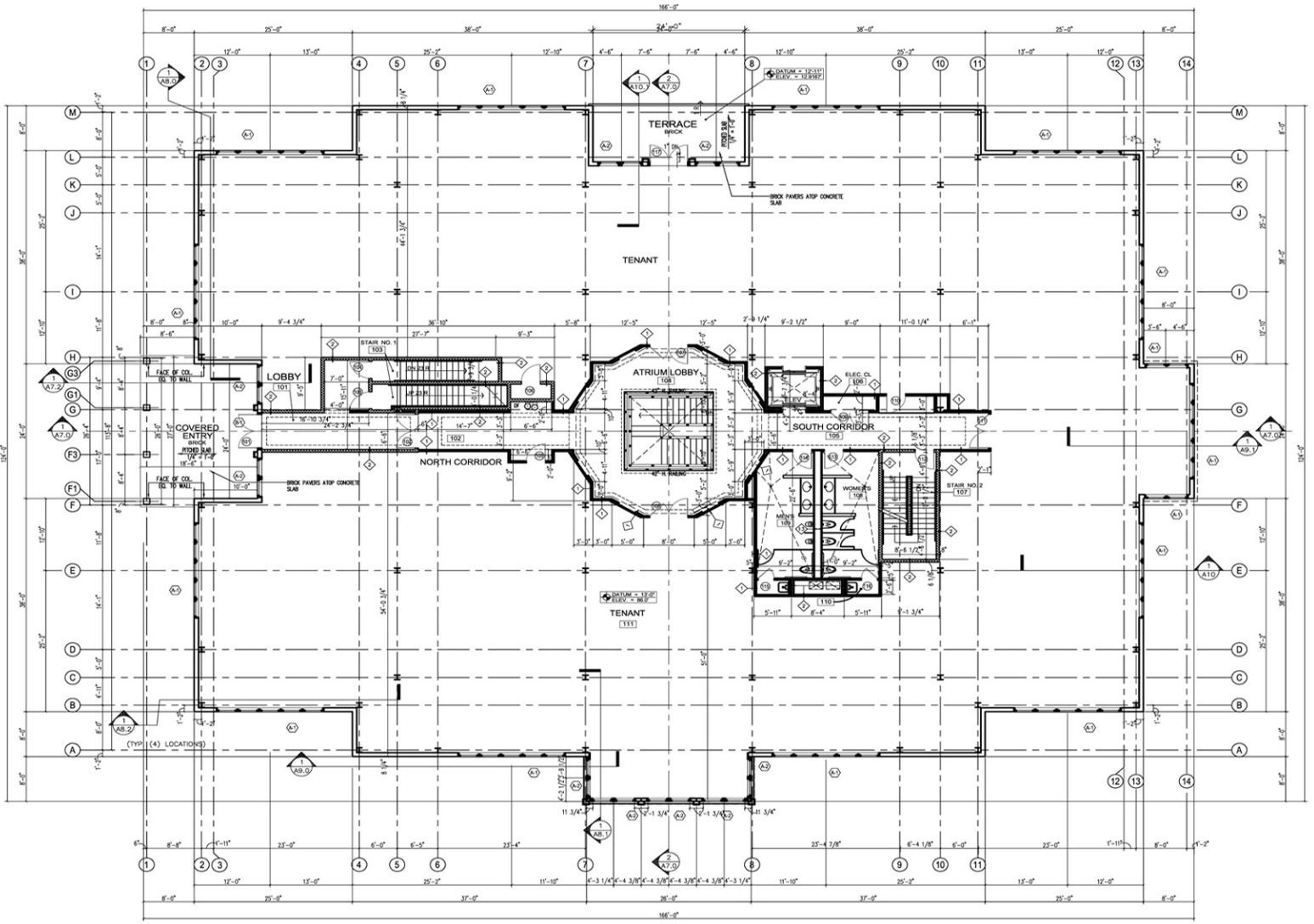
Developing an office building inside a traditional New England style historical district can present a host of challenges, but building an office building to house a mission critical Data Center within an historical district that is also LEED Gold (2012) certified requires a precise knowledge of computer network facilities and a sensitive design approach to create a facility in tune with its surroundings.

The 48,000 SF Stafford Data Center will meet Tier III Data Center "Concurrently Maintainable" requirements as per industry standards of reliability. The Data Center will allow for two phase occupancy for an ever expanding demand for co-location and server space growth to the first PCI DSS (Payment Card Industry Data Security Standard Certified) Data Center in the Tri-State/Metropolitan area. Additionally, the new building will contain approximately 18,000 sf of leasable class "A" office space in addition to the Data Center and Stafford Office spaces.

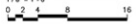
WFC's objective for the Data Center Project was to create a home for a computer networking client and provide an environmentally safe and efficiently managed building. The challenge was to meet the design of a 21st century technology building to reflect the historical correctness established in this circa 1800's town. To achieve the municipality's approval for construction the design elements captured notable architectural features symbolic of the area history and aesthetic heritage of the community.

To accommodate the enormous energy consumption critical to this type of facility, several vital and redundant infrastructure systems were employed. To relieve the power demand associated with a Data Center, WFC incorporated an Open Loop Geothermal system to provide relief on the demands for the conventional environmental space conditioning within the business occupancies. An open loop system can be installed economically if there are existing wells or a high water table allowing the use of a shallow well. Additional economies are realized in cold climates that allow for intermediate "free cooling" by passing cold well water through a coil in the air handling unit. The Data Center cooling shall be from redundant down draft Liebert Drycoolers via an 18" raised access floor system and returned through overhead ceiling plenums.





FIRST FLOOR PLAN



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Redundant emergency stand alone power systems have been designed to protect the crucial network data that will be streaming through the network servers via (2) 1.0 Megawatt Diesel Generators. Furthermore the Data center will incorporate (2) two redundant 300 KVA UPS Battery Back-up units to meet the required redundancy of uninterruptable uptime.

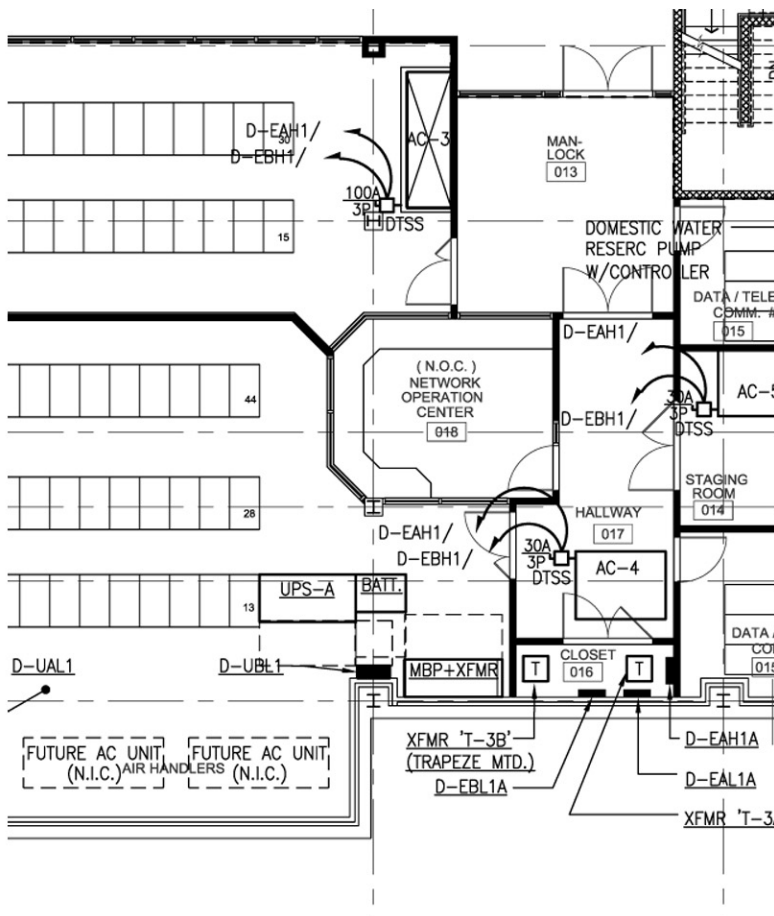
Additional design efforts were pursued by WFC to further reduce the environmental and financial burdens of maintaining consistent temperature control within the data center space and office areas by skinning the exterior walls and roof with environmentally friendly structural insulated panels (aka SIP's). SIP's panels provide an insulation envelope 40-60% greater than conventional wall and roof building systems. The Stafford project required an experienced design team to incorporate custom details to facilitate the use of the SIP's panels as a "curtain wall" application for a larger scale steel framed building than would typically be used. Additional savings for construction labor and quality assurances are beneficial factors with the shop fabrication of the SIP's to exact pre-cut panel sizes delivered to site for installation.

Energy efficient double hung windows with simulated divided lites were specified to match the historical correctness of the buildings location. Affects of solar gain were reduced by use of the highest performance glazing available, Cardinal's LoE3-366 Glass, in all exterior glazing. LoE glass performs by rejecting solar heat and ultraviolet rays while maintaining the highest clarity and light transmittance than of other clear coated insulated glazing products.

As a result of WFC's attention to use of the latest energy efficient products and the use of leading building technologies, computer modeling has evaluated the energy consumption to be approximately 30% less than a building of the same size constructed to the standards of the current energy code.

The exterior lighting systems are designed to be Dark Sky compliant (to prevent lighting pollution). Rain water is collected to provide recycled water for the sprinkler system. The site was designed to retain a majority of the natural landscape that will re-establish itself after construction is complete.

These design initiatives contribute to WFC's achievement to provide for the owner's need, be sensitive to the historic community and meet the energy efficiency standards of the future, today.



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ARCHITECTURE

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