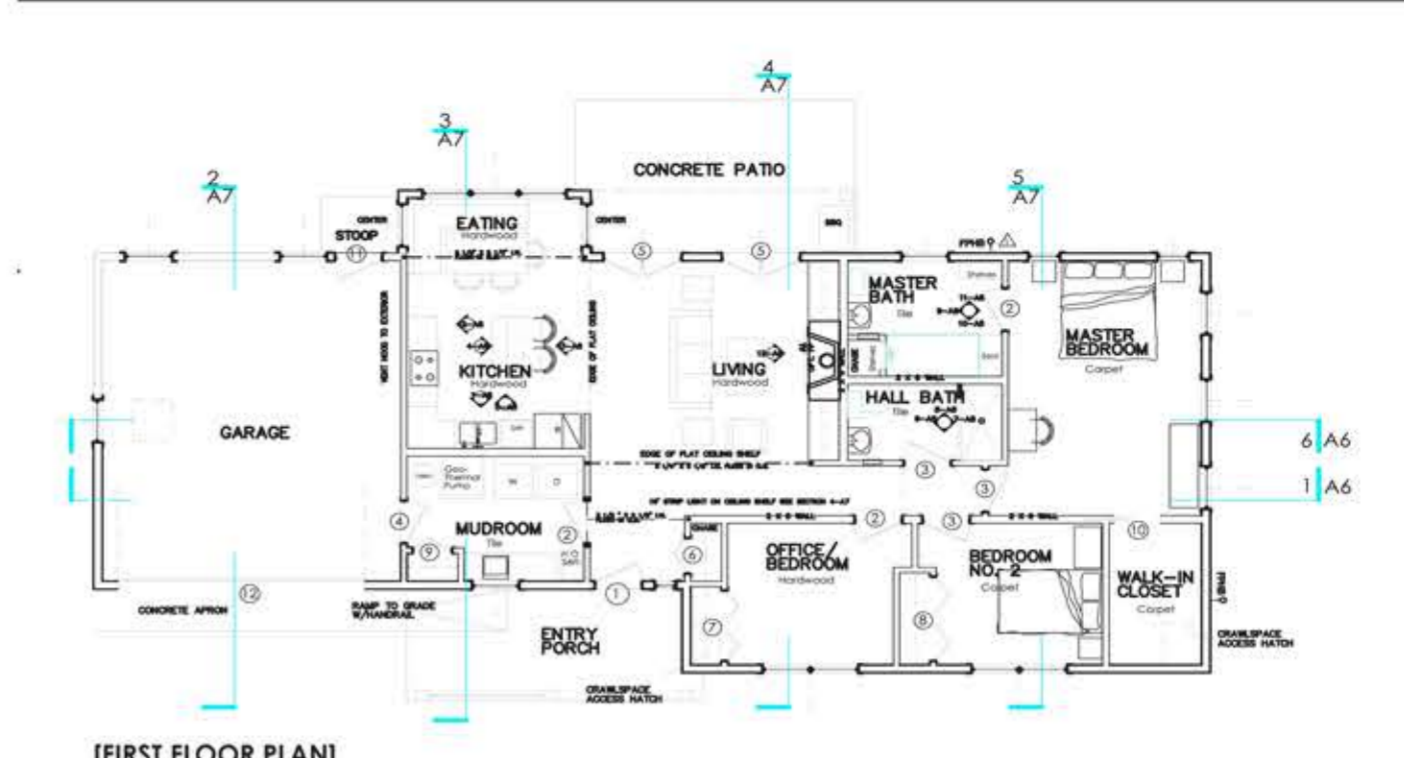


Warner Residence



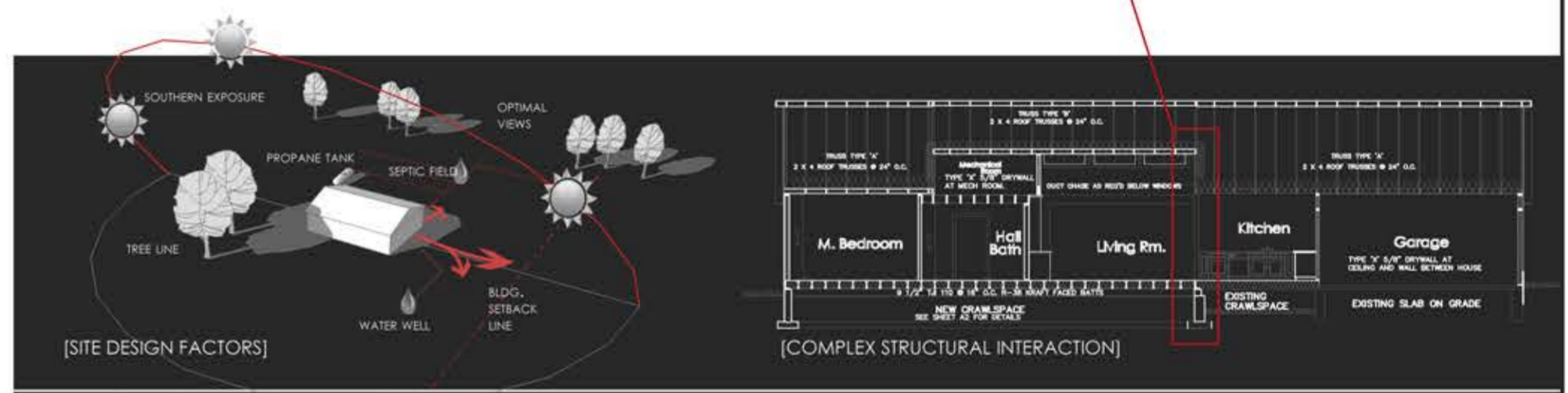
The WARNER RESIDENCE project is a single family home addition in rural central Illinois. The client for this project had many particular needs he wanted addressed in the expansion project that had to be reconciled in the design. The expansion was to reuse as much of an existing structure as possible, be as energy efficient as possible, and provide handicap accessibility in the bathrooms, while being as spatially and fiscally efficient as possible. These goals were achieved by eliminating any unnecessary rooms from the plan, and combining the communal spaces of the house into one large great room. Environmentally friendly materials, good solar heating and passive cooling techniques were also used in conjunction with super insulation and a geothermal heat-pump to achieve the environmental goals of the client.



[FIRST FLOOR PLAN]



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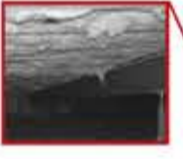
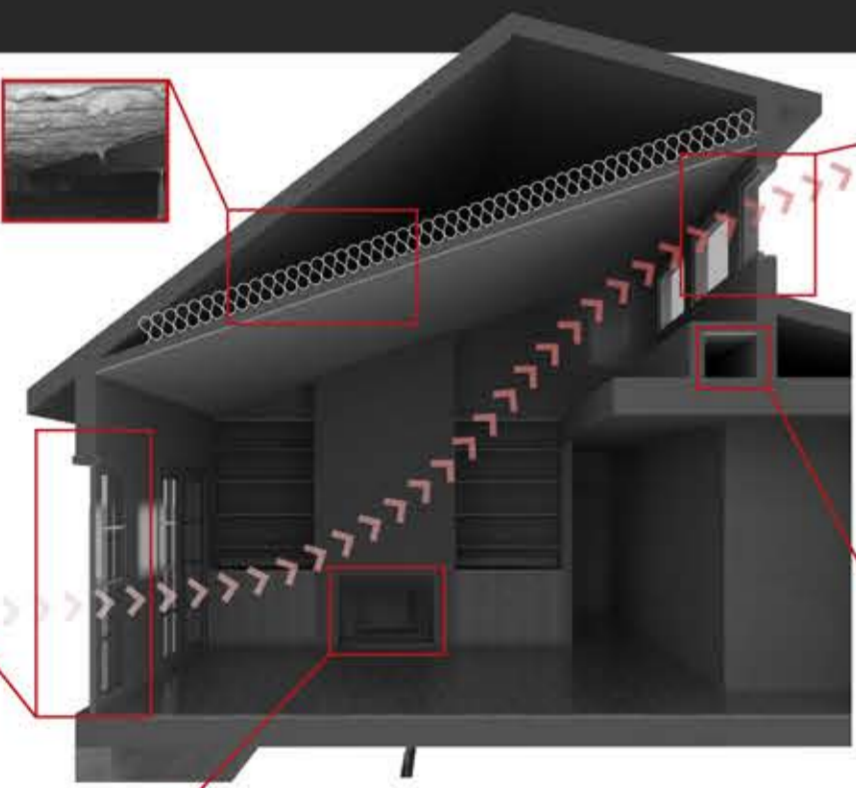
[SITE DESIGN FACTORS]

[COMPLEX STRUCTURAL INTERACTION]

Warner Residence - Summer 2011

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Super-insulation was used to achieve complete thermal encapsulation. R-values used were R-43, R-38, and R-21 for the attic, crawlspace, and wall cavities respectively.



Passive solar heating was accomplished through five clerestory windows on the south wall of the living area. The windows are shaded from sun all summer, but allow winter sunlight to penetrate and heat the primary space.



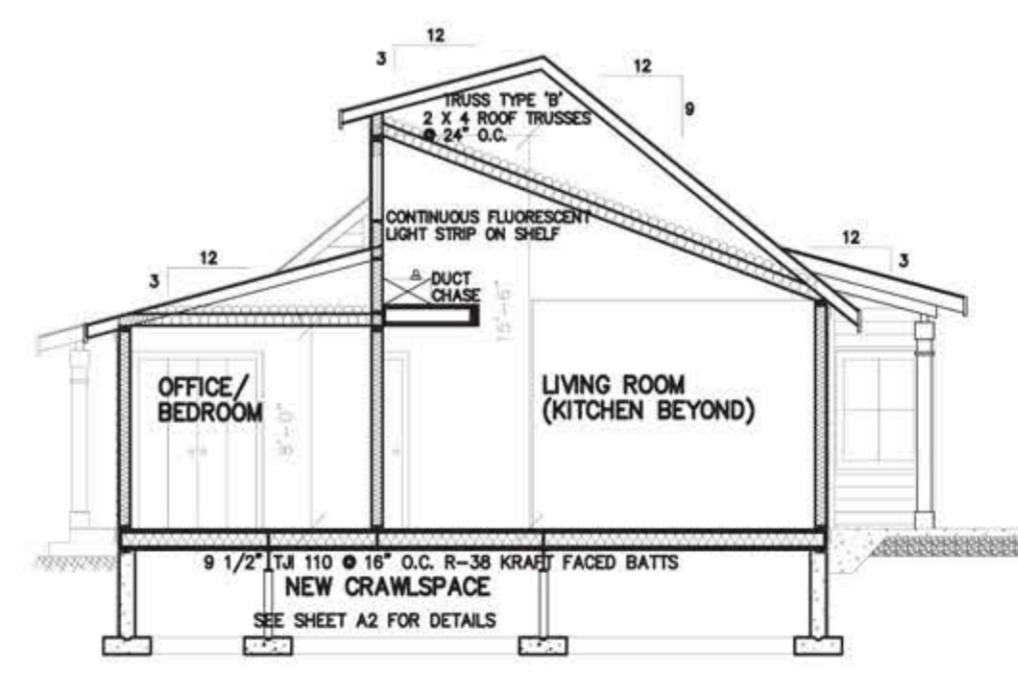
Large French doors allow for efficient natural ventilation when used in conjunction with remotely operable clerestory windows. Cool air from the shaded north patio is drawn up through the space, expelling warm air through the clerestory.



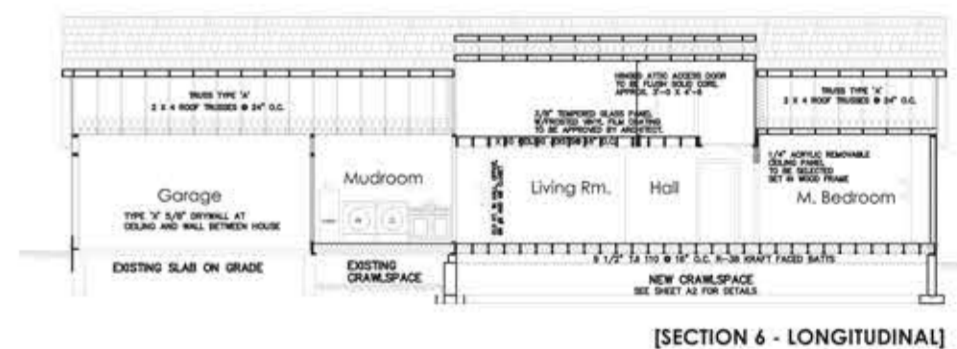
A geothermal heat pump was used as the primary HVAC method. Conditioned air is pumped into the space after extracting or depositing heat from or into the ground.



A prefab fireplace was selected to function as a wood-burning furnace. Fire is fueled with oxygen from an exterior vent, while interior air is circulated around the firebox.



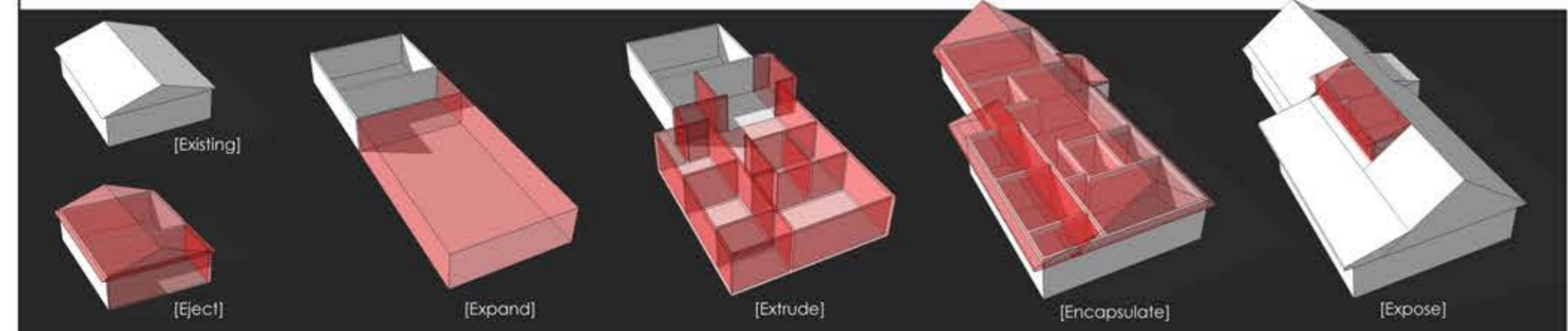
[SECTION 4 - TRANSVERSE]



[SECTION 6 - LONGITUDINAL]



[SECTION 2 - TRANSVERSE]



Because the existing home was built by hand by the client and his father, it retained sentimental value to the owner, who asked that it be preserved as much as possible. To waste as little material and preserve as much of the original house as possible, the existing foundation, floor system, and partial exterior walls were reused. The site's existing condition became an integral factor in the design of the new home. Much of the structure was retained, although a new roof was necessary. As work progressed, the old and new structures became fully integrated. Both parts were strengthened by the diaphragm action of a continuous roof.

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