

The Transitions House

Designing and Building a Net Zero Energy, LEED Platinum House for Special Needs Students in the USD 253 School District, Emporia, Kansas

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A Design/Build Collaboration

*between the Department of Architecture at
Kansas State University and the Construction
Technology Program at the Flint Hills
Technical College*

Technical Systems

Energy Conserving Building Envelope

- *Superinsulated construction using earth integration, ICFs (R-40), cantilevered scissor trusses with R-60 cellulose, low emissivity windows (shaded during overheated season).
- *Passive solar heating (direct gain and sunspace)
- *Passive cooling (cross and stack ventilation, with whole house fan)
- *Cool roof shingles (high reflectivity and emissivity)

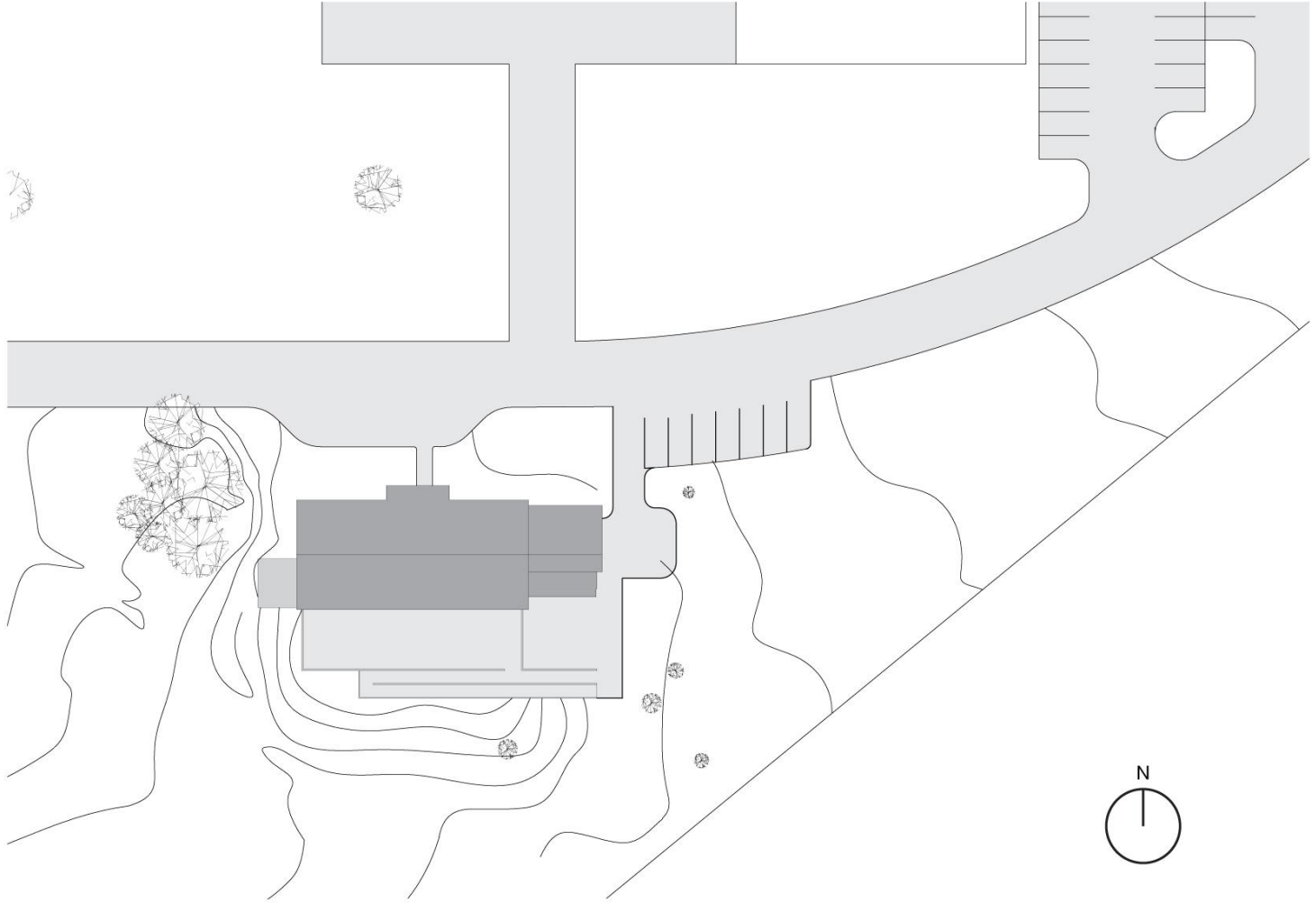
Super efficient HVAC Systems and Appliances

- *Electrically powered ground source heat pump for heating and air conditioning.
- *Compact fluorescent lighting (LEDs wherever possible)
- *Vacuum tube solar hot water heater.
- *Building integrated photovoltaic system to power appliances, lighting and ground source heat pump)
- *waste heat recovery ventilation system

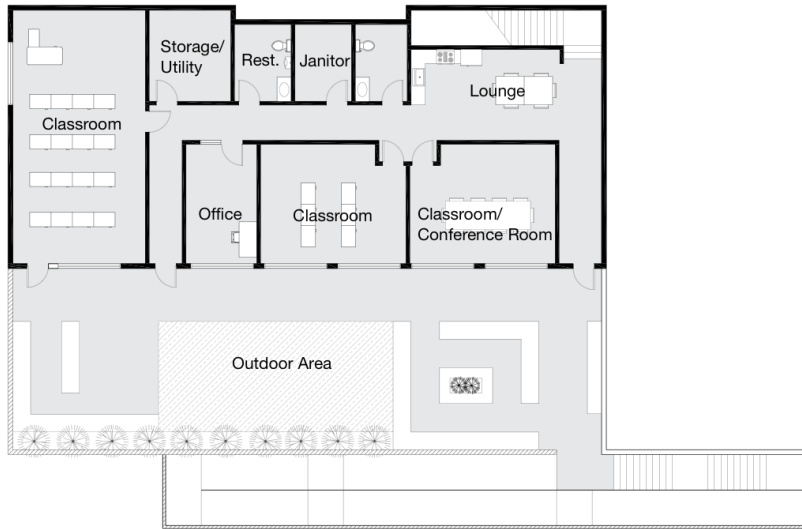


TRANSITIONS HOUSE

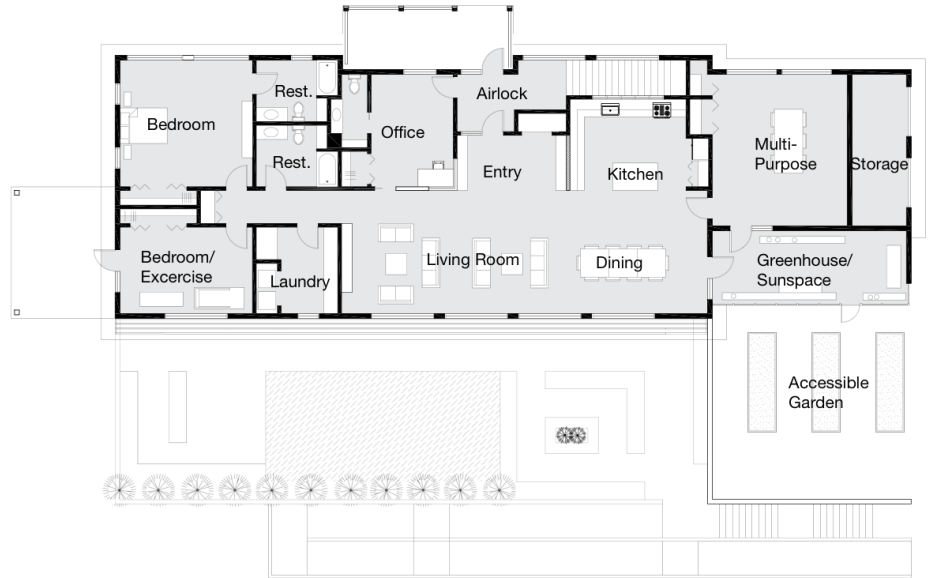
SARAH DEWS AND LEVI WALL
PROFESSOR GARY COATES



Site Plan



Basement Plan



First Floor Plan



North Elevation



West Elevation



South Elevation

East Elevation





Long Term Vision

- 1) The ***Transitions House*** will be the centerpiece of an organic Edible Landscape, with gardens for beauty and use, where Kansans can learn the arts of sustainable living and and sustainable design and construction.
- 2) This collaboration between ***KSU's College of Architecture, Planning and Design*** and the ***Flint Hills Technical College*** will become a standing option in the curricula of both institutions so that such projects can happen on a regular basis.
- 3) This ***New Model of Cross Institutional Collaboration*** will inspire institutions in other states to create their own service oriented design/build education programs.