

ADDISON COUNTY COMMUNITY TRANSPORTATION CENTER
GREEN DESIGN FEATURES
Addison County Transit Resources (ACTR), Middlebury, VT
March 2013

When designing the Addison County Community Transportation Center, ACTR's new administrative and maintenance facility, we considered numerous design "green" features. Construction is underway with occupancy expected by July 1, 2013. Design features were considered green if they reduced energy use and/or carbon emissions and also operating costs. They include the following:

1. Building is closer to central service hub (proximity reduces fuel use, carbon emissions, ops cost)
2. Solar PV array (reduces carbon-generated electric use and ops cost)
3. Wood pellet boiler as primary heat source (bio-fuel eliminates any new carbon emissions)
4. Radiant floor heating (relative efficiency reduces amount of fuel used and ops cost)
5. Hot water generated off primary heat source (reduces energy used to heat water and ops cost)
6. Additional insulation (higher R factor reduces amount of fuel used and ops cost)
7. Internal LED lighting (high efficiency reduces electric consumption and ops cost)
8. External LED lighting with sensors and timers (higher efficiency reduces electric consumption and ops cost)
9. Rain water collection system (reduces "new" water consumption and ops cost)
10. Day-lighting (increased natural light reduces electric consumption and ops cost)
11. Southern orientation (maximizes solar and day-lighting gains to reduce energy consumption and ops cost)
12. South overhang (control of passive solar reduces summer air conditioning and winter heating and ops costs)
13. Plumbing fixtures throughout are low consumption (dual flush water closets, low flow showers and lavatories all reduce water and energy consumption)
14. Ventilation air modulated based on CO₂ in office and CO & NO₂ in garage (reduces ventilation rates and energy consumption when the building is occupied)
15. Motors over ½ HP controlled via variable frequency drives (reduces electrical loads during non-peak building loads and ops cost)
16. Air-to-air heat pump system in office area will simultaneously heat or cool each zone with the ability to transfer energy within the building; building control system will monitor the interior building conditions and exterior conditions and will choose the most efficient heating method accordingly; the system will switch between the radiant heating (via biomass) or the air-to-air heat pump system (reduces energy consumption and ops cost)