SUSTAINABLITY FEATURES **DRAFT 8-19-14**

SITE

- An existing site and building will be developed, instead of an undisturbed parcel.
- The Spurwink School will be retained for other Town programs.
- The Library remains in the Town Center, adjacent to schools and other Town amenities.
- Public transportation???
- A two story addition minimizes building footprint while maximizing open/green space.
- The two story addition takes advantage of the South-sloping site to create a daylight lower level with at-grade access to an outdoor garden/green space.
- Existing site utilities will be used or upgraded as needed.
- Plant materials will be selected which are drought resistant and require minimal maintenance.
- Existing paved areas will be incorporated into the new parking to minimize impervious surface area and the treatment of storm water runoff.
- Canopy trees in the parking area provide shade over pavement, thereby reducing heat island effect.
- Site lighting fixtures will be selected to be energy efficient and to minimize light pollution.

WATER EFFICIENCY

- A water irrigation system will not be needed for landscape maintenance.
- Point of use water heaters- Heating domestic water close to the source results in energy and materials savings. Energy is saved by not maintaining a large volume of hot water. Materials are saved by not having to run a hot water distribution loop throughout the building. Energy is saved by not having a recirculating pump on the hot water loop and not having to make up the heat lost in a recirculating loop.
- Reuse of existing water heater – One of the water heaters is from the existing building. Reuse of materials and equipment saves new materials and landfill waste.
- Low flow lavatories – Saves water and energy by limiting flow through faucets
- Roof water drainage – Storm water has been separated from floor drains and waste streams to allow future use in irrigation if desired.

ENERGY

- Highly efficient LED light fixtures will be used at all interior and exterior locations.

- Windows, a skylight, and a glass enclosed stairwell will provide for natural illumination/daylighting to reduce electrical energy consumption and improve indoor environmental quality.
- The Pond Cove School Annex Building will have new insulation and moisture barrier to bring the existing construction up to performance standards exceeding the requirements for new construction.
- New construction will include insulation and moisture barrier that exceed the current Energy Code requirements.
- Energy Recovery Ventilator – During winter, the equipment allows energy in the exhaust air stream to be transferred to the intake air stream, conserving energy required to heat the air. During summer, the equipment allows the exhaust air stream to pre cool the intake air – saving air conditioning costs. The energy recovery ventilator also is capable of "economizing" where cool, outside air is used to deliver cooling to interior spaces that are above the thermostat set point.
- Hydronic Heating of Intake air – During very cold weather the incoming air will need to be tempered even after being warmed by the Energy Recovery Ventilator. This will be done by hydronic heat as opposed to electric – lowering our overall electric consumption by using cleaner gas fired equipment as a heat source.
- Upgraded Insulation on attic ducts – Reduces heat loss (and gain) through the duct and equipment walls of system components located in the building attic.
- Upgraded duct size – The ducts at the TML are larger than standard, reducing air velocities, reducing air friction, lowering fan power required and resulting in a quieter system.
- Heat Pumps for primary Heating and Cooling - Heat pumps deliver more energy for heating than they consume. This type of system reduces building total energy use compare to traditional fossil fuel heating sources.
- Two Stage High Efficiency Heat Pumps – The use of two stage heat pumps allows for improved energy efficiency in the cooling and heating systems as the heat pump capacity can more closely match the load of the interior spaces. It also improves comfort in the interior spaces as the incoming air temperature will more closely match the temperature desired for cooling and heating of the space.
- Direct Drive Air Handler Fans with ECM Motors – This type of fan drive is quieter than belt drives and is more efficient as the fan motors can be set to turn the fans at just the speed required to deliver the air without the inefficiencies associated with belt drive loss, throttling dampers and turning the motor at full speed.
- Propane/Gas Fired Boiler – This type of boiler delivers heat with low emissions compared to oil fired equipment and electric power producers.
- High Efficiency Boiler – The boiler will use less energy for a given amount of heat delivered than standard equipment resulting is lower fuel consumption and lower emissions.

MATERIALS

- Ruse of the Pond Cove School Annex Building and Spurwink School Building eliminates land fill waste and saves the energy that would have been used to manufacture new building materials.
- Construction waste will be recycled???
- Interior and exterior materials and finishes will be selected for durability and ease of maintenance, as well as recycled content.
- The use of regional materials and rapidly renewable materials will be a priority where they are appropriate.

INDOOR ENVIRONMENTAL QUALITY

- Operable windows will provide for natural ventilation at appropriate temperature conditions.
- Lower sound from air handlers, two stage air system heating and cooling plus hydronic for thermal comfort.