
Transportable, Factory-built “COMPACT” Utility Systems

For most installations, Architectural & Community Planning Inc. uses 20' or 40' ISO shipping container units to house the required utility components.

But to allow for maximum flexibility and ease of transport, the following “COMPACT” utility units are available.

- **Compact Power Supply Unit**
 - with system integrated, externally mounted renewable energy components
- **Compact Potable Water Treatment Units**
- **Compact Wastewater Management Units**



Space and weight constraints limit the capacity of these units --- but the modularity of the entire technology allows for capacity expansion as needed.

The “COMPACT” utility units are ideally suited for:

- **2 to 5 person temporary work camp installations (surveying, exploration, remote research station)**
- **Operations center for fire-fighting camps or disaster relief camps**
- **Infrastructure support for medical staff accommodation units at emergencies / disaster relief sites**

POWER SUPPLY:

The core components in the power supply module are:

- **Battery bank (non-off-gassing, maintenance free)**
- **Inverter (110 / 240 VAC) & MPPT system**
- **Power Distribution Panel (30 AMP) and**
- **Air-cooled Back-up Generator**

All power supply components are housed inside a 44” wide x 44” long x 48” high aluminum enclosure; the floor structure is designed to allow for “bottom lift” (by helicopter) or easy forklift handling. The enclosure is water shedding and all parts inside the enclosure can easily be serviced or exchanged by removing the side panels.



The renewable energy components are mounted externally as per site specific application. For example:

- **Solar PV panels** can be ground mounted, pole-mounted or attached to an existing structure
 - A small scale **wind generator** can be independently pole mounted in the vicinity of the core unit or directly attached – using the power supply unit as anchor.
 - A small scale **water turbine** can be placed in a nearby creek or river to allow for power generation.
 - **The core power unit is pre-wired** to accept various types of external renewable energy components.
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POTABLE WATER TREATMENT:

All components of the potable water treatment system are housed inside a 52" wide x 44" long x 72" high aluminum enclosure; the floor structure is designed to allow for "bottom lift" (by helicopter) or easy forklift handling. The aluminum enclosure is water shedding and full access to all service parts inside the unit is provided by removing the front panel only.

The potable water treatment module has the following components:

- **Raw Water Storage Tank** (2000 liter capacity). -- The use of a storage tank system ahead of the treatment process allows to collect raw water from a slow flowing well or a low capacity water delivery pump from a remote water source – the storage tank accumulates raw water for constant treatment. It also acts as a mechanical barrier and primary settling area to filter out coarse contaminants.
- Float activated **Transfer Pump** to deliver water from a suitable water source to the raw water storage tank (sized as per site requirements)
- General Electric **Membrane based Filtration System** – NSF 42 and 53 certified c/w 99.999% contaminant removal
- Duplex, fail safe **UV Disinfection System** c/w automatic shutdown feature
- Float activated **Pressure Pump** to deliver treated water to the user (sized as per site requirements)



The potable water treatment system is only using "soft start pumps" to allow for best power optimization. Obviously the power supply module can easily supply the power requirement for the potable water treatment unit.

WASTE WATER MANAGEMENT:

The wastewater technology is based on a passive trickle filter design and developed as a **stand-alone module** that can easily be shipped and installed on any installation site -- delivered to the installation site in a **ready-to operate condition**.

- Labour time for site installation is drastically reduced. No requirement for the installation of underground septic tanks – no blasting, no excavation; only minor surface earthwork for the disposal area is required.
- The waste water treatment system is only using "soft-start pumps" to allow for best power optimization.



Treatment results of the wastewater treatment system depend on the incoming sewage quality. On average, the treatment will result in the following discharge quality:

| | | | |
|----------|-------------------------------|-----|---------------|
| BOD | below 10 mg/l | TSS | below 10 mg/l |
| Coliform | 99% removal of fecal coliform | | |

The **POWER SUPPLY MODULE** is designed and matched to safely & reliably supply the power requirement for the potable water treatment unit **AND** the wastewater management unit – in **ADDITION** a small (energy optimized) accommodation unit or remote camp can be serviced as well.

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