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Continuing Education Course #479
Tiny Houses Part 5:
Highly Mobile and Off-Grid Case Studies

1. Why do some THOW builders become Recreation Vehicle Industry Association (RVIA) certified manufacturers?
- ○ a. Because of the great variation and uncertainty in how states, counties, and municipalities classify THOW
- ○ b. Because of the limitations differing governmental regulations place on moving THOW around the country
- ○ c. Because it may help buyers obtain more traditional financing and simplify the insurance and DMV registration processes
- ○ d. All of the above

2. Why do some THOW builders not become RVIA certified manufacturers?
- ○ a. Because it may limit legal full-time occupancy since RVs are often only allowed for travel and temporary use
- ○ b. Because of the cost of RVIA certification
- ○ c. Because some builders produce high end, customized projects, not mass produced models
- ○ d. All of the above

3. Both the International Residential Code (IRC) and the National Electrical Code (NEC) are viewable online for free.
- ○ a. True
- ○ b. False

4. What is this course's definition of a "highly mobile" THOW?
- ○ a. A THOW capable of fitting into very small properties or campsites
- ○ b. A THOW that moves semi-annually or more frequently between different properties or campsites
- ○ c. A THOW with its own propulsion system
- ○ d. A THOW that can be moved with a half-ton truck

5. What is this course's definition of "off-grid" locations?
- ○ a. Locations where electrical grid power is not available from a centralized utility provider
- ○ b. Locations not yet surveyed by a professional land surveyor
- ○ c. Locations where one or more of the standard utilities are not available from a centralized utility provider
- ○ d. Locations lacking vehicular access

6. What water source(s) does the course recommend for highly mobile THOW staying at sites without an existing water source?
- ○ a. Integral THOW water storage tank and/or bottled water
- ○ b. Rainwater harvesting
- ○ c. Bulk water delivery
- ○ d. A spring and/or surface water

7. How much water does the average person in the U.S. use each day for showering?
- ○ a. 7.0 gallons
- ○ b. 9.6 gallons

○ c. 11.1 gallons
○ d. 14.2 gallons

8. How can water consumption for a tiny house household be estimated?
○ a. Using the per person average water use information in Table 1
○ b. Finding historical occupant use from past water bills
○ c. Calculated using the maximum fixture flow rates in Table 1
○ d. All of the above

9. According to the course material, what are three ways to decrease potable water use in off-grid situations?
○ a. Install lower flow plumbing fixtures, take sailor/combat showers, and park in the shade
○ b. Install lower flow plumbing fixtures, take sailor/combat showers, and stop working out
○ c. Install lower flow plumbing fixtures, take sailor/combat showers, and reuse gray water for toilet flushing
○ d. Install lower flow plumbing fixtures, take sailor/combat showers, and divert water from a stream

10. How can you estimate the approximate depth a well will need to be to get a stable, sustainable water flow rate?
○ a. You can't, it's impossible to estimate
○ b. Through water dowsing
○ c. By using online tools on the Bureau of Reclamation's website
○ d. By obtaining water well reports from nearby existing wells and using topographic maps

11. Why do many well drilling and well supply companies offer free basic water quality testing for private wells?
○ a. These companies hope well owners will buy treatment systems from them
○ b. The companies are reimbursed by the government
○ c. To comply with the 1993 federal *Clean Well Water Act*
○ d. These companies don't provide any free services

12. Ninety feet of water pressure head is equal to how many pounds per square inch (psi) of pressure? (Use 62.4 lbs/ft^3 for water's specific weight)
○ a. 4
○ b. 39
○ c. 82
○ d. 468

13. _____ states have no significant laws or regulations against rainwater harvesting and _____ of these states encourage the practice.
○ a. Most, none
○ b. Most, many
○ c. Few, none
○ d. Few, many

14. How can water collected by rainwater harvesting be used for potable purposes?
○ a. By letting the sediment settle out of the water for a minimum of five days in the rainwater harvesting storage tank
○ b. By treating the water with the appropriate filters and proper disinfection
○ c. By treating the water with a set of four micron filters
○ d. By disinfecting the water with a U.L. listed Class B UV light

15. What type of precipitation data does the course author prefer to use when sizing residential rainwater harvesting systems used as the primary potable water source?

○ a. Yearly
○ b. Mean monthly
○ c. Median monthly
○ d. Daily

16. What might make kitchen sink wastewater change classification from gray water to black water?
○ a. Dumping alcohol down the sink
○ b. Connecting the sink drain to the laundry drain
○ c. Connecting a garbage disposal to the sink
○ d. Connecting the sink drain to the shower drain

17. What toilet type, drain-waste-vent (DWV) system type, and wastewater treatment or disposal method(s) does the course recommend for highly mobile THOW staying at sites with sewer hookups, when a composting toilet is acceptable?
○ a. Composting toilet, gray water only DWV system, and composting toilet for black water/sewer hookup for gray water
○ b. Flush toilet, combined DWV system, and sewer hookup for black and gray water
○ c. Composting toilet, gray water only DWV system, and composting toilet for black water/THOW storage tank for gray water
○ d. Flush toilet, separate DWV systems, and THOW storage tank for black water/THOW storage tank for gray water

18. Which of the following septic systems is usually the least expensive?
○ a. Pressure distribution system
○ b. Mound system
○ c. Conventional system
○ d. Recirculating sand filter systems

19. What are the major design inputs for one-family and two-family dwelling septic systems?
○ a. The percolation rate of the drain field soil and the square footage of the dwelling
○ b. The mean monthly soil temperature and the square footage of the dwelling
○ c. The percolation rate of the drain field soil and the number of bedrooms in the dwelling
○ d. The mean monthly soil temperature and the number of bedrooms in the dwelling

20. Storing wastewater and then having it trucked away for disposal is usually cheaper per gallon than a centralized wastewater system.
○ a. True
○ b. False

21. What are three primary concerns people often consider when selecting an energy source?
○ a. Economics, Environmental, Expense
○ b. Economics, Environmental, Independence
○ c. Economics, Environmental, Regulation
○ d. Expense, Independence, Regulation

22. _____ is used to size electrical services connected to the grid while _____ is used to size solar PV systems.
○ a. Peak power, average hourly power
○ b. Average hourly power, peak power
○ c. Average daily power, peak power
○ d. Peak power, average daily power

23. What is the average daily kilowatt-hour consumption of a 15 ft3 SunDanzer Model #DCRF450 direct current refrigerator?

○ a. 0.20 kWh at 70°F
○ b. 0.55 kWh at 70°F
○ c. 0.89 kWh at 70°F
○ d. 1.80 kWh at 70°F

24. In a solar PV system, what does an inverter do?
○ a. It connected together PV module wiring to produce the desired voltage output
○ b. It directs when electricity charges batteries versus releasing electricity from batteries
○ c. It converts DC electricity to AC electricity
○ d. It allows isolation or shut-off of the DC side of a PV system for safety or service reasons

25. What components are optional in a grid-tied solar PV system?
○ a. Charge controller and battery bank
○ b. Inverter
○ c. AC disconnect
○ d. Inverter and AC disconnect

26. What is the current at maximum power of a PV module if its maximum power is 320 watts and its rated voltage is 40.1 volts?
○ a. 0.13 amps
○ b. 7.98 amps
○ c. 9.58 amps
○ d. 12,832 amps

27. Dried Douglas fir wood has approximately ____ of energy per full cord.
○ a. 1 million BTUs
○ b. 11 million BTUs
○ c. 21 million BTUs
○ d. 31 million BTUs

28. According to the course author, why is using wood or wood pellets an environmental concern for some people?
○ a. They believe they are renewable, but not "green"
○ b. Tree cutting reduces habitat
○ c. Loggers use oil-based products to run their equipment and vehicles
○ d. Cut trees are not always replanted

29. What are some pros and cons of using propane as an energy source, especially for an off-grid and highly mobile THOW?
○ a. Pros: Makes using standard appliances comparatively inexpensive and low-tech; Cons: Venting is required and propane is not as environmentally friendly as some other options
○ b. Pros: Makes using standard appliances comparatively inexpensive and low-tech; Cons: Propane appliances and equipment are not readily available in the U.S.
○ c. Pros: Propane appliances and equipment cost less than both AC and DC equivalents; Cons: Venting is required and propane is not as environmentally friendly as some other options
○ d. Pros: Propane appliances and equipment cost less than both AC and DC equivalents; Cons: Propane appliances and equipment are not readily available in the U.S.

30. What are three reasons given for why backup power is helpful for off-grid solar PV systems?
○ a. Sustained cloudy periods, occasional high load uses, and savings on the upfront cost of battery banks
○ b. Sustained cloudy periods, occasional high load uses, and battery maintenance down time

○ c. Sustained cloudy periods, savings on the upfront cost of battery banks, and battery maintenance down time
○ d. Occasional high load uses, savings on the upfront cost of battery banks, and battery maintenance down time