5 Priorities for the construction of Camper 2 (Permanently mounted habitat on F350)

1. Improve the off-road mobility of the truck and camper.
    - Improve the departure angle to 30 degrees
        - Eliminating the long, low, rear overhang of the 'slide-in' camper.
        - Move the spare tire from behind the rear axle/below the cargo box to the back wall of the habitat.
        - Move the main access door to the driver side in front of the rear wheel.
        - Convert the fixed rear bumper and tow receiver to a higher, adjustable one.
    - Permanently mount the habitat to the truck frame on a 3 point, flexible mount that allows the truck frame to twist freely without stressing the habitat.
    - Lower the overall weight and center of gravity of the camper.
        - Shift equipment/services (waste tanks, refrigerator, battery, etc.) to floor level or below and forward of the rear axle.
        - Replace the roof AC with a split system AC that is lower and forward.
        - Eliminate the AC generator.
        - Eliminate the propane storage system in favor of onboard diesel.
        - Reduce overall height and roof projections that can catch on 'things'.
2. Improve accessibility/space utilization by eliminating the truck's cargo body.
    - Regain load capacity lost due to the weight of the truck's cargo body.
    - Increase floor space from ~4'x11.3' to 7.5' x 12'.
    - Expand external storage space with 4, below floor-level compartments.
    - Increase seating space with a 2 seat dinette/couch ~2x truck camper space.
    - Separate the bathroom and shower and place them forward.
    - Create a lockable pass-through from the habitat to the cab.
3. Simple/redundant/efficient/powerful utility systems.
    - Large electrical capacity + diesel for heating (no propane).
    - Increase PV from 760w to 950w and protect panels inside recessed roof well.
    - Three space heating sources; Electrical heat pump (mini-split AC system), hydronic heat system from diesel coolant heater or vehicle engine.
    - Three charging sources; solar, dedicated engine alternator, shore power.
    - Two hydronic heating sources; diesel coolant heater, vehicle engine.
    - Four through-ceiling vent fans.
    - DC electric, super insulated refrigerator (8x more efficient than RV 3-way).
    - No built-in range/oven. Portable induction plate, 'insta-pot' and convection microwave.
4. Reduce/eliminate 'liabilities' of traditional RV construction/design.
    - Drastically reduce envelope leak potential
        - Virtually no seams requiring sealant.
        - Eliminate all external storage access compartment doors into the living envelope.
        - Exterior and interior of the envelope are continuous fiberglass.
        - Seven large, fixed, double pane polycarbonate windows.

        - Roof penetrations are built with ‘coaming’ around the mount hole.
    - True ‘4-season’ capability
        - 2” poly-isocyanurate rigid foam throughout.
        - Wet-bay and tanks are heated by hydronic system using antifreeze.
        - Entry/shower functions as airlock entry.
        - Tanks are heavily insulated in addition to being heated.
    - Exterior corners and ‘rub points’ reinforced by aluminum ‘armor’ facings.
    - Eliminate side wall or roof projections that can catch on trees.
    - Electrical and plumbing are fully accessible;
        - Electrical distribution wiring all runs the length and width of the main cabin in a false ceiling and down into cabinets.
        - Plumbing is all routed inside the living envelope, beneath false floor ‘duck boards’.
        - Electrical control panel incorporates vertical penetrations in the floor to the battery/inverter compartment and through the roof for the PV connections.