MANUFACTURED ENCLOSURES (GLASS,KALWAL , OR OTHER "GLASS TYPE" STRUCTURES) MADE WITH METAL FRAMES

These structures can incorporate glass ceilings, retractable ceiling/wall panels or can all glass & frame with a variety of openings. These facilities are treated much differently than standard construction because they:

- Lack the R-Value of regular insulated walls and ceilings (i.e. R19-R40) Many have an lower R-Values or U-Values of 2-10.
- Metal Frames that require "thermal breaks" (insulated frames)
- Requires SENSIBLE Calculations to design HVAC properly
- Higher heat or solar gain (may have a higher cooling load) due to lack of insulative quality
- Higher heat loss (may have a higher heating load)
- Pool Covers are recommended if feasible to help keep operating costs down by:
    - Reduction of dehumidification run time when covered; hence dehumidifier does not run 20-24 hours a day due to evaporation; hence lower utility bills
    - Maintain temperature & heat in the pool; hence less pool heating energy required
    - Less chemicals are used as water and chemicals are not evaporating to the air
    - Overall reduction of costs: 50-75% less in utility bills.

When working with manufactured enclosures, many clients are not aware that the operating costs will also be much higher (can be 40-75% more) than standard construction due to higher heat gain and heat losses of these structures. As we know, glass and other surfaces do not have the same insulation qualities that regular insulation offers. Single pane glass **should never be used** nor should metal or aluminum frames without thermal breaks (insulation) as it is impossible to keep these surfaces dry even with dehumidification and air flow. And in some case, companies may cover the dehumidification load (for example only) – with a 10 Ton unit, but the cooling load requires 20 tons or more. Therefore Sensible Calculations are required by engineer, mechanical, builder, Structure Company, etc. to determine the final heating & cooling requirements. There are 3 components to designing this system: dehumidification (evaporation load), heating load, and cooling load.

Ductwork: ductwork or your air delivery system is CRITICAL as well as installation in these facilities. It is imperative that the duct system is designed properly and sized for maximum air flow delivery to all "glass areas" to prevent condensation. Ceiling fans within the structure BLOWING UP will also assist in moving air flow and keeping surfaces dry. Ductwork can be installed underground or overhead and recommended design is a continuous loop (peripheral loop) with all diffusers deflected at glass surfaces that are prone to condensation when the outdoor temperature is lower than the indoor temperature and surfaces can reach DEW POINT Temperature. Veri-Dry/DXAir will provide all shop drawings for mechanical contractors as to ductwork requirements.

It is critical to maintain proper temperatures, humidity levels, and pool chemistry balance. Temperatures are generally designed as follows: 80-84 pool and with the air temperature set two degrees above the chosen temperature not to exceed 86 air temperatures. Relative Humidity: Between 50-60% RH, not below 50% and not above 60% RH. Chlorine levels, salt, bromine or other chemicals and pool balancing must be maintained properly at all times or this becomes a highly corrosive environment and can damage frame work equipment etc. within the enclosure.