

ELECTRIC COIL SLAB

- Electric coils tied to reinforcement
 - Need thicker slab
- Suited to off-peak electricity
- Can change placement 200mm to 300mm centres (apart)
- **PROS**
 - Unobtrusive, easiest space utilization
 - Silent
 - Very efficient when integrated with Thermal Mass
 - Hard finished (tiles etc.) softened – carpet types limited
 - Zoning possible
 - Low temperature radiation over a large area
 - Low stratification, heat the person not the space
 - Low air temperature (fresh), healthy heat
- **CONS**
 - Slow responsive therefore
 - Suit constant occupancy
 - Limited for Melbourne's variable climate
 - High capital cost
 - Cannot be retro-fitted
 - COP of 1

HYDRONIC HEATING

- **PROS**
 - radiation + natural convection
 - compact boilers → small quality boilers → responsive
 - silent
 - interchangeable
 - minimal space
 - low air temperature → increase humidity (fresh) healthy heat
 - zoning possible
 - timeclock
 - low stratification
 - Can be retrofitted
- **CONS**
 - Expensive installation → high capital cost



HYDRONIC SLAB

- **PROS**
 - Unobtrusive, easiest space utilization
 - Silent
 - Very efficient when integrated with thermal mass
 - Hard finishes (tiles etc) softened – carpet types only
 - Zoning possible
 - Low temp. radiation over a large area
 - Low stratification, heat the person not the space
 - Low air temp. (fresh), healthy heat
- **CONS**
 - Slow response therefore
 - Suit constant occupancy
 - Limited solar potential → Melbourne's variable climate
 - High capital cost
 - Can be retro-fitted
 - COP according boiler, generally > 1

REVERSE CYCLE AIR CONDITIONING

- Acts as a heat pump in either direction
- Air distributed through the ceiling
- Split system: internal fan + external vapour – compression set
- **PROS**
 - Can be efficient as reverse cycle air con has COP>3.5
 - Can also do cooling
 - Responsive
 - Interchangeable
 - Minimal space
- **CONS**
 - Noisy
 - Forced convection, feel drafty
 - Dry air, dehumidified air
 - Filter maintenance critical