

FLOOR LEVEL COVERAGE CHARTS

The important factors in designing an infrared heating system are:

- Satisfying the building heat loss (the *most* important factor in achieving the desired inside design temperature). For detailed information, refer to the Application Section, Section IV, *Heat Loss Calculations*.
- Placement of the heaters.

Heater Placement

A. Coverage

The following charts may be used as a guideline for primary radiation, i.e. the infrared pattern directly below the heater. In a well-insulated building, only 50% of the floor needs to be covered by the primary radiant pattern. Please be aware that the radiant energy generated by infrared heaters is *not* limited to the primary radiant pattern. There is additional radiant energy that is absorbed outside the *primary* area, a *secondary* radiant pattern. Since concrete is a very good conductor of heat, a reasonably uniform floor temperature eventually will be reached. The amount of time it takes to reach “thermal equilibrium” is in direct correlation to the distance between the heaters.

B. Location

In most applications, 70 to 80 percent of the building heat loss is around the outside perimeter walls. The transmission loss will amount to 50 percent of the total and the infiltration air will add another 20 to 30 percent. When designing an infrared heating system, the heaters should be located to cover the areas where the greatest heat loss occurs. This simply means that the majority of the heaters should be placed either on or near the outside perimeter walls.

C. Mounting Angle

Heaters can be either angle-mounted on the outside walls facing the center of the building or mounted horizontally (facing the floor) at a distance from the outside wall approximately equal to the mounting height. Care needs to be taken not to locate the heaters so that they radiate too much heat *on* the outside walls. This will increase the transmission heat loss and minimize the radiant heat directed to the floor.

Whenever possible, it is desirable to mount the heaters horizontally so that as much infrared energy as possible is radiated directly to the floor where it is readily absorbed by the concrete slab. Although the primary radiant pattern area is the same for angle-mounted heaters, the intensity of the radiant energy is reduced as you get further away from the heater. Whenever a heater is angle-mounted, the radiant output is decreased and the convective output is increased (heat is lost convectively over the edge of the reflector).