

## **Terms of Reference (TOR) in the design and construction of new buildings and the improvement of existing buildings that enhance the energy efficiency of the facilities**

### **A. BUILDING ORIENTATION**

The non-negotiable part of the TOR for the new building construction design is the orientation of the building. The longer walls should face North and South so that the building gets minimum solar exposure and heat gain. This results in lower energy consumption when cooling.

### **B. ROOF PAINT FINISH**

Using roof paints/coatings with highly engineered infrared-reflecting pigments reduces building heat buildup. As per actual measurements conducted by CFMO, it regulates the room's temperature (heat gain from the roofing) by 1 to 1.5 degrees centigrade. The reduction in temperature enhances the cooling and energy efficiency of the air conditioning units.

It has been part of the TOR since 2016 for the roof repainting cycle projects of existing and new buildings.

### **C. ROOFING INSULATION**

Using non-irritant and non-toxic roofing insulation creates a barrier to heat gain and effectively keeps the room cooler even during summer.

### **D. GLASS INSULATION**

Thermal glazing of the external window & door glass helps to take the load off cooling equipment.

### **E. FENESTRATION**

The proper design of the openings of the building's envelope allows natural light into the building and provides natural points of ventilation and air circulation.

### **F. AUTOCLAVED AERATED CONCRETE (AAC) BLOCKS**

This year, AAC blocks will be introduced for building walls as an alternative to concrete hollow blocks (CHB) for all the present and future major building construction projects.

AAC Blocks have excellent thermal protection properties with only 25% thermal conductivity compared to CHB. This results in lower energy consumption on cooling.