

K041 Test

Ref 616

What are two types of solar design?

Ref 617

Explain passive solar design

Ref 618

What is comfort?

Ref 619

Calculate U value for a pitched and vented tile roof with reflective foil laminate under the tiles.

TILES.
USE THE FOLLOWINGS

TILE = $k = 0.87$
PLASTER = $k = 0.17$

THICKNESS OF TILES = 19mm
THICKNESS OF PLASTERED BOARD = 13mm.

ROOF CAVITY

R-TILE

REFLECTIVE FOIL INSULATION

RAFTER

CEILING JOIST

PLASTERED BOARD

	ELEMENT	RESISTANCE		SOURCE
		SUMMER DOWN	WINTER UP	
4 m/s	OUTSIDE AIR R_0	0.04	0.04	TABLE (6)
	R-TILE	0.02	0.02	(i)
45°	RL			
ROOF CAVITY LOW EMITTANCE	CAVITY R_0 CAVITY	1.36	0.34	TABLE (5)
	R-PLAST	0.08	0.08	(i)
STILL HORIZONTAL	INSIDE AIR	0.16	0.11	TABLE (6)

Ref 620

Calculate net gain or loss of heat through a month for north facing single glass window for January & July in Sydney. The window is 0.9 m height and 0.2 m from the bottom of the eaves which are 0.6m wide. Assume for window that 90% of it is glass. Transmittance is 0.76 and U value is 6.14.

Ref 621

Define the insulation

Ref 622

Explain how the heat is transferred in brick veneer dwelling

Ref 623

Explain thermal mass and storage

Ref 624

Calculate heat gain per day from the customers in a 150 m² gym, If the gym capacity is 50 customers and the gym is full between 6 am to 8 am and 5 pm to 8:30 pm. At all other times, it is 30% full on average.

Ref 625

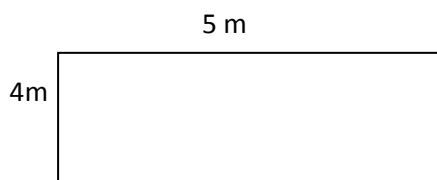
A 4000 sq ft retail store near Tucson, Arizona has been calculated to have sensible heat gain of 100,000 Btuh at summer design condition. (105 DB, 66 WB for this location). Calculate heat removed and air flow rate indoor.

Ref 626

Based on above, 4000 sq ft needs 13227 cfm air. Calculate air requirement for the 44 sqft bed room. 66% of air is applied

Ref 627

Calculate total heat loss by conduction for a simple one room house in Melbourne during the months of January & July.



Roof: 15 Degree. Thickness of tile 19 mm. K= 0.81. Plaster board 13 mm, K = 0.17.

Wall Aerated concrete 200 mm thick.

Outside air (R out) 0.12 m² K/W Inside air (R in) 0.04 m² K/W

The house has 1 m² window on each wall, average ceiling, no open fire space and weather stripping at the bottom of external doors. The house is 4m x 5m with 2.4 m ceiling height. The windows are single glazed. U_1 and U_2 are U_{summer} and U_{winter} respectively.

The roof is a double pitched and vented tile roof with reflective foil laminate under the tile. Floor is carpet on a concrete slab on ground.

(30) In the above problem, calculate infiltration heat loss/ gain in this building. (Timber window, average ceiling, no open fire place).

$$Q_v = A_c V (T_i - T_a) N \times 0.0286$$

Ref 628

Explain the design and assessment tools

Ref 629

Explain the design for climate

Ref 630

What are the factors contributing thermal comfort inside building

Ref 631

Describe the domestic solar hot water system

Ref 632

Explain the building energy efficiency

Ref 633

What kinds of materials are used for water piping system of the building?

Ref 634

Explain the followings

- (a) Automatic control for electrical heating
- (b) Thermostatic control
- (c) Water heater
- (d) Space heating

Ref 635

Explain the basic psychrometric chart

Ref 636

Explain the step by step approach for building electrical design system

Ref 637

Describe the types of building construction materials

Ref 638

Write the steps of building construction sequence

Ref 639

How do you understand thermal neutrality?

Ref 640

Write the formula for (a) Thermodynamic second law (b) Heat conduction (c) Heat convection (d) Heat radiation