

GE26 Energy Efficient Building Design

Part 1 Lesson

[Building Design+Material Science-K041+E047.zip](#)

http://www.filefactory.com/file/c0b645d/n/Building_Design_Material_Science-K041_E047.zip

EE307 Energy Efficient Building Design

[EE307 Part 1](#) [EE307 Part 2](#) [EE307 Part 3](#) [EE307 Part 4](#)

[EE307 Part 5](#) [EE307 Part 6](#)

Test & Assessment

http://www.filefactory.com/file/5laxij9trib1/n/K041_Test_pdf

Do the tests and send the answer sheet in soft copy by e-mail to iqytechnicalcollege@gmail.com

Password- [iqytechnicalcollege](#)

Energy Efficient Building Design

[EE307](#)

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K041+E047+K151+E080

Page to of

http://www.filefactory.com/file/cf9bf8f/n/Video_Lessons.pdf

Renewable Energy+ Energy Efficiency

UEENEEK151A		Develop effective engineering strategies for energy reduction in buildings
UEENEEE081A		Apply material science to solving electrotechnology engineering problems
UEENEEK129A		Design renewable energy (RE) heating systems
UEENEEK146A		Design energy management controls for electrical installations in buildings
UEENEEK142A		Apply environmentally and sustainable procedures in the energy sector

UEENEEK145A		Implement and monitor energy sector environmental and sustainable policies and procedures
UEENEEK152A		Develop strategies to address sustainability issues for electrical installations
UEENEEK153A		Assess energy loads and uses for energy efficiency in residential, office and retail premises
UEENEEK154A		Assess energy loads and uses for energy efficiency in commercial facilities
UEENEEK155A		Assess energy loads and uses for energy efficiency in industrial properties and enterprises

Exercise

Do UEENEEK041B+UEENEEE047B Page 271 to 284 of the following link

[http://www.filefactory.com/file/c0b7da3/n/Advanced Diploma in Electrical Engineering Exercises .zip](http://www.filefactory.com/file/c0b7da3/n/Advanced_Diploma_in_Electrical_Engineering_Exercises.zip)

[K041 Lesson 1-Solar Design.zip](#)

<http://youtu.be/KF3jT7Wm60I>

http://www.filefactory.com/file/c0b6a9f/n/K041_Lesson_1-Solar_Design.zip

[K041 Lesson 2-Basic psychrometric chart.zip](#)

http://youtu.be/iVU9d2OrN_c

http://www.filefactory.com/file/c0b6bc9/n/K041_Lesson_2-Basic_psychrometric_chart.zip

[K041 Lesson 3-Total heat resistance.zip](#)

<http://youtu.be/QEC3CFN0C0A>

http://www.filefactory.com/file/c0b6b18/n/K041_Lesson_3-Total_heat_resistance.zip

K041 Lesson 4-U value Heat conductance calculation.zip

<http://youtu.be/qjWiSnYVYwl>

http://www.filefactory.com/file/c0b6b57/n/K041_Lesson_4-U_value_Heat_conductance_calculation.zip

K041 Lesson 5-Glazing+Net Heat gain heat loss.zip

<http://youtu.be/az4jFnDn4eQ>

http://www.filefactory.com/file/c0b6cc2/n/K041_Lesson_5-Glazing_Net_Heat_gain_heat_loss.zip

K041 Lesson 6-Shading.zip

<http://youtu.be/srTWLtaPpgg>

http://www.filefactory.com/file/c0b6cd7/n/K041_Lesson_6-Shading.zip

K041 Lesson 7-Insulation+ Thermal mass.zip

http://youtu.be/T8D_KeXhB2Q

<http://youtu.be/Ws5H152tgEo>

http://www.filefactory.com/file/c0b6c06/n/K041_Lesson_7-Insulation_Thermal_mass.zip

K041 Lesson 8-Thermal mass insulation.zip

<http://youtu.be/R5Qv2EFjUVU>

http://www.filefactory.com/file/c0b6c30/n/K041_Lesson_8-Thermal_mass_insulation.zip

K041 Lesson 9-Airconditioning load calculation.zip

<http://youtu.be/KrHJkNwbr0I>

<http://youtu.be/mxP4thaiS88>

http://www.filefactory.com/file/c0b6dc8/n/K041_Lesson_9-Airconditioning_load_calculation.zip

K041 Lesson 10-Heat gain per day.zip

<http://youtu.be/X5B99-Q6ddU>

http://www.filefactory.com/file/c0b6dfe/n/K041_Lesson_10-Heat_gain_per_day.zip

K041 Lesson 11-Ventilation.zip

<http://youtu.be/LdCEptDVMIY>

http://www.filefactory.com/file/c0b6d13/n/K041_Lesson_11-Ventilation.zip

K041 Lesson 12-Building heating load

<http://youtu.be/VDH1YbcX3c>

<http://youtu.be/FH1bPDCuLD0>

http://www.filefactory.com/file/c0b6d47/n/K041_Lesson_12-Building_heating_load_calculation.zip

K041 Lesson 13-Design Assessment Tools

K041 Lesson 14-Design for Australian climate.zip

<http://youtu.be/6Vhv5H4Wfps>

http://www.filefactory.com/file/c0b6d76/n/K041_Lesson_14-Design_for_Australian_climate.zip

K041 Lesson 15-Domestic solar hot water system.zip

<http://youtu.be/JCgxvzX5jHY>

http://youtu.be/j5bfWGOS_zA

http://www.filefactory.com/file/c0b6eaf/n/K041_Lesson_15-Domestic_solar_hot_water_system.zip

K041 Lesson 16-Energy efficiency+Lighting.zip

<http://youtu.be/CVvXJj28pcg>

http://www.filefactory.com/file/c0b6e0f/n/K041_Lesson_16-Energy_efficiency_Lighting.zip

K041 Lesson 17-Illumination+Smoke alarm.zip

<http://youtu.be/piMwahVLYhw>

http://youtu.be/JBvzyR-_GzA

http://www.filefactory.com/file/c0b6fc5/n/K041_Lesson_17-Illumination_Smoke_alarm.zip

K041 Lesson 18-Water supply.zip

<http://youtu.be/-A96eIUfsNU>

http://www.filefactory.com/file/c0b61ec/n/K041_Lesson_18-Water_supply.zip

K041 Lesson 19-Ventilation+Lighting control.zip

<http://youtu.be/CO0ClnAFT6A>

http://www.filefactory.com/file/c0b6058/n/K041_Lesson_19-Ventilation+Lighting_control.zip

K041 Lesson 20-Electrical system design.zip

http://youtu.be/KX7E_Nc7_54

http://www.filefactory.com/file/c0b6085/n/K041_Lesson_20-Electrical_system_design.zip

[K041_Lesson_21-Building_materials.zip](#)

<http://youtu.be/Gi77wNzXEj4>

<http://youtu.be/ZkgOHP0RESs>

http://www.filefactory.com/file/c0b61b8/n/K041_Lesson_21-Building_materials.zip

<http://youtu.be/C6sxFVofvkE>

<http://youtu.be/8BcUJ7BDKII>

http://youtu.be/ap0iMZ_Z9Qs

The links contain the following lessons

K041 Lesson 1-Solar Design

K041 Lesson 2-Basic Psychrometric

K041 Lesson 3-Total heat resistance

K041 Lesson 4-U value Heat conductance calculation

K041 Lesson 5-Glazing+Net Heat gain heat loss

K041 Lesson 6-Shading

K041 Lesson 7-Insulation+ Thermal mass

K041 Lesson 8-Thermal mass insulation

K041 Lesson 9-Airconditioning load calculation

K041 Lesson 10-Heat gain per day

K041 Lesson 11-Ventilation

K041 Lesson 12-Building heating load calculation

K041 Lesson 2-Basic psychrometric chart

K041 Lesson 13-Design assessment tools

K041 Lesson 14-Design for Australian climate

K041 Lesson 15-Domestic solar hot water system

K041 Lesson 16-Energy efficiency+Lighting

K041 Lesson 17-Illumination+Smoke alarm

K041 Lesson 18-Water supply

K041 Lesson 19-Ventilation+Lighting control

K041 Lesson 20-Electrical system design

K041 Lesson 21-Building materials

Part 2 References

K041 Text book

<http://www.filefactory.com/file/61dmv976e7tl/n/K041Textbook1.zip>

<http://www.filefactory.com/file/4lsx0pk00guj/n/K041Textbook2.zip>

<http://www.filefactory.com/file/2kwcxkrnasyf/n/K041Textbook3.zip>

Airconditioning

<http://www.filefactory.com/file/7ipdinf4bh05/K041Airconditioning.zip>

Energy Efficient Building Design

Building Design

<http://www.filefactory.com/file/4ohrn4n7iwuh/K041%20Building%20Design%201.zip>

<http://www.filefactory.com/file/14tkkoq8z1jt/K041%20Building%20Design%2002.zip>

http://www.filefactory.com/file/6057iey2y54h/K041_Building_Design_1.zip

http://www.filefactory.com/file/6b7hwr938wb/K041_Building_Design_2.zip

Hazard Lighting

<http://www.filefactory.com/file/5owbsl2j4q1d/HazardLightingPanel.zip>

Energy Efficiency

<http://www.filefactory.com/file/6s9c4rxyzl/K041Energy%20Management%200Textbook.zip>

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 = $k = 0.13$

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

ELEMENT	RESISTANCE		SOURCE
	SUMMER DOWN	WINTER UP	
OUTSIDE AIR R_o	0.04	0.04	TABLE (6)
R-TILE	0.02	0.02	(1)
45° RL			
ROOF CAVITY LOW EMITTANCE	1.36	0.34	TABLE (5)
R-PLAST	0.08	0.08	(1)
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

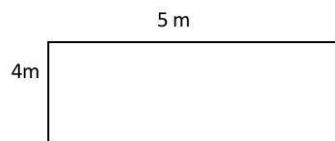
A 4000 sq ft retail store near Tucson, Arizona has been calculated to have sensible heat gain of 100,000 Btuh at summer design condition. (105 DB, 66 WB for this location). Calculate heat removed and air flow rate indoor.

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. U₁ and U₂ 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

Part 2 References

K041 Text book

http://www.filefactory.com/file/2kwcxkrnasyf/n/K041Textbook3_zip

http://www.filefactory.com/file/4lsx0pk00guj/n/K041Textbook2_zip

http://www.filefactory.com/file/61dmv976e7tl/n/K041Textbook1_zip

Part 3 Practicals

Concrete stair building.mp4 (16.16MB)

http://www.filefactory.com/file/5ywcvcduhtt/n/Concrete_stair_building.mp4

Concrete stair building 2.mp4 (84.41MB)

http://www.filefactory.com/file/20vfl1ohzc0n/n/Concrete_stair_building_2.mp4

Concrete stair building 3.mp4 (39.05MB)

http://www.filefactory.com/file/1ulxprqjx19/n/Concrete_stair_building_3.mp4

Stone veneer column building.mp4 (25.64MB)

http://www.filefactory.com/file/216vowqqvp7f/n/Stone_veneer_column_building.mp4

Construction 1.mp4 (39.82MB)

http://www.filefactory.com/file/gxxi4tiz645/n/Construction_1.mp4

Construction 2.mp4 (64MB)

http://www.filefactory.com/file/1vz2rroocyt5/n/Construction_2.mp4

Construction 3.mp4 (18.85MB)

http://www.filefactory.com/file/23kr14xaqsh/n/Construction_3.mp4

Scaffolding.mp4 (16.29MB)

<http://www.filefactory.com/file/28okhvjjk6b9/n/Scaffolding.mp4>

EE307 Energy Efficient Building Design

Tutoring Lessons

[EE307 Part 1](#)

[EE307 Part 2](#)

[EE307 Part 3](#)

[EE307 Part 4](#)

[EE307 Part 5](#) [EE307 Part 6](#)

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TILE R_{TILE}	0.02	0.02	(1)
45° CAVITY LOW EMITTANCE R_{CAVITY}	1.36	0.34	TABLE (5)
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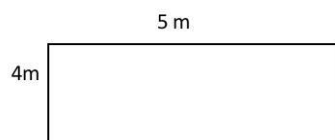
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