

Coimisiún na Scrúduithe Stáit
State Examinations Commission

Leaving Certificate 2016

Marking Scheme

Construction Studies

Ordinary Level

Note to teachers and students on the use of published marking schemes

Marking schemes published by the State Examinations Commission are not intended to be standalone documents. They are an essential resource for examiners who receive training in the correct interpretation and application of the scheme. This training involves, among other things, marking samples of student work and discussing the marks awarded, so as to clarify the correct application of the scheme. The work of examiners is subsequently monitored by Advising Examiners to ensure consistent and accurate application of the marking scheme. This process is overseen by the Chief Examiner, usually assisted by a Chief Advising Examiner. The Chief Examiner is the final authority regarding whether or not the marking scheme has been correctly applied to any piece of candidate work.

Marking schemes are working documents. While a draft marking scheme is prepared in advance of the examination, the scheme is not finalised until examiners have applied it to candidates' work and the feedback from all examiners has been collated and considered in light of the full range of responses of candidates, the overall level of difficulty of the examination and the need to maintain consistency in standards from year to year. This published document contains the finalised scheme, as it was applied to all candidates' work.

In the case of marking schemes that include model solutions or answers, it should be noted that these are not intended to be exhaustive. Variations and alternatives may also be acceptable. Examiners must consider all answers on their merits, and will have consulted with their Advising Examiners when in doubt.

Future Marking Schemes

Assumptions about future marking schemes on the basis of past schemes should be avoided. While the underlying assessment principles remain the same, the details of the marking of a particular type of question may change in the context of the contribution of that question to the overall examination in a given year. The Chief Examiner in any given year has the responsibility to determine how best to ensure the fair and accurate assessment of candidates' work and to ensure consistency in the standard of the assessment from year to year. Accordingly, aspects of the structure, detail and application of the marking scheme for a particular examination are subject to change from one year to the next without notice.



Coimisiún na Scrúduithe Stáit
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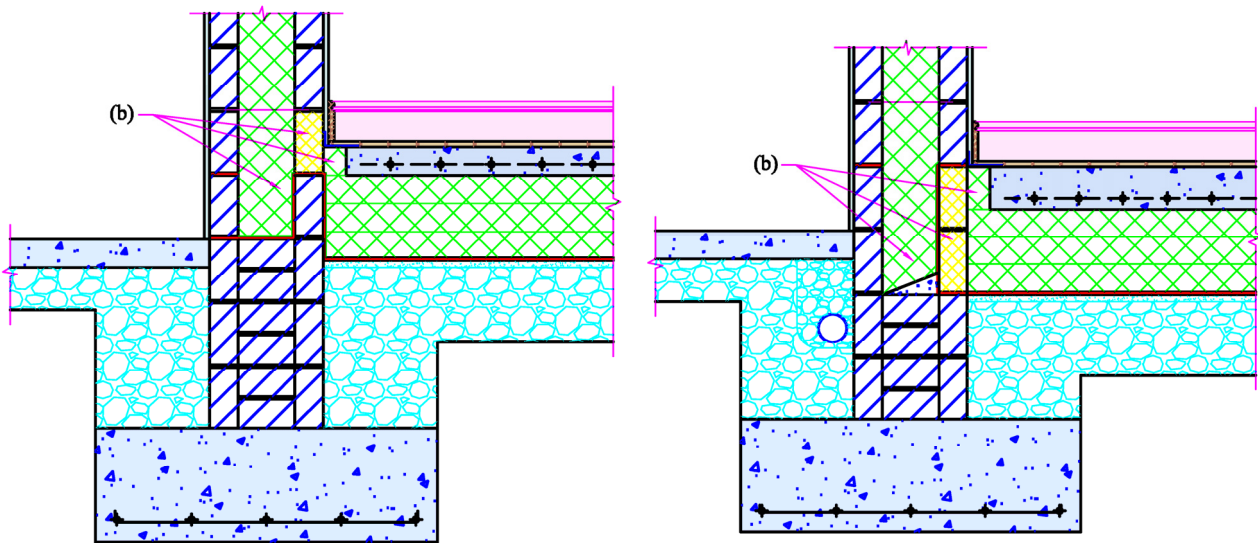
Scrúdú Ardteistiméireachta

Staidéar Foirgníochta
Teoiric – Gnáthleibhéal



Construction Studies
Theory – Ordinary Level

Ceist 1.
Part (a)



Specification - typical details

- 100 mm concrete footpath/ground level
- D.P.C
- 19 mm external render
- 100 mm concrete block outer leaf
- 200 mm full-fill cavity
- Wall tie
- 100mm concrete block inner leaf
- 15 mm internal plaster taped and sealed to floor
- Skim coat
- Skirting board 120 mm × 20 mm
- 20 mm floating hardwood floor
- Reinforced concrete slab with perimeter insulation taped and sealed to internal plaster
- 200 mm - 300 mm rigid insulation
- Inside leaf - 100 mm thermal blocks/Aerated concrete insulation blocks
- Radon barrier or damp proof membrane
- 50 mm sand blinding
- 300 mm hardcore
- Concrete fill / footings
- Reinforced concrete foundation.

N.B. Any alternative detailing which complies with current Building Regulations is acceptable.

Part (b)

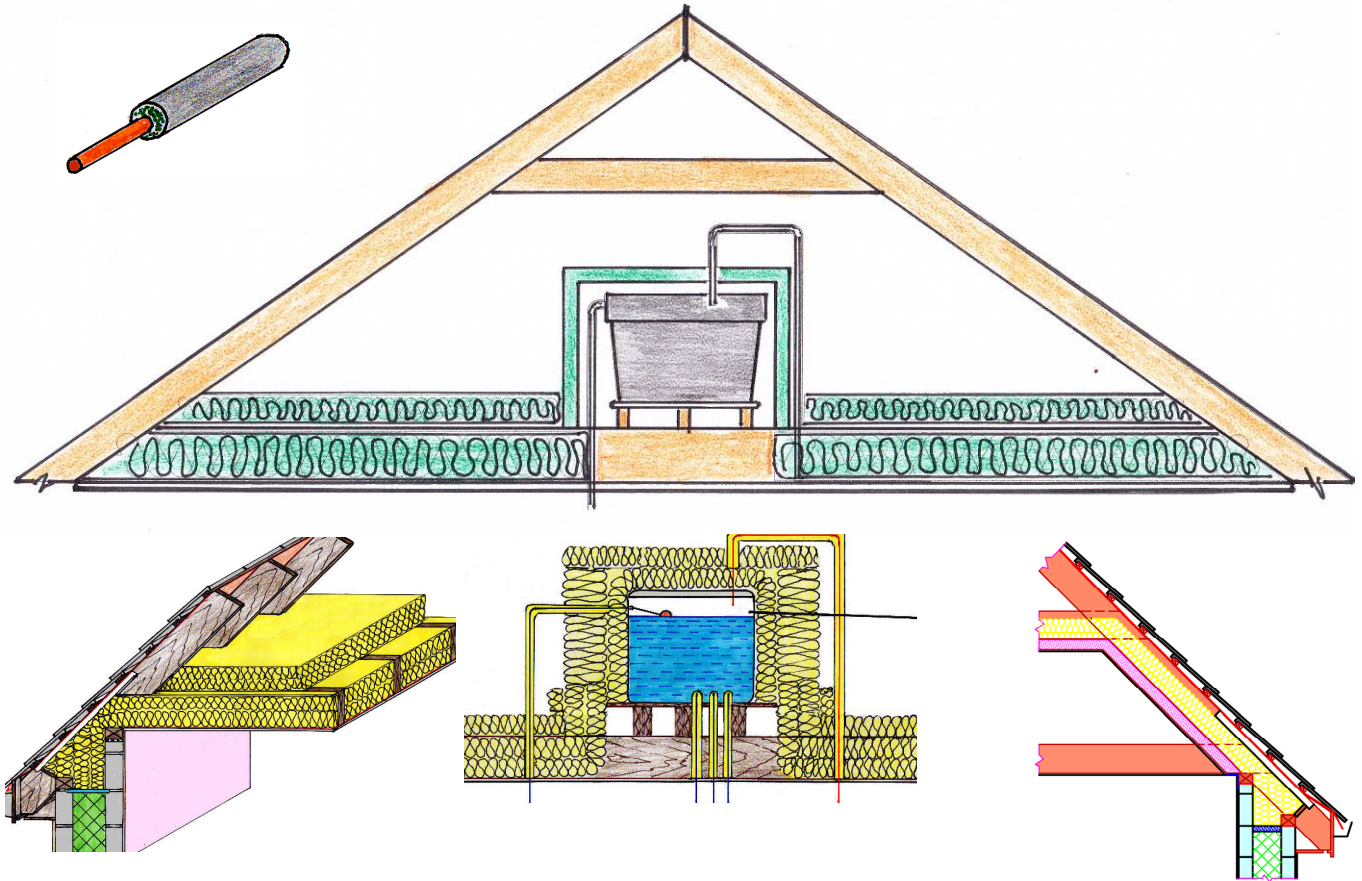
Design detail to prevent the formation of a thermal bridge at the junction of the external wall and the ground floor

- No structural connection between inside and outside leaf
- Continuity of insulation- cavity insulation overlaps floor insulation
- Perimeter insulation at floor level
- Inner leaf built with thermal blocks k value - 0.20 W/m/K - from foundation to floor level
- Flexible seal between wall and floor.

Ceist 2

Part (a)

Sketches showing typical design detailing on how to insulate the attic space to a high standard



Part (b)

Two reasons why the attic space was chosen as the first area to be insulated – such as

- The greatest heat loss is through the roof, up to 30% of heat is lost
- Insulation reduces the heat loss
- Most effective way to save energy inside the home
- This costs money and contributes to pollution and global warming
- It is relatively easy to insulate the attic and can be carried out by the home owner provided the necessary precautions are taken
- Thermal insulation will keep the heat in your house
- Increased thermal comfort for occupants
- Energy bills are reduced
- It is better for the environment
- It improves the U-value rating
- It improves the Building Energy Rating (BER).
- The house will be warmer
- Storage tank and associated piping is generally in the attic
- The pipework and tank must be insulated

Ceist 3 Part (a)

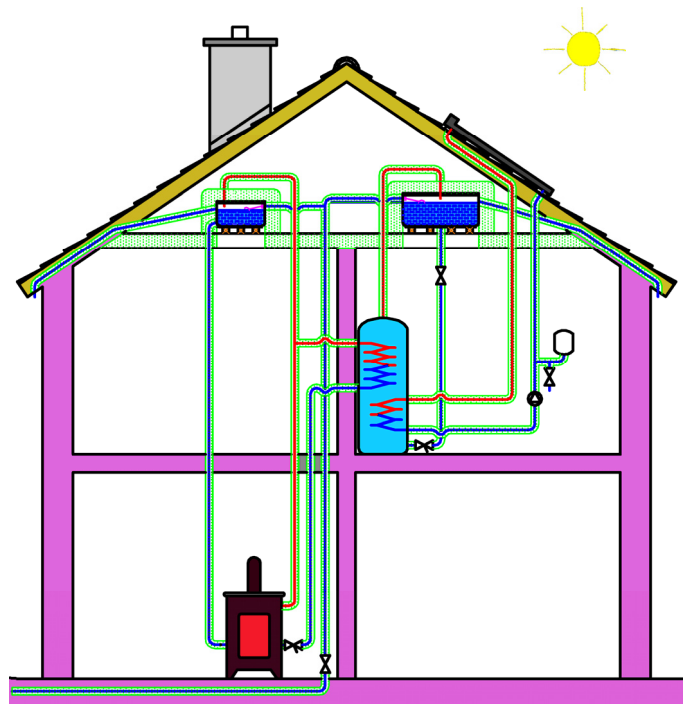
Given sketch showing pipework required to connect the stove to the cylinder – typical sizes

Secondary circulation

- 15 mm rising main with stop valve
- Insulated storage tank and ball valve
- 22 mm min overflow
- 22 mm cold feed with insulation from storage tank to indirect hot water cylinder
- Control valve
- Drain off valve
- Insulated indirect hot water cylinder
- 22 mm expansion pipe with insulation from indirect hot water cylinder

Primary circulation – typical sizes

- 15 mm water supply to expansion tank
- Insulated expansion tank with ball valve
- 22 mm overflow min
- 22 mm cold feed with insulation from expansion tank
- 28 mm primary return typical
- Drain off valve
- Stove
- 28 mm primary flow typical
- 22 mm expansion pipe with insulation.



N.B. Any alternative detailing which complies with current Building Regulations is acceptable.

Part (b)

On the same sketch, show the pipework necessary to connect the solar collector on the roof to the cylinder – typical sizes

- Solar controller
- 22 mm flow from solar panel to cylinder
- 22 mm return from cylinder to solar panel
- Pump and isolator located on the return
- Expansion vessel and pressure release valve.

Part (c)

Two advantages of including a solar collector to provide hot water for a house – such as

- Energy bills for hot water are reduced
- Water in the cylinder is seldom cold
- Once installed running costs are low
- An effective way to save energy inside the home
- Reduces CO₂ from the burning of fossil fuels
- Solar power saves money
- Helps to slow climate change
- It is an independent source of energy

Ceist 4

Part (a)

Discuss two reasons why it is necessary to apply for planning permission to build the sunspace at the location shown

- It is a legal requirement when changing the front elevation of a house
- Planning permission informs the public about the development
- It controls the height, shape, design and location of the sunspace
- It prevents the danger of an unsafe sunspace being built
- Ensures that the sunspace is attractive and environmentally friendly
- Ensures that the sunspace blends easily with its surroundings
- When the development changes the front elevation of the building
- The Planning Authority may refuse permission.



Part (b)

State the information that must be contained in the following planning documents

Information on the site layout map

- This map will give details of what the site will look like when development is finished
- It will show the location of buildings on the site
- New development is shown on the layout map
- The position of septic tank and percolation area is included
- Position of site notice is indicated
- Direction north is shown
- The scale of the map is 1:500.

Information on the planning notice in newspaper

- The name of the local authority to whom the application is being made
- The name of the applicant or applicants
- Location, townland or postal address of the structure
- Type of permission
- Nature and extent of the development
- Number of houses if applicable
- Indicate if it is a protected structure
- Details and date when and where the application may be viewed.



Part (c)

Discuss one reason why the planning authority allows the public to view all planning documents after a planning application is submitted

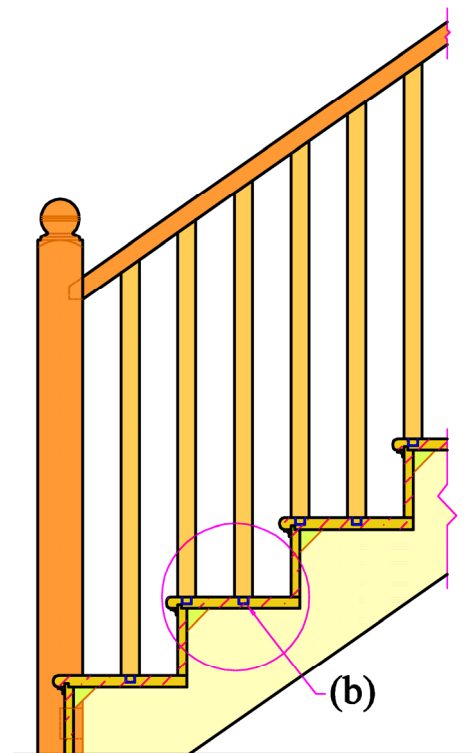
- Residents of an area must be made aware of any developments being undertaken in their environment
- Planning authorities must regulate any development taking place within their area.
- Building development must be in line with the development plan.
- Any person can view the plans submitted and lodge a planning objection
- It is a legal requirement
- This gives the public access to specific planning applications
- People may object to the development or make a submission on the proposed work
- It provides the full details of the application
- It ensures that the planning process is clear and transparent for all.

Ceist 5

Part (a) – A vertical section through the bottom three steps of a cut-string wooden stairs – typical details

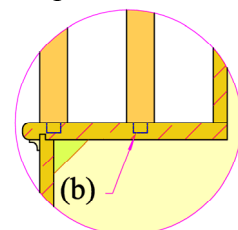
- String - typical 250×50 mm
- Treads $R \times 2 + G = 550$ mm – 700 mm Minimum going 220 mm
- Nosing 16 mm minimum
- Riser $R \times 2 + G = 550$ mm – 700 mm Maximum 220 mm
- Glue blocks
- Joint between tread and riser
- Pitch line
- Bottom three steps
- Newel post 100×100 mm, 75×75 mm
- Baluster 50×50 mm, 40×40 mm
- Handrail 75×50 mm.

Note: Any alternative detailing which complies with current Building Regulations is acceptable



Part (b) – Show on the drawing how one baluster is fitted securely to the thread

- The end of the baluster or spindle is turned and fitted into the tread or step
- Mortice and tenon joint between baluster and tread
- Dowel fitted into bottom of spindle and tread
- Occasionally dovetail joint between baluster and step
- The joint is covered with a decorative strip of wood.



Ceist 6

Part (a)

Two specific safety precautions to be observed in the Construction Studies room in each of the following situations:

Using a scalpel to cut modelling card

- Prepare and carry out the work on a clean flat surface
- Place the modelling card on a suitable base or mat
- Use a good quality straight edge to guide the scalpel
- Ensure the straight edge is held firmly
- Scalpels are very sharp
- Always cut away from your hands
- Do not cut right through the material on the first cut
- Score the line lightly at the start with the scalpel
- Repeat the cut carefully and repeat a number of times until the material is cut
- Keep scalpels covered when not in use
- Work slowly and plan each cut
- Replace blunt blades
- Heed the teacher's advice on classroom safety.

Carrying a chisel

- Handle sharp-edged tools with care
- Carry the chisel down by your side
- Carry the chisel with cutting edge pointed towards the floor
- Never carry a chisel in your pocket
- Walk to your position, never run
- Observe and concentrate on where you are going
- Keep safety first
- Heed teacher's advice on safety in the classroom.

Using contact adhesive

- Wear protective or latex gloves
- Avoid contact with skin and eyes
- Use the glue in a well-ventilated area
- Avoid inhaling the fumes
- Avoid spilling
- Keep away from heat
- Wear goggles or face shield
- Vapour may cause drowsiness or dizziness
- Wear appropriate clothing to prevent contact with adhesive
- Store in cool location in well-sealed containers
- Follow the manufactures instructions for use and storage.
- Heed the teacher's advice on classroom safety.

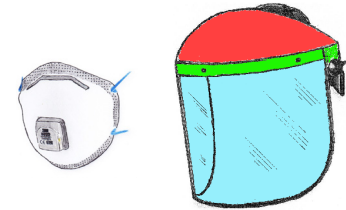
Part (b)

Describe three specific safety precautions that must be observed when turning a wooden bowl on a lathe and give one reason for each safety precaution outlined – Notes and sketches

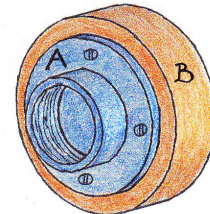
- Know where the on / off switch is located and how to turn on / off the lathe
- Know how to stop the lathe

- The wood should be sound and free of any defects
- Defective piece may break apart during the turning process

- The work B should be properly secured to the faceplate A
- If not properly secured the piece may come loose



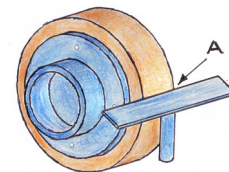
- Rotate the piece by hand at first
- This is to ensure the piece will not hit the tool rest
- Clear space A between tool rest and the wooden blank



- Set the correct speed for turning of the bowl
- Using the incorrect speed will may cause serious injury
- Slow for big and fast for small items

- A special visor should be worn when using the lathe
- This offers protection from flying chips or particles

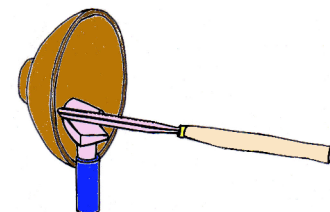
- A dust mask may be worn
- This will prevent the inhalation of fine dust particles



- The work area around the lathe should be kept clear and tidy
- This will prevent falls or accidents

- Tie up long hair, loose clothing and especially cuffs
- Danger of getting caught in the work piece

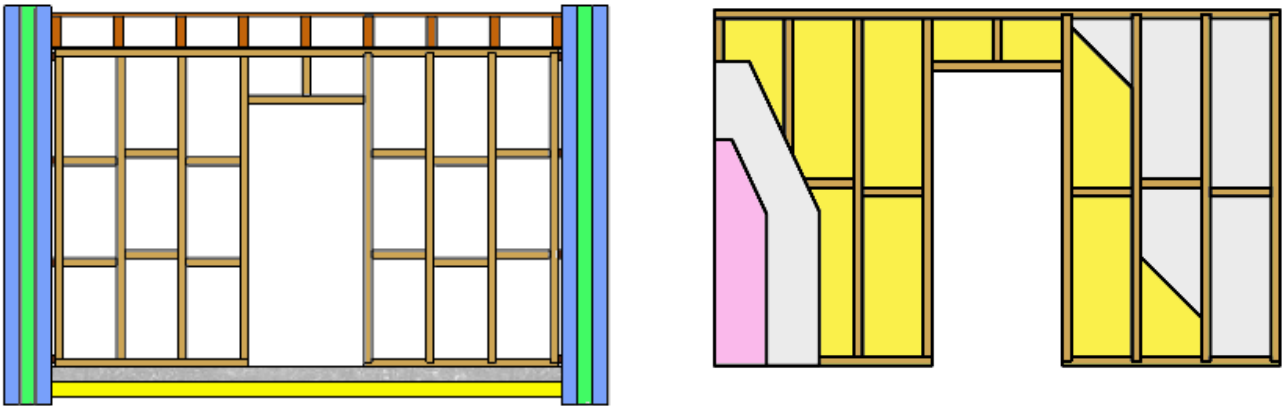
- Use the lathe under the supervision of the teacher
- Safety first in the Construction Studies room.



Ceist 7

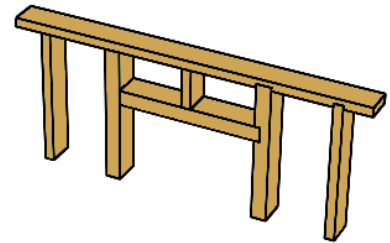
Part (a)

Sketch of non-load bearing timber stud partition – typical details



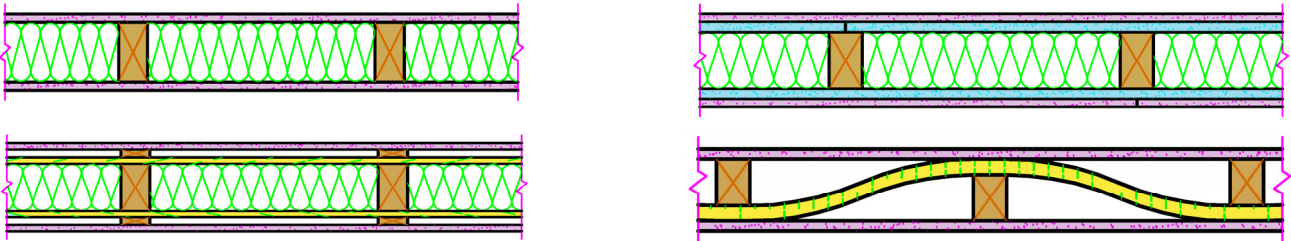
Notes - such as

- Sole plate 100 mm × 45 mm
- Head plate 100 mm × 45 mm
- Studs 100 mm × 45 mm
- Noggins 100 mm × 45 mm
- Door head to opening 100 mm × 70 mm
- Door jambs to opening 100 mm × 70 mm



Part (b)

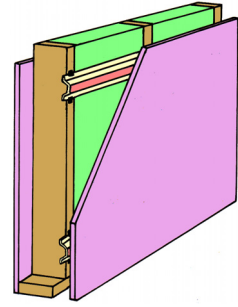
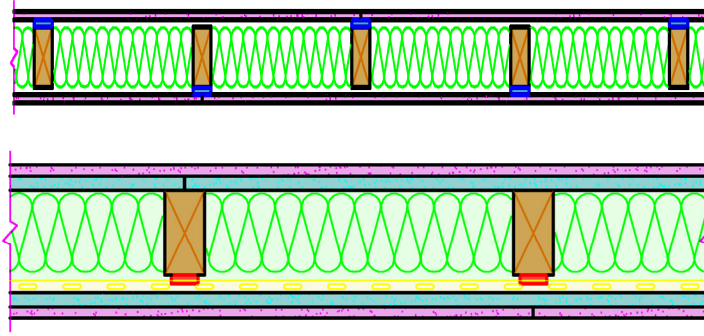
Reduce the transmittance of sound through the stud partition – Sketch



Plan views

Reduce the transmittance of sound through the stud partition - Notes

- Filling the space between the studs with mineral wool or fibre glass quilt will give some reduction in airborne sound.
- Two layers of 12.5 mm plasterboards or one plasterboard and acoustic board fitted to both sides of the studs. Joints should be staggered, taped and sealed. This helps reduce airborne sound.
- Fitting acoustic board or insulation board with battens and 12.5 mm plasterboard to both sides of the studs. This helps reduce impact and airborne sound.
- Staggered stud construction with mineral wool or fibre glass insulation between them.



Plan views

- Applying two layers of sound isolation padding tape to every second exposed stud
- Fixing drywall metal channel with sound isolation mounting clips to the studs. The panels are then screwed to the channel in the normal manner
- The gaps at the ceiling, walls and floor are sealed with acoustical caulk
- Black foam tape is used to seal around the door.

Any other detail that complies with the building regulations

Part (c)

One method of providing a surface finish to the plasterboard prior to painting

Method one - such as

- Plasterboards are fixed to the studs with all edges supported and screwed
- Reinforce internal corners with scrim
- Finish with a skim coat using steel float giving a smooth finish
- The surface is allowed dry out before painting.

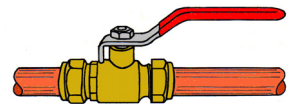
Method two - such as

- Tape and fill all joints and internal angles
- Fill all screw holes
- Apply joint filler to the joints
- Smooth off the filler and finish with a sponge
- The surface is allowed dry out before painting.

Ceist 8

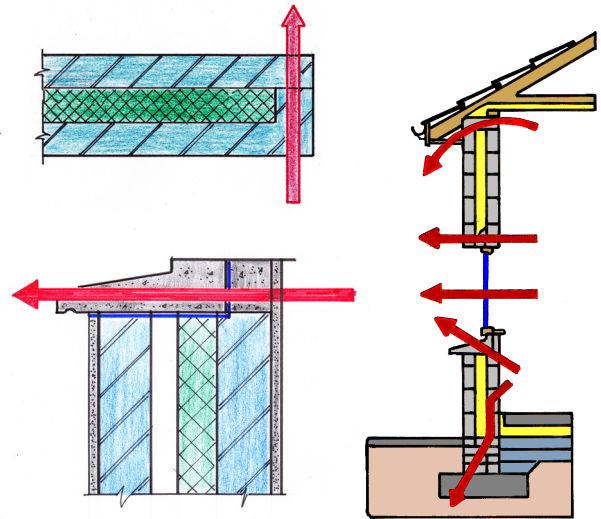
Lever valve

- This valve is used to control the flow of water in plumbing
- It is a valve with a single lever handle, which makes it easy to use
- The handle operates the valve which consists of a solid joint containing a hollow ball
- The lever or handle indicates whether the valve is open or closed
- When the lever is perpendicular to the pipe, the valve is closed
- When the lever is parallel to the pipe, the valve is open
- The valve provides a good seal when closed
- The positions of the lever show visual confirmation of the valves status
- This type of valve is available in various diameters.



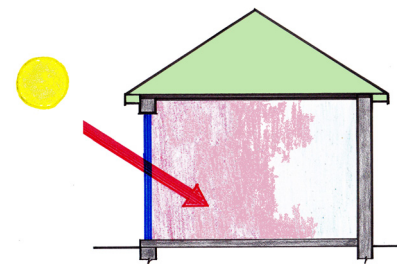
Thermal bridge

- This is a solid bridge that conducts heat away from the inside to the outside of a structure
- Thermal bridge occurs when the insulation of a wall is bridged at floor, window or roof
- The thermal bridge is especially evident at window cills, lintels and jambs
- A thermal bridge may also be present at the junction of a ground floor and the external wall
- Thermal bridge causes a higher level of heat loss at these points
- Thermal bridge causes condensation and mould on internal surfaces
- Insulation should be continuous in order to prevent the occurrence of a thermal bridge



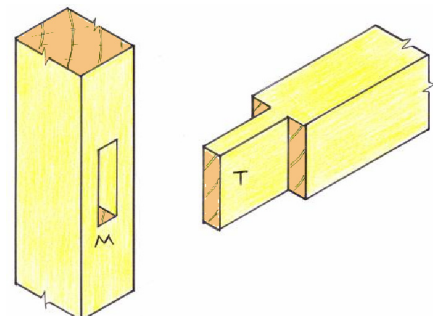
Solar gain

- This is the solar energy captured in a building
- This is the increase in temperature in a room that comes from solar radiation
- Using the energy of the sun to create a comfortable internal environment
- The heat gain is free from the sun
- Good design of the building will make maximum use of this free energy
- Solar radiation is transferred indoors through the windows and glazed areas
- Surfaces such as concrete, stone or brick walls and masonry act as a heat sink for the heat gain
- Location and orientation of the building is important for solar gain
- Insulation and airtightness also help conserve solar gain benefits
- Solar gain is the main principle of Passive Design.



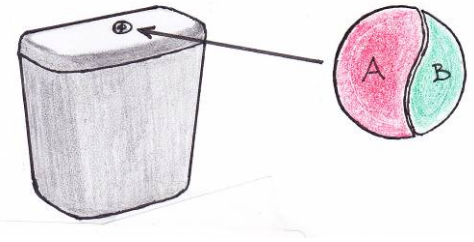
Mortice and tenon joint

- This joint is widely used in the manufacture of doors, windows and furniture
- A cutting or mortice M is formed in one piece
- A tenon T is cut and formed at the end of the other piece
- The tenon then fits neatly into the mortice
- The general proportion for the tenon is one third of the thickness.



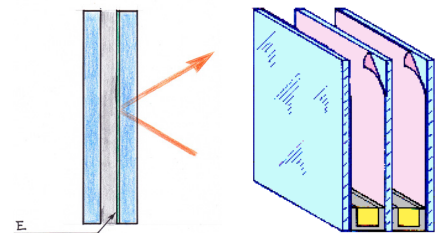
Dual flush toilet

- This is a special fitting within some modern toilet cisterns
- It has two buttons allowing the user to choose between two water flush settings
- A larger flush A of about 6-9 litres is designed for solid waste
- The smaller flush B of 3-4 litres is designed for liquid waste
- This type of cistern reduces the amount of water used
- It also reduces the amount of water entering waste treatment and sewage systems.



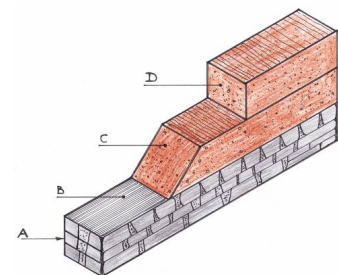
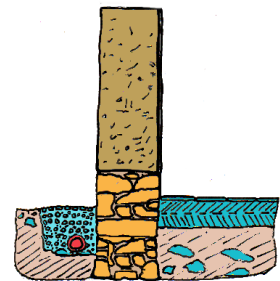
Low-e glazing

- This is glazing with a very thin transparent coating of metal or metal oxide deposited on the inside surface of the inner and outer panes of glass in triple glazing system
- The coating E is designed to improve the thermal insulation of the glass panel
- This glazing reflects heat back into the house
- The coating is designed to improve the thermal insulation of the glass panel
- Low-e glazing allows for solar heat gain into the building. It also allows the solar heat gain from the sun to enter the house.
- This type of glazing is more expensive but helps reduce heat loss from the building.



Cob wall

- This is a wall built of clay, straw or hemp mixed with water
- Lime is sometimes added
- Sand can be added if the subsoil does not contain the right mix
- It is one of the oldest methods used in wall construction
- The wall is constructed on a coursed natural stone base built with lime mortar
- The materials are mixed together giving a sticky paste
- The mixed material is then placed in layers
- Each layer must be dry before the next layer is built
- The mix should have low water content so that it can hold the shape while the wall is being built
- The low water content allows for a relatively quick drying time
- The wall is tapered as it is built
- Plywood shuttering may be erected to the width of the wall
- The exterior is finished with a lime render
- A is coursed random rubble
- B is the top of the stone base
- C is the first layer of cob build
- D is the second layer of cob build.



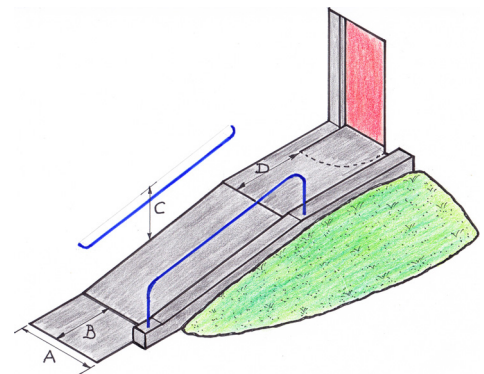
Smart meter

- This is a meter used to record the consumption of electricity
- It records the usage of electricity in a domestic property
- The meter is installed in the home and may be topped up as needed
- The homeowner can see how much electricity is being consumed in the house
- The meter also shows the cost of electricity being used
- The smart meter gives the householder control of electricity use
- Smart meters may also be used to record the usage of water or gas



Access ramp

- This is a sloping path designed for ease of access to a dwelling
- It is used by people with restricted mobility and those with wheelchairs
- The access ramp is helpful for people who have difficulty walking
- The ramp is of assistance to people using buggies, prams and pushchairs
- The gradient of the ramp should be as easy as possible
- The recommended gradient is 1:20
- The access ramp should have a minimum clear width of 1500mm
- Individual sections should not exceed 9.0 metres in length
- Lighting should be provided from the sides to avoid shadows
- The access ramp should have a non-slip surface
- A is 1500mm clear width minimum
- B is 1800mm minimum
- C is 900mm – 1000mm
- D is 1800mm minimum



Ceist 9

Part (a)

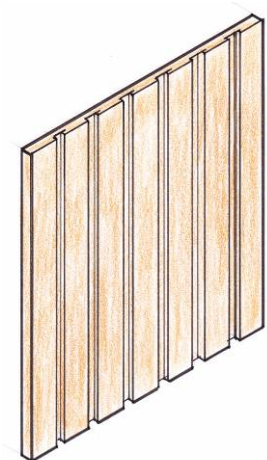
Suitable wood for the external cladding...such as

- Western Red Cedar
- Larch
- Douglas Fir
- Any other suitable wood

Reasons for the choice of wood:

Cedar

- Cedar has a pleasant appearance
- Cedar is easy to cut, glue and finish
- Cedar is suitable for all weather situations
- It is one of the world's most durable woods
- It is lightweight which makes it suitable for cladding
- Cedar is easy to finish with oil or other suitable treatment



Larch

- Larch is naturally durable for outdoor use
- It is resistant to water
- Attractive in appearance
- Resistant to rot and wood eating organisms
- Easily finished with oil or suitable treatments
- Wood is a natural material

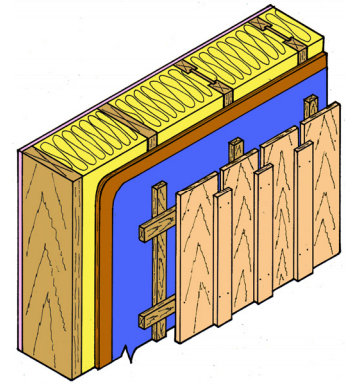
Douglas Fir

- Attractive appearance
- The wood is reddish brown in colour
- The seasoned wood is durable and strong
- The wood is grown in Ireland
- It is resistant to decay and acid attack
- It has good finishing quality

Part (b)

Recommend a suitable applied finish to help preserve the external cladding

- A wide variety of oil based varnish/stain finishes is available for all cladding
- Water based finishes are available
- These are available from all well-known manufacturers
- They are supplied under headings such as Deck oil or Teak oil
- Finishes are available in a range of colours
- All finishes help protect the cladding and extend its life



Any other suitable finish

Steps involved in preparing the wood and in applying the recommended surface finish

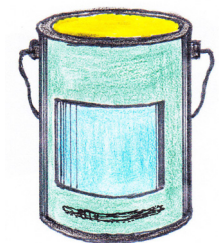
- The surface is sanded and cleaned
- The surface may be cleaned using white spirit
- If using water based finish use a damp cloth to clean the surface
- The varnish/stain is applied using a brush or cloth
- Apply two or three coats
- Allow to dry between successive coats
- Sand between coats.



Part (c)

Discuss two features of the design that ensure that the garden room is eco-friendly

- Wood is used in the construction of external walls
- Water butt used to collect rainwater
- Large glazed area to maximise solar gain
- Wood is a renewable resource,
- Low environmental impact
- Suitable woods for cladding are grown in Ireland
- Section of the roof projects out over the glazed area
- This prevents overheat in very warm weather
- Soft permeable surface surrounding the garden room
- Wood used for the construction of patio.



Question 1 – Section through strip foundation, external wall and ground floor		
Details - typical sizes	Marks	
Part (a)		
100 concrete path / ground level	4	
D.P.C	4	
100 mm concrete block outer leaf and 19 mm external render	4	
Full-fill cavity insulation	4	
Wall tie	4	
100mm concrete block inner leaf and 13 mm internal plaster	4	
Skirting board	4	
20 mm floating timber floor	4	
150 mm concrete floor taped and seal between wall and floor	4	
300 mm floor insulation	4	
D.P.M. /radon barrier	4	
Hardcore and sand blinding	4	
Concrete fill / foundation blocks	4	
Reinforced concrete foundation	4	
<i>Any 9 of the above details (4 marks each)</i>	Sub-total	36
Four typical dimensions	4	
Part (b)		
Show on drawing design detail to prevent the formation of a thermal bridge at the junction of the external wall and the ground floor		
Perimeter insulation/thermal blocks/cavity insulation overlaps with floor insulation/flexible seal between floor and wall	2	
Draughting, accuracy and scale	<i>(excellent, good, fair)</i>	8
	8 6 4	
	Total	50 marks

Question 2 – Insulating the attic space, water storage tank and pipework	
Details	Marks
Part (a)	
Attic insulation	
Ceiling joist	4
Rafter	4
Insulation – two layers	4
Water storage tank insulation	
Tank	4
Tank supports free of insulation	4
Insulation - top and sides	4
Pipe insulation – Notes	
Expansion pipe	4
Other exposed pipes	4
Quality of sketches	8
	<i>(excellent, good, fair)</i> 8 6 4
Part (b)	
Two reasons why attic space is chosen first	
Reason one	5
Reason two	5
Total	50 marks

Question 3 – Sketch showing pipework required to connect the stove to the cylinder		
Details – typical sizes		Marks
Part (a)		
Secondary circulation		
15 mm rising main		4
Insulated storage tank		4
22 mm cold feed from storage tank to hot water cylinder		4
Indirect hot water cylinder		4
22 mm expansion pipe from hot water cylinder		4
Primary circulation		
Wood burning stove		4
28 mm primary flow and return from stove and cylinder		4
22 mm cold supply from expansion tank and 22 mm expansion pipe		4
Insulated expansion tank		4
Overflow from storage and expansion tanks		4
Valves		4
<i>Any 8 of the above details (4 marks each)</i>	Sub-total	32
Quality of sketch	<i>(excellent, good, fair)</i> 8 6 4	8
Part (b)		
On the same sketch, show the pipework necessary to connect the solar collector on the roof to the cylinder – typical sizes		
Valid details		4
Part (c)		
Two advantages of including a solar collector to provide domestic hot water for a house		
Advantage one		3
Advantage two		3
	Total	50 marks

Question 4 – Planning permission	
Details	Marks
Part (a)	
Two reasons why it is necessary to apply for planning permission to build the sunspace at the location shown - Notes	
Reason one	6
Reason two	6
Part (b)	
State the information that must be contained in the following planning documents	
Site layout map - Notes	
Valid detail one	5
Valid detail two	5
Valid detail three	5
Planning notice in newspaper - Notes	
Valid detail one	5
Valid detail two	5
Valid detail three	5
Part (c)	
One reason why the planning authority allows the public to view all planning documents after a planning application is submitted	
Reason	8
Total	50 marks

Question 5 – Vertical section through bottom three steps of a cut string wooden stairs		
Details - typical sizes	Marks	
Part (a)		
Newel post 100 × 100 mm	5	
Handrail	5	
Balusters 50 × 50 mm	5	
Treads 250 mm	5	
Nosing 16 mm minimum	5	
Risers 175 mm	5	
Cut string	5	
Glue blocks	5	
Joint between tread and riser	5	
Bottom three steps	5	
<i>Any 8 of the above details (5 marks each)</i>	Sub-total	40
Part (b)		
Show on drawing how one baluster is fitted securely to the thread		
Dowel joint, mortice and tenon joint or equivalent	2	
Draughting, accuracy and scale	<i>(excellent, good, fair)</i> 8 6 4	8
	Total	50 marks

Question 6 - Safety	
Details	Marks
Part (a)	
Two specific safety precautions to be observed in the Construction Studies room in the following situations:	
Using a scalpel to cut modelling card	
Precaution one	4
Precaution two	4
Carrying a chisel	
Precaution one	4
Precaution two	4
Using contact adhesives	
Precaution one	4
Precaution two	4
Part (b)	
Three specific safety precautions that must be observed when turning a wooden bowl on a lathe and one reason for each safety precaution - Notes	
Precaution one and valid reason	6
Precaution two and valid reason	6
Precaution three and valid reason	6
Three specific safety precautions that must be observed when turning a wooden bowl on a lathe - Sketches	
Quality of sketches	<i>(excellent, good, fair)</i> 8 6 4
Total	50 marks

Question 7 – Non-load bearing timber stud partition		
Details		Marks
Part (a)		
Non-load bearing timber stud partition with a plaster board finish - Sketch		
Valid detail one	(2 × 3 marks)	6
Valid detail two	(2 × 3 marks)	6
Quality of sketch	<i>(excellent, good, fair)</i> 8 6 4	8
Non-load bearing timber stud partition with a plaster board finish - Notes		
Valid detail one	(2 × 2 marks)	4
Valid detail two	(2 × 2 marks)	4
Part (b)		
Reduction of transmittance of sound through the stud partition - Sketch		
Valid detail		4
Quality of sketch	<i>(excellent, good, fair)</i> 8 6 4	8
Part (c)		
Method of providing a surface finish to the plasterboard prior to painting		
Valid detail one		5
Valid detail two		5
	Total	50 marks

Question 8 - Terms	
Details	Marks
Item one	
Primary communication of relevant information	6
Other communication of relevant information	4
Item two	
Primary communication of relevant information	6
Other communication of relevant information	4
Item three	
Primary communication of relevant information	6
Other communication of relevant information	4
Item four	
Primary communication of relevant information	6
Other communication of relevant information	4
Item five	
Primary communication of relevant information	6
Other communication of relevant information	4
Total	50 marks

Question 9 – Eco friendly garden room	
Details	Marks
Part (a)	
Suitable wood for the external cladding	
Choice of wood	5
Two reasons for choice of wood	
Valid reason one	5
Valid reason two	5
Part (b)	
Recommend a suitable applied finished to preserve the external cladding	
Suitable applied finish	4
Steps involved in preparing the wood and in applying the recommended surface finish - Notes	
Valid detail one	5
Valid detail two	5
Valid detail three	5
Steps involved in preparing the wood and in applying the recommended finish - Sketches	
Quality of sketches	<i>(excellent good fair)</i> 8 6 4
Part (c)	
Two features of design that ensure that the garden is eco-friendly	
Design feature one	4
Design feature two	4
Total	50 marks

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Coimisiún na Scrúduithe Stáit
State Examinations Commission

Scrúdú na hArdteistiméireachta 2016
Leaving Certificate Examination 2016

Scéim Mharcála
Marking Scheme
(150 marc)



Staidéar Foirgníochta
Triail Phraiticiúil

Construction Studies
Practical Test

Construction Studies 2016 Marking Scheme – Practical Test

Note:

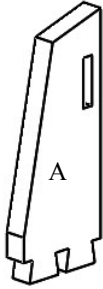
The artefact is to be hand produced by candidates without the assistance of machinery. However the use of a battery powered screwdriver is allowed.

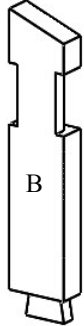
Where there is evidence of the use of machinery for a particular procedure a penalty applies.

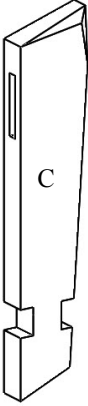
Component is marked out of 50% of the marks available for that procedure.

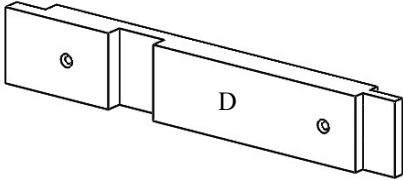
	(i)	OVERALL ASSEMBLY	MARKS
	1	Overall quality of assembled artefact	9
	2	Dowels located and fitted correctly	4
	3	Design and applied shaping to edges <ul style="list-style-type: none"> • design <i>(3 marks)</i> • shaping <i>(3 marks)</i> 	6
	Total		19

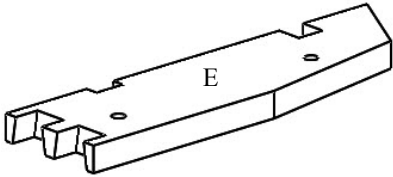
	(ii)	MARKING OUT	Marks
	1	Piece A <ul style="list-style-type: none"> • joints – dovetails <i>(2 × 3 marks)</i> <li style="padding-left: 20px;">- mortice <i>(2 marks)</i> • slopes <i>(2 × 1 mark)</i> 	10
	2	Piece B <ul style="list-style-type: none"> • joints - dovetail halving <i>(4 marks)</i> <li style="padding-left: 20px;">- halving <i>(4 marks)</i> • slope <i>(1 mark)</i> 	9
	3	Piece C <ul style="list-style-type: none"> • joints - mortice <i>(2 marks)</i> <li style="padding-left: 20px;">- trenches <i>(2 × 2 marks)</i> • slopes and chamfers <i>(5 × 1 mark)</i> 	11
	4	Piece D <ul style="list-style-type: none"> • joints - bare-faced tenon <i>(2 marks)</i> <li style="padding-left: 20px;">- trench <i>(2 marks)</i> <li style="padding-left: 20px;">- tenon <i>(3 marks)</i> 	7
	5	Piece E <ul style="list-style-type: none"> • joints - dovetail pins <i>(2 × 3 marks)</i> <li style="padding-left: 20px;">- trenches <i>(2 × 2 marks)</i> • slopes <i>(2 × 1 mark)</i> 	12
Total		49	

PIECE A	(iii)	PROCESSING	Marks
	1	Dovetails <i>(7 × 1 mark)</i>	7
	2	Mortice <i>(3 marks)</i>	3
	3	Shaping <i>(2 marks)</i>	2
		Total	12

PIECE B	(iv)	PROCESSING	Marks
	1	Trenches <i>(3 × 3 marks)</i>	9
	2	Dovetail <i>(6 marks)</i>	6
	3	Shaping • sloped edge <i>(1 mark)</i>	1
		Total	16

PIECE C	(v)	PROCESSING	Marks
	1	Stopped Mortice <i>(4 marks)</i>	4
	2	Trenches • sawing across the grain • paring trenches <i>(4 × 1 mark)</i> <i>(2 × 2 marks)</i>	8
	3	shaping • sloped edges • chamfers <i>(3 × 1 mark)</i> <i>(2 × 1 mark)</i>	5
		Total	17

PIECE D	(vi)	PROCESSING	Marks
	1	Bare Faced Tenon <i>(3 marks)</i>	3
	2	Halving <ul style="list-style-type: none"> sawing across the grain <i>(2 × 1 mark)</i> paring trench <i>(2 marks)</i> 	4
	3	Tenon <ul style="list-style-type: none"> sawing with grain <i>(2 × 2 marks)</i> sawing across the grain <i>(2 × 1 mark)</i> 	6
	4	Drilling and countersinking holes <i>(2 × 2 marks)</i>	4
			Total

PIECE E	(vii)	PROCESSING	Marks
	1	Dovetail pins <ul style="list-style-type: none"> vertical sawing <i>(4 × 1 mark)</i> cutting across grain <i>(2 × 3 marks)</i> 	10
	2	Dovetail halving <ul style="list-style-type: none"> sawing across grain <i>(2 × 1 mark)</i> paring trench <i>(2 marks)</i> 	4
	3	Trench <ul style="list-style-type: none"> sawing across the grain <i>(2 × 1 mark)</i> paring trench <i>(2 marks)</i> 	4
	3	Shaping sloped ends <i>(2 × 1 mark)</i>	2
			Total

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