CPCCBC4012B
READ AND INTERPRET PLANS AND SPECIFICATIONS

THEORY EXAM INSTRUCTIONS

- This exam will occur under standard assessment conditions.
  - An oral examination may be allowed under certain circumstances. Answers will be documented and FT003 (Oral examination declaration form) must be completed.
- Participants must provide enough detail in their responses to demonstrate their knowledge and skills.
- Please fill in the details below, providing your name, signature and date of assessment.
  - Your signature acknowledges that this is your own work.
- If a participant initially answers a question incorrectly but modifies their response, they must follow the instructions below:
  - If a participant changes their response in writing, they must put their initials next to the written change.
  - If a participant changes their response verbally, this must be noted on the exam paper by the assessor.

Participant name: Rachell Macdonald

Participant signature: 

Assessor name:

Assessor signature:

Date: 10/11/2017

Number of questions	Number of questions answered correctly	Satisfactory?	
		Yes	No
77		☐	☐

ASSESSOR COMMENTS

Q1. **What does the term 'plan' mean when referencing plans and drawings for construction purposes?**

Answer

Drawings showing in a graphical form the shape, size and position of a building on a site, together with the composition of the materials used and the way the building is to be constructed.

Q2. **Name the people and organisations who will have an interest in plans and drawings for a construction project.**

Answer

The client and lending body
Local council
Supply authorities (water, sewerage, drainage)
Electrical, gas and cable supply companies
Builders and sub-contractors wanting to quote
Engineers
Sub-Contractors(trades)
Real estate agents
Neighbours
Kitchen manufacturers
Landscapers
Material or product suppliers
Environmental agencies
Mechanical service installers

Q3. **What will plans show to the interested parties?**

Answer

What the proposed structure will look like when completed and how it will be constructed,

Q4. **What types of plans is it necessary to be familiar with for building and construction projects?**

Answer

CAD drawings
Construction information drawings
Detailed amendment drawings
Site plan detailing roads and pathways, parking areas, boundaries and landscaping
Initial sketches
Prelim and final drawings and plans
Presentation drawings
Services drawings eg. Electrical, hydraulic
Sketch Plans
Working drawings

Q5. **All plans and drawings give a compass direction.**

Which compass direction is always shown and on which drawings is it likely to be found?

Answer North and are shown on Site Plans, block plans, floor plans and key plans ☐

Q6. **What does a location plan contain?**

Answer
Lot number/s
Deposit plan numbers
North point
Scale ☐

Q7. **What does a site or block plan contain?**

Answer
A datum- reference height to other site levels
Building Orientation to north point
Scale usually 1:500
Outline of site boundaries showing proposed building and existing building location
Title block
Major geological and topographical features
Contours and slopes
Depths
Distances from boundaries to building footprint
Driveways, stormwater drainage, easements and right of carriage
Soil and surface water drains, pipe sizes
Service runs from house to mains
New levels on the site in connection with new building
Paving
Retaining walls ☐

Q8. **What features would you expect to look for and find on plans and drawings for a construction project?**

Answer

Plans will generally show various features on the site and illustrate details about the building such as construction details for trades people.
Likely to include:
Ceiling heights and variations
Doors
Light fittings and power supplies
Services
Wall penetrations
Walls

Materials
Standards
Techniques

Q9. **What do floor plans identify?**

Answer

A view which shows the layout or arrangement of rooms and other parts of the interior of the building

Q10. **What are elevation views? What do they provide to the plan reader?**

Answer

A view you see when standing in front of that wall. Each side of the building is shown usually in scale 1:100
Elevations indicate:
Finish to external walls
Size of windows, doors and balconies

Q11. **What is a section?**

Answer

A section is a vertical view (slice) through the building.
Key features on section plans are:
Height of building
Position of piers, beams, openings
Floor to ceiling heights
Distance between finished floor and existing or proposed ground levels
Construction details
Scales same as plan

Q12. **What are detailed drawings?**

Answer

Plans providing further in depth detail of a particular service or feature in the building.
Eg. Electrical layout

Q13. **What are specifications?**

Answer

Building Specifications-Levels and survey information
Material lists
Performance data and material technical data
Schedule of quantities
Stress, load and bearing calculations

Q14. **What information will you find in a title block to a drawing?**

Answer

Client or Project name
Drawing number
Drawing description
Site address
Amendment details: Revision number and date
Drafter/designer
Scale

Q15. **What is the significance of the Australian Architectural Standards?**

Answer *Details the symbols that must be used in drawings.*

Q16. **What will you find in the Waste Management Plans & Site Management plans?**

Answer Waste Management Plans are a typical town planning or DA requirement for larger residential and non-residential developments.
The goal of these Operational Waste Management Plans is to ensure consideration of location and practicalities of waste removal, and recycling and waste minimisation opportunities early in a development's design phase.

Q17. **What is a landscape plan?**

Answer Architectural drawing of the entire landscape's features, structures, layout and dimensions to be implemented at construction completion.

Q18. **What is the purpose of a shadow diagram? Who primarily would seek one?**

Answer Service Subbies use them to do up services drawings.
Eg Electrical Layout or Hydraulic plan

Q19. **What is a bracing schedule?**

Answer Details the size and spacing of members to be used for bracing framework. ☐

Q20. **What must we do with plans and drawings in our on-site environments? How often should plans and drawings be viewed on site?**

Answer Store them in a secure place.
Review them daily to check measurements, specifications etc. ☐

Q21. **Explain the meaning of the abbreviations in the table below.**

Answer

Abbreviation	Meaning
ACRYL	Acrylic
AS	Australian Standard
ASSD	Assumed Datum
B	Basin
BN	Bull Nose
BTH	Bath
BWK	Brickwork
CB	Concrete Block
CF	Concrete Floor
CG	Clear Glass
CJ	Ceiling Joist
CORR	Corrugated
CWT	Cold Water Tank
DG	Double Glazing
DH	Double Hung
DPC	Damp Proof Course
DSB	Distribution Switch Board
DW	Dishwasher
EJ	Expansion Joint
FPBD	Fibrous Plaster Board
FFL	Finished Floor Level
FHR	Fire Hose Reel
GPO	General Purpose Outlet
HBD	Hardboard
HTR	Heater
HWD	Hardwood

Q22. **Why and when would you use presentation drawings?**

Answer

Presentation drawings are used to convey basic design concepts from a design team to the client.
They are an important part of public hearings and design reviews, studied by government and private agencies to determine the impact on the community.
In residential Architecture they are used to show compliance with board standards and to assist in advertising.

Q23. **Service drawings provide information about a variety of different components and equipment. In order to identify individual items, it is usual to give them a reference number on drawings such as services layout drawings and location plans.**

What details might we expect to see from service drawings?

Answer

Hot and cold water supplies, above and below ground drainage
Sanitary appliances
Refuse disposal
Heating
Ventilation
Air Conditioning
Electrical Installations including lighting, data and comms, gas installations, fire services, mechanical conveyors and security systems.

Q24. What are working drawings? What do they record?

Answer

Working drawing - purpose

A working drawing is a blue print which is complete with enough plan and section views (including dimensions, details and notes) to enable the depicted items construction without additional information.

Working drawings:

- record or explain the appearance and construction of an existing building or sketch
- are used as preliminary construction plans to clarify on-site details not made clear by other drawings

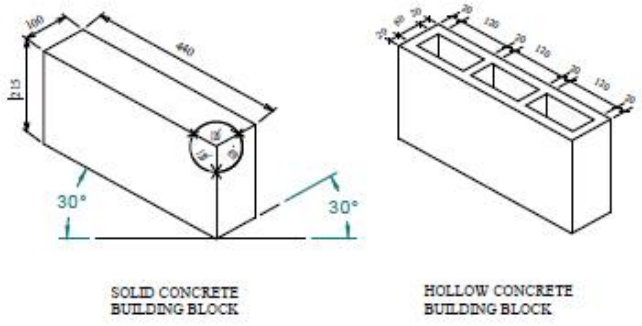
Q25. What is an isometric view?

Answer

Isometric project is a **method of showing three faces of an object on one drawing**. 'Isometric' means *equal measure* - that is the three lines defining the three faces or planes produce three equal angles using vertical lines, and horizontal lines at 30 degrees to the horizontal.

Q26. Sketch a concrete block in isometric view.

Answer



Q27. **What is the purpose of perspective projection and representation in drawing of architectural buildings and edifices?**

Answer

A perspective is a view that is normally seen by the eye or camera, and is the most realistic form of pictorial. All parallel lines converge at infinite vanishing points as they receded from the observer.

Q28. **What is a topographical survey?**

Answer

Topographical surveys: including laser scanning or Lidar provides a robust method for surveying areas to set out the exact position of a proposed structure ensuring the construction is done within the legal boundary preventing any future disputes.

Q29. **What is an ecological survey?**

Answer An Ecological survey identifies the habitats and/or species that exist within an area at the time of the survey.

Q30. **What is significant to keep in mind when developing the Schedule of Quantities (also known as a Bill of Quantities)?**

Answer The quantities provided in a bill of quantities usually differ from the quantities actually encountered. Whether a Contractor is entitled to be paid for variations in the quantities will depend on the intention of the parties as determined by the contractual terms.

Q31. **What should be applied in consideration of stress, load and bearing calculations in the design, the drawings and the building of a structure?**

Answer All building code requirements and calculations for stress and load bearing need to be identified and complied with. ☐

Q32. **What is a prime cost (PC) item? Give an example.**

Answer A Prime cost item is an amount of money included in a contract sum to purchase a specified item such as tiles, taps, doors etc.
An agreed estimated amount is included at contract signing but the specific products are not selected until a later stage ☐

Q33. **What is a provisional sum (PS) item? Give an example.**

Answer

A PC item is:

- an amount of money included in a contract sum to purchase a specified item such as tiles, taps, doors or bathroom fittings
- An agreed estimated amount is included at contract signing but the specific products are not selected until a later stage
- Under the Home Building Contracts Act (1991) a builder must estimate the cost of such items at or above the lowest amount these items could reasonably cost

An estimated amount of earthworks was quoted for normal conditions soil class. When excavation began, rock was hit causing the works to take longer and overrun the initial estimated cost.

Q34. **Suggest when you would need to provide 'additional' plans. Give some examples of such plans.**

Answer

Client has requested a variation to original scope of works.
The applicable drawing will need to be amended. This will become a revised set of plans and need to be reissued to all parties, Client, subbies etc so that everyone has the latest set of drawings.

Q35. **How do you identify and record customer variations?**

Answer

Additions or deductions to the works identified within the project specifications
An amount over and above the prime cost.
Step 1. Client puts request in writing.
Step 2. Changes to any terms must be dated and signed by all parties to the contract
Step 3. Submit an Extension of time request if delays will be caused due to owner increasing scope of works

Q36. **When reading and interpreting (or amending) variations project specifications, what documentation should you also refer to?**

Answer

- Plans
- Contract doc
- Engineers details
- Building permits
- Other permits

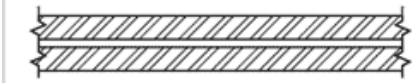
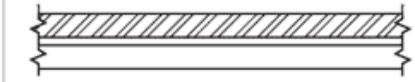
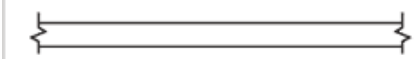
Q37. **So you don't end up in a dispute what strategies can you employ with your customer/client/home owners?**

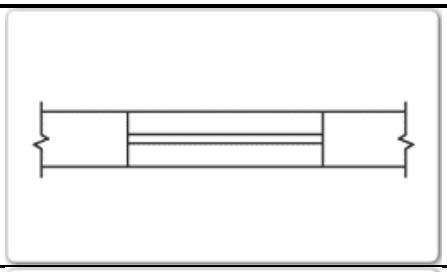
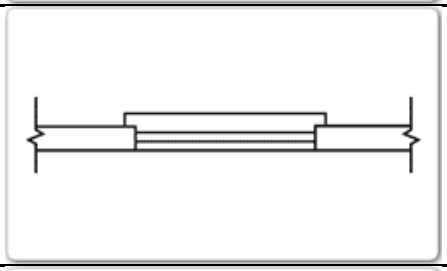
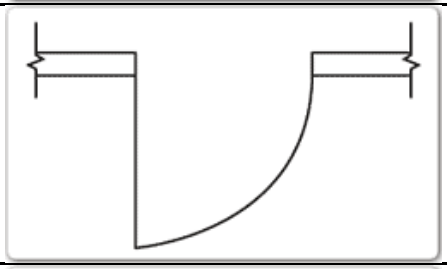
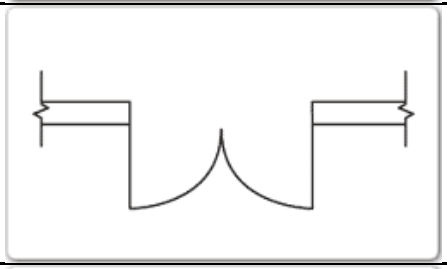
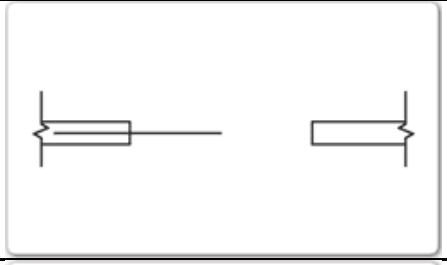
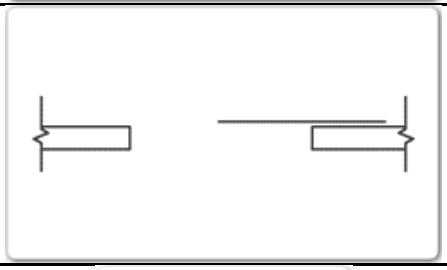
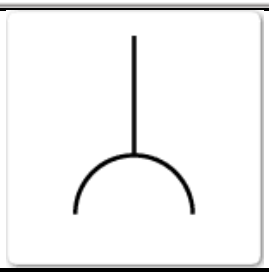
Answer

Have all variation requests put in writing and signed off by all parties before work commences.

Q38. **Name each of the drawing symbol images shown in the table below.**

Answer

Name	Image
Double Brick Wall	
Brick Wall with Internal wall	
Internal Wall	

Window	
Window, External Frame	
Single door opening 90 ˚	
Double door opening 90˚ each	
Internal Sliding Door	
External Sliding Door	
180˚ door opening	

Q39. **Draw symbols for the following items.**

Answer

Item	Drawing
Basin	
Bidet	
Bath	
Drinking fountain	
Sink: Single bowl	
Sink: Double bowl	
Tub: Double	
Tub: Single	
Drinking trough	
Hotplates	

Shower	
Shower bath	
Urinal stall	
Vanity basin	
Water Closet (Toilet)	

Q40. **Draw the following window symbols in elevation.**

Answer

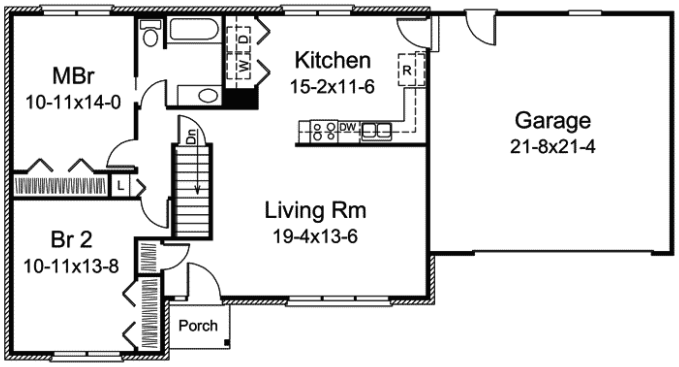
Item	Drawing
Hinged at side	
Hinged at top	
Sliding horizontally	
Fixed	

Q41. **Draw symbols for the following items.**

Answer

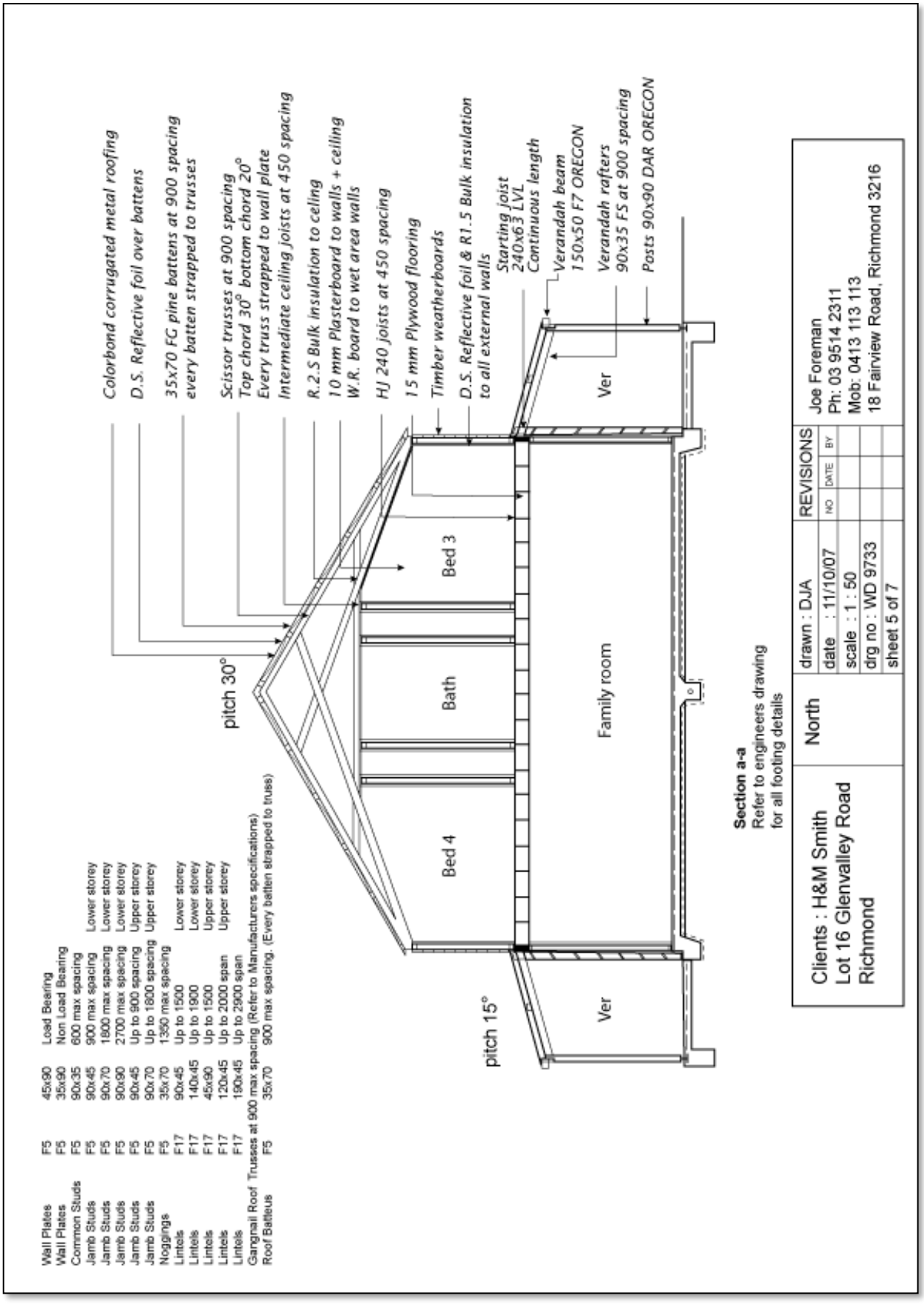
Item	Drawing
Brickwork	
Blockwork	
Concrete	
Plaster/Render	

Q42. **Provide a description of the residence shown in the plan drawing below.**



Answer

Refer to the sectional drawing below to respond to Q43. to Q63.



Q43. **Give a brief description about the building from the detail available in the sectional drawing.**

Answer

2 Storey House
Colobond Trussed Roof at 30˚ pitch
Verandah on both sides with 15˚ pitched roof
Timber Framing,
Timber weatherboard cladding to top level, Ist story is Brick
Insulated walls and ceiling

Q44. **Who is the client?**

Answer

H and M Smith

Q45. **Where is this project to be built?**

Answer

Lot 16 Glenvalley Road, Richmond

Q46. **What are the contact details for the draftsman?**

Answer

Joe Foreman

Q47. **What sheet number is this drawing?**

Answer

Sheet 5

Q48. **What timber is required for loading and non-load bearing walls?**

Answer

45x90 Load Bearing, 35x90 non Load Bearing

Q49. **What spacing is recommended for common studs?**

Answer 600 max spacing

Q50. **What type of roof truss is to be installed?**

Answer Scissor Truss at 900 spacing
Top Chord 30˚, bottom chord 20˚

Q51. **What centres are the trusses positioned at?**

Answer 900 max spacing

Q52. **What size are the veranda posts?**

Answer 90x90

Q53. **What timber species are the veranda posts to come from?**

Answer OREGON

Q54. **What pitch is the roof?**

Answer House 30˚ , Veranda 15˚

Q55. **What size are the noggings and at what spacing?**

Answer 35x70 1350 max spacing

Q56. **What size are the ceiling joists?**

Answer HJ 240 joists

Q57. **What timber is used for roof battens and what spacing?**

Answer 35x70 900 max spacing Pine battens ☐

Q58. **What thickness is the plasterboard sheeting?**

Answer 10mm ☐

Q59. **What type of flooring is to be installed?**

Answer 15m plywood flooring on second level ☐

Q60. **What is the roof cladding material?**

Answer Colorbond corrugated metal ☐

Q61. **Where will you find information about the footings?**

Answer Refer to engineers drawing ☐

Q62. **What do the letters DAR refer when timber ordering?**

Answer Round ☐

Q63. **Explain 240 x 63 LVL. What does it refer to on the section?**

Answer The joist that runs the length of the verandah to which the rafters join to.

Refer to the drawing overleaf to respond to Q64. to Q75.

Q64. **What is the number of the drawing?**

Answer 2

Q65. **What is the Job Number?**

Answer OOR-112

Q66. **What is the scale of the drawing?**

Answer 1:100

Q67. **What does the drawing show?**

Answer All Elevations
Section plan for internal details

Q68. **Which view shows the front of the house?**

Answer East Elevation ☐

Q69. **How many motor vehicles can be parked in the garage?**

Answer 2 ☐

Q70. **What are the window and doors made from?**

Answer Timber Entrance Door, Aluminium framed windows ☐

Q71. **What is the size of the eaves?**

Answer 450 ☐

Q72. **What are the eaves lined with?**

Answer hardiflex ☐

Q73. **What type of roof structure is the roof built from?**

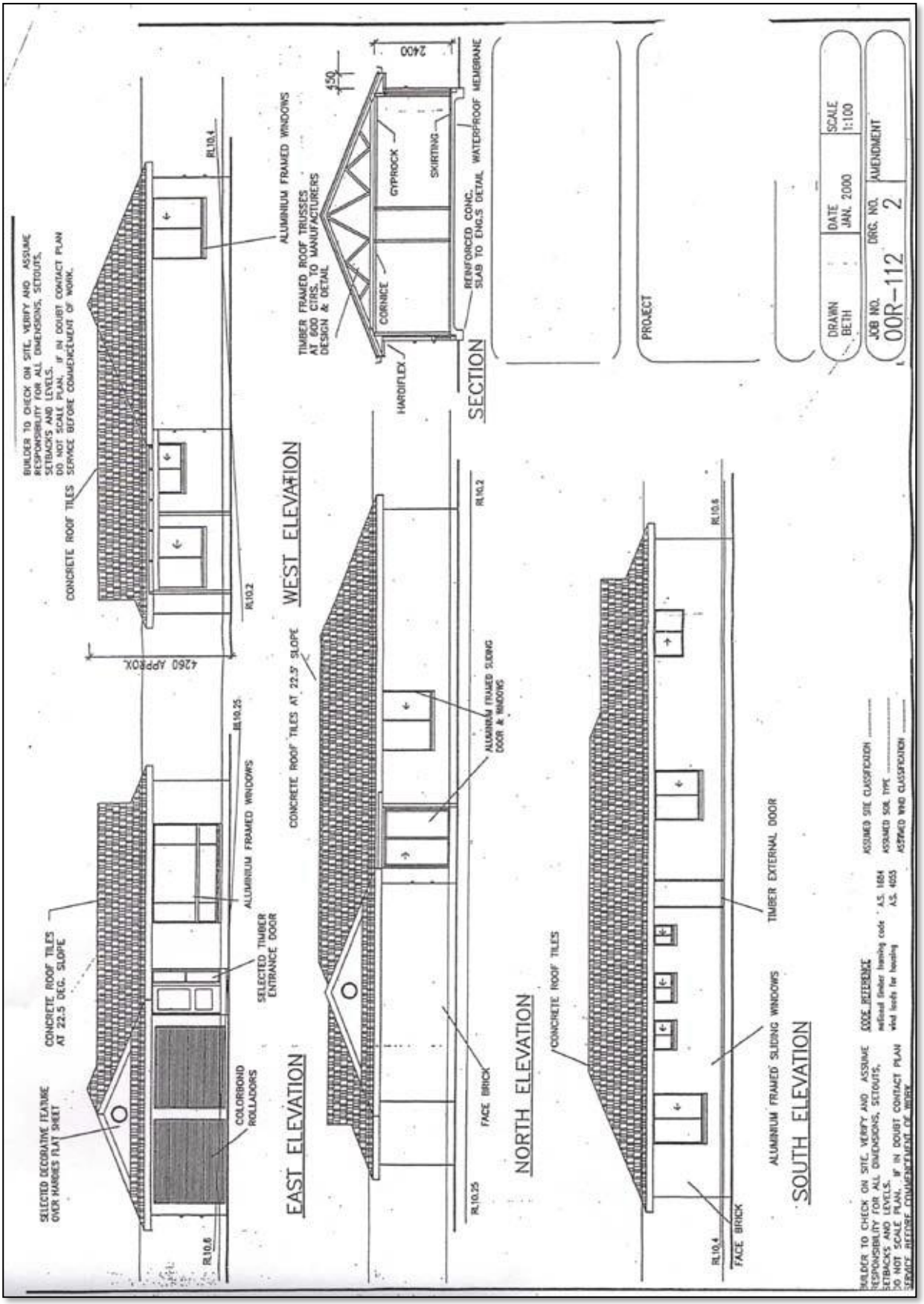
Answer Timber framed roof trusses ☐

Q74. **What is the roof cladding materials made from?**

Answer Concrete roof tiles ☐

Q75. **What is the roof pitch?**

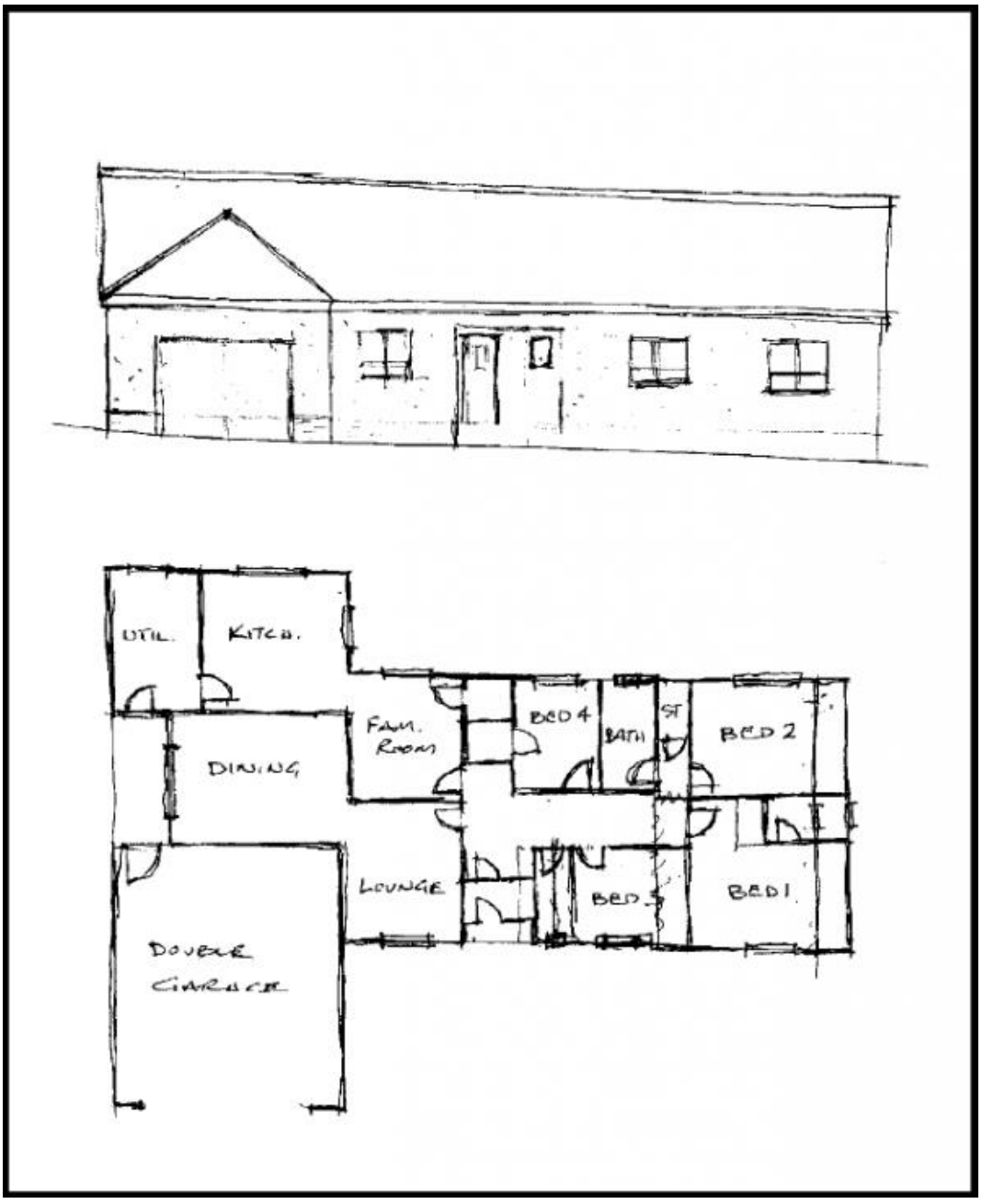
Answer 22.5˚ ☐


EAST ELEVATION
WEST ELEVATION
NORTH ELEVATION
SOUTH ELEVATION
SECTION
CONCRETE ROOF TILES AT 22.5 DEG. SLOPE
SELECTED DECORATIVE FEATURE OVER HANGES FLAT SHEET
COLORBOND ROLLADORS
SELECTED TIMBER ENTRANCE DOOR
ALUMINIUM FRAMED WINDOWS
CONCRETE ROOF TILES AT 22.5° SLOPE
ALUMINIUM FRAMED SLIDING DOOR & WINDOWS
FACE BRICK
CONCRETE ROOF TILES
TIMBER EXTERNAL DOOR
ALUMINIUM FRAMED SLIDING WINDOWS
FACE BRICK
ALUMINIUM FRAMED WINDOWS
TIMBER FRAMED ROOF TRUSSES AT 600 CTRS. TO MANUFACTURERS DESIGN & DETAIL
CONCRETE ROOF TILES
GYPROCK
SKIRTING
CORNICE
HARDIFLEX
REINFORCED CONC. SLAB TO ENG.S DETAIL
WATERPROOF MEMBRANE
4260 APPROX.
2400
450
RL10.4
RL10.2
RL10.25
RL10.6
BUILDER TO CHECK ON SITE, VERIFY AND ASSUME RESPONSIBILITY FOR ALL DIMENSIONS, SETOUTS, SETBACKS AND LEVELS. DO NOT SCALE PLAN. IF IN DOUBT CONTACT PLAN SERVICE BEFORE COMMENCEMENT OF WORK.
PROJECT
DRAWN BETH
DATE JAN. 2000
SCALE 1:100
JOB NO. 00R-112
DRG. NO. 2
AMENDMENT
CODE REFERENCE
national timber framing code - A.S. 1684
wind loads for housing - A.S. 4055
ASSUMED SITE CLASSIFICATION
ASSUMED SOIL TYPE
ASSUMED WIND CLASSIFICATION

Q76. **You have spoken with a client on the phone and they are seeking to make amendments to some plans. They wish to add two more bedrooms to extend their home from the current four bedrooms to six bedrooms.**

The two new bedrooms are to both have ensuites (including single shower in each, double bowl vanity unit and under cupboard and toilet) with walk in robes, including the extension of the existing hallway with built-ins for the existing Bed 1 and Bed 2. The Family Room is to be extended to the rear wall in line with kitchen rear wall.

The client has faxed through the image below. Re-sketch and redesign the drawing and add the two new bedrooms along with extended hallway, ensuites, walk-in robes and the Family Room extension for consideration by the client.



SKETCH

Answer

Q77. **Referring to Q76. compose an email to the client, providing an estimate of the additional labour hours/costs and material quantities/costs that have resulted from the their request.**

Answer

Good Afternoon,

Please find attached a concept design for the upgrades to your house design as per your request.
Can you confirm that you are happy with this design so we can move forward with having architectural plans drawn up to complete the expected variation cost.
Based on initial calculations this will add a variation of $90, 000 to the original estimate.
Can you please confirm in writing that you are happy with this design at your earliest convenience?

Kind Regards,

Joe Foreman
Architect