

PRACTICE EXAM 4: RED SEAL CARPENTER INTERPROVINCIAL SIMULATION (100 QUESTIONS)

1. A carpenter is selecting a framing square for laying out rafter cuts. The framing square has two arms of different lengths. What are the two arms called, and what are their standard lengths?
 - A. The blade (body) is 24 inches long and the tongue is 16 inches long on a standard framing square
 - B. The blade (body) is 16 inches long and the tongue is 24 inches long on a standard framing square
 - C. The arm and the leg are both 18 inches long on a standard framing square for symmetrical layout
 - D. The beam and the flange are 20 inches and 12 inches long respectively on a standard framing square

2. A carpenter is sharpening a wood chisel on a sharpening stone. At what angle should the bevel on the cutting edge typically be maintained during sharpening?
 - A. 15 degrees for the finest possible cutting edge suited to paring and detailed joinery work
 - B. 45 degrees for maximum durability when the chisel is struck with a heavy mallet during mortising
 - C. 25 to 30 degrees for a balance between sharpness and edge durability suited to general carpentry work
 - D. 60 degrees for rough work where the chisel will encounter knots and dense hardwood grain regularly

3. A carpenter is using a portable circular saw and notices that the blade guard does not retract freely when starting a cut and does not return to the closed position after the cut is completed. What should the carpenter do?
 - A. Continue using the saw carefully by manually retracting the guard before each cut with the free hand
 - B. Remove the blade guard entirely to eliminate the interference and increase visibility of the cut line
 - C. Lubricate the guard pivot mechanism with oil and continue working if the guard now operates freely

D. Remove the saw from service immediately because a malfunctioning guard is a serious safety hazard

4. A worker on a construction site is required to wear hearing protection. The workplace noise level is measured at 95 dB during a concrete cutting operation. The exposure limit before hearing protection is required is 85 dB. Which statement about hearing damage is correct?

A. Hearing damage from noise exposure is temporary and recovers fully after the worker leaves the site

B. Hearing damage from sustained noise exposure above 85 dB is permanent and cumulative over time

C. Hearing damage occurs only from sudden impact noises, not from sustained continuous exposure

D. Hearing protection is optional at 95 dB because damage only begins at levels exceeding 100 dB

5. A carpenter is working near an open excavation. A coworker in the trench calls for a tool. The carpenter reaches down to hand the tool to the coworker and notices that the trench walls are vertical, unsupported, and over 1.5 metres deep. What should the carpenter do?

A. Refuse to enter the trench and report the unprotected trench walls to the supervisor as a safety hazard

B. Enter the trench quickly to deliver the tool since the exposure time will be very brief at only a few seconds

C. Shore up one side of the trench with available lumber before entering to create a partially protected zone

D. Enter the trench only if standing near the ladder so a quick exit is possible in case of a wall collapse

6. A fall protection plan is required before any work at height begins. One element that must be included in every fall protection plan is a rescue procedure. Why is a rescue procedure mandatory?

A. The rescue procedure determines the type of fall protection equipment that must be purchased for the project

B. The rescue procedure satisfies the insurance requirement for the contractor's liability coverage policy

C. A worker suspended in a harness after a fall arrest can develop suspension trauma if not rescued promptly

D. The rescue procedure is required only for work above 10 metres and is optional for lower elevations

7. A carpenter must select a ladder to access the roof of a building near overhead power lines. Aluminum extension ladders are available in the tool crib. Why must the carpenter NOT use an aluminum ladder for this task?

- A. Aluminum ladders are too lightweight for construction use and may bend under the carpenter's weight
- B. Aluminum ladders corrode when exposed to rain and become structurally weak near power lines
- C. Aluminum ladders exceed the maximum length permitted for use near electrical hazards on job sites
- D. Aluminum conducts electricity and contact with power lines would create a path for electrocution through the ladder and the climber

8. When using a two-leg bridle sling to lift a symmetrical load, both sling legs must be equal in length. What happens if one sling leg is significantly shorter than the other?

- A. The load rises faster on the short-sling side, creating a dynamic swinging motion during the lift
- B. The load tilts toward the short sling, shifting the centre of gravity and potentially causing the load to slide or roll out of the slings
- C. The crane automatically compensates for the length difference by adjusting the boom angle during the lift
- D. The short sling carries less load than the long sling because load distribution is proportional to length

9. An employer provides a new type of chemical adhesive for a flooring installation. Before using the product, the carpenter wants to know whether it is flammable and what first-aid measures apply if skin contact occurs. The carpenter locates the Safety Data Sheet. Which sections of the 16-section SDS contain this information?

- A. Section 2 (Hazard Identification) for flammability classification and Section 4 (First-Aid Measures) for skin contact treatment
- B. Section 9 (Physical Properties) for flammability and Section 11 (Toxicological Information) for skin effects
- C. Section 7 (Handling and Storage) for flammability and Section 8 (Exposure Controls) for skin protection

D. Section 14 (Transport Information) for flammability class and Section 16 (Other Information) for first-aid

10. A scaffold has been set up for a bricklaying crew, and a carpenter needs to use the scaffold to install window flashing on the same wall. Before working on the scaffold, what must the carpenter verify?

- A. That the scaffold was designed by the same engineering firm responsible for the building structure
- B. That the bricklaying crew has finished all their work and removed their tools from the platform
- C. That the scaffold has been inspected by a competent person and is adequate for the carpenter's intended use and loads
- D. That the scaffold is owned by the carpenter's employer rather than a subcontractor's rented equipment

11. A worker is organizing materials on a job site and places several sheets of plywood flat on the ground in a high-traffic walkway area. What hazard does this create?

- A. The plywood will absorb ground moisture and warp, making it unusable for its intended construction purpose
- B. The plywood blocks access for emergency vehicles that may need to reach the work area in an emergency
- C. The plywood prevents grass growth beneath it, which may violate environmental site management requirements
- D. The plywood creates a tripping hazard and may conceal uneven ground, holes, or debris beneath it

12. A carpenter is working on a scaffold platform that is 8 metres above grade. The scaffold has guardrails on three sides, but the fourth side — facing the building — has no guardrail. The gap between the platform edge and the building wall is 400 mm. Is fall protection required at this gap?

- A. No, because the building wall serves as a barrier that prevents falls on the side facing the structure
- B. Yes, because the gap exceeds 350 mm and a worker could fall through the space between the platform and the building
- C. No, because gaps facing the building are exempt from guardrail requirements as long as the gap is less than 500 mm

D. Yes, but only if the worker is carrying materials that could shift their balance toward the gap during work

13. A carpenter is reading a site plan that shows the building footprint positioned on the lot. The plan indicates a "front yard setback of 7.5 m" and a "side yard setback of 1.5 m." What do these setback dimensions define?

- A. The maximum allowable height of the building measured from the front and side property lines
- B. The required distance between property fences and any landscaping features on the building lot
- C. The minimum required distance between the building and the property lines on the front and side of the lot
- D. The depth of the foundation below grade required at the front and side of the building footprint

14. On a reflected ceiling plan, the ceiling layout is shown as if the viewer is looking down through a transparent floor at the ceiling below. Why is the plan drawn this way rather than looking up at the ceiling directly?

- A. So that the ceiling plan aligns with the floor plan when the two drawings are laid on top of each other for coordination
- B. So that the drawing can be used as a template for cutting ceiling tiles by placing them directly on the plan
- C. So that the mechanical ductwork appears in the correct orientation relative to the floor below it
- D. So that the electrical fixtures on the ceiling plan match the switch locations marked on the wall elevations

15. A carpenter is calculating the area of a room with an L-shaped floor plan. The room consists of a large rectangle measuring 6.0 m \times 4.5 m and a smaller rectangle measuring 3.0 m \times 2.0 m extending from one side. What is the total floor area?

- A. 27.0 square metres based on calculating only the large rectangle without including the extension
- B. 18.0 square metres based on averaging the two rectangle dimensions and multiplying by a correction
- C. 21.0 square metres based on subtracting the smaller rectangle from the larger rectangle area

D. 33.0 square metres based on adding the areas of the large rectangle and the smaller rectangle together

16. A carpenter is ordering materials for a concrete sidewalk. The sidewalk is 1.2 metres wide, 30 metres long, and 100 mm thick. How many cubic metres of concrete are required before waste allowance?

A. 36.0 cubic metres based on multiplying all dimensions without converting millimetres to metres first

B. 3.6 cubic metres based on converting the thickness to 0.1 metres and multiplying $1.2 \times 30 \times 0.1$

C. 0.36 cubic metres based on dividing the final result by ten due to a conversion error in the calculation

D. 360 cubic metres based on using all dimensions in millimetres without converting to metres at all

17. A carpenter needs to find the length of a diagonal brace for a wall. The brace runs from the top plate to the bottom plate on the exterior face of the wall. The wall is 2.4 metres tall and the brace attachment point on the bottom plate is 2.4 metres horizontally from the top plate attachment point. Using the Pythagorean theorem, what is the approximate length of the brace?

A. 2.4 metres based on the brace length equalling the height of the wall in a square configuration

B. 4.8 metres based on adding the wall height and the horizontal distance for the brace total

C. 3.39 metres based on calculating the hypotenuse of a right triangle with equal 2.4 metre sides

D. 5.76 metres based on squaring the wall height and adding it to the horizontal distance without square root

18. When using a builder's level, the rod person holds the levelling rod at the point being measured. The rod must be held in a specific orientation for accurate readings. How must the rod be held?

A. Perfectly vertical (plumb), verified with the rod level bubble, so the reading is the true vertical distance

B. Tilted slightly toward the instrument so the operator can see the graduation marks more clearly

C. At a 90-degree angle to the slope of the ground surface so the reading follows the terrain contour

D. With the graduated face turned away from the instrument so the operator reads the back scale

19. A building has a total span of 11.0 metres. The roof has a symmetrical gable design with a 7/12 pitch. What is the total rise from the wall plate to the top of the ridge?

- A. 7.0 metres based on multiplying the full span by the pitch fraction of seven to twelve directly
- B. 5.5 metres based on using the total span instead of the run in the rise calculation formula
- C. 2.58 metres based on dividing the total span by the pitch denominator without using the numerator
- D. 3.21 metres based on multiplying the run of 5.5 metres by the pitch fraction of seven to twelve

20. A carpenter is laying out a floor system and needs to mark the locations where doubled joists are required for a floor opening. The doubled joists on each side of the opening are called what?

- A. Cripple joists because they are shorter than the regular joists and fill in below the opening headers
- B. Trimmer joists because they carry the additional load transferred from the headers at each end of the opening
- C. Bridging joists because they bridge across the opening to transfer loads to the regular joists beyond
- D. Ledger joists because they provide a ledge for the header to bear on inside the floor opening

21. A carpenter snaps a chalk line on the subfloor to mark the inside edge of an exterior wall. The chalk line represents which component of the wall?

- A. The centreline of the wall studs from which all measurements are taken to both faces of the wall
- B. The outside face of the wall sheathing that will be installed after the wall is raised and plumbed
- C. The inside face of the bottom plate, which defines the interior room dimension at the floor level
- D. The top plate alignment reference that will be verified after the wall is raised and braced plumb

22. A carpenter is estimating roofing material for a simple gable roof. The building is 10 metres long and 8 metres wide with a 6/12 pitch. The rafter line length (slope length) for one side of the roof is 4.65 metres. What is the total roof area for both sides before adding waste?

- A. 93.0 square metres based on multiplying the building length by the rafter slope length and doubling for both sides

- B. 80.0 square metres based on multiplying the building length by the building width for the plan area only
- C. 46.5 square metres based on calculating only one side of the gable roof without doubling the result
- D. 37.2 square metres based on multiplying the rafter length by the building width and dividing by two

23. When a dimension on a construction drawing conflicts with a dimension in the project specifications, which document generally takes precedence?

- A. The construction drawing dimension takes precedence because drawings are the primary construction document
- B. The project specification takes precedence unless the contract documents state otherwise
- C. The larger of the two dimensions takes precedence to ensure the building exceeds minimum requirements
- D. Neither takes precedence and the carpenter must use the average of the two conflicting dimensions

24. A carpenter is checking a plumb bob for accuracy. The bob is hanging from a fixed point, but a steady wind is blowing across the work area, causing the bob to swing. What should the carpenter do to get an accurate plumb reading?

- A. Add weight to the plumb bob string to increase the pendulum force and reduce the wind effect
- B. Shorten the string length to reduce the pendulum arc and minimize the wind deflection distance
- C. Take the reading while the bob is swinging and average the two extreme positions for the plumb point
- D. Wait for calm conditions, move to a sheltered location, or use a laser plumb instead of a plumb bob

25. A project requires the carpenter to install anchor bolts at specific locations along a foundation wall. The engineer's drawing shows bolt locations dimensioned from a grid line reference. The carpenter must transfer these dimensions from the drawing to the actual foundation. What is the first step?

- A. Establish the grid line reference point on the actual foundation by measuring from the building corner shown on the drawing
- B. Install the anchor bolts at estimated locations and adjust them after the wall framing is in place above

- C. Space the bolts equally along the wall length regardless of the grid line dimensions on the drawing
- D. Wait until the sill plate is installed and drill through the sill plate into the foundation at each bolt location

26. A carpenter is using a laser level to establish a level line around the perimeter of a room for installing kitchen wall cabinets. The laser line is projected at a height of 1,370 mm above the finished floor. Before relying on this line, what must the carpenter verify?

- A. That the laser level battery is at full charge to ensure the beam intensity is adequate for visibility
- B. That the floor is level, because if the floor slopes, the laser line will be at different heights relative to the floor at different points around the room
- C. That the walls are painted a dark colour so the laser line is clearly visible against the wall surface
- D. That no other laser levels are operating in the same room to prevent beam interference and false readings

27. A carpenter is building formwork for a retaining wall that will hold back earth on one side. The structural drawings specify that the wall must be 300 mm thick. Unlike a standard foundation wall, a retaining wall is designed to resist lateral earth pressure on one side. What additional formwork consideration does a retaining wall require compared to a standard foundation wall?

- A. The form on the earth-retention side must be designed with heavier walers, closer tie spacing, and stronger bracing to resist the additional lateral load from backfill pressure
- B. The form on the earth-retention side does not require form ties because the earth provides support
- C. Retaining walls are always poured against the earth without forms on the back side to save materials
- D. Retaining wall forms use the same design as standard foundation wall forms because the concrete pressure is identical

28. A carpenter discovers that a bag of portland cement in the material storage area has been exposed to rain. The cement has formed hard lumps throughout the bag. Can this cement be used for the concrete mix?

- A. Yes, if the lumps are broken up with a hammer and sieved through a screen before mixing with aggregate

- B. Yes, if the cement is spread out and allowed to dry completely in the sun for 48 hours before use
- C. No, cement that has absorbed moisture and formed lumps has partially hydrated and lost its binding capacity
- D. No, but the lumps can be used as aggregate filler in non-structural applications such as sidewalk base

29. A carpenter is building footing forms on a sloped site and must construct a stepped footing. At each step, the vertical riser form must be securely held in position to resist the pressure of the wet concrete. How is the riser form typically supported?

- A. The riser is held in place by the weight of the concrete already placed in the lower section of the footing
- B. The riser form is secured with cleats nailed to the side forms and stakes driven into the ground behind it
- C. The riser form is suspended from a string line stretched across the top of the footing form at each step
- D. The riser form is set loosely in position and held by the concrete as it flows against the riser during placement

30. A suspended concrete slab on the second floor of a building has been poured. The shores (vertical support posts) beneath the slab must remain in place until the concrete has reached a specific percentage of its 28-day design strength. What is the typical minimum percentage required before shores can be removed?

- A. 25% of the 28-day design strength, which is typically reached within 48 hours of placement
- B. 50% of the 28-day design strength, which is typically reached within 3 to 4 days of placement
- C. 100% of the 28-day design strength, requiring the full 28-day curing period before any shore removal
- D. 70% to 75% of the 28-day design strength, which may require 7 to 14 days depending on conditions

31. When placing rebar in a concrete footing, the rebar must be elevated above the bottom of the form to provide adequate concrete cover. What device is used to support the rebar at the correct height above the form bottom?

- A. Rebar chairs — small plastic or wire supports placed beneath the rebar to maintain the specified cover distance
- B. Tie wire loops attached to the form panels and hung from the top edge to suspend the rebar at mid-depth
- C. Wood blocks cut to the cover dimension and placed beneath the rebar at regular intervals in the form
- D. Metal spreader cones from the snap tie system repositioned at the bottom of the form for rebar support

32. A lap splice is required where two pieces of 15M rebar must be connected in a footing. The structural drawing specifies a lap splice length of 450 mm. During installation, the carpenter positions the two bars side by side with a 75 mm gap between them over the required lap distance. Is this installation correct?

- A. Yes, because the 75 mm gap allows concrete to flow between the bars for better bond development
- B. Yes, because the gap is less than the bar diameter and is within the acceptable tolerance for lap splices
- C. No, because the bars in a lap splice must be in direct contact with each other, not separated by a gap
- D. No, because the lap splice length must be increased by 75 mm to compensate for the gap between bars

33. A carpenter is stripping wall forms from a concrete foundation. The concrete was placed yesterday afternoon — approximately 18 hours ago. The weather has been warm (20°C) and the concrete appears hard when tapped with a hammer. Is it safe to strip these vertical wall forms?

- A. No, vertical wall forms must remain in place for a minimum of 7 days regardless of temperature
- B. Yes, vertical wall forms can typically be stripped after 12 to 24 hours in warm weather when the concrete can support its own weight and resist surface damage
- C. No, all forms must remain until concrete cylinder test results confirm the 28-day design strength has been reached
- D. Yes, but only if the forms are stripped from the top down and the bottom sections remain in place for 48 hours

34. A concrete floor slab specification calls for a Class B tolerance finish. The carpenter must check the floor flatness after finishing. What tool is used to check the flatness of a finished concrete floor?

- A. A spirit level placed on the concrete surface to check for level in multiple directions across the slab
- B. A string line stretched between two points at opposite edges of the slab to identify any dips or crowns
- C. A laser level projecting a reference plane above the slab with measurements taken at a grid of points
- D. A 3-metre straightedge placed on the concrete surface to identify any depressions or high points beneath it

35. A carpenter is mixing non-shrink grout to fill beneath a precast concrete step unit. The manufacturer's instructions specify a specific water-to-grout ratio. The carpenter adds extra water to make the grout flow more easily into the tight space beneath the step. What is the consequence of adding excess water?

- A. The grout will shrink and crack as it cures, defeating the non-shrink property and creating gaps under the step
- B. The grout will set faster because the additional water accelerates the chemical hydration reaction
- C. The grout will expand more than specified because excess water activates additional expansive additives
- D. The grout colour will be lighter than the surrounding concrete, creating an aesthetic mismatch

36. When pouring a concrete slab, the concrete truck has been waiting on site for 45 minutes while the crew prepares the placement area. The driver informs the carpenter that the concrete has been in the truck for a total of 90 minutes since batching. Industry standards generally require that concrete be placed within what timeframe from batching?

- A. 30 minutes from batching to ensure maximum workability and strength in the finished concrete
- B. 60 minutes from batching to comply with standard ready-mix delivery time limitations
- C. 90 minutes from batching, meaning this load is at the maximum limit and must be placed immediately without further delay
- D. 120 minutes from batching, meaning this load still has 30 minutes of working time remaining

37. A carpenter is setting anchor bolts in wet concrete at the top of a foundation wall. The specification calls for J-bolts set at 1,800 mm on centre with a bolt within 300 mm of each corner. The carpenter sets a bolt 450 mm from the corner. Why is this bolt location incorrect?

- A. The bolt is too close to the corner and may interfere with the corner framing assembly above
- B. The bolt is too close to the edge of the wall and may cause the concrete to crack at the corner
- C. The bolt spacing exceeds the 1,800 mm maximum because no bolt is between this one and the corner
- D. The bolt is more than 300 mm from the corner, violating the code requirement for bolts within 300 mm of corners

38. An ICF foundation wall is being poured in lifts. After placing the first 1.2-metre lift, the crew begins pouring the second lift. The carpenter notices that the first lift has already stiffened and is no longer plastic. What is the risk if the second lift is placed on top of the stiffened first lift?

- A. The second lift will flow over the stiffened first lift and fill any remaining voids in the lower section
- B. A cold joint will form between the two lifts — a weakened horizontal plane where the two concrete layers do not bond properly
- C. The stiffened first lift will absorb water from the second lift, accelerating the cure of both lifts equally
- D. The ICF blocks will compress between the two lifts, reducing the wall thickness at the joint location

39. A carpenter is using a concrete pump to place concrete in a tall wall form. The pump hose is positioned at the top of the form. To avoid segregation, how should the concrete be discharged into the form?

- A. The pump hose should be lowered into the form so the concrete is discharged near the bottom, then raised progressively as each lift is placed
- B. The concrete should be pumped at maximum pressure so it fills the form quickly before segregation occurs
- C. The concrete should be discharged from the top of the form in a continuous stream along the full length
- D. The concrete should be pumped onto a deflector board at the top that disperses the flow across the form width

40. A carpenter is preparing to pour a slab-on-grade and has compacted the granular base. Before placing the vapour barrier (polyethylene sheet), the carpenter notices standing water on portions of the granular base from recent rain. What must be done before proceeding?

A. Place the vapour barrier directly over the wet granular base because the barrier will prevent the water from contacting the concrete

B. Add dry granular material on top of the wet areas to absorb the standing water before placing the barrier

C. Remove the standing water and allow the granular base to drain adequately before placing the vapour barrier and pouring concrete

D. Pour the concrete directly on the wet granular base without the vapour barrier because the water will be absorbed during curing

41. A concrete slab has been placed and the carpenter notices a crack forming across the slab surface approximately 3 hours after placement. The crack runs diagonally and does not follow any control joint. What type of crack is this, and what is its most likely cause?

A. A structural crack caused by an undersized slab thickness that cannot support the imposed loads

B. A plastic shrinkage crack caused by rapid moisture loss from the surface before the concrete has set, often due to hot, dry, or windy conditions

C. A settlement crack caused by the granular base compacting unevenly beneath the slab during the pour

D. A freeze-thaw crack caused by water in the concrete pore structure expanding as temperatures dropped

42. A carpenter is placing concrete for a footing in a trench-pour (neat excavation) configuration — directly against the soil without side forms. The Building Code specifies a minimum concrete cover of 75 mm for concrete cast directly against earth. Why is this cover requirement greater than for formed concrete?

A. The rough soil surface traps air bubbles against the concrete that weaken the outer layer of the footing

B. The soil contains minerals that react chemically with the cement paste and weaken the concrete bond

C. The earth absorbs water from the wet concrete, reducing the water-to-cement ratio at the surface layer

D. The irregular soil surface and potential for soil contamination require greater cover to protect the rebar from moisture and corrosion

43. A carpenter is installing floor trusses (open-web trusses) for a second-floor system. A plumber asks to route a drain pipe through one of the open web spaces in the truss. Is this permitted?

A. No, routing any service through a floor truss requires a structural engineer's written approval first

B. No, floor trusses are sealed systems and no services may pass through the web openings under any conditions

C. Yes, routing services through the open web spaces is one of the primary advantages of floor trusses over I-joists and dimensional lumber

D. Yes, but only if the pipe diameter is less than 25% of the truss depth to maintain adequate structural capacity

44. A carpenter is cutting a bearing seat notch in a dimensional lumber beam to sit on a post. The Building Code limits the depth of notches in beams at bearing points. What is the general rule for maximum notch depth at a bearing point?

A. The notch depth must not exceed one-quarter of the beam depth at the bearing point location

B. The notch depth must not exceed one-half of the beam depth at the bearing point location

C. Notching is prohibited at bearing points because it removes material at the highest stress location

D. The notch depth must not exceed one-third of the beam depth at the bearing point location

45. A carpenter is constructing a load-bearing wall and needs to install a header over a 900 mm wide window opening. The wall supports one floor above and a roof. The carpenter selects two pieces of 38 × 140 mm (2 × 6) lumber for the header. Is this header adequate for the 900 mm span?

A. No, a 38 × 140 mm header is never adequate for any opening in a load-bearing wall under any conditions

B. No, because the Building Code requires a minimum header depth of 38 × 235 mm for all load-bearing walls

C. Yes, but only if the header is constructed from engineered lumber with a higher bending strength rating

D. The adequacy depends on the Building Code span tables — the carpenter must check the tables for the specific loading conditions

46. A carpenter frames a wall and installs the double top plate. At a point where the double top plate is joined end-to-end, the joint falls directly above a joint in the top plate below. Why is this configuration a structural deficiency?

A. The aligned joints create a thermal bridge that conducts heat through the wall at the joint location

B. The stacked joints create a continuous break in the horizontal load path, weakening the tie between wall sections at that point

C. The aligned joints cause the drywall to crack along the joint line because both plates flex independently

D. The stacked joints interfere with the installation of hurricane ties at the rafter-to-wall connection above

47. A carpenter is framing a wall opening for a garage door in a load-bearing wall. The opening is 4.8 metres wide. The trimmer studs on each side of the opening must support the heavy header above. How many trimmer studs are typically required on each side of a wide opening like this?

A. Two or more trimmer studs on each side, as specified by the engineer or Building Code, to distribute the heavy concentrated load from the wide header

B. One trimmer stud on each side is always sufficient regardless of the opening width or the loads above

C. Three trimmer studs on each side are required for all openings wider than 2.4 metres by default

D. No trimmer studs are required if the header is made from engineered lumber that is stronger than dimensional

48. A carpenter is installing the bottom plate of an exterior wall on a concrete foundation. The plate material is untreated SPF lumber. A sill gasket has been placed between the concrete and the plate. Is untreated lumber acceptable for this application?

A. Yes, untreated lumber is always acceptable for bottom plates regardless of the material they rest on

B. Untreated lumber is acceptable only if it will be covered with interior drywall within 30 days of installation

C. Untreated lumber may be acceptable if a continuous moisture barrier (sill gasket) separates the wood from the concrete, depending on the jurisdiction and code interpretation

D. No, the Building Code always requires preservative-treated lumber for all bottom plates in every application

49. A carpenter is building a deck and installs the guard posts by notching the posts and surface-mounting them to the outside face of the rim joist using lag screws. An inspector rejects the installation. Why?

A. Lag screws are not permitted for guard post connections and must be replaced with carriage bolts

B. Surface-mounted guard posts attached only to the rim joist face do not provide adequate resistance to the lateral loads specified by the Building Code

C. The guard posts must be installed on the inside face of the rim joist rather than the outside face

D. Notched posts are prohibited by the Building Code for all guard applications regardless of fastening method

50. A carpenter is framing a gable roof and has installed all the common rafters. The rafters bear against the ridge board at the peak, and ceiling joists are installed at the wall plate level tying the rafter feet together. The carpenter notices that the ridge board has begun to sag slightly at the midpoint of its span. What is the most likely cause?

A. The rafters are pushing the ridge upward at the ends, creating a relative sag at the unsupported midpoint

B. The ceiling joists are too tight against the rafters and are pulling the ridge downward through lever action

C. The ridge board material is defective and contains a hidden internal crack that is causing it to bend

D. The ridge is not supported at intermediate points and is deflecting under the accumulated weight of the rafters and roof loads bearing against it

51. When installing a manufactured roof truss system, the trusses are typically spaced at 600 mm (24 inches) on centre rather than the 400 mm (16 inches) used for most dimensional lumber framing. Why can trusses be spaced at this wider interval?

- A. Trusses are engineered to carry the full roof load at the 600 mm spacing, and the roof sheathing spans the wider spacing without excessive deflection
- B. Trusses are lighter than dimensional rafters and therefore create less load on the wall plates below
- C. Building codes always permit wider spacing for any roof framing member regardless of its type or capacity
- D. Trusses only support the roof surface and do not carry ceiling loads like dimensional rafters and ceiling joists

52. A carpenter is checking the crown on a piece of 38×235 mm lumber that will be used as a floor joist. The carpenter sights down the edge and sees a noticeable bow. The bow measures approximately 6 mm over the 3.6-metre length. Should this joist be installed?

- A. No, any visible bow renders the joist structurally defective and it must be removed from the material pile
- B. No, the bow indicates that the lumber was improperly dried and will continue to warp after installation
- C. Yes, install the joist with the crown facing up so that the downward deflection under load straightens the bow
- D. Yes, install the joist with the crown facing down so the load pushes the joist into a level position

53. A carpenter is installing blocking between wall studs at a height of 900 mm above the floor in a bathroom. No structural blocking is required by the framing plan at this location. What is the most likely purpose of this blocking?

- A. To provide fire stopping between the studs that prevents horizontal flame spread in the wall cavity
- B. To provide a solid nailing surface behind the drywall for mounting grab bars, towel bars, or accessories in the bathroom
- C. To increase the structural capacity of the wall studs by reducing the unsupported stud height by half
- D. To prevent insulation batts from settling in the wall cavity over time and creating an uninsulated gap

54. A carpenter is framing a hip roof. The hip rafters run from each corner of the building diagonally to the ends of the ridge. The hip rafters are longer than the common rafters and carry loads from jack rafters on both sides. Because of these greater loads, how must the hip rafter be sized compared to the common rafters?

- A. The hip rafter is the same size as the common rafters because the diagonal orientation compensates for the load
- B. The hip rafter is one size narrower than the common rafters to reduce the weight at the corner bearing point
- C. The hip rafter size is determined by the truss manufacturer and is not the carpenter's responsibility to specify
- D. The hip rafter is typically one or two sizes deeper than the common rafters to carry the concentrated loads from both roof planes

55. A carpenter finishes framing a wall and begins installing OSB wall sheathing. The first panel is positioned vertically with its bottom edge flush with the bottom of the wall. The carpenter notices that the top of the panel falls 50 mm short of reaching the top plate. What should the carpenter do?

- A. Install the panel in its current position and add a filler strip of OSB at the top to cover the remaining 50 mm gap between the panel and the top plate
- B. Move the panel up so its top edge is flush with the top plate and add filler material at the bottom
- C. Cut 50 mm from the next panel and use the strip to fill the gap at the top of the first panel in a patch
- D. Order taller sheathing panels from the supplier because the standard 2440 mm panels are too short

56. A carpenter is nailing structural wall sheathing and must ensure that every nail penetrates through the sheathing and a minimum distance into the stud. What is the typical minimum nail penetration into the framing member for structural sheathing?

- A. 19 mm of penetration past the sheathing into the stud for light-duty non-structural panel applications
- B. 25 mm of penetration to match the minimum penetration depth for interior drywall screw fastening
- C. 41 mm of penetration into the framing member to develop the full rated shear capacity of the nail
- D. 63 mm of penetration to ensure the nail reaches through the stud and into the adjacent framing behind

57. A carpenter is building a conventional rafter roof and cuts the plumb cut at the ridge end of a common rafter. After test-fitting the rafter against the ridge board, the carpenter finds a gap between the plumb cut and the ridge board face. What is the most likely cause of this gap?

- A. The rafter stock is bowed and the bow is preventing the plumb cut from sitting flat against the ridge
- B. The ridge board has been installed at the wrong height, creating a mismatch with the rafter angle
- C. The plumb cut angle was marked with the framing square using the wrong unit rise for the roof pitch
- D. The plumb cut was laid out using the incorrect angle — either the unit rise or the unit run was set wrong on the framing square

58. A carpenter installs a metal strap connecting the double top plate of a first-floor wall across a floor system to the double top plate of the wall below. What structural purpose does this strap serve?

- A. It creates a continuous vertical load path that ties the upper wall to the lower wall through the floor system, resisting uplift forces
- B. It prevents the floor joists from rotating at the bearing point where they rest on the lower wall plates
- C. It provides lateral bracing to the floor rim joist at the junction between the upper and lower wall systems
- D. It anchors the exterior cladding at the floor line where two different siding materials meet at the band joist

59. A carpenter is installing ceiling strapping perpendicular to the bottom chords of roof trusses spaced at 600 mm on centre. The strapping is 19 × 64 mm wood strips. At what spacing should the strapping be installed for standard drywall application?

- A. 200 mm on centre to provide maximum support for heavy 15.9 mm drywall panels on the ceiling
- B. 300 mm on centre to match the screw spacing used for drywall fastening on the ceiling surface
- C. 400 mm or 600 mm on centre depending on the drywall thickness being applied to the ceiling
- D. 800 mm on centre to minimize material use while still providing adequate support for the ceiling drywall

60. A carpenter is framing a cantilevered floor section where the floor joists extend beyond the exterior wall to support a bay window. The Building Code limits the cantilever distance based on the joist size and the backspan (the distance from the cantilever to the nearest interior support). What is the general rule for maximum cantilever length?

- A. The cantilever must not extend more than one-half of the joist span on the supported side of the wall
- B. The cantilever must not exceed one-quarter of the backspan for most residential floor joist applications
- C. The cantilever can extend any distance as long as the joist size is increased by one standard dimension
- D. The cantilever must not exceed 600 mm regardless of the joist size, spacing, or backspan condition

61. A carpenter is installing lookout rafters to form a gable-end overhang (rake overhang). The lookouts extend from the first inboard common rafter outward past the gable end wall to support the rake fascia and soffit. What is the structural function of the lookout rafters?

- A. They provide lateral bracing to the gable-end truss or rafter to prevent it from racking in the wind
- B. They support the soffit panel installation and provide ventilation channels at the gable end of the roof
- C. They provide a continuous nailing surface for the roof sheathing at the gable end of the roof assembly
- D. They cantilever from the first inboard rafter to support the rake overhang, fascia, and soffit beyond the gable wall

62. A carpenter is installing wood I-joists and must cut a hole in the web for a heating duct. The manufacturer's hole chart specifies maximum hole sizes and minimum distances from bearing points. Why must holes in I-joist webs be located away from bearing points?

- A. Holes near the bearing concentrate the sound of footsteps and create noticeable noise in the room below
- B. Holes near bearing points are in zones of high shear stress, and removing web material at these locations significantly reduces the joist's capacity
- C. The joist hanger hardware at bearing points would interfere with cutting a clean hole in the web panel
- D. Web stiffeners installed at bearing points would be cut through if holes were allowed at those locations

63. A carpenter is installing a steel insulated exterior door. When the door is closed, the weatherstripping must compress evenly around the entire perimeter of the door slab. If the weatherstripping compresses on one side but gaps on the opposite side, what does this indicate?

- A. The weatherstripping material has degraded on the gap side and needs to be replaced with a new strip
- B. The door slab is warped from uneven heat exposure and must be replaced with a new slab from the manufacturer
- C. The door frame is not square or the jamb is twisted, causing the door to contact the frame unevenly
- D. The hinge pins are worn and allowing the door to shift toward one side when it is in the closed position

64. A carpenter is installing a flanged window and discovers that the rough sill (bottom of the rough opening) is perfectly level from side to side. Some installation guidelines recommend sloping the sill slightly toward the exterior. What is the purpose of this slight outward slope?

- A. It encourages any water that penetrates past the window frame to drain outward rather than pooling on the sill and migrating inward
- B. It compensates for the building settling over time, which would otherwise cause the window to tilt inward
- C. It provides a better bearing angle for the window frame, reducing the stress on the nailing flange below
- D. It aligns the sill with the exterior grade slope so the window appearance is consistent with the ground plane

65. Asphalt shingles are fastened with roofing nails driven through a specific zone on the shingle. If the nails are driven too high (above the designated nailing zone), what problem occurs?

- A. The nails penetrate the shingle above, creating visible holes in the exposed portion of the upper course
- B. The nails miss the structural sheathing below because they are positioned between the sheathing panels
- C. The nails do not pass through the overlapping portion of the shingle below, failing to secure both courses together

D. The nails are exposed to UV radiation above the nailing zone and corrode faster than properly placed nails

66. A carpenter is installing prefinished aluminum soffit panels. The panels are available in solid (non-perforated) and vented (perforated) versions. In a standard eave soffit installation, what is the typical arrangement of these two panel types?

- A. All panels should be solid with no perforations to prevent insects and pests from entering the attic
- B. At least every other panel should be vented, or as specified by the ventilation requirements, to provide adequate attic intake air
- C. Only the panels closest to the fascia should be vented, with all panels near the wall being solid
- D. All panels should be vented to maximize airflow regardless of the attic ventilation requirement calculation

67. A carpenter is installing horizontal vinyl siding and reaches a location where an exterior electrical outlet box is mounted on the wall. How should the siding be cut and fitted around the outlet box?

- A. The siding should be cut to fit closely around the outlet box and sealed with exterior caulking at all edges
- B. The siding should be cut to leave a 6 mm expansion gap around the outlet box with no caulking applied
- C. The siding panel should be left intact and the outlet box should be relocated to a gap between siding courses
- D. A vinyl mounting block should be installed around the outlet box, and the siding should terminate into the mounting block's J-channel

68. When installing wood bevel siding, each course must overlap the course below by a minimum amount. What determines the minimum overlap required between siding courses?

- A. The manufacturer's installation guide and the project specifications, typically requiring at least 25 to 32 mm of overlap
- B. The thickness of the siding material — thicker siding requires more overlap to prevent water penetration

C. The colour of the siding — darker colours absorb more heat and require wider overlaps for thermal expansion

D. The distance from grade — courses near the ground require more overlap than courses near the soffit

69. A carpenter is installing exterior window trim (casing) around a window that has already been flashed and sealed. A drip cap (Z-flashing) is installed above the head casing. What must the upper leg of the drip cap tuck behind?

A. The exterior cladding or window frame above the trim to allow water to bypass the trim surface below

B. The nailing flange of the window to create a double seal at the head of the window frame assembly

C. The cladding or weather-resistive barrier above the trim so water flowing down the wall is directed over the trim face rather than behind it

D. The interior drywall at the window head to create a complete thermal break at the top of the window

70. A carpenter has completed the exterior cladding installation and is performing a final inspection of the building envelope. At one window, the carpenter notices that the bottom piece of J-channel trim was caulked to the window frame, sealing the bottom edge completely. Why is this a problem?

A. Caulking at the bottom prevents the J-channel from expanding and contracting with temperature changes

B. Sealing the bottom traps any water that enters behind the cladding or J-channel, preventing it from draining out

C. The caulking will fail within one year due to UV exposure at the bottom of the window opening

D. The sealed bottom prevents insects from exiting the wall cavity, causing them to accumulate behind the trim

71. A carpenter is constructing a wall assembly with exterior rigid foam insulation installed over the structural sheathing, with vertical furring strips over the foam and cladding on the furring. What advantage does the exterior rigid foam provide that cavity insulation alone does not?

A. Rigid foam is less expensive per R-value than batt insulation and reduces the overall project material cost

- B. Rigid foam provides better sound insulation than batt insulation for the same total R-value in the assembly
- C. Rigid foam eliminates the need for a vapour barrier because it is inherently impermeable to moisture vapour
- D. Rigid foam provides continuous insulation without thermal bridging through the studs, which conduct heat in a cavity-only wall

72. A carpenter finishes installing the building wrap (housewrap) on an exterior wall and is ready to install the windows. Before proceeding, the carpenter must cut the housewrap at the rough openings. What cut pattern is typically used at window rough openings?

- A. An inverted-Y cut that allows the side flaps to be folded into the opening and the top flap to be temporarily folded up for later integration with the head flashing
- B. A rectangular cut matching the exact rough opening dimensions with all edges taped to the sheathing
- C. A cross-shaped (+) cut centred on the opening with the four resulting triangular flaps folded into the opening
- D. No cutting is required because the housewrap is installed only in the field areas of the wall between openings

73. A carpenter is installing cedar shingle siding and must maintain the proper exposure for the shingle length being used. For standard 400 mm (16-inch) cedar shingles, what is the typical maximum exposure when installed over solid sheathing?

- A. 100 mm to provide four layers of shingle coverage at every point on the wall for maximum weather protection
- B. 200 mm to provide two layers of shingle coverage at every point on the wall for adequate weather protection
- C. 190 mm to provide at least three layers of coverage at every point on the wall for standard weather protection
- D. 300 mm to provide a single layer of shingle coverage that relies on the weather-resistive barrier for water protection

74. When installing asphalt shingles on a roof, each shingle is secured with a specific number of nails in the designated nailing zone. In standard wind conditions, how many nails are required per standard three-tab shingle?

- A. Two nails placed at each end of the shingle for a total of two fasteners per shingle on the roof
- B. Four nails spaced across the nailing strip zone above the cutouts for each shingle in standard conditions
- C. Six nails placed in two rows across the shingle surface for maximum holding power in all conditions
- D. Eight nails placed at every available slot in the shingle for extreme weather protection in all zones

75. A carpenter notices that the ice and water shield membrane along the eaves of a roof was installed over the drip edge rather than under it. What problem does this create?

- A. The membrane will be damaged by UV exposure because the drip edge no longer covers and protects it
- B. The adhesive on the membrane will not bond properly to the metal surface of the drip edge flashing
- C. The membrane cannot seal around the roofing nails because it is on top of the drip edge surface layer
- D. Water running down the membrane will drip behind the drip edge instead of flowing over it and into the gutter

76. A carpenter is installing a continuous ridge vent on a gable roof. The ridge vent is the primary exhaust vent for the attic ventilation system. For the ridge vent to function properly, what must be done at the ridge before the vent is installed?

- A. A slot must be cut in the roof sheathing along both sides of the ridge to allow air from the attic to exit through the vent
- B. The ridge board must be removed entirely and replaced with the ridge vent product for a direct opening
- C. The last course of shingles on each side must be left un-nailed so the ridge vent can be slid beneath them
- D. An additional layer of ice and water shield must be installed along the ridge before the vent is mounted

77. A carpenter is installing drywall on a ceiling and finds that one ceiling joist is 10 mm lower than the adjacent joists, creating a visible dip in the ceiling plane. Before installing the drywall, how should this condition be corrected?

- A. Install the drywall over the dip and fill the depression with extra joint compound during the taping stage
- B. Fur down the adjacent joists with shims to match the low joist, creating a uniformly lower but flat ceiling plane
- C. Sister a new joist alongside the low joist, shimming the new joist flush with the adjacent joists for a flat plane
- D. Install ceiling strapping perpendicular to the joists, shimming the strapping at the low joist to create a flat nailing surface for the drywall

78. A carpenter is installing ceramic tile backer board (cement board) on a bathroom floor before tile installation. The backer board must be set in a bed of adhesive applied to the plywood subfloor beneath it. What adhesive is used for this application?

- A. Standard wood glue applied with a roller for uniform coverage across the subfloor surface
- B. Silicone caulking applied in a grid pattern for moisture resistance beneath the backer board
- C. Contact cement applied to both the subfloor and the backer board for an instant bond on contact
- D. Modified thinset mortar applied with a notched trowel to create a continuous bonding layer

79. When installing interior door casing, the carpenter uses a mitre joint at the top corners where the side casing meets the head casing. The mitre joint must be glued and secured. Besides glue, what fastener is used to hold the mitre joint tight?

- A. A finishing nail or brad driven through the mitre faces to pin the joint while the glue dries and sets
- B. A metal corrugated fastener (wiggie nail) driven across the joint from the back side of the casing
- C. A pocket screw driven from the inside face of the side casing into the end grain of the head casing
- D. A wood biscuit inserted into a slot cut in both mitre faces to align and strengthen the glued joint

80. A carpenter is installing a floating laminate floor and reaches a doorway that transitions to a tiled hallway. The laminate floor must not be continuous through the doorway because the two rooms need to move independently. What component is installed at this transition?

- A. A wooden threshold screwed to the subfloor that overlaps both floor surfaces at the doorway transition
- B. A bead of flexible caulking applied in the gap between the two floor materials for a sealed transition
- C. A piece of matching laminate flooring turned perpendicular to bridge across the gap at the doorway
- D. A transition strip (T-molding) that covers the expansion gap between the laminate and the tile at the doorway

81. A carpenter is installing crown moulding in a room where one wall is noticeably out of plumb — the top of the wall leans outward by approximately 8 mm. When the crown moulding is installed, a gap appears between the moulding and the wall surface along this section. How should the carpenter address this gap?

- A. Force the crown moulding tight against the wall by driving additional nails to pull the moulding into the wall
- B. Remove the crown moulding, fur out the wall surface with thin strips to build it out flush, and reinstall
- C. Scribe the crown moulding to the wall contour by shaving the back edge with a block plane for a tight fit against the uneven wall
- D. Fill the gap with a bead of paintable caulking after the moulding is installed to create the appearance of a tight joint

82. A carpenter completes a hardwood floor installation and is inspecting the work. Several boards near the centre of the room show a slight hump in the middle of each board — the edges are lower than the centre. What is this condition called, and what typically causes it?

- A. Crowning — caused by the face of the board absorbing moisture faster than the back, typically from recent installation over a damp subfloor
- B. Cupping — caused by the back of the board absorbing moisture from a damp subfloor while the face dries

- C. Checking — caused by rapid drying of the board surface after installation in a very dry environment
- D. Bowing — caused by the boards being stored flat on an uneven surface before installation on the project

83. A carpenter is installing a pre-hung interior door in a wall that has already been finished with drywall on both sides. After shimming and fastening the jamb, the carpenter must install the door casing to cover the gap between the jamb and the drywall. The casing is set with a 5 mm reveal from the edge of the jamb. What problem occurs if the reveal is inconsistent — wider at the top than at the bottom?

- A. The door will not close properly because the casing interferes with the door slab swing at the top
- B. The inconsistent reveal creates a visually uneven shadow line that is immediately noticeable and indicates poor craftsmanship
- C. The door hardware will not align with the strike plate because the jamb shifts when the casing is nailed
- D. The inconsistent reveal causes the casing mitre joints to open because the casing lengths are incorrect

84. A carpenter is constructing a straight-run stairway with 14 risers and 13 treads. The total rise is 2,520 mm and the calculated riser height is 180 mm. The tread depth is 254 mm. What is the total horizontal run of this stairway?

- A. 2,520 mm based on multiplying the riser height by the number of risers for the horizontal dimension
- B. 3,556 mm based on multiplying the tread depth by the number of risers instead of the number of treads
- C. 2,540 mm based on multiplying the tread depth by the number of treads minus three for the landing
- D. 3,302 mm based on multiplying the tread depth of 254 mm by the 13 treads for the total run

85. A carpenter is constructing a stairway and must install a newel post at the base. The newel post must be rigid — it cannot wobble or flex when the handrail is loaded. Which connection method provides the most rigid newel post attachment?

- A. Toenailing through the base of the newel into the subfloor with four finishing nails at opposing angles

- B. A surface-mounted metal bracket screwed to the floor on two sides of the newel post base
- C. A newel bolt or lag bolt system that draws the newel post tight against the floor framing with a concealed connection from below
- D. Construction adhesive applied to all four faces of the newel post base and pressed firmly onto the finished floor

86. When installing baseboard in a room with hardwood flooring, the baseboard is nailed into the wall studs above the flooring surface. Why should the baseboard NOT be nailed down into the hardwood flooring?

- A. Nailing the baseboard into the flooring would pin the floor at the perimeter, preventing seasonal expansion and contraction that could cause buckling
- B. Nailing into the flooring would split the tongue-and-groove joint of the last flooring board at the wall edge
- C. The flooring is too thin for nails to penetrate without coming through the bottom and scratching the subfloor
- D. The baseboard nails would interfere with the shoe moulding installation that covers the expansion gap

87. A carpenter is installing a shower enclosure with a fibreglass shower base (pan) and cement backer board on the walls above. The backer board must overlap the lip (flange) of the shower base in a specific way. How should the backer board relate to the shower base flange?

- A. The backer board should sit on top of the shower base flange with the joint caulked and taped with mesh
- B. The backer board should overlap the outside face of the shower base flange, with a 6 mm gap between the bottom of the backer board and the top of the flange, sealed with silicone
- C. The backer board should be installed flush with the top of the shower base flange with no overlap or gap
- D. The backer board should be installed behind the shower base flange so the flange covers the bottom edge of the board

88. A carpenter is installing kitchen cabinets and discovers that the wall behind the cabinet location has a bow — it curves outward by 6 mm at the centre between two studs. If the cabinets are fastened to the studs without addressing the bow, what will happen?

- A. The cabinets will be pushed away from the wall at the stud locations, creating a gap at the centre between studs
- B. The cabinets will conform to the wall shape and the doors will operate normally despite the bow
- C. The cabinet back will crack at the bow location because the bow creates a stress point in the panel
- D. The cabinets will be pulled tight against the studs, creating a gap between the cabinet back and the wall at the bow, potentially racking the cabinet and causing doors to bind or not close properly

89. A carpenter has installed a stairway and must now install the handrail. The handrail must meet the Building Code requirement for graspability. What is the required cross-section for a graspable handrail?

- A. A circular cross-section of 32 to 43 mm diameter, or a non-circular cross-section with a perimeter of 100 to 125 mm
- B. A rectangular cross-section of 50 mm × 100 mm for maximum surface area and a solid comfortable grip
- C. Any cross-section is acceptable as long as the handrail is made of hardwood with a sanded smooth finish
- D. A flat cross-section of 19 mm × 140 mm matching a standard piece of dimensional lumber for easy sourcing

90. A carpenter is installing a pocket door and discovers that after the door is fully retracted into the wall pocket, the edge of the door is difficult to grasp to pull it out. What hardware component solves this problem?

- A. A standard passage lever handle mounted on the face of the pocket door for easy operation from outside
- B. A magnetic catch installed at the jamb that holds the door slightly open so the edge remains accessible
- C. A flush-mounted finger pull (recessed pull or edge pull) installed in the edge of the door that allows the user to hook the door and slide it out of the pocket

D. A spring-loaded mechanism in the pocket frame that pushes the door partway out when the frame is tapped

91. A carpenter is performing a renovation on a house built in 1955. The interior walls are finished with plaster on wood lath rather than modern drywall. When removing a section of plaster wall, what characteristic of plaster-on-lath construction should the carpenter be prepared for?

- A. Plaster walls are lighter than drywall walls and can be removed with less effort and dust generation
- B. Plaster on lath creates significantly more dust and debris than drywall removal, the lath nails are difficult to extract, and the plaster may contain asbestos
- C. Plaster walls are always load-bearing and cannot be removed without temporary shoring in every case
- D. Plaster on lath is easier to patch than drywall because new plaster can be applied directly over the old surface

92. A carpenter is renovating a kitchen and must relocate a plumbing drain pipe that currently passes through a load-bearing wall. The pipe passes through holes drilled in three consecutive studs. Each hole reduces the stud cross-section by approximately 40%. What structural concern does this raise?

- A. The holes have no structural impact because the studs are in compression and holes only affect tension
- B. The pipe insulation around the drain will compress the remaining stud material and cause splitting
- C. The holes weaken the studs and may interfere with the wall bracing pattern by reducing nailing area
- D. The holes significantly reduce the load-carrying capacity of the studs, and the wall may need reinforcement or the pipe may need to be rerouted

93. During a renovation, a carpenter discovers that the existing floor joists in a bathroom are severely rotted due to a long-term plumbing leak. The rot extends along three joists for approximately 1.5 metres from the bathroom wall. What is the correct repair approach?

- A. Cut out the rotted sections of the joists, sister new joist material alongside the remaining sound sections with adequate overlap, and address the moisture source
- B. Apply a wood hardening product to the rotted joists to restore their structural capacity in place

- C. Install blocking between the adjacent sound joists to transfer the loads around the rotted area
- D. Cover the rotted joists with plywood sheathing to redistribute the floor loads across the damaged area

94. A renovation project involves adding a powder room (half bathroom) to the main floor of a house. The new room will have a toilet and a sink but no shower or bathtub. Which Building Code requirements apply to the framing and finishing of this new room?

- A. No building permit is required for a half bathroom addition because it does not include a shower or tub
- B. The new room requires only electrical rough-in approval and does not require a framing or plumbing inspection
- C. The new room must meet current Building Code requirements for ventilation, plumbing, electrical, framing, minimum room dimensions, and ceiling height
- D. The new room must only meet the Building Code requirements that were in effect when the house was originally built

95. A carpenter is removing a non-bearing interior wall during a renovation. After removing the drywall, the carpenter discovers three electrical wires and one plumbing supply line running through the wall. All services have been disconnected. What must the carpenter do before removing the framing?

- A. Remove the framing immediately since all services have been confirmed as disconnected and are safe
- B. Verify that the disconnected services are properly capped or terminated and will not create hazards when the wall is removed
- C. Reconnect the services to their original locations before removing the wall framing to maintain system pressure
- D. Leave the disconnected services in place within the wall and build a small enclosure around them after the wall is removed

96. A renovation involves widening an existing stairway from 760 mm to 900 mm to meet current Building Code minimum width requirements. This change is triggered by a change of use from a storage area to a habitable bedroom above. What framing modifications are required?

- A. The existing stair stringers can remain in place with additional treads attached to widen the walking surface
- B. The wall framing on one side must be relocated and a new stringer installed to achieve the required width
- C. Only the handrail needs to be relocated because the stringer spacing does not affect the measured clear width
- D. The existing stairs must be completely removed and rebuilt with wider stringers, treads, and risers to meet the current code width

97. A carpenter is adding rigid foam insulation to the exterior of an existing foundation wall as part of an energy retrofit. The foam must extend from the top of the foundation wall down to a specific depth below grade. What is the typical minimum depth below grade for foundation insulation in Canadian climate zones?

- A. The insulation must extend from the top of the wall to at least 600 mm below grade or to the level of the footing, depending on the climate zone and code requirements
- B. The insulation needs to cover only the above-grade portion of the foundation wall for thermal performance
- C. The insulation must extend to a depth of 100 mm below grade to cover only the frost-sensitive zone
- D. The insulation must be installed on the interior side of the foundation only and never on the exterior

98. A carpenter discovers during a renovation that the existing house has knob-and-tube electrical wiring in the walls and attic. Blown-in insulation has been installed over the wiring in the attic. Why is this combination a potential fire hazard?

- A. Knob-and-tube wiring requires no special consideration because it was approved when installed
- B. The blown-in insulation prevents moisture from reaching the wiring, which causes the wire insulation to dry out
- C. Insulation covering knob-and-tube wiring prevents the heat generated by the wires from dissipating, potentially overheating the wiring and igniting the surrounding insulation
- D. The static charge from blown-in cellulose insulation can arc to the knob-and-tube wiring and cause sparks

99. A carpenter is installing a new exterior door in an existing wall as part of a renovation. The existing wall has no rough opening at this location — the carpenter must create one. Before cutting into the wall, what must be done if the wall is load-bearing?

- A. The opening can be cut directly into the wall as long as the new header is installed within one hour
- B. Temporary shoring must be installed above the work area to support the loads before any framing is cut or removed
- C. The wall can be cut from both sides simultaneously to reduce the time the wall is unsupported
- D. A structural engineer must be on site during the cutting operation to supervise the work in real time

100. During a renovation, a carpenter is required to match the existing baseboard profile in the rooms adjacent to the renovation area. The existing baseboard is a custom profile that is not available as stock moulding from any supplier. How should the carpenter obtain matching baseboard?

- A. Have the existing profile replicated by a millwork shop that can custom-mill the moulding to match the original profile from a sample
- B. Install the closest available stock profile and paint it to match, hoping the difference is not noticeable
- C. Remove all the existing baseboard throughout the house and replace it with a new uniform profile
- D. Use a router with a custom-ground bit to shape each piece of baseboard by hand on the job site

Practice Exam 4: Answer Key and Explanations

1. A — The standard framing square has a blade (body) that is 24 inches long and a tongue that is 16 inches long. The blade is the wider, longer arm and the tongue is the narrower, shorter arm. The rafter tables are stamped along the face of the blade, and the unit rise is set on the tongue when laying out rafter cuts.

2. C — A bevel angle of 25 to 30 degrees provides the optimal balance between sharpness and edge durability for general carpentry work. A shallower angle produces a sharper but more fragile edge that dulls quickly under heavy use, while a steeper angle produces a more durable but less sharp edge. Maintaining the original factory bevel angle during sharpening ensures consistent performance.

3. D — A blade guard that does not retract freely or return to the closed position is a serious safety hazard — the guard is the primary protection against accidental contact with the spinning blade. The saw must be removed from service immediately and repaired or replaced. Manually holding the guard open or removing it entirely exposes the operator to the unshielded blade.

4. B — Hearing damage from sustained noise exposure above 85 dB is permanent, cumulative, and irreversible. The hair cells in the inner ear that convert sound vibrations into nerve signals are destroyed by prolonged exposure to excessive noise and do not regenerate. Even moderate overexposure repeated over months and years produces progressive hearing loss that compounds with each exposure.

5. A — A trench with vertical, unsupported walls over 1.2 metres deep (the exact threshold varies by jurisdiction, but 1.5 metres exceeds all Canadian thresholds) is a collapse hazard that can bury and kill a worker in seconds. The carpenter must refuse to enter the trench and report the unprotected condition to the supervisor for immediate corrective action — either shoring, sloping, or trench box installation.

6. C — Suspension trauma (orthostatic intolerance) can develop within minutes when a worker is suspended motionless in a harness after a fall arrest. Blood pools in the legs, reducing circulation to the brain and vital organs, and can cause unconsciousness and death. A rescue procedure must be planned before work begins to ensure prompt rescue — not improvised after a fall occurs.

7. D — Aluminum is an excellent electrical conductor. If an aluminum ladder contacts an overhead power line, electricity flows through the ladder and through the worker climbing it, creating a direct path for electrocution. Fiberglass ladders must be used near electrical hazards because fiberglass is non-conductive when clean and dry.

8. B — Unequal sling legs cause the load to tilt toward the shorter sling because that sling becomes taut first and lifts its side of the load before the longer sling engages. This tilt shifts the load's centre of gravity and can cause unsecured materials to slide, roll, or fall out of the slings. Both legs must be equal length for a balanced lift.

9. A — Section 2 (Hazard Identification) classifies the product's hazards including flammability, and Section 4 (First-Aid Measures) describes the recommended treatment for exposure by each route — inhalation, skin contact, eye contact, and ingestion. These two sections provide the immediate safety information a worker needs before handling the product.

10. C — Before working on any scaffold, the carpenter must verify that it has been inspected by a competent person and is adequate for the intended use. A scaffold set up for bricklaying may not be suitable for carpentry work if the loads, platform configuration, or access arrangements differ. The competent person inspection confirms the scaffold is safe for the specific work being performed.

11. D — Plywood sheets placed flat on the ground in a walkway create a tripping hazard — workers can catch their feet on the edges, and the sheets may conceal uneven ground, holes, protruding nails, or other hazards beneath them. Materials must be stored outside walkways, and walkways must be kept clear and free of obstructions at all times.

12. B — A 400 mm gap between the scaffold platform and the building exceeds the typical maximum of 350 mm permitted without fall protection. A worker could step into or fall through this gap, especially when carrying materials or stepping backward. Guardrails, planking to close the gap, or other fall protection must be installed on the building side.

13. C — Setback dimensions define the minimum required distance between the building and the property lines. They are established by local zoning bylaws and ensure adequate separation between buildings for fire safety, access, privacy, and aesthetic continuity. The building footprint must be positioned inside all setback lines.

14. A — A reflected ceiling plan is drawn as a mirror image so that when it is placed alongside or overlaid on the floor plan, all room locations, column positions, and wall configurations align correctly. This allows designers and builders to coordinate ceiling elements (lights, diffusers, sprinklers) with the room layout below.

15. D — Total area = large rectangle ($6.0 \times 4.5 = 27.0 \text{ m}^2$) + small rectangle ($3.0 \times 2.0 = 6.0 \text{ m}^2$) = 33.0 m^2 . For composite shapes, break the floor plan into simple rectangles, calculate each area, and add them together. This decomposition method works for any L-shaped, T-shaped, or irregular floor plan.

16. B — Convert 100 mm to 0.1 metres. Volume = $1.2 \times 30 \times 0.1 = 3.6 \text{ m}^3$. Always convert all dimensions to the same unit (metres) before multiplying for volume. Using millimetres without conversion produces a result that is off by a factor of 1,000, leading to a dramatically incorrect concrete order.

17. C — The brace forms the hypotenuse of a right triangle with both legs measuring 2.4 metres. Length = $\sqrt{(2.4^2 + 2.4^2)} = \sqrt{(5.76 + 5.76)} = \sqrt{11.52} = 3.39$ metres. This is a practical application of the Pythagorean theorem for calculating diagonal brace lengths in wall framing and formwork bracing.

18. A — The levelling rod must be held perfectly vertical (plumb) for accurate readings. A rod that is tilted gives a reading that is higher than the true vertical distance because the crosshairs intersect the tilted rod at a higher graduation. The rod level (a circular bubble mounted on the rod) must be centred before every reading.

19. D — Total run = span \div 2 = 11.0 \div 2 = 5.5 metres. Total rise = run \times (unit rise \div unit run) = 5.5 \times (7 \div 12) = 5.5 \times 0.583 = 3.21 metres. The critical first step is using the run (half the span), not the full span. Using the full span is the most common error in rafter rise calculations.

20. B — Trimmer joists are the doubled joists that run on each side of a floor opening, parallel to the regular joists. They carry the additional loads transferred from the headers — the weight of the interrupted tail joists and everything above them. The trimmers must be doubled because they carry significantly more load than a regular joist.

21. C — The chalk line on the subfloor represents the inside face of the bottom plate. This line defines the interior room dimension at the floor level and ensures that the wall is positioned exactly where the drawings specify. The wall is raised and aligned with this chalk line during erection.

22. A — Total roof area = building length \times rafter slope length \times 2 sides = 10 \times 4.65 \times 2 = 93.0 m². The roof area must be calculated using the slope length (the actual rafter length along the roof surface), not the horizontal plan dimension, because roofing materials are installed on the sloped surface and must cover the actual area.

23. B — When a conflict exists between the drawings and the specifications, the specifications generally take precedence unless the contract documents state otherwise. Specifications are written documents that describe materials, workmanship, and procedures in detail, while drawings convey spatial and dimensional information. The carpenter must seek clarification before proceeding.

24. D — Wind causes a plumb bob to swing, producing inaccurate readings. The carpenter should wait for calm conditions, move to a sheltered location protected from the wind, or use a laser plumb instead. A laser plumb projects a vertical beam that is not affected by wind and provides instant, accurate plumb reference.

25. A — The first step is to establish the grid line reference on the actual foundation by measuring from the building corner shown on the drawing. The grid line is the datum from which all bolt positions are dimensioned. Without this reference point, the bolt locations cannot be accurately transferred from the drawing to the foundation.

26. B — The laser line is at a fixed height above the floor. If the floor is not level — higher on one side than the other — the laser line will be at different heights relative to the floor at different points around the room. Cabinets installed to the laser line will be level, but the distance from the floor to the bottom of the cabinets will vary, creating visible inconsistency.

27. A — A retaining wall resists lateral earth pressure on one side in addition to the normal concrete pressure during the pour. The forms on the earth-retention side must be designed with heavier walers, closer tie spacing, and stronger bracing to resist the additional lateral loads that will be applied during and after backfilling.

28. C — Cement that has absorbed moisture and formed hard lumps has partially hydrated — the chemical reaction between cement and water has already begun and consumed some of the cement's binding capacity. This cement will not achieve its full design strength when mixed into concrete and must be discarded and replaced with fresh, dry cement.

29. B — The riser form at each step in a stepped footing is secured with cleats (short pieces of lumber) nailed to the inside faces of the side forms, and stakes driven into the ground behind the riser. These supports resist the horizontal pressure of the wet concrete pushing against the riser during the pour, keeping it plumb and at the correct location.

30. D — Shores beneath a suspended slab must remain in place until the concrete reaches 70% to 75% of its 28-day design strength, which typically requires 7 to 14 days depending on the concrete mix, temperature, and curing conditions. Removing shores prematurely transfers the full dead and live load to concrete that is not yet strong enough, risking deflection or collapse.

31. A — Rebar chairs are small plastic or wire support devices placed beneath the reinforcing bars to hold them at the correct height above the bottom of the form. The chair height matches the specified concrete cover. Chairs are available in various heights for different cover requirements and are the standard method for positioning rebar in footings and slabs.

32. C — Bars in a lap splice must be in direct contact with each other — touching along their full lap length — and tied securely with tie wire at both ends and at the centre. A gap between the bars prevents the concrete from effectively transferring the tension force from one bar to the other through the bond stress, reducing the splice capacity.

33. B — Vertical wall forms (walls, columns, and beam sides) can typically be stripped after 12 to 24 hours in warm weather because the concrete only needs to be strong enough to support its own weight and resist surface damage. Vertical forms are not carrying the weight of the concrete — they are confining it laterally. Load-bearing forms (slabs, beams) require much longer curing before removal.

34. D — A 3-metre (10-foot) straightedge is the standard tool for checking floor flatness. It is placed on the surface in multiple directions, and any gaps between the straightedge and the concrete indicate depressions (dips), while any rocking indicates high points (crowns). The tolerance for gaps is specified in the finish class requirements.

35. A — Adding excess water to non-shrink grout increases the water-to-grout ratio, which causes the grout to shrink as it cures — the opposite of its intended performance. The non-shrink formulation only works at the specified water ratio. Excess water also reduces strength and increases porosity, creating gaps and voids under the precast component.

36. C — Industry standards (CSA A23.1 and ASTM C94) generally require that ready-mix concrete be placed within 90 minutes of batching (or within 300 drum revolutions, whichever comes first). At 90 minutes, this load is at the maximum limit and must be placed immediately. Beyond this time, the concrete begins to stiffen and lose workability.

37. D — The bolt is 450 mm from the corner, exceeding the 300 mm maximum distance specified by the code. This means there is a 450 mm section of sill plate at the corner that is not secured by an anchor bolt, creating a vulnerable point where the sill plate could lift or shift under wind uplift or lateral forces. The bolt must be relocated within 300 mm of the corner.

38. B — A cold joint forms when fresh concrete is placed on top of previously placed concrete that has already begun to set. The two layers do not bond properly, creating a weakened horizontal plane that reduces the wall's structural capacity, water resistance, and durability. Each successive lift must be placed while the previous lift is still plastic.

39. A — The pump hose should be lowered into the form and concrete discharged near the bottom, then the hose is raised progressively as each lift fills. This minimizes the free-fall distance of the concrete, preventing segregation. Discharging from the top of a tall form causes the concrete to fall the full height, separating the aggregate from the paste on impact.

40. C — Standing water on the granular base must be removed and the base allowed to drain before placing the vapour barrier and pouring concrete. Standing water beneath the slab creates a permanent moisture source that migrates upward through the concrete, damaging floor coverings and creating humidity problems. The subgrade must be dry and properly compacted.

41. B — Plastic shrinkage cracks form when the concrete surface loses moisture faster than bleed water can replace it — typically caused by hot, dry, or windy conditions that accelerate surface evaporation. These cracks appear within the first few hours after placement, before the concrete has gained enough tensile strength to resist the shrinkage stresses. Fog misting, windbreaks, or immediate curing compound application prevents them.

42. D — Concrete poured directly against earth has an irregular surface that allows soil moisture, organic acids, and contaminants to reach the rebar more easily than in formed concrete with smooth surfaces. The greater cover distance (75 mm versus 50 mm for formed concrete) provides an additional buffer against this harsher exposure, protecting the rebar from premature corrosion.

43. C — Routing services through the open web spaces is one of the primary advantages of floor trusses over I-joists and dimensional lumber. The open webs provide large, clear passages between the top and bottom chords through which plumbing, electrical, and HVAC can be routed without cutting, notching, or drilling any truss member.

44. A — The maximum notch depth at a bearing point is generally limited to one-quarter of the beam depth. Notching at a bearing point removes material at the location where the bearing stress is concentrated, and excessive notching can cause the remaining wood to crush or split. Deeper notches require engineering analysis or alternative connection methods.

45. D — Header adequacy depends on the span, the loads carried (number of storeys supported, roof type, building width), and the lumber species and grade. The Building Code span tables in Part 9 specify the maximum allowable span for each header size under various loading conditions. The carpenter must check these tables rather than assuming a specific header size is always adequate.

46. B — When the double top plate joint aligns directly above a joint in the top plate, both plates have a break at the same point, creating a continuous gap in the horizontal load path. The double top plate exists specifically to overlap and bridge joints in the first top plate — stacking the joints defeats this purpose and creates a structural weakness.

47. A — Wide openings like garage doors generate very heavy concentrated loads at the header ends. Two or more trimmer studs on each side are typically required to distribute this concentrated bearing load over a larger area of the bottom plate and foundation below. A single trimmer may crush under the concentrated load from a heavily loaded wide-span header.

48. C — The Building Code generally requires preservative-treated lumber for wood in contact with concrete or masonry that is in contact with the ground. However, if a continuous moisture barrier (sill gasket) separates the wood from the concrete, some jurisdictions permit untreated lumber. The carpenter must verify the specific requirement with the local building authority.

49. B — Surface-mounted guard posts attached only to the face of the rim joist rely on the lag screws to resist the full lateral load from someone leaning against the handrail. This connection lacks adequate resistance to the bending moment created at the post base. Through-bolted posts or posts that extend past the rim joist and connect to the floor framing provide significantly greater lateral load resistance.

50. D — The ridge board is not a structural beam — it is only an alignment member. It deflects under the accumulated weight of the rafters because it has no intermediate vertical support. Installing a support post (purlin post) from the ridge board down to a bearing wall or beam below at the midpoint eliminates the sag by providing vertical support.

51. A — Trusses are engineered to carry the full design load (dead load plus live load plus snow load) at 600 mm spacing. The roof sheathing (typically 12.7 mm or 15.5 mm OSB or plywood) is designed to span 600 mm between supports without excessive deflection. The combination of engineered truss capacity and adequate sheathing span makes the wider spacing structurally acceptable.

52. C — A 6 mm bow over 3.6 metres is within normal tolerances for dimensional lumber. The joist should be installed crown up — with the convex (bowed) side facing upward. Under load, the joist deflects downward, straightening the bow and producing a level floor surface. Installing crown down creates a dip that worsens under load.

53. B — Blocking at 900 mm above the floor in a bathroom provides a solid nailing surface behind the drywall for mounting grab bars, towel bars, toilet paper holders, and other accessories that require secure attachment to the wall framing. Drywall alone cannot support the forces applied to these items, particularly grab bars used for support.

54. D — Hip rafters carry loads from jack rafters on both sides plus their own self-weight over a longer diagonal span than common rafters. This concentrated loading requires a deeper cross-section — typically one or two standard sizes deeper than the common rafters — to resist the greater bending moment without excessive deflection.

55. A — A 50 mm gap at the top of a wall panel can be filled by installing the panel at its current position and adding a filler strip at the top. The filler strip must land on a framing member (the top plate) for nailing. This is a common condition — standard 2440 mm (8-foot) panels may not cover the full height of 9-foot walls or walls with raised top plates.

56. C — Structural sheathing nails must penetrate at least 41 mm (1-5/8 inches) into the framing member to develop their full rated shear capacity. Insufficient penetration reduces the nail's ability to resist the lateral forces (wind and seismic loads) that the shear wall is designed to resist, compromising the structural performance of the wall.

57. D — A gap between the plumb cut and the ridge board means the cut angle does not match the roof pitch. The most common cause is an error in setting the framing square — either the unit rise or the unit run was placed at the wrong mark on the tongue or blade. The carpenter must verify the correct pitch, re-mark the plumb cut at the correct angle, and re-cut.

58. A — The metal strap creates a continuous vertical load path that ties the upper-storey wall to the lower-storey wall through the floor system. This connection resists uplift forces (wind trying to lift the roof and walls) by transferring the force from the upper wall, through the floor, and into the lower wall, all the way down to the foundation.

59. C — Ceiling strapping is installed at 400 mm (16 inches) or 600 mm (24 inches) on centre, depending on the drywall thickness. Standard 12.7 mm drywall requires strapping at 400 mm maximum on ceilings, while 15.9 mm drywall can span 600 mm. The strapping spacing determines which drywall thickness is appropriate.

60. B — The general rule for cantilever length is that it must not exceed one-quarter of the backspan — the distance from the cantilever to the nearest interior support. For a joist with a 4-metre backspan, the maximum cantilever is 1 metre. Exceeding this ratio causes excessive deflection at the cantilever tip and uplift at the interior support.

61. D — Lookout rafters cantilever from the first inboard common rafter outward past the gable end wall to support the rake overhang, fascia, and soffit. They are nailed to the first inboard rafter and to the gable end rafter or truss, creating a structural framework for the gable-end overhang. The lookout length determines the width of the rake overhang.

62. B — Web holes near bearing points fall in zones of high shear stress — the internal forces that resist the vertical loads acting at the supports. Removing web material at these locations significantly reduces the joist's shear capacity, potentially causing failure at the bearing. The manufacturer's hole chart specifies minimum distances from bearing points for this reason.

63. C — Uneven weatherstripping compression — tight on one side and gapping on the opposite side — indicates that the door frame is not square or the jamb is twisted. The door slab contacts the frame on the tight side and pulls away on the gap side. The jambs must be adjusted (shimmed and re-fastened) until the door contacts the weatherstripping evenly around the entire perimeter.

64. A — A slight outward slope on the rough sill encourages any water that penetrates past the window frame to drain toward the exterior rather than pooling on the level sill or migrating inward. This slope works in conjunction with the sill flashing membrane to create a self-draining system that actively moves water out of the opening.

65. C — Nails driven too high miss the overlapping portion of the shingle course below. In correct placement, each nail passes through both the current shingle and the top edge of the shingle below, locking both courses together. High nails only secure the upper course, leaving the lower course unsecured against wind uplift.

66. B — Attic ventilation requires a balance of intake and exhaust airflow. At least every other soffit panel should be vented (or vented panels should be distributed as required by the ventilation calculation) to provide adequate intake air. Using all solid panels blocks intake airflow and renders the exhaust vents (ridge vent) ineffective.

67. D — A vinyl mounting block is installed around the outlet box to create a raised, finished surface that protrudes through the siding plane. The siding panels terminate into the J-channel integrated into the mounting block edges, maintaining proper expansion gaps and creating a weathertight, professional-looking installation around the penetration.

68. A — The minimum overlap between siding courses is specified by the manufacturer's installation guide and the project specifications. For most wood bevel siding, the minimum overlap is 25 to 32 mm (1 to 1-1/4 inches). This overlap creates a labyrinth path that prevents wind-driven rain from penetrating between the courses.

69. C — The upper leg of the drip cap must tuck behind the cladding or weather-resistive barrier above the trim so that water flowing down the wall surface is intercepted by the drip cap and directed outward over the face of the trim below. If the drip cap sits on top of the cladding, water flows behind the flashing and into the wall.

70. B — Sealing the bottom of the J-channel traps any water that enters behind the cladding or through the window flashing system. Without a drain path at the bottom, water accumulates behind the siding and against the housewrap, eventually saturating the sheathing and causing concealed rot and mould. The bottom must remain open for drainage.

71. D — Exterior rigid foam insulation provides a continuous thermal layer that covers the entire wall surface, including the stud locations. In a cavity-only insulation system, the wood studs act as thermal bridges — they conduct heat through the wall at approximately four times the rate of the insulation. Continuous exterior foam eliminates these thermal bridges.

72. A — An inverted-Y cut is the standard method for opening housewrap at window rough openings. The horizontal cut runs along the rough sill, and a single vertical cut runs up the centre to the head. The resulting side flaps fold into the opening and wrap around the jamb framing, while the top flap folds up for later integration with the head flashing.

73. C — For standard 400 mm (16-inch) cedar shingles over solid sheathing, the typical maximum exposure is approximately 190 mm (7-1/2 inches). This exposure provides at least three layers of shingle coverage at every point on the wall — the exposed course, the course behind it, and the course behind that — creating an effective weather barrier.

74. B — Standard three-tab asphalt shingles require four nails per shingle in standard wind conditions, placed across the nailing strip zone above the cutout slots. The nails are positioned to pass through both the current shingle and the underlying shingle course, locking both layers together. In high-wind zones, six nails per shingle are required.

75. D — Ice and water shield must be installed under the drip edge at the eaves — directly on the roof sheathing. If the membrane is placed over the drip edge, water running down the membrane surface reaches the bottom edge of the membrane and drips behind the drip edge rather than flowing over it and into the gutter, creating a water intrusion pathway at the eave.

76. A — A slot must be cut in the roof sheathing along both sides of the ridge — typically 25 to 50 mm back from the ridge on each side — to create an opening for attic air to exit through the ridge vent. Without this slot, the ridge vent has no connection to the attic space and cannot function as an exhaust vent.

77. B — The most common solution for an isolated low joist is to install ceiling strapping perpendicular to the joists. The strapping is shimmed at the low joist location so that the bottom of the strapping creates a flat, level plane across all the joists. The drywall is then nailed to the flat strapping surface rather than directly to the uneven joists.

78. D — Modified thinset mortar is applied to the plywood subfloor with a notched trowel to create a continuous bonding layer beneath the cement backer board. The thinset fills minor irregularities in the subfloor, prevents the backer board from rocking or flexing, and creates a rigid composite system that resists tile cracking from floor movement.

79. A — A finishing nail or brad is driven through the mitre joint faces to pin the joint while the glue dries. The nail holds the two mitre faces in tight contact under the clamping pressure of the nail's holding force. Without the pin nail, the joint can slide apart or spring open before the glue reaches full strength.

80. D — A transition strip (T-molding) is installed at doorway transitions between different flooring materials. The T-molding sits in the expansion gap between the laminate and the tile, covering the gap while allowing both floor surfaces to expand and contract independently. The strip is typically fastened to the subfloor, not to either flooring surface.

81. D — For small gaps between crown moulding and an out-of-plumb wall, a bead of paintable caulking fills the gap and creates the visual appearance of a tight joint after painting. This is standard practice for minor wall irregularities. For larger gaps, furring or scribing may be needed, but for an 8 mm gap, caulking is the efficient and accepted solution.

82. A — Crowning is a condition where the face of a hardwood board humps upward at the centre while the edges remain lower. It is caused by the face absorbing moisture faster than the back — commonly from recent installation over a damp subfloor or from excessive moisture exposure during acclimatization. Cupping is the opposite condition, where the edges rise above the centre.

83. B — An inconsistent reveal — wider at one end than the other — creates a visually uneven shadow line that immediately draws the eye and indicates poor craftsmanship. The reveal should be a uniform 3 to 6 mm from the jamb edge along the entire length of each casing piece. Inconsistency is one of the most noticeable trim defects.

84. D — Total run = number of treads \times tread depth = $13 \times 254 = 3,302$ mm. The number of treads is 13 (one fewer than the 14 risers, because the upper floor serves as the final walking surface). This total run must fit within the available horizontal space in the building, and must be verified before stringer cutting begins.

85. C — A newel bolt or lag bolt system provides the most rigid and durable newel post connection. The concealed fastener draws the newel tight against the floor framing with significant clamping force, creating a connection that resists the lateral loads applied through the handrail without loosening over years of use. Surface-mounted methods lack equivalent rigidity and eventually wobble.

86. A — Nailing the baseboard into the flooring would pin the floor at the perimeter, preventing the seasonal expansion and contraction that hardwood flooring undergoes with humidity changes. Pinned flooring cannot expand freely and will buckle (crown upward) during humid seasons when the wood swells. The baseboard must be nailed to the wall studs, allowing the floor to move freely beneath it.

87. B — The cement backer board should overlap the outside face of the shower base flange, with a small gap (approximately 6 mm) between the bottom edge of the backer board and the top of the flange. This gap is sealed with silicone sealant. The overlap directs any water running down the wall onto the flange and into the shower base rather than behind the flange.

88. D — When the cabinets are screwed tight to the studs, the bowed wall section between the studs pushes against the cabinet back, potentially racking the cabinet box — twisting it out of square. Racked cabinets cause doors to bind, not close flush, or show uneven gaps. The bow must be addressed by shimming behind the cabinet at the stud locations.

89. A — The Building Code requires a graspable handrail with a circular cross-section of 32 to 43 mm (1-1/4 to 1-3/4 inches) in diameter, or a non-circular cross-section with a perimeter of 100 to 125 mm and a maximum cross-section dimension of 57 mm. These dimensions ensure the handrail can be comfortably and securely gripped by users of varying hand sizes.

90. C — A flush-mounted finger pull (recessed pull or edge pull) is installed in the leading edge of the pocket door slab. This pull sits flush with the door edge when the door is retracted in the pocket and provides a finger-sized recess that the user hooks with their fingertips to slide the door out. Standard protruding hardware cannot be used because it would prevent the door from retracting fully.

91. B — Plaster-on-lath demolition generates substantially more dust and debris than drywall removal. The plaster is heavy, breaks into irregular chunks, and creates fine alkaline dust. The wood lath strips are nailed with small finish nails that are tedious to extract. Additionally, plaster in pre-1980 buildings may contain asbestos, requiring testing before demolition.

92. D — Holes that remove 40% of the stud cross-section significantly reduce the stud's ability to carry compressive loads. Three consecutive weakened studs in a load-bearing wall create a vulnerable zone that may buckle or crush under load. The wall needs a structural engineer's assessment to determine whether reinforcement (steel plates, sistered studs, or a rerouted pipe) is required.

93. A — The rotted sections must be cut out and replaced by sistering new joist material alongside the remaining sound wood with adequate overlap (typically at least 900 mm to 1.2 metres past the end of the rot on each side). The new joists are bolted or nailed to the existing joists, and the moisture source (the plumbing leak) must be repaired to prevent recurrence.

94. C — Any new room — including a half bathroom — must meet all current Building Code requirements applicable to that room type. This includes minimum room dimensions, ceiling height, ventilation (exhaust fan), plumbing (properly connected fixtures with venting), electrical (GFCI-protected outlets, lighting), and framing. A building permit is required.

95. B — Disconnected services must be verified as properly capped, terminated, or removed before the wall framing is taken apart. An improperly capped water line can leak when the wall is disturbed. A disconnected but un-capped electrical wire can be accidentally energized if someone resets a breaker. Verification ensures that all disconnections are safe and permanent.

96. D — Widening a stairway from 760 mm to 900 mm requires relocating the wall on one side, installing new stringers at the wider spacing, and installing new treads and risers sized for the wider opening. The existing narrow components cannot simply be extended — the entire stair structure within the affected section must be rebuilt to the new width.

97. A — Foundation insulation typically extends from the top of the wall (above grade) down to at least 600 mm below grade, or to the level of the footing, depending on the climate zone and code requirements. Deeper installations provide better frost protection and thermal performance. The specific depth is determined by the Building Code for the jurisdiction's climate zone.

98. C — Knob-and-tube wiring is designed to dissipate heat through the air space around the exposed conductors. Blown-in insulation buries the wiring and prevents heat dissipation, causing the conductors to overheat. Overheated wiring can ignite the surrounding insulation material, creating a concealed fire that spreads through the attic before detection.

99. B — Before cutting any framing in a load-bearing wall to create a new opening, temporary shoring must be installed above the work area to support the loads while the studs, header, and other framing members are removed and replaced. Cutting into a bearing wall without shoring removes the load path and can cause the structure above to sag or collapse immediately.

100. A — A millwork shop can custom-mill moulding to match any existing profile from a clean sample. The shop uses the sample to set up their moulder (shaping machine) with custom knife profiles that replicate the original contours exactly. This is the standard approach for matching historical or discontinued moulding profiles in renovation work.