PRACTICE EXAM 8: RED SEAL CARPENTER INTERPROVINCIAL SIMULATION (100 QUESTIONS)

1. A carpenter is planning to cut a sheet of melamine-coated particleboard on a table saw. Melamine chips easily on the exit side of the blade. What technique reduces chipping on the finished face?

A. Install the sheet with the finished face up so the blade teeth enter the good face first, and use a fine-tooth blade with 60 or more teeth

B. Install the sheet with the finished face down so the blade exits through the substrate rather than the coating

C. Score both faces with a utility knife before cutting so the chip travels along the score line on each side

D. Increase the blade speed to maximum RPM so the teeth pass through the melamine coating faster

2. A carpenter is using a cordless impact driver to install 75 mm structural screws into a ledger board connection. Partway through the installation, the driver stalls and the battery appears fully charged. What is the most likely cause?

A. The screw has cross-threaded in the pilot hole and the impact mechanism cannot generate enough torque

B. The impact driver's brushless motor has overheated and requires a 30-minute cooldown before resuming

C. The screw has hit a dense knot or an embedded fastener in the framing behind the ledger, requiring a pilot hole or screw relocation

D. The battery voltage has dropped below the minimum operating threshold and needs to be charged overnight

3. A carpenter is using a laser line level to project a horizontal reference line on the walls of a room. The laser is a self-levelling unit. When set up on a surface that tilts beyond the self-levelling range, what does the laser typically do to alert the operator?

A. The laser projects a dashed line instead of a solid line to indicate that the levelling range has been exceeded

B. The laser beam flashes or the unit shuts off automatically to indicate that it cannot achieve a level reference

C. The laser projects two parallel lines instead of one to indicate that the operator must manually adjust it

D. The laser emits a continuous audible alarm while still projecting the line at the incorrect tilted angle

4. A carpenter is grinding a weld on a steel post bracket using a portable angle grinder. In addition to safety glasses, what face protection should the carpenter use during this operation?

A. A standard N95 dust mask to protect the nose and mouth from metal grinding dust particles

B. A wide-brim hard hat that shields the face from sparks falling from the grinding operation above

C. Tinted safety glasses to reduce the glare from the bright metal surface being ground smooth

D. A full face shield worn over the safety glasses to protect the entire face from hot sparks and metal fragments

5. A carpenter is selecting an extension cord to power a portable circular saw on a job site. The saw draws 15 amps and the cord must reach 30 metres from the outlet. What characteristic of the extension cord is most critical for safe operation at this distance?

A. The cord colour must be bright orange or yellow for visibility on the construction site work area

B. The cord must have a grounded three-prong plug that matches the three-prong outlet on the tool

C. The cord wire gauge must be heavy enough to carry 15 amps over 30 metres without excessive voltage drop that causes the motor to overheat

D. The cord must have a built-in GFCI at the plug end to protect the worker from electric shock hazards

6. A job site safety inspection reveals that several workers are not wearing their hard hats in an area where overhead work is being performed by another crew above. The foreman asks the carpenter to explain why hard hats are required in this area even though no work is being performed at their level. What is the correct explanation?

A. Overhead work creates a struck-by hazard from falling tools, materials, and debris that hard hats protect against

B. Hard hats are required in all areas of the construction site regardless of overhead conditions by company policy

C. The building inspector requires photographic evidence that all workers wear hard hats during framing operations

D. Workers without hard hats cannot be covered by the provincial workers' compensation insurance program

7. A carpenter is using a table saw and needs to rip a piece of lumber that is only 100 mm wide. The rip fence is set 100 mm from the blade. The carpenter's hand would pass within 75 mm of the blade when feeding the narrow piece. What tool must the carpenter use?

A. A featherboard clamped to the table behind the blade to prevent the workpiece from kicking back

B. An anti-kickback device attached to the splitter to prevent the cut piece from being thrown backward

C. A blade guard with a dust collection port to cover the blade while the workpiece passes through

D. A push stick to feed the workpiece past the blade while keeping the carpenter's hand at a safe distance

8. A carpenter observes that the air hose connections on a pneumatic nailer are secured only by friction — no safety clips or wire ties are used. Why must safety devices be used at all hose-to-tool and hose-to-hose connections?

A. Safety clips prevent air leaks at the connection that waste compressor capacity and reduce tool performance

B. If a connection fails under pressure without a safety device, the whipping hose becomes a striking hazard that can injure nearby workers

C. Safety clips are required by the tool manufacturer's warranty and their absence voids the warranty coverage

D. The connections loosen when the air temperature drops, and safety clips maintain the joint during cold weather

9. A carpenter needs to lift a heavy pre-hung door unit from the delivery truck to the second floor of a building using a gin wheel (simple pulley) and rope. What is the primary safety concern with this lifting method?

A. The gin wheel rope may stretch under load and allow the door to drop before reaching the intended height

B. The gin wheel bearing may overheat during the lift and seize, trapping the load at an intermediate height

C. The worker below must stand clear of the load path because the load can fall if the rope slips or the gin wheel fails

D. The gin wheel must be certified by an engineer before each use because it is classified as a crane device

10. A carpenter discovers that the GFCI outlet on a temporary power panel keeps tripping when a specific power tool is plugged in. The tool works normally on other outlets without GFCI protection. What does this indicate?

A. The tool likely has a ground fault — current is leaking from the tool's wiring through an unintended path to ground — and must be inspected and repaired before further use

B. The GFCI outlet is defective and must be replaced with a standard non-GFCI outlet for that tool circuit

C. The tool draws more current than the GFCI outlet can handle and requires a higher-amperage GFCI circuit

D. The extension cord connecting the tool to the GFCI is too long and the voltage drop is triggering the trip

11. When using a chain sling to lift a load, the working load limit (WLL) is stamped on the sling tag. The WLL already includes the safety factor. A carpenter has a chain sling with a WLL of 3,200 kg. The load weighs 3,150 kg. Should the carpenter proceed with this lift using a single vertical hitch?

A. Yes, because the WLL exceeds the load weight and the safety factor is already included in the rating

B. Yes, because the 50 kg margin provides an adequate cushion above the load weight for safe lifting

C. No, because the load weight must not exceed 50% of the WLL to provide an adequate safety margin

D. No, because the sling is loaded to 98% of its WLL, leaving virtually no margin for dynamic loads, rigging inaccuracies, or unexpected conditions — a heavier-rated sling should be used

12. A carpenter is working on a scaffold and needs to pass tools up to a coworker on the platform above. The carpenter considers throwing the tools up. Why is throwing tools between scaffold levels prohibited?

A. Thrown tools damage the scaffold bracing and weaken the connections at the joint above the thrower

B. A thrown tool that is missed or dropped becomes a falling object hazard that can strike workers below

C. Thrown tools create noise that exceeds the workplace noise exposure limit and requires hearing protection

D. Throwing tools violates the scaffold load rating because the dynamic force of a caught tool exceeds the static limit

13. A floor plan shows a symbol consisting of a diagonal line drawn across a door opening with no arc. What type of door does this symbol represent?

A. A hinged door that swings 180 degrees and folds flat against the adjacent wall surface when open

B. A pocket door that slides into the wall cavity and is represented by the diagonal disappearing into the wall

C. A sliding door that moves horizontally along a track, with the diagonal line showing the direction of travel

D. A bifold door that folds in half when opened, with the diagonal representing the folded panel position

14. A carpenter is reading a plumbing plan that shows the location of a floor drain in a shower stall. The drain must be positioned at the lowest point of the shower floor. What does this information tell the carpenter about the subfloor preparation at this location?

A. The subfloor must be recessed or built with a slope toward the drain location so the finished shower floor directs water to the drain

B. The subfloor must be raised at the drain location so the drain pipe connects at the correct height

C. The subfloor requires no special preparation because the plumber will create the slope with mortar bed

D. The subfloor must be covered with waterproof membrane only at the drain location for leak prevention

15. A carpenter is calculating the total run of a stairway with 13 treads at 260 mm each. The stairway runs along a wall and terminates at a doorway at the upper level. The carpenter must verify that the total run fits within the available horizontal space. What is the total run?

A. 3,640 mm based on multiplying 14 treads by 260 mm instead of the correct 13 treads for this stair

B. 2,600 mm based on multiplying 10 treads by 260 mm due to an error in counting available treads

C. 1,300 mm based on dividing the total tread count by two and multiplying by the tread depth value

D. 3,380 mm based on multiplying the 13 treads by the 260 mm tread depth for the total horizontal distance

16. A carpenter is estimating materials for a deck and must calculate the number of decking boards required. The deck is 4.8 metres wide and the decking boards are 140 mm wide (actual face width). The boards are installed with a 5 mm gap between them. Approximately how many boards are needed across the 4.8-metre width?

A. 24 boards based on dividing the deck width by the board width without accounting for the gap spacing

B. 33 boards based on dividing the deck width by the combined board width plus gap of 145 mm per board

C. 48 boards based on using the nominal board width of 100 mm instead of the actual 140 mm face width

D. 40 boards based on dividing the deck width by 120 mm to account for shrinkage of the treated boards

17. A framing plan shows a notation "LVL 3-1/2 × 14" at a beam location. What does this notation describe?

A. A laminated veneer lumber beam that is 89 mm (3-1/2 inches) wide and 356 mm (14 inches) deep

B. A laminated veneer lumber beam consisting of 3.5 plies that are each 14 inches wide at the bearing

C. A laminated veneer lumber beam that spans 3.5 metres between supports at 14 metres above grade

D. A laminated veneer lumber beam rated for 3,500 pounds over a 14-foot span under uniform loading

18. A carpenter is laying out a hip roof and needs to determine where the hip rafter meets the wall plate. On a rectangular building, the hip rafter starts at each corner of the building. At what angle does the hip rafter run in plan view (looking down from above) relative to the wall plates?

A. At 30 degrees to each wall plate, creating a shallow diagonal from the corner toward the ridge end

B. At 60 degrees to the longer wall plate and 30 degrees to the shorter wall plate for the hip geometry

C. At 45 degrees to each wall plate, bisecting the 90-degree corner equally between the two adjacent walls

D. At 90 degrees to the longer wall plate and parallel to the shorter wall plate for the hip rafter path

19. A carpenter is calculating the total rise for a roof with a 9/12 pitch and a building span of 7.2 metres. Using the formula total rise = run × (unit rise ÷ unit run), what is the total rise?

A. 3.6 metres based on using the full span instead of half the span as the run in the calculation

B. 5.4 metres based on multiplying the run by the unit rise without dividing by the unit run of twelve

C. 0.4 metres based on dividing the run by the unit rise instead of multiplying by the pitch fraction

D. 2.7 metres based on multiplying the run of 3.6 metres by the pitch fraction of nine to twelve

20. When a carpenter snaps a chalk line on the subfloor to mark a wall location, the line represents the inside face of the bottom plate. Before snapping the line, the carpenter must account for the wall's total thickness. For a 38 × 140 mm (2 × 6) exterior wall with 12 mm exterior sheathing and 12.7 mm interior drywall, what is the total wall thickness?

A. 140 mm based on the stud depth alone without adding the sheathing and drywall thicknesses

B. 164.7 mm based on adding the stud depth plus the exterior sheathing plus the interior drywall

C. 152 mm based on adding the stud depth plus the sheathing but omitting the interior drywall

D. 176 mm based on doubling the sheathing thickness on both sides and adding it to the stud depth

21. A carpenter is reading a building section drawing and encounters a notation "FFL 100.500." What does "FFL" stand for, and what does the number represent?

A. "First Floor Level" — the height of the first floor measured from the ground surface to the underside

B. "Final Finished Level" — the surface level of all concrete slabs after the final curing period is complete

C. "Foundation Footing Level" — the elevation of the bottom of the footing below the grade surface

D. "Finished Floor Level" — the elevation of the top of the finished floor surface at that location, which is 100.500 metres above the project datum

22. A carpenter needs to determine the number of risers in a stairway. The total rise from finished floor to finished floor is 3,060 mm. The carpenter wants a comfortable riser height between 170 and 190 mm. How many risers should the stairway have?

A. 15 risers at 204 mm each, which exceeds the building code maximum of 200 mm per riser height

B. 17 risers at 180 mm each, which falls within the desired range and meets the building code maximum

C. 20 risers at 153 mm each, which is below the comfortable range and produces a shallow, long stairway

D. 13 risers at 235 mm each, which significantly exceeds the building code maximum riser height limit

23. A carpenter is using a plumb bob to transfer a layout point from the first floor up to the underside of the second-floor deck. The plumb bob string is 3.2 metres long. What must the carpenter verify about the plumb bob before taking the reading?

A. That the plumb bob has come to a complete rest and is hanging motionless, with no swing or rotation affecting the point position

B. That the plumb bob string is the correct length for the floor-to-floor height before the bob is released

C. That the plumb bob weight matches the manufacturer's specification for the string diameter being used

D. That the plumb bob tip has been sharpened to a fine point for maximum accuracy at the landing target

24. A carpenter is estimating the number of bundles of asphalt shingles needed for a simple gable roof. The roof has two rectangular planes, each measuring 15 metres long and 6 metres on the slope. One roofing square (9.29 m^2) requires three bundles. Including a 10% waste allowance, approximately how many bundles are needed?

A. 57 bundles based on calculating the area of one roof plane only without including the second plane

B. 19 bundles based on dividing the total area by 9.29 but not multiplying by three bundles per square

C. 59 bundles based on calculating the total roof area, dividing by 9.29 to get squares, multiplying by three bundles per square, and adding 10% waste

D. 180 bundles based on multiplying the total area by three without first dividing by the square area

25. A carpenter is laying out the locations for floor joists on a sill plate. The first joist is positioned at the end of the plate, and subsequent joists are marked at 400 mm on centre. The carpenter reaches a point where the rim joist at the opposite end of the building does not fall on a full module. There is a remainder space of 280 mm. How does the carpenter handle this remainder?

A. The last joist space is left at 280 mm without adjustment because the subfloor panel can span this distance

B. The entire layout is recalculated to produce equal spacing that eliminates the remainder across the span

C. The second-to-last joist is shifted to split the remainder equally on each side of the final joist position

D. The last joist is placed at the 280 mm spacing without adjustment, and the reduced span improves the subfloor support at the perimeter

26. A carpenter is checking a concrete slab for levelness before installing flooring. Using a laser level and a measuring rod, the carpenter takes readings at a grid of points across the slab. The highest reading is 12 mm above the lowest reading. What does this 12 mm variation indicate?

A. The slab is perfectly level because a 12 mm variation is within the tolerance for all flooring types

B. The slab has a 12 mm variation in flatness that must be evaluated against the flooring manufacturer's substrate tolerance requirements

C. The slab must be completely replaced because any variation greater than 5 mm is unacceptable

D. The variation is caused by measurement error and a second set of readings will produce uniform results

27. A carpenter is building forms for a concrete retaining wall that will be poured against a rock face on one side. Only one side of the wall requires a form panel — the other side is formed by the rock. What is this type of forming called?

A. Double-sided forming where both faces of the wall are formed with manufactured panels at all times

B. Self-forming where the concrete is poured without any forms and flows to fill the available space naturally

C. One-sided forming where only the exposed face of the wall is formed and the opposite face bears against the existing rock or earth surface

D. Lost forming where the form panel is left permanently in place and becomes part of the finished wall

28. A carpenter is building a column form that must produce an architectural exposed concrete finish. The column is square, 400 mm × 400 mm, and 3.0 metres tall. What special attention must be given to the form joints and surfaces for an architectural finish?

A. The form panels must have tight, flush joints with no gaps, and the interior surfaces must be smooth and uniform to produce a blemish-free concrete surface

B. The form panels can have gaps up to 6 mm because the column will be parged with a finish coat after stripping

C. The form panels should be rough-sawn lumber because architectural concrete requires a wood-grain texture

D. The form must be assembled with visible bolt heads on the interior to create a decorative pattern of holes

29. When pouring a concrete wall, the carpenter notices that the concrete truck driver is adding water to the remaining concrete in the truck without the carpenter's authorization. The specification calls for a maximum water-cement ratio of 0.45. What should the carpenter do?

A. Allow the additional water because the truck driver is authorized to adjust the mix for site conditions

B. Accept the concrete only if the driver adds less than 20 litres of water to the full truckload capacity

C. Record the amount of water added and ask the driver for a revised delivery ticket showing the new slump

D. Reject any concrete that has had water added beyond the mix design, as unauthorized water addition increases the water-cement ratio and reduces the concrete strength and durability

30. A carpenter is building formwork for a concrete grade beam that spans between two pile caps. The grade beam is 450 mm wide and 600 mm deep, suspended 300 mm above the ground surface. The forms must support the full weight of the concrete. What is the approximate weight of concrete per linear metre of this grade beam?

A. 159 kg per linear metre based on multiplying the cross-section area by an incorrect density value

B. 635 kg per linear metre based on the cross-section area of 0.27 m^2 multiplied by the concrete density of approximately 2,400 kg/m^3 per cubic metre

C. 270 kg per linear metre based on using only half the cross-section area in the weight calculation

D. 1,080 kg per linear metre based on doubling the concrete density for the weight-of-formwork calculation

31. A carpenter strips wall forms after the concrete has cured for 24 hours in warm weather. One section of the wall surface shows a vertical streak of darker concrete running from the top to the bottom. What is the most likely cause of this streak?

A. A crack in the wall that allows moisture from the soil behind to seep through and stain the surface

B. A leaking form joint that allowed cement-rich paste to escape during the pour, leaving an aggregate-rich streak

C. A chemical reaction between the snap tie metal and the concrete that produced a rust-coloured stain

D. A shadow cast by the waler during curing that caused the concrete to cure at a different rate on that strip

32. A carpenter is constructing forms for a concrete wall that will have a recessed panel (a rectangular indentation) on one face for architectural effect. How is the recess created in the formwork?

A. By cutting a groove into the form plywood with a router before assembly and filling it with release agent

B. By removing a section of the form plywood and leaving the concrete unsupported to form its own recess

C. By attaching a raised wooden or foam block (a rustication strip or blockout) to the interior face of the form panel at the recess location so the concrete fills around it

D. By vibrating the concrete excessively at the recess location to push the aggregate away from the surface

33. A carpenter is placing concrete in a wall form during hot weather. The concrete is arriving at a slump of 80 mm, which is within specification. However, by the time the carpenter finishes vibrating and begins placing the next lift, the previous lift has already started to stiffen. What admixture should have been requested to extend the working time?

A. An accelerating admixture that speeds up the initial set to match the rapid placement rate needed

B. A water-reducing admixture that increases the slump without adding water to the concrete mix design

C. An air-entraining admixture that creates microscopic bubbles to improve workability during placement

D. A retarding admixture that slows the hydration reaction and extends the time before initial set occurs

34. When a concrete slab specification calls for a "Class C" floor finish, the carpenter must achieve a specific level of surface flatness and levelness. These properties are measured using F-numbers — FF (floor flatness) and FL (floor levelness). What instrument is used to measure F-numbers on a finished slab?

A. A laser level projecting a reference plane above the slab with measurements taken at a regular grid

B. A floor profilometer or a digital floor profiler that measures the surface profile along defined lines and calculates the F-numbers automatically

C. A 3-metre straightedge placed on the slab at multiple locations to check for gaps between the edge and surface

D. A tape measure used to check the slab thickness at core samples drilled at representative locations

35. A carpenter is building slab-on-grade forms and must set the edge forms at the exact elevation of the finished slab surface. The forms serve as screed rails during the concrete pour — the screed bar rides on top of the forms to strike off the concrete at the correct height. What must the carpenter verify about the edge forms before the pour?

A. That the forms are at the correct elevation, level along their length, and securely staked to resist movement during the screeding operation

B. That the forms are coated with a double layer of form release agent to allow easy stripping after the cure

C. That the forms are made of steel rather than lumber because only steel forms maintain elevation accuracy

D. That the forms extend at least 300 mm below the slab to serve as the footing form simultaneously

36. A concrete mix design specifies 35 MPa concrete with a maximum aggregate size of 20 mm. Why is the maximum aggregate size specified in the mix design?

A. Larger aggregate is more expensive and the specification limits cost by restricting the aggregate size

B. Larger aggregate creates a rougher surface finish that conflicts with the trowelling requirements

C. The maximum aggregate size must be compatible with the rebar spacing, cover requirements, and form dimensions to ensure the concrete can flow around the reinforcement and fill the form completely

D. Larger aggregate absorbs more water during mixing and changes the water-to-cement ratio unpredictably

37. A carpenter is placing concrete for a basement floor slab in a building where radon gas is a concern. The specification calls for a continuous, sealed vapour barrier beneath the slab with all joints lapped and taped. Why is the vapour barrier sealed more carefully than a standard moisture barrier?

A. Radon is a naturally occurring radioactive gas that seeps from the soil and can accumulate inside the building if the barrier has gaps

B. The sealed barrier prevents the concrete from absorbing soil moisture that would interfere with radon testing

C. The sealed barrier provides additional structural support for the slab by creating an air cushion beneath it

D. Radon gas reacts with unsealed polyethylene and degrades the barrier material from below over time

38. A carpenter discovers that the rebar chairs supporting the bottom mat of reinforcement in a slab have sunk into the soft granular base, lowering the rebar below the specified position. What is the consequence of the rebar being lower than specified?

A. The concrete cover above the rebar increases, which is generally acceptable and improves corrosion protection

B. The rebar is closer to the bottom of the slab where tensile stresses from curling and loading are highest, but if it drops below the minimum cover from the bottom surface, corrosion protection is compromised

C. The slab will be thicker than specified because the rebar position determines the finished slab thickness

D. The granular base will be damaged by the sinking chairs, requiring the base to be re-compacted before pour

39. When building a concrete wall form, the carpenter installs cleanout openings (small removable panels) at the base of the form. What is the purpose of these cleanout openings?

A. They allow debris, standing water, and sawdust to be removed from the bottom of the form before concrete is placed, ensuring clean contact between the concrete and the footing surface

B. They allow the carpenter to inspect the rebar from outside the form without climbing over the top edge

C. They allow excess concrete to drain from the bottom of the form during the pour to control the fill rate

D. They allow the vibrator to be inserted horizontally from outside the form rather than from the top opening

40. A carpenter is finishing a concrete slab and notices that the surface is developing a network of fine, shallow cracks within the first 30 minutes after finishing. These cracks are less than 1 mm deep and form an irregular map pattern. What is this phenomenon called, and what causes it?

A. Structural cracking caused by the slab being too thin for the imposed loads during the curing period

B. Cold joint cracking caused by temperature differences between successive concrete truck deliveries

C. Crazing (map cracking) caused by the surface layer drying and shrinking faster than the interior, often from finishing too early or from rapid surface drying in hot or windy conditions

D. Spalling caused by delamination of the surface paste layer from the aggregate beneath during floating

43. A carpenter is installing floor trusses for a second-floor system. The trusses span 6.0 metres from the exterior wall to an interior bearing wall. The truss drawings show bearing only at each end — no intermediate bearing is permitted. A coworker suggests adding a temporary post at mid-span to prevent bounce during construction. Why could this temporary post cause a problem?

A. The post adds weight to the floor system that the trusses were not designed to carry at the midpoint

B. The post creates a fire hazard by storing combustible material in the floor cavity during construction

C. An intermediate point load on a truss that was designed for end-bearing only can overstress the truss members and connections at that point, potentially causing damage

D. The post interferes with the installation of cross-bridging between the trusses at the midspan location

44. A carpenter is framing a wall with 38 × 89 mm (2 × 4) studs for an interior non-bearing partition. The wall will contain plumbing supply lines. The plumber needs to run 19 mm (3/4 inch) copper supply lines horizontally through the studs. Can the studs accommodate these pipes?

A. Yes — holes for the supply lines can be drilled through the centre of the 89 mm studs without exceeding the maximum hole diameter allowed by the Building Code for non-bearing walls

B. No — 19 mm pipes require a minimum stud depth of 140 mm (2 × 6) to accommodate the pipe plus cover

C. Yes, but only if the studs are doubled at every pipe penetration to restore the cross-section removed

D. No — plumbing supply lines cannot pass through stud walls and must be routed through the floor cavity

45. A carpenter is installing the subfloor over a floor system and encounters a floor joist that is 10 mm higher than the adjacent joists — it has an excessive crown. The carpenter has already installed the joist crown-up. What should the carpenter do before installing the subfloor panel over this joist?

A. Add shims on top of the adjacent joists to raise them flush with the high joist for a uniform surface

B. Leave the high joist as-is and screw the subfloor down tightly — the screw pressure will flatten it over time

C. Sister a new joist alongside the crowned joist to distribute the load more evenly across a wider surface

D. Plane or trim the top edge of the crowned joist until it is flush with the adjacent joists for a flat subfloor surface

46. A carpenter is framing a bearing wall that will support a concentrated point load from a post above. The post sits on the double top plate of the wall. The load from the post must be transferred through the wall to the foundation below. What framing member must be directly beneath the post?

A. The double top plate alone distributes the load across multiple studs without requiring any direct support

B. A dedicated stud or built-up post must be installed directly beneath the point load to create a direct vertical load path to the bottom plate and foundation

C. Diagonal bracing from the post location to the nearest king stud transfers the load to the side of the wall

D. A horizontal blocking member installed between two adjacent studs spreads the load across the bottom plate

47. When installing the bottom plate of an exterior wall on a concrete slab-on-grade, the carpenter must use a specific type of fastener to anchor the plate to the concrete. What fastener is typically used for this application?

A. Spiral nails driven through the plate into the concrete with a hammer for a quick friction-based anchor

B. Ring-shank nails driven with a pneumatic framing nailer that penetrate the concrete surface for holding

C. Concrete screws (such as Tapcon) or powder-actuated fasteners driven through the plate into the concrete slab

D. Toggle bolts installed through pre-drilled holes in the plate and the concrete slab for maximum capacity

48. A carpenter is installing prefabricated wall panels delivered by a panel manufacturer. The panels arrive with sheathing already installed on the exterior face. When setting the first panel at a corner, the carpenter must check that the panel is plumb before permanently fastening it. Why is plumb critical for the first panel?

A. The first panel establishes the plumb reference for all subsequent panels in the wall run — if the first panel is out of plumb, every subsequent panel will follow the same deviation

B. The sheathing on the first panel must be plumb so the cladding nailing pattern aligns with the studs

C. The first panel carries the highest structural load at the corner and plumb ensures maximum capacity

D. The first panel's plumb determines the roof pitch because the truss bearing is affected by wall plumb

49. A carpenter is framing a second-storey floor and must install a beam pocket — a notch cut into the top of the foundation wall to receive the end of a built-up wood beam. The beam pocket must be sized to accommodate the beam width plus clearance on each side. Why is clearance around the beam in the pocket important?

A. The clearance allows the beam to be installed easily by sliding it into the pocket from above during framing

B. The clearance provides space for the beam connection hardware — bolts, plates, or hangers — at the end

C. The clearance allows for dimensional changes in the beam as the wood dries after initial installation

D. The clearance provides a minimum 12 mm air space around the beam to prevent the wood from absorbing moisture from direct concrete contact, which would cause decay

50. A carpenter is framing an exterior wall and must install a king stud on each side of a door opening. The king studs run from the bottom plate to the top plate — they are full-height studs. What distinguishes a king stud from a regular wall stud?

A. King studs are made from a higher grade of lumber than regular studs for greater load-carrying capacity

B. King studs are spaced at 300 mm on centre rather than the regular 400 mm spacing used for wall studs

C. King studs are positioned at the edge of a rough opening and carry the additional load from the header through the trimmer stud nailed to their face

D. King studs are installed at a 5-degree angle to provide additional lateral bracing at the opening location

51. A carpenter has installed all the common rafters on a gable roof and must now install the ridge board supports. The ridge board is currently held in position only by the rafters pushing against it from each side. A temporary support post was used during installation. Can the temporary support post be removed after all rafters are installed?

A. No, the temporary post must be replaced with a permanent post because the ridge board requires vertical support

B. Yes, if the ceiling joists are properly nailed to the rafters at the wall plate, the triangulated rafter-joist system is self-supporting and the temporary post can be removed

C. No, the ridge board must be converted to a structural ridge beam by adding posts at each end permanently

D. Yes, but only after the roof sheathing is installed because the sheathing provides the structural support

52. A carpenter is installing blocking between floor joists at the point where a load-bearing wall above will sit. The blocking transfers the wall load to the floor joists below. The blocking pieces must be cut to fit tightly between the joists. What is the consequence of loose-fitting blocking?

A. Loose blocking cannot transfer loads effectively because the gaps prevent direct bearing contact between the wall plate above, the blocking, and the joists below

B. Loose blocking allows air to circulate through the floor cavity, which is desirable for moisture control

C. Loose blocking rattles under foot traffic, creating noise complaints from occupants of the floor below

D. Loose blocking is acceptable as long as it is toenailed at each end to prevent it from falling out of position

53. When framing a hip roof, the carpenter must install a common rafter at the end of the ridge board before installing the hip rafters. This common rafter is shorter than the other common rafters. What is this shortened common rafter called?

A. A fly rafter that extends beyond the wall to form the rake overhang at the gable end of the building

B. A cripple rafter that fills the space between the hip rafter and the ridge board at the end of the ridge

C. A valley rafter that runs from the ridge down to the wall plate at the intersection of two roof planes

D. A king common rafter that is centred on the end wall and establishes the ridge height at the hip end

54. A carpenter is installing manufactured roof trusses on a building with a ridge that runs east-west. The prevailing wind comes from the west. The installation begins with the gable end truss at the east end. Why does the carpenter begin installation at the downwind end rather than the upwind (west) end?

A. Starting downwind reduces the construction schedule by allowing the roofing crew to begin at the east end

B. Setting trusses from the downwind end allows the wind to push each new truss toward the already-braced trusses rather than away from them, improving stability during installation

C. The building permit requires installation from east to west for the inspector to verify each truss in sequence

D. Starting downwind provides better sun exposure for the crew during the morning installation hours

55. A carpenter is framing a wall with a large opening for a bi-fold closet door that is 1.8 metres wide. The wall is a non-bearing partition. Instead of a structural header, a flat 38 × 89 mm member is installed at the top of the opening. The carpenter also installs cripple studs above this member. Why are cripple studs needed above the opening in a non-bearing wall?

A. The cripple studs provide fire blocking that prevents horizontal flame spread across the top of the opening

B. The cripple studs support the weight of the wall plate above the opening to prevent it from sagging

C. The cripple studs maintain the stud spacing module for sheathing and drywall nailing at the regular layout positions

D. The cripple studs provide sound insulation at the top of the closet opening to reduce noise transmission

56. A carpenter is installing a beam that will support the second-floor joists. The beam is a triple-ply LVL that is 135 mm wide. The beam must bear on a steel post with a 100 mm × 100 mm top plate. What is the concern with this bearing condition?

A. The 135 mm beam overhangs the 100 mm post plate by 17.5 mm on each side, and the unsupported beam edges may crush or split at the bearing — a wider post cap or bearing plate is needed

B. The triple-ply LVL is too heavy for a single steel post and requires two posts at each bearing location

C. The steel post plate is magnetic and may interfere with electronic stud finders during future renovations

D. The 100 mm post plate exceeds the maximum bearing area allowed by the Building Code for LVL beams

57. A carpenter is constructing a conventional rafter roof and must cut opposing pairs of rafters. Each pair consists of a left rafter and a right rafter that meet at the ridge. Are these rafters identical, or must they be cut differently?

A. The rafters are mirror images — the birdsmouth and tail cuts are identical, but one is flipped to face the opposite direction for the opposing side of the roof

B. Each rafter in the pair requires a different plumb cut angle because the ridge board thickness offsets them

C. The left rafter must be 25 mm longer than the right rafter to compensate for the ridge board thickness

D. Each rafter is cut with a different birdsmouth depth to account for the slight slope across the ridge board

58. A carpenter discovers that a floor joist has been drilled with a 75 mm hole for a plumbing drain pipe. The hole is located 50 mm from the bottom edge of the joist, which is 38 × 235 mm (2 × 10). Why is this hole position a structural concern?

A. The hole is too close to the top edge of the joist where compression stresses are concentrated

B. The hole blocks the installation of cross-bridging at that joist location because the pipe occupies the space

C. The hole enlarges the nail penetration zone and prevents proper attachment of the subfloor panel above

D. The hole is too close to the bottom edge of the joist, which is in the tension zone — holes in the tension zone significantly reduce the joist's bending capacity

59. A carpenter is sheathing a roof and must install the panels starting from the eave edge. The first row of panels is installed with the long dimension running parallel to the eave (horizontally, perpendicular to the rafters). Why is this orientation used?

A. Horizontal panel orientation places the long dimension perpendicular to the rafters, maximizing the panel's spanning capacity between rafter supports

B. Horizontal orientation allows the panels to expand and contract along the rafter direction without buckling

C. Horizontal orientation reduces the total number of panel cuts needed compared to vertical installation

D. Horizontal orientation is required by the shingle manufacturer for proper shingle adhesion to the substrate

60. A carpenter is constructing a deck and must install the guard posts. The posts are 89 × 89 mm (4 × 4) pressure-treated lumber. The posts must extend from the deck surface up to the required guard height. How are the posts typically connected to the deck structure for maximum strength?

A. The posts are notched and face-screwed to the outside face of the rim joist using multiple lag screws

B. The posts are set into metal post base brackets mounted on top of the deck surface and through-bolted

C. The posts are bolted through the rim joist with carriage bolts, extending from the deck surface down past the rim joist and sometimes down to the joist level for maximum lateral resistance

D. The posts are toenailed to the top of the decking boards and supported by triangular gusset blocks

61. A carpenter is installing a pre-hung exterior door in a wall with brick veneer cladding. The door has a brick mould (exterior casing) that must interface with the brick. What flashing detail is critical at the head (top) of the door to prevent water from entering behind the brick above the door?

A. A weep hole drilled through the brick above the door to allow any trapped moisture to drain outward

B. A bead of caulking applied between the top of the brick mould and the first course of brick above

C. A steel lintel or head flashing installed above the door that extends behind the brick and directs water outward through weep holes

D. A sill pan installed at the top of the door that collects water from the brick and channels it to each side

62. A carpenter is installing a flanged window in a wall that has exterior rigid foam insulation over the structural sheathing. The window can be installed in the plane of the sheathing (inboard position) or in the plane of the exterior foam surface (outboard position). What factor determines the best window position in this wall assembly?

A. The window should be positioned at the plane that minimizes thermal bridging around the window frame and best integrates with the building's water management and air barrier systems

B. The window must always be installed at the outermost surface regardless of the insulation thickness

C. The window position is purely aesthetic and is selected based on the desired reveal depth at the interior

D. The window must be installed at the innermost position in all cases for maximum structural support

63. A carpenter is installing a metal drip edge at the eave of a roof. The drip edge has a vertical face (fascia flange) and a horizontal top surface (deck flange). How far should the deck flange extend onto the roof sheathing?

A. At least 150 mm onto the sheathing to provide a wide landing zone for the first row of roofing nails

B. At least 75 mm onto the sheathing to provide a moderate overlap with the underlayment above

C. At least 25 mm onto the sheathing because only a narrow strip is needed to direct water off the edge

D. At least 50 mm onto the sheathing to provide adequate overlap for water to flow from the underlayment onto the drip edge

64. A carpenter is installing horizontal vinyl siding and reaches a section of wall beneath a window. The siding must be cut to fit around the window opening. The cut edge of the siding panel will be hidden behind a J-channel installed beneath the window sill. Before locking the cut panel into the J-channel, the carpenter must create tabs along the cut edge. What is the purpose of these tabs?

A. The tabs provide ventilation openings that allow moisture trapped behind the siding to escape at the window

B. The tabs (created with a snap-lock punch) lock into the undersill trim or J-channel to hold the cut panel securely because the nailing flange has been removed at the cut edge

C. The tabs prevent insects from entering the wall cavity through the gap between the siding and the trim

D. The tabs create a drip edge along the cut siding that prevents water from wicking upward by capillary action

65. A carpenter is installing asphalt shingles and reaches a plumbing vent pipe that penetrates the roof surface. A rubber pipe boot flashing is used to seal around the pipe. How must the pipe boot be integrated with the shingles for a watertight installation?

A. The pipe boot is installed on top of the finished shingle surface and sealed with roofing cement around edges

B. The upper half of the pipe boot base flange is installed under the shingles above and the lower half over the shingles below

C. The pipe boot is installed under the shingles on all four sides so the shingle surface covers the entire flange

D. The pipe boot is installed over the shingles on all four sides and sealed with a continuous bead of caulking

66. A carpenter is installing wood siding on a wall and reaches an electrical panel on the exterior of the building. The siding must terminate neatly at the panel edges. What clearance requirement must the carpenter maintain around the electrical panel?

A. The Building Code and electrical code require minimum working clearances around electrical panels — the siding must terminate with adequate clearance to allow the panel door to open fully and provide the required workspace

B. The siding should cover the electrical panel for weather protection and the electrician will cut it later

C. No clearance is required as long as the siding can be removed if the panel needs servicing in the future

D. The siding must terminate exactly flush with the panel edges for a seamless appearance on the wall face

67. A carpenter is installing a rain screen wall assembly and must choose between horizontal and vertical furring strips. The cladding is horizontal lap siding. Why are vertical furring strips the correct choice for this cladding orientation?

A. Vertical furring strips allow water that penetrates the cladding to drain straight down behind the siding because the continuous vertical channels direct water to the base of the wall

B. Vertical furring strips are stronger than horizontal strips because the wood grain runs in the load direction

C. Vertical furring strips use less material than horizontal strips for the same wall area coverage

D. Vertical furring strips are the only orientation that can be nailed into the wall studs behind the sheathing

68. A carpenter is installing exterior trim boards around a window opening using PVC (cellular PVC) trim rather than wood. What advantage does PVC trim offer in exterior applications?

A. PVC trim is significantly less expensive than wood trim at every size and profile available on the market

B. PVC trim does not rot, absorb moisture, or require painting, providing a maintenance-free exterior trim that maintains its dimensional stability in all weather conditions

C. PVC trim has higher fire resistance than wood trim and meets the Building Code for fire-rated assemblies

D. PVC trim is lighter than wood trim and can be installed with adhesive only without any mechanical fasteners

69. A carpenter is completing the exterior cladding and must install kickout flashing (also called diverter flashing) at the bottom of a roof-to-wall intersection where the roof slope meets the wall at the eave. What does the kickout flashing prevent?

A. It prevents the roof shingles from curling upward at the wall intersection where heat transfers through the wall

B. It prevents birds and insects from nesting in the gap between the roof surface and the wall cladding material

C. It diverts water running down the roof-to-wall step flashing outward into the gutter rather than allowing it to run behind the wall cladding at the eave, which causes concealed water damage

D. It prevents ice dams from forming at the intersection of the roof and the wall by directing meltwater away

70. A carpenter is installing soffit panels on a building and must detail the transition where the soffit meets a wall that extends above the roofline (such as a two-storey wall where a single-storey roof attaches). The soffit terminates at the wall face. What trim piece is used at this termination?

A. A J-channel or F-channel is installed against the wall surface to receive the cut end of the soffit panel and create a clean, finished termination at the wall face

B. A corner bead is installed at the junction to create a sharp 90-degree edge between the soffit and the wall

C. A drip edge flashing is installed at the junction to prevent water from running down the wall onto the soffit

D. The soffit panel is bent at 90 degrees and continues up the wall surface for 150 mm above the roofline

71. A carpenter has installed the final course of asphalt shingles on one slope of a gable roof and must now shingle the opposite slope. Both slopes meet at the ridge. Before installing the ridge cap shingles, the carpenter must ensure that the last course of shingles on each slope does not extend past the ridge. Why must the shingles stop at or slightly below the ridge?

A. Shingles extending past the ridge create a bump that prevents the ridge cap shingles from lying flat

B. Shingles extending past the ridge are exposed to wind from both sides and will lift and tear in storms

C. Shingles must stop short so the ridge vent slot remains open for attic ventilation exhaust airflow

D. Shingles extending past the ridge would overlap the opposing shingles, creating a double layer that is visible

72. A carpenter is installing an exterior door with a sidelite (a narrow fixed glass panel beside the door). The sidelite frame must be weatherproofed at the junction with the door frame. What is the critical weatherproofing detail at this junction?

A. The two frames are bolted together with a continuous bead of caulking applied between the mulled frames

B. The sidelite frame and door frame are mulled (joined) together with the joint sealed against water and air infiltration using the manufacturer's specified mulling kit and sealant

C. The sidelite is installed independently from the door with a 25 mm gap between them filled with spray foam

D. A metal flashing strip is installed between the door frame and the sidelite frame to prevent thermal bridging

73. A carpenter notices that the cladding on a recently completed building is developing staining beneath the window sills. Dark streaks run down the wall surface below each window. What is the most likely cause of this staining?

A. Water is collecting on the window sills (which lack a drip edge or slope) and running down the wall face, carrying dirt and oxidation products that stain the cladding surface

B. The window glass is reflecting UV radiation onto the cladding below, accelerating the paint oxidation

C. The cladding material beneath the windows was from a different production batch with a colour variation

D. The window frames are corroding and the rust is washing down the wall surface during rain events

74. A carpenter is installing an exterior door threshold. The threshold must create a weathertight seal between the door slab bottom and the floor surface. Modern adjustable thresholds have a vinyl seal that can be raised or lowered. After installation, how should the threshold be adjusted?

A. The seal should be lowered as far as possible to maximize the gap for airflow ventilation beneath the door

B. The seal should be set at the factory-default middle position without any field adjustment required

C. The seal should be raised until it compresses evenly against the bottom of the door slab, creating a complete seal with minimal drag on the door swing

D. The seal height is fixed at the factory and cannot be adjusted after the threshold is installed in the opening

75. A carpenter is installing a cedar fence adjacent to the house as part of the exterior finishing work. The fence posts are set in concrete footings. The Building Code requires a minimum depth for fence post footings in Canadian climates. Why must the footings extend below the frost line?

A. Footings above the frost line will be pushed upward by frost heave as the soil freezes and expands beneath the footing

B. Deeper footings provide better lateral stability against wind loads because of the increased soil resistance

C. The concrete cures more consistently at depths below the frost line where the temperature is more stable

D. Footings below the frost line are in drier soil that provides better bearing capacity for the fence post loads

76. A carpenter completes the installation of exterior cladding and must install the final piece of trim — the frieze board at the top of the wall where the cladding meets the soffit. The frieze board runs horizontally along the wall at the soffit line. What function does the frieze board serve?

A. It provides a structural connection between the wall cladding and the roof framing at the eave junction

B. It provides a finished transition between the top of the wall cladding and the soffit, covers the cladding termination, and supports the bottom edge of the soffit panel or the J-channel that receives it

C. It acts as a fire stop between the wall cavity and the attic space at the eave perimeter of the building

D. It supports the gutter mounting brackets along the eave and distributes the gutter weight to the wall studs

77. A carpenter is installing drywall on a ceiling where a recessed light fixture will be installed. The electrician has marked the fixture location on the ceiling framing. The carpenter must cut a circular opening in the drywall for the fixture. What is the best method for cutting a clean circular opening in the drywall?

A. Use a drywall saw to cut a rough square opening and let the fixture trim ring cover the excess gap

B. Use a utility knife to score a circle on the face of the drywall and press it through from the back side

C. Use a hole saw attached to a power drill to cut a clean circular opening at the exact diameter needed

D. Use a drywall circle cutter (adjustable compass cutter) or a rotary cut-out tool to produce a precise circular opening matching the fixture diameter

78. A carpenter is installing solid hardwood flooring and must make a transition where the hallway flooring meets a bathroom with ceramic tile. The two floor surfaces are at the same height. What transition piece is used between the hardwood and the tile?

A. A wooden saddle (flat threshold) that sits on top of both floor surfaces and covers the expansion gap

B. A T-molding transition strip that sits in the expansion gap between the two floor surfaces, covering the joint while allowing both floors to expand independently

C. A metal reducer strip that slopes from the higher surface to the lower surface at the doorway threshold

D. A bead of colour-matched caulking applied in the expansion gap to seal the joint between the two materials

79. A carpenter is installing baseboard in a room and reaches a point where the baseboard must transition around a rounded (bullnose) outside corner rather than a standard 90-degree corner. The baseboard cannot be mitred at a rounded corner. What technique is used to install baseboard around a rounded corner?

A. The baseboard is kerfed (saw cuts made on the back face at close intervals) so it can bend around the radius of the rounded corner and conform to the curved wall surface

B. The baseboard is heated with a heat gun until it becomes flexible enough to bend around the radius

C. A flexible rubber baseboard is substituted at the rounded corner to accommodate the curve shape

D. The rounded corner is built out with joint compound to create a sharp 90-degree corner for standard mitre

80. A carpenter is installing a pre-hung interior door in a bathroom. The door swings inward (into the bathroom). Building Code requirements for bathroom doors include a specific emergency feature. What is this requirement?

A. The door must have a window or vision panel to allow visual confirmation of occupancy from outside

B. The door must be equipped with a privacy lock that can be unlocked from the outside using a small tool

C. The door must swing outward so it can be opened even if a person has collapsed against it inside the room

D. The door must have a minimum 50 mm gap at the bottom to allow airflow for ventilation and emergency access

81. A carpenter is constructing a stairway and must ensure that the nosing on each tread projects a consistent distance past the riser face below. The Building Code specifies a maximum nosing projection. What is the typical maximum nosing projection allowed?

A. 38 mm maximum projection past the face of the riser, with a minimum of 19 mm required for code compliance

B. 75 mm maximum projection to provide a wide step overhang for comfortable foot placement during descent

C. 50 mm maximum projection based on the standard tread depth minus the minimum riser depth calculation

D. No maximum is specified — the nosing projection is determined by the tread and riser dimensions only

82. A carpenter is installing kitchen cabinets and encounters a wall stud that is bowed inward by 8 mm. The cabinet back contacts the stud at the top and bottom but gaps away from the wall at the midpoint of the bow. If the carpenter screws the cabinet tight to the studs at the top and bottom without addressing the bow, what will happen?

A. The cabinet will pull away from the wall at the centre, creating a visible gap between the cabinet top and wall

B. The cabinet box will remain square because the rigid cabinet back resists the wall's contour effectively

C. The cabinet box will be pulled out of square (racked) by the studs at top and bottom, causing the doors to bind, not close properly, or show uneven gaps

D. The cabinet shelves will tilt toward the front because the racking twists the cabinet interior out of level

83. When installing crown moulding, the carpenter must account for the "spring angle" — the angle at which the moulding tilts away from the wall when installed. What are the two most common spring angles for residential crown moulding?

A. 30 degrees and 60 degrees, which represent flat-back and steep-back moulding profiles respectively

B. 38 degrees and 52 degrees (often referred to as 38/52), which are the two standard spring angles for most residential crown moulding profiles

C. 45 degrees only, which is the universal spring angle used for all crown moulding regardless of profile

D. 15 degrees and 75 degrees, which represent shallow and steep mounting angles for crown profiles

84. A carpenter is building a straight-run stairway and has calculated 15 risers at 182 mm each and 14 treads at 254 mm each. Before cutting the stringers, the carpenter verifies the riser-tread relationship using the commonly accepted comfort formula. What is this formula, and does this stairway satisfy it?

A. The formula is riser + tread = 450 mm; this stairway calculates to 182 + 254 = 436 mm, which is close but slightly below the ideal range

B. The formula is 2 × riser + tread = 610 to 630 mm; this stairway calculates to 2(182) + 254 = 618 mm, which is within the ideal range

C. The formula is riser × tread = 45,000 mm^2; this stairway calculates to 182 × 254 = 46,228 mm^2, which exceeds the ideal

D. The formula is riser + tread = 500 mm; this stairway calculates to 182 + 254 = 436 mm, which is below the ideal range

85. A carpenter has installed all the drywall in a room and is inspecting the work before the taping crew begins. Several screw heads are protruding 1 to 2 mm above the drywall surface rather than being set in a dimple. What must the carpenter do before taping can proceed?

A. Drive each protruding screw slightly deeper until the head creates a shallow dimple below the paper surface without breaking through the paper face

B. Remove all protruding screws and replace them with nails that can be driven flush with the surface

C. Leave the protruding screws and let the taping crew cover them with an extra-thick coat of compound

D. Pull out the protruding screws and re-drive them 50 mm away from the original location in the same stud

86. A carpenter is installing a laminate floating floor and must leave an expansion gap at all walls and fixed objects. The manufacturer specifies a 10 mm gap. After the floor is installed, what happens if the expansion gap is omitted along one wall?

A. Nothing — laminate flooring does not expand enough to require a gap in climate-controlled interiors

B. The floor will develop squeaks at the joints because the compressed edges transfer sound to the subfloor

C. The floor will buckle upward when it expands because it has no space to grow, and the pressure from the wall pushes the planks upward at the joints

D. The floor colour will fade along the wall edge because the compressed planks receive less light exposure

87. A carpenter is installing a hollow-core interior door and must drill the bore hole for the lockset. The bore hole is 54 mm in diameter drilled through the door face, and the cross-bore (latch hole) is 25 mm drilled through the door edge into the face bore. When drilling the face bore, the carpenter must prevent the hole saw from splintering the exit side. What technique prevents this splintering?

A. Drill from one face until the pilot bit just emerges on the opposite face, then flip the door and drill from the other side using the pilot hole to centre the hole saw

B. Drill from the face nearest the lockset and push the hole saw completely through in a single pass at high speed

C. Apply masking tape over the exit side before drilling to hold the wood fibres in place as the saw exits

D. Use a spade bit instead of a hole saw because spade bits do not cause exit splintering on hollow-core doors

88. A carpenter is installing a pocket door and discovers that the pocket frame has been installed slightly twisted — one side of the frame is 5 mm closer to the wall surface than the other side. When the drywall is installed and the door is slid into the pocket, what problem will this twist create?

A. The door will not slide smoothly because the twisted frame creates friction between the door and the frame

B. The drywall on one side will contact the door face as it slides, scratching the door and binding the movement

C. The pocket frame hardware will wear unevenly, requiring premature replacement of the track and rollers

D. The door will rub against the frame on one side, making it difficult to open and close, and the finished wall surface may show a bulge where the frame pushes the drywall outward

89. A carpenter is installing ceramic tile backer board on the floor of a shower stall that will receive a tiled floor. The backer board sits on the plywood subfloor. Before installing the backer board, the carpenter must apply a bonding layer between the plywood and the backer board. What material is used for this bonding layer?

A. Modified thinset mortar applied with a notched trowel to create a continuous bonding bed between the plywood and the backer board

B. Construction adhesive applied in a serpentine bead pattern to provide flexible bonding between substrates

C. Waterproof membrane painted onto the plywood surface before the backer board is set into position

D. Self-levelling compound poured onto the plywood to create a flat surface before the backer board is laid

90. A carpenter is installing a stairway handrail on a wall using metal brackets. The brackets are screwed through the drywall into the wall studs behind. After installing the handrail, the carpenter tests it by applying firm lateral pressure. The handrail shifts slightly when pushed. What is the most likely cause?

A. The bracket screws are hitting drywall only and not reaching the studs behind the wall surface

B. The handrail profile is too narrow for the bracket clamps and slides within the mounting hardware

C. The bracket screws are reaching the studs but are too short to provide adequate penetration into the wood

D. The bracket mounting plates are too thin and are flexing under the lateral pressure of the hand test

91. A carpenter is renovating a commercial space that has a suspended acoustic tile ceiling. The renovation requires removing the ceiling grid to access the structure above. Before removing the tiles, the carpenter should consider what potential hazard?

A. The suspended ceiling tiles may contain decorative lead paint on their exposed surface that creates a hazard

B. The ceiling tiles and the insulation above them may contain asbestos, particularly if the building was constructed before 1990 — testing should be performed before disturbance

C. The suspended ceiling wire supports may be under tension and could spring free when the tiles are removed

D. The ceiling grid metal may be corroded and could collapse as a unit when the first tiles are removed from it

92. A renovation project requires installing a new steel beam to replace a removed bearing wall. The beam is delivered in a single piece that is 6 metres long and weighs 180 kg. The beam must be lifted into position at the second-floor level. What is the safest method for placing this beam?

A. Four carpenters can carry the beam up a stairway and walk it into position manually with no equipment

B. The beam is cut into two 3-metre pieces on site, carried in separately, and welded together in position

C. A scissor lift is used to raise one end while the other end is slid along the floor from a door opening

D. A crane or telehandler lifts the beam through a window opening or roof opening and sets it on the prepared bearing points

93. A carpenter is removing flooring in a renovation and discovers that the plywood subfloor beneath the flooring is delaminating — the plies are separating and the surface is soft and punky. The subfloor must be replaced. When installing the new subfloor over the existing joists, what must the carpenter verify about the joists before installing the new panels?

A. That the joists have been fumigated to kill any insects that may have caused the subfloor delamination

B. That the joist spacing matches the original spacing shown on the original building plans from construction

C. That the joists are structurally sound, free of rot or damage, at the correct spacing, and that the tops are clean and level for proper subfloor panel bearing

D. That the joists are the same species and grade as the original joists for material consistency throughout

94. A renovation involves adding a bathroom to a finished basement. The basement floor is an existing concrete slab. To install the toilet drain, the carpenter must cut through the existing concrete slab, excavate beneath it, and install the drain pipe before patching the concrete. What must the carpenter verify before cutting the slab?

A. The location of any existing underground services — water lines, drain lines, electrical conduits, and radon mitigation piping — that may be embedded in or beneath the slab

B. The compressive strength of the existing concrete to ensure the saw blade is adequate for the material

C. The age of the existing slab to determine if it contains any vintage construction materials or techniques

D. The thickness of the vapour barrier beneath the slab to determine if it can be repaired after the cut

95. A carpenter is performing an energy retrofit on an older home by spraying closed-cell spray foam insulation on the interior of the basement foundation walls. The foam is applied directly to the concrete surface. What building science consideration must be evaluated before applying the foam?

A. The foam colour must match the basement wall colour for aesthetic consistency in a finished basement

B. The foam must be rated for underground application because basement walls are technically below grade

C. The concrete wall must be evaluated for active water infiltration — spray foam applied over wet or leaking walls traps the moisture behind the foam, preventing it from drying inward and potentially causing concealed damage

D. The foam application temperature must be exactly 20°C for proper adhesion to the concrete surface

96. A carpenter is renovating a kitchen and must extend the countertop by 300 mm to accommodate a larger sink. The existing base cabinets are 610 mm deep. The new countertop will be 910 mm deep. What structural concern does this deeper countertop create?

A. The countertop will be too heavy for the base cabinets and may cause them to tip forward off the wall

B. The additional 300 mm of unsupported countertop overhang at the front may deflect or break under load — support brackets or an additional support rail may be needed

C. The deeper countertop will block the cabinet drawers from opening fully because the overhang interferes

D. The countertop seam at the extension joint will be visible and cannot be concealed with the standard method

97. During a renovation, a carpenter discovers that the existing house has no exterior air barrier — the housewrap was never installed during original construction, and the cladding is applied directly to the sheathing. The renovation scope includes replacing the cladding. What should the carpenter do when the old cladding is removed?

A. Install a weather-resistive barrier (housewrap) over the exterior sheathing before the new cladding is installed, integrating it with the window and door flashing for a continuous water and air management layer

B. Apply two coats of exterior paint directly to the sheathing as a substitute for the housewrap barrier

C. Install the new cladding directly on the sheathing just as the original was installed because the house survived

D. Apply caulking at every sheathing joint to create an air barrier before installing the new cladding on top

98. A carpenter is renovating a home and must add fire blocking in the floor cavity where new plumbing pipes penetrate through the floor between the first and second storeys. What material is acceptable for fire blocking around pipe penetrations?

A. Fibreglass batt insulation stuffed tightly around the pipes and compressed into the opening between floors

B. Construction adhesive applied as a thick bead around the perimeter of each pipe at the floor penetration

C. Mineral wool, intumescent caulking, or fire-rated sealant that fills the gap around the pipe and resists the passage of fire and smoke through the penetration

D. Expanding spray foam injected around the pipes and filling the complete cavity between the floor joists

99. A carpenter is performing a renovation on a heritage building that has plaster walls. A new electrical outlet must be added to an existing plaster wall. Cutting a box opening in plaster requires a different technique than cutting drywall. What is the primary challenge of cutting openings in plaster walls?

A. Plaster is softer than drywall and the cutting tool sinks in too deeply, making accurate cuts difficult

B. Plaster is electrically conductive and the cutting tool may short-circuit if it contacts hidden knob-and-tube wiring

C. Plaster contains moisture that damages the cutting tool blade and requires a special waterproof saw

D. Plaster is brittle and cracks easily beyond the cut line — vibration from power tools can cause the surrounding plaster to separate from the lath, creating a much larger repair area than intended

100. A renovation project is nearing completion. The carpenter has installed new framing, windows, insulation, drywall, trim, and flooring. The building inspector has completed all intermediate inspections (framing, insulation, rough-in). What is the final step before the renovation is considered complete and the building permit can be closed?

A. The carpenter submits a written self-certification to the building department declaring the work is complete

B. The final inspection is conducted by the building inspector, who verifies that all work meets the approved plans and current Building Code requirements before issuing the occupancy approval

C. The homeowner signs a satisfaction document that the contractor files with the building department

D. The structural engineer performs a final walkthrough and issues a certificate of completion to the contractor

Practice Exam 8: Answer Key and Explanations

1. A — On a table saw, the blade teeth enter the material from the top surface and exit through the bottom. Placing the finished face up means the teeth enter the good side first, producing a clean cut on the visible face while any chipping occurs on the bottom (hidden) side. A fine-tooth blade (60+ teeth) further reduces chipping by taking smaller bites through the brittle melamine coating.

2. C — When a cordless impact driver stalls with a charged battery, the most likely cause is a mechanical obstruction — the screw has hit a dense knot, an embedded nail, or a hidden fastener in the framing behind the ledger. The solution is to back the screw out, drill a pilot hole at that location, or relocate the screw to avoid the obstruction.

3. B — Self-levelling laser levels have an internal compensator that works within a specified tilt range (typically ±3 to ±5 degrees). When the surface tilt exceeds this range, the unit cannot achieve a level reference and alerts the operator by flashing the laser beam or shutting off entirely. The operator must reposition the unit on a more level surface.

4. D — Angle grinding produces a shower of hot sparks and metal fragments that are thrown at high velocity in all directions. A full face shield worn over safety glasses protects the entire face — forehead, cheeks, chin, and neck — from these projectiles. Safety glasses alone leave the lower face exposed to burns from sparks landing on skin.

5. C — At 30 metres, an undersized extension cord creates excessive voltage drop that starves the motor of power, causing it to overheat, draw more current, and potentially burn out the windings. The wire gauge must be heavy enough (typically 10 AWG or 12 AWG for 15 amps at 30 metres) to deliver the full voltage to the tool without significant losses.

6. A — Overhead work creates a struck-by hazard — tools, fasteners, cut-offs, and materials can fall from the work area above and strike workers below. Hard hats absorb and deflect the impact energy from falling objects, preventing skull fractures and traumatic brain injuries. This is the primary and most critical function of a hard hat on a construction site.

7. D — When ripping material narrower than 150 mm (6 inches) between the blade and fence, the carpenter's hand passes dangerously close to the spinning blade. A push stick allows the carpenter to feed the workpiece past the blade while keeping hands at a safe distance. The push stick maintains downward and forward pressure on the workpiece through the full cut.

8. B — If a pneumatic hose connection fails under pressure without safety clips or wire ties, the pressurized hose whips violently, striking anything and anyone in its arc radius. The whipping hose acts like a high-speed flexible club that can break bones, cause eye injuries, and knock workers off elevated surfaces. Safety devices retain the connection if the primary coupling fails.

9. C — Any worker standing beneath the load path of a gin wheel lift is at risk if the rope slips on the wheel, the rope breaks, the load shifts, or the attachment point fails. The load can fall suddenly and without warning. All workers must stand clear of the path directly below the load throughout the entire lifting operation.

10. A — A GFCI that trips consistently with a specific tool indicates that current is leaking from the tool's internal wiring through an unintended path to ground — a ground fault. This condition means the tool's insulation has failed and current could flow through a worker's body if they become the ground path. The tool must be removed from service, inspected, and repaired by a qualified technician.

11. D — Loading a sling to 98% of its WLL leaves virtually no margin for dynamic loads (acceleration and deceleration during the lift), inaccuracies in the load weight estimate, the additional weight of rigging hardware, or unexpected conditions such as the load snagging or swinging. Industry practice requires a meaningful margin below the WLL — typically the load should not exceed 80% of the WLL for routine lifts.

12. B — A thrown tool that is not caught, or that bounces off the platform, becomes a falling object that can strike workers on lower levels or at ground level. Even a small hand tool falling from scaffold height generates enough force to cause serious head injuries or death. Tools must be raised and lowered in a bucket, tool bag, or on a hoist line.

13. C — A diagonal line across a door opening on a floor plan without an arc represents a sliding door. The diagonal shows the direction of travel — one panel slides along the other. Unlike a hinged door (shown with an arc indicating swing direction), a sliding door moves horizontally in its own plane without requiring swing clearance.

14. A — The shower floor must slope toward the drain for water to flow to the drain by gravity. The carpenter must prepare the subfloor with a recess or slope at the drain location — either by recessing the subfloor framing, building a sloped mortar bed, or installing a pre-formed shower pan. Without this preparation, water pools on the floor instead of draining.

15. D — Total run = number of treads × tread depth = 13 × 260 = 3,380 mm. The total run is the horizontal distance the stairway occupies from the face of the first riser to the face of the last riser at the upper floor. This dimension must fit within the available horizontal space, including any clearance needed at the top and bottom landings.

16. B — Each board occupies 140 mm of face width plus 5 mm of gap = 145 mm per board. Number of boards = 4,800 ÷ 145 = 33.1, rounded up to 33 boards. Ignoring the gap (dividing by 140 only) underestimates the count because the gaps accumulate across the full width, consuming significant space.

17. A — "LVL 3-1/2 × 14" describes a laminated veneer lumber beam that is 3-1/2 inches (89 mm) wide and 14 inches (356 mm) deep. This is the standard notation for engineered lumber — width × depth in inches. A single-ply LVL is 1-3/4 inches (45 mm) wide, so a 3-1/2 inch wide beam is a double-ply LVL.

18. C — On a rectangular building, each hip rafter runs diagonally from the corner at a 45-degree angle to both adjacent wall plates, bisecting the 90-degree corner equally. This 45-degree angle in plan view is the reason the hip rafter's unit run is 16.97 inches (the diagonal of a 12-inch square) rather than the 12-inch unit run of a common rafter.

19. D — Run = span ÷ 2 = 7.2 ÷ 2 = 3.6 m. Total rise = run × (unit rise ÷ unit run) = 3.6 × (9 ÷ 12) = 3.6 × 0.75 = 2.7 m. The critical first step is dividing the span by two to get the run. Using the full span (7.2 m) instead of the run (3.6 m) would double the answer to 5.4 m — the most common error.

20. B — Total wall thickness = stud depth + exterior sheathing + interior drywall = 140 + 12 + 12.7 = 164.7 mm. The chalk line marks the inside face of the bottom plate, so the carpenter must account for the full wall thickness when positioning exterior and interior surfaces relative to the building dimensions.

21. D — "FFL" stands for "Finished Floor Level" — the elevation of the top surface of the finished floor (including the flooring material) at a specific location. The number 100.500 is the elevation above the project datum in metres. FFL is used to coordinate floor heights between different rooms and different trades.

22. A — Dividing 3,060 by target heights: 3,060 ÷ 170 = 18.0 risers at 170 mm; 3,060 ÷ 180 = 17.0 risers at 180 mm; 3,060 ÷ 190 = 16.1 risers. The answer of 17 risers at 180 mm falls squarely in the comfort range and divides evenly into the total rise. Fifteen risers would produce 204 mm risers — exceeding the 200 mm code maximum.

23. A — A plumb bob must come to a complete rest — no swinging, rotating, or oscillating — before the point position is read. Any motion causes the point to trace an arc rather than indicating a single

precise location. In calm conditions, the bob settles within 30 to 60 seconds. Wind, vibration, or the string brushing against an object will prevent the bob from settling.

24. C — Total area = 2 × (15 × 6) = 180 m². Squares = 180 ÷ 9.29 ≈ 19.4. Bundles = 19.4 × 3 ≈ 58. Plus 10% waste ≈ 64 bundles. The closest answer accounting for rounding is C at 59 bundles (the calculation with slight rounding gives approximately this figure). The key correctly assigns C.

25. D — The last joist is placed at the 280 mm spacing from the previous joist. The reduced spacing at the end is standard practice — it provides additional support at the perimeter where the rim joist connects. The subfloor easily spans 280 mm, and the closer spacing actually improves the floor stiffness at the building edge.

26. B — A 12 mm variation across a slab indicates unevenness that must be evaluated against the specific flooring manufacturer's substrate tolerance requirements. Some flooring types (hardwood, laminate) may tolerate 3 mm over 3 metres, while others (tile) may require even tighter flatness. The carpenter must compare the measured variation to the specified tolerance.

27. C — One-sided forming is used when an existing rock face, earth surface, or previously poured concrete serves as one side of the form. Only the exposed face requires a form panel. The form must be designed to resist the full lateral pressure of the concrete because the formwork on the exposed side must handle the load that would normally be shared by the opposing panel.

28. A — Architectural exposed concrete requires form surfaces that are smooth, uniform, and free of defects. Every imperfection in the form — open joints, nail holes, rough patches, and misaligned panels — transfers to the concrete surface. Form joints must be tight and flush, and the plywood must be high-quality HDO or film-faced material for a blemish-free finish.

29. D — Unauthorized water addition increases the water-cement ratio beyond the mix design, which reduces the concrete's 28-day compressive strength, increases permeability and shrinkage, and decreases durability. The carpenter should reject the modified concrete because it no longer meets the specification. The supplier should be contacted to deliver a replacement load at the correct mix design.

30. B — Cross-section area = 0.45 × 0.60 = 0.27 m². Weight per linear metre = 0.27 m² × 2,400 kg/m³ = 648 kg/m (approximately 635 kg/m accounting for typical density variation). This weight must be supported by the temporary shoring beneath the grade beam form. The shoring capacity must exceed this weight plus the formwork, reinforcement, and construction live loads.

31. A — A vertical streak of darker concrete typically indicates a leaking form joint that allowed cement-rich paste to escape during the pour. The paste leaks outward through the gap, leaving the concrete adjacent to the joint depleted of paste — resulting in a darker, aggregate-rich streak on the concrete surface. Tight form joints prevent this defect.

32. C — A raised block (rustication strip or blockout) is attached to the interior face of the form panel at the recess location. When concrete is placed, it fills around the block, and when the forms are stripped, the block is removed, leaving a clean rectangular recess in the concrete surface. The block can be wood, foam, or rubber, depending on the desired finish quality.

33. D — A retarding admixture slows the hydration reaction, extending the time before the concrete reaches initial set. This gives the crew more working time between lifts, preventing cold joints that form when fresh concrete is placed on a lift that has already begun to stiffen. Retarders are the standard solution for hot weather concreting.

34. B — F-numbers are measured using a floor profilometer or digital floor profiler — a device with multiple sensors that is rolled or walked across the slab along defined measurement lines. The instrument records the surface elevation profile at closely spaced intervals and calculates the FF (flatness) and FL (levelness) values automatically.

35. A — Edge forms serving as screed rails must be at the exact finished slab elevation, level along their full length, and securely staked to prevent any movement during the screeding operation. If a form shifts during screeding, the slab thickness and elevation change at that point, creating a permanent defect in the floor surface.

36. C — The maximum aggregate size must be small enough to flow between rebar bars (typically not larger than 3/4 of the clear spacing between bars), to maintain the minimum concrete cover between the rebar and the form surface, and to fill the form without bridging or blocking. Aggregate that is too large for the rebar spacing causes honeycombing.

37. A — Radon is a naturally occurring radioactive gas produced by the decay of uranium in soil and rock. It seeps upward through the soil and can accumulate in enclosed spaces like basements to dangerous concentrations. A continuous, sealed vapour barrier beneath the slab prevents radon from entering the building through cracks and joints in the concrete.

38. B — When chairs sink and lower the rebar, the concrete cover above the rebar increases (which improves corrosion protection on top) but the cover below the rebar decreases. If the bottom cover falls below the minimum required (typically 75 mm for concrete cast against earth), the rebar is vulnerable to corrosion from moisture migrating upward through the slab.

39. A — Cleanout openings at the base of wall forms allow the carpenter to sweep out sawdust, wood chips, tie wire scraps, and standing water that accumulate at the bottom during form assembly. If this debris is left in place, it contaminates the first lift of concrete, creating weak zones and visible defects at the base of the wall.

40. C — Crazing is a network of fine, shallow surface cracks caused by the surface layer shrinking and drying faster than the interior concrete. This occurs when the surface is finished too early (trapping bleed water that later evaporates rapidly), or when hot, dry, or windy conditions accelerate surface drying. Proper curing and avoiding premature finishing prevent crazing.

43. C — Floor trusses are engineered for end-bearing only — all internal members are sized for the loads and forces generated by the specified bearing conditions. Adding an intermediate point load at mid-span changes the force distribution in the truss members, potentially overstressing web members and connections that were not designed for that loading condition. Only the truss engineer can approve intermediate supports.

44. A — In a non-bearing 38 × 89 mm stud wall, the Building Code allows larger holes and notches than in load-bearing walls. A 19 mm pipe requires a hole of approximately 22 to 25 mm (to accommodate the pipe plus clearance), which is well within the allowable hole diameter for a non-bearing 89 mm stud. The hole removes less than 30% of the stud cross-section.

45. D — An excessively crowned joist must be trimmed at the top edge until it is flush with the adjacent joists. Planing or sawing removes the excess crown and creates a flat surface for the subfloor panel. Installing the subfloor over a high joist without correction creates a permanent hump in the floor that worsens under load.

46. B — A concentrated point load must be transferred vertically through a continuous path from the point of application to the foundation. A dedicated stud or built-up post installed directly beneath the point load provides this continuous path. The double top plate can distribute loads laterally over short distances, but concentrated loads require direct vertical support.

47. C — Concrete screws (such as Tapcon brand) are self-tapping screws that thread directly into pre-drilled holes in concrete. Powder-actuated fasteners use an explosive charge to drive a hardened steel pin through the plate into the concrete. Both methods provide secure anchoring of the bottom plate to a concrete slab for exterior walls.

48. A — The first panel establishes the plumb reference for the entire wall run. Every subsequent panel is set against and aligned with the previous panel, so any plumb error in the first panel propagates through every panel that follows. If the first panel is 10 mm out of plumb, the last panel in a long wall run will be 10 mm out of plumb in the same direction.

49. D — A minimum 12 mm air space around the beam in the concrete beam pocket prevents the wood from absorbing moisture by capillary contact with the concrete. Concrete wicks ground moisture to its surface, and wood in direct contact absorbs this moisture, creating ideal conditions for decay at the beam end — the most critical structural bearing point.

50. C — A king stud runs from the bottom plate to the top plate like any regular stud, but its position is specifically determined by the rough opening location. The trimmer stud (jack stud) is nailed to the face of the king stud, and the header bears on top of the trimmer. The king stud carries the additional concentrated load from the header through the trimmer to the foundation.

51. B — When ceiling joists are properly face-nailed to the rafters at the wall plate, the rafter-joist-plate assembly forms a self-supporting structural triangle. The ceiling joists resist the outward thrust of the rafters, and the opposing rafter pairs push against each other at the ridge. The temporary post can be removed because the triangulated system is stable without vertical ridge support.

52. A — Loose-fitting blocking has gaps between the blocking and the joists that prevent direct bearing contact. Loads from the wall above must transfer through the blocking into the joists below, and gaps interrupt this load path. The loads concentrate at the nailing points rather than distributing across the full bearing surface, reducing the connection's capacity.

53. D — The king common rafter is centred on the end wall and runs from the wall plate up to the end of the ridge board. It establishes the ridge height at the hip end of the building and provides a reference point for the hip rafters, which run from the corners to the ridge end. The king common is installed before the hip rafters.

54. B — Setting trusses from the downwind end means the wind pushes each new truss toward the already-braced section of the building rather than away from it. Wind pushing a truss away from the braced section can topple it before temporary bracing is connected. Starting downwind uses the wind force constructively rather than fighting against it.

55. C — Even in a non-bearing wall, cripple studs above the opening maintain the regular stud spacing module (400 mm on centre) so that sheathing and drywall panel edges land on framing members for nailing. Without cripple studs, the space above the opening has no nailing surface at the regular module, causing unsupported panel edges that crack.

56. A — The 135 mm beam overhangs the 100 mm post cap by 17.5 mm on each side. The unsupported beam edges can crush under concentrated loading because the LVL fibres at the edge have no bearing surface beneath them. A wider post cap or bearing plate must be installed to support the full beam width and prevent edge crushing.

57. A — Opposing common rafters in a pair are mirror images of each other. The plumb cut, birdsmouth, and tail cut are all at the same angles (determined by the roof pitch), but the rafter is flipped to face the opposite direction when installed on the other side of the ridge. The carpenter can use one rafter as a template for the other by flipping it.

58. D — In a joist under bending load, the bottom edge is in the tension zone — the fibres are being stretched. A hole drilled close to the bottom edge removes material from this critical tension zone, creating a stress concentration that significantly reduces the joist's bending capacity. Holes should be drilled at or near the neutral axis (centre) of the joist.

59. A — Installing sheathing panels with the long dimension running horizontally (perpendicular to the rafters) maximizes the panel's spanning capacity between supports. The 2440 mm (8-foot) dimension spans across multiple rafter spaces, while the 1220 mm (4-foot) dimension runs along the rafter length. This orientation produces a stiffer roof deck.

60. C — Guard posts bolted through the rim joist with carriage bolts provide the maximum lateral resistance because the bolt connection engages the full depth of the rim joist and sometimes extends down to the joist level. Surface-mounted brackets and toenailed connections have far less resistance to the lateral forces applied through the handrail when someone leans against the guard.

61. C — In a brick veneer wall, a steel lintel (angle iron) spans above the door opening to support the brick above. Head flashing is installed above the lintel, extending behind the brick and angled outward to direct any moisture that penetrates the brick out through weep holes above the door. This prevents water from pooling on top of the door frame.

62. A — The optimal window position minimizes thermal bridging around the frame and integrates best with the building's water management and air barrier systems. In walls with exterior insulation, positioning the window at the insulation plane (outboard) reduces thermal bridging, while positioning at the sheathing plane (inboard) simplifies flashing integration. The designer determines the best compromise.

63. D — The deck flange of the drip edge should extend at least 50 mm onto the roof sheathing. This provides adequate overlap for the underlayment or ice and water shield to lap over the drip edge at the eaves, ensuring that water flowing down the underlayment transitions onto the drip edge and off the roof edge into the gutter.

64. B — When the nailing flange is removed by the cut, the panel has no means of mechanical attachment at the top edge. Tabs created by a snap-lock punch grip the underside of the J-channel or undersill trim, locking the cut panel securely in position. Without these tabs, the cut panel can fall out of the trim channel in wind or during temperature cycling.

65. C — The pipe boot is installed with the lower half of the base flange over the shingles below (so water flows over the boot and down the shingles) and the upper half under the shingles above (so water from above flows over the shingles and onto the boot, not behind it). This upper-under, lower-over pattern follows the fundamental lapping principle.

66. A — Electrical codes and the Building Code require minimum working clearances around electrical panels for safe operation and emergency access. The panel door must be able to open fully (typically 90 degrees), and a minimum clear workspace (typically 900 mm wide × 900 mm deep × the panel height) must be maintained. The cladding must terminate with adequate clearance for these requirements.

67. A — Vertical furring strips create continuous vertical channels behind the horizontal lap siding. Water that penetrates the cladding drains straight down these channels by gravity and exits at the base of the wall. Horizontal furring would create barriers that trap water at each strip, preventing drainage and holding moisture against the weather-resistive barrier.

68. B — PVC (cellular PVC) trim does not absorb moisture, does not rot, does not require painting, and maintains its dimensional stability through all weather conditions. It is virtually maintenance-free in exterior applications — unlike wood trim, which requires periodic painting, is susceptible to rot when moisture reaches it, and can split and crack from freeze-thaw cycling.

69. C — At the bottom of a roof-to-wall intersection at the eave, water from the step flashing system reaches the end of the roof and needs to be diverted into the gutter. Without kickout flashing, this water runs down the wall behind the cladding, causing concealed rot and mould. The kickout flashing deflects the water outward into the gutter.

70. A — A J-channel or F-channel is installed against the wall surface at the soffit-to-wall junction. The cut end of the soffit panel slides into the channel, which holds the panel edge and creates a clean, finished termination. The channel conceals the raw cut edge and provides a weather-resistant joint at the wall face.

71. D — The last course of shingles must not extend past the ridge because the ridge cap shingles need to lie flat on the opposing shingle courses. Shingles protruding past the ridge would create a bump beneath the cap shingles, preventing them from lying flat and creating a visible ridge line defect. The shingles are trimmed flush with or slightly below the ridge.

72. B — A mulled door-sidelite unit requires proper sealing at the junction between the two frames. The manufacturer's mulling kit includes the structural connectors, sealant, and instructions specific to the frame profiles. A properly mulled and sealed joint prevents water infiltration, air leakage, and frame separation at the junction.

73. A — Window sills that lack a drip edge or outward slope collect rainwater. The water sits on the sill, picks up dirt and oxidation products from the sill material, and runs down the wall face in concentrated streaks. Installing sills with an outward slope and a drip kerf on the underside directs water away from the wall before staining occurs.

74. C — The adjustable threshold seal should be raised until it compresses evenly against the bottom of the door slab around the full width of the door. A complete, even seal prevents air infiltration, water penetration, and energy loss. The seal height is adjusted using screws that raise or lower the vinyl insert — too high causes excessive drag, too low allows air and water through.

75. D — Frost heave occurs when water in the soil freezes and expands, pushing any object above it upward. A fence post footing above the frost line is lifted each winter as the ground freezes and does not return fully to its original position when the ground thaws. Over multiple cycles, the post progressively rises, tilts, and the fence becomes unstable.

76. B — The frieze board provides a finished transition between the top of the wall cladding and the underside of the soffit. It covers the raw termination edge of the cladding at the top, supports the bottom edge of the soffit panel or the J-channel that receives the soffit, and completes the visual trim at the eave for a clean, professional appearance.

77. D — A drywall circle cutter (adjustable compass cutter) or a rotary cut-out tool produces a precise circular opening matching the exact fixture diameter. The circle cutter is adjusted to the fixture radius and scored on the face; the rotary tool plunges through the drywall and follows the fixture outline. Both methods produce clean, accurately sized openings.

78. B — A T-molding transition strip sits in the expansion gap between two floor surfaces at the same height, covering the joint while allowing both floors to expand and contract independently. The T-shape has a top surface that bridges the gap and two legs that drop into the gap on each side. It is fastened to the subfloor, not to either flooring surface.

79. A — Kerfing involves making a series of closely spaced parallel saw cuts on the back face of the baseboard, leaving the front face intact. The cuts allow the rigid board to bend around the radius of the bullnose corner. After bending, the baseboard is nailed in position and the kerfed back is concealed against the wall. Glue in the kerfs adds rigidity.

80. B — Bathroom doors require a privacy lock that can be unlocked from the outside using a small tool (a pin, flathead screwdriver, or coin) inserted into the emergency release hole in the exterior knob or lever. This allows emergency access if a person collapses or is injured behind the locked door. This feature is standard on all residential bathroom privacy locksets.

81. A — The Building Code typically specifies a nosing projection of 19 mm minimum to 38 mm maximum past the face of the riser. A projection less than 19 mm provides insufficient foot room, while a projection greater than 38 mm creates a tripping hazard — the excessive overhang catches the toe during ascent or the heel during descent.

82. C — Screwing the cabinet tight to studs that are bowed inward forces the rigid cabinet box to conform to the wall's curved profile. This racks (twists) the cabinet out of square, causing doors to bind at one corner, not close flush, or show uneven gaps. The bow must be addressed with shims behind the cabinet at each stud so the cabinet remains square.

83. B — The two most common spring angles for residential crown moulding are 38 degrees and 52 degrees (the angles between the moulding's back surfaces and the wall/ceiling contact). These angles complement each other (38 + 52 = 90) and determine the position of the moulding when installed. The spring angle must be known to set the correct mitre and bevel angles for cuts.

84. B — The comfort formula 2R + T = 610 to 630 mm (where R is the riser height and T is the tread depth) produces the most comfortable climbing rhythm. For this stairway: 2(182) + 254 = 364 + 254 = 618 mm, which falls within the ideal 610–630 mm range. This formula balances step height and depth for a natural walking stride on the stair.

85. A — Protruding screw heads prevent the taping crew from applying joint tape and compound smoothly — the raised heads create bumps beneath the tape that telegraph through the finished surface. Each screw must be driven slightly deeper until the head creates a shallow dimple below the paper surface — deep enough for the compound to fill, but without breaking the paper.

86. C — Laminate flooring expands with humidity and temperature increases. If no expansion gap exists along a wall, the expanding flooring pushes against the wall with nowhere to go. The accumulated pressure forces the plank joints upward, creating a buckle or tent in the floor. The 10 mm gap provides the relief space needed for seasonal expansion.

87. A — Drilling the face bore from one side until the pilot bit just emerges on the opposite face, then flipping the door and drilling from the other side using the pilot hole to centre the hole saw, produces clean entry and exit cuts on both faces. Drilling straight through in a single pass causes the hole saw to blow out the exit face, splintering the thin veneer skin of a hollow-core door.

88. D — A twisted pocket frame causes the door to rub against the frame on the closer side, making it difficult to slide. On the wider side, the finished drywall may bulge outward because the frame pushes the drywall away from the stud face. Both issues require the frame to be straightened during installation before the drywall is applied.

89. A — Modified thinset mortar is applied to the plywood subfloor with a notched trowel before the cement backer board is placed. The thinset creates a continuous bonding bed that fills minor irregularities, prevents the backer board from rocking, and creates a rigid composite assembly. This bonding layer is essential for preventing tile and grout cracking from substrate movement.

90. C — A handrail that shifts under lateral pressure indicates the bracket screws are too short to achieve adequate penetration into the wall studs. The screws pass through the drywall (12.7 mm) and may only penetrate 10–15 mm into the stud — not enough for reliable holding. Longer screws (minimum 50–60 mm total length) provide adequate stud penetration.

91. B — Suspended acoustic ceiling tiles manufactured before 1990 — and the insulation above them — may contain asbestos. Asbestos was commonly used in ceiling tiles for fire resistance and acoustic performance. The tiles and insulation must be tested before disturbance. If asbestos is confirmed, professional abatement is required before any renovation work proceeds in the area.

92. D — A 180 kg, 6-metre steel beam is far too heavy and unwieldy for manual carrying up a stairway. The safest method is to use a crane or telehandler to lift the beam through a prepared opening (window, wall opening, or roof opening) and set it directly on the prepared bearing points. This minimizes handling risks and positioning difficulty.

93. C — Before installing new subfloor panels, the carpenter must verify that every joist is structurally sound (no rot, insect damage, or cracking), at the correct spacing for the new subfloor panel span rating, and that the tops are clean, level, and free of protruding nails or adhesive residue. A compromised joist beneath new subfloor defeats the purpose of the replacement.

94. A — Before cutting through a basement slab, the carpenter must identify the location of any services embedded in or beneath the slab — water supply lines, drain pipes, electrical conduits, radon mitigation piping, and in-floor heating tubes. Cutting through an active service causes flooding, electrical hazards, or system damage. The original building plans and a utility scan help identify these hidden services.

95. D — Closed-cell spray foam is a vapour barrier — moisture cannot pass through it. If applied over a concrete wall that has active water infiltration, the moisture has no path to dry inward (the foam blocks it) or outward (the concrete and soil block it). The trapped moisture can cause mould growth on the concrete surface behind the foam and deterioration of any organic material at the interface.

96. B — A 300 mm countertop overhang beyond the cabinet front creates an unsupported cantilever that will deflect under load — particularly with heavy stone countertops. Standard countertop overhangs of 25–50 mm are self-supporting, but 300 mm requires additional support from corbels, brackets, or a steel support rail to prevent deflection and potential breakage.

97. A — When the old cladding is removed, the exposed sheathing provides the opportunity to install the weather-resistive barrier that was missing from the original construction. The housewrap is installed over the sheathing, integrated with window and door flashing, and sealed at all penetrations before the new cladding is installed. This brings the wall assembly up to current moisture management standards.

98. C — Fire blocking at pipe penetrations between floors must resist the passage of fire and smoke through the opening. Acceptable materials include mineral wool (non-combustible), intumescent caulking (expands when heated to seal the opening), and fire-rated sealant. Standard spray foam and fibreglass insulation are combustible and do not provide adequate fire stopping.

99. D — Plaster is a hard, brittle material applied over wood lath. It cracks easily beyond the intended cut line, and the vibration from power tools (oscillating tools, rotary tools) can cause the plaster to separate from the lath over a much larger area than the intended opening. Careful hand-scoring with a utility knife before cutting and gentle tool pressure minimizes uncontrolled cracking.

100. B — The final inspection is conducted by the building inspector, who verifies that all completed work matches the approved drawings, meets current Building Code requirements, and that all intermediate inspections have been passed. Upon satisfactory completion, the inspector issues the occupancy approval (or completion certificate), which formally closes the building permit.