General:
- Practice the exams 2-3 hours per vignette problem
- More mock exams the better;
- Review as many guide books as possible;
- Start a study group

- set-up your practice area to “resemble” the testing set-up
  - move the keyboard out of the way – you only need the space bar to navigate from program to drawing areas.
  - Take note of program requirements to save time from flipping back and forth.
  - Develop a short hand method of taking notes.
  - Count the paper they give you before you go in to verify what they counted is actually what you got.

Recommended order of taking tests:
- Site
  - 2 of the 3 sections have only one answer: site zoning and site grading
- Building Technology
- Building Planning
  - Don’t use a lot of options
  - Don’t be a designer – stick to the code and program – provide only what they are looking for – don’t worry about aesthetics.
  - Don’t get stuck trying to improve the design – just solve the problem – time critical.
- 40% of the testing is time management
- 60% is design issues – relating to code and program
  - The code is the code THEY give you – don’t design for the real world – but for the test’s world.
  - The computer is incapable of grading design – only check data against a code/program data.
  - Room proportions are important – get an idea of some typical room layouts – dimensions/proportions.

Level of Accuracy is equal to that of schematics
- the computer has graphical tolerances/limitations
  - you won’t be able to perfectly “snap” to specific requirements – the program is incapable of this so there is some leeway in +/- square footages, etc.
  - You are not producing construction documents – get as close to accurate as the program will allow.
    - Utilize zoom and pan often.
- Most problems can be solved orthogonally – but comments from the forum have stated that some questions have appeared that work better on angles. Try to master the practice program using orthogonal solutions.
  - Use ortho – keep on for the duration (98% of the time).
  - Use grid – most useful on the Interior and Site Analysis vignettes.

Building Technology Divisions
- Don’t tweak your designs if you have extra time – that time will disappear quick and you may be in the middle of tweaking when time runs out.

Building Section
- Building section has a curve ball
Learn to read the plan with ALL layers on – so nothing is missed
Concentrate on the area around the section cut line for the majority of the design with one exception:
  ♦ EXCEPTION: All ceilings and roofs are FLAT
    - This is the curve ball – need to look for something that will cause a height calculation error
    - Look for combination of deepest duct and deepest structural member (beam or joist) – they will be in the same area.
    - **DO NOT** make the mistake of looking for the deepest structural member and deepest duct (on the whole plan), add those sizes together, and use that as your depth for top of floor/roof. This will result in oversizing the ‘plenum’ space between the ceiling and floor/roof.
    - **Again – look for the combination of duct and structure in the same area.**

Draw your section right on top of the plan below the section line – proves to be much faster and more accurate than dropping down sketch lines or trying to ‘eye’ locations with the cursor.
  ♦ Start with grade
    ♦ Draw slab-on-grade on TOP of the grade line (not below it),
      - Draw SOG discontinuous between bearing walls
    ♦ The program will most likely require a stepped roof to test your ability to provide the parapets correctly.
  ♦ Footing depth – perimeter footings
    - Top of footing or bottom of footing at frost depth – both are acceptable
    - Top at frost depth is probably safest and most preferred.
  ♦ Pay attention to interior footings – they should be directly under the SOG, unless program requires otherwise.
    - **DO NOT** forget to provide foundation wall from footing to bottom of bearing wall. This is why the SOG is discontinuous.

Draw ductwork cut by the section line – do not miss any due to haste.
  ♦ Locate duct at the underside of structure

Be aware of rated partitions – they go through the ceiling plan and to the underside of the floor/roof plane above.
Make sure the structure supports floor/roof above
Use ‘move-group’ tool to adjust joists vertically

- **Fatal Errors**
  - Program not followed perfectly – duh.
  - Missing elements
    - Ducts
    - Partitions
    - Interior footings
    - Parapets
  - Joists spanning wrong direction
  - Improper dimensioning
    - Check and re-check math when calculation floor/roof heights
  - Technical Errors
    - Footing depths
    - Rated partitions
    - Partition heights (rated)
    - Joists supported on walls (carry into wall 4-6 inches)
    - Floor to floor heights
      - Too large
      - Too small
      - Check math
Structures
- Design as if “your on the moon”
  o there are no lateral forces on the moon
  o moon dust has no weight – but the clerestory does
    ♦ provide a beam under the clerestory to support it
- You will be designing a two level roof
  o There will be different level/layers for each roof level
  o Show supports
    ♦ Columns
    ♦ Bearing walls
    ♦ Joists
    ♦ Beams/lintels
    ♦ Roof decking
- Go ALL STEEL construction
  o If you use bearing walls – don’t forget to include lintels over openings.
  o Typically – bearing walls will require additional consideration – and likewise – opportunities for error.
- Start on the upper floor and work down.
- Recommendations (economy)
  o Joists – 30 foot span range is considered economical
  o Joists – spacing – check program on deck span and use that as your joist spacing – this will result in economy.
  o Span in the short direction, and try to span in same direction if possible.
  o Support Beams – 20 feet to 40 feet +/- economical span
- Adjust joist spacing/layout to middle of existing walls.
- Stretch deck to middle of walls
- You WILL fail for over-structure
  o No lateral forces or end beams required
- Fatal Errors
  o Missing elements
  o Columns inside rooms (keep in walls)
  o Columns in openings
  o Clerestory location
- Design Logic
  o Too many columns
  o Inefficiency
    ♦ Over-structured
    ♦ Redundancy
    ♦ Un-needed bearing walls
- Technical
  o Unreasonable spans
    ♦ Decking
    ♦ Joists/beams
  o Improper support
    ♦ Upper columns
    ♦ Column offsets
    ♦ Beam/joists
    ♦ Deck support – all edges
    ♦ Bearing wall openings
  o Beam offset

Accessibility
- Be a code expert
- Stair and Ramp are code problems
  o Keep solution simple – orthogonal solution
- Look for clues
  o Doors – how many are shown
  o Don’t minimize exit clearance
  o Doors into the space = doors out of the space
- Look out for obstacles in layout
- Use sketch tools – rectangles – to represent ramps
- Consider exiting circulation
- Maintain corridor widths throughout
- Computer grader looks at residual space
  o Make sure it is accessible
- Don’t overbuild – provide minimum requirements.
- Changes in direction
  o Will require 5 foot x 5 foot landings
  o Check solution – railing can stick in but not more than 4” or program requirement if different.
- Fatal Errors
  o Program
    ♠ Missing elements – railing
    ♠ Edge of existing slab violated
  o Design Logic
    ♠ More than 1 stair/ramp
    ♠ Residual space unusable
    ♠ Inefficient solution
      • Correct slope
      • Meet minimum of code
    ♠ Unclear circulation
  o CODE
    ♠ New doors swing correctly
    ♠ Riser height/ramp slope
    ♠ Stair/ramp width too small
    ♠ Missing railings / guardrails
    ♠ Extension of railings (per program)
    ♠ Landings not 5’ x 5’ minimum
    ♠ Obstructed circulation
    ♠ Virtual landings (5’ x 5’) at bottom of ramp missing

Mechanical
- - two (2) separate issues being evaluated (don’t inter-relate)
  o light spacing
  o diffusers and ductwork layout
- Have to know how to read a lighting chart
  o How to find so many foot candles at a height
  o Use this height in conjunction with ceiling height to aid in reading chart.
- NON-requirements
  o There will be no need to light accent walls
  o Furniture layout is not a requirement for light layout
- Tricks
  o Go room by room
  o Use sketch circles to layout room
    ♠ 6 foot diameter circles = 4’ light separation
    ♠ move group of circles until centered in the room
    ♠ drop 2’x2’ light fixtures in center of circles
  o add grid to layout and adjust as required
  o grid from wall
    ♠ 1 foot minimum
    ♠ 4 foot maximum
- every 144 square feet of room requires one diffuser and one return grill (unless program says otherwise).
- Efficiency
  - Rigid duct will not fit under joists (except within two feet of bearing location (beam).
  - Try to located rigid duct in middle of space and use flex duct to diffusers
    - Flex is limited to 10 feet max.
  - Don’t forget fire dampers
  - Don’t forget plenum return – must show rigid from return duct into plenum space.
  - 4 foot minimum separation between supply and return grills
  - Fire damper symbol
    - Leg of symbol points in direction of airflow.

Stair Design Vignette
- Add one continuous stair
  - Second floor to intermediate level
  - Intermediate level to grade
- Code problem – memorize code
  - Real exam will be mostly the same as practice problem
  - Ability to calculate stair load
- Curve Ball
  - Watch out for NEW code requirements
    - Usually in area of refuge (AOR)
    - May call for one on upper floor
    - OR may call for one at each primary landing
- Do the calculations
  - Width by occupancy
  - Minimum width by code
  - Area of Refuge (AOR) requirements
- Consider maneuvering clearances at doors
- Check headroom clearances under stair
  - 7’-8” minimum clear
- Don’t forget extension of railings
- Can change the riser height – but not within the flight.
  - Not less than 6” high risers (between 6.7” typical).

Roof Design
- Scope:
  - Upper and lower roof
  - Clerestory requirements
  - Roof planes
  - Flashing
  - Crickets
  - Skylights
  - Gutters
  - HVAC
  - Vents
- Fatal Errors
  - Missing elements
  - Clerestory location
  - Roof planes overlap
  - Improper roof slopes – use the least
  - Natural light requirements for rooms without windows
  - Highest ridge height
  - Complicated roof – keep it simple
  - Poor HVAC location
Improper roof elevations – do the math – don’t forget the structure depth and ceiling heights.
- Downspout locations
- Too much volume – work the slopes to minimize differences between ceiling heights and roof elevations.
- Surfaces sloped in wrong directions
- Crickets per program.

**Interior Design**
- This is a Time Killer!!
  - This will take the full hour to do – very time intensive
- CODE Problem
  - Accessibility problem
  - Typically a 1200 square foot space that will need to be carved into 4-5 spaces
  - Too much furniture
  - Pay close attention to the code
  - Use the grid
- Tips
  - Drag all of the furniture required into the drawing at one time
  - Most likely will get a conference room
    - Starting with this room may help with laying out other rooms
  - Place furniture against the walls – most efficient use of floor space
  - Avoid corridors
- General square footages
  - Staff office – 150 sf
  - Owner’s office – 175-200 sf
  - Conference room – 200 sf
- Practice getting furniture on plan – takes a lot of time
  - Approximately 33 items
- Do NOT be an interior designer
- ALL doors are to swing into rooms.
- Do NOT put furniture behind door swings (unless there is 3 feet behind the door).
- Do NOT worry about chairs facing the wrong way
  - Do rotation once satisfied with layout.
  - Some furniture is directional and can only be placed certain ways
    - Executive desks with rounded front
    - Shelves (they will have text noting “front”)
    - File cabinets
- Desk orientation
  - 3 feet from desk to wall (chair doesn’t count)
    - unless there is a credenza – then the 3 feet is from the back of chair
- check 5 foot turn-a-rounds in rooms and corridors
  - 5’ in front of work table – put table against wall.
- Computer counts furniture – if running out of time - put somewhere you can – may get small downgrade for location but not as big as missing program requirements
- Time is crucial – practice.

**Schematic Design**
- program will have an existing site with limited restrictions.
- 15 – 20 spaces and rooms
  - there will be limited clues on position
  - there will be a 2-story space
  - this will be a 2-story building
  - roofs may be exposed on 2nd floor
    - usually same or smaller than 1st floor
- follow the code and program
- make notes
- "Dorf" chart program analysis
  - takes about 30 minutes to do.
  - Visual control = same floor; close proximity
- Don't force floors to be the same size
- Mechanical areas should go on first floor
- Dorf analysis chart
  - Set up analysis.
  - Link area "near" each other
  - Link loosely – areas that are close
  - Link direct connections
  - Add a column of additional data related to space
    - Windows
    - Views
    - Exits
- Grading is NOT forgiving when it comes to CODE!!
- Put large 2-story area off of the corridor
  - Put spaces that don't need windows on the corridor
- Process is to design both floor at the same time.
- Provide a 6' wide corridor
  - NOTE: corridor tool draws walls at center line so 6' corridor needs to be 6' - 6"
  - Exit doors swing out
  - All other room doors swing into rooms
- Draw upper level of 2-story space
- Try to avoid "L" shaped rooms – not always possible
- Common Fatal Errors
  - Doors/building over building limit lines
  - Wasted space – corridors oversized
  - Stay away from tree drip lines
  - Dead end corridors (20')
  - Corridors under 6' wide CLEAR
    - Measurements are centerline of wall to centerline of wall
  - Direct exit out of stair to exterior
  - Proportions of rooms (avoid "L" shaped rooms)
  - Exiting through intervening rooms
    - All rooms must have access to corridor
  - Can't build over limit lines

Site Design Vignettes
- Practice, Practice – especially drawing roads.
- Stay away from easements
- Look for wind locations
- Verify direction of North arrow
- Stay within building limit lines
- Don't try to out guess the program/assumptions
- Put objects on screen to get a sense of scale
- 30-33 car requirement is typical
- analyze parking – 120x120 or 150x100
  - get a sense of scale
- try to stay away from diagonals
  - should be able to solve the problem orthogonally – but not necessarily based on latest test commentaries
- plazas can be any shape – no design criteria – only program requirements
- Plant conifer trees to block wind and views
  - Be efficient in number of trees
  - May get downgrade if too many trees used
Use them to serve a function
- Plant deciduous trees to shade the sun
- Locate ADA to access sidewalks immediately.
- You can plant trees on the plaza if there is a question that requires the plaza to be in shade at noon.

**Site Zoning Vignette**
- two primary tasks
  - where can I build a building
  - where can I do surface improvements
- Read carefully and take notes – sometimes wording is difficult
- Sun exposure plane will be on test
- Take notes – save time from going back and forth
- There is only one correct solution.

**Site Grading Vignette**
- be alert to scope on site
- good chance only dealing with swales
- must know how to manipulate grades
  - swales point up hill
  - crowns point down hill
- stay away from drip line of trees
- Look out if the problem involves a new object with a set elevation
  - Will require wrap around swales
The following information was taken from the AREFORUM.ORG website for the site test version 3.0:

**Site Design**

Place Buildings on site for scale.
Do parking lot calculation. Add 15’-20’ to compensate for access drive penetration into lot.
65’ width on narrow end should do the trick. [Be careful, the 3.1 version shows a 24’ width on the access drive, instead of 3.0’s 25’- watch it]
Service road should be at least 20’ long for backup.
Entries requiring visibility should be faced directly.
All entries requiring sun should face due south.
Try to reduce building and parking lot impact on site.
Can size plaza within 10% [+/-] of requirement.
' Close can be interpreted as within 10% of total site dimension.
Use deciduous trees for shade.
Use conifers for wind and visual protection.
Do not build under drip line of existing trees.
Use check tool to verify number of trees removed.
Remember to connect to sidewalks.

**Site Zoning**

Use sketch lines to notate section cut line relative to contour location.
Draw a couple 5’x 5’ rectangles for the mid-range elevation heights [i.e. 15’, 25’]
Do grade level first
Once your 100% that grade line is correct, delete sketch lines used to produce it for clarity.
Use sketch lines, circles, and rectangles to identify building boundaries.
Strange looking, cantilevered sections may be OK.
Don’t forget middle property line, usually at easement, requiring setbacks [Sb].
TAKE NOTE of benchmark [Bm] elevation.

**Site Parking**

Note all setbacks.
Measure open, obvious areas to determine how many parking spots fit.
Do CAREFUL calculations for parking row lengths.
Do initial parking spot layout using 'Ortho' tool.
Try to keep roads and parking perpendicular to each other.
Handicap spots to be located near entry, should not have to cross the driving lane in order to enter building.
If drop off required be sure to use passenger side. Drop off length should be 20’ minimum.
Do roads last, as they are difficult to manipulate.
Do not waste time making adjustments to road, might be easier to redraw road from scratch.
Leave 20’ at corners of lot so that vehicles don’t back into each other.
Stay clear of drip lines.

**Site Analysis**

Identify property line.
Do in separate layers, going through the surface improvement first.
Note all setbacks [Sb] on all sides.
If a non-orthogonal mass/boundary creates a strange looking setback it is OK.
Site improvements may be allowed on easements, check program.
Beware of easements that may leave slivers, or corners of property behind that may be used to build on.
Draw buildings last, often results in building [yellow] being completely within the site improvement [blue] boundary.
Site Grading

Note elevations on all 4 corners, taking special note of highest and lowest corners. Swales should cut up slope to create valley that will direct water to lowest point. Crowns point down the general slope. Contours do not cross or split. Crowns to be used on paved driveways only to shed water to sides of road, onto swales that divert water down slope. Grade of paved driveways should not vary. Level pads will require contours to wrap around entire surface. Should leave at least 6” grade difference between Finish Floor surface of pad, and next lowest contour level. Note all areas required to remain ‘undisturbed’. Do not manipulate contours under tree driplines. ‘Undo’ on contour line erases last command. ‘Erase’ returns contour to original configuration. Minimum slope on grade can’t be less than 2%. Do grade calculation first and drop several sketch circles at the appropriate radius to work with. Use sketch lines, arrows, to notate location of swale and of water flow.

Grade calculation:

Divide the value 100 by the maximum slope percentage given [i.e. 20%]. 100 / 20 = 5. If contour lines are shown at 1’ increments, then they must be spaced at least 5’ apart. If slope is equal to 25%, then 100 / 25 = 4. If contour lines are shown at 2’ increments, then manipulated lines must be spaced at least 8’ apart.

Building Planning:

Interior Layout:

The answer for these test problems is a matter of solving an accessible path. At the conference room, a clear, unobstructed path of 36” is required. This means from back of chairs to a wall all around the table.

The reasoning for this is that you must provide (for this test program) an accessible aisle TO all furniture elements. Most conference room solutions, bookcases, chairs, and other furniture elements besides the conference table need to be accessed since they are on the 36” accessible TO path.

Some other furniture does not need any clearance if it is accessible FROM an accessible path of 36”.

An example might be desk of any type. The desk can be placed against a wall. Only the “workspace” where a person would normally sit needs to be accessible. This is also the destination of the accessible path by definition of this test problem, 36” is required TO all furniture elements.

The requirement for a 60” wheelchair turning space is an additional requirement, as are the spaces required at each sides of doors.
INTERIOR LAYOUT – 60 min
- Turn on grid, full cursor, and ortho
- Place RA symbol first near exterior door (Reception Area Label)
- Layout rooms according to program
  § start w/ conference room & layout w/ furniture
  § Place all furniture outside of corresponding room
  § Start w/ room that has most furniture
- Furniture placement-
  § Place furniture against wall- coffee table fits well in corner
  § 5’ clear in front of copy machines – works well in front of 5’ dr clearance
  § Avoid 90 deg. Angles with furniture –dead space result
  § Avoid placing furniture back to back or in middle of room
  § Do not place furniture behind doors
- Avoid interior corridors
- Use 3’ and 5’ circles to check clearances / rectangles to check door clearances
  § Clearances measured from back of chair
- Never exceed 2:1 ratio for room sizes
- Always use 36” door unless specified
  § 12” clear on latch side of out swinging door / 5’ length
  § 18” clear on latch side of in swinging door / 4’ length
  § Do not swing doors into circulation area
  § If program specifies doors need to be next to ea. other keep 5-10’ apart
  § Do not overlap door swings
- Use check tool for overlaps when finished

SCHEMATIC DESIGN – 4 hours
- Make room chart / Dorf chart-
- Draw rectangle w/ first floor area & place on site to see how tight design needs to be
- Draw all required spaces w/ appropriate square footage on site – use 5’ dimensions
  § If need to change sq ft of space make smaller not bigger.
  § Create room boxes– 1:2 max ratio
- Start to layout program accordingly, views- relationships etc.
- Work w/ loose layout often switching to and reworking each level
  § Do not use “L.” shaped rooms or deep recesses
  § Floor sizes do not have to be identical
  § Do not cantilever second floor except over entrance doors
  § Irregular building shape acceptable
  § Major spaces having visitors locate near lobby
  § Lobby should have either elevator or stair access- if possible both
  § Mechanical / Equipment spaces on first floor
  § Place elev. in middle of building and small non-window rms along corr.
  § Begin with stairs at both ends and connect w/ corridor
  § Use double loaded corridors
- Move double high spaces off the corridor edge (10-12’)
  § This allows smaller windowless rooms in btwn. - Bathrooms closets etc.
  § One large room will need two exits swinging out
- No “dead ends” over 20’
  § = one path of egress one is forced to take until reach choice of exit travel
  § Draw 20’ line to check
- Put doors and windows in last
  § Do not egress through another space / room
  § Exits in large room are spaced further than ½ the longest diagonal dim of rm
  § Put doors and windows in last
  § Do not forget direct access doors & visual connections w/ windows
  § Doors may swing over building limit or into tree line but not over PL
§ Exit doors swing out – Room doors swing in to space
§ Use +/- 6’ window for required view
§ Entrance has double doors that swing out- protect w/ overhang if possible
- Dimensions are given from center line to center line of 4” walls
§ This means add 4” to min. width – corr. drawn 6’-0” is actually 5’-8” clear
- When finished check room sizes and use check tool for overlap

Here’s the conventional knowledge from the Forum about desk, table and chair clearances (from another post):

*In the conference room, you need three feet clear behind each chair to allow a wheelchair user to get around the entire perimeter of the room. Picture a person in a wheelchair giving a presentation in the room. Any wall could have the screen or whiteboard on it, so the presenter would need access all the way around.

*On the other hand, an employee sitting at his/her personal desk in a wheelchair would remove the chair (or transfer into it). This person needs three feet clear from the edge of the DESK (not the chair) to sit at the desk.

*If there is a piece of furniture behind the desk, such as a credenza or file cabinet, other employees may need to access these pieces of furniture. In this case, you need three feet clear behind the CHAIR at the desk.

*In the case of the table for four, it is not thought of as a presentation space (like the conference room). Therefore, all that’s needed is a three foot path to each chair. The table for four may be pushed closer to the wall, depending on whether you use a square table or a round table, and which angle you rotate the table. I was most successful using a round table rotated 45 degrees, however you never know if the IL program will specify square or round. You still need to leave about two feet of maneuvering space to the wall in order to be able to move the chairs. Just make sure you have a three foot path to each chair by guiding a 1.5’ radius circle to each chair.

**Building Section:**

1) Do ducts have to touch bottom of joists? If so, can they be shifted slightly if they do not fall in line with a joist? How much tolerance is acceptable? **they do not have to touch joist**

2) Are all exam problems steel structure, i.e., open web steel joists, or have people encountered other structural systems on this vignette? **so far, all steel**

3) Is the greatest duct/ joist combination to be measured to the UNDERside of the slab that is automatically drawn on top of the joists? i.e., does one add the slab thickness to the required height? **correct.**

4) Can fire-rated walls be drawn as one continuous wall from slab on grade through to ceiling, or must they be broken at the second floor slab? I find that drawing them as one keeps them cleaner and ensures alignment between levels when required. **must be drawn as two separate walls, BETWEEN slabs.**

5) When a clerestory is required, does the given height generally include sill and headers/lintel, or does one need to add to the given clerestory height to compensate for these? **sills and headers included.**

6) Are ceiling spaces always used as return plenums? If no, and if return ducts are to be drawn, I am assuming they would be indicated on the plans as well, correct? Or would we have to determine locations if the program simply incidated return air ducts are required? **plenums only, to date.**

7) Do ducts always run below the joists on these vignettes, or is the possibility of ducts running between joists something for us to watch out for? **always below.**
Structural Layout:

8) Is lateral bracing ever required in this vignette? **no**

9) Should everything be aligned with centres of walls, i.e., edge of decking at centre of wall, beams, joists all to centre of wall? Or should decking and ‘outside’ joist be pulled to outside edge of exterior wall? Wouldn’t it be a little odd to have the decking end at the centre of an exterior wall? **stretch everything to CENTER.....odder to see edge of decking on outside wall.**

10) How many columns should one provide to support a 40’ beam? It seems that three columns (i.e., two shorter spans) would allow a shallower beam than two columns would. **a 20’ span is very economical, so 3 columns is ideal.**

11) The Code in NCARB 3.0 states that steel can be built up or rolled. What difference does built up vs. rolled make in providing a solution in this vignette? What if the Code would say that either only built up or rolled steel can be used? **none**

12) The Code in NCARB 2.0 states that “Window walls extend to the underside of the structure above.” Does this imply that lintels are not required? **correct.**

13) When a clerestory is required, do we ensure that a beam (or bearing wall) is provided below, and also a beam above? **always beam below (or bearing wall), but above clerestory will depend on which way joists are spanning.**

14) How does the cost of columns/beams compare to the cost of bearing walls? Is it wise to aim for an all steel solution if possible and not prohibited by program? **no $ difference....all steel is just easier and will keep you out of trouble.**

15) Does the line of the beam/lintel connect right to a column, or should we provide a bit of overlap to ensure that the software recognizes that the elements are to be connected? (i.e. ‘pulling’ the joist to overlap a few inches as we do in the building section vignette) **makes good sense, or the beam may run OVER the columns.**

16) When a bearing wall is used and a lintel required to span a 6’ opening, by how much should the lintel overlap the bearing wall? 6", or so....**not critical**

17) Is a lintel required above a door or window if it does not support loads from above? **only if in B/W**

18) When you draw joists and ‘pull’ the area from one beam to another, the program draws an ‘end’ joist on top of the beam. Is this acceptable, or should one stop drawing the ‘area’ to be covered by joists a couple of feet before this (the NCARB code says to ‘draw a rectangle covering the entire area desired’)? If the latter, then wouldn’t the program downgrade a solution if the area covered by joists is less than the area covered by the decking? **could result in redundancy,(joist and beam in same plane), and not sure how NCARB is grading that....pulling last joist back seems acceptable to me.**

19) What is a bond beam? (i.e., bearing wall w/ bond beam tool) **just indicates you can support joist on top of wall.**

20) The sample vignette in Solutions shows a west-to-east length of approx. 60’ on the high roof with an intermediate beam. This keeps the joists to ~30’, but is it necessary to draw the joists on the high roof as two components, or could they be drawn as a 60’ length and the program would pick them up as 30’ as there is an intermediate beam? **draw as two components to be safe.**
Accessibility / Ramp:

21) Can door clearance square encroach interior hallway? yes if hallway proper width.

22) The code on p. T-29 of Solutions states that ‘the minimum clearance between doors in a vestibule shall be 48 inches.’ Is this 48 inches when the doors are open or closed? open

23) I am still struggling a bit with the placement of the new set of doors. I understand the clearances given in the code, but can those clearance squares overlap with a) the top landing of the ramp, and/or b) the interior hallway? Should we maximize enclosed interior space? maximizing not important. Overlapping with top of ramp OK, but overlapping top of ramp with door swing would be very questionable.

24) Assuming a 6’ wall-to-wall space is given and two exit doors required. Would it be better to provide two 36” door that go right up against the walls or one 32” and one accessible 36” door that allow for trim around the doors? allow for the trim, unless you MUST have two, 3’ doors.