Preparing for the 16-hour Structural Exam – Practical Aspects

The reasons for taking the 16-hour Structural Exam can vary: you might wish to obtain structural licensure in another jurisdiction; to have the achievement on your professional record for potential future use; or you might view it as a personal challenge. And now that you’ve committed to the effort, how should you prepare? This preparation is where the planning common to engineering methods can be applied to great effect.

Break down the process into its components and address each one, because successfully passing the exam will require more than technical proficiency. Your planning and organizational skills will aid the effort greatly. These are the skills featured in this discussion.

#1 – Gather the Facts

Obtain all the facts regarding the test. Make a list of the design standards and each edition to be used in the exam:

- AASHTO
- IBC
- ASCE 7
- ACI 318
- ACI 530
- PCI
- AISC 360
- AISC 341
- AISI
- NDS
- PCI

Using the correct version of each standard is critical. Problems solved on the basis of other versions might not be scored correctly.

Understand the exam format; day one covers vertical loads and day two covers lateral loads. The morning session of each day is a multiple choice exam and each afternoon session is an in-depth problem solution exam where the examinee must choose either building problems or bridge problems.

Review the breakdown of the exam. NCEES is a great resource for information. You can quickly review the weights given to various portions of the exam and tailor your preparation (http://ncees.org/exams/se-exam/). Hint: the lateral components of the exam will include a large dose of seismic problems.

Review the administrative policies. Verify your calculator is on the approved list. If it’s not, you will not be able to use it!
#2 – Obtain Your Reference and Study Material

Buy or borrow the specifications and design standards used in the exam. There are no substitutes for these items. Work within your professional network to use a copy of the exam reference materials. If you do not use a particular standard in your career, consider looking for it at a university library. You might be able to borrow it.

Additionally, many quality study guides are available, some at little or no cost (aisc.org/content). NCEES also publishes a sample exam with solutions (ncees.org/study_materials). Seek input from friends and coworkers for recommended reference material for each primary building material.

#3 – Block out Time to Prepare

Four to six months is a reasonable durations for exam preparation. The exam covers a wide variety of material and shorter durations could lead to skipping some subjects. Dedicate several hours each week to exam preparation. Put it on your desk calendar, in Outlook or Google, on your phone or all three. This is a commitment to yourself and your future, so stick with it and it will pay dividends.

Take care to avoid putting too much work into any one day; we can only absorb so much in one sitting. Study sessions of 1.5 to 2 hours are manageable and many of us can fit three to four of these in each week. A marathon cram session loses effectiveness very quickly. Recognize that we all have limits for how quickly we can assimilate information.

Now, stick with the schedule! It can be tough at times, temptations abound, yet your experience has likely taught you there is no substitute for preparation.

#4 – Work Your Plan!

Break down your study sessions into a series of topics. Have a goal for each session, a topic and goal achievement. For example, the topic could be to review the AISC provisions for special concentrically braced frames and the achievement could be to work two example problems. Monitor your progress like you would a project in the office.
#5 – Be Flexible!

“Plans are nothing; planning is everything.” – Dwight D. Eisenhower

Even the best plans go awry, that is the nature of the human experience. Plan to rework your plan. Big projects will come into the office and unexpected events can encroach onto the time allotted for study.

Take these disruptions in stride. Every couple of weeks, review your plan and readjust it. Avoid the temptation to “make-up” time in one or two extended study sessions. The preparation effort has more similarity to running a marathon than the 100m sprint. Make your adjustments with this in mind, small changes in pace can make up a lot of ground over time.

#6 – Arrive Prepared and Rested

This column could have ended at the last topic, but follow through is critical to adequate preparation. So as the exam day draws near, take care to stay on track.

Avoid last minute cram sessions. Stay with your plan and schedule.

In the last few days of preparation, make a checklist of items to take, including your identification and calculator. Pack your reference material for the exam. Check the checklist.

Stay near the exam site and know the route to it without the aid of technology; do not rely on your phone’s GPS. Know ahead of time where you plan to park if you’re driving. You do not need the stress of finding a parking lot on exam day.

Get a good night sleep and give it your best effort with knowledge that the planning and hard work leading to exam day gave you the best possible preparation.

These are all very basic concepts. And yet, basic concepts, well executed, can yield amazing results. Good luck!

Please share your preparation plans and study materials. We welcome your comments.

Thank you
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Look for future features which will address more topics related to the 16-Hour Structural Exam

- Preparing for the 16-hour Structural Exam – Technical Topics
- What the 16-hour Structural Exam means in Ohio
- Why Take the 16-hour Structural Exam

Additional articles related to the 16-hour Structural Exam

*Passing the New Structural Exam - You Too Can Do It after Turning 40*
STRUCTURE, September 2011
by Thomas A. Grogan, Jr., P.E., S.E
http://www.structuremag.org/article.aspx?articleID=1312

*Structural Exam Study Aids - The Key to Your Success*
STRUCTURE, July 2012
by Christine A. Subasic, P.E., LEED AP
http://www.structuremag.org/article.aspx?articleID=1496

*The SE Exam as a Learning Opportunity*
STRUCTURE, July 2011
by Barry Arnold, P.E., S.E., SECB
http://www.structuremag.org/article.aspx?articleID=1289

*The New Structural Exam – NCEES Raises the Bar*
STRUCTURE, April 2010
by Peter Vaccaro, P.E.