Certified Builder Professional C201 Study Guide

Welcome to the Certified Builder Professional (CBP) exam study guide! This study guide is designed to help you prepare for your upcoming certification exam. Use this guide to make notes, highlights and concentrate your studies in the "C201 GENESIS Construction School: Concrete Pools" manual. There are 100 questions on the open-book exam, and you must pass with a 75% or better to become a Certified Builder Professional. You may not bring this study guide in with you for your exam.

Good luck!

Chapter 1: Geotechnical — 3 Questions

- Be familiar with engineering terms regarding soil conditions.
- Understand moisture-density relationships.
- Study drainage considerations in relation to pool installation.

Chapter 2: Structural Engineering — 8 Questions

- Have a working knowledge of minimum concrete coverage (ACI code 318-19) in various situations.
- Know when to consult with an engineer or geologist.
- Study compressive, tensile and shear forces in concrete.
- Understand the purpose of steel reinforcement and the significance of "grades" and the relation to diameters.
- Be familiar with the concrete recipe, and what the consequences are when that recipe is adjusted.

Chapter 3: Construction Documents 2 Questions

- Comprehend the limitations and liabilities within a warranty for your work.
- Recognize the requirements of a good site plan.

Chapter 4: Fluid Mechanics 21 Questions

- Study design flows and line velocities based on the ANSI/PHTA/ICC-15 2021 energy code.
- Familiarize yourself with Bernoulli's principle and how flow rates change with pipe size.
- Know what pipe materials are and are not acceptable per most plumbing codes in in-ground applications.
- Understand the "equivalent pipe method" for calculating Total Dynamic Head.
- Examine suction outlet fitting assembly (SOFA) properties, ratings and best practices for mounting.
- Demonstrate how to calculate the number of gallons in a vessel.
- Recognize the requirements and prohibitions regarding skimmers, returns and main drains contained in the ISPSC (International Swimming Pool and Spa Code) and ICC Plumbing Codes.
- Be familiar with the hydraulic requirements contained in the PHTA-15A energy code.
- Relay the relationship between velocity and head loss in various pipe sizes and lengths
- Describe self-priming pump qualities.

Chapter 5: Electrical Engineering 14 Questions

- Know the permissions and limitations of GFCI circuits in conduit.
- Be familiar with NEC (680, article 110.26 (A), etc.), NFPA 70, and NEMA 3R requirements and prohibitions and the reasoning behind those standards.
- Demonstrate knowledge of distance for various electrical sources and appliances from a pool.
- Recognize the risk of electrical components in pools to the human body.
- Explain bonding, what should be bonded, and bonding requirements.
- Understand the cause and effect of a voltage drop.

Chapter 6: General Conditions 2 Questions

- Know the steps to take before you dig.
- Identify the regulations to follow once you begin your dig.

Chapter 7: Layout and Control 2 Questions

- Describe the 45-degree rule.
- Know the methods of layout prior to excavation.

Chapter 8: Concrete Science 4 Questions

- Discuss the process of curing.
- Know the constraints and condition requirements of concrete for ideal installation.

Chapter 9: Shotcrete 10 Questions

- Demonstrate how to avoid rebound, and what to do with rebound.
- Identify how to read engineering specifications regarding concrete.
- Compare and contrast in-lab and in-field testing differences.
- Recognize ideal conditions, and how to troubleshoot poor conditions for shotcrete.
- Name the processes for shotcrete, and the proper and improper methods of applying shotcrete.
- Define shotcrete.
- Name agents that may be added to concrete for various purposes.

Chapter 10: Dampproofing 3 Questions

- Be knowledgeable of the terms you should and shouldn't use regarding dampproofing when advertising or speaking to clients.
- Be familiar with proper and improper dampproofing techniques.

Chapter 11: Basics of Tile and Coping 4 Questions

- Understand the purpose of sealing coping.
- Review recommendations from TCNA regarding curing.
- Identify what materials to use at different phases and places of tile, coping and waterlines.
- Recognize ideal conditions for installation.

Chapter 12: Mechanical Spaces 4 Questions

- Be familiar with standards regarding the ANSI/PHTA/ICC-15 2021 codes regarding heaters, pumps and pipe distances.
- Name NEC compliance regarding pool bonding wires
- Know what makes good design in mechanical spaces.

Chapter 13: Concrete Decking 4 Questions

- Understand the cause of failures in concrete or shotcrete.
- Study the relationship between drains and slope.
- Explore ACI 318 provisions in relation to decking.
- Identify joints and the purposes of each kind.

Chapter 14: Pre-Plaster Preparation 4 Questions

- Investigate sealants.
- Review the recommended pH range for plaster.
- Examine different chemicals and additives, and when it is safe to add them after plastering.
- Identify the factors that ensure a consistent plaster finish.

Chapter 15: Cementitious Pool Finishes 11 Questions

- Review the purpose of the Langelier Saturation Index (LSI), and the meanings, causes and effects of LSI factors.
- Know the definition of “balanced” water in swimming pools.
- Know the different additives for cementitious materials, and their desired outcomes.
- Understand mottling.
- Evaluate pool chemicals, proper levels, their purpose and how to maintain ideal conditions.

Chapter 16: Pool Enclosures and Covers 1 Question

- Familiarize yourself with the requirements and prohibitions of perimeters and objects or structures around a pool.

Chapter 17: Start Up, Punch lists, and Project Closeout 1 Question

- Comprehend the purpose of commissioning.

Chapter 18: Advanced Studies in Hydraulics 1 Question

- Know what is used to calculate volume of a surge capacity in a collector tank.