INTRODUCTION

The **Official Guide to Certified SOLIDWORKS Associate Exams: CSWA, CSDA, CSWSA-FEA** is written to assist the SOLIDWORKS user to pass the associate level exams. Information is provided to aid a person to pass the Certified SOLIDWORKS Associate (CSWA), Certified SOLIDWORKS Sustainable Design Associate (CSDS) and the Certified SOLIDWORKS Simulation Associate Finite Element Analysis (CSWSA FEA) exam.

DS SOLIDWORKS Corp. offers various types of certification. Each stage represents increasing levels of expertise in 3D CAD: Certified SOLIDWORKS Associate CSWA, Certified SOLIDWORKS Professional CSWP and Certified SOLIDWORKS Expert CSWE along with specialty fields.

The CSWA certification indicates a foundation in and apprentice knowledge of 3D CAD design and engineering practices and principles. The main requirement for obtaining the CSWA certification is to take and pass the two part on-line proctored exams. This first exam (part 1) is 90 minutes, minimum passing score is 80, with 6 questions. The second exam (part 2) is 90 minutes, minimum passing score is 80 with 8 questions.

Copy the corresponding CSWA Model Folder from the book that matches your release of SOLIDWORKS to your hard drive. Work directly from your hard drive on the tutorials in this book. SOLIDWORKS model files for 2015 - 2017 are provided.

The Certified SOLIDWORKS Sustainable Design Associate (CSDA) certification indicates a foundation in and apprentice knowledge of demonstrating an understanding in the principles of environmental assessment and sustainable design.

The main requirement for obtaining the CSDA certification is to take and pass the on-line 30 minute exam (minimum of 24 out of 30 points).

The CSDA exam consists of a total of 30 questions in various categories: *Environmental Assessment*, *Introduction to sustainability* and *Sustainable design*.

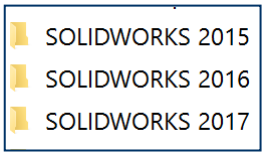
All questions are in a multiple choice/multi answer format. SOLIDWORKS does not require that you have a copy of SOLIDWORKS Sustainability, or even SOLIDWORKS. No SOLIDWORKS models need to be created for this exam.

The Certified SOLIDWORKS Simulation Associate - Finite Element Analysis (CSWSA-FEA) certification indicates a foundation in and apprentice knowledge of demonstrating an understanding in the principles of stress analysis and the Finite Element Method (FEM).

The main requirement for obtaining the CSWSA-FEA certification is to take and pass the on-line 120 minute exam which consists of 20 questions. The questions consist of 3 hands-on problems, single answer, multiple choice, yes/no and multiple selection for a total of 100 points. Minimum passing score is 70.

The purpose of this section is not to educate a new or intermediate user on SOLIDWORKS Simulation or Finite Element Analysis theory, but to cover and to inform you on the required understanding types of questions, layout and what to expect when taking the CSWSA-FEA exam.

Copy the corresponding CSWSA FEA Model Folder from the book that matches your release of SOLIDWORKS to your hard drive. Work directly from your hard drive on the tutorials in this book. SOLIDWORKS model files for 2015 - 2017 are provided.



Goals

The primary goal is not only to help you pass the CSWA, CSDA and CSWSA-FEA exams, but also to ensure that you understand and comprehend the concepts and implementation details of the three certification processes.

The second goal is to provide the most comprehensive coverage of CSWA, CSDA and CSWSA-FEA exam related topics available, without too much coverage of topics not on the exam.

The third and ultimate goal is to get you from where you are today to the point that you can confidently pass the CSWA, CSDA and the CSWSA-FEA exam.

CSWA Exam Audience

The intended audience for this book trying to take and pass the CSWA exam is anyone with a minimum of 6 - 9 months of SOLIDWORKS experience and basic knowledge of engineering fundamentals and practices. SOLIDWORKS recommends that you review their SOLIDWORKS Tutorials on Parts, Assemblies and Drawings as a prerequisite and have at least 45 hours of classroom time learning SOLIDWORKS or using SOLIDWORKS with basic engineering design principles and practices.

CSDA Exam Audience

The intended audience for this book trying to take and pass the CSDA exam is anyone interested in Sustainable design and life cycle assessment. Although ***no hands on usage of SOLIDWORKS*** is required for the CSDA certification exam, it is a good idea to review the SOLIDWORKS SustainablityXpress and SOLIDWORKS Sustainability tutorials inside of SOLIDWORKS to better understand the actual workflow.

CSWSA FEA Exam Audience

The intended audience for this book trying to take and pass the CSWSA-FEA exam is anyone with a minimum of 6 - 9 months of SOLIDWORKS experience and knowledge in the following areas: Engineering Mechanics - Statics, Strength of Materials, Finite Element Method/Finite Element Analysis Theory, Applied concepts in SOLIDWORKS Simulation: namely Static Analysis, Solid, Shell, and Beam elements, Connections and Applying loads and boundary conditions and interpreting results.

The purpose of this section in the book is NOT to educate a new or intermediate user on SOLIDWORKS Simulation, but to cover and to inform you on the required understanding types of questions, layout and what to expect when taking the CSWSA-FEA exam.

About the Author

David Planchard is the founder of D&M Education LLC. Before starting D&M Education, he spent over 27 years in industry and academia holding various engineering, marketing, and teaching positions. He holds five U.S. patents. He has published and authored numerous papers on Machine Design, Product Design, Mechanics of Materials, and Solid Modeling. He is an active member of the SOLIDWORKS Users Group and the American Society of Engineering Education (ASEE). David holds a BSME, MSM with the following professional certifications: CCAI, CCNP, CSDA, CSWSA-FEA, CSWP, CSWP-DRWT and SOLIDWORKS Accredited Educator. David is a SOLIDWORKS Solution Partner, an Adjunct Faculty member and the SAE advisor at Worcester Polytechnic Institute in the Mechanical Engineering department. In 2012, David's senior Major Qualifying Project team (senior capstone) won first place in the Mechanical Engineering department at WPI. In 2014, 2015 and 2016 David's senior Major Qualifying Project team won the Provost award in Mechanical Engineering for design excellence.

David Planchard is the author of the following books:

- **SOLIDWORKS® 2017 Reference Guide with video instruction**, 2016, 2015, 2014, 2013, 2012, 2011, 2010, 2009 and 2008
- **Engineering Design with SOLIDWORKS® 2017 and video instruction**, 2016, 2015, 2014, 2013, 2012, 2011, 2010, 2009, 2008, 2007, 2006, 2005, 2004, and 2003
- **Engineering Graphics with SOLIDWORKS® 2017 and video instruction**, 2016, 2015, 2014, 2013, 2012, 2011, 2010
- **SOLIDWORKS® 2017 in 5 Hours with video instruction**, 2016, 2015, 2014
- **SOLIDWORKS® 2017 Tutorial with video instruction**, 2016, 2015, 2014, 2013, 2012, 2011, 2010, 2009, 2008, 2007, 2006, 2005, 2004, and 2003
- **Drawing and Detailing with SOLIDWORKS® 2014**, 2012, 2010, 2009, 2008, 2007, 2006, 2005, 2004, 2003, and 2002
- **Official Certified SOLIDWORKS® Professional (CSWP) Certification Guide with video instruction, Version 4: 2015 - 2017**, Version 3: 2012 - 2014, Version 2: 2012 - 2013, Version 1: 2010 - 2011
- **Official Guide to Certified SOLIDWORKS® Associate Exams: CSWA, CSDA, CSWSA-FEA Version 3: 2015 - 2017**, Version 2: 2012 - 2015, Version 1: 2012 – 2013
- **Assembly Modeling with SOLIDWORKS® 2012**, 2010, 2008, 2006, 2005-2004, 2003 and 2001Plus

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Contact the Author

We realize that keeping software application books current is imperative to our customers. We value the hundreds of professors, students, designers, and engineers that have provided us input to enhance the book. Please contact me directly with any comments, questions or suggestions on this book or any of our other SOLIDWORKS books at dplanchard@msn.com or planchard@wpi.edu.

Note to Instructors

Please contact the publisher **www.schroff.com** for classroom support materials (.ppt presentations, labs and more) and the Instructor's Guide with model solutions and tips that support the usage of this text in a classroom environment.

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The Y14 ASME Engineering Drawing and Related Documentation Publications utilized in this text are as follows: ASME Y14.1 1995, ASME Y14.2M-1992 (R1998), ASME Y14.3M-1994 (R1999), ASME Y14.41-2003, ASME Y14.5-1982, ASME Y14.5-1999, and ASME B4.2. Note: By permission of The American Society of Mechanical Engineers, Codes and Standards, New York, NY, USA. All rights reserved.

Additional information references the American Welding Society, AWS 2.4:1997 Standard Symbols for Welding, Braising, and Non-Destructive Examinations, Miami, Florida, USA.

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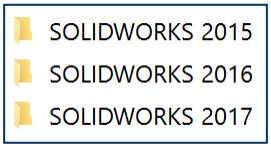
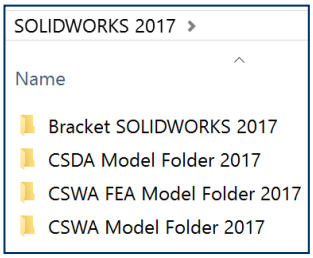
- Emhart - A Black and Decker Company, On-line catalog, Hartford, CT, 2012.

Redeem your code on the inside cover of the book. Download the corresponding model folders from the book that matches your release of SOLIDWORKS to your hard drive. Work directly from your hard drive on the tutorials in this book.





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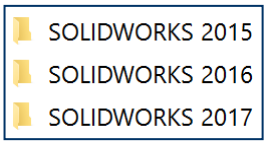
About the Book

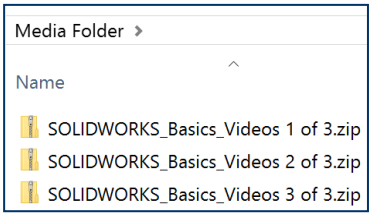
You will find a wealth of information in this book. The book is written for new and intermediate users. The following conventions are used throughout this book:

- The term document refers to a SOLIDWORKS part, drawing or assembly file.



- The list of items across the top of the SOLIDWORKS interface is the Menu bar menu or the Menu bar toolbar. Each item in the Menu bar has a pull-down menu. When you need to select a series of commands from these menus, the following format is used: Click **Insert**, **Reference Geometry**, **Plane** from the Menu bar. The Plane PropertyManager is displayed.

- The book is organized into chapters. Each chapter is focused on a specific certification category. Use the model files in the book for the chapter exercises.



- Copy the corresponding model folders that match your release of SOLIDWORKS to your hard drive. Work directly from your hard drive on the tutorials in the book. SOLIDWORKS model files for 2015 - 2017 are provided.

- The ANSI overall drafting standard and Third Angle projection is used as the default setting in this text. IPS (inch, pound, second) and MMGS (millimeter, gram, second) unit systems are used.

Notes: