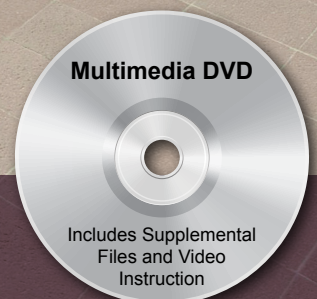


# Design Integration Using Autodesk® Revit® 2013

Architecture, Structure and MEP

Daniel John Stine CSI, CDT



Visit the following websites to learn more about this book:



[amazon.com](https://www.amazon.com)

[BARNES & NOBLE](https://www.barnesandnoble.com)

[Google books](https://books.google.com)

## Table of Contents

---

|           |  |      |
|-----------|--|------|
| <b>1.</b> | <b>Introduction to Computers for CAD/BIM Users</b>         |      |
| 1-1       | Computer Basics: Terms and Functions                       | 1-1  |
| 1-2       | Overview of the Windows User Interface                     | 1-19 |
| 1-3       | File Management Introduction                               | 1-31 |
| 1-4       | File Management Exercises                                  | 1-49 |
|           | <i>Self-Exam &amp; Review Questions</i>                    | 1-51 |
| <b>2.</b> | <b>Getting Started with Revit 2013</b>                     |      |
| 2-1       | What Is Revit 2013   | 2-1  |
| 2-2       | Overview of the Revit User Interface                       | 2-10 |
| 2-3       | Open, Save and Close and Existing Project                  | 2-21 |
| 2-4       | Creating a New Project                                     | 2-26 |
| 2-5       | Using Pan and Zoom to View Your Drawings                   | 2-28 |
| 2-6       | Using Revit's Help System                                  | 2-33 |
|           | <i>Self-Exam &amp; Review Questions</i>                    | 2-36 |
| <b>3.</b> | <b>Quick Start: Small Office</b>                           |      |
| 3-1       | Walls, Grids and Dimensions                                | 3-1  |
| 3-2       | Doors  | 3-18 |
| 3-3       | Windows  | 3-25 |
| 3-4       | Roof   | 3-28 |
| 3-5       | Annotation, Room Tags & Schedules                          | 3-33 |
| 3-6       | Printing   | 3-38 |
|           | <i>Self-Exam &amp; Review Questions</i>                    | 3-41 |
| <b>4.</b> | <b>Revit Basics: Overview of Linework and Modify Tools</b> |      |
| 4-1       | Lines and Shapes   | 4-1  |
| 4-2       | Snaps  | 4-15 |
| 4-3       | Modify Tools   | 4-20 |
| 4-4       | Annotations  | 4-33 |
|           | <i>Self-Exam &amp; Review Questions</i>                    | 4-37 |
| <b>5.</b> | <b>Revit Basics: Drawing 2D Architectural Content</b>      |      |
| 5-1       | Sketching Rectilinear Objects                              | 5-1  |
| 5-2       | Sketching Objects With Curves                              | 5-11 |
|           | <i>Self-Exam &amp; Review Questions</i>                    | 5-29 |
| <b>6.</b> | <b>Law Office: Floor Plans</b>                             |      |
| 6-1       | Project Setup  | 6-1  |
| 6-2       | Exterior Walls   | 6-10 |
| 6-3       | Interior Walls   | 6-24 |
| 6-4       | Doors, Windows and Curtain Walls                           | 6-40 |
| 6-5       | Stairs   | 6-66 |
|           | <i>Self-Exam &amp; Review Questions</i>                    | 6-74 |
| <b>7.</b> | <b>Law Office: Roof, Floors &amp; Ceilings</b>             |      |
| 7-1       | Introduction to the Roof Tool                              | 7-2  |
| 7-2       | Law Office Roof  | 7-17 |
| 7-3       | Floor Systems  | 7-25 |
| 7-4       | Ceiling Systems  | 7-37 |
|           | <i>Self-Exam &amp; Review Questions</i>                    | 7-49 |

|            |   |       |
|------------|---|-------|
| <b>8.</b>  | <b>Law Office: Structural System</b>                  |       |
| 8-1        | Introduction to Revit Structure                       | 8-1   |
| 8-2        | Creating Views and Loading Content                    | 8-9   |
| 8-3        | Grids, Columns and Beams                              | 8-21  |
| 8-4        | Floors and Bar Joist Layout                           | 8-43  |
| 8-5        | Foundations and Footings                              | 8-57  |
| 8-6        | Structural Annotation and Tags                        | 8-70  |
|            | <i>Self-Exam &amp; Review Questions</i>               | 8-78  |
| <b>9.</b>  | <b>Law Office: Elevations, Sections and Details</b>   |       |
| 9-1        | Exterior Elevations                                   | 9-1   |
| 7-2        | Interior Elevations                                   | 9-12  |
| 9-3        | Building Sections                                     | 9-17  |
| 9-4        | Wall Sections   | 9-27  |
| 9-5        | Details   | 9-37  |
|            | <i>Self-Exam &amp; Review Questions</i>               | 9-62  |
| <b>10.</b> | <b>Law Office: Interior Design</b>                    |       |
| 10-1       | Toilet Room Layouts                                   | 10-2  |
| 10-2       | Cabinets  | 10-15 |
| 10-3       | Furniture   | 10-24 |
| 10-4       | Column Furring, Guardrails and Interior Curtain Wall  | 10-30 |
|            | <i>Self-Exam &amp; Review Questions</i>               | 10-40 |
| <b>11.</b> | <b>Law Office: Schedules</b>                          |       |
| 11-1       | Rooms, Room Tags & Door Tags                          | 11-1  |
| 11-2       | Generate a Door Schedule                              | 11-12 |
| 11-3       | Generate a Room Finish Schedule                       | 11-17 |
| 11-4       | Creating a Graphical Column Schedule                  | 11-25 |
|            | <i>Self-Exam &amp; Review Questions</i>               | 11-28 |
| <b>12.</b> | <b>Law Office: Mechanical System</b>                  |       |
| 12-1       | Introduction to Revit MEP – Mechanical & Plumbing     | 12-1  |
| 12-2       | Creating Views and Loading Content                    | 12-8  |
| 12-3       | Placing Air Terminals and the Air Handling Unit (AHU) | 12-17 |
| 12-4       | VAV Boxes, MEP Systems & Ductwork                     | 12-26 |
| 12-5       | Plumbing Layout                                       | 12-38 |
|            | <i>Self-Exam &amp; Review Questions</i>               | 12-45 |
| <b>13.</b> | <b>Law Office: Electrical System</b>                  |       |
| 13-1       | Introduction to Revit MEP – Electrical                | 13-1  |
| 13-2       | Creating Views and Loading Content                    | 13-2  |
| 13-3       | Panelboard, Power Devices and MEP Systems             | 13-6  |
| 13-4       | Light Fixture and Light Switch Layout                 | 13-18 |
| 13-5       | Systems Layout  | 13-30 |
|            | <i>Self-Exam &amp; Review Questions</i>               | 13-32 |
| <b>14.</b> | <b>Law Office: Site and Renderings</b>                |       |
| 14-1       | Site Tools  | 14-1  |
| 14-2       | Creating and Exterior Rendering                       | 14-10 |
| 14-3       | Rendering and Isometric Rendering                     | 14-27 |
| 14-4       | Creating and Interior Rendering                       | 14-30 |
| 14-5       | Adding People to the Rendering                        | 14-35 |
|            | <i>Self-Exam &amp; Review Questions</i>               | 14-38 |
| <b>15.</b> | <b>Law Office: Construction Documents Set</b>         |       |
| 15-1       | Setting Up A Sheet                                    | 15-1  |
| 15-2       | Sheet Index   | 15-13 |
| 15-3       | Printing a Set of Drawings                            | 15-17 |
|            | <i>Self-Exam &amp; Review Questions</i>               | 15-24 |

|             |   |     |
|-------------|---|-----|
| Appendix A: | <b>Autodesk Revit Architecture Certification Exam</b> |     |
|             | <i>Introduction</i>                                   | A-1 |
|             | <i>Self-Exam &amp; Review Questions</i>               | A-4 |
|             | <i>Self Exam Answers</i>                              | A-8 |
| Appendix V: | <b>Introduction to Autodesk Vasari</b>                |     |

## DVD Contents

|             |  |       |
|-------------|--|-------|
| <b>16.</b>  | <b>Revit Families: Introduction to Revit Content Creation</b> 66 pages |       |
| 16-1        | Basic Family Concepts  | 16-1  |
| 16-2        | The Box: Creating the Geometry   | 16-13 |
| 16-3        | The Box: Adding Parameters   | 16-29 |
| 16-4        | The Box: Formulas and Materials  | 16-45 |
| 16-5        | The Box: Family Types and Categories                                   | 16-59 |
|             | <i>Self-Exam &amp; Review Questions</i>                                | 16-66 |
| <b>17.</b>  | <b>Introduction To SketchUp</b> 78 pages                               |       |
| 17-1        | What is Google SketchUp used for?                                      | 17-1  |
| 17-2        | Overview of the SketchUp User Interface                                | 17-5  |
| 17-3        | Open, Save and Close   | 17-9  |
| 17-4        | Viewing SketchUp Models  | 17-15 |
| 17-5        | Help System  | 17-21 |
| 17-6        | The Basic Entities   | 17-25 |
| 17-7        | Beginning with the Basics – 2D Sketching                               | 17-38 |
| 17-8        | 3D Modeling  | 17-54 |
| 17-9        | Adding Materials   | 17-73 |
| Appendix B: | <b>Finding Missing Elements in Revit</b> 22 pages                      | B-1   |
| Appendix C: | <b>Roof Study Workbook – Draft Edition</b> 89 pages                    |       |
|             | <i>Introduction</i>  | C-3   |
|             | <i>Roof Slopes and Styles</i>  | C-5   |
|             | <i>Roof Styles (with bonus Revit material)</i>                         | C-9   |
|             | <i>Roof Plan Study</i>   | C-33  |
|             | <i>Roof Plan Layout Exercises</i>                                      | C-66  |
| Appendix D: | <b>Rooms and Spaces; Revit’s Unbuilt Elements</b> 10 pages             | D-1   |

### Videos

|                      |                              |
|----------------------|------------------------------|
| 1. User Interface    | 11. Rendering                |
| 2. Walls             | 12. Design Options           |
| 3. Doors and Windows | 13. Sheets and Sheet Lists   |
| 4. Stairs            | 14. Worksharing Introduction |
| 5. Roofs             | 15. Phases                   |
| 6. Floors            | 16. Sweeps and Reveals       |
| 7. Ceilings          | 17. Revit Structure          |
| 8. Elevations        | 18. Revit MEP - Mechanical   |
| 9. Sections          | 19. Revit MEP - Electrical   |
| 10. Schedules        |                              |