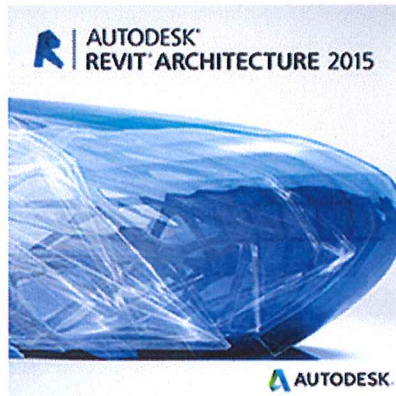




Training Course Information

Dated: February 2015



- Course:** Autodesk Revit Architecture 2015 - FUNDAMENTALS  
**Duration:** 4 DAYS  
**Times:** 9.00am - 5.00 pm daily  
**Location:** Salesoft CAD Solutions Training Lab, 115 Grafton Rd, Grafton, Auckland.  
**Parking:** Limited spare parking on site, otherwise use Wilson Parking next door for a fee.  
**Provided:** Manuals, Lunches and Teas are provided.  
**Accommodation:** If you require accomodation, please see our training web pages > Accommodation Options  
<http://salesoft.co.nz/Training/About+Our+Training.html>.

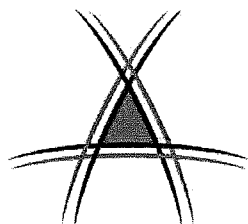
**Course Material:** Salesoft CAD Solutions uses ASCENT courseware, exercises and sample computer files.  
See the following pages for the course Table of Contents.  
ASCENT is an Autodesk Authorized Author for Autodesk Official Training Guides.  
We also use Salesoft developed New Zealand local content based examples for discussions.

**Agreements:** When attending a course, attendees agree to not use, or authorize the use of, any copy of the course material provided, or any part thereof other than for the registrant's own personal in-house use at the registrant's business premises.

Salesoft CAD Solutions Ltd is an Authorized Autodesk Training Centre and as such provides the benefits of combining experienced tutor instruction and in-course peer exchange of work experiences. Course time provides time for personal and group Q&A job task exploration of software use topics. Attendees are also entitled to after course phone and email support for followup issues.



100% NZ OWNED & OPERATED



ASCENT®  
CENTER FOR TECHNICAL KNOWLEDGE

# Autodesk® Revit® 2015 Architecture Fundamentals

Student Guide - Metric

*Revision 2.0*

*July 2014*

 **AUTODESK.**  
Authorized Author

 **AUTODESK.**  
Official Training Guide



**ASCENT - Center for Technical Knowledge®**  
**Autodesk® Revit® 2015**  
**Architecture Fundamentals - Metric**  
**Revision 2.0**

Prepared and produced by:

ASCENT Center for Technical Knowledge  
630 Peter Jefferson Parkway, Suite 175  
Charlottesville, VA 22911

866-527-2368  
www.ascented.com



ASCENT - Center for Technical Knowledge is a division of RAND Worldwide Inc., providing custom developed knowledge products and services for leading engineering software applications. ASCENT is focused on specializing in the creation of education programs that incorporate the best of classroom learning and technology-based training offerings.

We welcome any comments you may have regarding this training manual, or any of our products. To contact us please email: [feedback@ASCENTed.com](mailto:feedback@ASCENTed.com).

© ASCENT - Center for Technical Knowledge, 2014

All rights reserved. No part of this manual may be reproduced in any form by any photographic, electronic, mechanical or other means or used in any information storage and retrieval system without the written permission of ASCENT, a division of RAND Worldwide, Inc.

The following are registered trademarks or trademarks of Autodesk, Inc., and/or its subsidiaries and/or affiliates in the USA and other countries: 123D, 3ds Max, Algor, Alias, AliasStudio, ATC, AutoCAD LT, AutoCAD, Autodesk, the Autodesk logo, Autodesk 123D, Autodesk Homestyler, Autodesk Inventor, Autodesk MapGuide, Autodesk Streamline, AutoLISP, AutoSketch, AutoSnap, AutoTrack, Backburner, Backdraft, Beast, BIM 360, Burn, Buzzsaw, CADmep, CAICE, CAMduct, CFdesign, Civil 3D, Cleaner, Combustion, Communication Specification, Constructware, Content Explorer, Creative Bridge, Dancing Baby (image), DesignCenter, DesignKids, DesignStudio, Discreet, DWF, DWG, DWG (design/logo), DWG Extreme, DWG TrueConvert, DWG TrueView, DWGX, DXF, Ecotect, ESTmep, Evolver, FABmep, Face Robot, FBX, Fempro, Fire, Flame, Flare, Flint, FMDesktop, ForceEffect, FormIt, Freewheel, Fusion 360, Glue, Green Building Studio, Heidi, Homestyler, HumanIK, i-drop, ImageModeler, Incinerator, Inferno, InfraWorks, Instructables, Instructables (stylized robot design/logo), Inventor LT, Inventor, Kynapse, Kynogon, LandXplorer, Lustre, MatchMover, Maya, Maya LT, Mechanical Desktop, MIMI, Mockup 360, Moldflow Plastics Advisers, Moldflow Plastics Insight, Moldflow, Moondust, MotionBuilder, Movimento, MPA (design/logo), MPA, MPI (design/logo), MPX (design/logo), MPX, Mudbox, Navisworks, ObjectARX, ObjectDBX, Opticore, Pipeplus, Pixlr, Pixlr-o-matic, Productstream, RasterDWG, RealDWG, ReCap, Remote, Revit LT, Revit, RiverCAD, Robot, Scaleform, Showcase, ShowMotion, Sim 360, SketchBook, Smoke, Socialcam, Softimage, Sparks, SteeringWheels, Stitcher, Stone, StormNET, TinkerBox, ToolClip, Topobase, Toxik, TrustedDWG, T-Splines, ViewCube, Visual LISP, Visual, VRED, Wire, Wiretap, WiretapCentral, XSI.

All other brand names, product names, or trademarks belong to their respective holders.

**General Disclaimer:**

Notwithstanding any language to the contrary, nothing contained herein constitutes nor is intended to constitute an offer, inducement, promise, or contract of any kind. The data contained herein is for informational purposes only and is not represented to be error free. ASCENT, its agents and employees, expressly disclaim any liability for any damages, losses or other expenses arising in connection with the use of its materials or in connection with any failure of performance, error, omission even if ascent, or its representatives, are advised of the possibility of such damages, losses or other expenses. No consequential damages can be sought against ascent or rand worldwide for the use of these materials by any third parties or for any direct or indirect result of that use.

The information contained herein is intended to be of general interest to you and is provided "as is", and it does not address the circumstances of any particular individual or entity. Nothing herein constitutes professional advice, nor does it constitute a comprehensive or complete statement of the issues discussed thereto. Ascent does not warrant that the document or information will be error free or will meet any particular criteria of performance or quality. In particular (but without limitation) information may be rendered inaccurate by changes made to the subject of the materials (i.e. applicable software). Rand specifically disclaims any warranty, either expressed or implied, including the warranty of fitness for a particular purpose.

# Table of Contents

<b>Preface</b> .....	<b>v</b>
<b>Class Files</b> .....	<b>vii</b>
<b>Setting Up the Interface</b> .....	<b>ix</b>
<hr/>	
<b>Introduction to BIM and Autodesk Revit</b>	
<hr/>	
<b>Chapter 1 Introduction to BIM and Autodesk Revit</b> .....	<b>1-1</b>
<b>1.1 Building Information Modeling</b> .....	<b>1-3</b>
<b>1.2 Overview of the Interface</b> .....	<b>1-6</b>
<b>1.3 Standard Terminology</b> .....	<b>1-19</b>
<b>1.4 Starting Projects</b> .....	<b>1-21</b>
<b>1.5 Viewing Commands</b> .....	<b>1-27</b>
Practice 1a Open and Review a Project .....	1-35
<b>Chapter 2 Basic Drawing and Modify Tools</b> .....	<b>2-1</b>
<b>2.1 Using General Drawing Tools</b> .....	<b>2-3</b>
<b>2.2 Editing Elements</b> .....	<b>2-13</b>
Practice 2a Draw and Modify Elements .....	2-19
<b>2.3 Working with Basic Modify Tools</b> .....	<b>2-24</b>
Practice 2b Work with Basic Modify Tools .....	2-32
<b>2.4 Working with Additional Modify Tools</b> .....	<b>2-40</b>
Practice 2c Work with Additional Modify Tools .....	2-47
<b>Chapter 3 Setting Up Levels and Grids</b> .....	<b>3-1</b>
<b>3.1 Setting Up Levels</b> .....	<b>3-3</b>
Practice 3a Set Up Levels .....	3-8
<b>3.2 Linking and Importing CAD Files</b> .....	<b>3-11</b>
<b>3.3 Creating Structural Grids</b> .....	<b>3-15</b>
<b>3.4 Adding Columns</b> .....	<b>3-19</b>
Practice 3b Add Structural Grids and Columns .....	3-23
<hr/>	
<b>Design Development Phase</b>	
<hr/>	
<b>Chapter 4 Modeling Walls</b> .....	<b>4-1</b>
<b>4.1 Modeling Walls</b> .....	<b>4-3</b>

<b>4.2</b>	<b>Modifying Walls .....</b>	<b>4-7</b>
	Practice 4a Model the Exterior Shell.....	4-15
	Practice 4b Add Interior Walls .....	4-21
<b>Chapter 5</b>	<b>Working with Doors and Windows .....</b>	<b>5-1</b>
<b>5.1</b>	<b>Inserting Doors and Windows .....</b>	<b>5-3</b>
	Practice 5a Insert Doors and Windows.....	5-9
<b>5.2</b>	<b>Loading Door and Window Types from the Library .....</b>	<b>5-15</b>
<b>5.3</b>	<b>Creating Additional Door and Window Sizes.....</b>	<b>5-17</b>
	Practice 5b Load and Create Door Types .....	5-19
<b>Chapter 6</b>	<b>Working with Curtain Walls .....</b>	<b>6-1</b>
<b>6.1</b>	<b>Creating Curtain Walls .....</b>	<b>6-3</b>
<b>6.2</b>	<b>Adding Curtain Grids .....</b>	<b>6-7</b>
	Practice 6a Work with Curtain Walls.....	6-10
<b>6.3</b>	<b>Working with Curtain Wall Panels.....</b>	<b>6-14</b>
<b>6.4</b>	<b>Attaching Mullions to Curtain Grids .....</b>	<b>6-18</b>
	Practice 6b Add Mullions and Panels to Curtain Walls.....	6-21
<b>Chapter 7</b>	<b>Working with Views.....</b>	<b>7-1</b>
<b>7.1</b>	<b>Duplicating Views .....</b>	<b>7-3</b>
<b>7.2</b>	<b>Adding Callout Views .....</b>	<b>7-7</b>
<b>7.3</b>	<b>Setting the View Display .....</b>	<b>7-12</b>
	Practice 7a Set Up Duplicate Views and Callouts .....	7-20
	Practice 7b Add Foundations and Footings.....	7-26
<b>7.4</b>	<b>Elevations and Sections .....</b>	<b>7-29</b>
	Practice 7c Create Elevations and Sections.....	7-37
<b>Chapter 8</b>	<b>Adding Components .....</b>	<b>8-1</b>
<b>8.1</b>	<b>Adding Components .....</b>	<b>8-3</b>
<b>8.2</b>	<b>Modifying Components.....</b>	<b>8-7</b>
	Practice 8a Add Components.....	8-10
<b>Chapter 9</b>	<b>Modeling Floors.....</b>	<b>9-1</b>
<b>9.1</b>	<b>Modeling Floors .....</b>	<b>9-3</b>
	Practice 9a Model Floors.....	9-9
<b>9.2</b>	<b>Creating Shaft Openings.....</b>	<b>9-18</b>
<b>9.3</b>	<b>Creating Sloped Floors .....</b>	<b>9-19</b>
	Practice 9b Add an Elevator Shaft and Slope Floors to Floor Drains .....	9-22

<b>Chapter 10 Modeling Ceilings</b> .....	<b>10-1</b>
<b>10.1 Modeling Ceilings</b> .....	<b>10-3</b>
<b>10.2 Adding Ceiling Fixtures</b> .....	<b>10-8</b>
Practice 10a Model Ceilings and Add Ceiling Fixtures.....	10-10
<b>10.3 Creating Ceiling Soffits</b> .....	<b>10-13</b>
Practice 10b Create Ceiling Soffits.....	10-15
<b>Chapter 11 Modeling Roofs</b> .....	<b>11-1</b>
<b>11.1 Modeling Roofs</b> .....	<b>11-3</b>
<b>11.2 Creating Roofs by Footprint</b> .....	<b>11-4</b>
Practice 11a Create Roofs by Footprint.....	11-7
<b>11.3 Reference Planes and Work Planes</b> .....	<b>11-13</b>
<b>11.4 Creating Roofs by Extrusion</b> .....	<b>11-16</b>
<b>11.5 Cleaning Up Wall and Roof Intersections</b> .....	<b>11-19</b>
Practice 11b Create Roofs by Extrusion.....	11-22
<b>Chapter 12 Vertical Circulation</b> .....	<b>12-1</b>
<b>12.1 Creating Component Stairs</b> .....	<b>12-3</b>
<b>12.2 Modifying Component Stairs</b> .....	<b>12-12</b>
Practice 12a Create Component Stairs.....	12-15
<b>12.3 Working with Railings</b> .....	<b>12-22</b>
Practice 12b Modify and Add Railings.....	12-28
<b>12.4 Sketching Custom Stairs</b> .....	<b>12-33</b>
<b>12.5 Creating Ramps</b> .....	<b>12-36</b>
Practice 12c Sketch Custom Stairs and Ramps.....	12-38
<hr/>	
<b>Construction Documents Phase</b>	
<hr/>	
<b>Chapter 13 Creating Construction Documents</b> .....	<b>13-1</b>
<b>13.1 Setting Up Sheets</b> .....	<b>13-3</b>
<b>13.2 Placing and Modifying Views on Sheets</b> .....	<b>13-7</b>
Practice 13a Create Construction Documents.....	13-14
<b>13.3 Printing Sheets</b> .....	<b>13-20</b>
<b>Chapter 14 Annotating Construction Documents</b> .....	<b>14-1</b>
<b>14.1 Working with Dimensions</b> .....	<b>14-3</b>
Practice 14a Add Dimensions.....	14-11
<b>14.2 Working With Text</b> .....	<b>14-15</b>

<b>14.3 Adding Detail Lines and Symbols</b> .....	<b>14-21</b>
Practice 14b Annotate Construction Documents .....	14-23
<b>14.4 Creating Legends</b> .....	<b>14-28</b>
Practice 14c Create Legends .....	14-31
<b>Chapter 15 Adding Tags and Schedules</b> .....	<b>15-1</b>
<b>15.1 Adding Tags</b> .....	<b>15-3</b>
Practice 15a Add Tags .....	15-11
<b>15.2 Adding Rooms and Tags</b> .....	<b>15-15</b>
Practice 15b Add Rooms and Room Tags.....	15-18
<b>15.3 Working with Schedules</b> .....	<b>15-23</b>
Practice 15c Work with Schedules .....	15-30
<b>Chapter 16 Creating Details</b> .....	<b>16-1</b>
<b>16.1 Setting Up Detail Views</b> .....	<b>16-3</b>
<b>16.2 Adding Detail Components</b> .....	<b>16-9</b>
<b>16.3 Annotating Details</b> .....	<b>16-13</b>
Practice 16a Create a Detail Based on a CAD File .....	16-18
<b>16.4 Keynoting and Keynote Legends</b> .....	<b>16-25</b>
Practice 16b Create Additional Details .....	16-29
<b>Appendix A Introduction to Worksets</b> .....	<b>A-1</b>
<b>A.1 Introduction to Worksets</b> .....	<b>A-3</b>
<b>Appendix B Additional Tools</b> .....	<b>B-1</b>
<b>B.1 Reusing Selection Sets</b> .....	<b>B-3</b>
<b>B.2 Wall Sweeps and Reveals</b> .....	<b>B-6</b>
<b>B.3 Creating Curtain Wall Types with Automatic Grids</b> .....	<b>B-9</b>
<b>B.4 Enhancing Views</b> .....	<b>B-12</b>
<b>B.5 Creating Dormers</b> .....	<b>B-21</b>
<b>B.6 Revision Tracking</b> .....	<b>B-24</b>
<b>B.7 Annotating Dependent Views</b> .....	<b>B-30</b>
<b>B.8 Creating Building Component Schedules</b> .....	<b>B-33</b>
<b>B.9 Creating a Repeating Detail</b> .....	<b>B-41</b>
<b>Appendix C Autodesk Revit 2015 Certification Exam</b>	
<b>Objectives</b> .....	<b>C-1</b>
<b>C.1 Autodesk Certified Exam Objectives</b> .....	<b>C-3</b>
<b>Index</b> .....	<b>Index-1</b>