

# Table of Contents

## Part I: Introduction to ARES

<b>1 — Introducing ARES</b> . . . . .	<b>13</b>
About ARES . . . . .	14
Benefits of Using ARES . . . . .	14
<i>Impressive Compatibility</i> . . . . .	14
<i>Familiar User Interface</i> . . . . .	15
<i>Drafting Tools</i> . . . . .	15
<i>Collaboration</i> . . . . .	15
<i>Flexible Viewing</i> . . . . .	15
<i>Organized Layouts</i> . . . . .	15
About ARES Commander Edition . . . . .	16
<i>Solid Modeling</i> . . . . .	16
<i>Application Programming Interfaces</i> . . . . .	16
<i>GIS Support</i> . . . . .	16
Platform . . . . .	16
<i>Language Support</i> . . . . .	16
<i>Demo Version</i> . . . . .	16
After-sales Service . . . . .	16
Visiting Graebert in Berlin, Germany . . . . .	17
On The New CAD Software . . . . .	17
On Their OEM Business . . . . .	18
On Their Services Business . . . . .	19



<b>2 — A Quick Tour Through ARES . . . . .</b>	<b>21</b>
Starting ARES . . . . .	21
The ARES Window . . . . .	23
Basic User Interface Tour . . . . .	23
The Crosshair Cursor and Other Cursors . . . . .	27
The Menu Bar . . . . .	27
The Command Window . . . . .	31
Options Toolbar . . . . .	35
Clicking Toolbar Buttons . . . . .	37
<i>Droplists</i> . . . . .	37
Palettes . . . . .	37
Turning Off the CS Icon . . . . .	40
Other UI Elements . . . . .	41
Online Help . . . . .	41
Exiting ARES . . . . .	42
<b>3 — CAD Concepts . . . . .</b>	<b>43</b>
Vector Entities . . . . .	43
Alternative Entity Specification . . . . .	46
Specifying Coordinates . . . . .	47
Keyboard Input . . . . .	47
Specifying Coordinates . . . . .	48
<i>2D Cartesian Coordinates</i> . . . . .	48
<i>3D Cartesian Coordinates</i> . . . . .	48
<i>Polar Coordinates</i> . . . . .	48
<i>Cylindrical Coordinates</i> . . . . .	49
<i>Spherical Coordinates</i> . . . . .	49
Point Filters . . . . .	49
Direct Distance Entry . . . . .	49
Mouse Input . . . . .	50
Selecting Entities . . . . .	50
Grips Editing . . . . .	51
<i>Moving and Stretching with Grips</i> . . . . .	51
<i>Erasing with Grips</i> . . . . .	52
Selecting Multiple Entities . . . . .	52

<i>Selecting Multiple Entities by Rectangle</i> .....	52
Selecting Entities by Location .....	54
Selecting Entities by Properties .....	55
AutoCAD Command Compatibility .....	56

## Part II: 2D Architectural Drafting

### **4 — Starting New Drawings . . . . . 59**

Before You Begin .....	59
Preparing ARES for Drawing .....	59
Starting ARES With a New Drawing .....	61
Saving Drawings .....	61
Setting the Units .....	65
Limiting the Drawing Boundary .....	66
Setting the Snap and Grid .....	67
<i>Snap Spacing</i> .....	67
<i>Grid Spacing</i> .....	69
Seeing the Entire Drawing .....	70
Adding Layers .....	71
Naming Layers .....	71
Automatic Backups .....	76
Summary .....	78

### **5 — Drawing Walls . . . . . 79**

Bringing Back the Office Drawing .....	79
Drawing Walls .....	81
Drawing Lines with Absolute Coordinates .....	83
Drawing Lines with Relative Coordinates .....	85
Using Entity Snaps .....	87
Drawing Rectangles .....	88
Drawing PolyLines .....	92
Drawing Internal Walls .....	95
Changing Layers Quickly .....	95



Drawing Walls with RichLines . . . . .	96
<i>Placing RichLines</i> . . . . .	96
<i>Zooming In and Out</i> . . . . .	97
<i>Defining RichLine Styles</i> . . . . .	98
<i>Erasing Entities</i> . . . . .	100
<i>Oops! Unerasing Entities</i> . . . . .	101
<i>Replacing RichLines</i> . . . . .	101
<b>Thickening Walls . . . . .</b>	<b>102</b>
Changing the Lineweight . . . . .	102
Widening Polylines . . . . .	104
Offsetting Lines . . . . .	106
<i>Trimming Lines</i> . . . . .	108
<b>Summary . . . . .</b>	<b>110</b>

## **6 — Printing Drawings . . . . . 111**

<b>Printing the Office Drawing . . . . .</b>	<b>111</b>
Draft Prints . . . . .	113
Printing the Office Drawing Manually . . . . .	114
<i>Printer/Plotter Options</i> . . . . .	115
<i>Paper Size Option</i> . . . . .	116
<i>Print Scale Options</i> . . . . .	117
<i>Print Range Options</i> . . . . .	118
<i>Other Options</i> . . . . .	119
<i>Additional Options</i> . . . . .	120
Printing the Office Drawing, Again . . . . .	123
Printing the Office Drawing, with Page Layouts . . . . .	124
<i>Using Page Layouts</i> . . . . .	124
<i>Borrowing Page Layouts</i> . . . . .	124
<i>Creating Page Layouts</i> . . . . .	126
<b>Previewing the Print . . . . .</b>	<b>126</b>
<b>Creating Page Layouts . . . . .</b>	<b>127</b>
<b>Assigning Print Styles . . . . .</b>	<b>129</b>
Creating Print Styles . . . . .	132
Applying Print Styles . . . . .	134
<b>Summary . . . . .</b>	<b>136</b>

<b>7 — Adding Symbols . . . . .</b>	<b>137</b>
Drawing a Desk Symbol. . . . .	137
Drawing a Unit-size Desk . . . . .	139
Converting Symbols Into Blocks. . . . .	140
Inserting Blocks into Drawings . . . . .	143
Chair Block . . . . .	146
<i>Rounding Corners</i> . . . . .	147
<i>Arms and Backs</i> . . . . .	149
Making Window and Door Blocks . . . . .	153
<i>Drawing Door Symbols</i> . . . . .	154
Placing Furnishings . . . . .	156
Sourcing Blocks from the Internet . . . . .	160
Source of Blocks from Web Sites. . . . .	160
Downloading and Inserting Blocks. . . . .	164
<i>Downloading Blocks</i> . . . . .	164
<i>Inserting Downloaded Blocks</i> . . . . .	168
Extracting Blocks From Drawings . . . . .	171
Export Block . . . . .	172
Summary . . . . .	173
<b>8 — Text and Attributes. . . . .</b>	<b>175</b>
Placing Simple Text . . . . .	177
<i>Summary of -SimpleNote Command Options</i> . . . . .	179
Settings Text Styles . . . . .	180
<i>Summary of TextStyle Dialog Box Options</i> . . . . .	181
Editing Text . . . . .	182
Placing Paragraph Text . . . . .	184
<i>Summary of Note Command Options</i> . . . . .	184
Modifying Paragraph Text. . . . .	185
Facilities Management. . . . .	187
Stage 1: Defining Attributes . . . . .	188
<i>Summary of MakeBlockAttribute Dialog Box Options</i> . . . . .	189
Stage 2: Adding Attributes to Blocks . . . . .	190
<i>Editing Attribute Data</i> . . . . .	193
Stage 3: Extracting Attributes . . . . .	193
<i>Creating the Template File</i> . . . . .	194

<i>Extracting the Block and Attribute Data</i> .....	194
<i>Opening the Data in a Spreadsheet</i> .....	195
Summary .....	196

## **9 — Placing Dimensions..... 197**

Linear Dimensions .....	199
Horizontal Dimensions .....	199
<i>Summary of LinearDimension Command Options</i> .....	200
Vertical Dimensions .....	201
Dimension Scale .....	202
Dimensioning Entities .....	202
Parallel Dimensioning .....	203
Continued Dimensions .....	204
Baseline Dimensions .....	205
Radial Dimensions .....	205
Diameter Dimensions .....	206
Modifying Dimension Styles .....	207
Summary .....	210

# Part III: 2D & 3D Mechanical Design

## **10 — Scan and Trace..... 213**

Importing Scanned Images .....	215
<i>About Path Types</i> .....	216
<i>Summary of AttachImage Dialog Box Options</i> .....	217
Examining the Attached Image.....	218
<i>Which Image File Type to Use?</i> .....	218
Rotating Entities .....	219
<i>Summary of Rotate Command Options</i> .....	219
Scaling Entities .....	221
<i>Summary of Scale Command Options</i> .....	222
Tracing Over Scanned Images.....	223
Layers and Rectangles.....	223
<i>Drawing the Side View</i> .....	223

<i>Drawing the Front View</i> .....	226
<i>Summary of Move Command Options</i> .....	228
<i>Chamfering Entities</i> .....	229
<i>Summary of Chamfer Command Options</i> .....	230
<i>Drawing Linetypes</i> .....	232
<i>Summary of Linetype Dialog Box Options</i> .....	233
Dual Dimensioning .....	235
Summary .....	236
<b>11 — Isometric Drafting</b> .....	<b>237</b>
Setting Up an Isometric Template .....	239
Isometric Text Styles .....	241
Isometric Dimension Styles .....	244
Drawing in Isometric Mode .....	246
Drawing Isometric Boxes .....	246
Drawing Irregular Boxes .....	249
Placing Isometric Text .....	253
Placing Isometric Dimensions .....	254
Summary .....	257
<b>12 — Solid Modeling</b> .....	<b>259</b>
Drawing 3D Solid Primitives .....	261
Viewing in 3D .....	262
<i>Summary of RollView Command Options</i> .....	263
Adding More Solids .....	264
Extruding 2D Objects to Create Solids .....	265
<i>Summary of Extrude Command Options</i> .....	266
Drawing Cylinders .....	267
Applying Boolean Operations .....	269
Subtracting Solids .....	269
Joining Solids .....	270
Analyzing Solid Models .....	271
<i>Summary of MassProp Report</i> .....	271
Summary .....	272



<b>13 — Multiple Viewports, Multiple Drawings</b>	<b>273</b>
Multiple Viewports . . . . .	275
Sheets . . . . .	277
Creating Additional Viewports . . . . .	279
<i>Summary of Viewport Command Options</i> . . . . .	280
Attaching Multiple Drawings . . . . .	282
Summary . . . . .	286

## Part IV: Appendices

<b>A — Alphabetical Command Summary . . . . .</b>	<b>289</b>
<b>B — Alphabetical System Variable Summary</b>	<b>301</b>
<b>C — Command Aliases . . . . .</b>	<b>315</b>
Aliases Sorted by ARES Commands . . . . .	316
Aliases Sorted by Alias Names . . . . .	321
<b>D — Keyboard Shortcuts . . . . .</b>	<b>331</b>
Keyboard Shortcuts . . . . .	332
Temporary Overrides . . . . .	333
<b>E — Button Clicks &amp; Double Clicks . . . . .</b>	<b>335</b>
Mouse Buttons . . . . .	336
Double Click Actions . . . . .	337