

# Index

## • Symbols and Numerics •

<> (angle brackets), 30, 249  
' (apostrophe) character, 31  
\* (asterisk) character, 37  
| (pipe) character, 312  
? (question mark) character, 37, 38  
[] (square brackets) character, 30  
\_ (underscore) character, 31  
@X,Y coordinates, 91  
\_LINE command, 31  
2D drawings  
  coordinate entry, 191  
  creating 3D objects from, 194–196  
  input and output devices for, 183  
  and system performance, 183  
  versus 3D, 180  
  wireframe mode, 184, 187  
2P (2-Point) option (Circle command), 115  
3D meshes, 196  
3D modeling  
  AutoCAD LT limitations, 14  
  AutoCAD 2005 support for, 179–182  
  Cartesian coordinate systems, 190–191  
  cautions, 183  
  coordinate filters, 192  
  creating 3D objects, 194–197  
  editing commands, 199–200  
  lines and polylines, 193–194  
  object snaps, 192  
  prerequisites for, 182–183  
  primitives, 196, 198–199  
  rendering, 200  
  solids modeling, 197–199  
  and system performance, 183  
  typed coordinates, 191  
  uses for, 179–181  
  using 3DOrbit command, 187–189  
  wireframes, 181

3D Surfaces option (Draw menu), 196  
3D Views option (View menu), 186–187  
3DClip command, 189  
3DFACE command, 196  
3DOrbit command, 187–189  
3DPOLY command, 193–195  
3DS Max (Discreet) animation program, 200  
3P (3-Point) option (Circle command), 115

## • A •

absolute coordinates  
  entering in command area, 191  
  polar and rectangular, 91  
Acad DWG formats. *See* DWG files  
Acad.dwt template, 51–53  
ACAD-ISO linetypes, 82  
Acadiso.dwt template, 53  
Acad.lin file, 82, 84  
Acadiso.lin file, 82, 84  
accuracy versus precision, 89  
ACI (AutoCAD Color Index), 81  
ADCenter command, 344  
Add Printer Wizard, 269  
Add-A-Plotter Wizard, 270  
add-on products, 183, 197  
Adjust Clipping Planes (3DOrbit), 189  
Adobe PDF files, 376–377  
aesthetics, 339  
aligned dimensions, 232, 244–245  
ALL object selection option, 135  
All option (Zoom command), 170  
Alternate Units tab settings (New/Modify Dimensions dialog box), 242  
Alt-key shortcuts, 21  
Always Draw Dim Line settings (dimensions)  
American Institute of Architects (AIA),  
  *CAD Layer Guidelines*, 340, 343

- American National Standards Institute (ANSI) plot sheet sizes, 47
  - angle brackets (<>), 30, 249
  - Angle option (Arc command), 117–118
  - Angle Precision list (Drawing Units dialog box), 55
  - angle settings (hatch patterns), 261–262
  - Angle Type list (Drawing Units dialog box), 55
  - angular dimensions, 233
  - animations, 200
  - annotations, 49, 88–89, 256
  - ANSI (American National Standards Institute) plot sheet sizes, 47
  - apostrophe (') character, 31
  - Apparent Intersection snap mode, 192
  - Arc command, 103, 115, 117–119
  - Arc Length option (REVCLOUD command), 126
  - Arc option (ELlipse command), 120, 121
  - arcball (3DOrbit), 187
  - Architectural Desktop, 102, 183
  - Architectural drawing units
    - default, 92
    - drawing limit settings, 57
    - scale options, 44–46
  - Architectural sheet sizes, 47–48
  - ARCHIVE command, 354
  - arcs, circular and elliptical, 110, 116–119
  - ARray command, 149–150
  - arrow keys, 31
  - arrowheads, 250–253
  - associative dimension objects, 233–234, 249–250
  - asterisk (\*) character, 37
  - attachment options (xrefs), 312
  - ATTDEF command, 305
  - ATTDIA system variable, 307
  - Attribute Extraction wizard, 308
  - attributes
    - attribute values, 304, 307–308
    - versus database fields, 305
    - defining, 300, 304–306
    - in exploded blocks, 309
    - using, 304, 307
  - AUNITS system variable, 51
  - AUPREC system variable, 51
  - AutoCAD 2004, upgrading from, 14–16
  - AutoCAD 2005
    - add-ons for, 13
    - versus AutoCAD LT, 13–14
    - compatibility with earlier versions, 11–12, 14–16
    - new features, 15–16, 40
    - versus other Windows programs, 18
  - AutoCAD Color Index (ACI), 81
  - AutoCAD LT 2005 feature overview, 13–14
  - AutoCAD LT 2005 For Dummies*, 1–2, 14
  - AutoCAD Releases 12-14 compatibility issues, 12
  - Autodesk
    - add-on products, 10, 13
    - Buzzsaw, 350
    - DWF Composer, 350
    - Express Viewer, 358, 363
    - Knowledge Base, 40
    - solids modeling utilities, 197
    - 3D modeling utilities, 183
    - VIZ rendering program, 202
    - Web site for, 40
  - auto-hide feature (palettes), 36
  - AutoLISP (LSP) programs, 15
  - automated plotting, 289–290
- B •**
- back up (BAK) files, 371
  - background masking, 218–219, 241
  - background plotting, 15
  - base points
    - for blocks, 299
    - for drawing manipulations, 145–148
    - selecting and using, 138–143
  - Batch Standards Checker utility, 345
  - BATTMAN command, 306
  - bHatch command, 257
  - Bind button (Xref Manager dialog box), 315
  - bitmap (BMP) files
    - exchanging, sharing, 377–378
    - uses for, 296
    - versus vector files, 371
  - bitmapped (raster) images, 216–219

- Block Attribute Manager, 306
  - Block command, 301
  - block libraries, 301
  - blocks
    - defining, 295–300, 304, 306–307
    - exploding, 308–309
    - functions, 295, 297, 316
    - icons for, 300
    - inserting in drawings, 296, 301–304
    - limitations, 297
    - redefining, 298, 302
    - versus xrefs, 310
  - blueline machines (blueprints), 268
  - BMP (BitMaP) files, 296, 377–378
  - Boolean operations, 199
  - borders, 43, 50, 256
  - boundary edges, 152–153. *See also*
    - hatching (hatch objects)
  - Boundary Hatch and Fill dialog box, 256–264
  - bounding boxes, 132–133
  - brackets in command line prompts, 30
  - BReak command, 121, 154
  - broadband access, 348
  - bulleted lists, 221–222
  - BURST command, 309
  - buttons
    - active versus inactive, 26, 90
    - issuing commands using, 18
  - Buzzsaw (Autodesk) drawing repository, 350
  - by-layer property controls, 77–79, 224–227
  - by-object property controls, 77–78
- ●
- CAD (computer-aided drafting, drawing)
    - drawing programs
    - good practices, 74
    - versus manual drawing, 167
    - versus non-CAD drawing programs, 73, 101
    - requirements for, 42
    - text in, 205
    - 3D modeling capability, 179–180
    - CAD Layer Guidelines* (American Institute of Architects), 340, 343
  - CAD standards
    - aesthetics, 339
    - color-to-lineweight plotting charts, 341–342
    - compliance-enhancing utilities, 344–346
    - implementation challenges, 340
    - importance of, 337–338, 371
    - internal or project-specific, 340
    - layer charts, 342–343
    - nonstandard, 339
    - for styles and drawing set up, 343–344
    - text size, 241
  - camera point controls (3DOrbit), 189
  - Cartesian coordinate systems, 190
  - cartoons, 49
  - CD-browser screen, 15
  - center points, identifying
    - for arcs, 110, 117
    - for ellipses, 120
  - Chamfer command, 155–156
  - channels (Communication Center), 25–26
  - Check Standards utility, 345–346
  - CHECKSTANDARDS command, 345
  - child drawings. *See* dependent files (child drawings)
  - circles, circular arcs, drawing, 103, 110–111, 115–116
  - clipping 3D objects, 189
  - Close command, 20, 28
  - Close option
    - Line command, 106
    - PLine command, 109
  - closing drawing areas, 256
  - closing toolbars, 22
  - clouds, revision, 124–126
  - Color Book tab (Select Color dialog box), 81
  - Color TaBle (CTB) files, 280, 283–285
  - color-dependent plot styles
    - attaching to drawing, 285
    - plot property settings, 282
    - storage location, 280
    - tables for, 279

- colors, color property
  - applying, 80–81, 248
  - for hatch patterns, 261
  - for lineweights, 78, 283, 341–342
  - in raster format files, 378
  - uses for, 77
  - viewing and changing settings for, 282
- color-to-lineweight plotting charts, 283, 341–342
- columns (tables), widening, 226
- command line area
  - command options, 103–104
  - coordinate entry, 28–29, 90–92
  - Esc key with, 30
  - features, 26
  - right-click action, 31
  - for system variables, 36
  - using, 17–18, 27–28
  - watching, 30–31, 34
- command prompt, 29
- Command Reference (online help), 38, 217–218, 234–235
- command-first editing
  - as default, 130–131
  - Erase command, 135–137
  - object selection, 131–135
- commands. *See also* command line area
  - issuing, 18
  - options, viewing, 27
  - recent, viewing and rerunning, 31
  - transparent, 31
- Communication Center, 25–26
- configuration settings, 31, 20
- Configure Standards utility, 345
- construction lines, 104
- container programs (OLE), 379
- content pane, 88
- Control-key shortcuts, overview, 21
- coordinate filters, 192
- Coordinates area, 92
- coordinates, coordinate systems
  - for camera point target points, 189
  - for cursors, 24, 27
  - icons for, 190
  - precision techniques, 90–92
  - for 2D and 3D drawings, 191–193
  - versus viewpoints, 191
  - WCS and UCS systems, 190–191
- CoPy command
  - versus COPYCLIP command, 142
  - keyboard shortcut, 27
  - with 3D solids, 199
  - using, 138, 141
- copy option (grip modes), 160–161
- COPYBASE command, 143
- COPYCLIP command, 141–143
- copying
  - dimension styles, 235–237
  - layers, 87–88
  - layouts, 66–67
  - methods for, 142
  - sheet sets, 326
- CPolygon object selection, 135
- Create Layout Wizard, 63–65
- Create New Dimension Style dialog box, 238
- Create New Table Style dialog box, 223–224
- Create Realistic Images and Graphics (User's Guide), 201–202
- Create Sheet Set wizard, 325–326
- Create Transmittal dialog box, 352–353
- crossing object selection, 132–133, 135–136, 144
- CSV (Comma Separated Value) files, 227
- CTB (Color TaBle) files, 280, 283–285
- Ctrl+1, +2, +3, +4 keyboard shortcuts, 34
- Ctrl+H keyboard shortcut, 297
- Ctrl+N keyboard shortcut, 52
- Ctrl+O keyboard shortcut, 21
- Ctrl+S keyboard shortcut, 21
- current layer, 76
- current properties, 75
- cursors
  - cursor coordinates, 24
  - full-orbit cursor, 187
- curved segments, 107. *See also* arcs
- curve-drawing commands, 115–126
- custom fonts, 207–208, 356
- Customization Guide, 22, 84
- Customize dialog box (toolbars), 23

- customizing
  - hatching areas, 256–258
  - system variables, 36–37
  - templates, 68–70
  - toolbars, 22
- CUTCLIP command, 143
- cutting edges, trimming, 152–153
- **D** •
- dash-dot linetypes, 45, 60
- data extraction, 307–308
- database fields, versus attributes, 305
- DC Online tab (DesignCenter palette), 86
- ddEDIT command, 248
- DDPTYPE command, 127–128
- DDVPOINT command, 187
- decimal units, 44
- Default Template File, 69
- defaults
  - command line area action, 30
  - configuring and restoring, 18
  - coordinate entry units, 92
  - dimension style, 237
  - dimension text, 249
  - editing style, 130
  - hatch placement, 264
  - template drawing, 51, 53, 69
  - 3D coordinate system, 190
  - 3D model display, 187
  - toolbar arrangement, 22
  - transmittal package format, 353
- Define Attributes (Draw menu), 305
- Define View Window button (New View dialog box), 171
- degenerating images, 176–177
- dependent files (child drawings)
  - blocks with, 303
  - in Web-based transmissions, 350
  - xrefs with, 309–310
- depth thickness, 194–196
- Description box (Layer Properties Manager dialog box), 83
- DesignCenter palette
  - components, 85–87
  - copying dimension styles, 236
  - favorites list, 88
  - keyboard shortcuts, 34
  - maintaining CAD standards using, 344
  - screen display, 35
- DesignJet printers (Hewlett-Packard), 269
- Detach button (Xref Manager dialog box), 315
- dialog boxes
  - features and uses, 38–39
  - modal versus modeless, 35
- diameters, 233
- diazoblue machines (blueprints), 268
- digital signatures, 364
- Dim Style Control list, 243
- DimANGular command, 247
- DIMASSOC system variable, 249
- DimBASeline command, 246–247
- DimCOntinue command, 246–247
- DIMDISASSOCIATE command, 250
- Dimension menu, 234, 244–245
- Dimension Style Manager dialog box, 51, 61, 237–238
- dimension styles. *See also* dimensions,
  - dimensioning
    - character formatting, 242
    - creating, 237–238
    - defined, 229–230, 235
    - line and arrows settings, 240
    - ready-made, copying, 235–237
    - scaling options, 241–242
    - secondary styles, 238
    - standardizing, 343
    - text settings, 240
    - tolerance settings, 242
- Dimension toolbar
  - access and uses, 234
  - Aligned Dimension button, 245
  - Linear Dimension button, 244
  - Quick Leader button, 251
- dimensions, dimensioning. *See also*
  - dimension styles
    - angular, 233
    - associative dimension objects, 233–234
    - commands for, 234, 246
    - defined, 36, 60–61
    - dimension arrowheads, 232

- dimensions, dimensioning (*continued*)
  - dimension lines, 231–232
  - dimension text, 230–231, 249
  - editing, 247–250
  - importance of, 229, 230–231
  - linear, 232–233, 243–246
  - object selection options, 242–243
  - radial, 233
  - scale settings, 51, 61
  - side-by-side, 246
  - trans-spatial, 246–247
  - variables for, 36, 235
- DimLinear command, 247
- DimRadius command, 247
- DIMREASSOC command, 250
- DIMREGEN command, 250
- DIMSCALE system variable
  - with revision clouds, 126
  - settings for, 242
  - with trans-spatial dimensioning, 246–247
  - using, 51, 211
- Dimstyle command, 61, 85
- direct distance entry, 90, 98
- direct manipulation editing, 130
- displacement distances, 138–139
- display settings, 18, 92
- dithering, monochrome, 286
- DLine command, 112
- DOnut command, 103–104, 115, 123–124
- donuts, 123–125
- double lines, 111–112
- double-floating-point precision, 176
- Drafting Settings dialog box
  - Object Snap tab, 96–97
  - Polar Tracking tab, 98
  - Snap and Grid tab, 57
  - system variable settings, 51
- drag-and-drop action
  - copying dimension styles, 236–237
  - copying layers, 88
  - inserting blocks, 303
  - with Stretch command, 146
- Drag-and-Drop Scale area (Drawing Units dialog box), 55
- Draw menu
  - Block, Define Attributes option, 305
  - commands on, 102–103
  - Single Line Text option, 213
  - Solids submenu, 198
  - Surfaces, 3D Surfaces option, 196
- Draw Order setting (Boundary Hatch and Fill dialog box), 264
- Draw Order toolbar, 22
- Draw toolbar
  - Insert Block button, 302
  - Make Block button, 298
  - Multiline Text button, 216
  - using, 22, 103
- drawing area
  - annotation space, 49
  - calculating, 48–49
  - drawing on, 31, 34
  - model space, 25, 32
  - and printer/plotter limitations, 49
  - reading coordinates in, 92
  - scroll bar panning, 169–170
  - Shift+right-clicking in, 95–96
  - title bar and sizing buttons, 20
- drawing commands, 28, 102–106
- Drawing eXchange Format (DXF) files, 376
- Drawing Orientation area (Plot dialog box), 273
- Drawing Properties dialog box, 60–61
- drawing scale factor
  - applying to linetypes, 61
  - for architectural drawing scales, 46
  - choosing correctly, 370
  - determining from drawings, 211
  - versus drawing scales, 45
  - text heights, 211
  - text styles, 209–210
- drawing scales, 45–47
- drawing units, 43–44, 54–55
- Drawing Units dialog box
  - choosing type and precision of units, 44
  - linear and angular unit settings, 54–55
  - system variable settings, 51
- drawing windows, 20
- drawings
  - aesthetics, 339
  - arcs, 117–119
  - blocks in, 296, 301–304, 307

- borders, 50
  - circles, 115–116
  - circular arcs, 110–111
  - color settings, 282, 285–287
  - copying page setups from, 285
  - ellipses, 119–121
  - geometry of, 101
  - hatching in, 255–256
  - limit settings, 51, 56
  - lines and line segments, 104–106
  - mining data from, 85
  - organizing using sheet sets, 15
  - paper size, 47–49
  - parent and child drawings, 310
  - plotting, simple example, 271–273
  - polyline objects, 108–110
  - precision in, 88–89
  - raster images, 316–318
  - rendering, 200
  - revision clouds, 125–126
  - scaled, 45–47, 275–276
  - setting up for, 42
  - in sheet sets, 325–328, 329–330
  - splines, 121–123
  - standards for, 343
  - storage options, 296
  - from templates, 69
  - text in, 206
  - 3D objects, 193–199
  - units, 44–45
  - xrefs in, 297, 311–315
  - DRaworder command, 241, 319
  - Driver and Peripheral Guide, 269
  - drivers, nonsystem, 268–269
  - DST files, 321, 323
  - DView command, 187
  - DWF Composer (Autodesk), 348
  - DWF (Drawing Web Format) files
    - creating, 360–363
    - exchanging, sharing, 376
    - hyperlinks in, 363
    - security tools, 264–265
    - using, 349, 358
  - DWG files
    - as blocks, 301, 303
    - exchanging, sharing, 350, 374–375
    - opening, 11–12
    - security tools, 364
    - table objects, 224
    - templates from, 68–70
    - as xrefs, 312–314
  - DWS files, 346
  - DWT files, 51, 68
  - DXF (Drawing eXchange Format) files, 376
- **E** ●
- EATTEDIT command, 307–308
  - EATTEXT command, 308
  - Edge option (POLYgon command), 113
  - Edit Boundaries button (View dialog box), 172
  - Edit menu, 226
  - Edit Text dialog box, 214
  - Edit toolbar, 308
  - editing. *See also* grip editing
    - attributes, 307–308
    - block definitions, 304
    - command-first versus selection-first, 129–130
    - dimension associativity, 249–250
    - dimension geometry, 247–248
    - dimension styles, 239–242
    - dimension text, 248–249
    - hatch objects, 264–265
    - layers, 84
    - layouts, 66–68
    - leader arrows and comment, 253
    - linetype definitions, 84
    - multiline text, 217–218, 222–223
    - object properties, 165
    - plot styles, 282
    - plotter configurations, 288–289
    - polylines, 107–108
    - single-line text, 213–214
    - spline curves, 122
    - table cell contents, 226
    - 3D objects, 199–200
    - xref files, 313
  - editing commands
    - ARray, 149–150
    - BReak, 154

- editing commands (*continued*)
    - CoPy, 138, 141–142
    - Erase command, 135–137
    - Fillet and CHamfer, 155–156
    - LENGthen, 153
    - Move, 138, 139–141
    - Offset, 150–151
    - ROtate, 147
    - SCale, 148
    - Stretch, 138, 143–146
    - TRim and EXtend, 152–153
  - from Windows Clipboard, 143
  - efficiency, 10
  - EGENAUTO system variable, 177
  - electronic security features, 350, 364–365
  - ELLipse command, 103, 115, 120
  - ellipses, elliptical arcs, 119–121
  - e-mail, 356
  - End and Endpoint options (Arc command), 117
  - endpoints, 117, 242, 244–245
  - Engineering drawing units, 44, 57, 92
  - Enhanced Attribute Editor dialog box, 307–308
  - Enter Attributes dialog box, 307
  - ePlotting, 358–360
  - Erase command, 135–137
  - erasing objects, 135–137
  - error messages, 28, 356
  - Esc key, in command line area, 30
  - ETRANSMIT command, 348–353, 375
  - Excel spreadsheets, 15, 226
  - exchanging, sharing files. *See* file transfers, exchanges
  - Explode button (Edit toolbar), 308
  - eXplode command
    - with blocks, 308–309
    - with dimensions, 248
    - with polylines, 108
    - using properly, 370–371
  - EXPORT command, 377–378
  - exporting files. *See* file transfers, exchanges
  - Express Tools
    - BURST command, 309
    - enabling toolbars for, 23
    - installing from AutoCAD 2005 CD, 15
    - Express Viewer (Autodesk), 363
    - EXtend command, 131, 152–153
    - extension lines, 232
    - Extents option (Zoom command), 170
    - External Reference dialog box, 312
    - external references. *See* xrefs (external references)
    - EXTrude command, 196
    - extrusion, 194–196
- F ●**
- favorites (Design Center), viewing 88
  - Fence object selection, 135
  - fields, text, 219–220, 226
  - file formats. *See also* file transfers, exchanges
    - for backup files, 371
    - and backward compatibility, 11–12
    - for block definitions, 301
    - for drawing templates, 68
    - for drawings, 69
    - for raster images, 295, 317
    - for sheet sets, 321, 323
    - for Web transmissions, 351
  - File menu
    - Drawing Properties dialog box, 61–62
    - eTransmit option, 351
    - Export command, 377
    - New command, 52
    - Page Setup Manager, 285
    - Plotter Manager window, 270
    - Save Drawing As dialog box, 68, 364–365
  - File navigation dialog box, 349
  - file size, 319
  - file transfers, exchanges
    - AutoCAD tables, 227
    - common exchange formats, 371–372
    - drawings, 350–357
    - DWG files, 374–375
    - DXF and DWF files, 376
    - ETRANSMIT command, 352–354
    - FTP, 352–356

Object Linking and Embedding, 379–380  
 PDF files, 376–377  
 raster format files, 377–378  
 screen captures, 380–381  
 TXT and RTF files, 381–382  
 Web-based, 350–357  
 Windows Clipboard, 379  
 WMF files, 377

Files tab (Options dialog box), 281  
 Fillet command, 155–156  
 filter options, 192  
 First point option (BReak command), 154  
 Fit tab settings (New/Modify Dimensions dialog box), 241–242  
 Fit to Paper settings (Plot dialog box), 46–47, 275–276  
 fixed height text styles, 209  
 Flat Shaded mode, 189  
 floating viewports, 184  
 folders  
   for plot styles, 281  
   for templates, 70  
 Folders tab (DesignCenter palette), 86  
 fonts, 206–208, 356  
 Format menu  
   Dimension Style Manager dialog box, 61  
   Drawing Limits option, 56  
   Linetype command, 61, 84  
   Point Style dialog box, 127  
   Table Style option, 223  
   Text Style dialog box, 208–209  
   Units option, 54  
 formatting multiline text, 217–218  
 Fractional drawing units, 44  
 fractional inches, 92  
 Freeze layer setting, 371  
 FTP (File Transfer Protocol), 355–356  
 F2 key, 29  
 full orbit cursor (3DOrbit), 187–188

## ● G ●

geometric tolerances, 242  
 geometry  
   in CAD drawing, 101  
   crammed, avoiding, 371

  editing, 247–248  
   precision in, 88–89  
 geometry-driven associative  
   dimensions, 234  
 Global Scale factor edit box (Linetype Manager dialog box), 61  
 Gouraud Shaded mode, 189  
 gradient fill hatch patterns, 261  
 gray scale in drawings, 286  
 grid mode, 24, 57, 58  
 grid spacing, 51, 57–59  
 GRIDMODE system variable, 51  
 GRIDUNIT system variable, 51  
 grip editing  
   defined, 130  
   MOVE mode, 161–162  
   for multiline text, 222–223  
   spline curves, 122  
   STRETCH mode, 157–158, 162–164  
   using, 156–157  
   with wireframe and surface objects, 199  
 grips (hot grips)  
   defined, 107, 130, 156  
   displaying, 157  
   using, 160, 164  
 Group command, 297  
 group filters (layers), 84  
 Group Manager dialog box, 297  
 grouping objects, 297

## ● H ●

half-size plots, 275  
 hard copy, options, 267–268. *See also*  
   plotting  
 hardware requirements, 15  
 Hatch Edit dialog box, 264–265  
 hatch palettes, 264  
 hatch patterns  
   angle and scale settings, 261–262  
   copying settings for, 259  
   predefined, 260–261  
   standardizing, 343  
   trimming, 265  
   updating, 259  
   user-defined, 261

- hatching (hatch objects)
  - adding to diagrams, 255–258
  - boundary settings, 257–258, 262–264
  - default placement, 264
  - editing, 264–265
  - unit selection, 45
- height settings (text styles), 209–211
- help system
  - Command Reference, 38
  - Customization Guide, 22
  - Driver and Peripheral Guide, 269
  - Help menu options, 39–40
  - New Features Workshop, 40
  - Online Resources submenu, 40
  - Quick Help Info Palette, 40
  - submenus, 39–40
  - User's Guide, 201–202
- Hidden Files and Folders setting, 69
- Hidden mode (3DOrbit), 189
- HiJaak translation program, 377–378
- History tab (DesignCenter palette), 86
- horizontal dimensions, 232, 244
- horizontal rotation cursor (3DOrbit), 188–189
- host drawings, 310
- hot grips. *See* grips (hot grips)
- Hue Saturation Luminance (HSL)
  - settings, 81
- hyperlinks, 362–363

• **I** •

- IMage command, 318, 377
- Image dialog box, 318
- Image Manager dialog box, 318–319
- images, raster (bitmapped), 316–319
- imperial units, 45
- implied windowing, 132
- Import Layouts as Sheets dialog box, 327
- importing. *See also* file transfers,
  - exchanges
  - page layouts and setups, 66, 285
  - sheets, 327–328
  - spreadsheet data, 15, 226
- indents, 220–222

- indexing sheet sets, 333–335
- infinite lines, 104
- Info Palette Quick Help, 40
- Insert Block button (Draw toolbar), 302
- Insert dialog box, 302–303
- Insert Field command (Multiline Text Editor), 219
- insert hyperlink feature, 350
- Insert menu, 311, 377
- Insert Sheet List Table dialog box, 334
- Insert Table dialog box, 225–226
- insertion points
  - for attribute definitions, 306
  - for blocks, 225, 299
  - for raster images, 318
  - for tables, 225
  - for text, 214
  - for xrefs, 312
- International Standard Organization (ISO)
  - CAD standards, 340
  - linetype patterns, 82
  - sheet sizes, 47–48
- Internet features, 347–348
- Intersect command, 199
- Inventor solids modeling add-on (Autodesk), 197

• **J** •

- jelly-filled donuts, 124
- joining lines, 155–156
- JPEG files, creating, 378
- JPGOUT command, 378
- justifying text, 211–212, 214, 223

• **K** •

- keyboard entry. *See* command line area
- keyboard shortcuts
  - accessing NEW command, 52
  - for command names, 27
  - Control and Alt keys, 21
  - grouping/ungrouping objects, 297
  - opening/closing text window, 29
  - palette access, 34

## • L •

- Last object selection option, 135
- layer charts, 342–343
- LAYER command, 85
- layer filters and table, 84–85
- Layer Translator utility, 344
- layers
  - for block insertions, 301
  - controlling properties using, 77–79
  - copying, 87–88
  - creating, 76
  - for hatch objects, 257
  - importance of, 75, 369
  - with Line command, 105
  - property settings, 79–84, 282
  - similarity to pin-bar drafting, 75
  - stacking, 77
  - standardizing, chart for, 342–343
  - for xrefs, 312
- Layers and Properties toolbar, 165
- Layers table (DesignCenter palette), 88
- Layers toolbar, 21
- layouts
  - copying, modifying, 66–68
  - creating, 63–65
  - defined, 32, 62–63
  - importing, 66
  - in paper versus model space, 25, 67–68
  - plotting using, 276–278
  - in sheet sets, 327
- LAYOUTWIZARD command, 63
- LAYTRANS command, 344
- LEADER command, 250
- leaders, 250–253
- Length of chord option (Arc command), 117
- Length Precision list (Drawing Units dialog box), 55
- Length Type list (Drawing Units dialog box), 54–55
- LENGthen command, 153
- lengthening objects, 151–157
- libraries, block, 301
- LIMITS command, 56
- limits, drawing, 55–57
- LIMMAX/LIMMIN system variables, 51
- LINE command
  - advantages of using, 30, 102
  - drawing 3D objects using, 193
  - drawing line segments, 104–106
  - keyboard shortcut, 27
  - \_LINE command, 31
  - object snap techniques, 93–95
  - options for, 28
  - versus PLine command, 107
- Line option (PLine command), 110
- line segments
  - connected, offsetting, 151
  - drawing, 28
  - polyline segments, 107
  - in 3D drawings, 193–195
- Linear command, 244
- Linear Dimension button (Dimension toolbar), 244
- linear dimensions
  - creating, 243–246
  - defined, 232–233
- linear units, settings for, 51, 54
- lines
  - double, 111–112
  - drawing, 104–114
  - joining, 155–156
  - stretching, 143–146
- Lines and Arrows tab settings (New/Modify Dimensions dialog box), 240
- Linetype command, 61, 84–85
- Linetype Manager dialog box, 51, 61, 84
- linetype property, 77, 82
- linetype scale settings, 51, 60–61
- lineweight (LWT) display mode button (status bar), 25
- Lineweight dialog box (Layer Properties Manager dialog box), 82
- lineweights
  - applying to new layers, 82–83
  - and color, 78
  - mapping screen colors to, 280
  - plotted, 283–285
  - with polylines, 107
  - uses for, 77
- List view (xrefs), 315

- lists, bulleting and numbering, 221–222
- Load or Reload Linetypes dialog box (Select Linetype dialog box), 84
- Loaded Linetypes list (Select Linetypes dialog box), 82
- lobes (revision clouds), 125
- location points, 126
- logos, inserting in drawings, 317
- LSP (AutoLISP) programs, 15
- LTSCALE system variable, 51, 60
- LUNITS system variable, 51
- LUPREC system variable, 51
- LWT (lineweight) display mode button (status bar), 25

## • M •

- major axis (ellipses), 119
- Make Block button (Draw toolbar), 298
- Manage Xrefs button (status bar), 26
- maps, inserting in drawings, 317
- Markup Set Manager (Standard toolbar), 348
- masking, background, 218–219, 241
- Match Properties button (Standard toolbar), 165
- Maximize Viewport button (status bar), 25
- Maximize/Restore button, 20
- MBUTTONPAN system variable, 169
- McNeel's rendering program, 202
- MEASUREMENT system variable, 45
- Mechanical Desktop 3D modeling add-on, 183
- menu bar, 21
- meshes, 181, 196
- metric units, 45
- Microsoft Windows, 9
- Mid Between 2 Points (M2P) object snap mode, 93–96
- middle mouse button, 169
- Minimize button, 20
- Minimize Viewport button (status bar), 25
- minor axis (ellipses), 119
- MIRROR grip-editing mode, 158
- MLine command, 112
- MLSTYLE command, 112
- modal dialog boxes, 35
- model space
  - adding text in, 211
  - defined, 25, 62
  - drawing settings, 54–57
  - drawing properties, 61–62
  - editing in, 67–68
  - features, limitations, 370
  - linetype scale settings, 60–61
  - page setups, 287
  - plotting from, 271–275
  - screen shot showing, 33
  - uses for, 32
  - viewport set up, 184–185
  - zooming and panning in, 173–175
- Model tab, 32, 276–277
- modeless dialog boxes, 35. *See also* palettes
- modeling, 3D. *See* 3D modeling
- MODEL/PAPER space button
  - layouts, 67
  - versus Model tab, 276–277
  - using, 25, 33
- Modify Dimension Style dialog box, 61
- Modify menu, 199
- Modify toolbar
  - drawing manipulation buttons, 147–156
  - Erase command, 136
  - eXplode command, 248
  - features, 22
  - monochrome dithering, 286
  - monochrome drawings, 271–273
  - monochrome plotting, 280, 377
  - Move command, 138–141, 160, 199
  - MOVE grip-editing mode, 158, 161–162
  - MSpace command, 67
  - mText (multiline Text) command
    - entering text, 215–218
    - tabs and indents, 220–222
    - using, 206, 211
  - mText objects, 248
- M2P (Mid Between 2 Points) object snap mode, 95–96
- multiline (paragraph) text
  - background masking, 218–219
  - dimension text, 248

- editing, 222–223, 248
- entering and formatting, 215–219
- justifying, 223
- leaders, 252
- tabs and indents, 220–222
- using, 211

Multiline Text Editor, 219

multiple drawings

- DWF files from, 362
- in sheet sets, 354
- xrefs with, 297

multiple lines, drawing, 111–112

multiple objects, selecting, 155–156

Multiple option (CoPy command), 141

multisegmented objects, 107

MVIEW command, 67

• **N** •

named objects

- examples of, 85
- managing, 74
- overwriting, 88

named plot styles, 279–280, 285

named views, 171–172, 322–323

National Institute of Building Sciences (NIBS) standards, 340

NEW command, 52

New Features Workshop, 40

New Layer button (Layer Properties Manager dialog box), 80

New Text Style dialog box, 208–209

New View dialog box, 171–172

New/Modify Dimension Style dialog box, 239–242

NIBS (National Institute of Building Sciences) standards, 340

NODE object snap mode, 127

nonassociative dimensions, 234

nonAutodesk program file exchanges, 374–375

nonsystem drivers, 268–270

Non-Uniform Rational B-Spline (NURBS) curves, 121

notes, precision in, 88–89

numbered lists, 221–222

• **O** •

object lineweights, 283–284

Object Linking and Embedding (OLE), 379–380

object properties. *See* properties (objects)

Object Properties toolbar, 79

Object Snap and Dimension toolbar, 22, 24–25, 93

object snap tracking, 25, 90, 98

Object Snap Tracking (OTRACK) button, 24–25

object snapping

- for dimensioning, 243–244
- precision techniques, 90, 92–97
- for 3D modeling, 192

objects

- connecting, 158–159
- dimensions, 242–243
- grouping, 295, 297
- hatching, 263–264
- line segments, 105–106
- moving, 160
- multisegmented, 107
- named, 74, 85
- removing, 134
- selecting, 131–134

Off layer setting, 371

Offset command, 112, 150–151

offset distance, 150

OLE (Object Linking and Embedding), 379–380

online help. *See* help system

OOPS command, 136

Open button (Xref Manager dialog box), 315

Open Drawings tab (DesignCenter palette), 86, 87

opening screen features, 20–31

option keyword, 28


options for commands, viewing, 27–30

Options dialog box

- command-first editing settings, 131
- Display tab, 18
- Files tab, 281
- Profiles tab, 18

- Options dialog box (*continued*)
    - screen shot, 39
    - Setup Wizards, 53
    - system variable settings, 38–39
  - orbiting (3DOrbit), 187–189
  - orientation, paper, 64
  - origins, for dimensions, 243–244
  - ortho mode
    - enabling/disabling, 164
    - precision techniques, 90, 97
  - ORTHO mode button, 24, 164
  - ortho tracking, 144
  - Orthographic UCS option (Tools menu), 190
  - OSNAP (Running Object Snap) button, 24–25, 90, 96–97
  - OTRACK (Object Snap Tracking) button, 24–25, 90
  - output. *See* plotting
  - output devices, viewing and selecting, 269–270
  - Over the Dimension Line setting (dimensions)
  - overlying xrefs, 312
  - override (single-point) object snaps, 92
  - overwriting named objects, 88
- p •**
- Page Setup Manager (File menu), 285
  - palettes, 34–35. *See also specific palettes*
  - Pan Realtime button (Standard toolbar), 169
  - panning
    - defined, 167
    - degenerating and regenerating images, 176–177
    - in model space, 173–175
    - in paper space, 175–176
    - process for, 168–169
    - scroll bars for, 169–170
    - 3D objects, 189
  - PANTONE color scheme, 81
  - paper orientation settings, 64
  - paper size
    - drawing area and scale calculations, 42–43, 53, 56–57, 64
    - options and standards, 47–49
    - and plotting, 275–276
  - paper space
    - adding text in, 211
    - defined, 25, 62
    - features, limitations, 32, 370
    - layouts, 32, 63–68
    - versus model space, 67–68
    - page setups, 287
    - plotting drawings from, 276–278
    - screen display, 33
    - and sheet sets, 323
    - zooming and panning in, 174–176
  - paragraph text object. *See* multiline (paragraph) text
  - parallel lines, drawing, 112
  - Parallel projection (3DOrbit), 189
  - parent and child drawings, 303, 309–310
  - password protection feature, 350, 364
  - Paste Special option (Edit menu), 226
  - PASTEBLOCK command, 143
  - PASTECLIP command, 141–143
  - PASTEORIG command, 143
  - paths
    - to Plot Styles folder, 281
    - for raster images, 318
    - for xrefs, 313–314
  - patterns, hatch. *See* hatch patterns
  - PC3 files, 269, 289
  - PCX files, 378
  - PDF (Portable Document Format) files, 376–377
  - PDMODE system variable, 128
  - PDSIZE system variable, 128
  - PEdit command, 107, 151
  - performance, and 3D modeling, 183
  - Perspective projection (3DOrbit), 189
  - photographs, inserting in drawings, 317
  - Pick Points button (Boundary Hatch and Fill dialog box), 263
  - pin-bar drafting, 75
  - pipe (|) character, 312
  - PLine command
    - drawing curved lines, 110–112
    - drawing straight lines, 108–110

- function, 102
  - versus Line command, 107
- Plot and Publish tab (Tools, Options menu), 269
- Plot Area area (Plot dialog box), 271
- Plot Area option (Plotter Configuration Editor dialog box), 289–290
- Plot button (Standard toolbar), 271
- Plot dialog box
  - accessing, 271
  - creating DWF files, 360–361
  - Fit to Paper option, 46
  - with paper space layouts, 277–278
  - Plot Object Lineweights settings, 283
  - Plot Style Table settings, 285
  - Plotter Configuration Editor, 288–289
  - settings and options, 271–272
  - Shaded Viewport Options area, 202
- plot layouts, defined, 62–63
- Plot Object Lineweights setting (Plot dialog box), 283
- Plot Objects options (Plotter Configuration Editor dialog box), 290
- Plot Offset settings (Plot dialog box), 271–272, 290
- Plot Options setting (Plot dialog box), 272
- plot (PLT) files, 286
- plot scale, 45, 272
- Plot Scale area (Plot dialog box), 272
- plot sheet sizes, 47–49
- plot style property, 77
- Plot Style Table area (Plot dialog box), 272
- Plot Style Table Editor dialog box, 281–283, 286
- Plot Style Table (Pen Assignments) settings (Plot dialog box), 285
- plot style tables, 280–285
- plot styles
  - creating, 281–283
  - versus plot style tables, 280
  - types and uses for, 279–280
- Plot Styles folder, 281
- Plot to File option (Plotter dialog box), 289
- Plot Upside-Down option (Plotter dialog box), 290
- Plot with Plot Styles setting (Plot dialog box), 272–273
- Plot/Publish Details Reports, 273
- Plotstyle Control list (Properties toolbar), 79
- plotted text height, 210, 240–241
- Plotter Configuration Editor dialog box, 288–289
- Plotter Manager dialog box, 270
- plotters, printers
  - configuring, 269, 362
  - drivers, 268–269
  - Hewlett-Packard DesignJet, 269
  - print area limitations, 49
  - troubleshooting problems with, 291
  - viewing and selecting, 64, 269–270
- plotting
  - batch plotting, 333
  - changing definitions, 267–268
  - color versus monochrome, 285–287
  - color-dependent, 279–280
  - interface improvements, 15
  - monochrome not-to-scale drawing, 271–273
  - overview, 267–268
  - page setups, 287–288
  - paper space layouts, 276–278
  - scaled drawings, 275–276
  - service bureaus for, 286
  - standardizing, chart for, 341–342
- PLT (plot) files, 286, 362
- PNGOUT command, 378
- POint command, 103, 128
- point filters, 192–193
- Point Style dialog box, 127–128
- points
  - adding dimensions using, 242–243
  - grabbing, 92–97
  - hatch area boundary settings, 258, 263–264
  - for leaders, 251
  - point objects, 126–128
- polar arrays, 149
- POLAR button, 98
- polar coordinates, 91, 191
- polar snap, 90, 98

- polar tracking
    - defined, 24
    - precision entry using, 90, 98
    - with Stretch command, 144
  - POLygon command, 30, 102, 113–114
  - polygons, defined, 113
  - polylines
    - drawing polyline objects, 108–110
    - editing, 107–108
    - offsetting, 151
    - segment widths, 107
    - in 3D drawings, 193–195
  - Portable Document Format (PDF) files, 376–377
  - precision
    - versus accuracy, 89
    - AutoCAD features, 10
    - choosing level of, 243
    - and coordinate entry, 90–92
    - and direct distance entry, 98
    - double-floating-point precision, 176
    - and editing, 137
    - importance of, 74, 88–89, 369
    - object snapping, 92–98
    - and ortho mode, 97
    - polar snapping, 98
    - selecting level of, 44, 51, 55
  - predefined hatching, 257
  - preexisting drawings, as templates, 43
  - previewing plotter output, 274, 278
  - Previous object selection, 135
  - Previous option (Zoom command), 171
  - Primary Units tab settings (New/Modify Dimensions dialog box), 242
  - primitives (3D objects), 196, 198–199
  - Printer/Plotter area (Plot dialog box), 360–361
  - printers. *See* plotters, printers
  - printing versus plotting, 268
  - Product Support, 40
  - Profiles tab (Options dialog box), 18
  - program window
    - command line area, 17, 26–31
    - menu bar, 21
    - opening screen features, 19
    - status bar, 22–26
    - title bar, 20
  - projections (3D Orbit), 189
  - Properties and DesignCenter palette, 34
  - Properties button (Standard toolbar), 75
  - properties (objects)
    - color, 77
    - controlling, 77–79
    - current, 75
    - editing, 165
    - hatch pattern settings, 259–261
    - layers, 75–77, 80–84
    - linetype settings, 77
    - lineweight settings, 77
    - managing, 74
    - plot style, 77
    - viewing, 74
  - Properties palette
    - display for, 35
    - editing dimensions, 248
    - editing hatch objects, 265
    - editing object properties, 165
    - enabling/disabling, 74–75
    - extrusion process, 195–196
    - keyboard shortcuts, 34
    - Text Override field, 248
  - Properties toolbar, 21, 79
  - property filters, for layers, 84
  - PSLTSCALE system variable, 51
  - PSpace command, 67
  - PUBLISH command
    - batch plotting, 33
    - creating DWF files, 362
    - function, 348–349
    - versus PUBLISHTOWEB command, 362–363
  - Publish dialog box (File menu), 361–363
  - Publish to Plotter option (Publish menu), 333
  - PUBLISHTOWEB command
    - function, 349
    - versus PUBLISH command, 362–363
  - PURge command, 309
-  •
- QDIM (Quick DIMension) command, 246
  - question mark (?) character, 37, 38
  - qLEader (Quick Leader) command, 250

QNEW command, 52, 69  
Quick Help Info Palette, 40  
Quick Leader button (Dimension toolbar), 251

## • R •

radial dimensions, 233, 246  
RAL color scheme, 81  
raster (bitmap) files  
  exchanging, sharing, 377–378  
  uses for, 295  
  versus vector files, 371  
raster (bitmapped) images, 296, 316–319  
Raster File Format driver, 378  
ratios and drawing scales, 45–46  
RAY command, 102  
realtime zooming and panning, 167–169, 171  
REctang command, 103, 112–113  
rectangles  
  absolute versus relative  
    coordinates, 91  
    options for drawing, 112–113  
  rectangular arrays, 149  
Red Green Blue (RGB) number  
  settings, 81  
redefining blocks, 302  
Redraw command, 177  
REFEDIT command, 304, 313  
Reference Manager utility, 349, 357  
REgen command, 177  
Regen queued message, 177  
REgenAll command, 177  
regenerating images, 176–177  
Regenerating layout message, 176  
Regenerating model message, 176  
regular polygons, 113–114  
Relative path xref storage  
  option, 314  
relative polar and rectangular  
  coordinates, 91  
Reload option (Xref Manager dialog box), 315  
removing objects, 134

Rename and Renumber Sheet dialog box, 327–328, 332  
renaming layouts, 66–67  
RENDER command, 201–202  
rendering drawings, 200–202  
renumbering sheets, 330  
resizing objects, 148, 257–258  
resource drawings (sheet sets), 330–331  
Resource Drawings tab (Sheet Set Manager palette), 322, 330–331  
restoring default configurations, 18  
REVcloud command, 103, 115, 124  
revision clouds, 124–126  
REvolve command, 197  
REVSURF command, 197  
RGB (Red Green Blue) number  
  settings, 81  
Rich Text Format (RTF) files, 381–382  
right-click action  
  in command line area, 31  
  for copying layers, 88  
  in drawing area, 34  
  for editing dimension geometry, 248  
  issuing commands using, 18, 103–104  
  modifying layouts using, 66  
  opening sheet sets, 324–325  
  versus Shift+right-click action, 95–96  
  with 3DOrbit command, 189  
roll cursor (3DOrbit), 188  
ROMAN.SHX font, 208–209  
ROtate command, 147, 199  
ROTATE grip-editing mode, 158  
rotated dimensions, 232  
rotation angle  
  for raster images, 318  
  for xrefs, specifying, 312  
Rotation option (ELLipse command), 120  
rotation options (3DOrbit), 187–189  
round-trip file transfer, 375  
RTF (Rich Text Format) files, 381–382  
Running Object Snap (OSNAP) button, 24–25  
running object snaps  
  defined, 92  
  precision techniques, 90, 96–97

## • S •

- Save As command (File menu), 68
- Save Drawing As dialog box (File menu)
  - activating passwords, digital signatures, 364–365
  - creating custom templates, 68–69
- SAVEAS command, 21
- SAVETIME system variable, 36
- saving
  - backup files, importance of, 371
  - plot settings, 272–273
  - profiles, 18
- Scale command, 148, 222–223
- Scale for Dimension Features area (Modify Dimension Style dialog box), 61
- SCALE grip-editing mode, 158
- Scale (X/XP) option (Zoom command), 170
- scales, scaling
  - determining before setup, 43
  - dimension text, 241–242
  - and drawing area calculations, 48–49
  - and drawing limits, 57
  - drawings, 45
  - DWF files, 361
  - hatch patterns, 261–262
  - multiline text objects, 222–223
  - and plotting, 275–276
  - raster images, 318
  - resource drawings, 330–333
  - for smart paper drawings, 42
  - text, 210
  - for xrefs, 312
- SCALETEXT command, 148, 222–223
- schematic sketches, 49
- Scientific drawing units, 44
- screen captures, 380–381
- screen colors, mapping, 284–285
- screen displays
  - command line area, 26–31
  - customizing, 18
  - maximizing when using palettes, 36
  - menu bar, 21
  - opening screen features, 19
  - status bar, 22–26
  - title bar, 20
- scroll bars (drawing area), 169–170
- scroll wheel (mouse), 169
- second point coordinates
  - for arcs, 110–111, 117
  - and base point method, 138
  - precision techniques, 141
- secondary styles (dimensions), 238
- segments, line. *See* line segments
- Select Color dialog box (Layer Properties Manager dialog box), 80–81
- Select Image File dialog box (Image Manager dialog box), 318–319
- Select Linetype dialog box (Layer Properties Manager dialog box), 82
- Select Objects button (Block Definition dialog box), 134–135, 299–300
- Select Reference File dialog box (Xref Manager dialog box), 311
- Select Template dialog box, 52
- selecting objects
  - base point and displacement methods, 138–139
  - for dimensioning, 242–243
  - with Erase command, 136
  - removing selected objects, 134
  - for spell-checking, 227
  - standard selection modes, 131–134
  - for Stretch command, 143, 145
  - for TRim and EXtend commands, 152
- selection sets, erasing, 136
- selection-first editing, 130
- semi-infinite lines, 104
- service bureaus, 286
- setting layers, 76
- setup for drawings
  - borders, 50
  - drawing units, 44–45
  - importance of, 42
  - linetype scale settings, 60–61
  - model space, 54–62
  - paper size, 47–49
  - planning for, 43
  - scale selection, 45–47
  - system variables, 50–51
  - template drawings, 51–53
  - unit selection, 44–45
  - using preexisting drawings for, 43
- Setup Wizards, 53

- SETvar command, 37
- SHADE command, 202
- Shade submenu (View menu)
  - rendering using, 202
  - 2D Wireframe option, 184
- Shaded Viewport Options area (Plot dialog box), 202, 290
- shading in drawings, 184, 187
- Shading Modes and Projection options (3DOrbit), 189
- Sheet List tab (Sheet Set Manager palette), 323, 324, 328–333
- sheet list tables, 333–335
- Sheet Set Manager palette
  - creating sheet sets, 323–326
  - keyboard shortcuts, 34
  - managing sheet sets, 326–328
  - Publish dialog box, 362
  - Resource Drawings tab, 322
  - screen display, 35
  - sheet list table, 333–334
  - Sheets tab, 323
  - using, 34
  - viewports, 330–333
  - Views tab, 322–323
- Sheet Set Properties button (Create Sheet Set wizard), 325–326
- sheet sets
  - adding to, 327–328
  - copying, 326
  - creating, 323–326, 329–330
  - and file exchanges, 354
  - indexing, 333–335
  - organizing, 328–329
  - prerequisites for, 322
  - storage location, 321
  - using, 15, 321–322, 370
- sheet sizes. *See* paper size
- Shift key, deselecting objects
  - using, 134
- Shift+right-click or left-click keyboard shortcuts, 93, 95–96
- shortening objects, 151–157
- SHX (compiled SHape) fonts, 207–208
- single point (override) object snaps, 92
- single-line text objects, 211, 213–214
- single-point object snaps, 90
- size, paper, 43
- sketches, value of, 49
- smart paper, 42
- Snap and Grid tab (Drafting Settings dialog box), 58
- SNAP button
  - activating polar snap, 98–99
  - enabling/disabling snap feature, 24, 58
  - precision entry using, 90, 97
  - snap feature, 24, 57–58
  - snap locations, 127
  - snap spacing settings, 51, 57–59
- SNAPMODE system variable, 51
- SNAPUNIT system variable, 51
- software requirements, 14
- solid fill hatch patterns, 261
- solids, 3D. *See also* 3D modeling
  - editing, 199–200
  - modeling, 181, 197–198
  - primitives for, 198–199
- SolidWorks add-on, 197
- source drawing, 87–88
- source programs (OLE), 379
- spaces, when typing coordinates, 92
- Specify Insertion Point option (Insert Table dialog box), 225
- Specify Window option (Insert Table dialog box), 225
- SPell command (spell-checking tool), 227–228
- SPLine command
  - options, 121
  - using, 103, 115, 122
- spline curves, 121–123
- spreadsheets, exchanging data with, 15, 226
- square brackets ([ ]) characters, 30
- stacking layers, 77
- Standard toolbar
  - accessing palettes from, 34
  - DesignCenter button, 87
  - features overview, 21
  - Markup Set Manager, 348
  - Match Properties button, 165
  - Pan Realtime button, 169

Standard toolbar (*continued*)

Plot button, 271

Properties button, 75

QNEW command, 52, 69

Zoom Realtime button, 168

standards. *See* CAD standards

STANDARDS command, 345

starting points. *See* base points

status bar

features overview, 24–26

MODEL/PAPER space button, 25, 33

Snap and Grid buttons, 57

STB (Style Table) files, 280

still rendering, 200

Store Current Layer Settings with View option, 172

straight lines, drawing, 104–106

Stretch command, 138, 143–146

STRETCH grip-editing mode, 157–158, 162

stretching 3D solids, 199

style families, 238

Style Table (STB) files, 280

styles, standardizing, 343. *See also*  
dimension styles; plot styles;  
text styles

Styles toolbar, 21

subsets (sheets), 328–329

substyles, 238

Subtract command, 199

Summary tab (Drawing Properties dialog box), 61–62

surface meshes, 196

surface models (3D), 181

Surfaces option (Draw menu), 196

symbol tables, 85

system requirements, 15

system variables. *See also specific variables*  
changing, 36–37

common settings for, 50–51

types of, 36, 38, 235

viewing, 37

## • T •

Table command, 224–227

table object

editing cells, 226

plot style tables, 280–285

right-click menu options, 225

sheet list tables, 333–334

storage format, 224

table styles, 223–227

uses for, 223

Table Style dialog box, 334

Table Style option (Format menu), 223

TABLEEXPORT command, 227

tables, plot style. *See* plot style tables

tabs, with multiline text, 220–222

Tangent-Tangent-Radius (Ttr) option  
(Circle command), 115–116

target point controls, 189

technical drawings, 10

template drawings

copying dimension styles to, 237

customizing, 68–70

for layouts, 66

prepackaged, 51–53

storage location, 69–70

text

adding in model space, 211

adding to drawings, 206

editing, 248–249

entering, 213–218

fonts, 206–207

height, 210–211

justifying, 211–212, 214

spell-checking, 227–228

text styles, 206–207

types of, 211

uses for, 205

TEXT command

functions, 206, 211

using, 213–215

text fields, 219–220

Text Formatting toolbar, 218

text height

calculating, 210–211

for dimensions, 240

plotted text, 240–241

style settings, 209

Text Style dialog box, 207–209

Text Style setting (New/Modify Dimensions dialog box), 240

- text styles
  - contents, 206
  - and drawing scale factor, 209–210
  - height settings, 209
  - selecting or creating, 208–209
  - standardizing, 343
- Text tab (New/Modify Dimensions dialog box), 240
- text tables, 15
- text (TXT) files, 381–382
- Text Window, 29
- TEXTTOFRONT command, 241
- thickness of extrusion, 194–196
- third-party add-on products, 13, 15
- 3D meshes, 196
- 3D modeling
  - AutoCAD LT limitations, 14
  - AutoCAD 2005 support for, 179–182
  - Cartesian coordinate systems, 190–191
  - cautions, 183
  - coordinate filters, 192
  - creating 3D objects, 194–197
  - editing commands, 199–200
  - lines and polylines, 193–194
  - object snaps, 192
  - prerequisites for, 182–183
  - primitives, 196, 198–199
  - rendering, 200
  - solids modeling, 197–199
  - and system performance, 183
  - typed coordinates, 191
  - uses for, 179–181
  - using 3DOrbit command, 187–189
  - wireframes, 181
- 3D Surfaces option (Draw menu), 196
- 3D Views option (View menu), 186–187
- 3DClip command, 189
- 3DFACE command, 196
- 3DOrbit command, 187–189
- 3DPOLY command, 193–195
- 3DS Max (Discreet) animation program, 200
- 3P (3-Point) option (Circle command), 115
- TIFF files, 378
- TIFOUT command, 378
- tiled viewports, 184
- title bars, 20
- title blocks
  - attribute definitions, 300
  - creating, 64–65
  - effects of zooming on, 173
  - with layouts, 32
  - planning before setup, 43
- Tolerance tab settings (New/Modify Dimensions dialog box), 242
- TOLERANCES command, 242
- Tool Palettes
  - creating hatch patterns, 264
  - features, 34–36, 344
  - inserting blocks, 303
- toolbars
  - customizing, 22
  - issuing commands using, 18
  - overview, 21–22
  - screen shot showing, 23
- Toolbars tab (Customize dialog box), 23
- Tools menu
  - Create Layout Wizard, 63
  - Display and Profiles tabs, 18
  - Orthographic UCS option, 190
  - Plot and Publish tab, 269
- ToolTips, 22
- tracking options, 25
- transmittal packages, 352–354
- Transmittal Setups button (Create Transmittal dialog box), 353
- transparent commands, 31
- trans-spatial dimensioning, 246–247
- Tree view (xrefs), 315
- TRim command
  - with ellipses, 121
  - with hatch patterns, 265
  - using, 131, 152–153
- troubleshooting plotter problems, 291
- True Color tab (Select Color dialog box), 81
- TrueType (TTF) fonts, 207, 356
- Ttr (Tangent-Tangent-Radius) option (Circle command), 115–116
- 2D drawings
  - coordinate entry, 191
  - creating 3D objects from, 194–196
  - input and output devices for, 183

2D drawings (*continued*)  
 and system performance, 183  
 versus 3D, 180  
 wireframe mode, 184, 187  
 2P (2-Point) option (Circle command), 115  
 TXT (Text) files, 381–382

## • U •

UCS (user coordinate system), 188, 190  
 UCSMAN command, 190–191  
 underscore (\_) character, 31  
 Undo command, 28, 139  
 un-erasing, 136  
 Union command, 199  
 unitless units, 44  
 units, drawing, settings for, 43, 51, 54  
 Units option (Format menu), 54  
 Unload option (Xref Manager dialog box), 315  
 un-maximizing windows, 20  
 Update Layers button (View dialog box), 172  
 upgrading, importance of, 15–16  
 Use Overall Scale Of setting (dimensions), 241–242, 243  
 user coordinate system (UCS), 188, 190  
 user-defined hatch patterns, 256–258, 261  
 User's Guide, 201–202. *See also* help system

## • V •

values, default, 30  
 variable height settings (text styles), 209  
 variables, system. *See* system variables  
 vector files, 371  
 vectorization, 317  
 vectors, displacement, 138  
 versions (AutoCAD), and backward compatibility, 11–12  
 vertex points (vertices), 107  
 vertical dimensions, 24, 232  
 vertical rotation cursor (3DOrbit), 188–189  
 View Category property, 171

View dialog box, 171–172  
 View List tab (Sheet Set Manager palette), 333  
 View menu  
 Named Views option, 171–172  
 Render dialog box, 201–202  
 Shade submenu, 202  
 3D Views option, 185  
 2D Wireframe option, 184  
 Viewpoint Presets (View menu, 3D Views), 186  
 viewpoints  
 versus coordinate systems, 191  
 dynamic, 187–189  
 standard versus nonstandard, 186–187  
 and 3D modeling, 184–186  
 viewports  
 arranging, 65  
 defined, 25, 32  
 locking, unlocking, 175  
 maximizing, minimizing, 176  
 model space, 184–185  
 for resource drawing, 331  
 for sheet sets, 330–333  
 3D setup options, 185  
 viewing layouts using, 67  
 views  
 assembling from resource drawings, 333  
 defined, 168  
 named views, 171–172  
 for xrefs, 315  
 Views (View List) tab (Sheet Set Manager palette), 322–324  
 VPMAX command, 176  
 VPMIN command, 176

## • W •

WBLOCK command, 301, 313  
 WCS (world coordinate system), 190  
 Web sites  
 Adobe Acrobat, 377  
 Autodesk Express Viewer program, 358, 363

electronic security information, 350  
 HiJaak translation program, 378  
 International Standard Organization (ISO), 340  
 National Institute of Building Sciences (NIBS), 340  
 third party add-on products, 13  
 WinZip utility, 353  
 WS\_FTP utility, 355  
 Web-based file transmittal, 351–356  
 width settings (text styles), 209  
 window object selection, 132, 135–136  
 Window option (Zoom command), 170  
 window, program. *See* program window  
 windowing, implied, 132  
 Windows Clipboard  
   commands from, 142–143  
   file exchange using, 379  
 Windows MetaFile (WMF) files, 377  
 Windows program interface versus AutoCAD 2005, 18  
 Windows True Type fonts (TTF). *See* TrueType (TTF) fonts  
 WinZip utility, 353  
 wireframe models (3D), drawing, 181, 193–194  
 Wireframe option, 189  
 WMF (Windows MetaFile) files, 377  
 WMFIN command, 377  
 word wrapping  
   with leader arrows, 252  
   with multiline text, 217  
 world coordinate system (WCS), 190  
 WPolygon object selection, 135, 137  
 WS\_FTP utility program, 355

## • X •

X,Y and @X,Y coordinates, 91  
 XLine command, 102  
 XOPEN command, 313  
 XP option (ZOOM command), 67  
 xref clipping, 315  
 Xref Manager dialog box, 311, 313, 315  
 xrefs (external references)  
   attaching to drawings, 311–312  
   versus blocks, 309–310  
   creating and editing, 311–313  
   defined, 295  
   function, 297, 309–310, 316  
   limitations, 310–311  
   managing, 26, 314–335  
   storage location, 313

## • Z •

Zero Suppression settings, 242  
 zipping files, 353  
 Zoom and Pan Realtime feature, 168  
 Zoom command options, 56, 67, 168, 170–171  
 Zoom Extents, 139, 189  
 Zoom Realtime button (Standard toolbar), 168  
 zooming  
   defined, 167  
   degenerating, regenerating images, 176–177  
   in model space, 173–175  
   with panning, 168–169  
   in paper space, 174–176  
   with 3D objects, 189





