

INDEX

Note to the Reader: Throughout this index **boldfaced** page numbers indicate primary discussions of a topic. *Italicized* page numbers indicate illustrations.

A

- a command
 - for arcs, 102
 - for selections, 194
- abbreviations for commands, 126
- Above Dimension option, 403
- absolute coordinates, 30, 638
- acad.ctb file, 557
- Acad_ISO linetype family, 184
- acad.lin file, 184
- acad.stb file, 560
- access roads, 449, 452, 453
- accuracy
 - in 3D drawings, 566
 - in Architectural units, 53–56
 - in dimensions, 405
 - of units, 646
- acquired tracking points, 243
- Add-A-Plot Style Table Wizard, 556
- Add Layers command, 262
- Add option for Area, 626
- Add Profile dialog box, 19–20, 20
- Advanced tab, 343
- Advanced Wizard, 68
- alias keys
 - defined, 638
 - modifying, 20
- Align Below Previous Attribute Definition option, 623
- Align button, 429
- Aligned command, 429
- Aligned With Dimension Line button, 403
- aligning
 - dimensions, 403, 429–433, 638
 - viewports, 501–503, 502
- alignment paths
 - temporary, 130
 - tooltips for, 130–131, 136, 137
- Alt key for hotkeys, 126
- Alternate Units tab, 405, 408, 409
- Ambient Light area, 602
- American Institute of Architects, 177
- American National Standards Institute (ANSI), 316–317
- Angle setting, 68
- Angle Direction setting, 68
- Angle Measure setting, 68
- angles
 - Advanced Wizard, 68
 - arcs, 102, 109
 - dimension orientation, 424
 - hatches, 314
 - isometric views, 599
 - leader lines, 428
 - polar coordinates, 32, 32
 - Polar Tracking, 208, 208
 - rotation
 - blocks, 223, 238

- doors, 100
- external references, 456
- sun, 236, 601, 601
- surveyor units, 449
- Angular button, 429
- Angular command, 429
- angular dimensions, 429–433, 430, 638
- Angular Dimensions area, 404–405
- angular units, 52, 55, 69–70, 638
- ANSI (American National Standards Institute), 316–317
- ANSI patterns, 316–317
- ANSI tab, 313, 314, 316
- ANSI31 pattern, 313, 335, 345
- appearance
 - of external references, 458–460, 459
 - of windows, 236
- AR-PARQ1 pattern, 333, 333
- AR-RROOF pattern, 314, 317
- AR-RSHKE pattern, 320, 343
- Arc command and arcs
 - grips for, 186–187, 186
 - options for, 102–103
 - start points for, 102, 109
 - for swinging doors, 96, 96
- arcballs, 585
- Architectural Ticks option, 401
- Architectural units, 53–55, 54, 69
 - entering distances in, 80
 - inch sign in, 59
 - switching from decimal units to, 56
- Area command and areas
 - calculating, 624–626, 625
 - plot, 482, 536
 - Display option, 538, 539
 - extents for, 537–538, 538
 - limits for, 536–537, 537
 - views, 539, 540
 - windows, 541
- Area setting with wizards, 68
- arranging toolbars, 14–18, 14–17
- Array button, 324
- Array dialog box, 324
- arrow keys, 21
- Arrowheads area, 401
- arrows for dimensions, 398, 401–402, 401
- assigning
 - color, 211–212
 - linetype scale factors, 205–211, 207–208, 210
 - linetypes, 181–184, 182–183, 211–212
 - objects to layers, 186–194, 186, 188–191, 193
 - plot style tables, 560–563, 560–562
- associative dimensions, 638
- associative hatches, 336, 638
- at symbols (@) for coordinates, 31
- att command, 615
- attdia command, 618, 627
- attdisp command, 630
- atte command, 631
- attedit command, 630–631
- atttext command, 633
- Attribute Definition dialog box,
 - 614–616, 622
- attribute definitions, 614–616, 622, 638
- Attribute Extraction dialog box, 633–635
- attribute extraction files, 638
- attribute prompts, 638
- attribute tags, 638
- attribute values, 639
- attributes, 612–613
 - in data extraction, 631–635
 - defined, 638

for grids, 613–616, *613–616*
 defining blocks with, 616–617, *617*
 editing, 619–621, *620*
 inserting blocks with, 618–619,
618–619
 multiple, 621–623, *622–624*
 defining blocks with, 624–626, *625*
 editing, 630–631
 inserting blocks with, 627–628,
628–629
 visibility of, 629–630, *629*
 Auto-Hide option, 271, *271*
 AutoCAD background, 605
 automatic window selection, 194
 AutoSnap Marker Color drop-down list, 155
 Autosnap symbol, 157
 AutoSnaps
 defined, 639
 setting for, 155–156

B

B button, 387
 b command, 218
 back steps, 132–135, *134–135*
 background
 drawing area, 8–9, *9*
 hatches, 312
 layers and objects, 211
 in rendering, 605–606, *605–607*
 Background dialog box, 605–606, *605*
 Background Image dialog box, 606, *606*
 balcony
 in 3D drawings, 582–585, *583–584, 586*
 dimensioning, 422, *423, 426–427, 426,*
437, 438
 drawing, 138–142, *139–141*
 base command, 476

base lines for height, 278
 Base Point option, 266
 base points
 in block insertion, 266
 in copying, 104
 defined, 639
 with grips, 282
 Base row in justification, 368
 Baseline command, 417–419, *417–419*
 baseline dimensions
 angular, 430
 defined, 639
 horizontal, 417–419, *417–419*
 Basic tolerance method, 410
 bathrooms, 154, *154*
 Object Snaps for, 154–156, *155–156*
 selecting fixtures in, 192–193, *193*
 shower units, 156–157, *157*
 sinks, 158–159, *158*
 toilets, 159–162, *161–162*
 bearings, 449
 bedrooms, 440, *440*
 Begin page, 497, *498*
 Bind button, 474
 Bind command, 474
 Bind Type area, 475
 Bind Xrefs dialog box, 474
 binding external references, 474–475
 bitmap images, 605
 blips, 639
 Block Attribute Manager, 631
 Block Definition dialog box, 218–220, *219,*
228, 616–617, 624
 block definitions, 217, 639
 block references, 220, 639
 blocks, 211, 216, *216*
 with attributes
 defining, 616–617, *617*

- inserting, 618–619, *618–619*
 - multiple. *See* multiple attributes
- for doors, 217–228, *218–223*,
225–226, *228*
- vs. external references, 448
- finding, 229–233, *230–232*
- flipping, 223–225, *225*
- guidelines for, *240–242*, *240–242*
- previewing, 262, *263*
- revising, 251–254, *252–253*
- rotating, 222–223, *222*, *237–238*,
237–239, *251*
- for sharing information
 - DesignCenter for, *259–266*, *259–264*
 - dragging and dropping for, *255–258*,
255, *257–258*
 - inserting drawings, *267–268*
 - Wblock for, *266–267*, *266*
- tracking for, *242–243*, *244*
- ungrouping, 250–251, 384
- window
 - creating, *233–236*, *233–235*
 - inserting, *236–251*, *237–242*, *244*,
247–250
- Blue color, 178
- Bold button, 393
- boldface text, 387
- borders
 - drawing, *371–373*, *371–373*
 - on Layouts, *486–487*, *486–487*
 - in printing, 548
 - text for, *370–383*, *371–373*, *375–381*
- boundaries
 - pattern, 336
 - printable area, 546
- boundary edges in extending, 42–44

- Boundary Hatch and Fill dialog box, 313–316,
313–314
- Box command, 573
- boxes
 - in 3D modeling, 569
 - drawing. *See* drawing
- br command, 359
- Break At Point button, 361
- Break command, 359–361
- breaking lines of text, 359–361, *360*
- building position, 453–454, *454*
- burners, stove, 147–151, *148–151*
- buttons, 42
- ByBlock button, 178
- ByLayer property
 - defined, 639
 - for logical colors, 178
 - settings for, 212

C

- calculating areas, *624–626*, *625*
- canceling commands, 37, 95
- Cartesian coordinates
 - defined, 639
 - relative, 31, *31*, 33, 33
- Center justification, 353, 367
- Center option and centers
 - arcs, 102–103, 109
 - circles, 138–139
 - ellipses, 158
- Center The Plot option, 535, 548
- centering text, 353, 367, 380–382, *381*
- Change Case option, 394
- child dimensioning styles, *424–426*, *425*
- chimneys, 343, *344*
- Circle menu, 138

- circles, 138–142, 139–141, 147
- civil engineering, ordinate dimensions for, 430, 433
- cleaning up wall lines, 81–82, 82–83
- Clear All button, 162
- climate considerations for windows, 236
- closing shapes, 33
- color
 - AutoSnaps, 155
 - background, 211, 312
 - current, 212
 - cursor, 8–9
 - hatches, 312
 - layers, 173–180, 174–175, 177, 211–212
 - objects, 211–212
 - in rendering, 603, 605
 - standard, 178
 - text, 384, 393
 - viewports, 493
- Color Books tab, 175, 180, 180
- color-dependent plot styles, 556–557
- Color Options dialog box, 8–9, 9
- Color property
 - for layers, 173
 - for plot styles, 558, 559
- Colors button, 312
- Combine Paragraphs option, 394
- command lines, 639
- Command: prompt, 26, 639
- Command window, 6, 10
- commands, 24, 24
 - abbreviations for, 126
 - canceling, 37, 95
 - restarting, 40
 - transparent, 106, 647
- complex linetypes, 184
- compound trims, 91, 91
- concrete hatches, 318, 319
- cone primitive, 594
- context menus, 127, 200
- Continue command, 416–417, 417, 430
- continued dimensions
 - defined, 640
 - placing, 416–417, 417, 430
- Convert To Block option, 228
- convertctb command, 561
- converting
 - plot styles, 561
 - polylines to lines, 384
- convertpstyles command, 561
- coordinate readout, 7, 29
- coordinates
 - for cursor, 29–30
 - for external references, 476
 - in Line command, 28–32, 29
 - for points, 25, 28–29
 - for property lines, 449
 - relative, 30–32, 31–32
 - User Coordinate System and icon, 6, 297–298, 568
 - defined, 648
 - saving, 301
 - turning off, 57
 - visibility of, 57, 514
 - World Coordinate System, 297–298, 648
- Copy button, 105
- Copy command and copying
 - blocks, 251
 - with grips, 280
 - lines, 280, 281
 - multiple, 149
 - objects, 104–106, 105–106
 - text, 379, 393

- Copy option, 280
 - Copy tool, 257
 - Copy With Base Point command, 489
 - corners, rounding off, 38–41, 39–40
 - counters, 143–145, 145
 - cp command, 105
 - Create Icon From Block Geometry option, 219
 - Create Layout dialog box, 497, 499
 - Create New Dimension Style dialog box, 400–401, 425
 - Create New Drawing dialog box, 25, 52
 - Create New Folder button, 67
 - Create New Tool Palette option, 345
 - Create Tool Palette option, 338, 341
 - crosshair cursor, 5, 6
 - color of, 9
 - defined, 640
 - for Direct Entry method, 136
 - in Layouts, 485, 485
 - Crosshair Size setting, 485
 - crossing windows
 - for cutting edges, 116, 116
 - defined, 640
 - for objects, 187, 188
 - ctb files, 556
 - Ctrl key for selections, 152
 - current color and linetype, 212
 - Current Display option, 607
 - current layer, 185
 - current UCS, 298, 640
 - cursors
 - color of, 8–9
 - coordinates for, 29–30
 - crosshair, 5, 6
 - color of, 9
 - defined, 640
 - for Direct Entry method, 136
 - in Layouts, 485, 485
 - defined, 640
 - Zoom Realtime, 160
 - curved surfaces, 323–327, 323–327
 - Custom linetypes, 184
 - Custom option in printing, 534
 - Custom tab for hatch patterns, 317
 - custom toolbars, 18
 - Cut button, 393
 - cutting
 - doorway openings, 573, 574
 - wall openings, 88–94, 88–94
 - cutting and pasting, 489–490, 491
 - cutting edges
 - defined, 640
 - selecting, 116, 116, 285
 - in trimming, 44–47, 45, 47
 - Cyan color, 178
 - cycling
 - defined, 640
 - in selections, 152
 - Cylinder tool, 577, 583
 - cylinders, 577
-
- D**
-
- data extraction, 631
 - attributes, 633–635
 - template files for, 632
 - ddattdef command, 622–623
 - ddatte command, 619, 630
 - ddedit command, 370, 380, 434, 523
 - deactivating external references, 476
 - Decimal Degrees setting, 54, 405
 - decimal form
 - for distances, 80
 - for units, 52, 56

- Decimal units, 69
- Default Plot Style Table drop-down list, 560–561
- defaults
 - defined, 640
 - dimensions, 399
 - layers, 172
 - viewport size, 492, 492
- Define View Window button, 539
- Define Viewports page, 497, 498
- Define Window button, 539
- defining
 - blocks
 - with attributes, 616–617, 617
 - with multiple attributes, 624–626, 625
 - text styles, 351–352
 - viewports, 497, 498
 - views, 539
- Deg/Min/Sec units, 54, 70
- Delete option and deleting
 - block objects, 228
 - layer states, 462
 - toolbars, 18
- Delete source objects?: prompt, 107
- Demand Loading, 476
- Descartes, Rene, 31
- descenders in justification, 367–368
- Description button, 265
- DesignCenter
 - for palettes for hatches, 340–342, 340
 - for sharing information, 259–266, 259–264
- Destination area in rendering, 608–609
- detaching external references, 476
- Deviation tolerance method, 410
- di command, 249
- dialog boxes, 2
- diameter dimension, 424
- diameters, circles, 138
- Dimension Lines area, 402
- Dimension menu, 11, 424
- Dimension Style button, 400, 425
- Dimension Style dialog box, 425
- Dimension Style Manager dialog box, 400, 400, 425–426, 425, 440
- Dimension toolbar, 398
- dimensions
 - aligned, 404, 430
 - angular, 404, 429, 430
 - leader lines for, 427–428, 428
 - modifying, 433, 434
 - overrides, 439–441, 439–440
 - short distances, 441–444, 441–444
 - text, 434–438, 436, 438
 - ordinate, 430–433, 432–433
 - placing, 413–414
 - horizontal, 414–419, 414–419
 - vertical, 420–423, 420–423
 - radial, 423–426, 425–426
 - styles for, 398
 - creating, 398, 399
 - defined, 640
 - lines and arrows for, 401–402, 401
 - names for, 399–401, 400–401
 - parent and child, 424–426, 425
 - scale factor for, 403–404, 404
 - for text, 402–403, 403
 - units for, 404–407, 405
 - text for, 348, 384
 - defined, 640
 - modifying, 434–438, 436, 438
 - styles, 402–403, 403
 - variables for, 640
- Dimlinear command, 414

- DimPlan command, 400–401
- Dimradius command, 424
- Direct Entry method
 - defined, 640
 - for distances, 131, 133, *134*, 138
 - with temporary tracking points, 143–144, *143*
- direction
 - for arcs, 109
 - in UCS, 297–298
 - for units, 55
- Direction button, 55
- Direction Control dialog box, 55
- Display AutoSnap Aperture Box option, 156
- Display AutoSnap Tooltip option, 155–156
- Display Locked command, 493
- Display option, 538, *539*
- Display Screen Menu option, 8
- Display Scroll Bars in Drawing Window option, 8
- Display tab
 - for background color, 312
 - for crosshair cursor, 485
 - for profiles, 20
 - for scroll bars, 8–9, 8
- displaying toolbars, 14–18, *14–17*
- Distance command, 249
- distances. *See also* dimensions
 - in Architectural units, 80
 - Direct Entry method for, 131, 133, *134*, 138
 - formats for, 79
 - between objects, 249
 - with Offset command, 38, 79
- Distant Lights, 600–601
- Do Not Show a Startup Dialog option, 4
- docked DesignCenter, 259, *259*
- docked Properties palette, 233
- docked toolbars, 16, 25, 26, 640
- doglegs, 428
- donuts, 594, 641
- doors, 96, *96*
 - blocks for, 217–228, *218–223*, *225–226*, *228*
 - copying, 104–106, *105–106*
 - in elevation, 289–294, *290–295*
 - finishing, 108–110, *109–110*
 - hatches for, 319–320, *319–320*
 - mirroring, 106–108, *107–108*
 - rotating, 100–101, *101*
 - sliding glass doors
 - in 3D drawings, 587, *588–590*
 - drawing, 110–118, *111–117*
 - swinging, 96–104, *98–99*, *101*
 - in 3D drawings, 587
 - selecting, 189–192, *190–191*
- doorway openings, 573, *574*
- Double option, 329–330
- dra command, 424
- Drafting Settings dialog box
 - for drawing size, 60–61, *61*
 - for headers, 198
 - for Object Snaps, 97, *97*, 154, 207–208
 - for polar tracking, 130
- Drafting tab, 155–156
- dragging and dropping, 255–258, *255*, *257–258*
- Draw menu, 11
 - Arc command, 102
 - Block menu
 - Define Attributes command, 614, 622
 - Make command, 218
 - Circle command, 138, 364
 - Hatch command, 313

- Line command, 26
 - Polyline command, 374
 - Rectangle command, 98
 - Region command, 598
 - Solids command, 569, 573, 577
 - Surfaces menu
 - 3D Face command, 587, 592
 - 3D Surfaces command, 595–596
 - Text menu
 - Multiline Text command, 384
 - Single Line Text command, 353, 521
 - Draw toolbar, 16, 18, 25, 26
 - drawing
 - boxes, 32
 - extending lines in, 42–44, 43–44
 - Fillet command for, 38–41, 39–40
 - Offset command for, 35–38, 36–37
 - openings in, 41–42, 41–42
 - relative Cartesian coordinates in, 33, 33
 - relative polar coordinates in, 34–35
 - trimming lines in, 44–48, 45–48
 - with grid and snap, 60–66, 62–65
 - strategies, 126
 - drawing areas, 5, 6
 - background of, 8–9, 9
 - defined, 641
 - drawing extents, 641
 - drawing limits, 59–62, 60–62, 641
 - Drawing Limits setting, 59–62, 60–62
 - Drawing Orientation area, 482, 534
 - drawing size, 56
 - grid for, 56–59, 57–58
 - limits for, 59–62, 60–62
 - drawing templates, 52
 - drawing units
 - defined, 641
 - for printing, 534
 - setting up, 52–56, 53–55
 - Drawing Units dialog box, 53–56, 53–55
 - Drawingn.dwg drawing, 52
 - drawings
 - 3D. *See* 3D drawings and modeling
 - inserting, 267–268
 - driveways, 452–456, 453–455
 - drop-down lists, 54
 - drop-down menus, 11, 126
 - dt command, 353, 378
 - Dtext command, 353–356, 378–381
 - dwg files, 76, 641
- ## E
-
- eaves, 201–204, 202–203
 - eaves lines, 201, 201
 - ed command, 369, 380
 - Edge surface tool, 597
 - edgemode command, 116
 - Edgemode variable, 116
 - edges
 - boundary, 42–44
 - cutting
 - defined, 640
 - selecting, 116, 116, 285
 - in trimming, 44–47, 45, 47
 - defined, 641
 - of roofs, 591, 591
 - Edit attributes one at a time?: prompt, 631
 - Edit menu, 11
 - Edit Text command, 370
 - Edit Text dialog box, 369, 380
 - editing
 - attributes, 630–631
 - blocks, 251–254, 252–253

- objects, 282
- text, 369–370, 380
 - attribute, 619–621, 620
 - dimension, 434–435, 436
- effects, hatches
 - curved surfaces, 323–327, 323–327
 - shading, 321–322, 322
- eighth-inch scale, 370
- elevation views, 641
- elevations, 276
 - copying lines for, 280, 281
 - door, step, and windows in, 289–294, 290–295
 - front, 276–277, 276–277
 - hatching. *See* hatches
 - interior, 308, 309
 - left and right, 301–306, 303–305, 307
 - lines for heights in, 278–279, 278–279, 281
 - rear, 296–301, 297–298, 300
 - roof in, 285–289, 286–289
 - scale considerations in, 307–308
 - trimming lines in, 283–285, 283–284
- Ellipse command, 158–160
- ellipses, 158–159
- Enable Grips within Blocks option, 229
- ending points
 - for arcs, 102–103
 - in copying, 104
- Endpoint button, 98
- Endpoint Object Snap, 98, 156
- Engineering units, 69
- Enhanced Attribute Editor dialog box, 620, 630
- Enter an option: prompt
 - for attributes, 631
 - for text, 367
- Enter Attributes dialog box, 624, 627
- Enter grid letter: prompt, 619
- Enter key, 40
- Enter next line of annotation text:
 - prompt, 427
- Enter style name: prompt, 356
- Enter type of dimension editing: prompt, 435
- Enter X scale factor: prompt, 222
- Entire Drawing option, 267
- Erase command, 33
- erasing
 - blocks, 251
 - lines, 33
- Esc key, 37, 40, 95
- ex command, 43
- Exit option for Realtime commands, 163
- exiting AutoCAD, 48, 67
- Explode command and exploding
 - blocks, 250–251
 - defined, 641
 - external references, 476
 - multiline text, 384
 - polylines, 373
 - title blocks, 490
- Export option, 462
- exporting layer states, 462
- Extend Beyond Dim Lines setting, 402
- Extend Beyond Ticks setting, 402
- Extend button, 43
- Extend command, 42–44, 43–44
 - errors with, 95
 - tips for, 285
- extending lines, 42–44, 43–44
- Extension Line area, 402
- extension lines
 - for dimensions, 398
 - suppressing, 439–441, 439

extents
 for plot area, 537–538, 538
 zooming to, 81, 163
 Extents option, 537–538
 exterior walls
 lines for, 75–79, 76–78
 openings for, 88–92, 89–92
 External Reference dialog box, 456–457, 457–458
 external reference host files, 641
 external references, 448, 448
 appearance of, 458–460, 459
 applications for, 471–472, 471–472
 binding, 474–475
 defined, 641
 features of, 476
 modifying, 463
 as current drawing, 464–468, 464, 466–467
 within host drawing, 468–470, 469–470
 moving and rotating, 460, 461
 paths for, 472–474, 473
 setting up, 456–457, 457–458
 extracting data, 631
 attributes, 633–635
 template files for, 632
 Extrude tool, 594
 extrusions, 641

F

f command
 for breaks, 361
 for Fillet, 38
 faces, 641
 families, dimension style, 425
 Favorites button, 265

feature control frames, 412
 feet in Architectural units, 53
 File menu, 11
 Close command, 25
 Exit command, 48, 67
 New command, 30
 Open command, 76
 Plot Style Manager command, 557
 Print command, 531
 Save command, 66
 File Output Configuration dialog box, 608–609, 608
 files
 in DesignCenter, 261, 261
 plot style, 555–563, 556–562
 rendering to, 608–609, 608
 Fillet command, 38–41, 39–40
 for counters, 145
 vs. Offset, 78–79
 vs. Trim, 82
 fills
 defined, 642
 hatches. *See* hatches
 Find And Replace option, 394
 finding
 blocks, 229–233, 230–232
 files, 265
 text, 393
 Fine Tuning area, 404
 Fit Options area, 404
 Fit tab, 403–404, 404
 flat-head machine screws, 121–123, 121–122
 flipping blocks, 223–225, 225
 floating DesignCenter, 259, 259
 floating Properties palette, 233
 floating toolbars, 16, 642

floating viewports, 495, 642
floor plan, room labels for, 355–360, 356–360
floors
 in 3D drawings, 579–582, 580–582
 hatching, 329–334, 330, 332–334
flyouts, toolbar, 12–14
folders
 in DesignCenter, 261, 261
 for drawings, 66–67
Font drop-down list, 393
fonts
 defined, 642
 for text, 351–352, 382, 385
foot signs (')
 in Architectural units, 59
 in distance formats, 79
Form View tab, 558, 559
Format menu, 11
 Drawing Limits command, 59
 Point Style command, 621
 Text Style command, 350, 378
 Units command, 53, 256, 450, 452
Fraction button, 393
Fraction Format setting, 405
Fractional units, 69
fractions
 in dimensions, 405
 in distance formats, 79
 in Multiline Text Editor, 393
Freeze column, 174
freezing
 in 3D drawings, 575
 defined, 642
 layers, 194–197, 195–197
 for external references, 476
 indicator for, 174

front door, hatches for, 319–320, 319–320
front elevation, 276–277, 276–277
 door, step, and windows in, 289–294,
 290–295
 finishing, 295, 295
 hatching. *See* hatches
 lines for heights in, 278–279,
 278–279, 281
 roof in, 285–289, 286–289
 trimming lines in, 283–285, 283–284
front steps, 128–132, 129–132
full color palette, 178
Full Preview button, 536, 538
Full Preview method, 545–546, 548, 548
function keys, 20–21
furniture, 164, 165

G

gaps in text lines, 361
garage addition, 120–121, 120
gaskets, 165–166, 165–166
General Options area for startup, 4
General tab for plot styles, 557, 557
Geographic Location dialog box,
 601–602, 602
Geometric Tolerance dialog box, 412–413
geometric tolerancing, 411
ghosting, 33, 642
glass doors
 in 3D drawings, 587, 588–590
 drawing, 110–118, 111–117
glazing, 235
grab bars, 16
gradients, 605
Grads units, 70

Graphics window, 2, 3, 5–9, 6, 642

gray shades, 178

Green color, 178

Grid button, 60

Grid On option, 61

Grid Snap option, 61

Grid too dense to display message, 58, 60

Grid X spacing setting, 61

Grid Y spacing setting, 61

grids

- attributes for, 613–616, 613–616
 - for blocks, 616–617, 617
 - editing, 619–621, 620
 - inserting blocks with, 618–619, 618–619
- defined, 642
- for drawing size, 56–59, 57–58
- drawing with, 60–66, 62–65
- text in, 361–370, 362–370

grips

- for arcs, 186–187, 186
- for block detection, 229
- for circles, 150
- for copying lines, 280, 281
- defined, 642
- operation of, 282
- toggles with, 372
- for viewports, 510
- zooming and panning with, 290

ground lines for height, 278, 278

grouping objects. *See* blocks

GUI (Graphical User Interface), 2, 3, 5–9, 6, 642

guidelines

- for blocks, 240–242, 240–242
- for dimensions, 420–421, 421

H

h command, 313

hard-edged shadows, 602

Hatch command, 312

Hatch Edit dialog box, 328, 343

Hatch icon, 313

Hatch Pattern Palette dialog box, 313–314, 314, 316–317

Hatch tab, 313, 313

hatches, 312

- concrete, 318, 319
- floor plan, 329–335, 330, 332–334
- front elevation, 312–316, 313–316, 318–321, 319–321
- door and wall, 319–320, 319–320
- foundation, 318, 319
- modifying, 327–329, 328–329
- solid, 320–321, 321

origins for, 331–332, 332

palettes for, 340–342, 340–342, 345

patterns, 316–318, 642

roof, 343, 344

shape of, 336, 337

special effects

- curved surfaces, 323–327, 323–327
- shading, 321–322, 322
- user-defined, 329–330, 330

headers, 197–200, 200

heavy lineweight, 542

height

- cylinders, 577
- fonts, 351–352
- lines for, 278–279, 278–279, 281
- text, 381–382, 385–386, 402

Height drop-down list, 393

hidden lines, 571, 572
highlighting, 33
hip lines, 201, 201
 in 3D drawings, 592, 592
 drawing, 206–211, 207–208, 210
hip roofs, 201
hook lines, 428
horizontal alignment for dimensions, 403
horizontal dimensions, 414–419, 414–419
Horizontal option for viewports, 502
host drawings, modifying external references
 within, 468–470, 469–470
hotkeys, 21, 126
House button, 265
HSL (Hue, Saturation, Luminance) color
 model, 179
hue, 179–180
hyperlinks, 643
hyphens (-) in distance formats, 79

I

i command, 221
icons, 42, 643
images for rendering backgrounds, 605–606
implied windowing, 194
Import option, 462
Import Text button, 394
importing
 layer states, 462
 word processing and text files, 393
inch sign (") in Architectural units, 59
inches
 in Architectural units, 53, 59
 in distance formats, 79
Increment Angle drop-down list, 208
Indents And Tabs option, 393
Index Color tab, 175, 175
Indexing for external references, 476
Inquiry toolbar, 341, 625
Insert Block button, 220
Insert command, 221
Insert dialog box
 for attributes, 618, 627–628
 for blocks, 220–221, 221, 224, 475
Insert menu, 11
 Block command, 221, 475, 627
 External Reference command, 456
 Layout command, 497
 Xref Manager command, 456
Insert option, 475
Insert Units drop-down list, 267
inserting
 blocks, 220–221, 221, 475
 with attributes, 618–619, 618–619
 with multiple attributes, 627–628, 628–629
 drawings, 267–268
 external references, 475
Insertion Osnap, 621
Insertion Point area, 615
insertion points
 for attributes, 615
 for blocks, 217, 223
 defined, 643
 for external references, 476
IntelliMouse, 21, 129
interior elevations, 308, 309
interior walls
 lines for, 79–87, 79–87
 openings for, 92–94, 93–94

International Organization for Standardization (ISO), 317
Intersect tool, 595
Intersection Osnap, 149–150
intersections
 breaks at, 361
 cleaning up, 82
Invisible mode, 623
Island Detection area, 343, 344
ISO (International Organization for Standardization), 317
ISO Standard option, 403
ISO tab, 317
isometric views, 599, 643
Italic button, 393
italic text, 387

J

jambes, 88, 643
justification points
 defined, 643
 for multiline text, 391–392, 392
 for text, 353
justifying text, 367–368, 368, 393

K

keyboard, 20–21, 126
Keyboard Entry Except Scripts option, 157
kitchens
 counters, 143–145, 145
 laying out, 142, 143
 selecting, 192–193, 193
 sinks, 152–154, 152–153
 stoves and refrigerators, 145–151, 146, 148–151

L

L command, 26
Label command, 350
labels
 for floor plan, 355–360, 356–360
 text for, 350–352, 350
landscape orientation
 in printing, 534–535
 in viewports, 497
large-format printers, 551–552, 551–552
lateral tolerances, 409
Layer Control drop-down list, 186, 186
Layer Manager, 462
Layer Properties area, 459
Layer Properties Manager dialog box,
 172, 173
 for color, 174–178, 174–175, 177
 for creating layers, 174–176, 174–175, 177
 for cross references, 458
 for current layer, 185
 for linetypes, 181–184, 183
 for lineweights, 184–185, 543
 for listing layers, 173–174
 size of, 460
Layer States area, 459
Layer States list box, 462
Layer States Manager dialog box, 462
Layering Standards, 177
layers, 170
 assigning objects to, 186–194, 186, 188–191, 193
 for blocks, 217
 color for, 173–180, 174–175, 177, 211–212
 creating, 174–176, 174–175, 177
 current, 185

- defined, 643
- freezing, 194–197, 195–197
 - for external references, 476
 - indicator for, 174
- for hatches, 312–313
- linetypes for, 181–184, 182–183
- lineweights for, 184–185, 543
- listing, 173–174
- names for, 177–178
- as organizational tool, 170–171, 171
- setting up, 172, 173
- turning off, 194–197, 195–197
- in viewports, 515–520, 516–517, 519–520
- Layout tab, 6, 643
- Layout Settings tab, 482, 483, 500, 507
- Layout Wizard, 497–499, 498
- Layout1 tab, 481, 484, 500
- Layout2 tab, 500
- Layouts, 349, 480
 - borders on, 486–487, 486–487
 - defined, 643
 - and model space, 494–496
 - printing using, 549–550, 549
 - setting up, 480–486, 481, 483–485
 - title blocks for, 488–490, 488
 - viewports for, 492–493, 492–493. *See also*
 - multiple viewports
- leader lines, 427–428, 428
- Leaders And Tolerances option, 427
- Left Arrow button, 265
- left elevation, 301–306, 303–305, 307
- Left justification, 367
- length of text lines, 384
- less than symbols (<) for polar coordinates
 - angles, 32, 32
- light lineweight, 542
- light sources for rendering, 600–602, 600–602
- Lights dialog box, 600, 600, 602–603
- limits
 - for drawing size, 59–62, 60–62
 - for plot area, 536–537, 537
- Limits tolerance method, 410
- lin files, 184
- Line button, 26
- Line command, 24–28, 25–27
 - coordinates in, 28–32, 29, 31–32
 - errors with, 95
- Linear button, 414
- Linear Dimensions area, 404–405
- linear units, 52, 69
- lines
 - cleaning up, 81–82, 82–83
 - converting polylines to, 384
 - coordinates for, 28–32, 29, 31–32
 - copying, 280, 281
 - for dimensions, 398, 401–402, 401
 - drawing, 24–28, 25–27
 - erasing, 33
 - extending, 42–44, 43–44
 - for exterior walls, 75–79, 76–78
 - for heights, 278–279, 278–279, 281
 - for interior walls, 79–87, 79–87
 - leader, 427–428, 428
 - offsetting, 41–42, 41–42
 - trimming, 44–48, 45–48, 283–285, 283–284
- Lines and Arrows tab, 401–402, 401
- lines of text, breaking, 359–361, 360
- Linetype command, 184
- Linetype property, 173
- Linetype Scale Factor setting, 204

linetypes

- current, 212
- defined, 643
- for layers, 173, 181–184, 182–183
- for objects, 211–212
- scale factors for
 - assigning, 205–211, 207–208, 210
 - setting up, 205, 205
- Lineweight dialog box, 543–544
- Lineweight property, 173
- Lineweight Settings dialog box, 544, 547
- lineweights
 - defined, 644
 - for layers, 173, 184–185
 - for printing, 541–545
- links
 - hyperlinks, 643
 - between Xref and host drawings, 466
- List button, 341
- List command, 229–230, 230–231
- listing
 - layers, 173–174
 - text styles, 356, 356
- Load Or Reload Linetypes dialog box, 182, 182, 184
- loading
 - external references, 476
 - linetypes, 182, 182, 184
- Lock column for layers, 174
- locking viewports, 493
- logical colors, 178
- Lower Value setting for tolerance, 410
- lowercase letters for layer names, 178
- ltscale command, 205
- luminance, 179–180
- lw command, 544

M

- machine screws, 121–123, 121–122
- Magenta color, 178
- Magnet option, 155
- Make Block button, 218, 616
- Make Block command, 217
- Make Object's Layer Current button, 207
- Marker option, 155
- Material Condition window, 412
- Maximize icon, 257
- mechanical engineering, ordinate dimensions
 - for, 430
- medium lineweight, 542
- menu bars, 5, 6, 644
- menus, 5
 - context, 127, 200, 640
 - drop-down, 11, 126
- Mesh tool, 596
- Method drop-down list, 409, 410
- mi command, 107
- Middle justification, 367–368
- Middle Center justification, 367–368
- Middle Right (MR) justification, 367
- Midpoint Autosnap symbol, 157
- Midpoint option for Object Snaps, 156
- Mirror button, 107
- Mirror command, 106–108, 107–108
 - defined, 644
 - with grips, 282
- mirror lines, 106, 644
- mirroring objects, 106–108, 107–108
- mistakes, correcting, 95
- Mode area for attributes, 623
- Model button, 485
- model space
 - activities in, 525

- defined, 644
- and Layouts, 494–496
- Model tab
 - for background, 6, 9
 - for Layouts, 481, 484–486, 495
- Modify Distant Light dialog box, 602
- Modify Hatch command, 328–329
- Modify menu, 11
 - Attribute command, 630
 - Break command, 359
 - Copy command, 105
 - Extend command, 43
 - Fillet command, 38
 - Mirror command, 107
 - Object menu
 - Attribute command, 630–631
 - Polyline command, 626
 - Text command, 369, 523
 - Offset command, 35
 - Rotate command, 100
 - Scale command, 452
 - Solids Editing menu
 - Subtract command, 571, 573, 575, 579
 - Union command, 581
 - Trim command, 44
 - Xref And Block Editing command, 252, 468, 520
- Modify toolbar, 16, 18, 25, 26
- monochrome.ctb file, 558–560, 562
- mouse, 21–22, 129
- Move button, 139
- Move command and moving
 - blocks, 251
 - cylinders, 579
 - dimension text, 437–438, 438
 - external references, 460, 461
 - with grips, 282
 - text, 357–359, 358–359
 - title blocks, 490, 491
- MR (Middle Right) justification, 367
- ms command, 496
- Mtext command, 384
- MText Editor, 385–391, 386–391, 434–435
- Mtext menu, 393–394
- multiline text, 348, 644
 - justification points for, 391–392, 392
 - special characters, 392
 - tools for, 393–394
 - working with, 384–390, 385–390
- Multiline Text button, 384
- Multiline Text Editor dialog box, 385–391, 386–391, 434–435
- multiple attributes, 621–623, 622–624
 - defining blocks with, 624–626, 625
 - editing, 630–631
 - inserting blocks with, 627–628, 628–629
 - visibility of, 629–630, 629
- Multiple Copy command, 150
- Multiple option for text copying, 379
- multiple viewports, 496–497
 - adding, 512–521, 513–514, 516–517, 519–520
 - aligning, 501–503, 502
 - creating, 503–506, 504–506
 - layers in, 515–520, 516–517, 519–520
 - printing, 550–551
 - scales for, 506–512, 507, 509, 511
 - setting up, 497–500, 498–499, 501
 - text in paper space in, 521–524, 522–523
 - turning off, 524–525, 524
- mvsetup command, 502

N

named objects, 255
 named plot style tables, 557
 named plot styles, 556
 named views, 644
 names
 blocks, 217
 dimension styles, 399–401, 400–401
 drawings, 67
 layers, 177–178
 views, 301, 607
 Nearest Osnap button, 234
 negative numbers for arcs, 109
 nested Xrefs, 476
 New Dimension Style dialog box, 401
 Alternate Units tab, 408, 409
 Fit tab, 403–404, 404
 Lines and Arrows tab, 401–402, 401
 Primary Units tab, 404–407, 405
 Text tab, 402–403, 403
 Tolerance tab, 409–413, 410–411
 New Distant Light dialog box, 601, 601
 New Page Setup Name, 483
 New scale factor: prompt, 204
 New Scene dialog box, 607–608, 607
 New Style Name text box, 400
 New Text Style dialog box, 350–352
 New View dialog box, 301, 539, 607
 non command, 249, 286
 north arrow, 449
 Notepad for Custom linetypes, 184

O

o command, 35
 Object option for Area, 626

Object selected is not a polyline: prompt, 626
 Object Snap flyout, 98, 129
 Object Snap menu, 129
 Object Snap mode, 644
 Object Snap On option, 207
 Object Snap tab, 97, 97, 154–156, 162, 198
 Object Snap toolbar, 111, 112, 129
 Object Snaps (Osnaps), 98
 for blocks, 242–243
 setting, 154–156, 155–156
 for text, 353
 using, 129
 objects
 assigning to layers, 186–194, 186,
 188–191, 193
 color of, 211–212
 converted to blocks, 228
 copying, 104–106, 105–106
 defined, 644
 editing, 282
 grouping. *See* blocks
 linetypes for, 211–212
 mirroring, 106–108, 107–108
 named, 255
 selecting, 187–189, 188–189, 194
 unblocking, 250–251, 384
 Objects option in block insertion, 267
 off command, 57
 Offset command, 35–38, 36–37
 for counters, 144, 145
 distance with, 38, 79
 errors with, 95
 vs. Fillet, 78–79
 Offset From Dim Line setting, 403
 offsets
 lines, 41–42, 41–42

- plot, 535–536, 535
 - polylines, 148
 - OK button, 393
 - On column for layers, 174
 - Open a Drawing button, 76
 - Open button, 265
 - Open With No Template - Imperial option, 30
 - openings
 - doorway, 573, 574
 - marking, 41–42, 41–42
 - walls, 88–94, 88–94
 - Options dialog box
 - for Autosnaps, 155–156
 - for background color, 312
 - for crosshair cursor, 485
 - for grips, 229
 - for plot styles, 560, 560
 - for profiles, 19–20
 - for scroll bars, 7–8, 7–8
 - for squares, 157
 - for startup, 4
 - ordinate dimensions, 430–433, 432–433
 - orientation
 - changing, 297–298, 298
 - dimensions, 424
 - Layouts, 496
 - printing, 482, 534–535
 - viewports, 497
 - origins, 29, 29
 - defined, 644
 - for hatch patterns, 331–332, 332
 - in printing, 535, 535, 546
 - for UCS, 298
 - Ortho button, 100
 - Ortho mode, 645
 - orthogonal drawings, 645
 - orthogonal lines, 35
 - Osnap Cursor menu, 353
 - Osnap Flyout toolbar, 111
 - Osnap Settings dialog box, 353
 - Osnaps (Object Snaps), 98
 - setting, 154–156, 155–156
 - for text, 353
 - using, 129
 - Osnaps tab, 207
 - Other Predefined tab, 314, 316, 318, 320
 - Outer option for hatches, 343
 - Output File setting, 633
 - Over The Dimension Line, Without A Leader
 - option, 404
 - overlapping lines, 24, 25
 - overlays
 - for external references, 476
 - transparent, 170
 - Override button, 440
 - overrides, dimension, 439–441, 439–440
-
- ## P
- p command, 163
 - Page Setup dialog box, 507
 - Page Setup - Layout1 dialog box,
 - 482–484, 483
 - Page Setup - Layout2 dialog box, 500
 - Page Setup Name area, 483
 - palettes
 - for hatches, 340–342, 340–342, 345
 - working with, 268–272, 268–271
 - Pan button, 242, 245–246
 - Pan command
 - defined, 645
 - with grips, 290
 - Realtime, 159, 162–163

- Pan Realtime button, 159
- PANTONE color groups, 179
- Paper button, 485
- Paper Size And Paper Units area, 482, 500, 507, 532–534, 533
- Paper Size drop-down list, 482
- paper space
 - activities in, 525
 - defined, 645
 - text in, 521–524, 522–523
- parent dimensioning styles, 424–426, 425
- parking lots, 167, 167
- parquet pattern, 333, 333
- Partial Plot Preview dialog box, 546, 546
- Partial Preview method, 545–546, 548, 548
- Paste As Block command, 490
- Paste tool, 257, 393
- paths, 5
 - alignment
 - temporary, 130
 - tooltips for, 130–131, 136, 137
 - defined, 645
 - for external references, 472–474, 473
- patterns, hatch, 316–318, 642
- pe command, 377, 508
- pedit command, 508, 626
- pen plotters, 530
- perimeters, calculating, 625–626
- Perpendicular Osnap, 118, 135
- perspective views, 645
- Photo Raytrace option, 604
- Pick button, 645
- Pick Location, 499
- Pick Point setting, 219
- pickboxes, 33, 139, 645
- picking objects, 194
- pl command, 374
- placing dimensions, 413–414
 - horizontal, 414–419, 414–419
 - vertical, 420–423, 420–423
- Plan command, 298
- plan views, 645
- Pline command, 373–378, 375–378
- plot area, 482, 536
 - Display option, 538, 539
 - extents for, 537–538, 538
 - limits for, 536–537, 537
 - views, 539, 540
 - windows, 541
- Plot button, 531
- plot command, 531
- Plot Device tab, 482, 483, 507, 531–534, 533
- Plot dialog box, 531–532, 532
 - for offset and options, 535–536, 535
 - for orientation and scale, 534
 - for paper size and units, 532–534, 533
 - for plot area, 536–541, 537–540
- Plot Offset area, 535
- Plot Options area, 482, 534
- Plot Scale area, 482, 535
- Plot Settings tab, 531–532, 532, 534
- Plot Style Manager, 560
- Plot Style property, 173
- Plot Style Table Editor, 557–560, 557–559
- plot style table files, 556, 556
 - assigning, 560–563, 560–562
 - defined, 645
 - organization of, 557–560, 557–559
- plot styles, 555–563, 556–562, 645
- Plot Styles dialog box, 557
- Plot Styles folder, 556, 556

- Plot Upside-Down option, 534
 - Plotter Configuration area, 507, 533
 - Plotter Configuration Editor, 533
 - plotters, 482, 530
 - plotting. *See* printing
 - Plotting tab, 560, 560
 - plus or minus tolerances, 409
 - point filters, 645
 - Point Filters menu, 353
 - Point Lights, 600
 - Point Style dialog box, 621
 - Polar Array option, 324
 - polar coordinates
 - for property lines, 449
 - relative, 32, 32, 34–35
 - Polar Tracking, 130, 133, 134
 - angles in, 208, 208
 - for blocks, 242–243
 - defined, 645
 - with temporary tracking points, 143–144, 143
 - Polar Tracking On option, 130, 207
 - Polar Tracking tab, 130, 207, 207
 - Polyline Edit command, 377
 - polylines
 - converting to lines, 384
 - defined, 645
 - offset, 148
 - selecting, 147
 - for title blocks, 373–378, 375–378
 - portrait orientation, 482, 534–535
 - position
 - of arcs, 102
 - of buildings, 453–454, 454
 - precision
 - in 3D drawings, 566
 - in Architectural units, 53–56
 - in dimensions, 405
 - in tolerance, 410
 - of units, 646
 - Precision setting, 410
 - Preview button, 262, 265
 - previewing
 - blocks, 262, 263
 - printing, 538, 545–549, 546–548
 - Previous option in zooming, 85–86
 - Primary Units tab, 404–407, 405
 - primitives, 577
 - print command, 531
 - printable area, 482, 486, 500, 532
 - printable area boundaries, 546
 - Printer page, 497, 498
 - printers, 480
 - printing, 482, 530
 - with large-format printers, 551–552, 551–552
 - Layouts for, 549–550, 549
 - lineweights for, 541–545
 - multiple viewports, 550–551
 - offset and options in, 535–536, 535
 - orientation and scale in, 534–535
 - paper size and units in, 532–534, 533
 - parameters for, 545
 - plot area in, 536–541, 537–540
 - plot styles for, 555–563, 556–562
 - previewing, 538, 545–549, 546–548
 - site plans, 552–555, 553–555
- Priority for Coordinate Data Entry area, 157
- profiles for toolbars, 19–20, 20
- Profiles tab, 19–20, 20
- Projection menu, Perspective command, 599, 609

Prompt text box for attributes, 614

prompts, 646

properties of layers, 462

Properties palette

for block detection, 232–233, 232

for circles, 150–151, 151

for extension lines, 439

for text, 366, 370

for viewports, 524

Properties toolbar, 5, 5, 172

property lines, 449–451, 451

prototype drawings, 52

ps command, 496

purging drawings, 267

Q

Quadrant button, 139

Quadrant Osnap, 139, 140

quarter-inch scale, 318

Quick Leader button, 427

Quick Setup Wizard, 68

R

r command for selections, 194

radial dimensions, 423–426, 425–426

Radians units, 70

radio buttons, 2

radius

arcs, 102

circles, 138–139

cylinders, 577

Fillet, 38–39

Radius Dimension button, 424

Realtime Pan, 162–163

Realtime Zoom, 162–163, 298

rear elevation

making, 296–298, 297–298

revising, 299–301, 300

rec command, 98

Rectangle command, 98

Rectangular Snap option, 61

Red, Green, Blue (RGB) color model, 179

Red color, 178

Redo command, 145, 393

Redraw command, 572, 646

Refedit toolbar, 253, 468, 470

Reference Edit dialog box, 252, 468

Reference toolbar, 456

references, external. *See* external references

refreshing screen, 572

refrigerators, 146–147, 146

regeneration, 572, 646

regions, 598

registration points, 170

regular windows, 187, 646

relative coordinates, 30–31

Cartesian, 31, 31, 33, 33

defined, 646

polar, 32, 32, 34–35

for property lines, 449

Reload button, 467, 476

Remove Formatting option, 394

Rename option for layer states, 462

Render dialog box, 604, 604, 608–609

rendering 3D drawings, 597

background in, 605–606, 605–607

to files, 608–609, 608

light sources for, 600–602, 600–602

preliminary, 603–604, 604

saving setups for, 607–608, 607–608

- shadows for, 602–603, 603
 - views for, 598–599, 598–600, 609–610, 609
 - Rendering File dialog box, 609
 - Repeat command, 40, 127
 - Restart List command, 230
 - restarting commands, 40
 - Restore State button, 462
 - Retain option, 228
 - revising
 - attributes, 630–631
 - blocks, 251–254, 252–253
 - objects, 282
 - text, 369–370, 380
 - attribute, 619–621, 620
 - dimension, 434–435, 436
 - Revolve tool, 595
 - Revolved surface tool, 596
 - RGB (Red, Green, Blue) color model, 179
 - ridge lines, roof, 201, 201
 - in 3D drawings, 592, 592
 - drawing, 206–211, 207–208, 210
 - Right Arrow button, 265
 - right-click menus, 21, 126, 200
 - right elevation, 301–306, 303–305, 307
 - Right justification, 367
 - ro command, 100
 - romanc.shx font, 352
 - romand.shx font, 352
 - romans.shx font, 352
 - romant.shx font, 352
 - roofs, 201
 - in 3D drawings, 591–593, 591–593
 - dimensioning, 418–419, 429–430, 430
 - eaves, 201–204, 202–203
 - in elevation, 285–289, 286–289
 - hatches for, 343, 344
 - hip and ridge lines, 206–211, 207–208, 210, 592, 592
 - room labels
 - for floor plan, 355–360, 356–360
 - text for, 350–352, 350
 - Rotate command and rotating, 100
 - with angular displacement, 55
 - blocks, 222–223, 222, 237–238, 237–239, 251
 - doors, 100–101, 101
 - external references, 456–457, 460, 461
 - with grips, 282
 - text, 353, 381
 - views, 598–599
 - rounding off corners, 38–41, 39–40
 - rubberbanding, 646
 - Ruled surface tool, 597
 - running Object Snaps, 646
- ## S
-
- Sample Office Project palette, 269, 269
 - SansSerif fonts, 387
 - saturation, 179–180
 - Save Back Changes To Reference button, 470
 - Save Drawing As dialog box, 66
 - Save Layer States dialog box, 458, 462
 - Save State button, 458
 - Save To Current Style command, 440
 - saving
 - drawings, 66–68
 - rendering setups, 607–608, 607–608
 - styles, 352
 - User Coordinate System, 301
 - views, 301
 - sc command, 452

- scale and scale factors
 - blocks, 222–223, 251
 - defined, 646
 - dimension styles, 403–404, 404
 - elevations, 307–308
 - external references, 456–457
 - with grips, 282
 - hatch patterns, 314–315, 317
 - linetypes
 - assigning, 205–211, 207–208, 210
 - defined, 644
 - setting up, 205, 205
 - printing, 482, 534
 - site plans, 452
 - text, 349–350
 - title blocks, 489–490
 - viewports, 506–512, 507, 509, 511
- Scale command, 282, 452, 490
- Scale For Dimension Features area, 404
- Scaled To Fit option, 534
- Scaling For Height setting, 410–411
- Scenes dialog box, 607–608, 608
- schedules, 612
- Scientific units, 69
- screws, 121–123, 121–122
- scroll bars, 8–9
- Search button, 265
- Second Point option, 103
- Select All command, 196
- Select All But Current command, 429
- Select All option, 394
- Select Color dialog box, 175–176, 175, 178–181, 179, 181
- Select File dialog box, 76
- Select internal point: prompt, 321
- Select Linetype dialog box, 181–182, 182–183
- Select Location button, 499
- Select nested objects: prompt, 468
- Select object to offset: prompt, 35, 76
- Select object whose layer will become current: prompt, 207
- Select Objects button, 617
- Select Objects: prompt, 43, 194
- Select Reference File dialog box, 456–457
- Select Template dialog box, 30, 52–53
- Selected object does not have an area message, 626
- selecting
 - cutting edges, 116, 116, 285
 - cycling in, 152
 - doors and swings, 189–192, 190–191
 - kitchen and bathroom fixtures, 192–193, 193
 - objects, 194
 - polylines, 147
 - with windows, 187–189, 188–189
- selection modes, 646
- selection sets, 194, 646
- Selection tab, 229
- selection windows, 646
- Set Current button, 20, 406, 440
- Set State button, 462
- Setup Wizards, 68
- shading
 - in 3D modeling, 585
 - surfaces, 321–322, 322
- Shadow On option, 602
- Shadow Options dialog box, 602
- Shadow Volumes/Ray Traced Shadows
 - option, 603
- Shadows area, 602
- shadows for rendering, 602–603

- Shadows option, 604
- shakes, 320
- shapes
 - closing, 33
 - hatch patterns, 336, 337
- sharing information
 - DesignCenter for, 259–266, 259–264
 - dragging and dropping for, 255–258, 255, 257–258
 - inserting drawings, 267–268
 - Wblock for, 266–267, 266
- sheet size, 370
- Shift key
 - with mouse, 21
 - with Object Snap tools, 129
 - for selections, 194
 - with Trim and Extend, 285
- shingles, 320
- short distances, dimensioning, 441–444, 441–444
- shortcut menus, 126, 200, 646
- Show Traditional Startup Dialog option, 4
- shower units, 156–157, 157
- sides of openings, 88
- single-line text, 348, 352
 - defined, 647
 - in grids, 361–370, 362–370
 - room labels, 355–360, 356–360
 - title blocks and borders, 370–383, 371–373, 375–381, 383, 488
 - titles of views, 352–355, 353–355
- sinks
 - bathroom, 158–159, 158
 - kitchen, 152–154, 152–153
- site plans, 449, 472, 472
 - printing, 552–555, 553–555
 - surveyor units for, 449–451, 449, 451
 - viewports for, 510–512, 511
- size. *See also* dimensions
 - arcs, 102
 - Command window, 10
 - crosshair cursor, 485
 - default viewports, 492, 492
 - dimension arrows, 401
 - drawing, 56
 - grid for, 56–59, 57–58
 - limits for, 59–62, 60–62
 - Layer Properties Manager dialog box, 460
 - Multiline Text Editor dialog box, 386, 391, 391
 - paper, 480, 482, 532–534, 533
 - sheet, 370
 - title blocks, 488–489, 488
- Slice button, 583, 584
- sliding glass doors
 - in 3D drawings, 587, 588–590
 - drawing, 110–118, 111–117
- snap, drawing with, 62–66, 62–65
- Snap And Grid tab, 60
- snap mode, 647
- Snap On option, 61
- Snap To Insert button, 254, 293
- Snap tool, 58
- Snap X spacing setting, 61
- Snap Y spacing setting, 61
- Snapbase setting, 331–332
- soffits, 279, 647
- soft-edged shadows, 602
- solid colors for backgrounds, 605
- solid hatches, 320–321, 321
- solids, 567
 - modeling, 594–595, 594–595
 - primitives, 577

- Solids toolbar, 573
- Space Delimited File (SDF) option, 633
- spacebar with grips, 372
- spaces in distances, 79
- spacing for grid dots, 60–61
- special characters, 392
- special effects, hatches
 - curved surfaces, 323–327, 323–327
 - shading, 321–322, 322
- Specify a second extension line origin:
 - prompt, 416–417
- Specify axis endpoint of ellipse: prompt, 160
- Specify base point: prompt, 490
- Specify base point or displacement:
 - prompt, 105
- Specify basepoint: prompt, 502
- Specify first corner point: prompt
 - for areas, 625
 - for rectangles, 98
- Specify first corner: prompt, 499
- Specify first extension line origin:
 - prompt, 414
- Specify first part of mirror line: prompt, 107
- Specify first point: prompt, 26, 133
- Specify height: prompt, 569, 573
- Specify insertion point: prompt, 243, 246
- Specify next point: prompt, 27
- Specify offset distance: prompt, 35, 38
- Specify On-Screen option, 221, 245
- Specify On-Screen box for Insertion point option, 618
- Specify opposite corner: prompt, 384
- Specify other corner point: prompt, 100
- Specify point on side to offset: prompt, 36
- Specify rotation angle: prompt, 101, 222
- Specify scale factor: prompt, 452
- Specify second extension line origin:
 - prompt, 414
- Specify second part of mirror line: prompt, 107
- Specify second point of arc: prompt, 103
- Specify second point of displacement:
 - prompt, 105
- Specify start point: prompt
 - for polylines, 374
 - for text, 367
- Specify start point of arc: prompt, 103
- Specify temporary OTRACK point:
 - prompt, 133
- Specify text width: prompt, 427
- Specify third point: prompt, 592
- sphere primitive, 594
- Spotlights, 600
- squares, 156–157
- st command, 350
- stacking dimensions, 417, 417
- standard AutoCAD linetypes, 184
- standard colors, 178
- Standard dimension style, 399
- Standard toolbar, 5, 5, 12
- Start from Scratch button, 2
- Start the Line command, 254
- starting AutoCAD, 2–4, 3
- starting points for arcs, 102, 109
- Startup dialog box, 2, 3
- states of layers, 462
- status bar, 6–7
- stb files, 556
- steps, 127, 127
 - in 3D drawings, 582–585, 583–584, 586
 - back, 132–135, 134–135
 - in elevation, 289–294, 290–295
 - front, 128–132, 129–132

- stoves, *145–151, 146, 148–151*
- strategic zooming, 289
- Stretch command, 280
 - with grips, 282
 - for text, 357
- structural grids, 361
- studs, 416, 647
- Style command, 348, 350
- Style Name area, 350
- Style option, 356
- Style Overrides option, 440
- Style settings for multiline text, 393
- styles
 - for dimensions, 398
 - creating, 398, 399
 - defined, 640
 - lines and arrows for, 401–402, 401
 - names for, 399–401, 400–401
 - parent and child, 424–426, 425
 - scale factor for, 403–404, 404
 - for text, 402–403, 403
 - tolerances for, 409–413, 410–411
 - units for, 404–408, 405, 409
 - plot, 555–563, 556–562
 - text, 384
 - dimension, 402–403, 403
 - setting up, 349–352, 349–350
- Subtract option, 626
- Subtract Solids command, 583
- subtracting
 - areas, 626
 - window openings, 575–579, 575–579
- Sun Angle Calculator dialog box, 601, 601
- sun angle for windows, 236
- suppressing extension lines, 439–441, 439
- surface modeling tools, 595–597, 596

- surfaces
 - in 3D modeling, 567
 - hatches for
 - curved, 323–327, 323–327
 - shading, 321–322, 322
- surveyor points, 433, 433
- Surveyor units, 70, 449–451, 449, 451, 647
- swinging doors
 - in 3D drawings, 587
 - drawing, 96–104, 98–99, 101
 - selecting, 189–192, 190–191
- switching between model space and layouts,
494–496
- Symbol button, 394, 435
- Symbol window, 412
- Symmetrical tolerance method, 409

T

- t command, 384
- T intersections, cleaning up, 82
- Table View tab, 558, 558–559
- Tabulated surface tool, 597
- tag names for attributes, 614
- Template File button, 633
- templates, 52
 - for data extraction, 632–633
 - defined, 647
- temporary alignment paths, 130
- temporary tracking points
 - Direct Entry with, 143–144, 143
 - for steps, 132–136
- text, 348
 - for attributes, 619–621, 620
 - breaking lines of, 359–361, 360
 - dimensions, 348, 384
 - defined, 640

- modifying, 434–438, 436, 438
 - styles, 402–403, 403
- justifying, 367–368, 368
- moving, 357–359, 358–359
- multiline, 348, 644
 - justification points for, 391–392, 392
 - special characters, 392
 - tools for, 393–394
 - working with, 384–390, 385–390
- in paper space, 521–524, 522–523
- for room labels, 350–352, 350
- scale for, 349–350
- single-line, 348, 352
 - defined, 647
 - in grids, 361–370, 362–370
 - room labels, 355–360, 356–360
 - title blocks and borders, 370–383, 371–373, 375–381, 383, 488
 - titles of views, 352–355, 353–355
- style setup for, 349–352, 349–350
- Text Color drop-down list, 393
- Text Formatting toolbar, 393
- Text Height setting, 386, 402
- Text Placement area, 402, 404
- text style, 647
- Text Style dialog box, 350, 350, 378, 380, 402
- Text tab, 402–403, 403
- Text Window, 229–230, 230–231
- Thaw setting, 647
- thickness, 647
- three-button mouse, 21, 129
- 3D drawings and modeling, 566
 - doorway openings in, 573, 574
 - finishing up, 587–590, 588–590
 - floors in, 579–582, 580–582
 - rendering. *See* rendering 3D drawings
 - roofs in, 591–593, 591–593
 - solids modeling, 594–595, 594–595
 - steps and balcony in, 582–585, 583–584, 586
 - surface modeling tools, 595–597, 596
 - viewing in, 567–568, 568–569
 - walls in, 569–572, 570–572
 - window openings in, 575–579, 575–579
- 3D Faces, 587
- 3D meshes, 638
- 3D models, 638
- 3D Objects dialog box, 595
- 3D Orbit, 163, 585, 586
- thresholds, 136–138, 137
- Through option for offsets, 38
- tick marks, 398, 430
- tiled effect, 329
- tiled viewports, 495
- title bars, 5, 5
- title blocks
 - for Layouts, 488–490, 488
 - polylines for, 373–378, 375–378
 - text for, 373–383, 379–381, 383, 488
- titles of views, 352–355, 353–355
- TL (Top Left) justification, 367
- toggles
 - function keys, 20–21
 - with grips, 372
- toilets, 159–162, 161–162
- Tolerance button, 412
- tolerances for dimension styles, 409–413, 410–411
- Tolerances tab, 405, 409–413, 410–411
- tool palettes
 - creating, 337–339, 338–339
 - for hatches, 340–342, 340–342, 345

Tool Palettes Window, 268–272, 268–271

Tool Properties dialog box, 339, 339, 341–342

toolbars, 5, 5, 12

 custom, 18

 displaying up and arranging, 14–18, 14–17

 flyouts, 12–14

 profiles for, 19–20, 20

Toolbars menu, 14–15, 14

tools, 42

Tools menu, 11

 Drafting Settings command, 97

 Inquiry command, 229

 Options command. *See* Options dialog box

 Tool Palettes Window command, 268

tooltips for alignment paths, 130–131,

 136, 137

Top Left (TL) justification, 367

torus primitive, 594

tr command, 44

Track Point tooltip, 136, 137

tracking

 for blocks, 242–243, 244

 defined, 647

tracking points

 defined, 647

 for hatches, 331

Transparency palette, 270, 270

transparent commands, 106, 647

transparent overlays, 170

Tree View, 261, 265

Trim command and trimming, 44

 Edgemode variable for, 116

 errors with, 95

 vs. Fillet, 82

 lines, 44–48, 45–48, 283–285, 283–284

 picking lines with, 85

 tips for, 285

 zooming for, 83–84, 84

True Color tab, 175, 179–180, 179

true ratios, 648

TrueType fonts, 387

Turn Off Window Transparency option,
 270–271

turning off

 layers, 194–197, 195–197

 UCS, 57

 viewports, 524–525, 524

two-car garage, 120–121, 120

U

U button, 387

u command, 40, 145

UCS (User Coordinate System) and icon, 6,

 297–298, 568

 defined, 648

 saving, 301

 turning off, 57

 visibility of, 57, 514

ucsicon command, 57

un command, 53

unblocking objects, 250–251, 384

Underline button, 393

underlined letters for hotkeys, 21

Undo button and command

 for lines, 40, 46

 for Multiline Text Editor, 393

 options for, 145

 for Trim and Extend, 95, 285

ungrouping blocks, 250–251, 384

Unit Format setting, 405

units

 angular, 69–70

defined, 641
 for dimension styles, 404–408, 405, 409
 linear, 69
 paper, 532–534, 533
 for printing, 534
 setting up, 52–56, 53–55
 surveyor, 449–451, 449, 451
 with wizards, 68
 Units For Listing area, 544
 Unload button, 476
 Up button, 265
 Upper Value setting for tolerance, 410
 uppercase letters for layer names, 178
 Use For drop-down list, 400, 425
 Use Overall Scale Of option, 404
 User Coordinate System (UCS) and icon, 6,
 297–298, 568
 defined, 648
 saving, 301
 turning off, 57
 visibility of, 57, 514
 user-defined hatches, 329–330, 330
 User Defined Page Setups dialog box, 483
 User Preferences tab, 157

V

v command, 301
 Value text box, 614
 vertex coordinates, 30
 vertical bars (|) for external references, 458
 vertical dimensions, 420–423, 420–423
 Vertical Position setting for tolerance, 411
 very light lineweight, 542
 View command, 301
 View Control dialog box, 301, 539
 View menu, 11
 3D Views menu
 Plan View command, 298, 301, 598
 SE Isometric command, 582, 585
 SW Isometric command, 568
 Viewpoint Presets command, 598
 Display menu
 Attribute Display command, 629
 UCS Icon command, 57, 297–298,
 514, 568
 Hide command, 571, 572, 573, 579
 Named Views command, 301, 539, 607
 Redraw command, 572
 Regen command, 572–573, 575, 580
 Shade menu
 2D Wireframe command, 585
 Gourard Shaded command, 585
 Viewports command, 504
 Zoom menu
 All command, 60
 Out command, 57
 viewing 3D drawings, 567–568, 568–569
 Viewpoint Presets dialog box, 598–599
 Viewport Scale drop-down list, 497
 Viewport Setup area, 497
 viewports, 480, 484
 adjusting, 492–493, 492–493
 defined, 648
 multiple. *See* multiple viewports
 views
 defined, 648
 printing to, 539, 540
 for rendering, 598–599, 598–600,
 609–610, 609
 saving, 301
 titles of, 352–355, 353–355

Views button, 265

Views dialog box, 607

visibility

of attributes, 629–630, 629

of UCS icon, 57, 514

visretain command, 463

W

walls

in 3D drawings, 569–572, 570–572

dimensioning, 416–417

exterior, 75–79, 76–78

hatches for, 319–320, 319–320,
334–335, 335

interior, 79–87, 79–87

laying out, 74–75, 75

openings for, 88–94, 88–94

Wblock command, 266–267, 266

WCS (World Coordinate System), 297–298, 648

wedge primitive, 594

White/Black color, 178

width of polylines, 373

window blocks

creating, 233–236, 233–235

inserting, 236–251, 237–242, 244,
247–250

Window Elements area, 8

Window menu, 11

open drawings on, 257–258, 258

Tile Vertically command, 255

Window option, 541

window selection, automatic, 194

windowing viewports, 499, 499

windows

in 3D drawings, 575–579, 575–579, 590, 590

appearance of, 236

for cutting edges, 116, 116

in elevation, 289–294, 290–295

hatches for, 320–321, 321

for plot areas, 541

selecting objects with, 187–189, 188–189

Windows menus, 5

wireframes, 569, 648

wooden shingles, 320

World Coordinate System (WCS),
297–298, 648

wrapping text, 384

Write Block dialog box, 266–267, 266

WYSIWYG, 648

X

x coordinates

for cursor, 30

for ordinate dimensions, 430–432, 432

for points, 25, 28–29, 29

X direction in UCS, 297–298

X origin setting, 535

X scale factor

for blocks, 223, 245

for external references, 456

xr command, 456

Xref Manager dialog box, 456, 473–474

Xrefs. *See* external references

XY plane, 648

Y

y coordinates

for cursor, 30

for ordinate dimensions, 430–432, 432

for points, 25, 28–29, 29

Y direction in UCS, 297–298

Y origin setting, 535

Y scale factor
 for blocks, 223, 245
 for external references, 456

Y scale factor: prompt, 222

Yellow color, 178

Z

z-axes, 567–568

z command, 84, 163

z coordinates, 29

Z factor for blocks, 223

0 layer, 172, 217

Zero Suppression sub-area, 405, 411

Zoom command and zooming
 defined, 648

 with grids, 58–60

 with grips, 290

 strategic, 289

 for trimming, 83–84, 84

Zoom All, 13

Zoom Extents, 81, 163

Zoom In, 56

Zoom Original, 163

Zoom Out, 56–57

Zoom Previous, 85–86, 223

Zoom Realtime, 160, 162–163

Zoom toolbar, 14–15, 15, 17

Zoom Window, 298

Zoom Window option, 163, 223

zoom windows, 84, 84, 163, 223