

Contents

Acknowledgments	XIII	Hardware	30
		Accessories	31
		Adapters.....	31
PART 1: GRID BEAM BASICS			
Chapter 1: What is Grid Beam?	1	PART 2: GRID BEAM PROJECTS	
The basics	2	Chapter 5: Furniture.....	33
How it works	3	Tables	34
The Twelve-Minute Workbench.....	4	Desks and workstations.....	34
Sources.....	7	Chairs.....	36
Using this book	8	Beds.....	38
Measurements	9	Living Structures.....	40
		Sleeping lofts	44
Chapter 2: History	11	Chapter 6: Storage	49
A pictorial history of grid beam	12	Shelves	49
Who we are and why		Bike Rack.....	53
we wrote this book.....	15	Drawer Carts	53
		Pegboard.....	53
Chapter 3: Advantages.....	21	Closets and closet organizers	54
Chapter 4: The grid beam system.....	25	Chapter 7: Workshop and Industry	55
Hole spacing.....	25	Workbenches.....	56
Standard stick and panel sizes.....	28	Shop tables	56
Stick materials	28		
Skin materials.....	29		

Equipment stands	58	Electric Tote Goat	94
Work supports.....	58	Bear garden tractors.....	95
Storage	59	X-Wing	98
Industrial machinery		Vanda	100
and assembly lines	61	Go-karts.....	101
Chapter 8: Structures.....	63	Solar Powered	
Booths.....	63	Utility Vehicle (SPUV).....	106
Railings	64	Sol Train	106
Baby and pet gates	64	Rail Rocket	108
Temporary kitchen.....	65	FOCUS research submarine.....	109
Partitions and walls.....	65	Project possibilities	109
Store displays.....	66	Chapter 12:	
Stage sets.....	66	Learning and Innovation	111
Scaffolding and platforms	67	Teaching and learning.....	111
Buildings.....	68	Innovation and product	
Chapter 9: Renewable Energy	73	development.....	115
Solar panel mounts and trackers	74	Chapter 13: Other Projects	121
Wind turbines and towers.....	75	Animal cages	121
Hydro power	78	Chair arms.....	123
Solar concentrators	79	Clotheslines and laundry	
Portable power	79	drying racks.....	123
Firewood harvesting	80	Desk organizer	124
Chapter 10: Trailers, Racks and Carts..	83	Disability aids.....	124
Truck racks	83	Easel	124
Trailers	84	Exercise desks	124
Electric Mower	84	Fences.....	125
Garden carts	85	Float switch	125
Yard Truck	85	Growing equipment.....	126
Chapter 11: Vehicles.....	89	Laboratory and	
Why electric vehicles?	90	scientific equipment	127
Solar-Assisted Mountain Bike.....	91	Lifting equipment	128
Electric Vehicle Test Bed (EVTB).....	92	Moving.....	129
Scamp	93	Model railroad benchwork.....	129
		Photographic equipment.....	129
		Projection screen.....	130

Recliner Workstation	131	Required tools	170
Signs.....	131	Work space	171
Toys.....	132	Stick specifications.....	171
PART 3: WORKING WITH GRID		Stick width.....	171
BEAM		Hole size	172
Chapter 14: Basic Components	135	Drill-it-yourself aluminum	172
Buying grid beam sticks	135	Drill-it-yourself steel.....	176
Cutting sticks.....	138	Drill-it-yourself wood.....	176
Skin materials.....	142	Finishing your sticks.....	180
Working with panels.....	147	PART 4: PROJECT DESIGN	
Hardware	152	Chapter 17: Frame Types	185
Chapter 15:		Box frames.....	185
Accessories and Adapters	155	Offset frames	186
Splices and extensions	156	Stem frames.....	189
Mounting hole position		When to use which	
and spacing.....	157	frame type	191
Furniture wheels and casters.....	157	Chapter 18: Bracing	193
Feet.....	158	Bracing basics.....	193
Shims	158	Cross-bracing	194
Screws	159	Beams and trusses.....	200
Butt joint brackets.....	159	Chapter 19:	
Lamps	160	Building Safe Projects.....	203
Power strips.....	160	Avoiding trouble	203
Drawers.....	160	Loads.....	204
Shelves and shelf brackets	161	Failures and fixes.....	206
Pallets.....	162	Testing your projects.....	208
Clothes poles	162	Chapter 20:	
Round tubes	163	Designing Your Own Projects.....	213
Pivots	163	Project planning.....	213
Wheel mounts.....	165	Design by imitation	214
Rotating shafts.....	165	Drawings.....	214
Fabricating adapters.....	165	Scale models	215
Chapter 16: Homemade Sticks.....	169	Mock-ups.....	216
Should you drill your own?.....	169		

Project assembly.....	216	Grid beam.....	245
Chapter 21: Designing Vehicles	217	Hardware	247
Safety.....	217	Panels.....	247
Vehicle basics.....	218	Finishes.....	247
First things first.....	222	Components and tools	247
Planning your vehicle	223	Afterword.....	251
Drawings.....	225	Glossary	253
Prototyping	226	Index	265
Assembly.....	229	About the Authors	273
Design solutions.....	230		
Chapter 22: Additional Resources	239	Important Charts and Measurements	
Books and videos	239	Metric conversions.....	9
Magazines.....	242	Stick lengths and panel sizes	26
Organizations.....	243	US stick widths and hole sizes	27
Events.....	243	Metric stick widths	28
Grid beam online.....	244	Drill speeds (rpm)	174
Grid beam designers.....	244	US lumber sizes.....	177
 		Units of measure - US	253
Chapter 23: Suppliers	245	Units of measure - metric	254