

# Goodwin's High End

## Custom Installation Process

TASK	DOCUMENT	Client	System Designer	Project Manager	Project Engineer	Programmer	Inv. Mngr	Tech
<b>Start.</b> Process commences with System Designer & Client			S					
<b>Initial System Design.</b> System Designer consults with Client, designs system to meet Client's needs, creates a system sketch (on paper or Visio, as desired), researches alternatives, and creates proposal(s). Proposals are created in standardized format, grouped by head-end and rooms/zones, with cables and rack equipment located in the appropriate grouping.	Proposal, System Sketch	C	S					
<b>Estimate custom installation costs,</b> including rack, ventilation, power conditioning, pre-wire cable, install cable, pre-wire labor, install labor, outside labor. System Designer to include pre-made cables with lengths if known, such as in simple system.	Proposal		S	PM	E			
<b>Engineering review</b> to quickly check for functional, performance, and capacity issues (allow at least 3 day turnaround). No guarantee that changes won't later be required during engineering process, but the goal is to avoid obvious oversights and mistakes.	Proposal				E			
<b>Incorporate estimates and engineering changes into proposal.</b> Add sales materials (blurbs, brochures, photographs, references, cover letters, presentation folder, etc). Estimated labor policy, labor rates, guarantees, bulk cable policies communicated to Client.	Proposal		S					
<b>Present proposal(s)</b> to Client, incorporate Client changes, re-review with engineer and/or project manager if needed,	Proposal		S					
<b>Get deposit. Create sales order.</b> Discuss payment policy. Initial Deposit on equipment plus should cover engineering and pre-wire labor and pre-wire materials. Alternative proposals deleted or marked as inactive in QuickBooks.	Proposal -> Sales Order		S					
<b>It's a job!</b> All time henceforth is billable (unless waived for valid reasons or extenuating circumstances). System Designer e-mails the Project Manager with the status of the new job. System Designer writes Work Order for Project Manager.	Work Order		S					
<b>Billing and collection (ongoing).</b> Continuously during process, System Designer communicates invoices (in detail or in aggregate) with Client, keeping them informed of costs. System Designer edits invoices created by others (if needed) and sends invoices or statements to Client. System Designer receives payments and applies payments to invoices.	Sales Order, Invoice, Payments		S					
<b>Installation estimating site visit.</b> May take place before or after getting the job, depending upon complexity of the installation and the Client's comfort with the estimates. System Designer to confirm refined estimates with Client.	Sales Order	C	S	PM				
<b>Handoff</b> to Project Manager, who now drives project to completion.				PM				
<b>Templating site visit</b> to define physical locations of equipment, speakers, keypads, racks, and any other installed items. Locations marked in home and on plans (or sketch of plans). Colors and other options defined with Client. May be combined with installation estimating site visit in some cases, particularly for small jobs.	Plans	D	S	PM				

<b>ENGINEERING</b>	Engineering work order by Project Manager. System details (sales order, sketch, meeting) by System Designer. Project manager helps prioritize Engineering work according to project management schedules.	Work Order		S	PM			
	<b>Create Engineering package.</b> Engineer uses System Designer's system design sketch, site visit notes, and sales order to create installation document, pre-wire document, and space requirements document (including rack layouts). Engineer tracks hours, updates work order, and creates invoice for engineering when complete.	Work Order, Engineering Documents				E		
	<b>Engineering package review</b> by System Designer and Project Manager. Engineer revises documents as needed. System Designer reviews details with Client.	Engineering Documents	(C)	S	PM	(E)		
	Engineer revises sales order with pre-made cables, including lengths, using guidelines and estimates from System Designer and sales order. Estimates are replaced with actual cable inventory item codes. Engineer sends e-mail to project manager and System Designer when sales order updating is complete. System Designer reviews cables and racks for budget and discusses with Client if needed.	Sales Order	(C)	S	PM			
<b>Production begins,</b> managed by Project Manager					PM			
<b>CONCURRENTLY. REPEAT STEPS AS NEEDED</b>	<b>OUTSIDE LABOR</b> <b>Outside labor.</b> Project Manager schedules and coordinates all outside labor (satellite, electrician, carpenters, cabinetmakers, and other trades). Coordinates activities and schedule with Client, architect, designer, site supervisor, and/or general contractor.	Work Order			PM			

		<b>Outside labor invoicing.</b> Project Manager creates invoices for all outside labor invoicing using standard profit margins. E-mail to System Designer, who edits and communicates costs to Client	Invoice		S	PM				
	<b>PRE-WIRE</b>	<b>Pre-wire specifications.</b> Project Manager updates sales order with specific pre-wire cables, including lengths.	Sales Order			PM				
		<b>Pre-wire order.</b> Project Manager informs System Designer of pre-wire requirements (cable type and quantity) with enough lead-time to order if needed. System Designer (or Inventory Manager, if available) checks inventory, pulls product, and creates purchase orders for pre-wire product as needed. Purchase orders faxed or emailed.	Sales Order, Purchase Orders		S	PM			IM	
		Products received and placed on hold by store staff (or Inventory Manager, if available). E-mail sent to both System Designer and Project Manager by Inventory Manager or other store staff.	Purchase Orders		S				IM	
		Project Manager coordinates pre-wire and writes work order.	Work Order			PM				
		<b>Pre-wire site meeting</b> with Project Manager and crew performing pre-wire (in-house Technicians or outside labor)	Work Order			PM				
		<b>Pre-wire staging.</b> Pre-wire cables and supplies pulled from hold area and placed in staging area. Pre-wire invoice(s) created from sales order by Inventory Manager or Project Manager)	Sales Order ->Invoice			PM			IM	
		<b>Pre-wire cables delivered</b> to site by Project Manager or Technician.	Sales Order, Invoice			PM				(T)
		<b>Pre-wire</b> by Technicians or outside labor.	Work Order							(T)
		<b>Pre-wire inspection,</b> revise and repair.	Work Order			PM				(T)
		<b>Pre-wire invoicing.</b> Work orders updated as work progresses. Project Manager creates invoice(s) for pre-wire labor from work order(s). Pre-wire cable invoice updated if cables are returned. E-mail to System Designer for communication to Client, deposit required.	Work Order, Invoice	S		PM				
<b>CONCURRENTLY. REPEAT STEPS AS NEEDED</b>	<b>SYSTEM CHANGES</b>	<b>System Changes.</b> System Designer communicates equipment and/or system changes to Project Manager and Engineer by e-mail and by updating the sales order. A list of revisions is kept at the bottom of the sales order indicating for each revision the version number, person making the change, date, and items changes.	Sales Order		S					
		Project Manager and Engineer incorporate system changes into engineering documents and installation planning, billing for labor.	Sales Order, Engineering Documents			PM	E			
		System Designer communicates costs and ramifications (such as delivery delays) to Client, preferably in writing (such as e-mail. With most Clients, the updated sales order should be sent to them for review. Repeat process to incorporate any feedback from Client.	Sales Order	(C)	S					
	<b>ROUGH-IN</b>	<b>Order rough-in gear.</b> Project Manager or Technician to either purchase rough-in equipment/supplies or to communicate what is needed on sales order and ask System Designer to order, depending upon equipment/supplies needed.	Work Order, Purchase Orders		(S)	PM				(T)
		<b>Rough-in Kitting.</b> Inventory Manager or Technician or Project Manager assembles parts necessary for installation (shrink wrap, wire ties, fasteners, connectors, etc.) and updates sales order.	Sales Order			PM			IM	(T)
		<b>Rough-in work order</b> as above.	Work Order			PM				
		<b>Rough-in staging</b> as above.	Sales Order -> Invoice			PM			IM	

		<b>Rough-in</b> performed. Technicians to take only gear only after staging and invoicing. Technicians to track supplies taken out of inventory and from van for incorporation into sales order and invoice by Project Manager.	Work Order, Invoice							T	
		<b>Rough-in Inspection</b> by Project Manager, if necessary.	Work Order			PM					
		<b>Rough-in invoice</b> as above by Project Manager, the communication with Client by System Designer.	Work Order -> Invoice	S		PM					
	<b>FINAL PREP.</b>	<b>Final equipment order.</b> Project Manager e-mails sales to order final equipment (perhaps in phases) with sufficient lead times. System Designer obtains sufficient deposit for ordering equipment.	Sales Order, Purchase Orders		(S)	PM					
		Final equipment/supplies received as above.								IM	
		<b>Kitting and staging</b> for final installation as above by Inventory Manager or Project Manager or Technician.	Sales Order, Invoice		(S)	PM				IM	(T)

<b>CONCURRENTLY. REPEAT STEPS AS NEEDED</b>	<b>RACK</b>	<b>In-house rack building.</b> Technician builds rack in-house using engineering documentation. Possible additional duty of inventory manager (with training and aptitude)	Work Order						(IM)	T
		<b>In-house testing.</b> Components known to have reliability problems are opened and tested by Technician or Inventory Manager. Work Order by Project Manager	Work Order			PM			(IM)	T
	<b>QUALITY ASSURANCE</b>	<b>Defective equipment</b> is returned by technician with full description of problem; notifies System Designer or Inventory Manager. System Designer or Inventory Manager, obtains repair authorization, arranges for replacement and or repair, and processes shipment	Repair Order		S				IM	T
		Project Manager creates work order for programming.	Work Order			PM				
	<b>PROGRAMMING</b>	<b>Client control system requirements.</b> System Designer communicates functional and user interface options to Client and gets feedback / requirements. Programming work order or other documentation updated.	Work Order, User Interface Documents	C	S					
		<b>Programming.</b> Programmer tracks hours on programming work order.	Work Order					Pgmr		
		Project Manager invoices programming as phase(s) are completed.	Work Order, Invoice			PM				
		Project Manager creates work order for in-house rack building, including looming.	Work Order			PM				
		Programmer tests using in-house rack and equipment. Equipment left on for in-house burn-in	Work Order					Pgmr		
		Programmer reviews programming with System Designer and/or Client and revises as needed	Work Order	(C)	(S)			Pgmr		
		<b>Instruction manual.</b> Programmer creates end-user documentation (billing time on work order). System Designer edits as needed.	Work Order, User Doc		(S)			Pgmr		
		Project Manager creates invoice for programming, e-mails System Designer.	Work Order -> Invoice			PM				
		<b>FINAL INSTALLATION</b>	Project Manager schedules final installation and creates work order(s). May be implemented in phases. E-mail to System Designer to ensure adequate payments.	Work Order		S	PM			

	<p><b>Final installation</b> (phased as needed) by Technicians and any outside labor (e.g. movers, video calibration). Technicians to track any variances between engineering documentation and actual installation for later incorporation into as-built document.</p>	Work Order							T
	<p><b>On-site programming and testing.</b></p>	Work Order					Pgmr		
	<p>Project Manager updates work order(s), creates invoice(s), e-mails System Designer.</p>	Work Order->Invoices			PM				
	<p><b>Final inspection</b> by Project Manager and System Designer, repeat final installation process as needed to remedy any issues.</p>	Work Order		S	PM				(T)

<p><b>As-built engineering document</b> created by Engineer, incorporating all system changes from System Designer and all as-built variances from Technicians and Project Manager.</p>	Engineering Documents							E	
<p><b>End-use package</b> created by System Designer, including control instruction manual, sales order, engineering documents, all product manuals, and all remote controls / accessories</p>	Sales Order, Engineering & User Documents		S						
<p><b>Walk-through</b> with Project Manager, System Designer and Client. Any punch-list items to be re-routed through final installation process by sales person. Delivery end-user package. Collect final check.</p>	Invoice	C	S	PM					
<p><b>Final payment</b>, balance due, accounts receivable collection. Sales complete. Thank you email or phone call. Follow-up a month later to be assured that client is totally satisfied with everything and to see if they want any tweaks.</p>	Invoice, Statement		S						
<p><b>Job complete.</b></p>									