

REVIEW THE ENCLOSURE BEFORE TOOLING IS CUT

ENCLOSURE DESIGN REVIEW CHECKLIST

58 checks covering materials, fit, ingress protection, EMI, and process-specific DFM. Work through them before tooling or production parts are ordered.



DESIGN FILES
UNVERIFIED



RELEASE PACKAGE
MANUFACTURING READY

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PREDICTABLEDESIGNS.COM

Mechanical Enclosure Design Review Checklist

Manufacturing readiness review of the mechanical enclosure.

This checklist covers the mechanical enclosure before tooling is cut or production parts are ordered. Sections 1 through 4 apply to every enclosure. Sections 5 through 10 are specific to a manufacturing process, so complete only the ones that apply to this part. Before starting, ask the design owner for the full assembly model with the PCB placed, not just the enclosure parts.

How to use this checklist

Click a box to check off an item once it has been verified against the design. Type comments, waivers, or follow-ups in the Notes field beside it. Sections marked IF APPLICABLE can be skipped for designs that do not use them. Record the overall result in the Review Summary at the end.

Review Information

PRODUCT / PROJECT

DESIGN REVISION

DESIGN OWNER

REVIEWER

REVIEW DATE

REVIEW TYPE

The Checklist at a Glance

#	SECTION	APPLIES TO	CHECKS
1	Materials & Structure	Every design	4
2	Ingress Protection	Every design	4
3	Fit, Function & Assembly	Every design	6
4	EMI & Wireless	Every design	5
5	3D Printing: FDM	If applicable	7
6	3D Printing: SLA / DLP	If applicable	3
7	3D Printing: SLS / SLM / EBM	If applicable	2
8	Injection Molding	If applicable	10
9	Machining	If applicable	8
10	Sheet Metal Forming	If applicable	9

58 checks across 10 sections. Sections marked "if applicable" only count when the design uses that feature or process.

#1	Materials & Structure	4 CHECKS
CHECK	NOTES	
☐ Material appropriate for the use case (mechanical loads, temperature range, chemical exposure, UV if outdoors)		
☐ No large unsupported flat areas, with ribbing present where needed		
☐ Wall thickness appropriate for the material and manufacturing process		
☐ Fragile components isolated from potential impacts		

#2	Ingress Protection	4 CHECKS
CHECK	NOTES	
☐ Product protected against entry of solid objects to the target IP rating		
☐ Product protected against liquid entry to the target IP rating		
☐ Gaskets fit correctly in their bed (if present)		
☐ Sufficient compression applied to gaskets (if present)		

#3 Fit, Function & Assembly		6 CHECKS
CHECK	NOTES	
☐ All required movements are geometrically possible and all controls are mechanically functional		
☐ Flexing features (snap fits, living hinges, buttons) designed for the expected cycle count		
☐ PCB and components sit in the correct position in the supplied assembly model, with connector openings, LEDs or light pipes, and buttons aligned		
☐ Attachment points for the PCB and components well placed and sufficiently numerous		
☐ Enclosure can be opened and components replaced with common tools if serviceability is required		
☐ Required markings present (regulatory, resin identification code, WEEE symbol, disposal instructions)		

#4	EMI & Wireless	5 CHECKS
CHECK	NOTES	
☐ Metal enclosure properly grounded to PCB ground (if applicable)		
☐ RF window present in the enclosure for an internal antenna (if applicable)		
☐ Antenna placement accounts for enclosure material and user hand position		
☐ Shielded connectors used at cable entry points where needed		
☐ Enclosure material compatible with wireless performance requirements		

#5	3D Printing: FDM	IF APPLICABLE
CHECK	NOTES	
☐ Flat base surface present		
☐ Overhangs limited or controlled		
☐ Wall thickness over 1 mm		

#5	3D Printing: FDM (continued)	IF APPLICABLE
CHECK	NOTES	
☐ No details smaller than 0.4 mm		
☐ No large flat or linear areas		
☐ No thin parts perpendicular to print layers		
☐ Main forces apply perpendicularly to print layers		

#6	3D Printing: SLA / DLP	IF APPLICABLE
CHECK	NOTES	
☐ Wall thickness over 0.5 mm		
☐ No details smaller than 0.1 mm		
☐ Part not meant to be exposed to impacts or forces		

#7	3D Printing: SLS / SLM / EBM	IF APPLICABLE
CHECK	NOTES	
☐ Wall thickness over 1 mm		
☐ No details smaller than 1 mm		

#8	Injection Molding	IF APPLICABLE
CHECK	NOTES	
☐ Two-part mold can create the shape		
☐ No undercuts, or cores planned if undercuts exist		
☐ Draft angles present and appropriate (CAD draft analysis)		
☐ No obvious flow problems (gate location, long thin flow paths, flow around cores)		
☐ Edges along the flow rounded		
☐ Walls of uniform thickness (CAD wall-thickness analysis)		

#8	Injection Molding (continued)	IF APPLICABLE
CHECK	NOTES	
☐ Thicker sections hollowed out with ribs if necessary		
☐ All thickness transitions smoothed		
☐ Wall thickness appropriate for the plastic used		
☐ Threaded inserts prepared if disassembly is planned		

#9	Machining	IF APPLICABLE
CHECK	NOTES	
☐ Milling vs. turning determined by part symmetry		
☐ Machining operations possible from a single or few directions (3-axis vs. 5-axis)		
☐ Undercuts properly dimensioned		
☐ Tool length-to-width ratio minimized		

#9	Machining (continued)	IF APPLICABLE
CHECK	NOTES	
☐ Vertical corners rounded		
☐ All walls sufficiently thick for the material		
☐ All drilled holes properly dimensioned		
☐ The tightest tolerances on the drawing are achievable and justified		

#10	Sheet Metal Forming	IF APPLICABLE
CHECK	NOTES	
☐ Sheet thickness is a standard gauge		
☐ All bends in a plane are in the same direction		
☐ Bend reliefs implemented correctly		
☐ All bends physically possible		

#10

Sheet Metal Forming (continued)

IF APPLICABLE

CHECK

NOTES

☐ Bend heights and clearances sufficient

☐ Part appropriate for laser cutting before bending

☐ All cuts before bending normal to the sheet

☐ Material appropriate for laser cutting

☐ All cuts properly distanced from bends


Review Summary

SIGN-OFF

OVERALL RESULT

☐ Approved for manufacturing

☐ Approved with changes noted

☐ Not approved, re-review required

SUMMARY AND REQUIRED CHANGES

REVIEWER SIGN-OFF

SIGN-OFF DATE