

Manufacturing & Assembly Manual

Ten-model modular charging furniture portfolio • 12–48 devices

Portfolio master • Rev A • 26 July 2026

A better home for every device.

Warm institutional furniture outside; isolated, serviceable commercial charging architecture inside. Designed for schools, higher education, healthcare IT, libraries, and shared device fleets.

ENGINEERING RELEASE GATE

This document defines the cabinet, hardware, metalwork interfaces, and assembly sequence for prototype fabrication. The power system is intentionally specified as a listed/component-level procurement package. Do not improvise mains wiring. A qualified electrical engineer and a nationally recognized testing laboratory (NRTL) must approve the complete cart before sale.

Document status	What is controlled	What still requires release
Rev A / prototype	Envelope, panel sizes, shared interfaces, hardware class, assembly order, inspection plan	Final structural calculations, production tolerances, NRTL construction report, supplier part numbers, labeling

Certification claims: None. “UL,” “ETL,” “BIFMA,” “GREENGUARD,” “medical-grade,” and similar claims are prohibited until the relevant third party authorizes them for the final production configuration.

Portfolio design controls

AlderGrid uses one shared institutional-furniture architecture across three modular families. Width, height, shelf count, and divider density change by model; safety-critical power-bay interfaces, caster mounting, locking, cable management, and labeling remain controlled.

System	Shared Rev A architecture	Release gate
Cabinet	TSCA Title VI compliant 3/4-in high-density composite core with HPL faces	Supplier compliance documents; structural prototype test
Reinforcement	3/4-in birch plywood caster plinth and hinge rails	Caster pull-out / impact / tip verification
Power bay	isolated powder-coated 18-gauge steel rear power compartment	Protective-earth design and NRTL construction file
Device shelves	perforated powder-coated 18-gauge steel device shelves with removable dividers	Load, edge, ventilation, and device-fit testing
Casters	four 5-in non-marking swivel casters, two total-lock	Selected load rating and loaded mobility test
Doors / lock	twin 270-degree laminated doors with perforated steel vent inserts; included commercial three-point keyed lock, keyed alike by order	Cycle, abuse, lock, and pinch-point checks
Input	120 VAC, 60 Hz, 12 A managed maximum, 10-ft 14/3 SJT cord, NEMA 5-15P	Final rating, derating, cord, plug, strain relief, labels, abnormal test
Charging	pre-wired USB-C PD cable set with smart cabinet-level power allocation; component selection and final ratings subject to NRTL review	Controller, cable, thermal, fault, and substitution controls

Safety and compliance basis

Use listed/recognized electrical components and evaluate the final assembled cart with an NRTL. Coordinate applicable furniture and furniture-power-distribution requirements, including standards in the UL 962 / UL 962A family as confirmed by the test lab. Composite wood procurement must meet TSCA Title VI. The final construction may trigger additional requirements based on configuration, market, and jurisdiction.

Healthcare boundary: Hospital use does not make this a medical device. Do not market it for patient vicinity, life-support equipment, or clinical procedures without specialist review.

Portfolio matrix

Model	SKU	Bays	Tiers	Overall W × D × H	Role
Nook 12	AG-N12	12	12	24 × 27.5 × 36 in	Coverage
Nook 16	AG-N16	16	8 + 8	24 × 27.5 × 38 in	Coverage
Class 20	AG-C20	20	10 + 10	26 × 28.5 × 38 in	Coverage
Class 24	AG-C24	24	12 + 12	28 × 28.5 × 38 in	Coverage
Class 30	AG-C30	30	15 + 15	28 × 29.5 × 40 in	CORE
Class 32	AG-C32	32	16 + 16	29 × 29.5 × 40 in	CORE
Class 36	AG-C36	36	18 + 18	30 × 30 × 41 in	CORE
Fleet 40	AG-F40	40	14 + 13 + 13	29 × 30.5 × 44 in	Coverage
Fleet 45	AG-F45	45	15 + 15 + 15	30 × 30.5 × 44 in	Coverage
Fleet 48	AG-F48	48	16 + 16 + 16	31 × 30.5 × 44 in	Coverage

Prototype and launch order

Phase 1: Class 30, Class 32, Class 36 — validate the market core and the shared two-tier platform.
Phase 2: Nook 12, Nook 16, Class 20, Class 24 — release compact coverage after the shared architecture passes.
Phase 3: Fleet 40, Fleet 45, Fleet 48 — release the three-tier platform after loaded mobility and thermal testing.

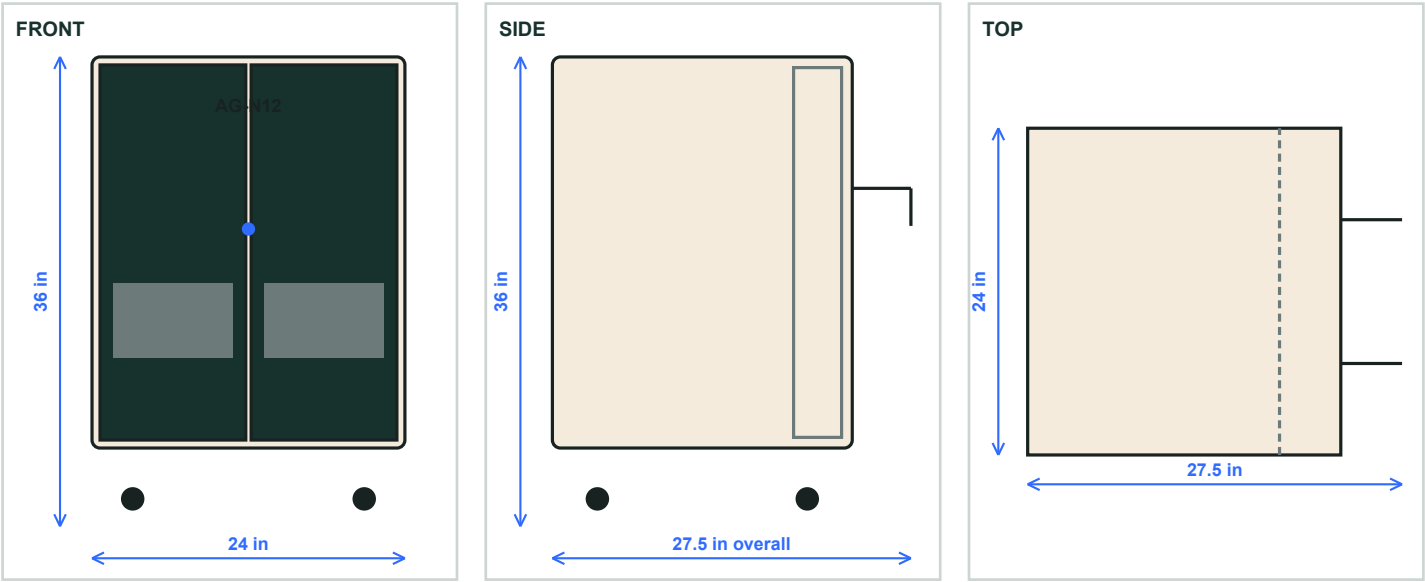
Revision and change-control rules

Assign controlled part numbers to every panel, metal fabrication, harness, controller, label, and purchased hardware item. Treat changes to electrical components, ventilation, slot count, power allocation, cord, plug, bonding, shelves, doors, caster mounting, and cabinet materials as engineering changes. Route safety-relevant changes through the lab before production.

Nook 12 • product definition

CAPACITY 12 devices	ENVELOPE 24W × 27.5D × 36H in	TIERS 12	PLANNED MSRP \$873.25
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Use case. Libraries, special education rooms, nurse stations, loaner fleets. The cabinet stores 12 devices up to 15.6 in, arranged in 1 tier(s) (12). Target net slot width is 1.45 in.



Controlled product envelope

Parameter	Rev A target	Release note
Cabinet body	24 W × 23 D × 30 H in	Overall depth includes 4.5-in handle projection; overall height includes 5-in casters and mounting stack.
Power architecture	780 W nominal allocation; 65 W per-port peak	Final continuous load, controller logic, thermal limits, derating, branch protection, and markings require NRTL review.
Finish	Maple/birch HPL body; forest HPL doors; black powder-coated steel	Specify TSCA Title VI-compliant composite panels and documented commercial-grade finish system.

Nook 12 • cut list and fabricated parts

All dimensions are nominal finished sizes in inches. Confirm CNC origin, edge-band thickness, hardware templates, reveal strategy, and actual steel-part bend deductions with the shop before releasing production files.

Wood and composite panel cut list

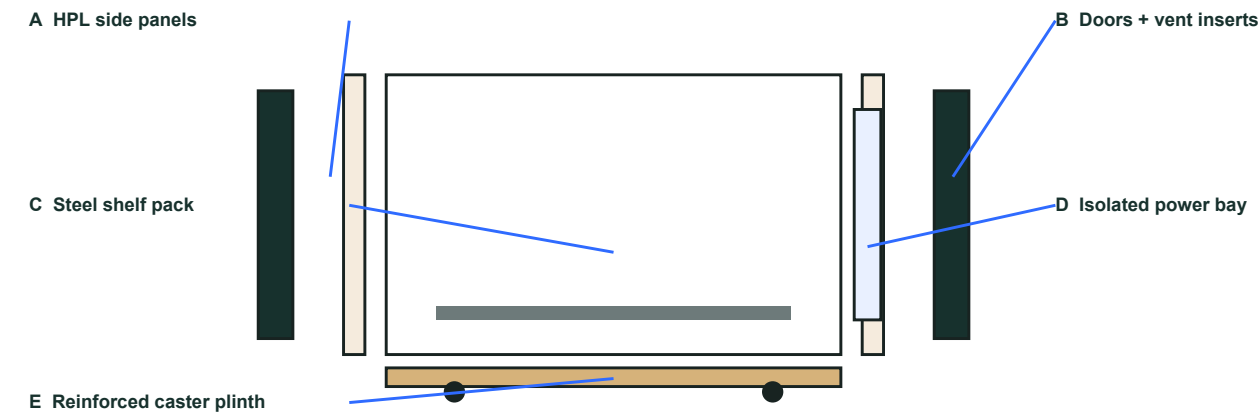
ID	Part	Qty	Material	Cut size (in)	Edge / note
W01	Side panel	2	3/4-in HPL composite	30" × 23"	Band front + top + bottom
W02	Top panel	1	3/4-in HPL composite	22.5" × 23"	Between sides; band front
W03	Bottom panel	1	3/4-in HPL composite	22.5" × 23"	Between sides; seal all edges
W04	Left / right doors	2	3/4-in HPL composite	29.75" × 11.812"	Overlay; 1/8-in center gap
W05	Caster plinth doubler	1	3/4-in birch plywood	22.5" × 22"	Continuous glue + mechanical fastening
W06	Rear structural rail	2	3/4-in birch plywood	22.5" × 4"	Upper/lower; clear of power bay
W07	Door hinge rail	2	3/4-in birch plywood	28" × 1.5"	Bond to side-front interior
W08	Handle backing block	1	3/4-in birch plywood	8" × 4"	Locate to approved handle template

Fabricated metal parts

ID	Fabricated part	Qty	Material	Nominal envelope	Control
M01	Device shelf pan	1	18-ga perforated steel	21.5" W × 18.25" D × 1" flange	Hem exposed edges; divider slots per tier
M02	Removable divider	13	Powder-coated steel rod / plate	17.75" D	Net slot width target 1.45"
M03	Isolated rear power-bay enclosure	1	18-ga steel	21.5" W × 4.5" D × 28" H	Tool-access cover; bond point; NRTL-controlled
M04	Door vent insert	2	18-ga perforated steel	9.5" W × 7" H	Rear-fastened; no sharp edges
M05	Caster mounting plate	4	11-ga steel	4" × 4"	Hole pattern from selected caster
M06	Cable comb / strain-relief rail	1	16-ga steel	21.5" W	[12] ports by tier

Tolerance framework: panel size ±1/32 in; carcass squareness ≤1/16 in diagonal difference; door reveal 1/8 in nominal; slot width ±1/32 in after divider installation. These are prototype targets and must be confirmed by process capability.

Nook 12 • assembly sequence



#	Operation	Controlled instruction
1	Incoming control	Verify TSCA Title VI panel documentation; inspect HPL, steel, hardware, and listed/recognized electrical components against the prototype BOM.
2	Machine panels	CNC cut and drill all panels from released drawings. Do not drill power-bay or handle features from shop memory; use controlled templates.
3	Seal and edge	Apply commercial edge banding to exposed panel edges. Seal all concealed composite edges in the lower plinth and power-bay interface.
4	Build carcass	Assemble sides, top, bottom, hinge rails, and rear rails on a flat fixture. Verify diagonals before fastener cure.
5	Install plinth	Bond and mechanically fasten the birch plywood caster doubler. Through-bolt caster plates; fit two total-lock casters on the operator side.
6	Fit metalwork	Install shelf pans, dividers, cable combs, ventilation inserts, and the isolated rear power-bay enclosure. Deburr and protect all cable passages.
7	Hang and secure	Fit 270° doors, three-point lock, bumpers, and handle. Check full swing, latch engagement, and parked clearance.
8	Electrical hold point	A qualified technician installs the approved power package exactly to the NRTL-controlled construction file. No substitutions or improvised mains wiring.
9	Dress cables	Route and label 12 included USB-C leads by bay. Protect bends and service loops; verify doors and shelves cannot pinch cables.
10	Final inspection	Complete the structural, mobility, electrical, thermal, lock, labeling, and packaging checks on the next page before release.

Prototype labor allowance: 8 shop hours, excluding engineering, compliance testing, cure time, and rework. Fastener type, torque, adhesive, cure conditions, and inspection frequency must be released with the final shop traveler.

Nook 12 • release inspection

Check	Acceptance target	Record
Identity / traceability	AG-N12; serial, revision, component lots, and assembler recorded	Pass / fail
Envelope	24 W × 27.5 D × 36 H in overall	Measured values
Capacity / fit	12 labeled bays; 15.6-in representative devices fit without cable pinch	Device set used
Doors / lock	Full 270° swing; three-point latch engages without forcing; two keys supplied	Cycle count
Mobility	Tracks and pivots under design load; two total locks hold on the approved incline	Load / slope
Stability	Loaded and unloaded tip / threshold tests passed to engineer-approved protocol	Protocol / result
Ventilation	All intake/exhaust paths open; no loose debris; temperature test passed at worst-case managed load	Ambient / peak
Ground / bond	Continuity and protective-earth construction meet NRTL-controlled limits	Instrument / result
Electrical safety	Input, leakage, dielectric, abnormal, cord, strain-relief, controller, and marking tests passed per lab plan	Test report
Cable delivery	12 USB-C leads labeled and operational; allocation controller limits aggregate load	Port result
Finish / cleanability	No sharp edges, chips, exposed core, or coating damage; approved cleaner spot test passed	Inspector
Packaging	Caster/door immobilization, keys, instructions, labels, and accessory pack complete	Pack audit

STOP-SHIP CONDITIONS

Any substituted electrical component, damaged cord, missing protective-earth bond, uncontrolled thermal result, unstable loaded cart, failed lock, sharp edge, incorrect label, or missing traceability record. Quarantine the unit until disposition is approved.

Required design-file attachments before production release

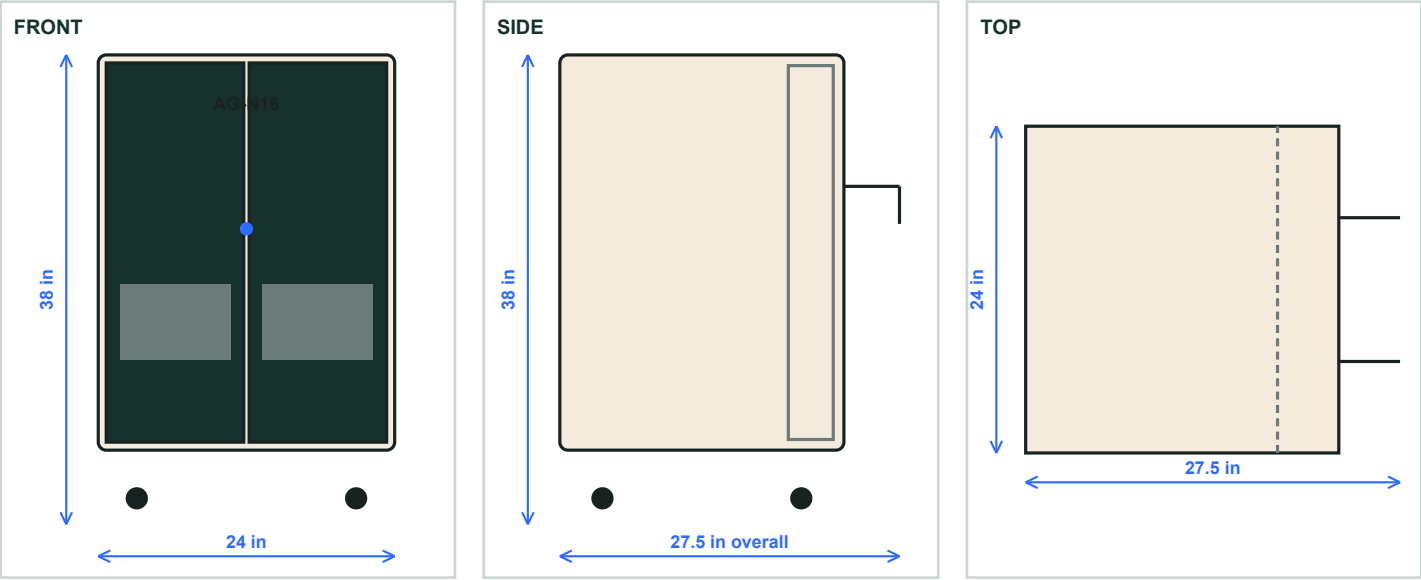
Final CAD and CNC drawings • signed structural review • approved caster and hinge data • component-level electrical BOM • NRTL construction report and authorization • thermal test report • cleaning compatibility matrix • labels and serial format • packaging drop/vibration plan • service and warranty procedures.

Document boundary: This manual is sufficient for cabinet prototyping and quoting. It is not a substitute for sealed engineering drawings, electrical schematics, a listing report, local code review, or the shop's own safety program.

Nook 16 • product definition

CAPACITY 16 devices	ENVELOPE 24W × 27.5D × 38H in	TIERS 8 + 8	PLANNED MSRP \$978.25
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Use case. Small classrooms, intervention programs, labs, clinical teams. The cabinet stores 16 devices up to 15.6 in, arranged in 2 tier(s) (8 + 8). Target net slot width is 1.45 in.



Controlled product envelope

Parameter	Rev A target	Release note
Cabinet body	24 W × 23 D × 32 H in	Overall depth includes 4.5-in handle projection; overall height includes 5-in casters and mounting stack.
Power architecture	1040 W nominal allocation; 65 W per-port peak	Final continuous load, controller logic, thermal limits, derating, branch protection, and markings require NRTL review.
Finish	Maple/birch HPL body; forest HPL doors; black powder-coated steel	Specify TSCA Title VI-compliant composite panels and documented commercial-grade finish system.

Nook 16 • cut list and fabricated parts

All dimensions are nominal finished sizes in inches. Confirm CNC origin, edge-band thickness, hardware templates, reveal strategy, and actual steel-part bend deductions with the shop before releasing production files.

Wood and composite panel cut list

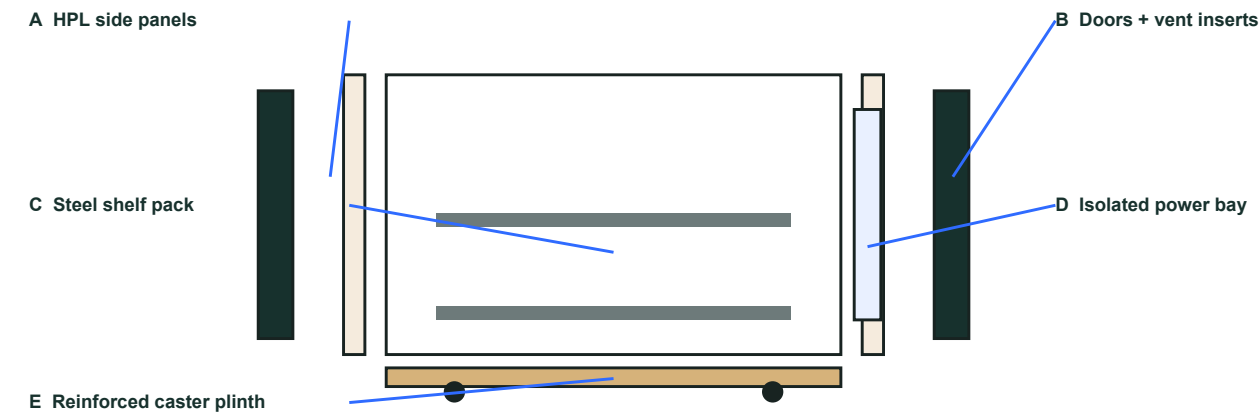
ID	Part	Qty	Material	Cut size (in)	Edge / note
W01	Side panel	2	3/4-in HPL composite	32" × 23"	Band front + top + bottom
W02	Top panel	1	3/4-in HPL composite	22.5" × 23"	Between sides; band front
W03	Bottom panel	1	3/4-in HPL composite	22.5" × 23"	Between sides; seal all edges
W04	Left / right doors	2	3/4-in HPL composite	31.75" × 11.812"	Overlay; 1/8-in center gap
W05	Caster plinth doubler	1	3/4-in birch plywood	22.5" × 22"	Continuous glue + mechanical fastening
W06	Rear structural rail	2	3/4-in birch plywood	22.5" × 4"	Upper/lower; clear of power bay
W07	Door hinge rail	2	3/4-in birch plywood	30" × 1.5"	Bond to side-front interior
W08	Handle backing block	1	3/4-in birch plywood	8" × 4"	Locate to approved handle template

Fabricated metal parts

ID	Fabricated part	Qty	Material	Nominal envelope	Control
M01	Device shelf pan	2	18-ga perforated steel	21.5" W × 18.25" D × 1" flange	Hem exposed edges; divider slots per tier
M02	Removable divider	18	Powder-coated steel rod / plate	17.75" D	Net slot width target 1.45"
M03	Isolated rear power-bay enclosure	1	18-ga steel	21.5" W × 4.5" D × 30" H	Tool-access cover; bond point; NRTL-controlled
M04	Door vent insert	2	18-ga perforated steel	9.5" W × 7" H	Rear-fastened; no sharp edges
M05	Caster mounting plate	4	11-ga steel	4" × 4"	Hole pattern from selected caster
M06	Cable comb / strain-relief rail	2	16-ga steel	21.5" W	[8, 8] ports by tier

Tolerance framework: panel size ±1/32 in; carcass squareness ≤1/16 in diagonal difference; door reveal 1/8 in nominal; slot width ±1/32 in after divider installation. These are prototype targets and must be confirmed by process capability.

Nook 16 • assembly sequence



#	Operation	Controlled instruction
1	Incoming control	Verify TSCA Title VI panel documentation; inspect HPL, steel, hardware, and listed/recognized electrical components against the prototype BOM.
2	Machine panels	CNC cut and drill all panels from released drawings. Do not drill power-bay or handle features from shop memory; use controlled templates.
3	Seal and edge	Apply commercial edge banding to exposed panel edges. Seal all concealed composite edges in the lower plinth and power-bay interface.
4	Build carcass	Assemble sides, top, bottom, hinge rails, and rear rails on a flat fixture. Verify diagonals before fastener cure.
5	Install plinth	Bond and mechanically fasten the birch plywood caster doubler. Through-bolt caster plates; fit two total-lock casters on the operator side.
6	Fit metalwork	Install shelf pans, dividers, cable combs, ventilation inserts, and the isolated rear power-bay enclosure. Deburr and protect all cable passages.
7	Hang and secure	Fit 270° doors, three-point lock, bumpers, and handle. Check full swing, latch engagement, and parked clearance.
8	Electrical hold point	A qualified technician installs the approved power package exactly to the NRTL-controlled construction file. No substitutions or improvised mains wiring.
9	Dress cables	Route and label 16 included USB-C leads by bay. Protect bends and service loops; verify doors and shelves cannot pinch cables.
10	Final inspection	Complete the structural, mobility, electrical, thermal, lock, labeling, and packaging checks on the next page before release.

Prototype labor allowance: 8.5 shop hours, excluding engineering, compliance testing, cure time, and rework. Fastener type, torque, adhesive, cure conditions, and inspection frequency must be released with the final shop traveler.

Nook 16 • release inspection

Check	Acceptance target	Record
Identity / traceability	AG-N16; serial, revision, component lots, and assembler recorded	Pass / fail
Envelope	24 W × 27.5 D × 38 H in overall	Measured values
Capacity / fit	16 labeled bays; 15.6-in representative devices fit without cable pinch	Device set used
Doors / lock	Full 270° swing; three-point latch engages without forcing; two keys supplied	Cycle count
Mobility	Tracks and pivots under design load; two total locks hold on the approved incline	Load / slope
Stability	Loaded and unloaded tip / threshold tests passed to engineer-approved protocol	Protocol / result
Ventilation	All intake/exhaust paths open; no loose debris; temperature test passed at worst-case managed load	Ambient / peak
Ground / bond	Continuity and protective-earth construction meet NRTL-controlled limits	Instrument / result
Electrical safety	Input, leakage, dielectric, abnormal, cord, strain-relief, controller, and marking tests passed per lab plan	Test report
Cable delivery	16 USB-C leads labeled and operational; allocation controller limits aggregate load	Port result
Finish / cleanability	No sharp edges, chips, exposed core, or coating damage; approved cleaner spot test passed	Inspector
Packaging	Caster/door immobilization, keys, instructions, labels, and accessory pack complete	Pack audit

STOP-SHIP CONDITIONS

Any substituted electrical component, damaged cord, missing protective-earth bond, uncontrolled thermal result, unstable loaded cart, failed lock, sharp edge, incorrect label, or missing traceability record. Quarantine the unit until disposition is approved.

Required design-file attachments before production release

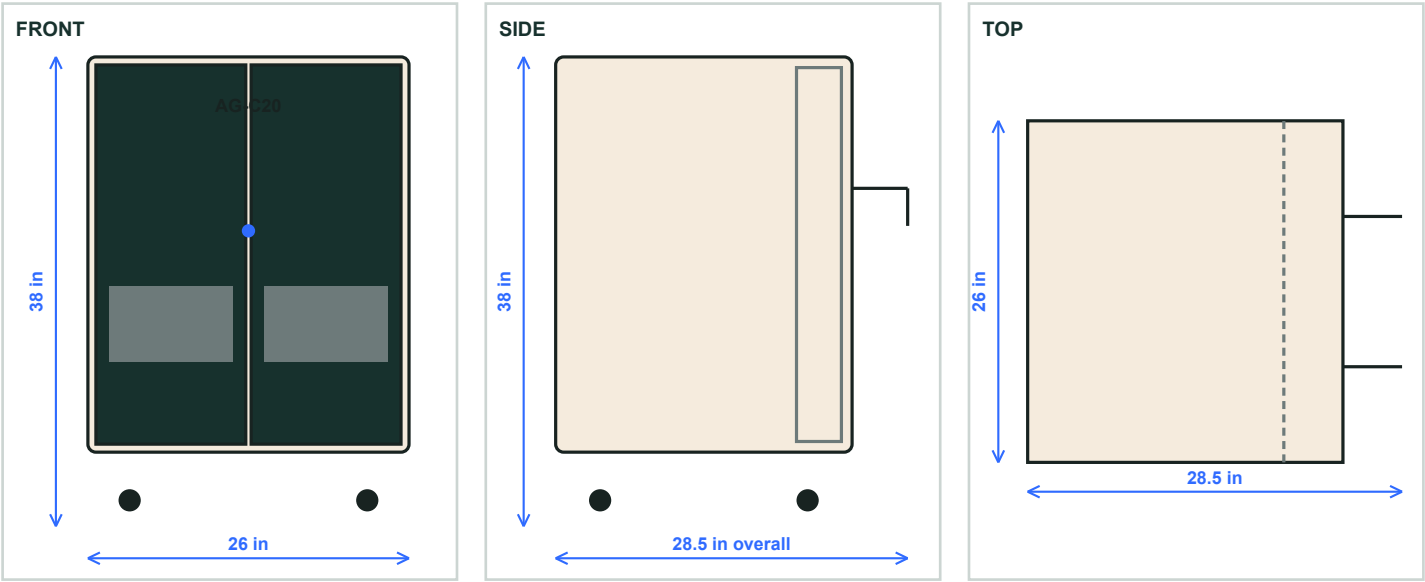
Final CAD and CNC drawings • signed structural review • approved caster and hinge data • component-level electrical BOM • NRTL construction report and authorization • thermal test report • cleaning compatibility matrix • labels and serial format • packaging drop/vibration plan • service and warranty procedures.

Document boundary: This manual is sufficient for cabinet prototyping and quoting. It is not a substitute for sealed engineering drawings, electrical schematics, a listing report, local code review, or the shop's own safety program.

Class 20 • product definition

CAPACITY 20 devices	ENVELOPE 26W × 28.5D × 38H in	TIERS 10 + 10	PLANNED MSRP \$1,118.25
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Use case. Small classes, stem rooms, hospital departments, shared staff fleets. The cabinet stores 20 devices up to 16 in, arranged in 2 tier(s) (10 + 10). Target net slot width is 1.45 in.



Controlled product envelope

Parameter	Rev A target	Release note
Cabinet body	26 W × 24 D × 32 H in	Overall depth includes 4.5-in handle projection; overall height includes 5-in casters and mounting stack.
Power architecture	1200 W nominal allocation; 65 W per-port peak	Final continuous load, controller logic, thermal limits, derating, branch protection, and markings require NRTL review.
Finish	Maple/birch HPL body; forest HPL doors; black powder-coated steel	Specify TSCA Title VI-compliant composite panels and documented commercial-grade finish system.

Class 20 • cut list and fabricated parts

All dimensions are nominal finished sizes in inches. Confirm CNC origin, edge-band thickness, hardware templates, reveal strategy, and actual steel-part bend deductions with the shop before releasing production files.

Wood and composite panel cut list

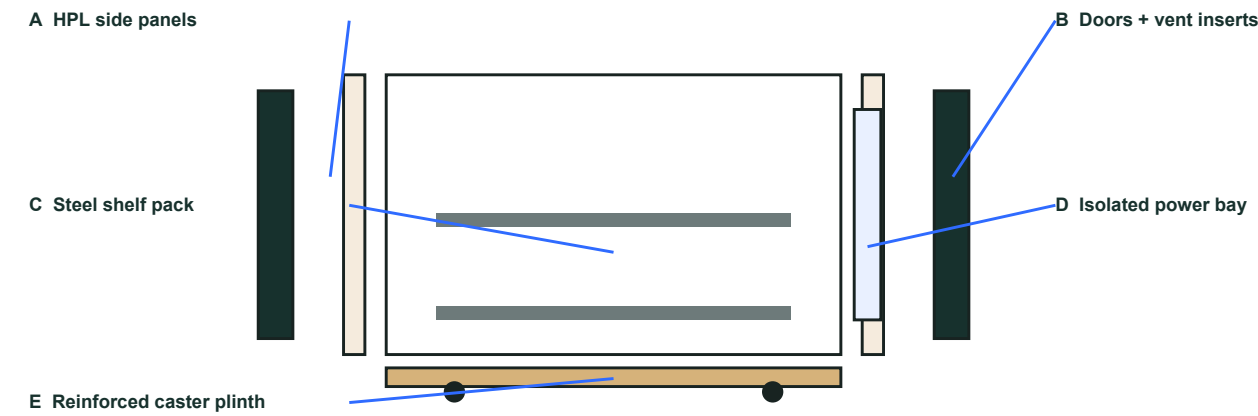
ID	Part	Qty	Material	Cut size (in)	Edge / note
W01	Side panel	2	3/4-in HPL composite	32" × 24"	Band front + top + bottom
W02	Top panel	1	3/4-in HPL composite	24.5" × 24"	Between sides; band front
W03	Bottom panel	1	3/4-in HPL composite	24.5" × 24"	Between sides; seal all edges
W04	Left / right doors	2	3/4-in HPL composite	31.75" × 12.812"	Overlay; 1/8-in center gap
W05	Caster plinth doubler	1	3/4-in birch plywood	24.5" × 23"	Continuous glue + mechanical fastening
W06	Rear structural rail	2	3/4-in birch plywood	24.5" × 4"	Upper/lower; clear of power bay
W07	Door hinge rail	2	3/4-in birch plywood	30" × 1.5"	Bond to side-front interior
W08	Handle backing block	1	3/4-in birch plywood	8" × 4"	Locate to approved handle template

Fabricated metal parts

ID	Fabricated part	Qty	Material	Nominal envelope	Control
M01	Device shelf pan	2	18-ga perforated steel	23.5" W × 19.25" D × 1" flange	Hem exposed edges; divider slots per tier
M02	Removable divider	22	Powder-coated steel rod / plate	18.75" D	Net slot width target 1.45"
M03	Isolated rear power-bay enclosure	1	18-ga steel	23.5" W × 4.5" D × 30" H	Tool-access cover; bond point; NRTL-controlled
M04	Door vent insert	2	18-ga perforated steel	10.5" W × 7" H	Rear-fastened; no sharp edges
M05	Caster mounting plate	4	11-ga steel	4" × 4"	Hole pattern from selected caster
M06	Cable comb / strain-relief rail	2	16-ga steel	23.5" W	[10, 10] ports by tier

Tolerance framework: panel size ±1/32 in; carcass squareness ≤1/16 in diagonal difference; door reveal 1/8 in nominal; slot width ±1/32 in after divider installation. These are prototype targets and must be confirmed by process capability.

Class 20 • assembly sequence



#	Operation	Controlled instruction
1	Incoming control	Verify TSCA Title VI panel documentation; inspect HPL, steel, hardware, and listed/recognized electrical components against the prototype BOM.
2	Machine panels	CNC cut and drill all panels from released drawings. Do not drill power-bay or handle features from shop memory; use controlled templates.
3	Seal and edge	Apply commercial edge banding to exposed panel edges. Seal all concealed composite edges in the lower plinth and power-bay interface.
4	Build carcass	Assemble sides, top, bottom, hinge rails, and rear rails on a flat fixture. Verify diagonals before fastener cure.
5	Install plinth	Bond and mechanically fasten the birch plywood caster doubler. Through-bolt caster plates; fit two total-lock casters on the operator side.
6	Fit metalwork	Install shelf pans, dividers, cable combs, ventilation inserts, and the isolated rear power-bay enclosure. Deburr and protect all cable passages.
7	Hang and secure	Fit 270° doors, three-point lock, bumpers, and handle. Check full swing, latch engagement, and parked clearance.
8	Electrical hold point	A qualified technician installs the approved power package exactly to the NRTL-controlled construction file. No substitutions or improvised mains wiring.
9	Dress cables	Route and label 20 included USB-C leads by bay. Protect bends and service loops; verify doors and shelves cannot pinch cables.
10	Final inspection	Complete the structural, mobility, electrical, thermal, lock, labeling, and packaging checks on the next page before release.

Prototype labor allowance: 9 shop hours, excluding engineering, compliance testing, cure time, and rework. Fastener type, torque, adhesive, cure conditions, and inspection frequency must be released with the final shop traveler.

Class 20 • release inspection

Check	Acceptance target	Record
Identity / traceability	AG-C20; serial, revision, component lots, and assembler recorded	Pass / fail
Envelope	26 W × 28.5 D × 38 H in overall	Measured values
Capacity / fit	20 labeled bays; 16-in representative devices fit without cable pinch	Device set used
Doors / lock	Full 270° swing; three-point latch engages without forcing; two keys supplied	Cycle count
Mobility	Tracks and pivots under design load; two total locks hold on the approved incline	Load / slope
Stability	Loaded and unloaded tip / threshold tests passed to engineer-approved protocol	Protocol / result
Ventilation	All intake/exhaust paths open; no loose debris; temperature test passed at worst-case managed load	Ambient / peak
Ground / bond	Continuity and protective-earth construction meet NRTL-controlled limits	Instrument / result
Electrical safety	Input, leakage, dielectric, abnormal, cord, strain-relief, controller, and marking tests passed per lab plan	Test report
Cable delivery	20 USB-C leads labeled and operational; allocation controller limits aggregate load	Port result
Finish / cleanability	No sharp edges, chips, exposed core, or coating damage; approved cleaner spot test passed	Inspector
Packaging	Caster/door immobilization, keys, instructions, labels, and accessory pack complete	Pack audit

STOP-SHIP CONDITIONS

Any substituted electrical component, damaged cord, missing protective-earth bond, uncontrolled thermal result, unstable loaded cart, failed lock, sharp edge, incorrect label, or missing traceability record. Quarantine the unit until disposition is approved.

Required design-file attachments before production release

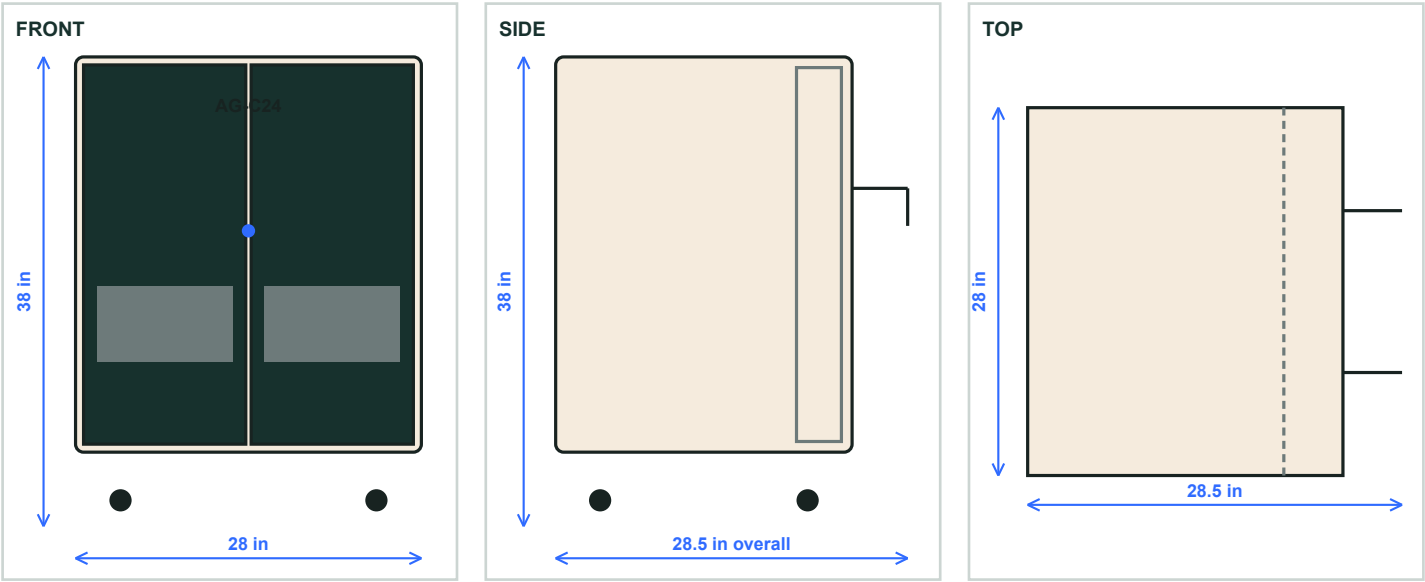
Final CAD and CNC drawings • signed structural review • approved caster and hinge data • component-level electrical BOM • NRTL construction report and authorization • thermal test report • cleaning compatibility matrix • labels and serial format • packaging drop/vibration plan • service and warranty procedures.

Document boundary: This manual is sufficient for cabinet prototyping and quoting. It is not a substitute for sealed engineering drawings, electrical schematics, a listing report, local code review, or the shop's own safety program.

Class 24 • product definition

CAPACITY 24 devices	ENVELOPE 28W × 28.5D × 38H in	TIERS 12 + 12	PLANNED MSRP \$1,223.25
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Use case. Standard classrooms, training rooms, libraries, departmental pools. The cabinet stores 24 devices up to 16 in, arranged in 2 tier(s) (12 + 12). Target net slot width is 1.4 in.



Controlled product envelope

Parameter	Rev A target	Release note
Cabinet body	28 W × 24 D × 32 H in	Overall depth includes 4.5-in handle projection; overall height includes 5-in casters and mounting stack.
Power architecture	1200 W nominal allocation; 65 W per-port peak	Final continuous load, controller logic, thermal limits, derating, branch protection, and markings require NRTL review.
Finish	Maple/birch HPL body; forest HPL doors; black powder-coated steel	Specify TSCA Title VI-compliant composite panels and documented commercial-grade finish system.

Class 24 • cut list and fabricated parts

All dimensions are nominal finished sizes in inches. Confirm CNC origin, edge-band thickness, hardware templates, reveal strategy, and actual steel-part bend deductions with the shop before releasing production files.

Wood and composite panel cut list

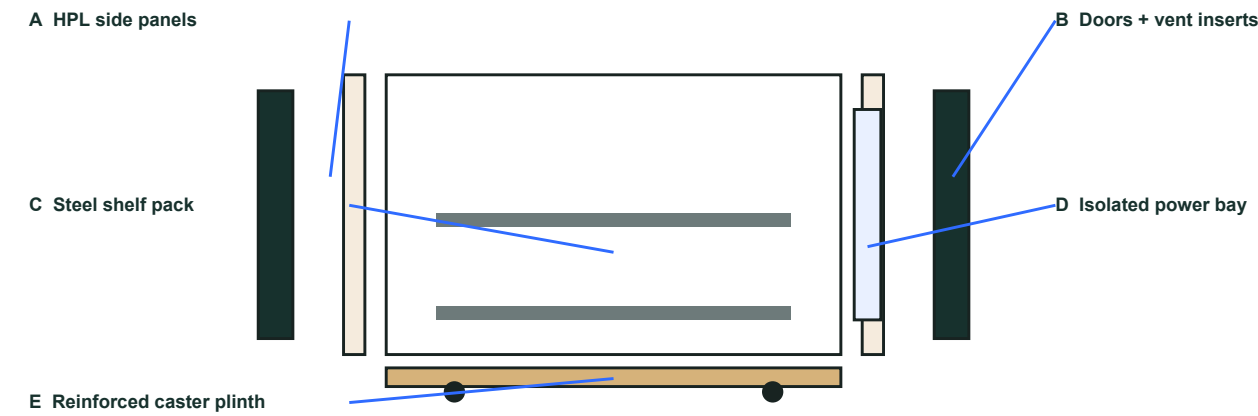
ID	Part	Qty	Material	Cut size (in)	Edge / note
W01	Side panel	2	3/4-in HPL composite	32" × 24"	Band front + top + bottom
W02	Top panel	1	3/4-in HPL composite	26.5" × 24"	Between sides; band front
W03	Bottom panel	1	3/4-in HPL composite	26.5" × 24"	Between sides; seal all edges
W04	Left / right doors	2	3/4-in HPL composite	31.75" × 13.812"	Overlay; 1/8-in center gap
W05	Caster plinth doubler	1	3/4-in birch plywood	26.5" × 23"	Continuous glue + mechanical fastening
W06	Rear structural rail	2	3/4-in birch plywood	26.5" × 4"	Upper/lower; clear of power bay
W07	Door hinge rail	2	3/4-in birch plywood	30" × 1.5"	Bond to side-front interior
W08	Handle backing block	1	3/4-in birch plywood	8" × 4"	Locate to approved handle template

Fabricated metal parts

ID	Fabricated part	Qty	Material	Nominal envelope	Control
M01	Device shelf pan	2	18-ga perforated steel	25.5" W × 19.25" D × 1" flange	Hem exposed edges; divider slots per tier
M02	Removable divider	26	Powder-coated steel rod / plate	18.75" D	Net slot width target 1.4"
M03	Isolated rear power-bay enclosure	1	18-ga steel	25.5" W × 4.5" D × 30" H	Tool-access cover; bond point; NRTL-controlled
M04	Door vent insert	2	18-ga perforated steel	11.5" W × 7" H	Rear-fastened; no sharp edges
M05	Caster mounting plate	4	11-ga steel	4" × 4"	Hole pattern from selected caster
M06	Cable comb / strain-relief rail	2	16-ga steel	25.5" W	[12, 12] ports by tier

Tolerance framework: panel size ±1/32 in; carcass squareness ≤1/16 in diagonal difference; door reveal 1/8 in nominal; slot width ±1/32 in after divider installation. These are prototype targets and must be confirmed by process capability.

Class 24 • assembly sequence



#	Operation	Controlled instruction
1	Incoming control	Verify TSCA Title VI panel documentation; inspect HPL, steel, hardware, and listed/recognized electrical components against the prototype BOM.
2	Machine panels	CNC cut and drill all panels from released drawings. Do not drill power-bay or handle features from shop memory; use controlled templates.
3	Seal and edge	Apply commercial edge banding to exposed panel edges. Seal all concealed composite edges in the lower plinth and power-bay interface.
4	Build carcass	Assemble sides, top, bottom, hinge rails, and rear rails on a flat fixture. Verify diagonals before fastener cure.
5	Install plinth	Bond and mechanically fasten the birch plywood caster doubler. Through-bolt caster plates; fit two total-lock casters on the operator side.
6	Fit metalwork	Install shelf pans, dividers, cable combs, ventilation inserts, and the isolated rear power-bay enclosure. Deburr and protect all cable passages.
7	Hang and secure	Fit 270° doors, three-point lock, bumpers, and handle. Check full swing, latch engagement, and parked clearance.
8	Electrical hold point	A qualified technician installs the approved power package exactly to the NRTL-controlled construction file. No substitutions or improvised mains wiring.
9	Dress cables	Route and label 24 included USB-C leads by bay. Protect bends and service loops; verify doors and shelves cannot pinch cables.
10	Final inspection	Complete the structural, mobility, electrical, thermal, lock, labeling, and packaging checks on the next page before release.

Prototype labor allowance: 9.5 shop hours, excluding engineering, compliance testing, cure time, and rework. Fastener type, torque, adhesive, cure conditions, and inspection frequency must be released with the final shop traveler.

Class 24 • release inspection

Check	Acceptance target	Record
Identity / traceability	AG-C24; serial, revision, component lots, and assembler recorded	Pass / fail
Envelope	28 W × 28.5 D × 38 H in overall	Measured values
Capacity / fit	24 labeled bays; 16-in representative devices fit without cable pinch	Device set used
Doors / lock	Full 270° swing; three-point latch engages without forcing; two keys supplied	Cycle count
Mobility	Tracks and pivots under design load; two total locks hold on the approved incline	Load / slope
Stability	Loaded and unloaded tip / threshold tests passed to engineer-approved protocol	Protocol / result
Ventilation	All intake/exhaust paths open; no loose debris; temperature test passed at worst-case managed load	Ambient / peak
Ground / bond	Continuity and protective-earth construction meet NRTL-controlled limits	Instrument / result
Electrical safety	Input, leakage, dielectric, abnormal, cord, strain-relief, controller, and marking tests passed per lab plan	Test report
Cable delivery	24 USB-C leads labeled and operational; allocation controller limits aggregate load	Port result
Finish / cleanability	No sharp edges, chips, exposed core, or coating damage; approved cleaner spot test passed	Inspector
Packaging	Caster/door immobilization, keys, instructions, labels, and accessory pack complete	Pack audit

STOP-SHIP CONDITIONS

Any substituted electrical component, damaged cord, missing protective-earth bond, uncontrolled thermal result, unstable loaded cart, failed lock, sharp edge, incorrect label, or missing traceability record. Quarantine the unit until disposition is approved.

Required design-file attachments before production release

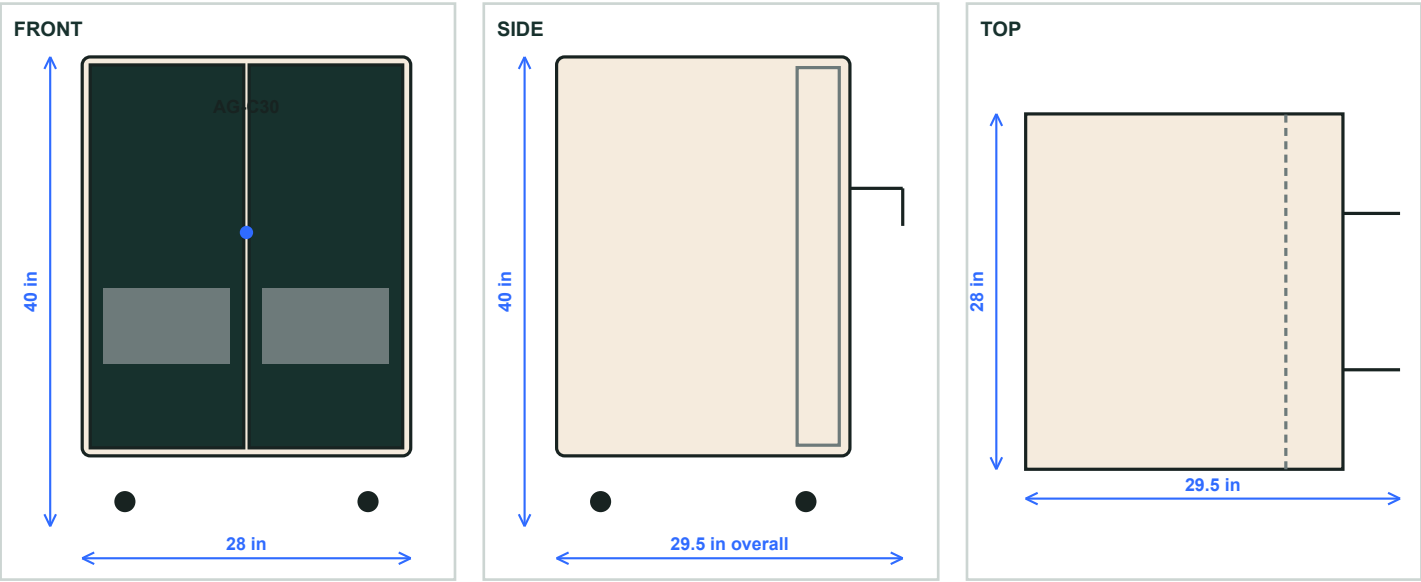
Final CAD and CNC drawings • signed structural review • approved caster and hinge data • component-level electrical BOM • NRTL construction report and authorization • thermal test report • cleaning compatibility matrix • labels and serial format • packaging drop/vibration plan • service and warranty procedures.

Document boundary: This manual is sufficient for cabinet prototyping and quoting. It is not a substitute for sealed engineering drawings, electrical schematics, a listing report, local code review, or the shop's own safety program.

Class 30 • product definition

CAPACITY 30 devices	ENVELOPE 28W × 29.5D × 40H in	TIERS 15 + 15	PLANNED MSRP \$1,398.25
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Use case. Full classrooms, mobile testing fleets, district standardization. The cabinet stores 30 devices up to 16 in, arranged in 2 tier(s) (15 + 15). Target net slot width is 1.35 in.



Controlled product envelope

Parameter	Rev A target	Release note
Cabinet body	28 W × 25 D × 34 H in	Overall depth includes 4.5-in handle projection; overall height includes 5-in casters and mounting stack.
Power architecture	1200 W nominal allocation; 65 W per-port peak	Final continuous load, controller logic, thermal limits, derating, branch protection, and markings require NRTL review.
Finish	Maple/birch HPL body; forest HPL doors; black powder-coated steel	Specify TSCA Title VI-compliant composite panels and documented commercial-grade finish system.

Class 30 • cut list and fabricated parts

All dimensions are nominal finished sizes in inches. Confirm CNC origin, edge-band thickness, hardware templates, reveal strategy, and actual steel-part bend deductions with the shop before releasing production files.

Wood and composite panel cut list

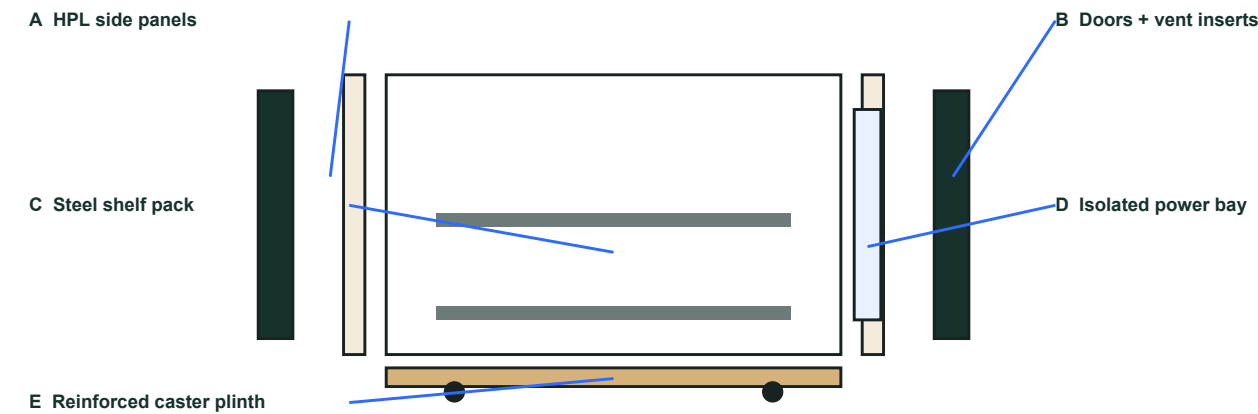
ID	Part	Qty	Material	Cut size (in)	Edge / note
W01	Side panel	2	3/4-in HPL composite	34" × 25"	Band front + top + bottom
W02	Top panel	1	3/4-in HPL composite	26.5" × 25"	Between sides; band front
W03	Bottom panel	1	3/4-in HPL composite	26.5" × 25"	Between sides; seal all edges
W04	Left / right doors	2	3/4-in HPL composite	33.75" × 13.812"	Overlay; 1/8-in center gap
W05	Caster plinth doubler	1	3/4-in birch plywood	26.5" × 24"	Continuous glue + mechanical fastening
W06	Rear structural rail	2	3/4-in birch plywood	26.5" × 4"	Upper/lower; clear of power bay
W07	Door hinge rail	2	3/4-in birch plywood	32" × 1.5"	Bond to side-front interior
W08	Handle backing block	1	3/4-in birch plywood	8" × 4"	Locate to approved handle template

Fabricated metal parts

ID	Fabricated part	Qty	Material	Nominal envelope	Control
M01	Device shelf pan	2	18-ga perforated steel	25.5" W × 20.25" D × 1" flange	Hem exposed edges; divider slots per tier
M02	Removable divider	32	Powder-coated steel rod / plate	19.75" D	Net slot width target 1.35"
M03	Isolated rear power-bay enclosure	1	18-ga steel	25.5" W × 4.5" D × 32" H	Tool-access cover; bond point; NRTL-controlled
M04	Door vent insert	2	18-ga perforated steel	11.5" W × 7" H	Rear-fastened; no sharp edges
M05	Caster mounting plate	4	11-ga steel	4" × 4"	Hole pattern from selected caster
M06	Cable comb / strain-relief rail	2	16-ga steel	25.5" W	[15, 15] ports by tier

Tolerance framework: panel size ±1/32 in; carcass squareness ≤1/16 in diagonal difference; door reveal 1/8 in nominal; slot width ±1/32 in after divider installation. These are prototype targets and must be confirmed by process capability.

Class 30 • assembly sequence



#	Operation	Controlled instruction
1	Incoming control	Verify TSCA Title VI panel documentation; inspect HPL, steel, hardware, and listed/recognized electrical components against the prototype BOM.
2	Machine panels	CNC cut and drill all panels from released drawings. Do not drill power-bay or handle features from shop memory; use controlled templates.
3	Seal and edge	Apply commercial edge banding to exposed panel edges. Seal all concealed composite edges in the lower plinth and power-bay interface.
4	Build carcass	Assemble sides, top, bottom, hinge rails, and rear rails on a flat fixture. Verify diagonals before fastener cure.
5	Install plinth	Bond and mechanically fasten the birch plywood caster doubler. Through-bolt caster plates; fit two total-lock casters on the operator side.
6	Fit metalwork	Install shelf pans, dividers, cable combs, ventilation inserts, and the isolated rear power-bay enclosure. Deburr and protect all cable passages.
7	Hang and secure	Fit 270° doors, three-point lock, bumpers, and handle. Check full swing, latch engagement, and parked clearance.
8	Electrical hold point	A qualified technician installs the approved power package exactly to the NRTL-controlled construction file. No substitutions or improvised mains wiring.
9	Dress cables	Route and label 30 included USB-C leads by bay. Protect bends and service loops; verify doors and shelves cannot pinch cables.
10	Final inspection	Complete the structural, mobility, electrical, thermal, lock, labeling, and packaging checks on the next page before release.

Prototype labor allowance: 10.5 shop hours, excluding engineering, compliance testing, cure time, and rework. Fastener type, torque, adhesive, cure conditions, and inspection frequency must be released with the final shop traveler.

Class 30 • release inspection

Check	Acceptance target	Record
Identity / traceability	AG-C30; serial, revision, component lots, and assembler recorded	Pass / fail
Envelope	28 W × 29.5 D × 40 H in overall	Measured values
Capacity / fit	30 labeled bays; 16-in representative devices fit without cable pinch	Device set used
Doors / lock	Full 270° swing; three-point latch engages without forcing; two keys supplied	Cycle count
Mobility	Tracks and pivots under design load; two total locks hold on the approved incline	Load / slope
Stability	Loaded and unloaded tip / threshold tests passed to engineer-approved protocol	Protocol / result
Ventilation	All intake/exhaust paths open; no loose debris; temperature test passed at worst-case managed load	Ambient / peak
Ground / bond	Continuity and protective-earth construction meet NRTL-controlled limits	Instrument / result
Electrical safety	Input, leakage, dielectric, abnormal, cord, strain-relief, controller, and marking tests passed per lab plan	Test report
Cable delivery	30 USB-C leads labeled and operational; allocation controller limits aggregate load	Port result
Finish / cleanability	No sharp edges, chips, exposed core, or coating damage; approved cleaner spot test passed	Inspector
Packaging	Caster/door immobilization, keys, instructions, labels, and accessory pack complete	Pack audit

STOP-SHIP CONDITIONS

Any substituted electrical component, damaged cord, missing protective-earth bond, uncontrolled thermal result, unstable loaded cart, failed lock, sharp edge, incorrect label, or missing traceability record. Quarantine the unit until disposition is approved.

Required design-file attachments before production release

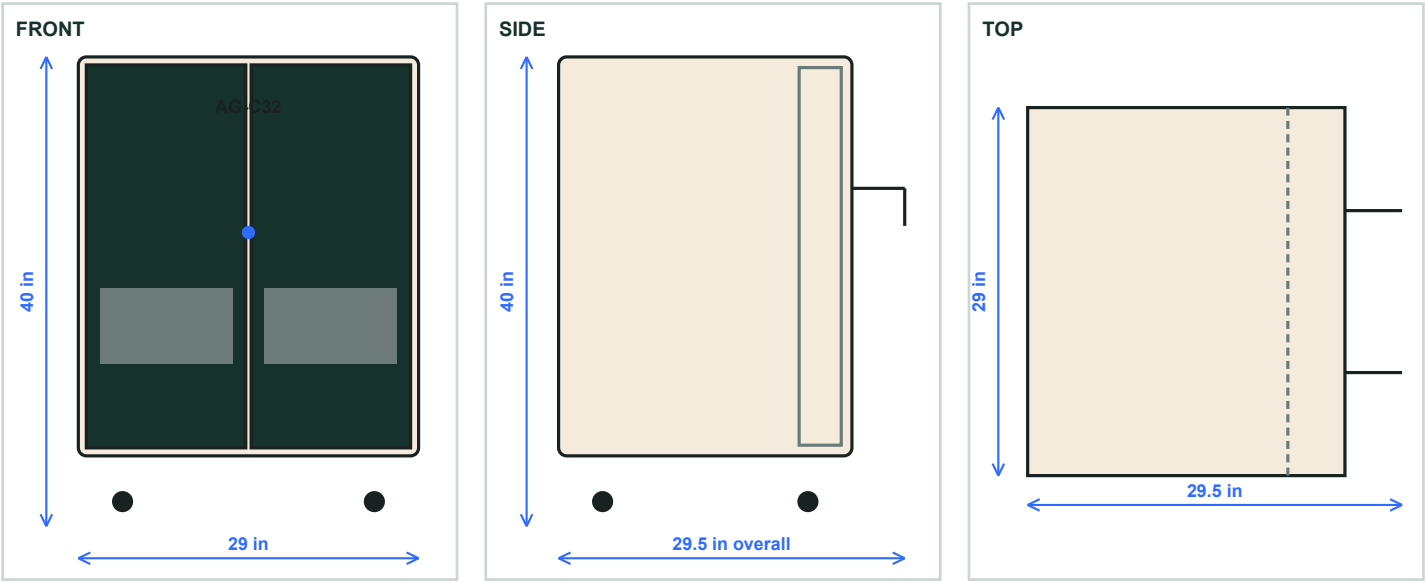
Final CAD and CNC drawings • signed structural review • approved caster and hinge data • component-level electrical BOM • NRTL construction report and authorization • thermal test report • cleaning compatibility matrix • labels and serial format • packaging drop/vibration plan • service and warranty procedures.

Document boundary: This manual is sufficient for cabinet prototyping and quoting. It is not a substitute for sealed engineering drawings, electrical schematics, a listing report, local code review, or the shop's own safety program.

Class 32 • product definition

CAPACITY 32 devices	ENVELOPE 29W × 29.5D × 40H in	TIERS 16 + 16	PLANNED MSRP \$1,468.25
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Use case. 32-seat classrooms, chromebook fleets, it departments. The cabinet stores 32 devices up to 16 in, arranged in 2 tier(s) (16 + 16). Target net slot width is 1.35 in.



Controlled product envelope

Parameter	Rev A target	Release note
Cabinet body	29 W × 25 D × 34 H in	Overall depth includes 4.5-in handle projection; overall height includes 5-in casters and mounting stack.
Power architecture	1200 W nominal allocation; 65 W per-port peak	Final continuous load, controller logic, thermal limits, derating, branch protection, and markings require NRTL review.
Finish	Maple/birch HPL body; forest HPL doors; black powder-coated steel	Specify TSCA Title VI-compliant composite panels and documented commercial-grade finish system.

Class 32 • cut list and fabricated parts

All dimensions are nominal finished sizes in inches. Confirm CNC origin, edge-band thickness, hardware templates, reveal strategy, and actual steel-part bend deductions with the shop before releasing production files.

Wood and composite panel cut list

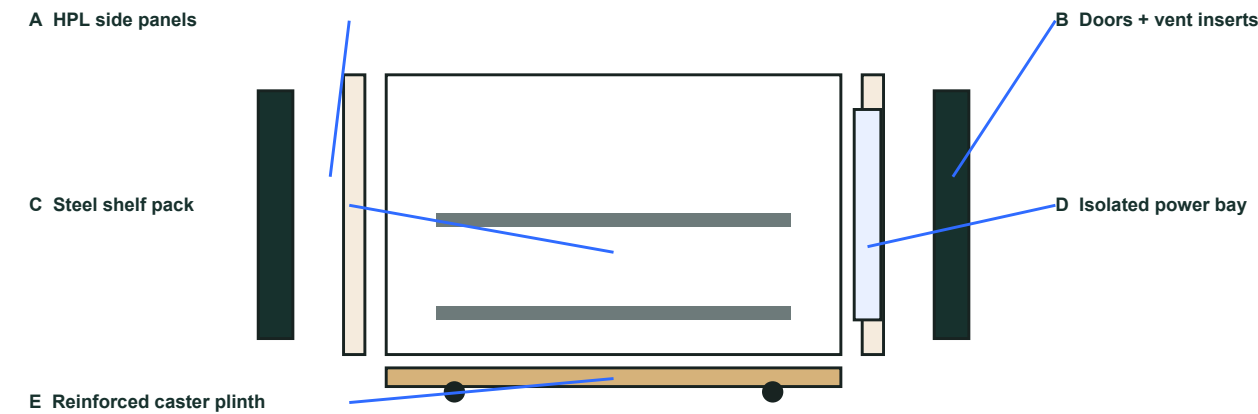
ID	Part	Qty	Material	Cut size (in)	Edge / note
W01	Side panel	2	3/4-in HPL composite	34" × 25"	Band front + top + bottom
W02	Top panel	1	3/4-in HPL composite	27.5" × 25"	Between sides; band front
W03	Bottom panel	1	3/4-in HPL composite	27.5" × 25"	Between sides; seal all edges
W04	Left / right doors	2	3/4-in HPL composite	33.75" × 14.312"	Overlay; 1/8-in center gap
W05	Caster plinth doubler	1	3/4-in birch plywood	27.5" × 24"	Continuous glue + mechanical fastening
W06	Rear structural rail	2	3/4-in birch plywood	27.5" × 4"	Upper/lower; clear of power bay
W07	Door hinge rail	2	3/4-in birch plywood	32" × 1.5"	Bond to side-front interior
W08	Handle backing block	1	3/4-in birch plywood	8" × 4"	Locate to approved handle template

Fabricated metal parts

ID	Fabricated part	Qty	Material	Nominal envelope	Control
M01	Device shelf pan	2	18-ga perforated steel	26.5" W × 20.25" D × 1" flange	Hem exposed edges; divider slots per tier
M02	Removable divider	34	Powder-coated steel rod / plate	19.75" D	Net slot width target 1.35"
M03	Isolated rear power-bay enclosure	1	18-ga steel	26.5" W × 4.5" D × 32" H	Tool-access cover; bond point; NRTL-controlled
M04	Door vent insert	2	18-ga perforated steel	12" W × 7" H	Rear-fastened; no sharp edges
M05	Caster mounting plate	4	11-ga steel	4" × 4"	Hole pattern from selected caster
M06	Cable comb / strain-relief rail	2	16-ga steel	26.5" W	[16, 16] ports by tier

Tolerance framework: panel size ±1/32 in; carcass squareness ≤1/16 in diagonal difference; door reveal 1/8 in nominal; slot width ±1/32 in after divider installation. These are prototype targets and must be confirmed by process capability.

Class 32 • assembly sequence



#	Operation	Controlled instruction
1	Incoming control	Verify TSCA Title VI panel documentation; inspect HPL, steel, hardware, and listed/recognized electrical components against the prototype BOM.
2	Machine panels	CNC cut and drill all panels from released drawings. Do not drill power-bay or handle features from shop memory; use controlled templates.
3	Seal and edge	Apply commercial edge banding to exposed panel edges. Seal all concealed composite edges in the lower plinth and power-bay interface.
4	Build carcass	Assemble sides, top, bottom, hinge rails, and rear rails on a flat fixture. Verify diagonals before fastener cure.
5	Install plinth	Bond and mechanically fasten the birch plywood caster doubler. Through-bolt caster plates; fit two total-lock casters on the operator side.
6	Fit metalwork	Install shelf pans, dividers, cable combs, ventilation inserts, and the isolated rear power-bay enclosure. Deburr and protect all cable passages.
7	Hang and secure	Fit 270° doors, three-point lock, bumpers, and handle. Check full swing, latch engagement, and parked clearance.
8	Electrical hold point	A qualified technician installs the approved power package exactly to the NRTL-controlled construction file. No substitutions or improvised mains wiring.
9	Dress cables	Route and label 32 included USB-C leads by bay. Protect bends and service loops; verify doors and shelves cannot pinch cables.
10	Final inspection	Complete the structural, mobility, electrical, thermal, lock, labeling, and packaging checks on the next page before release.

Prototype labor allowance: 10.8 shop hours, excluding engineering, compliance testing, cure time, and rework. Fastener type, torque, adhesive, cure conditions, and inspection frequency must be released with the final shop traveler.

Class 32 • release inspection

Check	Acceptance target	Record
Identity / traceability	AG-C32; serial, revision, component lots, and assembler recorded	Pass / fail
Envelope	29 W × 29.5 D × 40 H in overall	Measured values
Capacity / fit	32 labeled bays; 16-in representative devices fit without cable pinch	Device set used
Doors / lock	Full 270° swing; three-point latch engages without forcing; two keys supplied	Cycle count
Mobility	Tracks and pivots under design load; two total locks hold on the approved incline	Load / slope
Stability	Loaded and unloaded tip / threshold tests passed to engineer-approved protocol	Protocol / result
Ventilation	All intake/exhaust paths open; no loose debris; temperature test passed at worst-case managed load	Ambient / peak
Ground / bond	Continuity and protective-earth construction meet NRTL-controlled limits	Instrument / result
Electrical safety	Input, leakage, dielectric, abnormal, cord, strain-relief, controller, and marking tests passed per lab plan	Test report
Cable delivery	32 USB-C leads labeled and operational; allocation controller limits aggregate load	Port result
Finish / cleanability	No sharp edges, chips, exposed core, or coating damage; approved cleaner spot test passed	Inspector
Packaging	Caster/door immobilization, keys, instructions, labels, and accessory pack complete	Pack audit

STOP-SHIP CONDITIONS

Any substituted electrical component, damaged cord, missing protective-earth bond, uncontrolled thermal result, unstable loaded cart, failed lock, sharp edge, incorrect label, or missing traceability record. Quarantine the unit until disposition is approved.

Required design-file attachments before production release

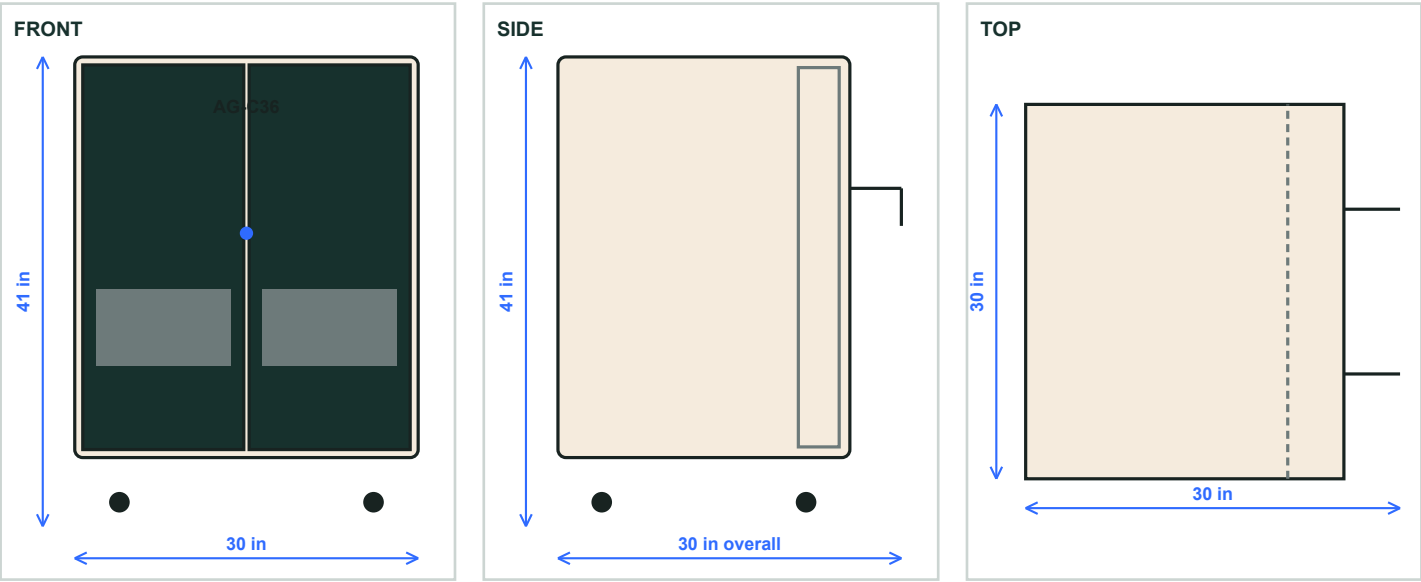
Final CAD and CNC drawings • signed structural review • approved caster and hinge data • component-level electrical BOM • NRTL construction report and authorization • thermal test report • cleaning compatibility matrix • labels and serial format • packaging drop/vibration plan • service and warranty procedures.

Document boundary: This manual is sufficient for cabinet prototyping and quoting. It is not a substitute for sealed engineering drawings, electrical schematics, a listing report, local code review, or the shop's own safety program.

Class 36 • product definition

CAPACITY 36 devices	ENVELOPE 30W × 30D × 41H in	TIERS 18 + 18	PLANNED MSRP \$1,573.25
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Use case. Large classrooms, district device programs, shared campus fleets. The cabinet stores 36 devices up to 16 in, arranged in 2 tier(s) (18 + 18). Target net slot width is 1.3 in.



Controlled product envelope

Parameter	Rev A target	Release note
Cabinet body	30 W × 25.5 D × 35 H in	Overall depth includes 4.5-in handle projection; overall height includes 5-in casters and mounting stack.
Power architecture	1200 W nominal allocation; 65 W per-port peak	Final continuous load, controller logic, thermal limits, derating, branch protection, and markings require NRTL review.
Finish	Maple/birch HPL body; forest HPL doors; black powder-coated steel	Specify TSCA Title VI-compliant composite panels and documented commercial-grade finish system.

Class 36 • cut list and fabricated parts

All dimensions are nominal finished sizes in inches. Confirm CNC origin, edge-band thickness, hardware templates, reveal strategy, and actual steel-part bend deductions with the shop before releasing production files.

Wood and composite panel cut list

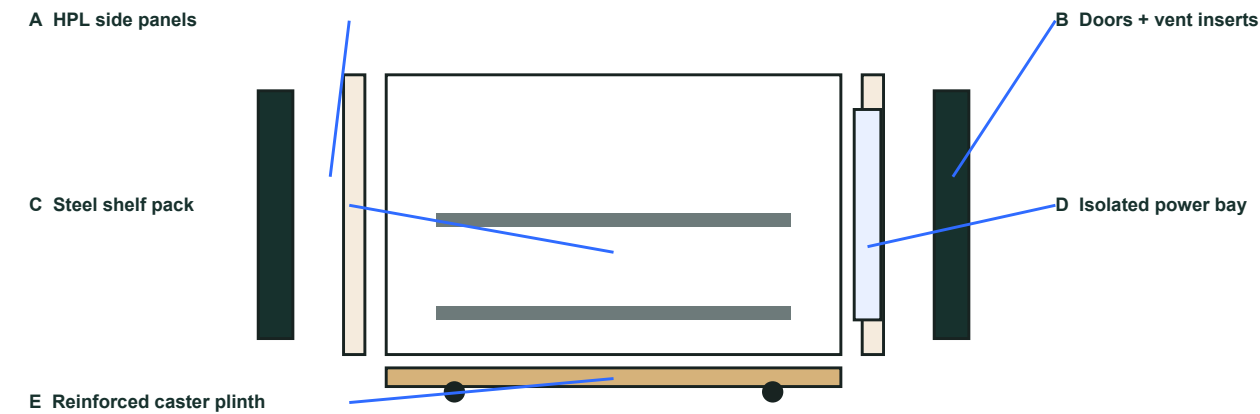
ID	Part	Qty	Material	Cut size (in)	Edge / note
W01	Side panel	2	3/4-in HPL composite	35" × 25.5"	Band front + top + bottom
W02	Top panel	1	3/4-in HPL composite	28.5" × 25.5"	Between sides; band front
W03	Bottom panel	1	3/4-in HPL composite	28.5" × 25.5"	Between sides; seal all edges
W04	Left / right doors	2	3/4-in HPL composite	34.75" × 14.812"	Overlay; 1/8-in center gap
W05	Caster plinth doubler	1	3/4-in birch plywood	28.5" × 24.5"	Continuous glue + mechanical fastening
W06	Rear structural rail	2	3/4-in birch plywood	28.5" × 4"	Upper/lower; clear of power bay
W07	Door hinge rail	2	3/4-in birch plywood	33" × 1.5"	Bond to side-front interior
W08	Handle backing block	1	3/4-in birch plywood	8" × 4"	Locate to approved handle template

Fabricated metal parts

ID	Fabricated part	Qty	Material	Nominal envelope	Control
M01	Device shelf pan	2	18-ga perforated steel	27.5" W × 20.75" D × 1" flange	Hem exposed edges; divider slots per tier
M02	Removable divider	38	Powder-coated steel rod / plate	20.25" D	Net slot width target 1.3"
M03	Isolated rear power-bay enclosure	1	18-ga steel	27.5" W × 4.5" D × 33" H	Tool-access cover; bond point; NRTL-controlled
M04	Door vent insert	2	18-ga perforated steel	12.5" W × 7" H	Rear-fastened; no sharp edges
M05	Caster mounting plate	4	11-ga steel	4" × 4"	Hole pattern from selected caster
M06	Cable comb / strain-relief rail	2	16-ga steel	27.5" W	[18, 18] ports by tier

Tolerance framework: panel size ±1/32 in; carcass squareness ≤1/16 in diagonal difference; door reveal 1/8 in nominal; slot width ±1/32 in after divider installation. These are prototype targets and must be confirmed by process capability.

Class 36 • assembly sequence



#	Operation	Controlled instruction
1	Incoming control	Verify TSCA Title VI panel documentation; inspect HPL, steel, hardware, and listed/recognized electrical components against the prototype BOM.
2	Machine panels	CNC cut and drill all panels from released drawings. Do not drill power-bay or handle features from shop memory; use controlled templates.
3	Seal and edge	Apply commercial edge banding to exposed panel edges. Seal all concealed composite edges in the lower plinth and power-bay interface.
4	Build carcass	Assemble sides, top, bottom, hinge rails, and rear rails on a flat fixture. Verify diagonals before fastener cure.
5	Install plinth	Bond and mechanically fasten the birch plywood caster doubler. Through-bolt caster plates; fit two total-lock casters on the operator side.
6	Fit metalwork	Install shelf pans, dividers, cable combs, ventilation inserts, and the isolated rear power-bay enclosure. Deburr and protect all cable passages.
7	Hang and secure	Fit 270° doors, three-point lock, bumpers, and handle. Check full swing, latch engagement, and parked clearance.
8	Electrical hold point	A qualified technician installs the approved power package exactly to the NRTL-controlled construction file. No substitutions or improvised mains wiring.
9	Dress cables	Route and label 36 included USB-C leads by bay. Protect bends and service loops; verify doors and shelves cannot pinch cables.
10	Final inspection	Complete the structural, mobility, electrical, thermal, lock, labeling, and packaging checks on the next page before release.

Prototype labor allowance: 11.5 shop hours, excluding engineering, compliance testing, cure time, and rework. Fastener type, torque, adhesive, cure conditions, and inspection frequency must be released with the final shop traveler.

Class 36 • release inspection

Check	Acceptance target	Record
Identity / traceability	AG-C36; serial, revision, component lots, and assembler recorded	Pass / fail
Envelope	30 W × 30 D × 41 H in overall	Measured values
Capacity / fit	36 labeled bays; 16-in representative devices fit without cable pinch	Device set used
Doors / lock	Full 270° swing; three-point latch engages without forcing; two keys supplied	Cycle count
Mobility	Tracks and pivots under design load; two total locks hold on the approved incline	Load / slope
Stability	Loaded and unloaded tip / threshold tests passed to engineer-approved protocol	Protocol / result
Ventilation	All intake/exhaust paths open; no loose debris; temperature test passed at worst-case managed load	Ambient / peak
Ground / bond	Continuity and protective-earth construction meet NRTL-controlled limits	Instrument / result
Electrical safety	Input, leakage, dielectric, abnormal, cord, strain-relief, controller, and marking tests passed per lab plan	Test report
Cable delivery	36 USB-C leads labeled and operational; allocation controller limits aggregate load	Port result
Finish / cleanability	No sharp edges, chips, exposed core, or coating damage; approved cleaner spot test passed	Inspector
Packaging	Caster/door immobilization, keys, instructions, labels, and accessory pack complete	Pack audit

STOP-SHIP CONDITIONS

Any substituted electrical component, damaged cord, missing protective-earth bond, uncontrolled thermal result, unstable loaded cart, failed lock, sharp edge, incorrect label, or missing traceability record. Quarantine the unit until disposition is approved.

Required design-file attachments before production release

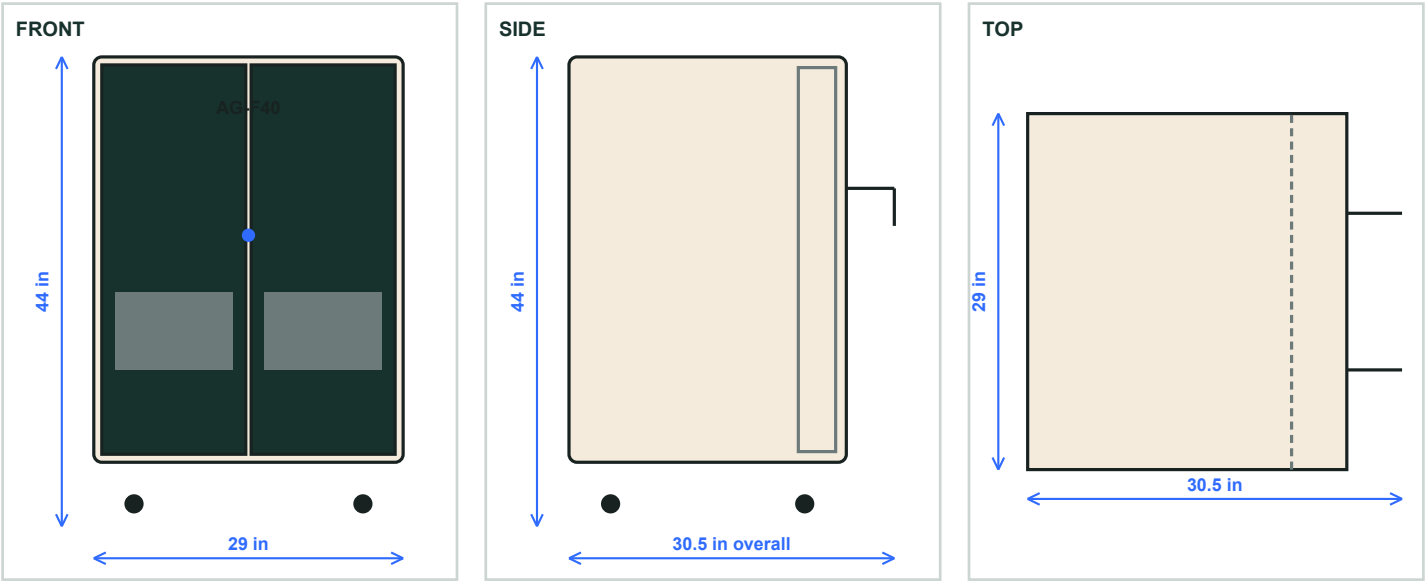
Final CAD and CNC drawings • signed structural review • approved caster and hinge data • component-level electrical BOM • NRTL construction report and authorization • thermal test report • cleaning compatibility matrix • labels and serial format • packaging drop/vibration plan • service and warranty procedures.

Document boundary: This manual is sufficient for cabinet prototyping and quoting. It is not a substitute for sealed engineering drawings, electrical schematics, a listing report, local code review, or the shop's own safety program.

Fleet 40 • product definition

CAPACITY 40 devices	ENVELOPE 29W × 30.5D × 44H in	TIERS 14 + 13 + 13	PLANNED MSRP \$1,678.25
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Use case. Multi-classroom deployment, university labs, large hospital teams. The cabinet stores 40 devices up to 16 in, arranged in 3 tier(s) (14 + 13 + 13). Target net slot width is 1.35 in.



Controlled product envelope

Parameter	Rev A target	Release note
Cabinet body	29 W × 26 D × 38 H in	Overall depth includes 4.5-in handle projection; overall height includes 5-in casters and mounting stack.
Power architecture	1200 W nominal allocation; 65 W per-port peak	Final continuous load, controller logic, thermal limits, derating, branch protection, and markings require NRTL review.
Finish	Maple/birch HPL body; forest HPL doors; black powder-coated steel	Specify TSCA Title VI-compliant composite panels and documented commercial-grade finish system.

Fleet 40 • cut list and fabricated parts

All dimensions are nominal finished sizes in inches. Confirm CNC origin, edge-band thickness, hardware templates, reveal strategy, and actual steel-part bend deductions with the shop before releasing production files.

Wood and composite panel cut list

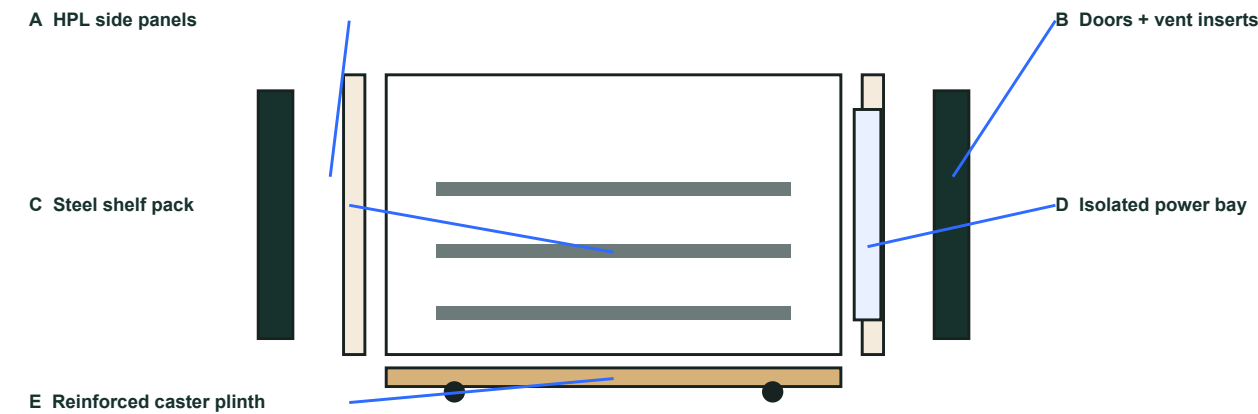
ID	Part	Qty	Material	Cut size (in)	Edge / note
W01	Side panel	2	3/4-in HPL composite	38" × 26"	Band front + top + bottom
W02	Top panel	1	3/4-in HPL composite	27.5" × 26"	Between sides; band front
W03	Bottom panel	1	3/4-in HPL composite	27.5" × 26"	Between sides; seal all edges
W04	Left / right doors	2	3/4-in HPL composite	37.75" × 14.312"	Overlay; 1/8-in center gap
W05	Caster plinth doubler	1	3/4-in birch plywood	27.5" × 25"	Continuous glue + mechanical fastening
W06	Rear structural rail	2	3/4-in birch plywood	27.5" × 4"	Upper/lower; clear of power bay
W07	Door hinge rail	2	3/4-in birch plywood	36" × 1.5"	Bond to side-front interior
W08	Handle backing block	1	3/4-in birch plywood	8" × 4"	Locate to approved handle template

Fabricated metal parts

ID	Fabricated part	Qty	Material	Nominal envelope	Control
M01	Device shelf pan	3	18-ga perforated steel	26.5" W × 21.25" D × 1" flange	Hem exposed edges; divider slots per tier
M02	Removable divider	43	Powder-coated steel rod / plate	20.75" D	Net slot width target 1.35"
M03	Isolated rear power-bay enclosure	1	18-ga steel	26.5" W × 4.5" D × 36" H	Tool-access cover; bond point; NRTL-controlled
M04	Door vent insert	2	18-ga perforated steel	12" W × 7" H	Rear-fastened; no sharp edges
M05	Caster mounting plate	4	11-ga steel	4" × 4"	Hole pattern from selected caster
M06	Cable comb / strain-relief rail	3	16-ga steel	26.5" W	[14, 13, 13] ports by tier

Tolerance framework: panel size ±1/32 in; carcass squareness ≤1/16 in diagonal difference; door reveal 1/8 in nominal; slot width ±1/32 in after divider installation. These are prototype targets and must be confirmed by process capability.

Fleet 40 • assembly sequence



#	Operation	Controlled instruction
1	Incoming control	Verify TSCA Title VI panel documentation; inspect HPL, steel, hardware, and listed/recognized electrical components against the prototype BOM.
2	Machine panels	CNC cut and drill all panels from released drawings. Do not drill power-bay or handle features from shop memory; use controlled templates.
3	Seal and edge	Apply commercial edge banding to exposed panel edges. Seal all concealed composite edges in the lower plinth and power-bay interface.
4	Build carcass	Assemble sides, top, bottom, hinge rails, and rear rails on a flat fixture. Verify diagonals before fastener cure.
5	Install plinth	Bond and mechanically fasten the birch plywood caster doubler. Through-bolt caster plates; fit two total-lock casters on the operator side.
6	Fit metalwork	Install shelf pans, dividers, cable combs, ventilation inserts, and the isolated rear power-bay enclosure. Deburr and protect all cable passages.
7	Hang and secure	Fit 270° doors, three-point lock, bumpers, and handle. Check full swing, latch engagement, and parked clearance.
8	Electrical hold point	A qualified technician installs the approved power package exactly to the NRTL-controlled construction file. No substitutions or improvised mains wiring.
9	Dress cables	Route and label 40 included USB-C leads by bay. Protect bends and service loops; verify doors and shelves cannot pinch cables.
10	Final inspection	Complete the structural, mobility, electrical, thermal, lock, labeling, and packaging checks on the next page before release.

Prototype labor allowance: 12 shop hours, excluding engineering, compliance testing, cure time, and rework. Fastener type, torque, adhesive, cure conditions, and inspection frequency must be released with the final shop traveler.

Fleet 40 • release inspection

Check	Acceptance target	Record
Identity / traceability	AG-F40; serial, revision, component lots, and assembler recorded	Pass / fail
Envelope	29 W × 30.5 D × 44 H in overall	Measured values
Capacity / fit	40 labeled bays; 16-in representative devices fit without cable pinch	Device set used
Doors / lock	Full 270° swing; three-point latch engages without forcing; two keys supplied	Cycle count
Mobility	Tracks and pivots under design load; two total locks hold on the approved incline	Load / slope
Stability	Loaded and unloaded tip / threshold tests passed to engineer-approved protocol	Protocol / result
Ventilation	All intake/exhaust paths open; no loose debris; temperature test passed at worst-case managed load	Ambient / peak
Ground / bond	Continuity and protective-earth construction meet NRTL-controlled limits	Instrument / result
Electrical safety	Input, leakage, dielectric, abnormal, cord, strain-relief, controller, and marking tests passed per lab plan	Test report
Cable delivery	40 USB-C leads labeled and operational; allocation controller limits aggregate load	Port result
Finish / cleanability	No sharp edges, chips, exposed core, or coating damage; approved cleaner spot test passed	Inspector
Packaging	Caster/door immobilization, keys, instructions, labels, and accessory pack complete	Pack audit

STOP-SHIP CONDITIONS

Any substituted electrical component, damaged cord, missing protective-earth bond, uncontrolled thermal result, unstable loaded cart, failed lock, sharp edge, incorrect label, or missing traceability record. Quarantine the unit until disposition is approved.

Required design-file attachments before production release

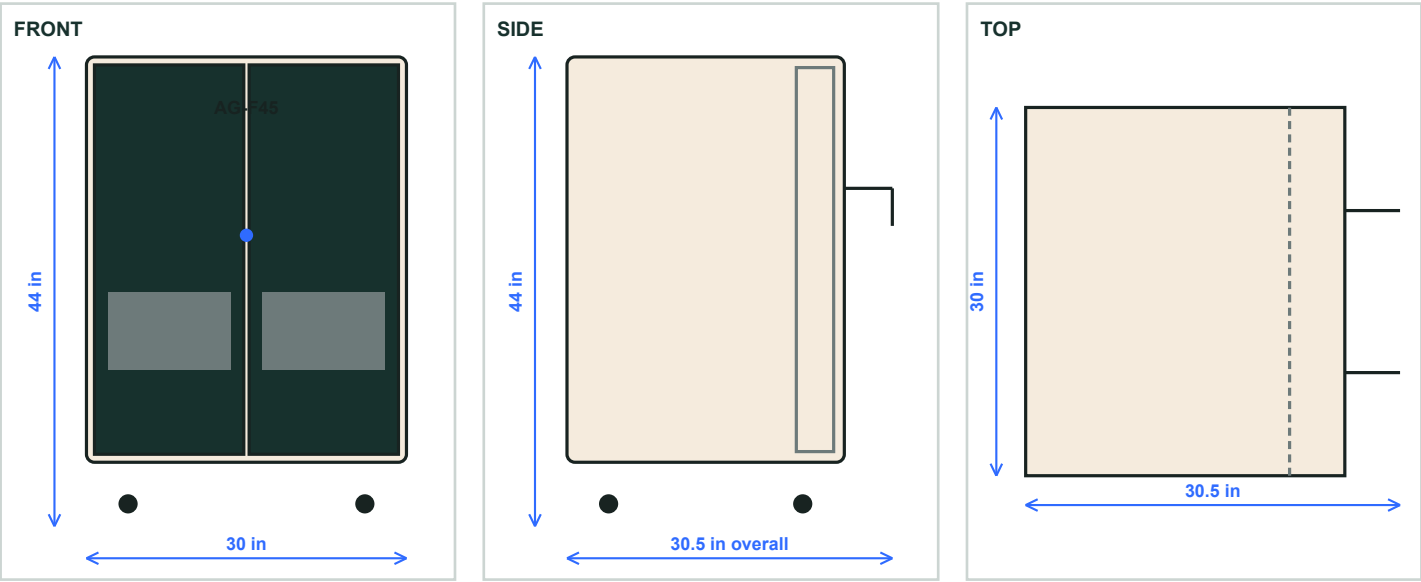
Final CAD and CNC drawings • signed structural review • approved caster and hinge data • component-level electrical BOM • NRTL construction report and authorization • thermal test report • cleaning compatibility matrix • labels and serial format • packaging drop/vibration plan • service and warranty procedures.

Document boundary: This manual is sufficient for cabinet prototyping and quoting. It is not a substitute for sealed engineering drawings, electrical schematics, a listing report, local code review, or the shop's own safety program.

Fleet 45 • product definition

CAPACITY 45 devices	ENVELOPE 30W × 30.5D × 44H in	TIERS 15 + 15 + 15	PLANNED MSRP \$1,818.25
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Use case. District pools, lecture halls, large clinical and training fleets. The cabinet stores 45 devices up to 16 in, arranged in 3 tier(s) (15 + 15 + 15). Target net slot width is 1.3 in.



Controlled product envelope

Parameter	Rev A target	Release note
Cabinet body	30 W × 26 D × 38 H in	Overall depth includes 4.5-in handle projection; overall height includes 5-in casters and mounting stack.
Power architecture	1200 W nominal allocation; 65 W per-port peak	Final continuous load, controller logic, thermal limits, derating, branch protection, and markings require NRTL review.
Finish	Maple/birch HPL body; forest HPL doors; black powder-coated steel	Specify TSCA Title VI-compliant composite panels and documented commercial-grade finish system.

Fleet 45 • cut list and fabricated parts

All dimensions are nominal finished sizes in inches. Confirm CNC origin, edge-band thickness, hardware templates, reveal strategy, and actual steel-part bend deductions with the shop before releasing production files.

Wood and composite panel cut list

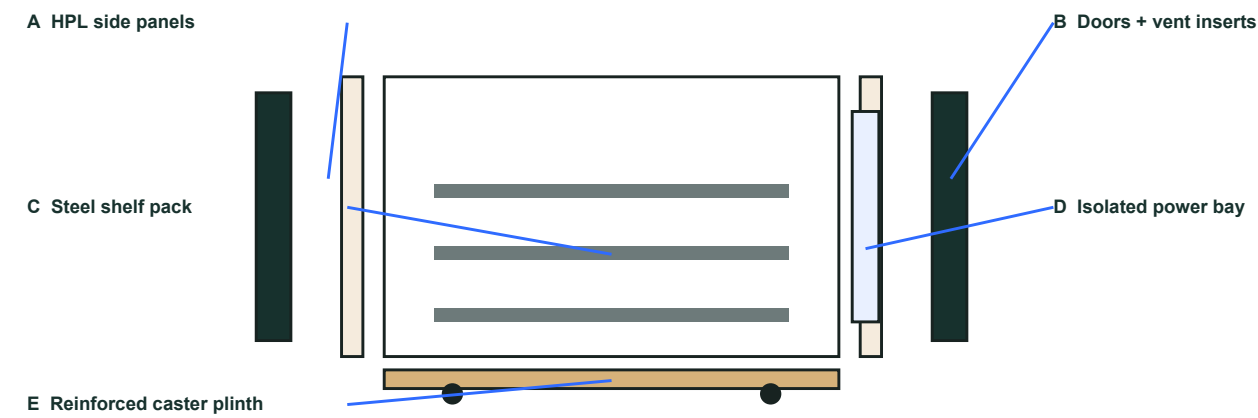
ID	Part	Qty	Material	Cut size (in)	Edge / note
W01	Side panel	2	3/4-in HPL composite	38" × 26"	Band front + top + bottom
W02	Top panel	1	3/4-in HPL composite	28.5" × 26"	Between sides; band front
W03	Bottom panel	1	3/4-in HPL composite	28.5" × 26"	Between sides; seal all edges
W04	Left / right doors	2	3/4-in HPL composite	37.75" × 14.812"	Overlay; 1/8-in center gap
W05	Caster plinth doubler	1	3/4-in birch plywood	28.5" × 25"	Continuous glue + mechanical fastening
W06	Rear structural rail	2	3/4-in birch plywood	28.5" × 4"	Upper/lower; clear of power bay
W07	Door hinge rail	2	3/4-in birch plywood	36" × 1.5"	Bond to side-front interior
W08	Handle backing block	1	3/4-in birch plywood	8" × 4"	Locate to approved handle template

Fabricated metal parts

ID	Fabricated part	Qty	Material	Nominal envelope	Control
M01	Device shelf pan	3	18-ga perforated steel	27.5" W × 21.25" D × 1" flange	Hem exposed edges; divider slots per tier
M02	Removable divider	48	Powder-coated steel rod / plate	20.75" D	Net slot width target 1.3"
M03	Isolated rear power-bay enclosure	1	18-ga steel	27.5" W × 4.5" D × 36" H	Tool-access cover; bond point; NRTL-controlled
M04	Door vent insert	2	18-ga perforated steel	12.5" W × 7" H	Rear-fastened; no sharp edges
M05	Caster mounting plate	4	11-ga steel	4" × 4"	Hole pattern from selected caster
M06	Cable comb / strain-relief rail	3	16-ga steel	27.5" W	[15, 15, 15] ports by tier

Tolerance framework: panel size ±1/32 in; carcass squareness ≤1/16 in diagonal difference; door reveal 1/8 in nominal; slot width ±1/32 in after divider installation. These are prototype targets and must be confirmed by process capability.

Fleet 45 • assembly sequence



#	Operation	Controlled instruction
1	Incoming control	Verify TSCA Title VI panel documentation; inspect HPL, steel, hardware, and listed/recognized electrical components against the prototype BOM.
2	Machine panels	CNC cut and drill all panels from released drawings. Do not drill power-bay or handle features from shop memory; use controlled templates.
3	Seal and edge	Apply commercial edge banding to exposed panel edges. Seal all concealed composite edges in the lower plinth and power-bay interface.
4	Build carcass	Assemble sides, top, bottom, hinge rails, and rear rails on a flat fixture. Verify diagonals before fastener cure.
5	Install plinth	Bond and mechanically fasten the birch plywood caster doubler. Through-bolt caster plates; fit two total-lock casters on the operator side.
6	Fit metalwork	Install shelf pans, dividers, cable combs, ventilation inserts, and the isolated rear power-bay enclosure. Deburr and protect all cable passages.
7	Hang and secure	Fit 270° doors, three-point lock, bumpers, and handle. Check full swing, latch engagement, and parked clearance.
8	Electrical hold point	A qualified technician installs the approved power package exactly to the NRTL-controlled construction file. No substitutions or improvised mains wiring.
9	Dress cables	Route and label 45 included USB-C leads by bay. Protect bends and service loops; verify doors and shelves cannot pinch cables.
10	Final inspection	Complete the structural, mobility, electrical, thermal, lock, labeling, and packaging checks on the next page before release.

Prototype labor allowance: 12.5 shop hours, excluding engineering, compliance testing, cure time, and rework. Fastener type, torque, adhesive, cure conditions, and inspection frequency must be released with the final shop traveler.

Fleet 45 • release inspection

Check	Acceptance target	Record
Identity / traceability	AG-F45; serial, revision, component lots, and assembler recorded	Pass / fail
Envelope	30 W × 30.5 D × 44 H in overall	Measured values
Capacity / fit	45 labeled bays; 16-in representative devices fit without cable pinch	Device set used
Doors / lock	Full 270° swing; three-point latch engages without forcing; two keys supplied	Cycle count
Mobility	Tracks and pivots under design load; two total locks hold on the approved incline	Load / slope
Stability	Loaded and unloaded tip / threshold tests passed to engineer-approved protocol	Protocol / result
Ventilation	All intake/exhaust paths open; no loose debris; temperature test passed at worst-case managed load	Ambient / peak
Ground / bond	Continuity and protective-earth construction meet NRTL-controlled limits	Instrument / result
Electrical safety	Input, leakage, dielectric, abnormal, cord, strain-relief, controller, and marking tests passed per lab plan	Test report
Cable delivery	45 USB-C leads labeled and operational; allocation controller limits aggregate load	Port result
Finish / cleanability	No sharp edges, chips, exposed core, or coating damage; approved cleaner spot test passed	Inspector
Packaging	Caster/door immobilization, keys, instructions, labels, and accessory pack complete	Pack audit

STOP-SHIP CONDITIONS

Any substituted electrical component, damaged cord, missing protective-earth bond, uncontrolled thermal result, unstable loaded cart, failed lock, sharp edge, incorrect label, or missing traceability record. Quarantine the unit until disposition is approved.

Required design-file attachments before production release

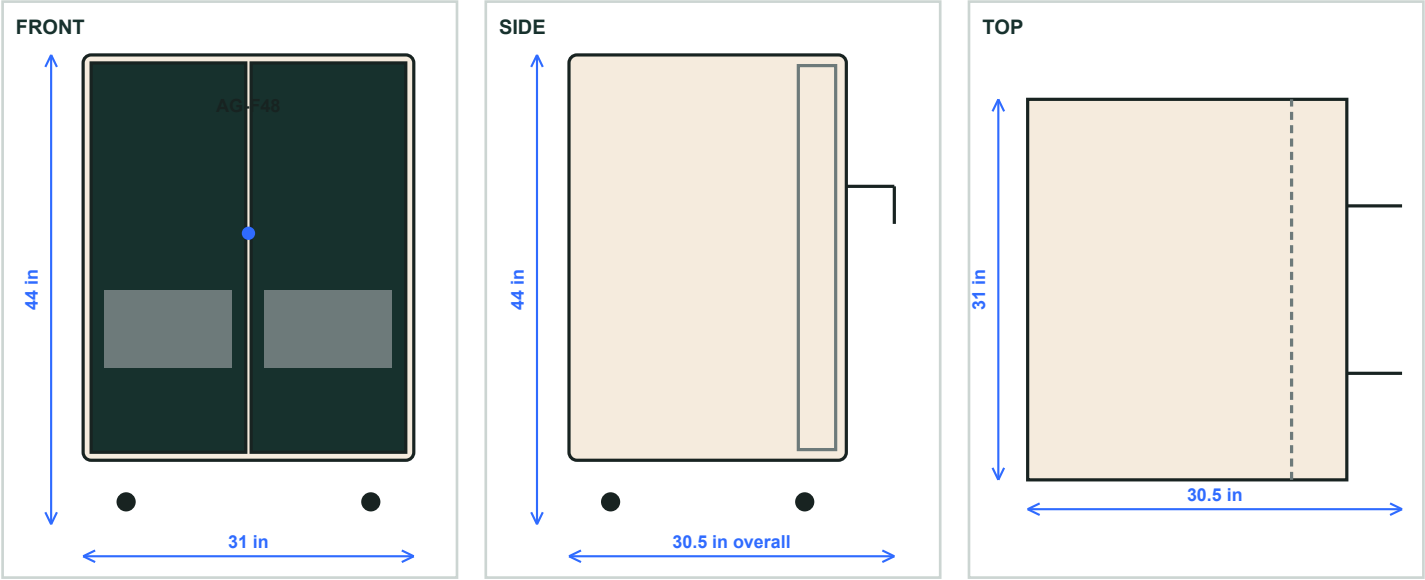
Final CAD and CNC drawings • signed structural review • approved caster and hinge data • component-level electrical BOM • NRTL construction report and authorization • thermal test report • cleaning compatibility matrix • labels and serial format • packaging drop/vibration plan • service and warranty procedures.

Document boundary: This manual is sufficient for cabinet prototyping and quoting. It is not a substitute for sealed engineering drawings, electrical schematics, a listing report, local code review, or the shop's own safety program.

Fleet 48 • product definition

CAPACITY 48 devices	ENVELOPE 31W × 30.5D × 44H in	TIERS 16 + 16 + 16	PLANNED MSRP \$1,923.25
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Use case. High-density district fleets, higher education, enterprise and healthcare. The cabinet stores 48 devices up to 16 in, arranged in 3 tier(s) (16 + 16 + 16). Target net slot width is 1.3 in.



Controlled product envelope

Parameter	Rev A target	Release note
Cabinet body	31 W × 26 D × 38 H in	Overall depth includes 4.5-in handle projection; overall height includes 5-in casters and mounting stack.
Power architecture	1200 W nominal allocation; 65 W per-port peak	Final continuous load, controller logic, thermal limits, derating, branch protection, and markings require NRTL review.
Finish	Maple/birch HPL body; forest HPL doors; black powder-coated steel	Specify TSCA Title VI-compliant composite panels and documented commercial-grade finish system.

Fleet 48 • cut list and fabricated parts

All dimensions are nominal finished sizes in inches. Confirm CNC origin, edge-band thickness, hardware templates, reveal strategy, and actual steel-part bend deductions with the shop before releasing production files.

Wood and composite panel cut list

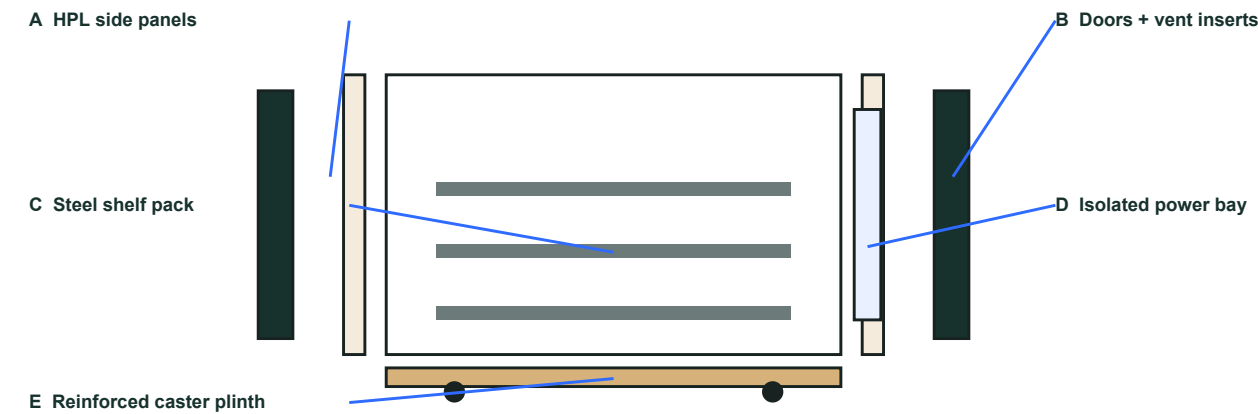
ID	Part	Qty	Material	Cut size (in)	Edge / note
W01	Side panel	2	3/4-in HPL composite	38" × 26"	Band front + top + bottom
W02	Top panel	1	3/4-in HPL composite	29.5" × 26"	Between sides; band front
W03	Bottom panel	1	3/4-in HPL composite	29.5" × 26"	Between sides; seal all edges
W04	Left / right doors	2	3/4-in HPL composite	37.75" × 15.312"	Overlay; 1/8-in center gap
W05	Caster plinth doubler	1	3/4-in birch plywood	29.5" × 25"	Continuous glue + mechanical fastening
W06	Rear structural rail	2	3/4-in birch plywood	29.5" × 4"	Upper/lower; clear of power bay
W07	Door hinge rail	2	3/4-in birch plywood	36" × 1.5"	Bond to side-front interior
W08	Handle backing block	1	3/4-in birch plywood	8" × 4"	Locate to approved handle template

Fabricated metal parts

ID	Fabricated part	Qty	Material	Nominal envelope	Control
M01	Device shelf pan	3	18-ga perforated steel	28.5" W × 21.25" D × 1" flange	Hem exposed edges; divider slots per tier
M02	Removable divider	51	Powder-coated steel rod / plate	20.75" D	Net slot width target 1.3"
M03	Isolated rear power-bay enclosure	1	18-ga steel	28.5" W × 4.5" D × 36" H	Tool-access cover; bond point; NRTL-controlled
M04	Door vent insert	2	18-ga perforated steel	13" W × 7" H	Rear-fastened; no sharp edges
M05	Caster mounting plate	4	11-ga steel	4" × 4"	Hole pattern from selected caster
M06	Cable comb / strain-relief rail	3	16-ga steel	28.5" W	[16, 16, 16] ports by tier

Tolerance framework: panel size ±1/32 in; carcass squareness ≤1/16 in diagonal difference; door reveal 1/8 in nominal; slot width ±1/32 in after divider installation. These are prototype targets and must be confirmed by process capability.

Fleet 48 • assembly sequence



#	Operation	Controlled instruction
1	Incoming control	Verify TSCA Title VI panel documentation; inspect HPL, steel, hardware, and listed/recognized electrical components against the prototype BOM.
2	Machine panels	CNC cut and drill all panels from released drawings. Do not drill power-bay or handle features from shop memory; use controlled templates.
3	Seal and edge	Apply commercial edge banding to exposed panel edges. Seal all concealed composite edges in the lower plinth and power-bay interface.
4	Build carcass	Assemble sides, top, bottom, hinge rails, and rear rails on a flat fixture. Verify diagonals before fastener cure.
5	Install plinth	Bond and mechanically fasten the birch plywood caster doubler. Through-bolt caster plates; fit two total-lock casters on the operator side.
6	Fit metalwork	Install shelf pans, dividers, cable combs, ventilation inserts, and the isolated rear power-bay enclosure. Deburr and protect all cable passages.
7	Hang and secure	Fit 270° doors, three-point lock, bumpers, and handle. Check full swing, latch engagement, and parked clearance.
8	Electrical hold point	A qualified technician installs the approved power package exactly to the NRTL-controlled construction file. No substitutions or improvised mains wiring.
9	Dress cables	Route and label 48 included USB-C leads by bay. Protect bends and service loops; verify doors and shelves cannot pinch cables.
10	Final inspection	Complete the structural, mobility, electrical, thermal, lock, labeling, and packaging checks on the next page before release.

Prototype labor allowance: 13 shop hours, excluding engineering, compliance testing, cure time, and rework. Fastener type, torque, adhesive, cure conditions, and inspection frequency must be released with the final shop traveler.

Fleet 48 • release inspection

Check	Acceptance target	Record
Identity / traceability	AG-F48; serial, revision, component lots, and assembler recorded	Pass / fail
Envelope	31 W × 30.5 D × 44 H in overall	Measured values
Capacity / fit	48 labeled bays; 16-in representative devices fit without cable pinch	Device set used
Doors / lock	Full 270° swing; three-point latch engages without forcing; two keys supplied	Cycle count
Mobility	Tracks and pivots under design load; two total locks hold on the approved incline	Load / slope
Stability	Loaded and unloaded tip / threshold tests passed to engineer-approved protocol	Protocol / result
Ventilation	All intake/exhaust paths open; no loose debris; temperature test passed at worst-case managed load	Ambient / peak
Ground / bond	Continuity and protective-earth construction meet NRTL-controlled limits	Instrument / result
Electrical safety	Input, leakage, dielectric, abnormal, cord, strain-relief, controller, and marking tests passed per lab plan	Test report
Cable delivery	48 USB-C leads labeled and operational; allocation controller limits aggregate load	Port result
Finish / cleanability	No sharp edges, chips, exposed core, or coating damage; approved cleaner spot test passed	Inspector
Packaging	Caster/door immobilization, keys, instructions, labels, and accessory pack complete	Pack audit

STOP-SHIP CONDITIONS

Any substituted electrical component, damaged cord, missing protective-earth bond, uncontrolled thermal result, unstable loaded cart, failed lock, sharp edge, incorrect label, or missing traceability record. Quarantine the unit until disposition is approved.

Required design-file attachments before production release

Final CAD and CNC drawings • signed structural review • approved caster and hinge data • component-level electrical BOM • NRTL construction report and authorization • thermal test report • cleaning compatibility matrix • labels and serial format • packaging drop/vibration plan • service and warranty procedures.

Document boundary: This manual is sufficient for cabinet prototyping and quoting. It is not a substitute for sealed engineering drawings, electrical schematics, a listing report, local code review, or the shop's own safety program.