



June 1, 2020

Subject: Allied Moulded Products Electrical Box Specification

Allied Moulded Products has one of the most extensive lines of residential electrical box products and supported by demonstrated and documented performance testing.

All non-metallic boxes are made in the USA and ARRA compliant.



These accomplishments have allowed the development of an electrical box specification guide to cover all types of boxes and materials with regard to performance and/or industry standards. This specification is designed to address the following:

- Allow Engineers, Contractors, and Distributors specifications to offer alternatives to Phenolic electrical boxes being phased out in the industry.
- All product types FiberglassBOX®, FlexBOX®, SliderBOX®, and Vapor Seal® are included.
- Supplied in industry standard format to allow engineers to write into project specifications.
- All reference documents in specifications are listed below as needed to support design and performance requirements and submittals:

https://www.alliedmoulded.com/wp-content/uploads/vaporseal_4pgbrochure_2018.pdf

<https://www.alliedmoulded.com/wp-content/uploads/Residential-Catalog-2019.pdf>

https://www.alliedmoulded.com/wp-content/uploads/fire-sound-ad_sound-test-data_2015.pdf

<https://www.alliedmoulded.com/wp-content/uploads/Ceiling-ad-with-revised-paragraph-numbers-1-29-2016.pdf>

<https://www.alliedmoulded.com/wp-content/uploads/Fire-Rating-FAQ.pdf>

<https://www.alliedmoulded.com/wp-content/uploads/general-masonry-construction.pdf>

<https://www.alliedmoulded.com/wp-content/uploads/K-Klamp-Letter.pdf>

<https://www.alliedmoulded.com/wp-content/uploads/qcmz-e30594-2015-3-24.pdf>

<https://www.alliedmoulded.com/wp-content/uploads/Residential-Home-Brochure-4-28-2011.pdf>

<https://www.alliedmoulded.com/wp-content/uploads/ARRA-residential-products-2020.pdf>

Thank you for your continued support of Allied Moulded Products.

fiberglassBOX™

flexBOX.

SLIDERBOX.

Vapor
Seal
ALLIED MOULDED PRODUCTS

**Allied Moulded Products
Product Guide Specification**

PART 1 – GENERAL

SPECIFICATION-AMPRELECBOX-62020A

1.01 SUMMARY

- A. This section includes the following:
 - 1. Allied Moulded Fiberglass, PVC, and Polycarbonate switch, outlet, and ceiling boxes.
 - 2. Allied Moulded PVC boxes for structured cable/low voltage wire and cable management.
 - 3. Allied Moulded Vapor Seal®-Air Sealed non-metallic switch, outlet, and ceiling boxes
 - 4. Allied Moulded Adjustable non-metallic boxes
 - 5. Allied Moulded Quick-Thread non-metallic boxes

1.02 REFERENCES

- A. Underwriters Laboratories, Inc. (UL):
 - 1. UL 514C Nonmetallic Outlet Boxes, Flush-Device Boxes, and Covers
 - 2. UL CEYY.R9379 Outlet Boxes and Fittings Classified for Fire Resistance
 - 3. UL File E 30594 Use of Nonmetallic Clamp to Close the Opening of a Removed Knockout
- B. National Fire Protection Association (NFPA):
 - 1. NFPA 70 National Electrical Code (NEC)
- C. National Electrical Manufacturers Association (NEMA)
 - 1. NEMA OS-2 Non-metallic Outlet Boxes, Device Boxes, Covers and Box Supports
 - 2. NEMA OS-3 Selection and Installation Guidelines for Electrical Outlet Boxes
 - 3. NEMA OS-4 Requirements for Air-Sealed Boxes for Electrical and Communication Applications
- D. Sound Transmission Loss Test
 - 1. ASTM E 90 – 09 / E 413 – 04/E 1332- 10a
- E. International Code Council (ICC)
 - 1. 2009 and later revisions International Energy Conservation Code (IECC)
 - 2. Latest version of International Building Code (IBC)

1.03 SUBMITTALS

- A. Product Data:
 - 1. Submit manufacturer’s descriptive literature, product specifications, and performance support for each product.
 - 2. Manufacturer’s product drawings.

1.04 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Products shall be free of defects in material and workmanship.
- B. Furnished products shall be listed or classified by third party agencies as suitable for the intended purpose.

**Allied Moulded Products
Product Guide Specification**

1.05 WARRANTY

- A. Product is warranted to be substantially free of defects in material and workmanship when used in applications considered normal use for year from date of original shipment from factory or one year from field installation, not to exceed 24 months from the original shipment date from Allied Moulded.
- B. This warranty expressly does not cover damage related to after-market or field modifications, repairs, misuse, handling, neglect, accident, improper storage, shipping damage, installation, or assembly damage.

PART 2 – PRODUCTS

2.01 GENERAL

- A. Fiberglass, PVC, and Polycarbonate non-metallic boxes shall be listed and comply with NEMA OS-2.
- B. Fiberglass nonmetallic boxes with Vapor Seal® barrier shall be listed and comply with NEMA OS-4 and IECC.
- C. PVC Nonmetallic low voltage boxes shall be listed or certified for purpose.
- D. All non-metallic boxes shall be marked with cubic inch and wire fill per NEC requirements.
- E. All non-metallic boxes shall be manufactured in USA and be ARRA compliant.

2.02 MANUFACTURERS

- A. Acceptable Manufacturers:
Allied Moulded Products, Inc.
222 North Union Street
Bryan, OH 43506
(419) 636-4217
<http://www.alliedmoulded.com/>

2.03 DESIGN AND PERFORMANCE REQUIREMENTS

- A. FiberglassBOX® Non-metallic Switch, Outlet, and Ceiling Boxes:
 - 1. Non-metallic boxes shall be molded from Fiberglass Reinforced Polyester (FRP).
 - 2. FRP non-metallic boxes shall not rust.
 - 3. Steel wing brackets on “old work” boxes for secure box mounting.
 - 4. FRP boxes shall have offset ribs to give positive stop for the proper wall thickness.
 - 5. FRP boxes shall have strip-resistant, tapered, and machine tapped device holes allowing device screw to be started by hand and speed installation time with adjustable torque screwdrivers.
 - 6. Allied Moulded exclusive patented (U.S. Pat. #6365831 B1) molded in Speed Klamps™ in multi-gang and ceiling boxes.

Allied Moulded Products
Product Guide Specification

7. FRP non-metallic boxes shall be listed for use with masonry walls provided box is fastened to the structure of the building using specific approved listed method of mounting to structure.
 8. FRP non-metallic boxes shall be UL Classified for 2-hour fire resistive walls and ceilings in compliance with the IBC.
 9. FRP non-metallic switch and outlet boxes may be installed in same wall stud cavity of a shared two-hour wall per paragraph 2 UL CEYY.R9370 listing. FRP non-metallic outlet boxes can be mounted with 3" horizontal separation in all U-300 series walls and may face opposite directions with no additional insulation or putty pads.
 10. FRP Ceiling boxes can be placed 5-1/2" (measured from box center to box center) from each other in solid wood or pre-engineered wood joist fire resistive assemblies per paragraph 5 UL CEYY.R9379 listing.
 11. FRP non-metallic boxes shall be listed for use with 90°C degree conductors in compliance with the NEC.
 12. FRP non-metallic ceiling boxes shall be UL listed for fixture and/or fan support.
 13. FRP non-metallic outlet and ceiling boxes shall be acoustically rated to maintain the sound rating of a wall up to a Sound Transmission Class (STC) 50 without sound pads or ancillary sound protection. This rating shall be achieved by performing the ASTM E-90 Sound Transmission Loss Test on FRP outlet boxes installed in a 50 STC rated wall in the standard manner on opposite sides of a common wall within the same stud cavity. The 2012 International Building Code (IBC) requires these walls and partitions to have a STC rating of not less than 50 when tested in accordance with ASTM E-90.
- C. Vapor Seal® Non-Metallic Switch, Outlet, and Ceiling Boxes
1. Shall be available in FRP materials with same characteristics and meeting same performance standards as FiberglassBox® products
 2. All exterior openings and wire penetrations shall be sealed with an acceptable caulk or sealing material after installation
 3. Boxes shall meet Air Seal requirements as outlined in IECC (Section 402.2.1) using Typical Blower Door/Duct Leakage Style Apparatus for Internal Air Leakage Measurements outlined in NEMA OS-4
 - i. Air leakage <7ACH with blower door at pressure of 33.5 psf (50 pa).
 - ii. R402.4.6 Electrical and Communication Outlet Boxes (air-sealed boxes). Electrical and communication outlet boxes installed in the building thermal envelope shall be sealed to limit air leakage between conditioned and unconditioned spaces. Electrical and communication outlet boxes shall be tested in accordance with NEMA OS 4, Requirements for Air-Sealed Boxes for Electrical and Communication Applications, and shall have an air leakage rate of not greater than 2.0 cfm (0.944 L/s) at a pressure differential of 1.57 psf (75 Pa). Electrical and communication outlet boxes shall be marked "NEMA OS 4" or "OS 4" in accordance with NEMA OS 4. Electrical and communication outlet boxes shall be installed per the manufacturer's instructions and with any supplied components required to achieve compliance with NEMA OS 4.

Allied Moulded Products
Product Guide Specification

- D. FlexBOX® Polycarbonate Non-metallic Switch, Outlet, and Ceiling Boxes:
1. Non-metallic boxes will be molded from Polycarbonate
 2. Allied Moulded exclusive patented (U.S. Pat. #6365831 B1) molded in Speed Klamps™ in multi-gang and ceiling boxes.
 3. Molded spline device holes for quick device screw installation in wall boxes (optional molded Quick-Thread device holes available) and machine tapped threads for ceiling fixtures.
 4. Polycarbonate non-metallic boxes shall not rust.
 5. Steel wing brackets on “old work” boxes for secure box mounting.
 6. Polycarbonate non-metallic boxes shall be provided with knockouts or cable clamps to facilitate wiring.
 7. Polycarbonate non-metallic boxes shall be listed for use with masonry walls.
 8. Polycarbonate non-metallic boxes shall be UL classified for 2-hour fire rating for walls and ceilings in compliance with the IBC.
 9. Polycarbonate non-metallic boxes shall be listed for use with 90°C degree conductors in compliance with the NEC.
 10. Polycarbonate non-metallic ceiling boxes shall be UL listed for fixture or fan support.
- E. FlexBOX® PVC Non-metallic Switch, and Outlet Boxes:
1. Non-metallic Switch and Outlet boxes shall be molded from PVC.
 2. Allied Moulded exclusive patented (U.S. Pat. #6365831 B1) molded in Speed Klamps™ in multi-gang and ceiling boxes.
 3. Molded spline device holes for quick device screw installation in wall boxes (optional molded Quick-Thread device holes available) and machine tapped threads for ceiling fixtures.
 4. PVC non-metallic boxes shall not rust.
 5. Steel wing brackets on “old work” boxes for secure box mounting.
 6. PVC non-metallic boxes shall be provided with knockouts or cable clamps to facilitate wiring.
 7. PVC non-metallic boxes shall be listed for use with masonry walls.
 8. PVC non-metallic boxes shall be UL Classified for 2-hour fire resistive walls and ceilings in compliance with the IBC.
 9. PVC non-metallic boxes shall be listed for use with 90°C degree conductors in compliance with the NEC.
 10. PVC non-metallic ceiling boxes shall be UL listed for fixture or fan support.
- F. SliderBOX® Adjustable Nonmetallic Switch, Outlet, and Ceiling boxes
1. Shall be molded of engineering grades of nonmetallic thermoplastic.
 2. Slots inside of box shall be provided to allow guiding in straight motion.
 3. Internal rails guide slider plate for smooth mounting adjustability in wall substrates from 1/2" to 1 3/8" thick, and ceiling substrates from 1/2" to 1 5/32".
 4. Slider plate holds screws in ready position to enable contractor to mount boxes faster.

**Allied Moulded Products
Product Guide Specification**

5. Heavy-duty non-slip pad to ensure box and slider assembly solidly hold mounted position. Tested to hold 50 lbs. hung on box to simulate power cord pull-out strength.
 6. Square corner design allows easy wall cut-in (old work applications).
 7. Molded spline device holes for quick device screw installation in wall boxes and machine tapped threads for ceiling fixture support in round ceiling boxes.
 8. Allied Moulded exclusive patented (U.S. Pat. #6365831 B1) molded in Speed Klamps™ in multi-gang and ceiling boxes.
 9. SB-2, SB-3 are UL Classified for 2-hour fire resistive walls in compliance with the IBC.
 10. SB-1, SB-1H, SB-CB and SB-CBFR are UL Classified listed for 2 Hour fire resistive walls and ceilings in compliance with the IBC.
 11. Shall be listed for use with 90 degree C conductors in accordance with NEC.
 12. Patent #7,855,338 design allows for adjustments in new or old work installations.
 13. Fan support product has steel bracket and mounting bolts for secure paddle fan mounting.
 14. Multi-Gang boxes shall allow low voltage partitions for dual voltage applications.
- G. PVC Non-metallic Structured Cable/Low Voltage Boxes:
1. Structured Cable Non-metallic boxes shall be molded from PVC.
 2. PVC non-metallic boxes shall not rust.
 3. PVC non-metallic boxes shall be provided without backs to facilitate cable bend radius requirements.
 4. PVC non-metallic boxes shall be listed or certified for purpose.

PART 3 – EXECUTION

3.01 INSTALLATION

Installation shall be in accordance with latest edition of NFPA 70 NEC, IECC, and Building Codes and/or local codes in force where applicable and manufacturer's instructions.

**Allied Moulded Products
Product Guide Specification**

CUBIC INCH REQUIREMENTS:

All non-metallic boxes shall be designed for use with 14-2 through 10-3 nonmetallic sheathed cable with ground. To calculate cubic inch requirements, make allowance of 2 conductors for each device and 1 for clamps, 1 for ground wire.

For example, the cubic inch requirement for no. 10-3 wire being used for a single device with a ground wire and one clamp would be

- A. 4 conductors for a requirement of 10.00 cubic inches.

Number of Conductors	Cu. In. Req'd for No. 14 Wire	Cu. In. Req'd for No. 12 Wire	Cu. In. Req'd for No. 10 Wire
1	2.00	2.25	2.50
2	4.00	4.50	5.00
3	6.00	6.75	7.50
4	8.00	9.00	10.00
5	10.00	11.25	12.50
6	12.00	13.50	15.00
7	14.00	15.75	17.50
8	16.00	18.00	20.00
9	18.00	20.25	22.50
10	20.00	22.50	25.00
11	22.00	24.75	27.50
12	24.00	27.00	30.00
13	26.00	29.25	32.50
14	28.00	31.50	35.00
15	30.00	33.75	37.50
16	32.00	36.00	40.00
17	34.00	38.25	42.50
18	36.00	40.50	45.00
19	38.00	42.75	47.50
20	40.00	45.00	50.00