CERTIFICATE OF COMPLIANCE

Certificate Number	20141230-MH49717
Report Reference	MH49717-20141226
Issue Date	2014-DECEMBER-30
Issued to:	PAL SYSTEM INDIA PVT LTD Gat 457& 458 Vilg Shindewadi-Shirwal, Sub Dist- Khandala Dist Satara, Pune Mh 412801 INDIA
This is to certify that representative samples of	AIR DUCTS Phenolic foam rigid duct board consisting of a flat board of phenolic foam core with aluminum facer on both sides. Heat from forming the foam core attaches the 2 facers to the core. No adhesive is used to form finished flat boards.
	Have been investigated by UL in accordance with the Standard(s) indicated on this Certificate.
Standard(s) for Safety:	UL 181, Factory Made Air Ducts and Air Connectors
Additional Information:	See the UL Online Certifications Directory at www.ul.com/database for additional information

Only those products bearing the UL Certification Mark should be considered as being covered by UL's Certification and Follow-Up Service.

Look for the UL Certification Mark on the product.

Bruce Mahrenholz, Assistant Chief Engineer, Global Inspection and Field Services

UL LLC

File MH49717
Project 13CA55647

December 26, 2014

REPORT

on

[Air Ducts and Air Connectors] Air Ducts

PAL SYSTEM INDIA PVT LTD

PUNE , MH 412801
INDIA

DESCRIPTION

PRODUCT COVERED:

The product covered by this Report is a Class 1 rigid air duct. The product is designated πPal Duct.

INTENDED USE:

The air duct is intended to be used in air conditioning and warm air heating systems in accordance with the International Mechanical Code (IMC), International Residential Code (IRC), and Uniform Mechanical Code (UMC), Standards of the National Fire Protection Association for the Installation of Air-Conditioning and Ventilating Systems, NFPA No. 90A, and the Installation of Warm Air Heating and Air-Conditioning Systems, NFPA No. 90B.

The air duct covered by this Report is intended for use as a building material as authorized by the authorities having jurisdiction.

CONSTRUCTION MATERIALS:

A detailed description of the specific construction, the composition and the specifications of the materials used are on file at Underwriters Laboratories Inc.

MARKING:

Each piece of the air duct is marked with the following.

1. Manufacturer’s name.
2. Maximum recommended air velocity.
3. Maximum rated negative and positive pressure.
4. Maximum hanger spacing.
5. Maximum supply duct dimension without reinforcement.
6. Minimum return duct dimension without reinforcement.
7. Class rating.

TEST RECORD NO. 1

SAMPLES:

Samples of rigid Pal Duct were submitted by the manufacturer for examination and test.

GENERAL:

Test results relate only to the items tested.

The following tests were conducted on representative sizes and samples of Pal Duct in accordance with UL 181, Factory Made Air Ducts and Air Connectors, Eleventh Edition, dated July, 25, 2013.

Tests	Section	Size Tested	Thickness Tested	Interior
Surface Burning Characteristics	7	as required	20 and 30 mm	Reinforced and non-reinforced
Flame Penetration	10	as required	20 and 30 mm	Reinforced and non-reinforced
Burning	11	500 by 500 mm; 300 by 300 mm	20 mm	Non-reinforced
Mold Growth and Humidity – caulk and duct section	13	as required	20 mm	Non-reinforced
Temperature (low)	14	as required	20 mm	Non-reinforced
Temperature (high)	14	as required	20 mm	Non-reinforced & Reinforced
Puncture	15	as required	20 and 30 mm	Non-reinforced & Reinforced
Puncture after High Temp	15	as required	20 mm	Non-reinforced & Reinforced
Static Load	16	500 by 500 mm; 300 by 300 mm	30 mm	Non-reinforced & Reinforced
Impact	17	500 by 500 mm	20 mm	Non - reinforced
Erosion	18	as required	20 mm	Non-reinforced
Pressure	19	500 by 500 mm; 300 by 300 mm	30 mm	Non-reinforced
Collapse	20	500 by 500 mm; 300 by 300 mm	20 mm	Non-reinforced

The following identification tests were also conducted:

Cone Calorimeter – Foam Core
Qualitative Infrared Analysis - Foam Core
Thermogravimetric Analysis - Foam Core

The materials used in this investigation were produced under the observation of a representative of UL LLC, in a ready-to-use form. The composition of the finished materials is of a proprietary nature. Data on the composition is on file at the Laboratories for use in the Follow-Up Service Program.

Test Record Summary:

The results of this investigation, including construction review and testing, indicate that the product evaluated complies with the applicable requirements in the Eleventh Edition of UL 181, Factory Made Air Ducts and Air Connectors, dated July 25, 2013 and therefore, such product is judged eligible to bear UL's Mark as described on the Conclusion Page of this Report.

Report by:

Jamila Shawon
Senior Project Engineer
Building Materials & Life Safety Technology

Reviewed by:

Dwayne Sloan
Principal Engineer
Building Materials & Life Safety Technology

CONCLUSION:

Samples of the product covered by this Report have been found to comply with the requirements covering the category and the product is found to comply with UL's applicable requirements. The description and test result in this Report are only applicable to the samples investigated by UL and does not signify UL certification or that the product described are covered under UL's Follow-Up Service Program. When covered under UL's Follow-Up Service Program, the manufacturer is authorized to use the UL Listing Mark on such products which comply with UL's Follow-Up Service Procedure and any other applicable requirements of UL LLC. The Listing Mark of UL LLC on the product, or the UL symbol on the product and the Listing Mark on the smallest unit container in which the product is packaged, is the only method to identify products investigated by UL to published requirements and manufactured under UL's Listing and Follow-Up Service.

Report by:

Jamila Shawon
Senior Project Engineer
Building Materials & Life Safety
Technology

Reviewed by:

Dwayne Sloan
Principal Engineer
Building Materials & Life Safety
Technology