



## Façade India Testing Inc.

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### TEST CERTIFICATE FOR CONSTRUCTION OF PERMANENT CAMPUS FOR IIT HYDERABAD AT KANDI (PHASE-I).

[uPVC 3-TRACK, 4-SHUTTER SLIDING WINDOW SYSTEM.]

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| 1. INTRODUCTION       | : Laboratory Performance Mock Up Testing Of uPVC 3-Track, 4-Shutter Sliding Window System.   |
| 2. TESTING LABORATORY | : Façade India Testing Inc.  |
| 3. LABORATORY ADDRESS | : Plot No.H-23, Additional MIDC, Murbad, Thane District, Maharashtra 421401.   |
| 4. TEST REPORT No.    | : FITI/LAB/17/11/28  |
| 5. TEST CONDUCTED FOR | : LARSEN & TOUBRO LIMITED CONSTRUCTION, BUILDINGS & FACTORIES IC, Mount Poonamalee Road, Manapaikkam P. B. No. 979, Chennai - 600089 |
| 6. PROJECT            | : CONSTRUCTION OF PERMANENT CAMPUS FOR IIT HYDERABAD AT KANDI (PHASE-I).   |
| 7. PROJECT ADDRESS    | : IIT Hyderabad, Kandi, Sangareddy Medak, Telangana, Pin - 502285  |
| 8. PROJECT CLIENT     | : M/s. INDIAN INSTITUTE OF TECHNOLOGY HYDERABAD.   |
| 9. CONSULTANT         | : M/s. BHARAT SANCHAR NIGAM LIMITED.   |
| 10. PMC               | : M/s. TATA CONSULTING ENGINEERS.  |
| 11. ARCHITECTS        | : M/s. CCBA PUNE.  |
| 12. MAIN CONTRACTOR   | : M/s. LARSEN & TOUBRO LTD.  |
| 13. uPVC CONTRACTOR   | : M/s. NCL WINTech, HYDERABAD.   |
| 14. TEST MOCK UP      | : uPVC 3-TRACK, 4-SHUTTER SLIDING WINDOW SYSTEM.   |
| 15. TEST METHODS USED | : As per ASTM & AAMA standards.  |
| 16. METHOD STATEMENT  | : FITI/MET/17/09/21  |
| 17. SPECIMEN RECEIVED | : 9 <sup>th</sup> October 2017   |

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18. TEST CONDUCTED ON : Pre Test: 13<sup>th</sup> Nov 2017 ; Final Test: 15<sup>th</sup> Nov 2017
19. TEST SPECIMEN BRIEF : Width 3.79 m x Height 1.80 m  
Total Area : 6.82 m<sup>2</sup>
20. DESIGN WIND PRESSURE : 2.4 kPa (2400 Pascal)
21. TEST RESULTS : AS PER TABLE BELOW

TEST DATE	TEST	AS PER STANDARD	TEST PRESSURE	PERMISSIBLE LIMIT	MEASURED VALUE	INFERENCE
13.11.2017	Pretest Air Infiltration	ASTM E 283	75 Pa	12.2 m <sup>3</sup> /hr	9.4 m <sup>3</sup> /hr	PASS
13.11.2017	Pretest Static Water Penetration	ASTM E 331	137 Pa	Total 15ml	Water leakage found	FAIL
15.11.2017	Air Infiltration	ASTM E 283	75 Pa	12.2 m <sup>3</sup> /hr	9.4 m <sup>3</sup> /hr	PASS
15.11.2017	Static Water Penetration	ASTM E 331	137 Pa	Total 15ml	Leakage observed with in limit	PASS
15.11.2017	Dynamic Water Penetration	AAMA 501.1	600 Pa	Total 15ml	No leakage observed	PASS
15.11.2017	Structural Performance	ASTM E330/ E330M	+2400 Pa	Deflection of Glass & Structural members as per given criteria	Deflection of all members found within permissible limit	PASS
15.11.2017	Structural Performance	ASTM E330/ E330M	-2400 Pa	Deflection of Glass & Structural members as per given criteria	Deflection of all members found within permissible limit	PASS

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TEST DATE	TEST	AS PER STANDARD	TEST PRESSURE	PERMISSIBLE LIMIT	MEASURED VALUE	INFERENCE
15.11.2017	Repeat Static Water Penetration	ASTM E 331	137 Pa	Total 15ml	No leakage observed	PASS
15.11.2017	Structural Proof Load	ASTM E330/ E330M	+3600Pa	Deformation of structural members as per given criteria. No failure of any component.	Deformation found within permissible limit. Also, no component failure observed.	PASS
15.11.2017	Structural Proof Load	ASTM E330/ E330M	-3600 Pa	Deformation of structural members as per given criteria. No failure of any component.	Deformation found within permissible limit. Also, no component failure observed.	PASS

22. uPVC SLIDING WINDOW TEST RESULT COMPLIANCE SUMMARY : uPVC 3-Track, 4-Shutter Sliding Window System specimen was tested as described in this document and method statement and specimen was found to be in compliance with the project requirements provided.

This certificate is issued on behalf of Façade India Testing Inc.

V.S. Raghuraman

(Quality Manager)

Date: 20.11.2017

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