Qatar's First & Only Indigenous
Facade Testing Lab

www.winwalldoha.com

WINWALL DOHA

For Testing and Inspection

IT ISN'T ONLY THE BUILDING'S IMAGE THAT IS IMPROVED BY FACADE TESTING

CONSTRUCTION PROFESSIONALS REQUIRED PROFFESIONAL TESTING

ABOUT US

Wnwall Doha For Testing and Inspection in Qatar is a state-of-the-art performance testing laboratory established in Qatar to cover one of the most advance growing markets in Middle East, mainly to cover the mega projects for World Cup 2022 during construction time. **WnWall** start with the latest technology in the world, for all kinds of instrument and equipment, mainly from USA, NORWAY, and GERMANY. **WnWall** accredited by **International Accreditation Service IAS, met the requirements of AC89, IAS Accreditation Criteria for Testing Laboratories, and has demonstrated compliance with ISO/IEC Standard 17025:2017. Wnwall** Partners with One of leading Qatari businessman, along with Canadian Certified Testing Engineer, in additional to an expert team handle all requirements to conduct all tests to be aligned with the Standard and Certification. **WnWall** expand branches now to be in Saudi Arabia and Egypt with corporation with leadings groups in Saudi Arabia and Egypt. Whole World emphasis to save energy and be Eco-Green Building. **WnWall** will be one of the major factors to achieve this target and the vision of 2030 in the Middle East.

Abnormal climate changes , especially over the last decade had resulted in an increased awareness for the safety of the buildings which led to more stringent testing requirements. Architects, building developers, contractors, specifiers including manufacturers of cladding materials have taken great efforts in considering all probable scenarios which might endanger the general public from problems attributed to design defects of building envelopes such as curtain walls, windows & door systems and poor workmanship during installation of such systems.

Our comprehensive testing solutions have by far assisted our clients in eliminating probable defects such as glass breakage, water leakage, excessive deformation of structural components and air leakage or damages to hardware and accessories. This ensures timely completion of building projects and most importantly, safety for the building user's and the general public, preventing any legal implication due to product defects or professional negligence. Hence, there has been an an increased demand for performance tests by owners, specifiers and manufacturers to obtain a credible degree of assurance.

vConsultants, architects and developers always incorporate safety and energy efficiency in their façade designs, taking care to keep abreast of the latest advances in facade design and testing. Wnwall Doha offers a trusted facility to validate designs before actual on-site installation.

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Doha Metro Stations

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OPTIMIZING BUILDING PERFORMANCE

As architecture & construction reach new heights in Qatar, there is a pressing need to ensure the performance of building envelops, especially facades & curtain walls.

Facades and curtain walls are critical features of a building envelope, representing up to 100% of the exterior cladding and a significant portion of the project cost. Air conditioning, which is extremely vital in harsh climates, accounts for a major chunk of a building's energy usage. However, leaks in the building envelop can account for as high as 30% of the energy consumed by air conditioning. Therefore, testing and optimizing the performance of building envelops assumes critical importance.

Aligning with the government's objectives to achieve self-reliance and establish all critical infrastucture within the country. Winwall Doha was set up to provide state-of the-art construction testing facilities in Qatar.

Wnwall Doha is the first and only indigenous facade testing lab with the latest equipment and sophisticated technology, offering a range of specialist services to optimize the safety and performance of the building in compliance with international standards.

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QA-WDTI-0786

ilac-MRA

IAS
ACCREDITED
Testing Laboratory

TL 1052

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Hermas Business Park Project

WNWALL DOHA TESTING SERVICES

WnWall Doha focuses on Testing for building Envelopes, which includes:

> Curtain wall Doors & windows Testing as per ASTM, AAMA and BS EN are the areas most common as per worldwide standards
> Fire Resistance Test as per NFPA Standard
> Insulated Glass Unit (IGU) Testing as per ASTM Standard
> Onsite Testing as per ASTM & AAMA Standards

Wnwall Doha Offers both testing in the lab to check and validate the design of facade (Offsite Test), and Field Testing to check consistency of fabrication and installation (Onsite Test),

WnWall Doha Performs the following tests for building envelops/components at our laboratory facility to the corresponding test specification :

OFFSITE (LAB) TESTS
CURTAIN WALL, DOORS & WINDOWS

> Air Penetration Test (ASTM E283, BS EN 1026, BS EN 12153)
> Water Penetration Test (Static) (ASTM E331, BS EN 1027, BS EN 12155)
> Structural Performance Test (ASTM E330, BS EN 12179, BS EN 12211)
> Water penetration Test (Dynamic) (AAMA 501.1, BS EN 13050)
> Impact Tests (ASTM E2353, BS EN 12600)
> Pullout Test
> Seismic Racking Test (AAMA 501.4, AAMA 501.7)
> Thermal Cycling (AAMA 501.5)
> Controlled Dismantle

HANDRAILS & BALLUSTRADE SYSTEM
> Balustrade Performance (ASTM E2353, ASTM E935)

IGU TEST AND GLASS DISTORTION TEST
> Distortion (Rollerwave Test) BS EN 12150
> Fragmentation Test (BS EN 12150)

FIRE PROPOGATION | ANALYSIS OF GLASS BREAKAGE | TECHNICAL SERVICES

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WNWALL TEST METHODOLOGIES

The following tests are conducted to evaluate the performance of a facade:

A : AIR INFILTRATION TEST
Energy efficiency of a facade is checked by accurately measuring the flow of air through the facade/window/door at a specified differential pressure. The more the air flow, the more energy is leaking through the system. Checking the air infiltration during the test and measuring the quantum of air leak will lead to huge savings in cooling costs.

B : STATIC WATER PENETRATION TEST
When rain water, especially during thunder showers or storms,enters through the curtain wall, it causes damage to the false ceiling and expensive interiors and can also lead to short circuits in the electrical system. A thorough evaluation of the facade system will allow to keep water out hence no damage to the interior and its furnishing due to the water leakage. The testing criteria is clear- no water leak at all on the interior surface during the test.


Qatar Petroleum District


Al Jaber Twin Tower

C : DYNAMIC WATER PENETRATION TEST
The same quantum of water is sprayed on the mockup sample and cyclonic turbulence is created using an aircraft engine to simulate real life conditions. No water penetration through the sample is allowed.

D : STRUCTURAL PERFORMANCE TEST
The ability of the facade to withstand the onslaught of severe cyclones,which are becoming more common, means more safety for the occupants and others around the building. The facade is tested for maximum wind-laods and the deflections of all critical elements measured for both positive and negative pressure as specified by the consultant. Furthermore, safety test is conducted where the mockup sample is tested for 150% of the design load for both positive and negative pressure.

E : LATERAL MOVEMENT (SEISMIC TEST)
Since the brackets for facade are fixed outside the RCC slab, a seismic test is done to check the curtain wall facade's ability to accomodate the interstory drift which happens due to the impact of windloads on the building structure.

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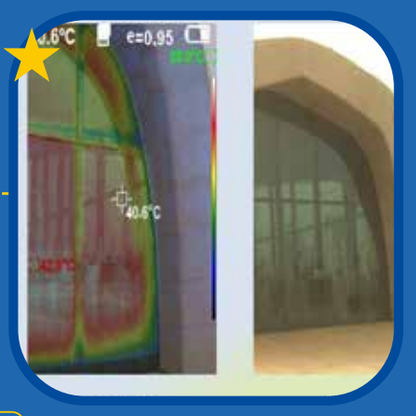

ONSITE (FIELD) TESTING

ONSITE TESTS

>Thermal Performance of Buildings Determination of air permeability of the buildings (EN 13829 – ISO 9972 (2015)

>Thermography Analysis

>Air Infiltration Test (ASTM E783)

>Water Penetration Test (ASTM E1105)

>Hose Test (AAMA 501.2)

>Impact Test (ASTM E2353, BS EN 12600)

>Acoustic Test

>Temperature Monitoring

>Structural Sealant Adhesion Test (ASTM C1401)

Once the mockup sample installed at the lab has been tested and has passed all the specifications laid down, the design of the system stands validated. However in order to ensure that the workmanship and the installation procedures are strictly adhered to by the contractor, above mentioned standards recommends an on-site process.

The testing is done on 1% to 5% of the glazed area in stages as the installation process begins at site. By bringing in an independant testing agency to conduct a on-site at random locations during installations, the owner can ensure that the recommended fabrication and installation process is adhered to by the facade contractor. By conducting this during the early stages of installation any short comings which have crept in either knowingly or unknowingly can be identified and rectified in the subsequent stages of installation.

It is important for all parties involved in this process to realize that even though performance testing is not mandatory the process eliminates even the smallest element of failure in the facade. The people who live within and around the building can live without the fear of a system failure, thus avoiding loss to property and human life.

LIST OF PROJECT CONDUCTED TESTS

WnWall established on 2017 as a certified lab in Qatar. List of some projects been conducted test.

PROJECT NAME	CLIENT/CONSULTANT	MAIN CONTRACTOR
QATAR RAIL METRO STATIONS	QATAR RAIL	
DOHA EXPO-2023	ASHGAL	GALFAR AL MISNAD ENGG. & CONTG. W.L.L.
QATAR PETROLEUM DISTRICT	ARAB ENGINEERING BUREAU	RUMAILAH SERVICES W.L.L
MUSHERIB BUS STATION	ASHGAL	AL SRAIYA TRADING AND CONTRACTING
QATAR UNIVERSITY NEW STUDENT AFFAIR BUILDING	QATAR UNIVERSITY	RUMAILAH SERVICES W.L.L
LUSAIL PLAZA TOWER PLOT 3 & 4	DAR AL-HANDASAH CONSULTANTS	HYUNDAI ENGINEERING & CONSTRUCTION
LUSAIL PLAZA TOWER PLOT 1 & 2	DAR AL-HANDASAH CONSULTANTS	MIDMAC MIC JV
KAHRAMA NEW TOWER AT LUSAIL	KAHRAMAA	EGYBEL, QATAR
AL MAHA CENTRE FOR YOUNG AND ADULTS PROJECT	HAMAD MEDICAL CORPORATION	PROFESSION ALUMINUM COMPANY
SHIELD 5 PROGRAMME (ARMY PROJECT)	QATAR ARMY PROJECT	PROFESSION ALUMINUM COMPANY
DEVELOPMENT OF DOHA AIR BASE	QATAR ARMED FORCE	QATARI DIAR VINCI CONSTRUCTION(QDVC)
SEEF LUSAIL DEVELOPMENT PROJECT PLOT 3 & 4	QATARI DIAR	PROFESSION ALUMINUM COMPANY
LUSAIL COMMERCIAL BOULEVARD	PARSONS INTERNATIONAL LTD	WCT AL ALI JV
AL THUMAMA STADIUM	ARAB ENGINEERING BUREAU	AL IKTHIYAAR GERMANY
HERMAS BUISINESS PARK PROJECT	QATARI DIAR	TECHNOFYHA
SEEF LUSAIL DEVELOPMENT PROJECT PLOT 1 & 2	QATARI DIAR	UNITED ARAB ALUMINUM CO.
LUXURY MIXED USE DEVELOPMENT AT PLOT NO.012F- MARINA MIX	ARAB ENGINEERING BUREAU	ALUMINUM GULF RAY
TWIN TOWERS IN LUSAIL AREA	AL JABER GROUP	JEFFERSON INTERNATIONAL TRADING & CONTRACTING
MR. NASSER AL KAABI PRIVATE VILLAS & MAJLIS	MZ & PARTERS W.L.L	TADMUR CONTRACTING W.L.L
PROJECTS-SECTION MINISTRY OF INTERIOR	CEG INTERNATIONAL	AL ALI INTERNATIONAL
AL MAJED TOWER, LUSAIL	MZ & PARTERS W.L.L	GULF CONTRACTING COMPANY W.L.L
INTERNAL SECURITY FORCE (LEKHWIYA), AL -DUHAIL	LEKHWIYA- QATAR SECURITY FORCE	QATAR PROJECT MANAGEMENT (QPM)
PEARL SHOW ROOM	JAMES CUBITT & PARTNERS ENGINEERING CONSULTANCY	PROFESSION ALUMINUM COMPANY
BURJ MARINA TOWER	KEO INTERNATIONAL CONSULTANTS	REDCO INTERNATIONAL W.L.L
HILTON THE PEARL, ABRAJ QUARTIER TOWER	PROJACS INTERNATIONAL PROJECT MANAGEMENT	GULF STEEL FACTORIES
TULIP INTERNATIONAL HOTEL	ARAB ENGINEERING BUREAU	ISMAIL BIN ALI ALUMINUM


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