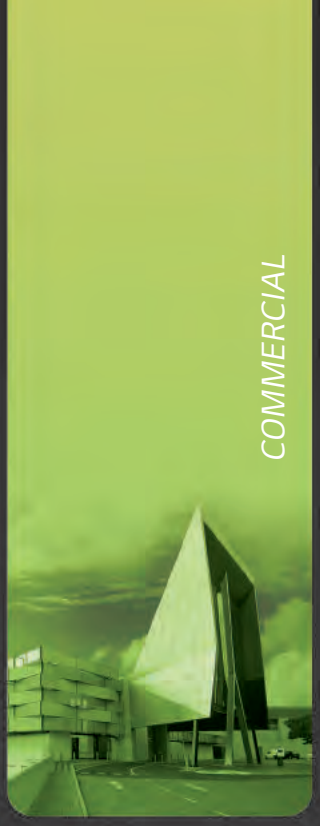
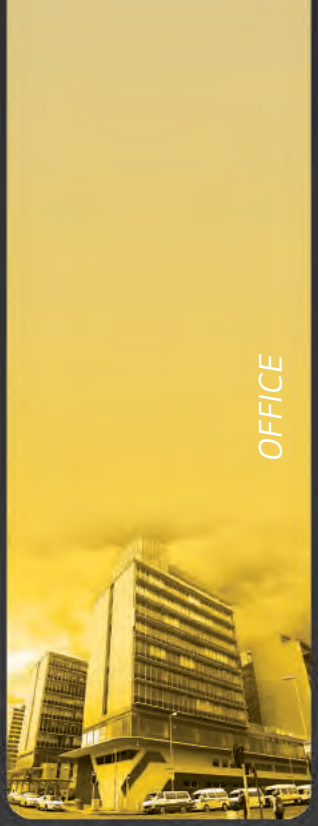
LG
Life's Good

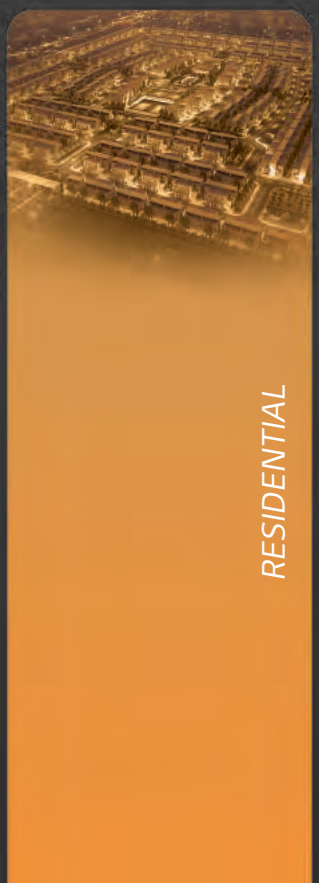


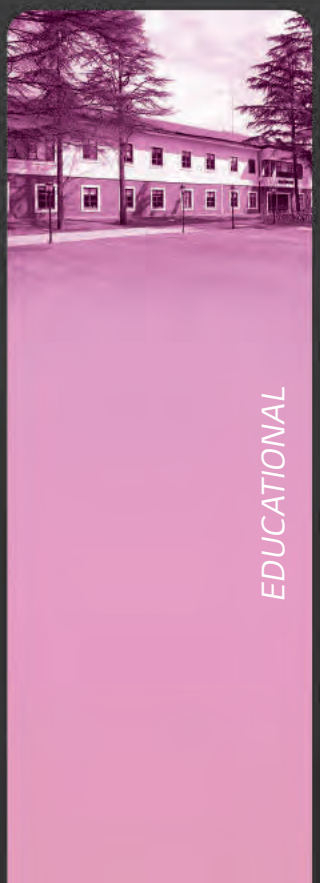


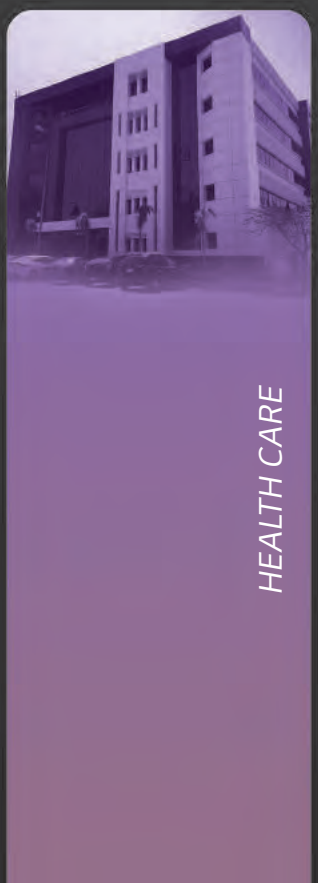
MULTI V™

REFERENCE SITE CATALOGUE

MIDDLE EAST & AFRICA







GLOBAL
PRODUCTION CENTER

* LG Air Solution production sites

The LG Electronics Air Solution Business Unit is a provider of total HVAC and energy solution. The company offers a broad portfolio of air conditioner products that are compatible with any building anywhere, including residences, skyscrapers, factories, conference and concert halls. As a true total HVAC and energy solution provider, LG also supplies even the largest buildings and industrial facilities with central air conditioning systems such as chillers and efficient control solutions.

The history of the business unit goes back to 1968, when LG (then called GoldStar) rolled out Korea's first residential air conditioner. As the company first began making chillers for large commercial buildings in 1970, the commercial air conditioning business has grown exponentially, especially within the last 20 years. In 2008, LG sold its 100 millionth air conditioning unit, becoming the first company in the industry to reach that significant milestone. The success of LG air conditioners has allowed the company to become one of the major players in the highly competitive HVAC industry. By enhancing the industry's B2B infrastructure and finding further solutions for the HVAC sector, LG has risen to become a total HVAC solutions specialist. The company has steadily increased its sales and market share by introducing energy efficient and reliable HVAC solutions and actively pursuing new opportunities wherever they arise. This sustained, excellent performance is built on a solid foundation of global R&D and advanced manufacturing capabilities.

INFRASTRUCTURE IN
MIDDLE EAST & AFRICA

- MEA B2B Regional Head Office
- Production Site : 2
- Sales Office : 18
- Academy : 18

LOCATION & ADDRES S

Subsidiar y	Addr ess
MEA RHQ	**LG Electr onic s MEA AE RHQ** 34th Floor , Shatha Tower, Media Cit y, P.O. Bo x 502535, Dubai, U .A.E. Phone: +971 4 279 9222
Gulf	**LG Electr onic s Gulf** 34th Floor , Shatha Tower, Media Cit y, P.O. Bo x 502535, Dubai, U .A.E. Phone: +971 4 279 9222
Levant	**LG Electr onic s Le vant-Jor dan** Abdali P roject, Rafiq Ha iri Avenue, The Boule vard, The Centr al Squar e, 5th Floor , P.O. Bo x 930254, Amman 11193, Jordan. Phone: +962 6 565 2861
Iran	**LG Electr onic s Tehr an Liaison Of fi e** 1st Floor , No. 37, East A tefi All y, Africa (Jor dan) Blv d, Postal Code:1917794995. Phone: +98 21 2620 5940
Saudi Ar abia	**LG Electr onic s KSA** 3355 Sar i st. - Al Khalidiy ah dist., Jeddah 101 Building, 5th Floor , P.O. Bo x 10876, Kingdom o f Saudi Ar abia Phone: +966 2 6166627
Turkey	**LG Electr onic s Ticaret A.Ş.** Kap tanpaşa Mah. Piy alepaşa Bulv arı No: 73 Or tadoğu Pl aza Kat:7 34384 Okme ydanı, Şişli İstanbul Phone: +90 212 314 52 52
South Afr ica	**LG Electr onic s SA (P ty) L td.** Race way Industr ial P ark, Mont e Carlo Dr ive, Gosfor th Park, Germist on, South A frica, P.O. Bo x 1419 Phone: +27 11 3323 8000
East Afr ica	**LG Electr onic s Afr ica Logistic s FZE (K enya)** Hano ver Tower Block, 4th Floor , 14 Riv erside, Of f Riv erside Dr ive, P.O. Bo x 505-00606 Phone: +254 20 2327363/65
	LG Electr onic s Afr ica Logistic s FZE (Sudan) Amar at 15th Str eet, Centr al Building Khar toum - Sudan, P .O. Bo x 1220 Phone: +249 183483304/5
Egypt	**LG Electr onic s Egyp t** E5 Ser vices Zone, Fir st Aggr egation, Moustafa Kamel Axis, F rom Cair o-Suez Highw ay, New Cair o Cit y, Cair o, Zip Code: 11865 Phone: +20 2 26131050/54
Morocco	**LG Electr onic s Mor occo** Zenith Millenium, Immeuble no 3 et 4, 5eme etage - Lo tissement A TTAOUFI Sidi Maar ouf - Casabl anca – Mar oc Phone: +212 522 97 32 32
West Afr ica	**LG Electr onic s West Afr ica (Niger ia)** 1st Floor , Lef t Wing CBC Towers, Of f Abmilr alty W ay Adjac ent, Adjac ent Ebano Super Mark et, Lekki Phase1, Lekki, Lagos, Niger ia Phone: +234 1 793 6511
	LG Electr onic s West Afr ica (Senegal) Regus, Azur 15 Building, 12, Bd Djily Mba ye, Le Pl ateau, BP : 50 555, Dakar , Senegal Phone: +24 80 7119 0600
	LG Electr onic s West Afr ica (Ivor y Cost) AMar cor y Zone 4C, Rue Pierr e & Mar ie cur ie – Adibjan Immeuble Continental R e, 2e Etage, P .O. Bo x 01 BP 8713, Abdijan 01 Phone: +225 2 022 5886
Tunisia	**LG Electr onic s Tunisia** Immeuble L YS, 3eme Etage, Les Jardins du Lac, Les ber ges du Lac 2, 1053 Tunis, Tunisia Phone: +216 71 197 877
Alger ia	**LG Electr onic s Alger ia Sarl.** 98, Rue Mohamed Boudiaf , Chér aga, Algier s Phone: +213 21 37 5050

LET TER FROM
MEA HVAC DEPARTMENT SENIOR DIRE CTOR

On Januar y 2016, LG Air Conditioning in MEA under took an organizational change, adjusting its business portfolio for tomorrow's challenging environment. In order to allow the employ ees to be in close communic ation with the project stak eholder s in Middle East and Africa that will help us to go beyond the bounds of B2C and reinfor ce B2B business territory in the growing commer cial mark et, we have LG local offi es located in almost every major countr y in Middle East and Africa and LG-certified distr ibution channels with install ation capabilities in all o f the c ountr ies.

Our diversified product portfolio has been fur ther expanded to cover the various requir ements of cust omer s. Aut omatic Voltage Stabilization (AVS) units are provided in the regions where overcoming frequent voltage fluctuations is necessar y. For other cases, pow erful air conditioner s are equipped with plasma fil ers and energy efficient resh Air Solutions for healthc are applic ations.

LG R&D is consist ently working on solutions that will satisf y consumer s' needs, and that is why we are transforming the era of constant compr essor s with the All Inverter technology which eventually brings a revolutionar y change in energy savings. Consider ing the harsh coastal envir onment, LG also came up with its newly developed corrosion resistanc e series which is accredit ed by UL (Under writer Labor atories). LG's 5th Gener ation VRF technology is the result of our dedic ation to addr ess cust omer needs and our insight to pr ovide the best c omfor t l evel t o our cust omer s.

Our vision is to widely extend company value chains from a product manufactur er all the way to a complet e solution provider with its fl xible and cust omiz ed products that not only provide comfor table envir onment to the end user s, but also allow the facilit y management to maximiz e the energy saving by using LG centr alized control syst em and its super ior integration solution with 3rd par ty BMS and Home Aut omation. With the differentiat ed engineer ing solution, LG and its certified academy trainings cooper ate with the project team and technicians to help them with the heat load calcul ations, designing the appr opriate syst em, commissioning and install ation suppor ts, overcoming technic al issues and beyond using the most advanced software like LATS-Load, L ATS-Revit, L ATS-CAD, L ATS-HV AC and L GMV.

LG Electr onics Air Solution Business Unit is making continuous efforts to protect our envir onment and to raise the qualit y of life which is truly reflec ed in this refer ence catalogue. I hope the pur pose of making this catalogue clearly addr esses and answ ers your curiosit y in under standing what LG Air Conditioner s is all about and how its div ersified air solutions ater to consumer s' v arious needs.

Your s sinc erely,

Alex Heo
MEA HV AC D epar tment Senior Dir ector

ENGINEERING
CAPABILIT Y

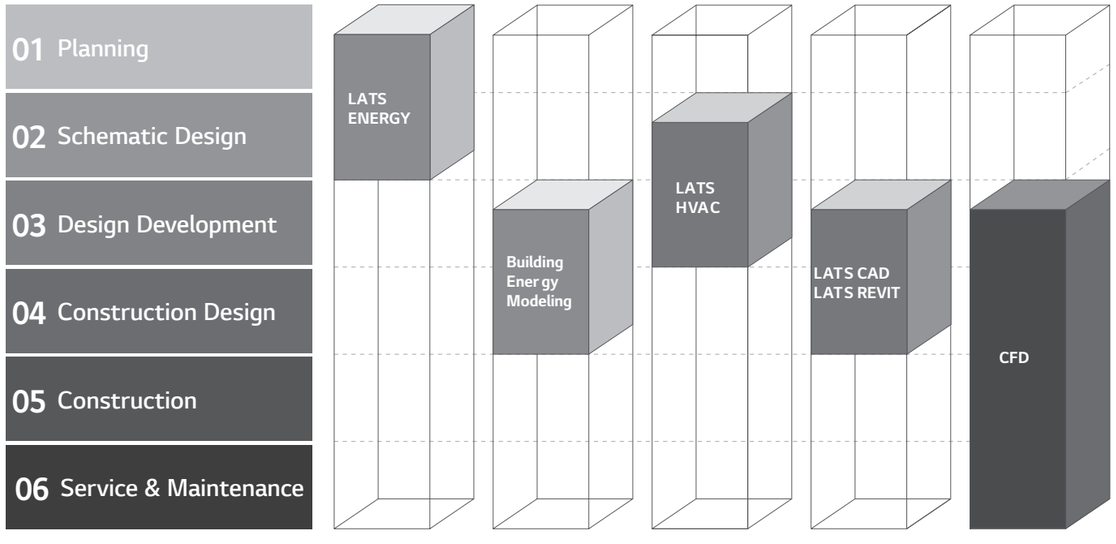
From planning to service & maintenanc e and then to reconstruction, an architectur al project goes along many stages from the beginning to the end of its lifecycle. Along those stages, various engineering tools are applied to solve the diverse issues happening in each stage, with the most optimal solution possible. Due to the usage of such tools, buildings are effectiv ely designed, built, super vised, and maintained thr oughout the lifecycle.
Dedicated to provide the best HVAC engineer ing suppor t, LG Electr onics Air-Solution Business Unit offers several engineer ing tools and solutions focused on HVAC, during the overall lifecycle of a building, related to the three categories: I. Draft Energy Estimation & Energy Modeling, II. Mod el Selection & Design, and III. Installation Environment Simul ation. Among them, the LATS* Program series has been developed to offer the best and the most optimiz ed tool for LG HVAC systems, providing our custom ers a faster, easier, and a more accurate way in everyday duties of Model-selection, Draft Ener gy Estimation & D esigning, and many mor e.

* LATS : LG Air-conditioner Technical Solution

I
Energy Estimation
& Energy Modeling

II
Model Selection
& Design

III
Installation
Environment
Simulation

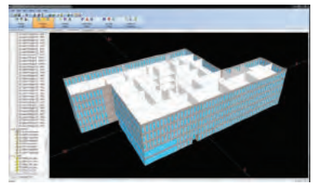


1 Draft Energy Estimation

LATS Energy
LATS Energy program is a draft energy estimation program, self-developed by LG. This program helps estimate the draft energy usage and analyzes the life cycle cost of LG VRF models during the early stage of a project.

2 Building Energy Modeling

eQuest, EnergyPro, Trace700 and More
These are certified commercial programs which assess the HVAC system efficiency and building's annual energy saving for building standard or certification like LEED. LG HQ supports these programs for the project stages of Design Development and Construction Design wherein the overall designing is finished.



3 Model Selection

LATS HVAC
LATS HVAC is an integrated model selection program of LG HVAC products, enabling an accurate and quick selection on the best model suitable to each sites. In addition to model selection, faster estimation on refrigerant piping diameter and additional refrigerant is possible, along with auto printing of reports.

4 Design

LATS CAD
LATS CAD enables faster and a more accurate design of LG HVAC products. Moreover, it offers not only designing, but also quotation and installation review in order to minimize problems during installation processes.

LATS Revit
LATS REVIT is developed to make 3D designing of LG HVAC products easier than the previous program. It enables engineers to check 3D images from designing stage and prevents possible issues of the installation stage.

5 Installation Environment Simulation

CFD Analysis
CFD Analysis is applied in areas of estimating: indoor airflow and temperature distribution while operating VRF products, outdoor airflow distribution, and noise level. By running a simulation before construction, engineers estimate possible issues and find optimal solutions of malfunction that could occur after construction

10 Key Features of MULTI V™ for MIDDLE EAST & AFRICA

1. High Energy Efficiency

LG MULTI V offers the world class energy efficiency with industry-leading technologies.

2. 55°C Operation

TUV certification proves the cooling capacity of MULTI V even in the high temperature.

3. Flexible Piping Length

110mtr. elevation allows flexible solution installation even at high rise buildings.

4. Auto Dust Removal

Smart out door unit cleans the condenser itself when dust starts accumulating.

5. Corrosion Resistance Heat Exchanger

LG MULTI V is a corrosion-resistant product with hydrophilic and epoxy coating.

6. Eurovent, TUV, ISO Certified

Internationally acknowledged technology accredited by prestigious universal standards.

7. Centralized Control Solution

Design flexibility guaranteed with MULTI V's inbuilt compatibility that allows integration and expandability as per user's requirement.

8. IAQ (Indoor Air Quality)

Standalone Fresh Air Solution creates healthy IAQ.

9. Intelligent Diagnosis

LGMV allows users to smartly analyze cycle operation details on their mobile thus diagnosing the issue instantly.

10. Quiet Operation

Low noise operation provides tranquil environment to help users concentrate on things they like.

MULTI V™

REFERENCE SITE
CATALOGUE

CONTENT S

MIDDLE EAST

- GULF
- IRAN
- TURKEY
- LEVANT
- SAUDI AR ABIA

GULF

- Sustainable Cit y
- Hyatt Pl ace Ho tel
- WASL Vita
- WASL Distr ict
- Etihad W ater F ront
- Book Oasis
- Dar Al W ASL
- Emir ates Cr ew Ac commodation
- The P olo R esidenc e & Townhouse
- 504 Vill as Al W ajbah
- Khw arizmi Univ ersity

RESIDENTIAL

Sustainable City

Luxur ious vill as in Dubai

UAE

CHALLENGES

Sustainable City is the fi st private sustainable residential comple x on a massiv e scale. The project consists of 500 villas, a residential apar tment building, a mosque, and retail facilities. Diamond Developer int ended to implement all sustainable featur es in the comple x. AC being the highest consumer of pow er in villas (overall, 70% of the total electr ical load), their key requir ement was to select the most efficient unit especially for the part load oper ation condition. Diamond Developer inquir ed whether the A C units c ould be c ontr olled and monit ored fr om a smar tphone.

SOLUTIONS

LG knew about the impor tance of this fi st ever "net zero energy building comple x" in Dubai from the owner's perspectiv e. Ther efor e, LG proposed the amazing solution with MULTI V IV with top figu es on energy saving in the industr y. LG highlight ed the Auto Dust Remo val featur e that helps to deliv er consist ently high performanc e, even in the harsh dust y envir onment. At the same time, LG MULTI V's standar d compatibilit y which allows users to control and monit or the units via a smar tphone covered all the specifi ations regist ered in the project. After a careful evaluation of all major VRF manufactur ers, Diamond Developer chose L G MULTI V IV.

BENEFIT S

· Diamond D eveloper achie ved the objectiv e of making the fi st sustainable c omple x in the UAE with L G MULTI V IV - **Owner**
· Remarkable ener gy savings that hav e been pr oven t o be the best in the industr y - **End User**
· Consist ent performanc e even in c ase o f low maint enanc e scenar ios - **End User , Facility Management**
· Smar tphone c ontr ol and monit oring - **End User**

Capacity	MULTI V IV Tropic al	Mid Static Duct ed	Fresh Air D X-AHU	Wir ed R emo te Contr oller
25,322kW / 7,200TR	**600** units	**3,600** units	**2** units	**3,602** contr ollers

HOSPITALITY

Hyatt Place Hotel

Business hotel in Dubai

CHALLENGES

Hyatt Place is a modern hotel for business travelers. Due to the refurbishment of the existing complex with an old chilled water system, the connected electrical load was limited and the operating expense was equally important to reduce the life cycle costs. The owner was seeking for a solution that would easily be integrated with the hotel management system required for control, monitoring, and observation of energy consumption of both individual rooms and the entire facility.

SOLUTIONS

LG did a feasibility study between Chiller and the VRF system which ended the client's quest for the best air-conditioning solution and he chose the VRF system. LG selected a highly energy-efficient MULTI V with the lowest connected electrical load of 1.2 KW/TR at 46°C. Moreover, by combining FAHU with the MULTI V condensing unit, the connected load and operating power input were optimized. LG's advanced control system allowed for an integration of the entire air-conditioning system, including fresh air units with hotel BMS.

BENEFITS

· AC electrical load could fit in the available electrical resource - **Contractor**
· Life cycle cost analysis results eliminated the owner's concern about reducing the operating expenses - **Owner**
· Easy integration with the hotel management system using LG's ACP BACnet device - **Facility Management**

UAE

Capacity	MULTI V III Tropical	Mid Static Ducted	Fresh Air DX-AHU	ACP BACnet
2,321kW / 660TR	19 units	330 units	1 unit	2 controllers

COMMERCIAL

WASL Vita

Mixed use development in Dubai

UAE

CHALLENGES

WASL is one of the well-known developers specializing in establishing mixed-use development that consists of a supermarket, retail shop, and restaurants on the ground floor and apartments and a clubhouse on the first floor. With such diverse stores in place, each category of stores had different requirements. For example, the Carrefour Supermarket area required the installation of exposed ducted units, so their main concern was about the ESP and drain height. Other vegetable and food stores needed maintaining a certain low temperature of 16°C with 50% RH to ensure the freshness on the shelf products, without having to worry about continuous cooling. Furthermore, as the outdoor units were to be located right above and near the apartments, the tenants were anticipating low noise condensers.

SOLUTIONS

For similar projects, AHUs and FAHUs served by chillers are usually proposed by manufacturers. Therefore, it was challenging to convert to VRF unless energy saving and footprint reduction were simulated and lower noise level provided by MULTI V system was emphasized. While ducted units equipped with standard and powerful drain pumps are capable of pumping condensed water up to 750mm, MULTI V S was proposed in the apartments with noise level as low as 50dB(A) with an additional Night Silent Operation, reducing it further to 45dB(A) to create a peaceful environment for the tenants. Precise temperature and humidity preserved the food products. The automatic backup feature of the compressor and unit ensured continuous cooling which met the expectation of the client.

BENEFITS

- Undisturbed operation due to redundancy in the units without having to setup other standby units - **Owner**
- Lower operating electrical cost by integrating MULTI V to FAHU/ AHU in common areas - **Owner**
- Low noise operation that ensured a peaceful environment for the tenants - **End User**

Capacity	MULTI V IV Tropical	Mid Static Ducted	Fresh Air DX-AHU	Wired Remote Controller
3,861kW / 1,100TR	**150** units	**520** units	**4** units	**524** controllers

COMMERCIAL

WASL Distr ict

Mix ed use building in Dubai

UAE

CHALLENGES

WASL Distr ict is a large-sc ale comple x featur ing a Souq, residential apar tment building (G+12), offi es, hotel and a museum dedic ated to the medie val hist ory of Dubai. The entir e comple x was built by demolishing the existing communit y. To avoid any damage to the external façade, the archit ect voiced the concern over the location of condenser s and asked whether those could be placed on the roof, as the piping elevation was as high as 60 meters. Also, the spac e w as limit ed, as the units should no t be pl aced near the edge t o av oid being visible t o the public.

SOLUTIONS

Consider ing the space constr aints and piping elevation limits, LG offered a combined solution of MULTI V S to save space wher ein the elevation was below 50 meters, as well as several MULTI V IV units to counter the long piping length issues, thus met all design requir ements of the archit ect by fitting all the condenser s on the roof without affecting the medie val façade and pr ecluding any ph ysical view o f the units.

BENEFIT S

· The ar chit ect e xpressed his appr eciation o f LG's pr oposal that met all his r equir ements without c ompr omising on any design constr aints - **Archit ect**

· High-v alue engineer ing with a mix and match of appr opriate sizes of outdoor units to save space whilst achie ving the long piping length - **Consultant, C ontr act or**

· The owner is satisfied with the o timum ener gy saving o f MULTI V - **Owner**

Capacity	MULTI V III Tropical	Mid Static Duct ed	Wired R emo te Contr oller	ACP
9,847kW / 2,800TR	**700** units	**2,300** units	**2,300** controllers	**10** controllers

COMMERCIAL

Etihad W ater F ront

Mix ed use building in Abu Dhabi

UAE

CHALLENGES

With stringent energy regul ations in Abu Dhabi, the regul atory body known as ESTID AMA had setup the regul ation that any AC manufactur er has to meet certain COP ratings in order to be listed on the vendor list and become eligible for design the project. The cust omer's main concern was individual billing to the shop tenants which he belie ved was only possible if installed with chiller s, rather than with VRF .

SOLUTIONS

LG's whole commer cial and residential lineups are appr oved and listed in ESTID AMA. LG provided the best solution on individual energy monit oring by proposing PDI (Power Distribution Indic ator) that measur es individual unit's pow er consump tion combined with the inverter compressor running ratio through an accurate formul a derived from the adv anced oper ation logic. This yielded more precise results than those available with the Chiller Btu met ering syst em.

BENEFIT S

· The entir e r ange o f indoor units nic ely blended with the aesthetic s of the shops - **End User**
· Individual pow er monit oring - **Owner**
· ESTID AMA c omplianc e and gr een building points - **Owner**

Capacity				
3,165kW / 900TR	MULTI V IV Tropic al **46** units	Mid Static Duct ed **550** units	Fresh Air D X-AHU **8** units	Wired R emo te Contr oller **558** controllers PDI **3** controllers

OFFICE

Book Oasis

Office building in Sharjah

UAE

CHALLENGES

With education being top priority in the UAE, the government makes considerable investments in raising the reading habits of the people and the new library called “Book Oasis” supports this initiative. Considering the importance of cooling and humidity factors in terms of appropriate book preservation, especially the scriptures and old manuscripts, the owner was searching for a back-up of units which would lead to the original design with chillers.

SOLUTIONS

The consultant designed the building on chillers and reserved the right to introduce minute details on the VRF proposal provided by LG. He was impressed by LG’s response providing convincing evidence on VRF being a better option than chillers. Some of the key factors were the in-built back-up of the compressor and unit, a lowest possible noise level, and humidity control solution with a combination of MULTI V and AHU. Apart from these advantages, the customer was made aware of the consequences of water leakage in chilled water piping.

BENEFITS

· Creating a very low noise level environment in the library - **End User**
· Humidity control installed to preserve the antique literature - **Owner**
· Inbuilt compressor and unit back-ups that are activated in emergency - **End User , Facility Management**

Capacity				
9,496kW / 2,700TR	MULTI V IV Tropical	High Static Ducted	Fresh Air DX-AHU	AC Smart IV
	650 units	**2,100** units	**4** units	**4** controllers

RESIDENTIAL

Dar Al W ASL

Luxur ious c ommunit y de velopment in Dubai

CHALLENGES

The entire comple x consists of 166 villas, 112 apar tments, a clubhouse, as well as retail shops, and restaur ants. The developer aimed to make it as a luxur y residential comple x where everything is within the reach of residents. To give it a delux e touch, the world's most energy efficient air- conditioning syst em had to be in place to not only keep the electr ic load low, but also to be combined with 100% treated fresh AHU requir ed in the apar tment building to comply with the Dubai municipalit y requir ements. One o f the pr e-requisit es c oncerned maint enanc e.

SOLUTIONS

LG's design team work ed to produc e the most efficient design for the apar tments and retail shops, so that the units mostly oper ate on par tial load when some of the apar tments and retail shops remain unoc cupied. With a COP of 4.39 at 46°C, 50% of the connect ed load for energy consump tion was reduc ed, which gratified the client. Dubai municipalit y (ESMA) appr oved the entir e project with a combination of MULTI V and fresh AHU. Finally, the unique Auto Dust Remo val featur e added an e xtra adv antage t o the final p oposal.

BENEFIT S

- ESMA appr oved syst em char acterized by high energy efficiency ensur es that right product is installed in the project - **Owner, Consultant**
- Stand-alone fr esh air solution with L G's MULTI V and D X-AHU sav ed a lo t on the c apital c ost t o setup BMS in all apar tments and vill as - **Owner, Contr actor**
- The maint enanc e cost w as low ered by L G's exclusiv e Aut o Dust R emo val t echnology - **Facility Management**

Capacity				
8,915kW / 2,540TR	MULTI V IV Tropic al	Mid Static Duct ed	Fresh Air D X-AHU	Wir ed R emo te Contr oller
	278 units	**1,714** units	**2** units	**1,716** contr ollers

RESIDENTIAL

Emirates Crew Accommodation

5(G+25) apartment buildings in Dubai

UAE

CHALLENGES

The project is for Emirates Crew Accommodation, a most prestigious project. Due to the fact that the client was in charge of paying the electricity bills, his major concern was energy efficiency of the system in comparison to competing brands. Designed with an elevation of 95 meters, longer piping length between outdoor units and indoor units and the limited space on the roof against the required capacity were the main challenges.

SOLUTIONS

LG engineering team worked with the consultant/client to prepare a detailed feasibility study between VRF & air-cooled chillers and specified the advantages of the LG MULTI V system as compared to other systems/brands, highlighting the significant operational cost savings. Additional benefits included a smaller foot print area that would nicely fit the roof top to 16 floors and other condensers to be installed on a small space on the ground floor that would serve the 7 floors above without any limitations on the piping. To support the design and to confirm the flawless operation, LG offered the CFD analysis from Korea; as a result, the consultant entrusted the client to make a decision based upon the extraordinary support from LG.

BENEFITS

· Lower capital & operational cost - **Owner**
· Value engineering to optimize the space usage by dividing the systems and conforming location to the project design - **Owner**
· CFD analysis to ensure flawless operation - **Owner, Consultant**

Capacity	MULTI V III Tropical	Mid Static Ducted	Fresh Air DX-AHU	Wired Remote Controller
21,102kW / 6,000TR	**318** units	**3,095** units	**10** units	**3,105** controllers

RESIDENTIAL

The P olo R esidenc e & Townhouse

Apar tment buildings in Dubai

UAE

CHALLENGES

The Polo Residenc e & Townhouse is a fusion of traditional and modern architectur al concepts. The cust omer was looking for a reliable and fl xible cooling solution. There are parking and green spaces outside, whereas its roof areas are mainly occupied with solar panels and a water boiler, thus barely leaving a space to install the units. The key selling points to make these vill as attr active to the cust omer w ere ener gy ef ficiency and quiet sur oundings.

SOLUTIONS

With the limit ed space on the rooftop, owing to MULTI V S with a width of 380mm, LG managed to install 2 outdoor units. It fit ed nicely into the allocated space without any alterations of the design, which fully met the expectations of the consultant and the architect. Anot her issue about the noise was properly addressed by proposing low static ducted units with a sound pressur e level of 30dB A. It is not only the quiet est unit among all the brands, but also, with a height of just 190mm, the slimmest one. Simil arly, the outdoor units have the lowest noise level in the industr y and come with the Night Silent Mode oper ation as the in-built featur e which fur ther eliminat es the noise t o a le vel wher e user s cannot even per ceive the pr esenc e of a unit.

BENEFIT S

· Small foo tprint for install ation o f out door units due t o limit ed spac e - **Archit ect, C onsultant**
· Low noise o f indoor units and out door units fully mat ched the quiet surr ounding c oncept of the vill as - **Owner**
· LG technic al team w as alw ays on sit e to suppor t the star t-up and the c ontractor's engineer s were invit ed to LG Hub Academy t o receive training t o qualif y as VRF installer s - **Contr act or**

Capacity				
17,937kW / 5,100TR	MULTI V S Tropical **105** units MULTI V IV Tropical **185** units	Mid Static Duct ed **2,850** units	Fresh Air D X-AHU **29** units	Wired R emo te Contr oller **2,879** contr ollers

RESIDENTIAL

504 Vill as Al W ajbah

Premium vill as in Al W ajbah

HIGH EFFICIENCY · 55℃ · Ocean Black Fin

QATAR

CHALLENGES

This project called for a great effort on part of LG, as it was already designed on single splits; by contrast, designing with VRF would lead to huge savings in terms of install ation space and energy consump tion. The owner wanted an assessment of the adv antages and the associat ed c ost o f the r edesign and r earr angement o f the structur e with VRF inst ead o f single splits.

SOLUTIONS

LG appr oached the consultant and client at the same time by prepar ing the compar ison that show ed the aerial view wher e one could see a lot of piping, wiring, and condenser s on the roof of each villa and another view that shows just one MULTI V outdoor unit with one small pair of piping. As the owner grew aware of the aesthetic difference in the appear ance of these premium villas yielded by the proposed solution, the AC design with single split was changed to LG MULTI V. Aside from the tidy install ation process, ener gy savings were beyond the consultant' s expectations and Aut o Dust Remo val function was on a par with the facilit y management' s concern about maint enanc e int ervals.

BENEFIT S

- Lucr ative savings as c ompar ed t o any single split unit in t erms o f install ation, as w ell as running c ost - **Owner, End User**
- Hassle- free with few er changes in c onverting the design fr om single splits t o VRF due t o extensiv e suppor t from the L G engineer ing t eam - **Consultant, Ar chit ect**
- Cor e satisfaction t o all the stak eholder s including facilit y management t eam who found the Aut o Dust R emo val featur e truly impr essiv e and help ful - **Facility, Management**

Capacity				
26,378kW / 7,500TR	MULTI V S Tropical **1,013** units MULTI V IV Tropical **23** units	Mid Static Duct ed **4,585** units	Fresh Air D X-AHU **4** units	Wired R emo te Contr oller **4,589** contr ollers

EDUCATION

Khwarizmi University

University in Abu Dhabi

UAE

CHALLENGES

The clients had the following 5 key requirements for selecting an air-conditioning brand: 1) Low noise indoor and outdoor units; 2) Clean & fresh; 3) Evident energy savings; 4) ESTIDAMA approved; and 5) Back-up function to prevent a complete switch off of the air-conditioning and service response within 24 hrs.

SOLUTIONS

MULTI V Tropical was suggested, as it was found to be the perfect fit system for the project. It offers 55dBA at the outdoor units and 36dBA at the indoors which satisfied the first requirement. The second requirement was projected as significant in order to provide an appropriate academic atmosphere to the students. LG met this key requirement by proposing FAHUs interconnected with MULTI V. Thirdly, LG provided the simulation data through LEEP (LG Energy Efficiency Program) and it proved that annual energy consumption of the LG proposal is about 30% less than that afforded by the conventional air-cooled chillers. The fourth factor was addressed by submitting the ESTIDAMA accreditation on MULTI V. Finally, the fifth concern on redundancy was addressed by the MULTI V auto-backup feature applicable to the compressor and the unit.

BENEFITS

- LG provided a significant support to the contractor, from the installation to the start up stage, and guaranteed field reporting within 24hr upon receiving a complaint - **Contractor, Facility Management**
- Successive solution to all the issues / concerns pertaining to the project design, installation, and troubleshooting - **Owner, Consultant, Contractor**

Capacity	MULTI V IV Tropical	Mid Static Ducted	Fresh Air DX-AHU	Wired Remote Controller
4,326kW / 1,230TR	**29** units	**770** units	**2** units	**772** controllers

IRAN

· Zandieh Ho tel
· Iran Ho tel
· Golden Towers
· Kish Twin Towers
· Madoben

HOSPIT ALIT Y

Zandieh Ho tel

Traditional ho tel in Shir az

IRAN

CHALLENGES

The client's top priority was a high energy efficiency of the air-conditioning system to reduce the investment & operation costs. As the building is huge and diversified for multi-pur poses, a further requirement concerned some areas in the building with low ceilings : specifi ally, the indoor unit design had to be modern and slim to fit in the interior. Management also insist ed that the air-conditioning units should run very quietly to prevent any disturbanc e to their v aluable guests. They also r equest ed for a c ontrol solution t o super vise a r emo te oper ation o f the unit.

SOLUTIONS

By offering unrivaled operational efficienc , low power consump tion, and minimum maint enanc e costs, MULTI V kept energy loss at a minimum and the calcul ations revealed the unbeatable energy efficiency values when the syst em was operating in part-load or low-load conditions. The design team also helped the consultant with extraordinar y install ation fl xibilit y to offer multiple ways to install indoor units in order to meet the needs of each part of the building in the most optimiz ed w ay.

BENEFIT S

· Zandieh hotel owner expressed his appr eciation of the interactiv e suppor t of the LG team, from the design stage till to the install ation stage - **Owner, Contr act or**

· Remarkable ener gy savings w ere no ted - **Owner**

Capacity				
1,284kW / 365TR	MULTI V III Heat Pump	High Static Duct ed Cassett e Wall Mount ed	Fresh Air DX-AHU	Wired R emo te Contr oller
	22 units	**145** units	**7** units	**152** contr ollers

HOSPIT ALIT Y

Iran Ho tel

Iconic ho tel in Kish

IRAN

CHALLENGES

Located on an island and designed based on modern style concepts, the owner's priority was the beautiful exterior of the hotel that would match the island's gorgeous scenery. Another requirement was the minimal space occupation of the air-conditioning system. The overall load was high, since the temperature conditions are harsh on the Kish Island and the system needed t o be designed at 46°C.

SOLUTIONS

LG's MULTI V Tropical series was a magnifi ent response to all the client's requests. Designed to operate till 55°C without tripping and overheating, this certified performanc e ensured optimum cooling inside the hotel and achieved the ideal comfor t level for hotel guests. The issue of less spacious and fewer shafts was no concern to LG, owing to the long piping specs of MULTI V which used limited shafts on just one side of the building and catered wide spread rooms in all dir ections.

BENEFIT S

· The owner w as content with L G's solution that did no t compromise on the building design - **Owner**
· LG's Tropical ser ies o f MULTI V ensur es a high performanc e even in har sh w eather c onditions - **Owner, End User**
· Long piping length allow ed install ation fl xibilit y - **Contractor**

Capacity	MULTI V III Tropical	High Static Duct ed	Wired R emo te Contr oller	AC Smar t IV
1,424kW / 405TR	**23** units	**147** units	**147** controllers	**1** controller

RESIDENTIAL

Golden Towers

Premium apar tment building in Kish

55°c

110m

Ocean Black Fin

IRAN

CHALLENGES

Although the building is huge and thus requires many outdoor units, the developer wanted to use the rooftop area for the communit y, e.g. a swimming pool or a play area, rather than to use it for the install ation of outdoor units. Thus, the developer's main concern was to avail minimal space for the air-conditioning system. Additionally , they wanted an individual electr icity met ering syst em per apar tment.

SOLUTIONS

LG proposed the individual system per apartment with outdoor units located on the balcony, so rooftop spaces were reserved for the communit y and the individual metering issue was also resolv ed. Owing to LG MULTI V's low noise oper ation (52dB A in day time and 49dB A in night time), it does not create any disturbanc e to the residents. To ensur e high qualit y install ation, L G also o ffered e xcellent field enginee ing ser vices, lik e commissioning and on-sit e training.

BENEFIT S

· LG's idea gener ation addr essed all cust omer's concerns about the install ation spac e and met ering - **Owner**

· Low noise oper ation was so effectiv e that end users were unfaz ed by the outdoor units' oper ation on the balcony - **End User**

· Commissioning and star t-up suppor t ensur ed high qualit y install ation - **Contr act or**

Capacity				
1,758kW / 500TR	MULTI V III Tropic al	High Static Duct ed	Wired R emo te Contr oller	AC Smar t IV
	77 units	**151** units	**151** controllers	**2** controllers

RESIDENTIAL

Kish Twin Towers

Luxur ious apar tment building in Kish

IRAN

CHALLENGES

This is the highest building on the Kish Island. The main purpose of this apartment complex is providing a holiday home for the people dwelling on the mainland. The biggest constraint of the structural design was the elevation (95 meters); in addition, an easy access to the electrical breaker of the indoor unit for end users was required. The owner also wanted an individual billing system.

SOLUTIONS

LG MULTI V's excellent feature of 110-meters elevation surpassed the competition. In addition, it allowed extra space on the rooftop for the community by installing the outdoor units on a beamed structure raised on the rooftop. LG also offered IPM (Independent Power Module) to prevent potential damage(s) of the evaporator by closing EEV (Electronic Expansion Valve) in the event when the tenants turn off the unit from the breaker. Finally, LG's proposal of PDI (Power Distribution Indicator) enabled individual billing. The customer confided in LG's on-site engineering support like startup, on-site training, and the commissioning team visit from Korea.

BENEFIT S

· LG's PDI solution offers an accurate reading of power consumption - **Owner**
· Long piping elevation freed up the entire space on the rooftop - **Owner, End User**

Capacity
12,661kW / 3,600TR

MULTI V III Tropical	High Static Ducted	Wired Remote Controller	ACP IV **6** controllers AC Manager IV **1** controller Independent Power Module **1,231** controllers
265 units	**1,231** units	**1,231** controllers	

RESIDENTIAL

Madoben

Residential building in Namakabrud

CHALLENGES

'Lavish Living' is what defines the people who live in this building due to its beautiful architecture surrounded by nature. With the entire façade made of glass, there was no space to put the outdoor units which scrapped the idea of using splits. Due to the limited space on the rooftop, a chiller was not an option either, so the client was looking for a viable solution that would perfectly fit and blend in with the design; energy saving was the next major concern. Even though the building was surrounded by nature, the design limitations on the buildings did not allow windows, so fresh air solution was another requirement.

SOLUTIONS

Owing to the unparalleled specification of LG MULTI V that can cover up to 110 meters of elevation, all the outdoor units were installed on the rooftop. With refrigerant pipe size not exceeding 3/4 inch and 1-5/8 inch of liquid and gas, respectively, the shafts did not have to be big, hence providing more space to the living spaces. Ultimately, fresh air solution was also equipped with the same MULTI V outdoor units, thus completing the entire solution as well as accomplishing the energy savings aspired by the owner of this posh building.

BENEFIT S

- Design and operation were perfectly aligned with the use of MULTI V - **Owner**
- Less footprint area of 0.94m ^{2} and longer piping lengths resolved all the issues related to installation - **Architect, Contractor**
- Individual controller for each room with nicely illuminated LCD - **End User**

IRAN

Capacity	MULTI V Plus II	Low Static Ducted	Fresh Air DX-AHU	Wired Remote Controller
4,055kW / 1,153TR	119 units	810 units	2 units	812 controllers

TURKEY

- Tuzla Holiday Inn Hotel
- Pırlanta Çamlıca Houses
- Mesa Meskenler Çamlıca House
- Gebze Technical University

HOSPITALITY

Tuzla Holiday Inn Hotel

Business hotel in Istanbul

TURKEY

CHALLENGES

Holiday Inn is a well-known global hotel chain with affordable prices yet offering the best quality and comfort to its guests. The owner was highly interested in modern, highly efficient systems as an alternative to the older massive chilled water system. Additionally, the owner wanted restricted temperature control from the thermostat and the auto-off function during vacancy.

SOLUTIONS

When LG demonstrated to the client the default energy savings that can be achieved with MULTI V's average cooling EER of 5.20 and heating COP of 5.74 with IEER of 7.54, that was the decision-making moment for the client. Moreover, the temperature lock function, hotel card key, and window switch interlocking solution covered all customer requirements in terms of energy savings. Additionally, emergency stop in the case of fire was an added advantage to select MULTI V in this branded hotel project.

BENEFITS

- Low capital cost and lower electricity consumption costs - **Owner**
- Temperature lock feature which does not allow the guests to tamper with the settings as an add-on to the energy saving factor - **Owner**
- Alternative interlocking with the card key and window switch emerged as the perfect solution for any hotel in the world - **Owner**

Capacity			
1,220kW / 347TR	MULTI V Water IV	High Static Ducted	Wired Remote Controller
	13 units	**140** units	**140** controllers

RESIDENTIAL

Pırlanta Çamlıca Houses

Luxurious apartments in Istanbul

TURKEY

CHALLENGES

People always seek to pursue a luxurious lifestyle. This project is one of the results delivered by Erkan developer in Turkey. The primary concern of the developer was a small footprint, low noise, and reliability. Rooftop design constrained the outdoor unit installation, so a long piping was required from the allocated space to each house.

SOLUTIONS

LG MULTI V's long piping specification covered multiple houses from allocated outdoor unit installation space and its features, including the highest cooling EER, unbeatable heating COP, low noise, and small footprint convinced the customer. LG's offer on excellent commissioning and fast service response ensured a high-level comfort of the residents whilst maintaining the developer's good reputation as a luxury house provider.

BENEFIT S

· Flexible construction design through LG MULTI V's long piping feature - **Architect, Consultant**
· Low noise level of indoor and outdoor units comforts the residents - **End User**
· Commissioning and fast service response ensured reliability - **Contractor, Facility Management**

Capacity	MULTI V IV Heat Pump	Low Static Ducted	Wired Remote Controller	AC Smart IV
1,074kW / 305TR	**39** units	**252** units	**252** controllers	**2** controllers

RESIDENTIAL

Mesa Mesk en Çamlıc a House

Premium apar tments in Istanbul

TURKEY

CHALLENGES

Mesa Mesk en is one of the most prestigious developers and Mesa Camlic a is one of their most ambitious projects consisting of 112 apartments surrounded by green spaces. Customer emphasiz ed on finding a system which would not use CFC gases that are harmful for the environment. At the same time, the developer required a system with quick responsiv eness to the residents' needs. Home automation integration via KNX was a mandat ory requirement from the c onsultant.

SOLUTIONS

LG MULTI V has a low carbon footprint. Its eco-friendly refrigerant R-410A has 0 ODP (Ozone Depletion Potential) which meets the green building requirements. With all inverter technology and advanced control logic, the unit was a perfect response to the customers' requirements of quick cooling and heating. Its fl xible integration with the KNX protocol allows full c ontrol of the syst em by its end user s.

BENEFIT S

- LG MULTI V not only allows energy savings, but also serves as an environmentally- friendly unit with its eco-friendly refrigerant and low c arbon foo tprint - **Owner, Consultant**
- Instantaneous c ooling and heating at the initial star t-up o f the unit - **End User**
- Affirmed Integration with KNX and stand-alone c entralized controller made it a perfectly appr opriate syst em for this pr oject - **Consultant**

Capacity				
3,074kW / 874TR	MULTI V IV Heat Pump	Low Static Duct ed	Wired R emo te Contr oller	LG KNX **112** controllers
	112 units	**791** units	**791** controllers	AC Ez **112** controllers

EDUCATIONAL

Gebze Technical University

University in Istanbul

TURKEY

CHALLENGES

Gebze is one of the renowned universities in Turkey. They also have a strong trust in LG for more than 10 years. In conjunction with global energy saving trends, Turkey energy regulations have recently become more stringent. Therefore, Gebze specified the need for a new system with a lower energy consumption than the one afforded by the conventional system.

SOLUTIONS

The project was fast-paced, so LG pro-actively engaged in the design stage. LG proposed the most energy-efficient MULTI V with remarkable EER. Additionally, MULTI V can be interconnected with AHUs to provide fresh air inside the building, serve conference halls and auditoriums, and even control humidity level in the labs, thus satisfying steadfast needs of the customer.

BENEFITS

- Engagement at earlier stages to predict the load and deliver the units on time - **Consultant, Owner**
- The customer was content with the partial load efficiency of the system which would benefit him during seasons with less load operations - **Owner**
- One system offered different solutions for various zones matching specifications of individual applications - **Owner**

Capacity	MULTI V IV Heat Pump	Ceiling Cassette	Wired Remote Controller	AC Smart IV
2,850kW / 810TR	**64** units	**600** units	**600** controllers	**6** controllers

LEVANT

· Korean Embassy
· Dar-Al-Handasah Of fi e
· Beirut 700
· Raouche 1090
· Damac Tower
· Queen Alia Hospital

OFFICE

Korean Embas sy

Government building in Baghdad

IRAQ

CHALLENGES

Located in Baghdad, the customers were highly concerned about product quality, complete commissioning, and easy maintenance. This fact shortened the relevant brands list to under top 3 tier brands. In addition, the customers stressed low energy consumption, reliability, and back-up function to prevent the entire system off. Finally, they wanted to control & monitor the units from a centralized location, but the controller was expected to operate as a stand-alone without any laptop or computer connection.

SOLUTIONS

LG MULTI V's unparalleled energy saving was substantiated with real-time energy consumption results from actual installation sites which was considerably lower than those offered by the other 2 brands on the client's short list. The splendid installation sites of LG MULTI V in other Korean embassies (located in Kuwait & Malaysia) also made the customers to opt for LG systems. Some unique features like Auto Dust Removal archived the multi benefits of this system and eliminated the uncertainty over maintenance issues. LG proposed the web-embedded touch screen, AC Smart, which not only allows the centralized control from the same location, but also lets the owner alter and track various operational parameters from a remote location.

BENEFIT S

· Convincing real-time energy efficiency esults and robust performance with LG's exclusive Auto Dust Removal feature - **Owner**
· Other installations of LG MULTI V at Korean embassies in Kuwait and Malaysia boosted the confidence of the customer - **Owner**
· Centralized control, error reporting, and tracking on a centralized stand-alone controller - **Owner, Facility Management**

Capacity	MULTI V IV Tropical	High Static Ducted Cassette	Wired Remote Controller	AC Smart IV
879kW / 250TR	**40** units	**127** units	**127** controllers	**2** controllers

OFFICE

Dar-Al-Handasah Office

Consultant office building in Amman

HIGH EFFICIENCY · LGMV

JORDAN

CHALLENGES

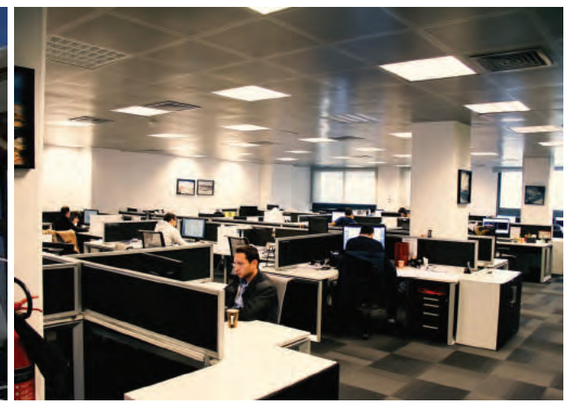
Dar-Al-Handasah is a famous international consulting company covering architecture, engineering, planning, environment, project management, and economics. The company originated from Lebanon with five design centers in Beirut, Cairo, London, Pune, and Amman, as well as 45 regional operation offices in 30 countries throughout the Middle East, Europe, Africa, Asia, and Commonwealth of Independent States (CIS) countries. They have delivered several marvelous architecture projects and the firm ranks among the world's top design consultants. Their design mandatorily incorporates the green building concept which brings in stringent evaluation criteria to qualify, even for the most energy-efficient products in their projects.

SOLUTIONS

This project is an achievement in its own, as it is Dar Al Handasah's own building. LG embraced the challenge of comparing the energy efficiency of LG MULTI V IV with other brands and resulted as the top most energy-efficient product. LG has a proven track record of helping consultants and their projects to acquire LEED certifications all over the world, so some examples of global accomplishments were presented to the client. This assisted them to finally select LG based on the primary comparisons of energy efficiency among various VRF manufacturers. Furthermore, LG's real-time design software LATS-CAD helped the consultant to more precisely estimate the project cost as compared to others using just tree selection software or Excel sheets.

BENEFITS

- With more than 50 reference sites, LG MULTI V helped the stakeholders to obtain the LEED certification - **Owner, Consultant**
- Easy design through LATS CAD helped locating the outdoor and indoor units in real time while calculating the corrected kW to be offered by the system (outdoor and each indoor unit) considering the deration factor - **Consultant**
- The ESP feature of LG's ceiling concealed ducts enabled matching the static pressure as required - **Consultant, End User**
- A digital touch screen controller provided a clean, smart control and monitoring options - **Consultant, End User**



Capacity	MULTI V IV Heat Pump	High Static Ducted	Wired Remote Controller	AC Smart IV
588kW / 167TR	**6** units	**60** units	**60** controllers	**1** controller

RESIDENTIAL

Beirut 700

High r ise apar tment building in Beirut

CHALLENGES

Loc ated on the shor e of Beirut, overlooking Beirut Lighthouse with a breathtaking sea view, this 23-st ory tower offers apar tments of various sizes to accommodat e tenants with varying needs. The owner aspired to mak e this building the best in terms of ener gy efficiency and potentially looked for units with high corrosion resistanc e characteristics to sav e on the life cycle c ost.

SOLUTIONS

Ener gy saving, being the top priority for the cust omer, was efficiently deliv ered by LG MULTI V IV due to various proprietar y technologies such as HiPOR, Activ e Refrigerant Contr ol, and Variable Heat Exchanger. The gold fin heat exchanger is LG's internally certified technology that has passed stringent testing conditions complying to "KS-D9502" that requir es passing after 1000 hour s of salt spray test without corrosion, ensur ing thus top-cl ass reliabilit y even in the c oastal envir onment. This c omfor ted the owner t o choose L G MULTI V for his pr estigious building.

BENEFIT S

- Unbeatable ener gy ef ficiency a crued the savings with time - **Owner**
- Corr osion resistant heat exchanger that extends the life span of the unit and decr eases the life cycle c ost - **Owner**
- Combination o f duct ed and w all mount ed indoor units that mat ch individual design and siz e of each r oom - **Consultant, End User**

LEBANON

Capacity				
2,096kW / 596TR	MULTI V IV	High Static Duct ed Wall Mount ed	Wir ed R emo te Contr oller Wir eless R emo te Contr oller	ACP
	44 units	**460** units	**460** contr ollers	**2** contr ollers

RESIDENTIAL

Raouche 1090

Premium apar tment building in Beirut

CHALLENGES

Inspir ed by the eco-friendly concept, the consultant and architect's intentions were to use the rooftop space as a communit y's get-together place; therefore, certain amenities such as swimming pool, a BBQ place, and a playground area for kids were designed, all of which restricted the install ation of AC equipment on the rooftop with no designat ed machine floo s in the building.

SOLUTIONS

After a detailed analysis of the structur e, LG concluded that the only space left for the outdoor units was the small veranda with a parapet which is the part of each apar tment. The challenge was serious, but owing to the low depth of LG MULTI V outdoor units, the units easily fit in that small space. With the heat exchanger facing outside, LG proposed designing a special dischar ge air guide with exit towards the rear of the units and exit louvers facing upwards so that the hot dischar ge air does not mix up with the suction air. The high static mode of 100pa, verified with complementar y CFD analysis, o vercame the ho t air cir cul ation issue.

BENEFIT S

· Less foo tprint o f the units allow ed for the e xcellent fit in the small spa e - **Consultant, Ar chit ect**
· Fir e al arm int egr ation as a par t o f apar tment building safet y - **End User , Facility Management, C onsultant**

LEBANON

Capacity				
3,360kW / 955TR	MULTI V III	High Static Duct ed Wall Mount ed	Wir ed R emo te Contr oller Wir eless R emo te Contr oller	ACP
	42 units	**439** units	**439** contr ollers	**2** contr ollers

RESIDENTIAL

Damac Tower

Iconic apar tment building in Beirut

LEBANON

CHALLENGES

DAMAC is one of the renowned developers in the Arab World and it is expanding its business to other parts of the world like the United Kingdom. The developer has its own stringent criteria to select the best consultants and contracting companies to execute the project. This building offers free hold apartments to local people, but is fully loaded with high-tech digitalized equipment. Therefore, the brand selection criteria were based on the scale of energy savings that can be achieved and the compliance with rigorous BMS specifications.

SOLUTIONS

When LG submitted the technical data, the consultant appreciated the amazing energy efficiency of 0.75kW/TR delivered by MULTI V. In addition, case studies from Korea with PDI recorded data about the overall power consumption per month and per year were also provided. This complied with the client's BMS requirement with regard to not only the indoor unit data, but also the outdoor unit component status view, such as the compressor, fan and valves followed by a long list of errors/alarms that would inform the facility management team about emergent issues, thus allowing them to take proactive rectification measures.

BENEFIT S

· Tremendous energy savings far beyond the owner and the consultant's expectations - **Owner, Consultant**
· Co-work with BMS and executing JMT (Joint Matching Test) on site until all the controlling/monitoring points started functioning as required - **Contractor, BMS Provider**

Capacity	MULTI V III	High Static Ducted	Wired Remote Controller	ACP BACnet
2,632kW / 748TR	**50** units	**476** units	**476** controllers	**2** controllers

HEALTH CARE

Queen Alia Hospital

Militar y hospital in Amman

JORDAN

CHALLENGES

As the hospital is always filled with patients, airborne bacteria pose a constant threat. This hospital needed a highly reliable solution to improve indoor air quality and to reduce airborne infection. The client was strongly interested in securing a dependable air-conditioning solution equipped with highly efficient air filters that could significantly improve the indoor air quality. Another major requirement was simultaneous cooling and heating to maintain different temperatures for various areas, such as in-patient rooms, operation theaters, lobby etc.

SOLUTIONS

LG MULTI V IV Heat Recovery System was proposed to connect the individual indoor units across the hospital. The Heat Recovery System enables the indoor units to operate independently in either cooling or heating mode to maintain different temperatures in each zone. The PLASMA Air Purifying System, developed uniquely by LG, not only eliminates microscopic contaminants and dust, but also prevents allergic diseases like asthma. With an additional fiber filter that can be cleaned by simple washing, patients enjoy clean and fresh air inside the hospital and the owner does not have to bear the cost of regular pollen filter changes.

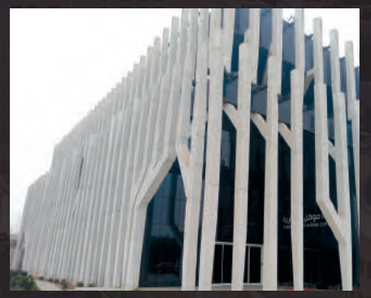
BENEFIT S

· Comfortable individual zones in the hospital with the MULTI V Heat Recovery System - **End User**
· High quality filtation providing users a comfortable environment with a significantly improved IAQ - **End User**

Capacity				
1,691kW / 480TR	MULTI V IV Heat Recovery	High Static Ducted Cassette	Wired Remote Controller	BAC Net 1 controller
	44 units	232 units	232 controllers	AC Smart IV 1 controller

SAUDI ARABIA

- Hilton Double Tree
- Majdoul Tower
- Al Hokair Group
- Mawten Real Estate
- Shaker Group – Head Office
- El Seif Engineering Office
- Bnoon IVF Center
- Khaleej Center
- Tarbia School



HOSPITALITY

Hilton Double Tree

Airport hotel in Medina

SAUDI ARABIA

CHALLENGES

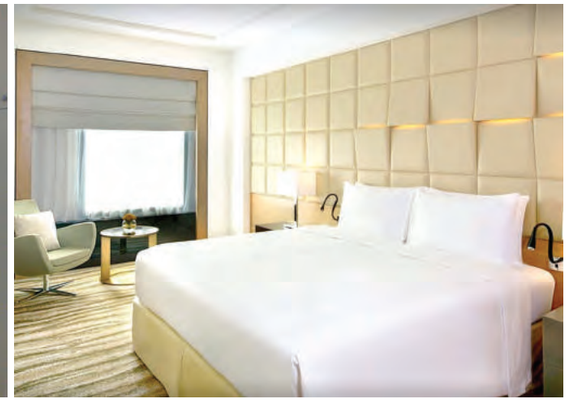
Located in the heart of the city and on the road to airport, the hotel seeks to provide the utmost comfort to the customers from all over the world. Being a prestigious brand from the USA, Hilton had to comply to certain refrigerant leakage regulations, such as ANSI/ASHRAE 15 and ANSI/ASHRAE 34, for which the only option was a chilled water system. Apart from the regulations, mandatory requirements of integration with RMS (Room Management System) and BMS were presented during the design stage.

SOLUTIONS

LG, a pioneer in the VRF solutions, proposed and designed a complete system that detects the refrigerant leakage via LG's R-410A refrigerant detector sensor and raises alarm to notify the customer accordingly. Closing the stopper valves prevents hazardous refrigerant amount from entering the room. Moreover, the fact that solutions provided by LG complied with ANSI/ASHRAE15 and ANSI/ASHRAE34 gave the edge to decision making. LG has already mastered the BMS integrations, so LG's ACP BACnet connection and point matching was just a matter of plug and play.

BENEFITS

- First hotel in the KSA installed with VRF complying with strict refrigerant-related regulations - **Owner, Consultant**
- RMS solution by integrating the systems with BACnet - **Contractor**
- Connection of hotel room card key holders to control the operation of units depending upon the occupancy of rooms, thus saving considerable amount of energy - **Owner**



Capacity
2,834kW / 806TR

MULTI V IV Tropical **6** units	High Static Ducted Low Static Ducted	Wired Remote Controller	ACP BACnet
MULTI V III Tropical **21** units	**365** units	**365** controllers	**2** controllers

COMMERCIAL

Majdoul Tower

52 st orey high r ise mix ed use building in Riy adh

CHALLENGES

This large building is mar velously structur ed and is the fi st ever twist ed tower in the KSA. It's a 52-st ory mix ed-use building equipped with all luxur ious amenities. The owner did not want to put any equipment that will jeopar dize the building construction and its premium image. Ther efore, the selection process was rigor ous and competition was tough against the r etro designing c oncepts with the chilled w ater syst em.

SOLUTIONS

LG commissioned a top-le vel engineer ing team to this project to run a feasibilit y study befor e proposing MULTI V. Multiple proposals were gener ated in alignment with the archit ectur al design and the consultant' s request until the common conclusion was made to use the 26th and 27th floo s as mechanic al floo s whe re all the condensing units would be placed. This obviously called for a CFD analysis to be done, which result ed in several mor e changes, such as remo val of sand traps from the louvers causing a temper ature increase of 4~5℃. For the concern regar ding fresh air circulation, LG MULTI V and DXAHU combination covered those ar eas and ideally addr essed o ther c oncerns lik e int egrating the entir e syst em t o BMS.

BENEFIT S

· As the fi st high-r ise t ower in the KSA with the MUL TI V t echnology , end-user s fully appr eciat ed the impor tanc e o f ener gy savings as c ompar ed t o chiller s, highly v alued the design, and e xpressed their deep gr atitude t o the de veloper - **Owner , End User**

· Involvement o f high le vel engineer ing t eam and working t ogether with the stak eholder entrust ed a true engineer ing suppor t - **Consultant, C ontr act or**

SAUDI ARABIA

Capacity				
11,480kW / 3,264TR	MULTI V IV Tropic al	High Static Duct ed	Fresh Air D X-AHU	ACP BACnet
	137 units	**1,415** units	**9** units	**8** contr oller s

OFFICE

Al Hokair Gr oup

Modern o ffi e building in Riy adh

55℃ Ocean Black Fin

SAUDI ARABIA

CHALLENGES

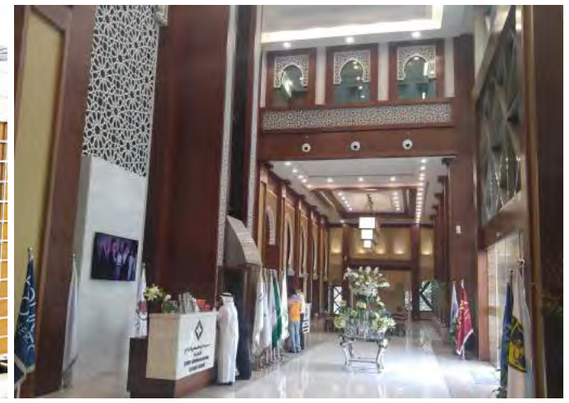
After the government announc ed an increase of electr icity tariffs for all commer cial buildings, the owner's focus was centered on energy efficienc . Due to the limit ed space on the rooftop and efforts to save water, the chilled water syst em w as no t a viable op tion, so the owner hesitat ed bet ween the alt ernativ e op tions o f VRF and single splits.

SOLUTIONS

LG got engaged in the project at a very early stage. Brainst orming on the best feasible solution was done during the concept stage with relevant parties. What LG proposed was very well accredit ed by the owner as the best energy efficient solution that ould fit in the allo ated spac e (as most o f the spac e w as designed with the gr een c oncept).

BENEFIT S

· LG's engagement at the initial c oncept stage o f the pr oject eliminat ed v arious doub ts and thus helped the pr oject holder s to find the most o timiz ed solution - **Owner, Consultant, C ontract or**



Capacity				
1,294kW / 368TR	MULTI V IV Tropic al	High Static Duct ed 4 w ay Cassett e	Wir ed R emo te Contr oller	AC Smar t IV
	14 units	**117** units	**117** controllers	**1** controller

OFFICE

Mawten Real Estate

Office building in Riyadh

SAUDI ARABIA

CHALLENGES

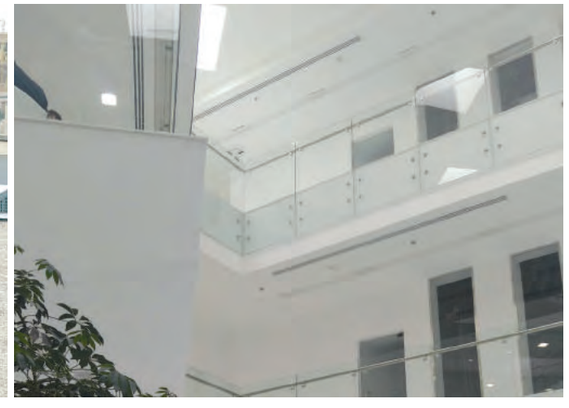
Mawten Real Estate, a key player in Riyadh's real estate market, was in search of an innovative solution for their highly energy-efficient head office. It should have been endorsed with SASO, a local MEPS (Minimum Energy Performance Standard) which certifies the product in accordance with ANSI/AHRI 340/360, meeting a certain minimum EER. Apart from a wired thermostat, the client was looking forward to having an artistically matching centralized controller.

SOLUTIONS

The SASO certified MULTI V proposal presented by the LG team substantially boosted the confidence of the client and enhanced his willingness to accept LG. Another supporting feature was the centralized control convenience which was not limited to control from the same wired location, but provided wireless control from any remote location.

BENEFITS

· SASO certification complied to the building regulations in the KSA - **Owner, Consultant**
· Favorable controlling and monitoring options from central location, as well as a wireless access of the units - **End User, Facility Management**



Capacity	MULTI V III Tropical	High Static Ducted	Wired Remote Controller	AC Smart
492kW / 140TR	6 units	55 units	55 controllers	1 controller

OFFICE

Shaker Group -Head Office

LG distributor HQ building in Riyadh

CHALLENGES

The head office of the major distributor of air conditioning and home appliances, this building has a high occupancy. Therefore, a relevant fresh air solution was a mandatory requirement with products that are SASO certified. The maintenance team added their queries on the terms and conditions of servicing the condensers. Additionally, the facility management team raised their concerns about automatic temperature adjustments and operation by analyzing the demand.

SOLUTIONS

LG's SASO certified MULTI V units combined with DX-AHUs were the most adequate match to the energy-efficient fresh air requirement. The Auto Dust Removal feature eliminated the frequent check-ups on condensers by a maintenance team as compared to other brand's equipment. Finally, the integration of units with motion sensors and year-round scheduling through LG ACP BACnet not only saved the unnecessary energy consumption, but also eliminated the necessity to monitor the status from a central location by a facility management team.

BENEFIT S

· SASO certified air conditioning for fresh air solutions in the building - **Owner**
· Maintenance team appreciated LG's unique Auto Dust Removal feature which mitigated the load of frequent maintenance checks- **Facility Management**
· Special temperature up feature in the case of unoccupied space and auto operations matching office timings - **Facility Management**

SAUDI ARABIA

Capacity	MULTI V III Heat Pump	High Static Ducted	Wired Remote Controller	BACnet
1,670kW / 472TR	15 units	80 units	80 controllers	1 controller

OFFICE

El-Seif Engineering Office

Developer's office in Riyadh

SAUDI ARABIA

CHALLENGES

El-Seif is one of the biggest construction and engineering companies in design and construction in Saudi Arabia. They planned to renovate their head office in a complete innovative way. SASO regulation was the upmost concern; another salient issue was the increase of electricity tariffs for commercial buildings. Thirdly, the client was anticipating low noise units and required wireless access to the units.

SOLUTIONS

LG offered the MULTI V with value added designs nicely tailored to meet the noise level requirements by adjusting the ESPs of the indoor units on the site. In addition, 55 deg. continuous operation certificate issued by TUV was also offered. For the centralized control and managing the units from a remote location, LG offered AC Smart touch screen module that enabled web control and supported zoning of units for easy management.

BENEFITS

- El-Seif engineers were more than satisfied to get intensive design support from LG and acknowledged the importance of TUV certificate in conjunction with the high energy savings during the harsh weather conditions - **Owner, Consultant**
- Functionality and convenience of controlling/monitoring of units from one control point, as well as the remote location - **End User, Facility Management**

Capacity	MULTI V III Heat Pump	High Static Ducted	Wired Remote Controller	AC Smart
879kW / 250TR	21 units	220 units	220 controllers	2 controllers

HEALTH CARE

Bnoon IVF Center

Professional clinic in Riy adh

SAUDI ARABIA

CHALLENGES

Providing high quality comfort level for both in-patients and out-patients was the top priority of the center. The temperature and humidity in the laboratory had to be controlled in order to prevent any damages to the IVF equipment and the samples. Quick cooling at a high temperature was an add-on requisite of this project.

SOLUTIONS

LG managed to achieve the precise temperature and humidity parameters in the clinic with MULTI V and the AHU solution equipped with a special H11 graded HEPA filter. For quick cooling, the ducted indoor units achieved 12℃ in 5 minutes even when outside temperature reached T3 conditions.

BENEFIT S

· Complete air conditioning and a high IAQ solution from one manufacturer - Owner , End User
· Quick cooling and auto back up of compressor and unit was a big advantage in this project - **End User , Facility Management**

Capacity				
520kW / 148TR	MULTI V III Heat Pump	High Static Ducted	Wired Remote Controller	AC Smart IV
	12 units	74 units	74 controllers	1 controller

COMMERCIAL

Khaleej C ent er

Multipur pose building in Riy adh

CHALLENGES

It was impor tant to have an accurate billing of the units, so that their facilit y management can record the consump tion and collect the charges to be paid by the tenants. The owner also anticipat ed the scheduling featur e, as he did not want the units, except for several ser ver rooms, to keep oper ating after business hour s.

SOLUTIONS

LG proposed PDI (Power Distribut or Indic ator) that accurately measur es the energy consump tion of each indoor unit based on its capacit y, set temper ature, fan speed, and the compressor running ratio. Facility management team can check the data on the screen, save the logs in Excel format, and take a print to review it with the user. LG's AC Smar t controller allow ed year-round scheduling and oper ated the units duly as per the set schedule and r eser ved oper ation c ommand.

BENEFIT S

· Individual billing and distinctiv e energy savings enabled by LG MULTI V and PDI solution - **Owner**

· Centr alized contr olling and monit oring with efficient scheduling - **Facility Management**

Capacity				
2,152kW / 612TR	MULTI V III Tropic al **18** units	High Static Duct ed 4 W ay Cassett e Wall Mount ed **225** units	Wir ed R emo te Contr oller **225** controllers	AC Smar t **4** controllers PDI **18** controllers

EDUCA TIONAL

Tarbia School

School in Riy adh

SAUDI ARABIA

CHALLENGES

The design team in this school belie ved that the schools can only be catered well by a chilled water syst em. How ever, they were open to alternativ e proposals which would be equiv alent or bett er in terms of efficienc . Energy saving was the crucial deciding factor, as the y were looking for ward to installing a r obust syst em with a life span o f 15 y ears.

SOLUTIONS

LG provided a compar ative study including the LCC analysis which simul ated remarkable energy savings on the MULTI V syst em for 15 years and it was suppor ted by the 3rd party AHRI certifi ation from the USA, TUV, and SASO. Fresh air solution for the audit orium covered the big space with unchanged efficienc , follow ed by the temper ature lock featur e on the thermostats via the centralized control syst em that well-mat ched the r equisit es o f designing an air -conditioning syst em for a school.

BENEFIT S

· Beside the air-conditioning solution, LG also supplied a smar t boar d and LED lighting which added t o the ener gy savings - **Owner, End User**

· Limit ed c ontrol op tions on the thermostat via c entralized c ontrol t o pr event the students t o tamper with the settings - **Owner, Facility Management**

Capacity				
1,730kW / 492TR	MULTI V III Tropic al **50** units	High Static Duct ed 4 W ay Cassett e **149** units	Wir ed R emo te Contr oller **149** controllers	AC Smar t **2** controllers

AFRICA

- SOUTH AFRICA
- WEST AFRICA
- EAST AFRICA
- ALGERIA
- EGYPT
- MOROC CO

SOUTH AFRICA

- Cresta Shopping Mall
- Eloff Street
- 11 Fricker Road
- Tharisa Minerals
- TFR Building

COMMERCIAL

Cresta Shopping Mall

Mega shopping mall in Johannesburg

SOUTH AFRICA

CHALLENGES

Known as one of Johannesburg's iconic shopping malls, Cresta boasts an impressive collection of 250 stores. It was built in 1977, but has experienced many renovations, including the most recent revamp of the outdated and rusted chilled water air-conditioning system. The owner raised his concerns about the air flow requirements of the shopping mall and whether VRF could match the design conditions.

SOLUTIONS

To meet the air flow requirements, DX-AHU with MULTI V was designed and the client was amazed to observe that LG's annual energy saving was considerably high (32%) as compared to chillers. For safety purpose, a differential pressure switch alarm display and an error display were kept as default in the design and the system allowed for a complete integration with the BMS (Building Management System). LG shared other major references executed around the MEA region to demonstrably assure the system reliability.

BENEFIT S

- The first shopping mall to be installed with the VRF solution revealed the uniqueness of air-conditioning solution for the project - **Owner, Consultant**
- Energy saving by 32% as compared to the chilled water system - **Owner**
- BMS System for detailed control & monitoring - **Facility Management**
- Executed on-site training of the contractor along with start-up support - **Contractor**

Capacity				
9,960kW / 2,832TR	MULTI V IV Heat Pump **220** units	High Static Ducted **142** units Fresh Air Handling Unit **95** units	Wired Remote Controller **237** controllers	Dry Contact **95** controllers

OFFICE

Eloff Street

Transnet office building in Johannesburg

SOUTH AFRICA

CHALLENGES

Transnet Ltd is a large South African rail, port, and pipeline company, headquartered in the Carlton Centre in Johannesburg. It is a public company of which the South African Government is the sole shareholder. Both working and controlling South Africa's major transport infrastructure, Transnet is also responsible for ensuring that the country's transport industries work according to the world-class principles and that they form an integral part of the overall economy. Therefore, they have stringent criteria of choosing all the equipment installed in their buildings. As their employees are over-busy in smoothening the transportation of the whole country, the customer anticipated to have an air-conditioning system sufficiently smart to toggle the mode between cooling and heating, depending on the desired and actual temperatures.

SOLUTIONS

LG provided a clearer solution by proposing MULTI V Heat Recovery, which is a factory-programmed 'Auto Changeover Mode'. This controls the temperature precisely within ±1℃ by automatically changing the mode between cooling and heating. Therefore, users do not have to manually set the temperature or mode to meet their comfort level. The operation was well-managed by LG's unique central controller ACP that can be programmed on site for a year-round schedule on/off with holidays as an exception. As a master controller, it switches off the units after office hours and restricts the operation from the thermostat, thus saving a considerable amount of energy.

BENEFITS

- The customer categorized this solution as the most superior solution where air-conditioning units can manage themselves to maintain precise temperature inside the offices by toggling modes and achieving thus the best comfort level - **Owner, End User**
- Autonomous operation throughout the year and additional energy saving when the centralized controller timely switches off the units after business hours - **Owner**

Capacity				
1,456kW / 414TR	MULTI V IV Heat Recovery **39** units	High Static Ducted **212** units	Wired Remote Controller **212** controllers	ACP IV **2** controllers AC Manager IV **1** controller

OFFICE

11 Fricker Road

Multipur pose building in Johannesbur g

SOUTH AFRICA

CHALLENGES

This sought -after beautiful Victorian style offi e building in Illovo, Sandt on, is perfect due to its location and easy access to the main arterial roads, shopping center, coffee shops, and very easy access to public transpor tation. In order to make it more attractive, the cust omer provided a special consider ation related to the aesthetic s of the building: specifi ally, the outdoors should not visible to the visitors. Anothe r requirement was to provide desirable comfor t to individual by select either cooling or heating. Furthermor e, the cust omer wonder ed if ther e were any units which c ould alt er the airflow in each di ection and fit in 300mm eiling, and look ed for a c entralized control and monit oring fr om the r eception.

SOLUTIONS

LG proposed one stop solution to all the requir ements of cust omer by contempl atively mat ching design specifi ations and providing Heat Recovery units to let the end user choose the mode. Even in a cold winter, the unit was capable of catering cold air to the server room while keeping the offi e space warm and cozy. LG 4-way cassett e units with height dimensions ranging from as low as 204mm to 288mm fit ed well in the provided ceiling space. Additionally , individual vane control allow ed the user to adjust the directional flow according to their needs. To give an elegant touch to the control and monit oring, AC Smar t Premium with a 10.2inch scr een w as installed in the building which w as w eekly pr ogrammed as per the oc cupancy t o sav e ener gy.

BENEFIT S

· Heat r ecovery solution t o allow user s to per sonaliz e their envir onment - **End User**
· Perfect fit in the nar ow c eilings thus av oiding any design changes or visibly hanging units - **Contr act or**
· Individual v ane c ontrol function allow ed the user s to select the air flow settings that best sui ed their work surr ounding - **End User**

Capacity	MULTI V IV Heat R ecovery	4 Way Ceiling Cassett e	Wired R emo te Contr oller	AC Smar t P remium
1,304kW / 371TR	**26** units	**88** units	**88** controllers	**1** controller

OFFICE

Tharisa Minerals

Office building in Brynston, Gauteng

SOUTH AFRICA

CHALLENGES

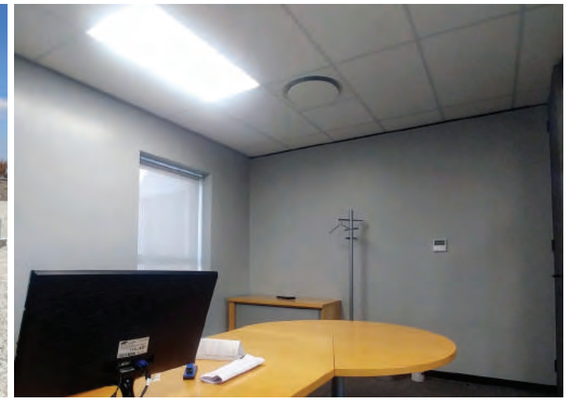
The longest façades of this building are in eastern and western directions. As a result, there is a great difference in the cooling/heating load requirements throughout the building at any given time, especially during autumn and spring. The primary challenge was to supply a system that could simultaneously provide heating to the southern and western zones of the building while cooling to the northern and eastern zones. Another crucial concern was energy consumption which should have been minimized as the property was not a rental and, therefore, the owner had to pay the bills from his earnings.

SOLUTIONS

LG unveiled the MULTI V 5 Heat Recovery system with its world-class leading efficienc . This solution allowed for a simultaneous heating in the southern and central zones while providing comfort cooling in the northern and eastern zones. LG's specialized engineering team introduced this marvelous technology and offered value engineering on the energy-saving aspect. AC Smart was introduced that not only automates the operation by switching on and off the units as per the business hours and working days, but also locks the temperature range which can be fixed for the thermostat users, thus not allowing extreme cooling or heating. The owner was impressed by the unmatchable MULTI V 5 cooling EER of 4.99 and heating COP of 5.64.

BENEFITS

- MULTI V Heat Recovery system used for desired modes and temperatures in different offices - **End User**
- Energy saving by Heat Recovery (heat absorbed in cooling for northern and eastern zones and used for heating in southern and western zones) - **Owner**
- Temperature range lock and year-round scheduling added more to energy saving - **Owner**



Capacity			
476kW / 135TR	MULTI V 5 Heat Recovery	High Static Ducted 4 Way Cassette	Wired Remote Controller
	9 units	**77** units	**77** controllers

OFFICE

TFR Building

Transnet o ffi e building in Cape Town

SOUTH AFRICA

CHALLENGES

Cape Town is a city in South Africa where most of the mid- to large-scale projects are designed and installed with old-school chilled water cooling system. This system is proven unworthy due to recent water shortage and TFR building consultants were looking for a better alternative. They requested profound support from VRF manufacturers and this project aimed to set an example of an energy-efficient solution without using a single drop of water. The consultant aspired to provide sufficient fresh air inside the building spaces to ensure adequate IAQ.

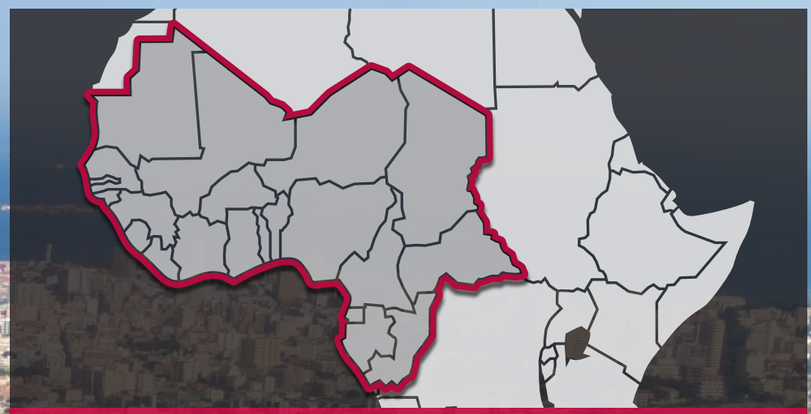
SOLUTIONS

LG team made a proposal that best suited his requirement of energy-efficient air conditioning with less capital and running costs while serving fresh air inside the offi e spaces to create a comfortable environment for the staff. LG engineering team assisted the project team from the initial design stage and was on site until the end. The owner signaled satisfaction upon job completion and eventually rated LG's installation as the best among all the installations that he had ever seen.

BENEFIT S

· Reduced capital cost and zero consumption of water afforded by L G MULTI V excelled the client' s expectations - **Owner**
· Fresh air provision using same outdoor units that serve other indoor units, thus saving space and maintaining healthy IAQ - **Contractor, End User**

Capacity	MULTI V IV Heat Recovery	High Static Ducted 4 Way Cassette ERV	DX-AHU	Wired Remote Controller	AC Smart IV
1,831kW / 520TR	43 units	185 units	1 unit	186 controllers	2 controllers



WEST AFRICA

- Protea Select Ho tel
- Ibis St yles Ho tel
- Tulip Inn Hotel
- Shor egat e Ho tel
- TZ F ood P roducts
- NDPHC
- CFC
- Skye Bank
- Orange
- Total Senegal HQ
- Atlantic R esidenc e
- WA EC

HOSPITALITY

Protea Select Hotel

Business hotel in Takoradi

GHANA

CHALLENGES

Protea Select Hotel in Takoradi is a four-star accommodation located in the Western Region of Ghana - an attractive leisure destination with miles of white sand beaches. The 132-room hotel is an oasis of comfort and hospitality within close proximity to the Takoradi airport and seaport. The hotel boasts first-class conference facilities. Therefore, meeting the requirement of each space was what customer anticipated from LG engineering and installation teams.

SOLUTIONS

LG engineering team approached the client with an efficient solution that saved ample space on the rooftop by replacing the AHUs with LG ERV (Energy Recovery Ventilation) units that fit inside the ceiling, just like other ducted units, and serve the indoor areas with fresh air. Additional energy saving feature introduced to the client was the temperature range restriction between any desired values by the customer from a centralized controller. As a result, the whole facility management team, as well as the hotel management, had a remote access to the hotel's air-conditioning system.

BENEFITS

· The customer considerably benefited from LG's ERV solution, as it saved a lot of space and energy as compared to AHUs when supplying fresh air in the building - **Owner, End User, Contractor**

· Value engineering design with the help of connection flexibility - **Contractor**

Capacity				
1,368kW / 389TR	MULTI V III Cooling Only **13** units	High Static Ducted **150** units ERV **43** units	Wired Remote Controller **193** controllers	ACP **1** controller

HOSPITALITY

Ibis Styles Hotel

Tourist hotel in Accra

CHALLENGES

Ibis Styles is a three-star tourist hotel which is economical yet consistently reviewed as the best hotel in terms of location, serenity, and service. From the outside, the structure consists of purely straight walls with small windows which were not spacious enough to install the single split system and the shaft size was too small to accommodate the chilled water piping. Therefore, the customer asked for a best fit from all the air conditioning manufacturers. Finally, the customer looked in for the possibility of controlling and monitoring the units from the reception desk.

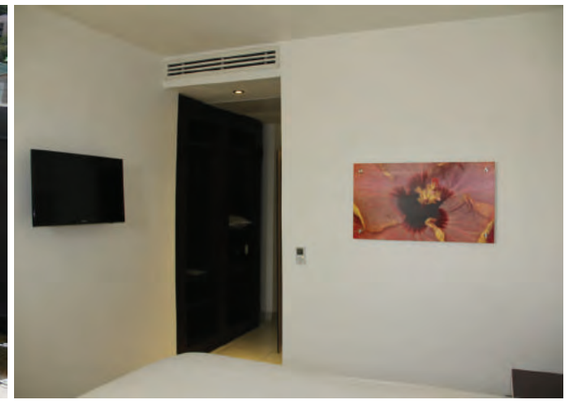
SOLUTIONS

Although the space to install the outdoor units was limited, the installation flexibility of MULTI V which allow multiple indoor units connection to single outdoor unit helped to derive the most optimum design (30 outdoor units serving 255 indoor units). The refrigerant pipe sizes are sufficiently small to fit in the provided shaft and the customer appreciated the energy efficiency delivered by the units even in this complex installation scenario. Finally, ACP delivered full control and monitoring to the reception desk and, in addition, a fire alarm was linked to ACP to stop the units immediately in the case of emergency.

BENEFITS

- Less footprint area, low space requirement between outdoor units, small pipe sizes satisfied each aspect of the project specifications - **Owner, Consultant, Contractor**
- LG ACP allowed the basic to advanced control and monitoring options whereas integration with the fire alarm complied to the civil defense requirements in the area - **Owner, Facility Management**

GHANA



Capacity	MULTI V III Cooling Only	High Static Ducted	Wired Remote Controller	ACP
1,294kW / 368TR	**30** units	**255** units	**255** controllers	**1** controller

Tulip Inn Hotel

BB ho tel in Ibadan

CHALLENGES

Tulip Inn is a four-star chain of Golden Tulip Hotels Group. As this hotel is located in the heart of the city with major business and cultural areas at a walking distance, it is a perfect place for both business and leisure. The hotel has 150 air-conditioned rooms that received high class reviews by the guests who stayed there. The investors try to maximize the number of rooms by adjusting room sizes and prices to accommodate as many guests as possible. This design change resulted in the short ceilings that can allow only 100mm duct lengths from the unit.

SOLUTIONS

LG proposed its uniquely slim low static ducted units with 190mm height that could easily be installed in tight ceilings. These units are designed with the best acoustics that qualifies the units to achieve a sound pressure level of 28dBA. These units come equipped with LG's special ESP feature that allows the users to easily manipulate the static pressure on the site via LG thermostats. Therefore, the issue of low duct lengths and, hence, the concern about noise were easily resolved.

BENEFIT S

- The consultant was impressed by the narrow dimensions of the unit, especially by the 190mm-high duct units which allowed easy installation - **Consultant, Contractor**
- LG's unique ESP feature helped the consultant and contractor to match the static pressure settings on the site via an LG thermostat - **Contractor**

Capacity	MULTI V III	Low Static Ducted	Wired Remote	AC
	Cooling Only	2 Way Cassette	Controller	Smart IV
503kW / 143TR	**10** units	**85** units	**85** controllers	**1** controller

HOSPITALITY

Shoregate Hotel

Suite hotel in Lagos

NIGERIA

CHALLENGES

Shore Gate Hotel is an exquisite hotel surrounded by various restaurants and located in close proximity to Ikeja Golf Club. This makes it a popular choice for the customers looking for relaxation and enjoying a vacation. Travelers particularly love Shore Gate Hotel due to its proximity to the Murtala Muhammed International Airport. The hotel offers 76 rooms of various categories that require the appropriate mix and match of air flow and the owner was against using the old technology in this modern hotel. He insisted on installing VRF, but his sole preference was value engineering and energy savings.

SOLUTIONS

LG engineering team provided a detailed overview of energy efficiency of MULTI V and came up with the exact amounts that could be saved on electricity bills. The owner was surprised by the partial load efficiency accompanied by value engineering as proposed by LG. Owing to the installation flexibility of LG's MULTI V, all 76 rooms, open corridors, and lobby could be served by mere 11 outdoor units. LG's new mid-static ducted units were proposed to nicely fit into the narrow ceilings of the hotel whilst achieving the required air flow.

BENEFITS

- Superior energy efficiency due to LG's all inverter technology that exhibited remarkable numbers in terms of low running cost - **Owner**
- LG's unique ESP feature allowed the contractor to do the final adjustments on the site via LG wired remote controller - **Contractor**

Capacity	MULTI V III Cooling Only	Mid Static Ducted 4 Way Cassette	Wired Remote Controller	AC Smart IV
912kW / 260TR	11 units	130 units	130 controllers	1 controller

COMMERCIAL

TZ Food Products

Food mill in Lagos

NIGERIA

CHALLENGES

The machines used in this food manufacturing facility have stringent air-conditioning requirements. The client needed a high-quality product that would help maintain a constant temperature prescribed for these machines, followed by a strong and intelligent back-up system. The client was also looking for an efficient solution that would also be scalable for future growth and expansion in line with the proposed plans to expand production area.

SOLUTIONS

After reviewing various proposals on products and technologies from different AC manufacturers, the client selected LG's MULTI V IV system with AHU, as it was able to precisely cater to the right temperature and humidity for the facility to avoid any breakdowns in the machines and thus to protect the food items from getting spoiled. The units have world class efficiency and an intelligent back-up function which considerably economize the central air-conditioning costs that could have been incurred using alternative technologies. MULTI V also allows scalability, as additional units can be seamlessly installed without major infrastructural changes.

BENEFITS

· MULTI V with AHU is the ideal solution for this kind of project due to its installation flexibility - **Owner, Contractor**
· Meticulous back-up feature to avoid any kind of damage to the machines or end products - **Owner**

Capacity	MULTI V IV Cooling Only	Fresh Air DX-AHU	Wired Remote Controller	AC Smart IV
818kW / 232TR	6 units	2 units	2 controllers	1 controller

COMMERCIAL

NDPHC

Office complex in Abuja

NIGERIA

CHALLENGES

This is a 28,000m ^{2} complex providing all the latest and finest amenities. Standing for Niger Delta Power Holding Company, it is subscribed by federal state and local governments with a mandate to manage the power projects and an emergency intervention scheme to tackle the power problem in the country. The client was clearly determined to adopt a technology which would be unbeatable in terms of energy efficiency. It was also required to conveniently provide the client with a real-time usage data in terms of both actual and accumulated power consumption on a centralized screen.

SOLUTIONS

LG's PDI (Power Distributor Indicator) is the unique and precise solution which calculates the individual indoor unit power consumption, as well as shared power consumption data of compressors. The formula is composed in such a way that a slightest change in the Electronic Expansion Valve pulse is recorded as the change in refrigerant flow. Therefore, the pumping of the compressor and calculating the real-time consumption can be displayed as present consumption. Alternatively, users can check the accumulated power consumption data from the last 1 to 3 months. Other concerns on electrical components due to power fluctuations were addressed by LG with its various inbuilt protections.

BENEFITS

- The inbuilt protections such as high & under voltage, phase missing & reversal, and power reset delay gave an edge to LG MULTI V - **Consultant**
- The precise power consumption data recorded from other sites and detailed explanation of computational analysis by PDI assured the customer - **Owner**
- AC Smart was installed to help the customer to conveniently view the power consumption data on a centralized screen - **Facility Management**

Capacity				
4,638kW / 1,319TR	MULTI V III Cooling Only	High Static Ducted ERV	Wired Remote Controller	AC Smart IV **4** controllers
	41 units	**459** units	**459** controllers	PDI **10** controllers

OFFICE

CFC (Credit Foncier du Cameroun)

Bank in Yaounde

CAMEROON

CHALLENGES

Cameroon government was concerned by the prediction of acute water shortage in the country and, as a result, strictly instructed the project owners and consultants to replace the old school designs using chilled water systems consuming a lot of water with an energy-efficient alternative. With this internal ordinance, all major commercial projects like office complexes and shopping malls were looking for an air-conditioning solution that could minimize the operational cost without a single drop of water. The management of this office building was very conscious about monitoring the units from BMS and, consequently, asked for both controlling and monitoring of all units through an LG's independent controller.

SOLUTIONS

LG's design team was associated with the project's stakeholders since the beginning of the project. LG supported them with full design and model selections with MULTI V Pro, as its maximum capacity is 88HP. It conditions big areas with less copper piping and its redundancy in terms of failure of one compressor or the whole single module highlighted its superiority over chillers. LG's interoperability of AC Smart that allows for stand-alone unit management proved to be a big advantage, even in the case of BMS failure. Therefore, LG proposed A C Smart and LonWorks to as ultimate solutions.

BENEFIT S

- The system provided optimum comfort inside the building thus satisfying the end user requirements of comfort cooling - **End User**
- LG design team provided excellent support to the consultant from the concept stage. The technical team worked with the contractor to lay the foundation of the units until a successful start-up. - **Contractor**
- Stand-alone and the BMS integration became possible with LG's unique control system - **Facility Management**

Capacity				
538kW / 153TR	MULTI V IV Cooling Only **16** units	4 Way Cassette Wall Mounted ERV **80** units	Wired Remote Controller **80** controllers	AC Smart IV **1** controller ACP LonWorks **1** controller

OFFICE

Skye Bank

Bank building in Lagos

NIGERIA

CHALLENGES

Skye Bank is a retrofit project previously installed with single splits. The end users were complaining about the performance of R22 On/Off machines that led to instant variations in the building load and thus discomfort. Therefore, the owner decided to revamp the existing system and instructed the design team to install an efficient system that would precisely maintain the temperature precisely. Obviously, the system had to be fit in the same space as the existing units.

SOLUTIONS

With reduced footprint, LG MULTI V outdoor units were perfectly installed within the available floor space without any compromise on the performance of the air-conditioning system and with no constructional changes. Furthermore, all inverter compressors of MULTI V IV adjust operational load according to the cooling requirement for each space; therefore, maintaining a precise temperature all the time without huge variation is enabled. As an added value, the energy saving of the units was remarkable to go unnoticed and AC Smart accomplished the outstanding control requirements that satisfied the customer's requirements.

BENEFIT S

- An entirely new technology with all inverter compressors decoded the pain point of the owner and end users (cycling on/off compressors causing discomfort) and maintained a precise temperature inside the building - **Owner, End Users**
- No structural changes eased the consultant and contractor to execute the revamping of the existing system and replacing it with MULTI V - **Consultant, Contractor**
- Advanced control and monitoring features besides scheduling and time-limit function allowed for a more user-friendly environment for employees' efficient work - **End User**

Capacity	MULTI V IV Cooling Only	4 Way Cassette	Wired Remote Controller	AC Smart IV
414kW / 117TR	4 units	65 units	65 controllers	1 controller

OFFICE

Orange

Telecom corporate office in Douala

CAMEROON

CHALLENGES

Orange is a telecom provider in major African countries. This facility in Cameroon is one of their important office locations, as Cameroon serves as the hub for all Central African countries. The client projected his specific requirements on the real time CAD embedded design that would show the genuine scale of both indoor and outdoor units in order to plot the shafts and cabling space. Being a telecom office, 24-hours cooling in the server room and reliability were other prerequisites.

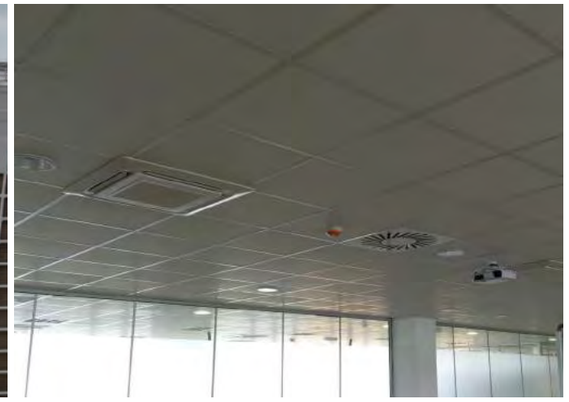
SOLUTIONS

LG used its LATS CAD design program, which can be applied to faster and more accurately design the HVAC products. Based on its installation inspection and evaluation, LATS CAD minimized all the problems that might occur at the time of installation and operation by generating the real-time pipe length, pipe diameters, and tabled BOQ in dwg format substantially becoming part of the technical submittal. LG selected MULTI V IV system which is superior in terms of both operational efficiency and durability. Considering the maximized air flow in all directions, LG proposed 4-way cassette units that provide optimum air flow and are aesthetically good-looking to be installed in office areas.

BENEFITS

· LG's innovative software like LATS CAD allowed the project's design team to efficiently work by designing straight into CAD - **Consultant**

· 4-way cassette units enable smooth operation with optimized cooling performance in the installed space - **End User**



Capacity	MULTI V IV Cooling Only	4 Way Cassette	Wired Remote Controller	ACP
896kW / 254TR	**20** units	**212** units	**212** controllers	**1** controller

OFFICE

Total Senegal HQ

Offi e building in Dakar

CHALLENGES

Total is the world's fourth-largest oil and gas company, as well as a major integrated player in the global solar industr y. Their set up in Senegal is not limited to offi es, but also incorporates a call center, server rooms, and a cafeteria in their building, all of which had different air-conditioning parameters for their various zonal frameworks. For example, the call center area had to be fully functional 24 hours a day, while server rooms had to stay cool all the time r egardless o f the seasonal v ariance; finall , other o ffi e areas had t o be air -conditioned as per working hour s.

SOLUTIONS

LG suggest ed MULTI V IV with Inverter DC Scroll technology . It boasts its high durabilit y capable of sustaining and continuous operating without any compr omise on performanc e and a wide operation range in different climatic conditions to provide cooling for server rooms even when the outside temper ature is -5℃. As an extra layer of comfor t and assur ance, the facilit y management team had to be ensur ed that each zone met its cooling demands; therefore, LG offered the most adv anced central controller, AC Smar t IV, which c an control up t o 128 units.

BENEFIT S

· A quiet working pl ace with c omfor t cooling in each z one, meeting the desir ed t emper ature requir ement thr oughout the y ear - **Owner , End User**

· Zone-wise c ontrolling with A C Smar t IV is useful in t erms o f reducing ener gy w astage, especially in the o ffi e zone wher e the schedule function c ontrols the oper ation o f indoor units - **Owner**

SENEGAL

Capacity				
506kW / 143TR	MULTI V IV Cooling Only	1 and 4 W ay Cassett e	Wir ed R emo te Contr oller	AC Smar t IV
	6 units	**120** units	**120** controllers	**1** controller

RESIDENTIAL

Atlantic Residence

High-rise apartment in Dakar

CHALLENGES

This high-rise apartment building in Dakar is considered to be an iconic structure, as it provides year-round free cooling to the tenants. The owner's decision to pay for the air-conditioning system was based on his determination to purchase the most energy-efficient system. Considering capital costs, the customer intended to see the payback period of the VRF system as compared to single splits.

SOLUTIONS

With the help of LEEP (LG's Energy Estimation Program), the LCC (Life Cycle Cost) and payback periods were calculated and presented to the owner. The 6-month payback period when choosing VRF over a single split system surprised the customer. Apart from high energy efficienc , LG showed another advantage of MULTI V—namely , its tidy installation that preserves the exterior, which may not be possible in the case of split systems.

BENEFITS

- LG MULTI V's excellent payback period and flexible installation specifications convinced the owner - **Owner**
- LG's low static indoor units with small dimensions and quiet operation created a peaceful ambiance for the tenants - **End User**

SENEGAL

Capacity	MULTI V IV Cooling Only	Low Static Ducted	Wired Remote Controller	ACP
862kW / 245TR	26 units	134 units	134 controllers	1 controller

EDUCATIONAL

WAEC

University in Lagos

NIGERIA

CHALLENGES

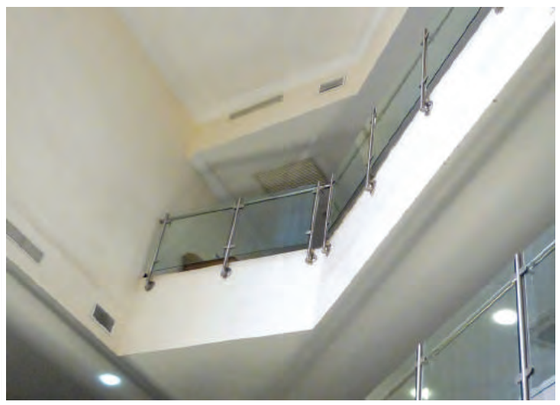
WAEC stands for West African Examination Council and this government educational institution has its in-house engineering team who evaluates the air-conditioning system. Due to there being multiple buildings in the campus, their main requirement was to find a system with flexible distribution of pipes to the FCUs. They initially designed the project with a chilled water system, but certain limitations on the roof top space and shaft sizing obliged them to look for an alternative.

SOLUTIONS

LG engineering team prepared a detailed comparison between MULTI V and chilled water system to explicate the advantages of the VRF system over chillers. LG MULTI V's smaller foot print requires less space and its long piping specification ensures a flexible distribution up to 1,000 meters and requires a small shaft size. Additionally, LG invited the WAEC engineering team to various installation references to demonstrate the operational excellence of MULTI V. Finally, a centralized control system was offered to control and monitor each unit from the facility control room.

BENEFITS

- Detailed comparison from LG helped the university's engineering team to understand the vast possibilities of the MULTI V system - **Consultant**
- Flexible distribution, small pipe size, and centralized control solution provided a bundle solution to all requirements of this project - **Consultant, Contractor, Facility Management**



Capacity	MULTI V III Cooling Only	High Static Ducted 4 Way Cassette	Wired Remote Controller	ACP
1,391kW / 395TR	36 units	42 units	42 controllers	1 controller

EAST AFRICA

· The Riv er F ront Guesthouse
· Royal Tulip Canaan Ho tel
· Boma Ho tel

HOSPITALITY

The River Front Guesthouse

Guesthouse in Nairobi

KENYA

CHALLENGES

Facing a tough competition with other business hotels in Kenya, the owner's perspective was to give travelers a feel of home. This guest house accommodates visitors in air-conditioned rooms with bed and breakfast and provides commuting transportation to places of interest over the weekend. Upon inquiry, it was found that the same customer had more guest houses in different areas installed with split systems with savings below his expectations; therefore, for better savings, the owner was looking for the most energy-efficient system that would consume less energy and increase savings.

SOLUTIONS

LG's MULTI V system satisfied the customer's requirements in terms of energy saving. It saved not only on the running cost, but also on the copper piping and electric breakers as compared to the single split system. With heating as an option, the customer opted for a heat pump to offer optimum comfort to his guests during summer and winter seasons to maintaining a good reputation of his business.

BENEFITS

· LG MULTI V outdoor unit can be connected to multiple indoor units. Therefore, it required less installation space and saved material costs - **Owner**

· Optimum comfort for the guests helped promoting business adding on to the savings - **Owner**

Capacity				
275kW / 78TR	MULTI V IV Heat Pump	4-Way Cassette	Wall Mounted	AC Smart Premium
	10 units	**34** units	**34** units	**1** controller

HOSPITALITY

Royal Tulip Canaan Hotel

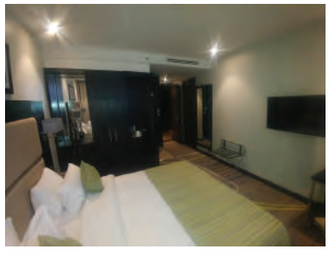
4-Star hotel in Nairobi

CHALLENGES

Nested in the heart of the serene Kilimani area, this luxury hotel is located in a UN approved secure zone. The owner of this 4-star hotel wanted to have an energy-efficient and reliable product from a premium brand. In order to maximize visitors' comfort, the owner required a heat pump system that could operate cooling in summer and heating in winter. Also, the room design restricted the installation of long ducts, thus calling for quiet operation indoor units whilst meeting the required air flow.

SOLUTIONS

LG proposed a highly energy-efficient MULTI V IV Heat pump system with flexible piping features that can be operated in cooling or heating according to the seasonal requirement. LG's high static ducted units were the obvious match to the room size and air flow requirements due to their unique ESP field-setting function. Additionally, LG's commissioning team visited the site to support the contractor for the successful start-up and handover.



BENEFITS

· Premium product and high energy savings - **Owner**
· Cooling and heating operation by using the heat pump system - **Consultant**
· Easy fit of indoor units in the ceiling and ESP setting restricted excess noise from the units - **Consultant, End User**
· Prompt service back up, easy installation and commissioning of AC units - **Contractor, Owner**

Capacity			
550kW / 156TR	MULTI V IV Heat Pump	High Static Ducted	Wired Remote Controller
	24 units	**150** units	**150** controllers

HOSPITALITY

Boma Hotel

Hotel in Nairobi

KENYA

CHALLENGES

Located at the center of Nairobi, this luxurious five-star hotel opened in August 2012. Owner explicitly aimed at the comfort of guests and needed a system that could precisely maintain the set point temperature within the dead band of 1°C. He also inquired about the filter specs in order to refresh the air inside the rooms.

SOLUTIONS

LG's engineering team was called for a site meeting attended by the architect, consultant, and contractor to assess the product. Various specifications and clarifications on dead band operation, filter specs and energy efficiency were requested and qualified in order to measure the compliance level as compared to the project specifications. Additionally, LG's on-site commissioning and start-up support helped the contractor to execute flawless installation and smooth handover of the project to the owner.

BENEFITS

· LG's MULTI V met all required specifications at multiple assessments from each stakeholder - **Owner, Architecture, Consultant, and Contractor**
· LG's technical team engagement during commissioning and start-up stage satisfied the contractor with after-sales services provided by LG - **Owner**

Capacity			
725kW / 206TR	MULTI V Plus II Heat Pump	High Static Ducted Cassette	Wired Remote Controller
	30 units	**184** units	**184** controllers

ALGERIA

- Aqua-P arc-Biskr a
- Tribunal Maghnia
- Siege W afa
- Air port Contr ol Towers
- Les Asphodels
- Promo tion Zebboudj
- Promo tion El Djiw ar

HOSPITALITY

Aqua-Parc-Biskra

Resort in Biskra

CHALLENGES

Biskra is located in the north-eastern part of Algeria on the northern edge of the Sahara Desert. It has a hot desert climate with scorching summers and mild winters. The surrounding area is very arid and most of the population lives in the oasis. Due to the Saharan climate where temperature can reach as high as 47°C, the concerns of the developer were about the performance of the units even in this hot environment. The client desired a system would be sufficiently smart to alert the service technicians upon error occurrence.

SOLUTIONS

LG has more than 17 years of experience in the VRF technology, so it carries various lineups favoring different climatic conditions around the world. MULTI V Tropical is one of them. This type is sold in the regions with a high ambient temperature and dusty environment, like the Gulf, KSA, and North Sudan, as it can operate even at 55°C and delivers a certified performance. Additional features such as auto backup, auto dust removal eliminated maintenance concerns of the owner. Finally, AC Smart IV was proposed to generate an error email to the service technician upon any failure in the system.

BENEFITS

· MULTI V Tropical series was offered in this project to operate even in the harsh condition - **Owner, End User**

· Auto Dust Removal, automatic backup and auto alarm email generation features eliminated the maintenance concerns - **Owner, Facility Management**

Capacity				
928kW / 264TR	MULTI V IV Tropical Heat Pump	High Static Ducted Low Static Ducted 1 Way Cassette	Wired Remote Controller	AC Smart IV
	22 units	**52** units	**52** controllers	**1** controller

OFFICE

Tribunal Maghnia

Cour t building in Maghnia

ALGERIA

CHALLENGES

Tribunal Maghina is a government building. Therefore, alongside with Eurovent certifi ation, energy efficiency was among the top priorities. The foremost qualifi ation criteria of consultant consist ed of certifi ation (Eurovent, TUV and CB) follow ed by the technic al specifi ations and particul ar featur es. Other criteria were to mat ch the size and air flow requir ements of different room types, such a huge court room and open offi e areas where one unit should serve multiple desks with op timum t emper ature.

SOLUTIONS

LG cleared the short-list ed criteria by submitting Eurovent certifi ation, follow ed by TUV and CB repor ts. The engineer ing team proposed hi-static duct ed units to serve the big court rooms and recommended 4-way cassett e units to be installed in the open offi e areas. LG revealed its super iority with its individual vane control featur e in cassett e units that allows user s to choose an angle bet ween 0° to 90°.

BENEFIT S

· LG's wide pr oduct r ange is r ecogniz ed and c ertified by the enowned HV AC industr y committ ees that alle viat e the selection pr ocess for go vernment pr ojects - **Owner, Consultant**

· Fle xible lineup o f indoor units which allows for mix and mat ch o f units in dif ferent applic ations - **Architect, Consultant**

Capacity	MULTI V IV Heat Pump	High Static Duct ed 4 W ay Cassett e	Wir ed R emo te Contr oller
1,069kW / 304TR	**32** units	**221** units	**221** contr oller s

OFFICE

Siege W afa

Offi e building

CHALLENGES

Established in Algeria as the main brand and consolidated by years of experience in production line, Siege Wafa is known for its outstanding performance in the Algerian industrial sector. The company constantly improves its products to meet international standards. The building had a 15-year-old chiller system. Due to continuous maintenance works and the Saharan hot climate, the owners requested a replacement solution that would provide optimum cooling in extremely hot conditions, as well as easy accessibility on spare parts and product warranty.

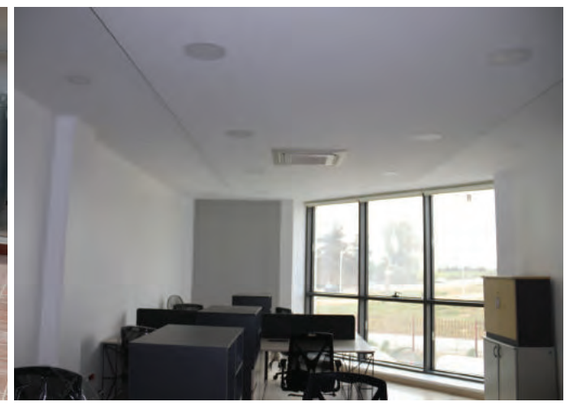
SOLUTIONS

LG MULTI V Tropical outdoor unit comes equipped with special compressors and robust components to work without malfunction even in hot climate where temperature rises up to 55°C. Therefore, for this project, LG engineering team proposed MULTI V Tropical. The spare part availability and accessibility issues were resolved by introducing LG's local partner in Algeria who ensured a quick response and satisfactory services in this retrofit job.

BENEFIT S

· Alongside with the powerful performance in tropical climate, LG has an excellent service and technical support which is the greatest concern for any building owner or facility management team - **Owner**

· Third party certifications and local presence of LG, as well as its distributor, entrust ed the owner with a better than expected support in the region - **Owner**



Capacity			
1,014kW / 288TR	MULTI V IV Tropical	High Static Ducted 4 Way Cassette	Wired Remote Controller
	9 units	**65** units	**65** controllers

OFFICE

Airport Control Towers

73m ATC building in Algiers

ALGERIA

CHALLENGES

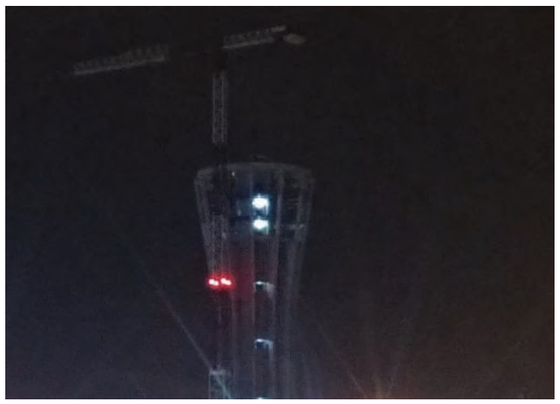
At the Airport Control Tower, the activities of Airport Traffic Control take place. The primary purpose of ATC is to prevent collisions, organize and expedite the flow of traffic, and provide information and other support for pilots. For these reason, there is no space for a single error or failure. The customer's requirement clearly stated that they had to eradicate the dew on the glass during winters and, at the same time, maintain cool temperature for the control tower machinery while providing cozy environment for the employees.

SOLUTIONS

The primary advantage of LG MULTI V Heat Recovery system is that it can provide a relatively precise control of temperature and humidity by simultaneous operating cooling and heating. Together with providing the product, LG extended its full support to running all necessary analyses like eQuest, LATS CAD, and CFD to confirm the reliable operation of the units. Finally, the extreme value addition with a reduced number of heat recovery boxes as compared to competitors convinced the customer to opt for LG.

BENEFITS

· Co-working with the consultant in connecting each dot to cover all design specs of the project - **Consultant**
· Heat Recovery solution integrated with group control and back-up operation to prevent damage to any equipment - **Facility Management**
· Quick service by deploying a LG technician to the site until handover - **Owner, End User, Facility Management**



Capacity	MULTI V IV Heat Recovery	High Static Ducted Wall Mounted ERV	Wired Remote Controller	ACP BACnet
1,428kW / 406TR	34 units	332 units	332 controllers	2 controllers

RESIDENTIAL

Les Asphodeles

Mix ed use building in Algier s

ALGERIA

CHALLENGES

The building consists of a commer cial center on the ground floor with a quite famous restaur ant, as well as several offi es and apar tments. Due to its diversified applic ation, the requir ement was different for each applic ation. The design had the restr iction of installing big outdoor units on the rooftop and owner did not want to install an air-conditioning met ering syst em.

SOLUTIONS

The foremost challenge of looking out for a space to install outdoor units was very well accepted by offering LG MULTI V S for bigger apar tments with a side dischar ge and MULTI F outdoor units for smaller apar tments and offi es. Although there is wide range of indoor units to choose from, the architect and consultant emphasiz ed only on low static duct ed units due to their quiet oper ation. The architect had the option to select the diffuser grill to match the interior aesthetic s.

BENEFIT S

· MULTI V S and Multi F fit ed w ell in the alloc ated spac es on the balc ony o f each apar tment and o ffi e - **Owner, Consultant**

· LG's low static duct ed units with the noise le vel as low as 28dB A w as on a par with the c onsultant' s spec s - **Consultant, End User**

Capacity				
1,614kW / 459TR	MULTI F MULTI V S	Low Static Duct ed	Wired R emo te Contr oller	AC Smar t IV
	125 units	**514** units	**514** controllers	**3** controllers

RESIDENTIAL

Promotion Zebboudj

Premium residence building in Algiers

ALGERIA

CHALLENGES

During the design stage of this project, the owner and consultant drafted major requisites, including a tidy rooftop, initial cost, energy efficienc , and low noise operation. These key requirements were difficult to achieve with air cooled chillers. Therefore, client opted for VRF. The assessment of energy efficiency and installation space was the final selection criterion to choose among dif ferent various VRF brands.

SOLUTIONS

LG used LEEP (LG Energy Efficiency Program) to simulate the efficiency figures and presented them to the customer alongside with the LCC results. The consultant accepted the submittal from different manufacturers to compare the efficiency at both full and partial loads. LG also highlighted the higher side of maintenance cost for the chiller and all related parts which do not exist in the case of using the VRF system. LG offered a centralized control solution to the project to boost the list of benefits, thus onvincing the customer to opt for the LG MULTI V solution.

BENEFITS

- With the LEEP software, LG engineering team convincingly demonstrated the effectiveness of the VRF system over chillers presenting simulated figures on 5-year savings - **Owner**
- Building management team was satisfied with GAC Smart which allows for an easy control and monitoring of the operations for each individual unit from the security room - **Facility Management**

Capacity	MULTI V S	Low Static Ducted	Wall Mounted	Wired Remote Controller
839kW / 240TR	27 units	162 units	162 units	162 controllers

RESIDENTIAL

Promotion El Djiwar

Luxurious apartment building in Algiers

ALGERIA

CHALLENGES

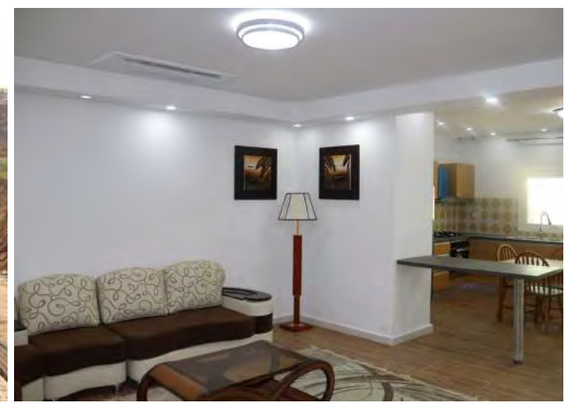
Usually centralized air-conditioned apartments have higher maintenance costs as compared to the apartments where tenants are free to install any system of their choice (mostly splits). However, energy-efficient pre-installed system attracts more people who are ready to indemnify the incurring costs for their convenience. The client eventually chose to install VRF, but space was a constraint.

SOLUTIONS

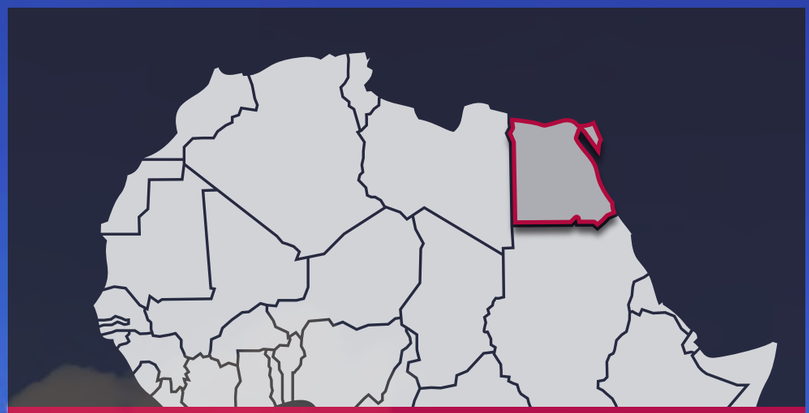
LG overcame the limited installation space issue with a side discharge VRF system, the MULTI V S. It was the best option for its energy efficiency while maintaining the beauty of the apartment by directly serving the independent needs of the unit. Moreover, an advanced designing approach in terms of technology and engineering was required for this high-rise building, especially for some specific areas. The average temperature was high, so LG offered the CFD analysis to assure the client of the best performance of the units in those locations.

BENEFIT S

- Each apartment is pre-installed with MULTI V S and its unique cooling & heating feature with individual controls in each room allows residents to maintain a comfortable temperature throughout the year - **End User**
- This system keeps a check on energy consumption, reducing power bills by almost 30% when compared to normal split air conditioners - **Client, End User**



Capacity			
4,094kW / 1,164TR	MULTI V S	1 and 4 Way Cassette	Wired Remote Controller
	452 units	**1,689** units	**1,689** controllers



EGYPT

- LG Factory
- Suez Canal Camps
- MOH Hospitals
- Medical Park

COMMERCIAL

LG Factory

Factory in 10th o f Ramadan

EGYPT

CHALLENGES

LG's global expansion has led to the decision to manufactur e various home applianc es in Africa. Therefore, the client opted to setup a factory in Egypt in order to ease the logistic s and servicing of products sold in and around Egypt. Factories usually have different zones like the production area, offi es, raw material storage, cafeteria, and a warehouse. Each space has its own temper ature and humidit y requir ements, especially on the production line where the heat dissipation of machines is high and wher e static char ge is something t o be c onsider ed while designing an air -conditioning syst em.

SOLUTIONS

As LG MULTI V outdoor units have an built-in compatibilit y to be interconnect ed to any AHU/F AHU using expansion kits and communic ation / control kits, this solution fit ed nicely in this applic ation, as it not only cools the area, but also maintains a certain level of humidit y, thus providing appr opriate work envir onment in each zone. The 4-way cassett e and high static duct ed units were installed in the offi es and other areas than production line to render the best surroundings. Advance Control Platform (ACP) control solution, with its capabilit y to easily control and monit or all units in the entire campus ar ea, w as pr oposed for the facilit y.

BENEFIT S

- With its specializ ed design suppor t for individual z ones, L G emer ged as the whole package solution pr ovider for the complet e facilit y - **Owner , Consultant**
- LG AHUs and other indoor units were interlaced with the ener gy-ef ficient MULTI V outdoor units, the stand-alone syst em that pr ovides op timum c omfor t le vel in each z one - **Consultant, End User**

Capacity				
2,427kW / 690TR	MULTI V IV Heat Pump	High Static Duct ed 4 W ay Cassett e AHU	Wired R emo te Contr oller	ACP
	22 units	**187** units	**187** contr ollers	**1** contr oller

OFFICE

Suez Canal Camps

Offi e compound in Suez

EGYPT

CHALLENGES

The Suez Canal is an ar tificial sea-l vel w aterway in Egyp t connecting the Medit erranean Sea t o the R ed Sea thr ough the Isthmus of Suez. The remo te location of this project has a limit ed pow er sour ce and far accessibilit y. Ther efor e, the owner was seeking for a highly efficient and reliable AC syst em. The energy consump tion had to be reduc ed to the maximum level, while the service and maint enanc e had to be minimiz ed or eliminat ed for a longer period in order to avoid any inconvenienc e to the people living inside and to prevent any odd time rush to the site from the facilit y management team.

SOLUTIONS

Due to the remo te location of the project, the client review ed many brand offers which were suitable in terms of energy efficienc , reliabilit y, and service response. With a strong local partner service network in Egypt, LG appr oached the client with its cutting-edge MULTI V solution. LG MULTI V's incompar able energy efficiency values at full and partial loads fully met the owner's requir ements. LG shared the factory reliabilit y test data to the management team alongside with the record of minimal or no lock down which content ed the owner and facilit y management team. Particul arly, the newly introduc ed 'Aut o Dust R emo val' featur e impr essed the cust omer so that he op ted for the best VRF solution pr ovider.

BENEFIT S

- With its low est ener gy c onsump tion syst em, pr eventiv e maint enanc e, and r eliabilit y, MULTI V is the most suit ed syst em for this pr oject - **Owner**
- Remo te monit oring o f the units oper ation and err or aler ts using A C Smar t gav e cutting-edge c omfor t to the facilit y management t eam - **Facility Management**

Capacity	MULTI V IV Heat Pump	High Static Duct ed Wall Mount ed	Wir ed R emo te Contr oller	AC Smar t IV
7,445kW / 2,117TR	**115** units	**1,047** units	**1,047** controllers	**5** controllers

HEALTH CARE

MOH Hospitals

Government hospital in Matr ouh

EGYPT

CHALLENGES

This project belongs to the Ministr y Of Health, Egypt. The retro designs for their other hospitals used chilled water systems; how ever, satisfaction was below average due to certain issues. Hence, they wanted to opt for VRF and requir ed pr eliminar y design suppor t for this new and unfamiliar syst em.

SOLUTIONS

LG has a proven track record of installing MULTI V in hospitals that covered half of the issues when convincing the government engineer s. Owing to LG engineer ing team who engaged at the preliminar y design stage and remained on site to suppor t the design team to clearly explain MULTI V's unique specifi ation and install ation fl xibilit y, the engineer s were quite satisfied with the design suppor t and syst em's capabilit y to ser ve the hospital by maintaining high IAQ. Additionally , LG's commissioning team work ed closely with the contr actor to smoo thly start up the syst em.

BENEFIT S

· Preliminar y design suppor t and t echnic al seminar s helped the go vernment engineer s to get a detailed view o f LG's MULTI V in detail - **Consultant**

· Previous install ations in hospitals boost ed the c onfiden e to opt for MUL TI V - **Owner**

· MULTI V's eco-friendliness and adequat e IAQ featur es creat ed fresh envir onment inside the hospital - **Owner, End User**

Capacity	MULTI V IV Heat Pump	High Static Duct ed	Wir ed R emo te Contr oller	ACP IV
2,085kW / 593TR	**23** units	**327** units	**327** controllers	**2** controllers

HEALTH CARE

Medic al P ark

Clinic & tr aining c ent er in Cair o

EGYPT

CHALLENGES

This is one of most trust wor thy, reput ed, and reliable clinic s in Cairo. Ther efore, most people visiting the hospital come for critical treatment, and, ther efore, mor e chanc es of airborne bacter ia pose a constant threat. Bacter ia grow so fast that they can multiply to reach tens of billions within 24 hours. This clinic needed a highly reliable solution to impr ove indoor air qualit y and reduc e airborne infection with some specified acut e fil ers, capable of capturing Range 1 bacter ia of the size below 10um.

SOLUTIONS

The plasma air-pur ifying syst em, developed uniquely by LG, not only remo ves micr oscopic contaminants and dust, but also eliminat es house mit es, pollen, and pet hair to prevent allergic diseases like asthma. With a fil er that can be cleaned simply by washing with water and used over several times, end users could enjoy clean and fresh air without the cost of regular fil er replacements. LG also offered MERV 13 fil ers included in the AHUs combined with MULTI V to extract the foul air and to provide the fresh air inside the clinic so that to meet the requir ements of dust-spot efficiency of 80%~90% and >90% Arr estanc e ratio.

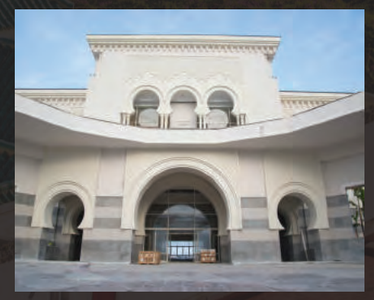
BENEFIT S

- MULTI V is a clean air -conditioning solution equipped with highly ef ficient air fi ers that c ould signifi antly impr ove the indoor air qualit y - **End User**
- Fully functional pl asma fil ers and HEP A fil ers to pur ify the air inside the clinic pr event the spr ead o f any kind o f micr oscopic c ontaminants - **End User**

Capacity	MULTI V IV Heat Pump	High Static Duct ed Ceiling Cassett e	Wir ed R emo te Contr oller	ACP IV
1,502kW / 427TR	**23** units	**368** units	**368** controllers	**2** controllers

MOROC CO

· Ritz Carlt on Tamuda Ho tel
· Marr iott Samaa Mar ina Ho tel
· Ayoub Ho tel & Spa
· Ozmosis Spa
· ONCF Swimming P ool
· New York er
· Siege Lydec
· Sor ec
· La Mar ina
· Oceanes 2



HOSPITALITY

Ritz Carlton Tamuda Hotel

Extended stay hotel in M'diq

MOROCCO

CHALLENGES

This hotel has luxurious rooms, suites, as well as an indoor swimming pool, sauna, fitness area, beauty salon, and outdoor terraces. Various well-equipped meeting halls are available for conferences and celebrations. Tranquility is the major theme of this hotel which called for a system that would not only run at a low noise in the outdoors, but also be noiseless in the rooms. The client sought for a reasonable air-conditioning solution that could simultaneously operate cooling and heating from one condenser for the rooms with customers having different operation choices. The client also asked for an energy-saving system in order to reduce energy costs.

SOLUTIONS

LG suggested MULTI V Heat Recovery, as it simultaneously provides heating and cooling operation with a single outdoor unit. The hotel environment was ensured to benefit from MULTI V which set up the optimum conditions regardless of the season or location. With its quiet condensers and low static units with the noise level of just 28dBA, MULTI V Heat Recovery ensured the comfort of all customers. Moreover, LG BACnet device satisfied the most basic prerequisite, i.e. the integration of the air conditioning system with the BMS.

BENEFITS

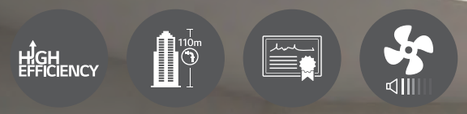
- MULTI V Heat Recovery always adheres to the requirements and responds accordingly whether it is cooling, heating, or auto mode operation where the unit toggles between cooling and heating to maintain precise temperature for the guests inside the room - **End User**
- BMS integration with BTL certified LG BACnet device bypasses any JMTs on the site, but gives an opportunity to BMS companies with its plug and play specifications - **Consultant, Integrators**

Capacity	MUTI V IV Heat Recovery	Low Static Ducted	Wired Remote Controller	ACP BACnet
1,300kW / 370TR	52 units	225 units	225 controllers	1 controller

HOSPITALITY

Marriott Samaa Marina Hotel

Luxurious hotel in M’diq



MOROCCO

CHALLENGES

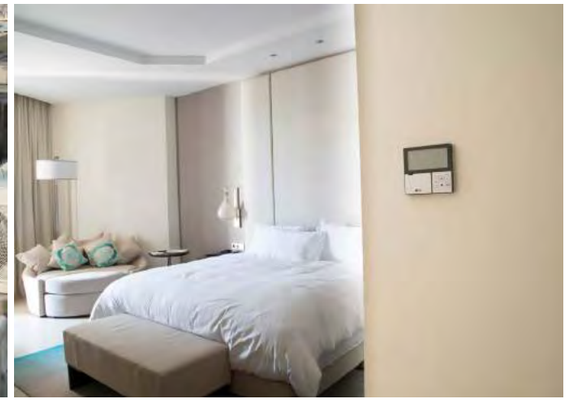
Marriott hotel is located on the extreme eastern coastal line of Morocco, with luxurious sea-facing rooms. The hotel’s international guests expect the highest standards with modern facilities, since it is the most attractive tourist destination, particularly to the French visitors. The weather in the hotel area is unpredictable during summers and reaches as high as 37°C. Therefore, the client’s preference was to have a system with a quick responsive cooling that would prioritize the guests’ comfort.

SOLUTIONS

Modern and highly efficient inverter air conditioning system was proposed and well accepted by the consultant. The compact size of LG’s low static ducted unit nicely fited in the false ceilings of the rooms. LG’s inverter split units come equipped with a powerful DC inverter rotary compressor which instantly responds to the cooling or heating demand from the indoors. The energy efficiency and noise levels were on a par with the desired results.

BENEFITS

· Faster cooling even at high temperatures - **End User**
· Compact size of indoor units - **Architecture, Consultant**



Capacity	Single Inverter	Low Static Ducted	Wired Remote Controller
1,200kW / 341TR	**312** units	**312** units	**312** controllers

HOSPITALITY

Ayoub Hotel & Spa

Hotel in Marrakech

HIGH EFFICIENCY · 110m · LGMV

MOROCCO

CHALLENGES

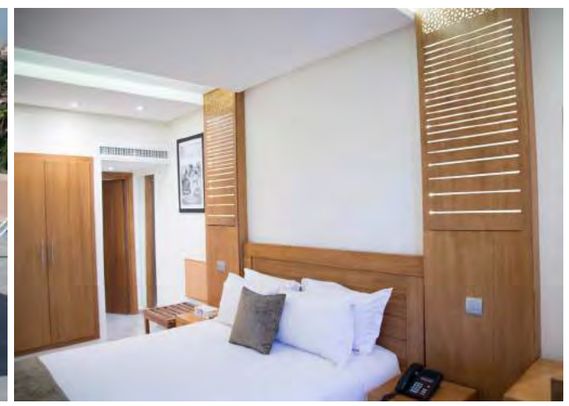
Located in Gueliz, this hotel is 1.2 km far from Museum of Islamic Art and within 5km distance of Jamaa el Fna and Palais des Congres. Koutoubia Minaret and Ben Youssef Mosque are also within reach. In Marrakech, the summer temperature reaches up to 45°C while it drops down to 15°C during winter. The hotel consists of 110 rooms, 2 restaurants and provides free air-conditioning to its guests throughout the year. Therefore, energy saving was definitely the top requirement, as seasonal efficiency would help the owner to save a lot on the running cost. The low noise level provided by the product was the second most important factor considered by the client.

SOLUTIONS

Maintaining high performance levels even in extremely hot weather was challenging to LG with MULTI V. This VRF system ensured optimal cooling, high efficiency, reliability, and low maintenance cost to the client. With its long piping and large number of indoor units' connectivity specs, the outdoor units were capable of covering not only the high elevation, but also the wide spread room layout throughout the building. This is the reason why only 11 outdoor units (4 systems) were installed to cover the entire structure with 110 rooms, thus saving a lot on the initial cost.

BENEFITS

- Design flexibility with multiple indoor units connected to one outdoor unit economized the expenses that the owner usually incurred with the centralized air-conditioning system - **Owner**
- Instant cooling and maintaining precise temperature with two-point temperature sensing feature ensured the desired comfort level in the hotel - **End User**



Capacity	MULTI V Water IV MULTI V IV Heat Pump	Low Static Ducted	Wired Remote Controller	AC Smart IV
392kW / 111TR	11 units	110 units	110 controllers	1 controller

HOSPITALITY

Ozmosis Spa

Spa in Casablanca

MOROCCO

CHALLENGES

Ozmosis Spa is a space bought in the existing building by one of the spa chain owners. His initial understanding of hot water sources was limited to boilers, but he came across a buzz in the market that sparked his interest to a more energy efficient system that provides not only cooling, but also well-maintained temperature-controlled water for diverse applications in a spa, like pool, shower, Moroccan bath, and the like.

SOLUTIONS

Spa is a unique application requiring producing hot water at different temperatures interlaced with cooling via indoor units. LG sales team took the lead and visited the customer to raise his awareness on the energy-efficient hot water solution which can retrieve heat from the cooling indoor units and use it to heat the water. This can save from 40% to 62% as compared to electric or gas boilers. Moreover, LG's specialized engineering team helped the consultant to do the complete design on Hydro Kit to deliver hot water in the range of 30°C - 50°C with the mid temperature Hydro Kit and 55°C-80°C through high temperature Hydro Kit Solutions.

BENEFITS

- One package solution to the spa owner providing the stylistic indoor units to render the beauty of interior and hot water for various applications in the spa - **Owner**
- The most energy-efficient solution that bought in impressive energy savings for the owner, thus reckoning LG Hydro Kit with MULTI V as the best system that can operate both cooling and heating cycle with the same outdoor unit - **Owner, Contractor**

Capacity	MULTI V IV Heat Recovery	Low Static Ducted	Hydro Kit (High & Low temperature)	Wired Remote Controller
180kW / 51TR	3 units	27 units	4 units	31 controllers

COMMERCIAL

ONCF S wimming P ool

Spor ts club in Rabat

HIGH EFFICIENCY · Ocean Black Fin · LGMV

MOROCCO

CHALLENGES

Located in Rabat, ONCF conducts national-le vel Olympic swimming competition in this spor ts arena. The main attr action of this site is the Olympic -standar d swimming pool sized 30m x 15m x 2.5m, which is used not only during the main events, but also by local club member s and spor ts personnel to carry out their practic e sessions. To remedy the problem of high consump tion costs incurr ed by the owner due to the use of the previously installed old gas boiler syst em, the client strongly highlight ed just one thing: “Ener gy saving is the k ey to win this pr oject.”

SOLUTIONS

LG Engineer ing team used eQuest program which performed simul ation on all the possible install ations with air-cooled and water-cooled syst ems. This helped LG to select the best solution, which were MULTI V IV (40%) and MULTI V Geo Thermal (60%) with medium t emper atur e Hydr o kits that dr opped the annual bill t o incr edible 63% as c ompar ed t o the pr evious boiler syst em. The new syst em maintained the precise temper atur e of 29°C throughout the oper ation and this temper atur e could be well-monit ored on LG’s central controller screen. Additionally , LG extended its full suppor t from the design stage to the install ation stage and then t o the af ter-sales per iod.

BENEFIT S

- LG pr ovided an estimat e that this new solution is 63% mor e ef ficient than the old gas boiler sys em and c onvincingly demonstr ated it by running the syst em af ter the c ompletion o f install ation - **Owner**
- Geo Thermal solution uses ground water sour ce to exchange heat and this is the fi st ever install ation of the syst em in Mor occo. Ther efor e, having such a r eput ed syst em installed on the sit e and deliv ering tr emendous performanc e doubled the cust omer’s satisfaction - **Owner**
- 29°C w ater temper atur e was w ell-maintained with L G Hydr o Kit and A C Smar t IV controller - **End User**

Capacity				
400kW / 114TR	MULTI V W ater IV **2** units MULTI V IV Heat Pump **2** units	Hydro Kit (Medium Temper ature) **14** units	Wir ed R emo te Contr oller **14** controllers	AC Smar t IV **1** controller

COMMERCIAL

New Yorker

Garment st ore in Marr akech

MOROCCO

CHALLENGES

New Yorker is a part of Apparel group which is a global fashion and lifestyle retail conglomerate originating from the land of modern economy - Dubai, United Arab Emirates with its strong presence over whole MEA region and expansion plans in Hungary, India, Philippines, etc. With its noticeable modern design, it is one of the most recognizable and beautiful buildings in this area. The building needed a system that would blend in the design with outdoors units on the rooftop and hide away indoor units connected to ducts. Supplying the air through specially designed diffusers to match the standard interior of the store was another key requirement.

SOLUTIONS

MULTI V's peerless piping length and frequency-controlled compressors allowed the condensing units to nicely fit above the rooftop. At the same time, the ESP setting feature of LG indoor units accomplished the most difficult task by modifying the static pressure values at different fan speeds that lowered the noise suspected during the delivery stage, as there were last-minute changes in the duct shape and lengths, as well as minor modifi ations on the diffusers' style. The consultant and contractor fully appreciated the technical team's full- time presence during the critical install ation stages.

BENEFIT S

· Lower capital and operational costs - **Owner**
· LG's unique A C Ez tuning function for ESP setting helped to cover last-minute changes - **Consultant, C ontractor**
· Ceiling-suspended ERV (Energy Recovery Ventilation) circulates fresh air all the time inside the store to remove foul air during peak hours and bring in fresh air - **End User**
· One touch control and total on/off for all the indoor units using A C Ez Controller - **End User**

Capacity				
211kW / 60TR	MULTI V III Heat Pump **13** units	High Static Duct ed **12** units ERV **2** units	Wired R emote Contr oller **14** controllers	AC Ez **1** controller

OFFICE

Siege L ydec

Offi e building in Casabl anc a

CHALLENGES

Lydec was established in 1995 after the Moroccan government resolv ed to serv e 4.2 million habitats with treated water and electr icity using all renew able measur es available, such as solar panels, wind power, and the like. Headquar tered in Casabl anca, they decided to engage in reducing public household' s energy consump tion. Thus, they had to demonstr ate the initiativ e from their offi e by revamping the old syst em and replacing it with the most energy-ef ficient air conditioning syst em.

SOLUTIONS

LG offered MULTI V III as it requir ed small footprint of 0.94m ^{2}. With its cooling EER of 4.1 at full load and ESEER of 7.1 at partial load, the client was convinc ed of the energy-ef ficiency aspect. As a value addition to this energy efficient mission of Lydec, LG suppor ted them with the best solution by offering LG AC Smar t IV which sets up scheduling all year round, so that the building creates a comfor table envir onment for the employ ees befor e they step in and switches off all the indoor units in the offi e zone after business hours. Finally, LG's technic al team conduct ed an awareness training on other availabl e featur es that c ould lead t o big ener gy savings in r esidential and c ommer cial sect ors.

BENEFIT S

- Small foo tprint, y et high ener gy ef ficiency xemplified the maximi ed savings in t erms o f install ation and oper ation - **Owner , Contr act or**
- Scheduling for aut omatic control of units created a comfor table envir onment for the employ ees and add-on to the energy savings - **End User , Owner**

Capacity				
280kW / 79TR	MULTI V III Heat Pump	Ceiling Cassett e High Static Duct ed	Wired R emo te Contr oller	AC Smar t IV
	8 units	**114** units	**114** controllers	**1** controller

OFFICE

Sorec

Office building in Casablanca

CHALLENGES

Established in 2003, Sorec is one of the companies that possess some of the most luxurious horse breeds, bloodstocks, and race courses all over Morocco. They have recently upgraded their offies in Casablanca equipping the facility with the imported lush items that suit their standard. In order to select the best air-conditioning system, the consultant emphasized precise temperature and humidity control for the horses and the possibility of remote management from the office building.

SOLUTIONS

LG offered its unique MULTI V IV Heat Recovery system which is the best known system to maintain the temperature precisely while automatically toggling between cooling and heating to cope with the temperature variance throughout the day. AHUs were installed and integrated at the same time to maintain humidity. The entire system was linked to LG's AC Smart Premium which is a stand-alone centralized controller having web-embedded functionality capable of transmitting monitoring status and receiving control commands from any remote location. Therefore, the customer could stay carefree while the system conditioned the space. In addition, multiple compressors inside the system would trigger automatic backup in the case of a failure.

BENEFIT S

· Mode auto changeover function in LG MULTI V IV heat recovery units eliminated the issue of changing the mode during a huge variance in temperature - **Facility Management**
· Automatic backup feature verified the redundancy and ensured reliability of the system in the case of a failure - **Owner**
· Web control and monitoring made possible with AC Smart - **Owner, Facility Management**

Capacity	MULTI V IV Heat Recovery	Low Static Ducted	Wired Remote Controller	AC Smart Premium
180kW / 51TR	3 units	27 units	27 controllers	1 controller

RESIDENTIAL

La Mar ina

Shor eline apar tment c ompound in Rabat

MOROCCO

CHALLENGES

This building consists of several apar tments and the rest of its space is well-used to provide a plenty of openness inside the rooms and utility areas inside the building. Thus, the owner sought to install a system that should serve one apar tment and that would which fit his budget

SOLUTIONS

LG MULTI Split system, also known as MULTI F Inverter, is the most economic air-conditioning solution for such applic ations with a high performanc e in cooling due to the inverter compressor inside the outdoor unit. With a concept simil ar to that of MULTI V, the unit has a single pair of piping from the outdoor unit connect ed to a distr ibution box inside the building that fur ther has refrigerant piping ports to serve 2, 3, or 4 units with the maximum of 9 indoor units served by a single outdoor. User s are allow ed to choose from various types of indoor units as per their conv enienc e and sense o f int erior designs.

BENEFIT S

· Ec onomic syst em with limit ed functionalities as c ompar ed t o VRF, but the cust omer w as satisfied as it xactly fit ed int o his budget - **Owner**

· A v ariety of indoor units t o choose fr om by end user s to mat ch their pr eferenc e on int erior design - **End User**

Capacity	MULTI F	Low Static Duct ed	Wir ed R emo te Contr oller
3,742kW / 1,063TR	**412** units	**1,236** units	**1,236** controller s

RESIDENTIAL

Oceanes 2

Seaside premium apartments in Casablanca

CHALLENGES

This is one of the architectural masterpieces in Casablanca where every equipment, as the consultant clearly specified, should be white and blend in well with the elegant white architecture of the building so that all the installed equipment visible to the public from far appear to look as a built-in system. With limitations on the budget, as well as the installation space, the main challenge came in when the proposal was raised to install outdoor units in the balcony enclosed in a perforated wooden block with minimum dimensions.

SOLUTIONS

Although the space hindrance was challenging, the answer to the architect and consultant was very simple and clear: "LG can do it with the new Multi Inverter Splits". Due to its small footprint, powerful inverter condenser fan motor, and aerodynamic fan shape, air can be perfectly circulated in tight spaces. Furthermore, an inverter driven compressor with wide corrugated fins of the heat exchanger minimized the challenge due to high frequency compensation logic and efficient heat exchange, respectively.

BENEFIT S

- Compact design of LG MULTI F Inverter outdoor units perfectly positioned within the perforated wooden frame - **Architecture, Consultant**
- Owing to the highly efficient compressor and heat exchanger, enabling the maintenance of adequate cooling inside the apartments - **End User**
- Design and color of thee MULTI F outdoor units complemented the elegant white architectural exterior of the building - **Owner, Architecture**

MOROCCO

Capacity	MULTI F	Low Static Ducted	Wired Remote Controller
2,978kW / 846TR	**280** units	**846** units	**846** controllers

APPENDIX

Country	Hospitality	Commercial	Office	Residential	Educational	Health Care
Gulf	18-19	20-25	26-27	16, 28-35	36-37	
Iran	40-43			44-49		
Turkey	52-53			54-57	58-59	
Levant			62-65	66-71		72-73
Saudi Arabia	76-77	78-79, 90	80-87		91	88-89
South Africa		96-97	98-105			
West Africa	108-115	116-121	122-127	128-129	130-131	
East Africa	134-137					
Algeria	140-141		142-147	148-153		
Egypt		156-157	158-159			160-163
Morocco	166-173	174-177	178-181	182-185		

LG Electronics

http:// www.lg.com/global/business/system-air-conditioner

http://partner.lge.com

http://blog.lghvacstory.com

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