

QATAR

'AVIXA Best Flexible Space Experience' 2020 Award Finalist

An Eclectic Ensemble of Collaborative Technologies and Spatial Experiences

Sporting Events, Education Collaborative Space Flexibility

By Ram Bhavanashi



Even as this writer was finetuning this install case study report, he received a very energising information that AVIXA has announced this project as one of the Finalists for its Award under the Best Flexible Space Experience category. Instituted only this year by AVIXA, the global AV Experience Award programme recognizes the innovative integration of content, space, and technology to create or enhance an experience.

"I am very pleased that, Qatar University Sports and Event Complex project has made it to be among the Finalists to the Best Flexible Space Experience, in AVIXA AV Experience Awards 2020," said an excited Maged Amin, Design Head-AV at Techno Q. "We always felt the uniqueness of the project deserved a global accolade. Getting to the Finals of Avixa Award itself is an achievement," he said. "God willing, the project will win the contest."

SIA all the best to the project for the prestigious laurel. The Awards are scheduled to be announced on June 16 through the InfoComm 2020 Connected platform.

Qatar University Sports and Events Complex (QUSEC) – discussed in the last issue for its incredible technology deployment – is not just a structural marvel exploring the space flexibility possibilities for multiple situations but also a new paradigm exploit of audio-visual technology integration. For, the immensity of the design expertise, and the experiences it seeks to weave around stands it a class apart. Executed by Doha-based AV Systems integrator Techno Q, it's perhaps, among the most distinct of its kind in the world.

Having presented the all-important Main/Multipurpose Hall, and associated AV ingenuity in the April-May 2020 issue, SI Asia presents in this issue the second and last part the remaining areas of the QUSEC that contribute to its eclectic status. Read on:

The Qatar University Sports and Events Complex (QUSEC) is not just a body of structural enormity with a whole big bundle of construction certifications; it is a truly eclectic ensemble of operable spaces rendered with an experiential flexibility by means of unique play of collaborative technologies.

A quick recall: while the main attraction of the Complex is apparently taken by the Multipurpose Hall, the Complex's uniqueness is also characterized by many other spaces such as:

- * The Arena/ Training hall
- * The Gym
- * Exercise studios
- * Indoor tennis court
- * Squash court

- * Classrooms
- * Meeting rooms
- * Exhibition area
- * Lounges (common & VIP)

Having discussed the all-important Multipurpose Hall in the last issue, **SI Asia** now presents what makes the other spaces so much special.

As mentioned in the last issue of **SI Asia**, the audio-visual technologies deployed across the Complex and thereby flow through these spaces comprise:

- * AV (including Audio, PAVA, BGM)
- * Broadcast system
- * Scoreboards
- * IPTV and Digital Signage system
- * Stage Lighting
- * Production Communication
- * Translation/Interpretation system
- * Scenic panels lighting system

The Training Hall: Sporting a New Genre



The space that occupies an almost equal 'space' along with the Multipurpose Hall – in terms of scaling flexibility – is the Training Hall. Also referred to as the Arena, the Training Hall typically can seat up to 2,200 audiences for multi-mode sports training, sporting events, and ceremonies, and up to 900 guests in banquet mode.

In combination with the Multipurpose Hall, the Training Hall contributes to a larger experience of space flexibility, since it is designed to blend seamlessly with the Multipurpose Hall to create a huge combo hall for exhibitions or conventions of large scale. Even as it plays a larger game of technology with the Multipurpose Hall, it can also be completely sealed off from the Multipurpose Hall, with its own external access during the occasions of dedicated events happening in the adjacent Multipurpose Hall.

“The objective here is to provide the users with the flexibility to utilise each space without any obstruction,” explains Maged Amin, Head of Design-AV at Techno Q. “While the essence of design philosophy was to create multi-functional



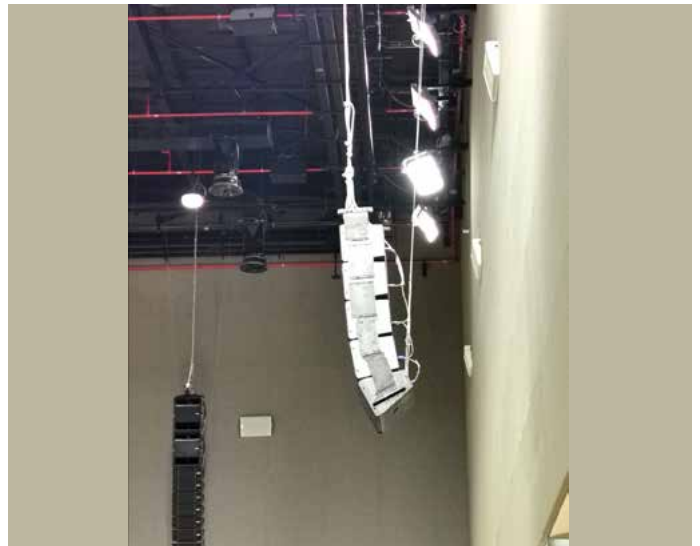
Mohanad Is-Hak

facilities with scalable and collaborative capacities, it was also important to ensure that these spaces performed independently.”

On its own, the Training Hall measures 36 by 67 meters, and can be subdivided into four separate sub-halls by means of ceiling-mounted retractable dividing curtains. In essence, it can provide for three separate, full size training fields of basketball, volleyball, or for one handball, or futsal fields.

According to the Techno Q AV Design Head, the Training Hall is not just meant for imparting training in the four sports disciplines chosen, but also aimed at conducting major sporting events towards further promoting them in the country. With a view to facilitating conductance of both training as well as competitions in a very experiential fashion, the AV and ICT deployment was designed in a very unique manner.

The sound system here comprises 60 different models of high-power full range loudspeakers, ceiling and wall mounted speakers in addition to a pair of suspended FOH array speakers with eight elements and two subwoofers meant to be used during long mode events. Further to this, the system is also fed with another pair of five-element array speakers next to the large LED display to be used during the wide-mode events. All the speakers from **NEXO**, configured to support all modes of uses in the hall- sporting types, ceremonies and exhibitions.



The multi-use functionality of the Training Hall – pretty much in line with the structural nature of the QUSEC building – meant that a conventional audio set-up wouldn't fit the requirement. The AV design therefore contemplated, tested and implemented the Acoustic Field Control (AFC) system by Yamaha that actually ran through the entire stretch of the building.



Mohanad Is-Hak

“We decided on the Yamaha AFC since we found it extending the natural reverberation time at all audience seats,” informs Techno Q’s Project Manager Mohanad Is-Hak. “The purpose of the audio and video deployment was to create an environment of excitement for the sports persons in the Arena, as well as the spectators watching it,” he explains.

“It was indeed challenging, but the project team worked it to perfection to create that energetic environment.”

While the requirement being highly complex, one of the primary tasks before the project team, was to minimize the complexity of routing yet achieve the objective of flexibility. It was thus chosen to integrate all sound system modules and I/O devices as a networked audio system powered by building-wide Dante. An audio mixer placed in the Main Control Room connects with all I/O devices across the building giving full flexibility to the user to locate and operate the mixer in any location in the halls, as per each event requirement and also connect to the Connection Tie line located in the broadcast boxes distributed within the building.



The Control Room at the Mezzanine floor, with all its AV gear (with a see-through window to the two halls).

The Control Room, as it is, is equipped with a powerful audio, video and lighting control for the Arena enabling the operator to control each element of the AV in the area as per the need.

Training Hall is also equipped with event rigging points distributed all across the ceiling, with each point given a bearing capacity of one ton weight- so that they all together can bear the rigs of even large events in the Arena.



The large scoreboard in the Arena features a high-brightness, 6-mm Direct LED display integrated with the video system, as well as the broadcast system, and in-house cameras so that it displays the

videos, presentations and spot reports of sporting events in the Arena.

Assistive Listening: Another unique feature at the Training Hall – pretty much like the Main Multipurpose Hall – is the assistive listening. With a view to enabling hard of hearing people with all the excitement in the Training Hall, a WiFi-powered assistive listening has been weaved in. People hard of hearing can use their iPod or smart devices/smart phones with neck-loop headsets or hearing-aid devices to have all the sporting or event action audio delivered right into their ears in as good comfort as the normal audiences.

Wireless Intercom: This is yet another interesting feature distinguishing QUSEC for its experiential technology play. With a view to creating an uninterrupted communication network between the event management team and the broadcasting staff, the AV integration design accounted for wireless intercom system. Designed to have different dedicated channels, the system allows communication among different teams for different events at the same time across the premises. The users can move freely across the keeping their communication alive all through.

The Meeting, Seminar Rooms : Flexibility in Meeting



The Meeting Room with all its AV set-up, featuring presentation collaboration network.

While the Main Hall or the Multipurpose Hall and the Training Hall apparently account for a lion share of the audio-visual mastery in the QUSEC building, it is also characterized by other spaces that play a critical role in the overall experience.

One of those spaces defining this role is the large meeting room that can actually be split into two small meeting rooms by means of retractable partition. In the combined mode it can seat up to 40 people while the capacity is approximately halved in the divided mode.

Two fixed projection screens and one projection screen by Draper with a Christie 8200-lumens DLP projector make up the visual component of the AV in this meeting room. According to the Project Manager, since the lighting ambience was a critical factor for video-conferencing in the split-mode meeting rooms, the AV design was done with grey projection screens so that the ambient brightness is absorbed, giving out desired contrast ratio for the displays.



Audio system comprised wall and ceiling mounted speakers with table mount discussion microphones besides wireless microphones. A pair of connectivity boxes is provided for each of the split meeting rooms – making it two pairs for the large, combined meeting setting – and is supported by advanced wall plates to power the presentation. Further to the wired connectivity, a wireless presentation system is also configured, just in case there arises a requirement.

The connectors are colour-coded green and red to enable connect/disconnect with the presenter while the furniture in the facility is rendered portable, in order to fit-in with the flexibility requirement of combined or split mode meetings.

Seminar Classroom: Complementing the academic set-up in the complex are three 25-seat Seminar Classrooms equipped with requisite AV gear. Each of these rooms are done with a Christie DLP projector facing a 161-inch fixed Draper projection screen that displays presentations from the cable cubby, wireless presentation system and document camera. All Audio and Video equipment can be controlled through touch panel located within the cable cubbies installed at the top of the podium, with the presenter having full control of all the equipment set-up and functionality, including colour-coded connect/disconnect ability.



The furniture here, again, is made on portable mode, to suite flexible seating requirements and multi-functional set-up. Further, the AV set-up is also supported by additional AV gear to meet any exigency situation of diverse varied requirements.

“These facilities are meant for high-end learning; and therefore the technology had to be of same level but easy

to use and experiential,” informs Mohanad. “The facility also had to be multi-functional.”

Student /Press Conference Lounge: Partly academic and partly controlled publicity-targeted facility is another special space inside the QUSEC building. The dual-purpose facility is used as both a Student Lounge and for Press Conferences during sporting events. A combination of large video wall display and IPTV/digital signage, portable and ceiling speakers, supporting sub-woofers and connectors define the Student Lounge set-up, while a small portable stage with requisite portable podium and microphone provision render the space with a media-briefing set-up.



The Student Lounge, that can also function as Media Briefing Lounge.

So, while the students/trainees can benefit from the Lounge ambience during non-event days, it is made a media lounge during any event days. Space flexibility is the call again.

“It’s a dual-function area performing as a hospitality zone for the participants during any event, with additional provision for media briefing requirement,” says Mohanad. During the normal days of no events, the space is used as “lounge” for students. So, space flexibility is the call and design spec again.

Multipurpose Gym: Flexing Fitness

Space flexibility is the focus again. The Gym or Fitness Hall is rendered yet another Multipurpose space with two foldable partitions that allow subdividing the hall into three smaller halls with integrated doors. Moving aside these integrated doors would combine all the three sub halls into one large fitness facility.



The multipurpose gym- well equipped with sophisticated AV gear.

The objective here is to facilitate fitness activities like focussed exercises such as Dojo, Yoga and martial arts training, besides other focussed activities in a very sophisticated ambience done with training equipment and supported by energizing AV- explains the Techno Q Project Manager. According to him, the sound systems provided in the fitness studio ranges from high output for intense CrossFit and dance exercise music to light background music for yoga activities, with high quality audio of wall-mount speakers and subwoofers done in stylish ambience.

“The focus is obviously on the finesse of the blend between space and set-up,” says Mohanad. “That it is a fitness space, it had to be stimulating both in terms of ambient space and sound.”

In addition to the programmable volume controls based on the fitness activity, each of these fitness spaces are provided with Bluetooth interface elevating the experience of the in-mates during the practice sessions. Any audio source can be easily integrated with the sound system, thereby the whole experience is taken to a new high every time.

Again, the added embellishments of IPTV, digital signage screens contribute to elevating the spatial experience to a new excitement.

Breakout Events Rooms: Then, there is a series of breakout rooms with more or less similar AV set-up as the Meeting Rooms, but with an addition of 98-inch LCD monitor screens in each of them. Instructors can make use of either wired or wireless presentation system for imparting their programming. Further, the AV gear also comprises both lapel and hand-held microphones, wall- and ceiling-mounted speakers, and touchpanels for controlling the AV elements in the rooms.

Interestingly, these breakout rooms can also be converted to Media work Room, or the Training Hall backstage since they have a direct access to the ground floor training hall.



The Rehearsal Room with the lighting grid for practice sessions.

Rehearsal Room/Green Room: Then there is a Rehearsal Room and Green Room which can be used for event rehearsals, dressing room and other mixed uses. Both the rooms are equipped with large display with laptop connection wall plate, wireless presentation system and IPTV system. The audio system will provide programme sound associated with any Video, PC and multimedia source inputs into the system. The AV gear is controlled by means of a touch panel mounted on the wall beside the display.

Further, the Rehearsal Room is also equipped with several lighting fixtures comprising profiles and fresnels, and meant for small events and performances. These lights are controlled through a wall slider installed near the other reachable facilities.

These rooms are again characterized by Bluetooth interfacing thereby further enhancing the system usage flexibility.

Explains the Techno Q Project Manager: “The Breakout and Rehearsal Rooms have been designed for students and professional performers to prepare for their programmes in the Main Hall which is why facilities are provided with an ambience of professional performance so that the performers sync well with the whole setting.

Sums up Maged Amin, the Techno Q Design Head: “The AV/ICT design and deployment at the QUSEC manifests a complete integrity between all the deliverables and the building systems such as HVAC via backnet protocol, KNX integration for house lighting, PAVA, and way-finding of exits during emergency etc. It also manifests collaboration of technology and flexible spaces in a highest order.”

That’s perhaps an assertion of competence, in confidence.

Broadcasting: A Major Challenge Addressed with Expertise at QUSEC



Eclectic that the QUSEC in short is, the variety and complexity of activities in the building required a very comprehensive broadcasting capability. To be able to effectively address that, the AV design specified deployment of as many as 38 broadcast boxes distributed all across the building connecting different locations together through portable racks, and the OB van outside carrying the broadcast content.

The portable racks comprise media converters that convert audio, video signals to broadcast format using dual LC Opticon tie line connections that can handle all 3G HD-SDI, HDMI, Ethernet and audio connections. The boxes are powered by 16A CEE type and 13A type G and ethernet connection that facilitate quality transmission.

The main connection of the broadcasting set-up located in the OBTC room that is reachable by the media truck with ease.

According to Mohanad, the QUSEC has been designated for lease and rental purpose, with major events meant for live broadcast through different broadcasters. However, owing to the use of different technology format by different broadcasters, Techno Q project team had to regularly liaise with all of them (Qatar TV, Al Jazeera, Al Rayyan, Al Kass TV and Bein), to create a design that is compatible with all the formats.

“That was some arduous task considering the complexity of the task and time limitations,” recalls Mohanad. “We studied all their formats in terms of the BCP panels to be used inside the building, and connection types like Triax, Hybrid, HDSI as well as the intercom boxes,” he explains. “The final design we configured is arguably futuristic in that it can handle all broadcasting formats for at least the coming four years.”

One of the major challenges was about the OB-van parking. Techno Q install team again had to work in tandem with the broadcasters to scuttle out the size, weight and positioning of the racks and their distance from the OB van.

“This was coordinated with the contractor to arrange for the spaces as well as the throw distance timing to allocate the OB-vans in proper space in a faster time frame,” details Mohanad. “Since the time frames are often very short, and fast-track mode, it needed a meticulous work out.”

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AV Brands Integrated at QUSEC

Audio

- AKG
- Audiotech
- Biamp
- Crown
- DPA
- Genelec
- JBL
- Martin
- Neutrik
- Newtek
- Nexo
- Sennheiser
- Shure
- Williams Sound
- Yamaha

Video/Lighting

- Analog Way
- Christie
- Echo360
- Fujinon
- Haivision
- MA Lighting
- Osram
- Phillips
- TvONE

Broadcast

- 360 Systems
- Adder
- Blackmagic
- Bittree
- Bosch
- Clear-com
- Newtek
- Sonifex

Tracking

- RoadReady

Display

- Draper
- LG
- Panasonic
- Samsung
- Stramatel

Electronics

- Crestron
- Denon
- Extron
- Middle Atlantic
- TvONE

Connectors

- Belden
- Fischer
- Lemo
- Neutrik

Presentation

- Autonomic
- Polycom
- Wolfvison

PCs

- Apple
- Asus
- Dell
- HP

Mounts

- Chief
- Hagor
- K & M

Staging/Trussing

- Chemtrol Stage
- Eurotruss
- Stagemaker
- PCE