HOARE LEA

Forging the future of music. World-class acoustic excellence. Challenge accepted.

HOARE LEA & ROYAL BIRMINGHAM CONSERVATOIRE

JO / 20.11.17 / SENT 09:35AM

Opening night finally arrived. How did it go?

Since 1859, the Royal Birmingham Conservatoire has nurtured the talent of thousands of globally-renowned musicians. A world-class new home was needed to propel it into the digital age and empower it to build a future as rich as its history.

With arts funding becoming more limited, the Royal Birmingham Conservatoire's role in training the world's next great musicians and actors is more vital than ever, and so too was our expertise in this most complex of projects.

MIKE / 20.11.17 / SENT 09:57AM

Spine-tingling moment. Truly proud of the team.

CLIENT: BIRMINGHAM CITY UNIVERSITY
COST: £57M
ARCHITECT: FEILDEN CLEGG BRADLEY STUDIOS
CONTRACTOR: GALLIFORD TRY CONSTRUCTION

“Our programme benefits thousands of young people from diverse communities across England. Our new home will become the central hub of all of these crucial activities.”

PROFESSOR JULIAN LLOYD WEBBER
PRINCIPAL, ROYAL BIRMINGHAM CONSERVATOIRE

Our approach.
Meet Clive Higham, Project Partner for the Royal Birmingham Conservatoire.

"So often our work involves a huge amount of effort behind the scenes, but on this project it was brought to the forefront...With a building like this, where functionality – and, of course, acoustic perfection – is so utterly paramount to its success, our work is integral in shaping every aspect from as early as the concept stage. I'm proud to say our engineering expertise was thrown into the spotlight and, in my eyes, has become one of the stars of the show."

SENSATORY JIGSAW.

The success of the building relied on ensuring the comprehensive architectural and building services design could achieve the exacting requirements of each unique space, all within the relatively modest (for the scope) budget.

As well as teaching spaces, the building was to house a 500-seat concert hall, recital hall, organ studio, and dedicated jazz club. Every aspect of the scheme became a priority: from the acoustic, architectural and comfort level demands of each room, to the brief to push the use of digital technology in both teaching and performances.

CHALLENGING BASSLINE.

Performance spaces had to deliver uncompromised sound that could bring out the nuances in professional recitals, while revealing and inspiring those given by students. Close collaboration between our Acoustic team and Audiovisual / Sound System designers was paramount. Michael Whitcroft, who led the acoustic design, explains: "The intent from the outset was to create musical acoustic spaces that would be regarded as some of the best and, hopefully, the very best in the world."

How do you achievie a truly 'world-class' facility? We decided it was all down to our approach and attitude...

SERVICES PROVIDED

- ACOUSTICS
- AUDIOVISUAL
- FIRE ENGINEERING
- ICT
- LIGHTING DESIGN
- MEP
- SUSTAINABILITY

SCOPING OUT THE WORLD-CLASS DESIGN STANDARDS

CALCULATED RISK TAKING

THE RIGHT KEY: STARTING SPACE.

We set ourselves a variety of tasks: learning all we could from existing exemplar facilities and venues; stripping everything away and reconsidering the identity of each space from different perspectives (musical performance, fidelity and experiential); taking some calculated creative risks; stretching the current acoustic scientific thinking; and drawing on our team's wider experiences as music lovers, musicians, composers and recording engineers.

One of the first challenges was dealing with the control of noise intrusion. With a nearby busy dual carriageway frequented with thundering HGVs, and tramline planned for the near future, we used a variety of solutions to ensure acoustic quality. As well as reworking the building layout to push the highly critical sound spaces to the south, we specified high-performance double and bespoke secondary glazing systems throughout the building.

MODEL APPROACH: ATTITUDE AND TRUST.

Fundamental to our overarching approach to the project was to use our digital engineering (BIM) software to model every aspect of the building.

Most of the spaces also had to be built as a 'box in box', mounted on specialist low frequency isolation bearings. This meant our MEP design had to ensure the building services isolated as much noise and vibration transfer as possible.

The degree of precision this required meant our intricately detailed designs had almost more influence over the aesthetic and structure of the spaces than the architect did. As well as maximising efficiency, using BIM allowed us to bring everyone involved on board with our proposed designs. This shared foundation of trust meant key stakeholders were confident that our proposals would match their vision. Overshadowing all of this, though, was the personal commitment that our people poured into this project.

SOUND PERFORMANCE: NOW AND TOMORROW.

Inside the building, our high-performance internal walls have achieved incredible reductions of more than 90dB. The internal layout – as complex as a 3D puzzle – is a technical triumph: completely independent steel-frame box-in-box spaces straddle other box-in-boxes with dense inner-core floors and walls plus wide-cavity independent outer shell walls.

This complex arrangement necessitated the meticulous modelling of the potential sound transfer paths around and between each space. Because some of the voids inbetween rooms also had to be used as ventilation services routes, our Acoustics team designed a combination of strategically-placed cross-talk attenuators and high-performance acoustic lagging, as well as developing bespoke isolating fixing methods to ensure the complex structural layout maintained its very high acoustic integrity.

The result is the ability to use all venues simultaneously – achieving the university's key requirement for no limitation on potential programming in the years to come.

1st
purpose-built music college in the UK since 1987

70+
practice and teaching rooms

1 of 9
UK conservatoires that are also a university faculty

TESTING, TESTING:
In the run up to handover, our engineers carrying out tests on-site almost outnumbered the builders!

THE BIGGER PICTURE

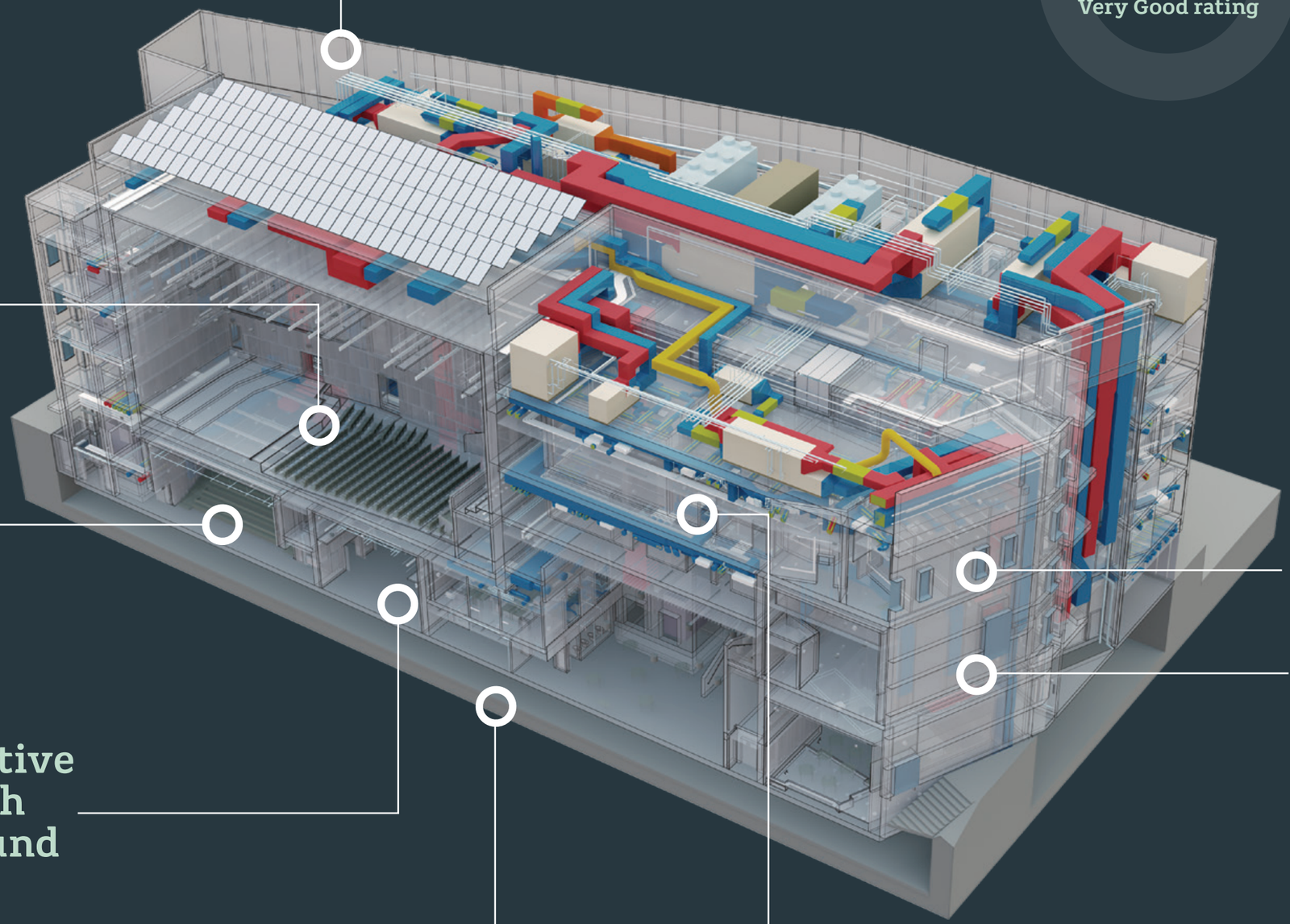
Fibre-optic
infrastructure throughout.

BREEAM
Very Good rating

PNC11 -15 and NR8
Service noise levels in recording studio live rooms

500-seat concert hall
Equipped for rehearsal, performance, recording and broadcast, with variable acoustics.

146-seat recital hall
With variable acoustics to create an intimate chamber venue/cinema screening/critical listening room.



100-seat organ studio
designed to have lush natural reverberation.

Eastside Jazz Club
The only permanent jazz club in any British Conservatoire.

Black box creative ‘Lab’ space with 10.2 Meyer Sound

5 storeys
with complex vertical stacking of venues.

Professional recording studio complex with seven sound control rooms and two live rooms.

Project impact.
The seal of approval from musicians... and royalty.

Alongside the opening of its new building, the Birmingham Conservatoire was granted a royal title by Her Majesty The Queen. Joining a select list of performing arts institutions honoured in this way, the Royal Birmingham Conservatoire now has a state-of-the-art facility to match its new name... a home for the next generation of talented performers. Ultimately, it's a building that should create a legacy even bigger than itself.

UNDER CONTROL:
The building features a wealth of professional studio recording facilities.

"The design enables recording from virtually any space using networked digital audio infrastructure."

MIKE BEDFORD
ASSOCIATE DIRECTOR, INTELLIGENT BUILDINGS

A DIGITAL SPACE WITH TOTAL FLEXIBILITY.

The technological requirements for both teaching facilities and professional performance facilities are demanding enough individually; when combined, the challenge is compounded, as is the potential for an exceptionally unique result.

The audiovisual brief was to achieve the highest performance and quality requirements while designing total flexibility for users and providing the ability to route anything anywhere.

Our experts designed a highly flexible infrastructure to support a fully analogue and networked digital Dante audio distribution in parallel. This allowed a large multitude of uses and user types, including external hire and external professional productions. Absolute attention to detail was required throughout the process.

Our Audiovisual team's commitment was recognised with its further appointment as package manager working for the main contractor during construction, commissioning services, and completion.

A FUTURE-PROOFED TECHNICAL TRIUMPH

SOUND THINKING

"Professional musicians have described the spaces as truly exceptional and a joy to play in."

MICHAEL WHITCROFT
SENIOR ASSOCIATE, ACOUSTICS

A SPACE THAT SINGS.

A building's success is decided by those who use it – and the Royal Birmingham Conservatoire is already delighting students, teachers, and performers alike. Musicians have expressed the complete confidence they have in the recital hall space – claiming it faithfully translates even their most nuanced phrases to audiences. Meyer Sounds' most experienced sound engineer Michael Pohl also added that it was "the best sounding room he had ever heard."

Soloists have communicated how connected they feel to the Eastside Jazz Club venue: saying that it allows for intimacy without losing the ability to push sound levels effortlessly. The venue even has an app that audiences can use to place refreshment orders, which are then delivered directly to their table during performances to minimise disruption!

The building will not only enrich the university experience for all students, but creates an internationally-renowned venue for Birmingham. Strengthening the region's cultural offering, this magnificent building bolsters the city as a national centre for performing arts – and, if the first few months of opening are anything to go by, will become its musical heart.

“Our fantastic new facility will ensure we can equip future performers with the skills they need to meet the demands of today’s fast-paced creative economy.”

PROFESSOR PHILIP PLOWDEN
VICE-CHANCELLOR, BIRMINGHAM CITY UNIVERSITY

“It is a place where dreams become reality and the impossible is made possible.”

PAUL BAMBROUGH
VICE PRINCIPAL OF MUSIC, ROYAL BIRMINGHAM CONSERVATOIRE

COMPLETED WITH PRIDE

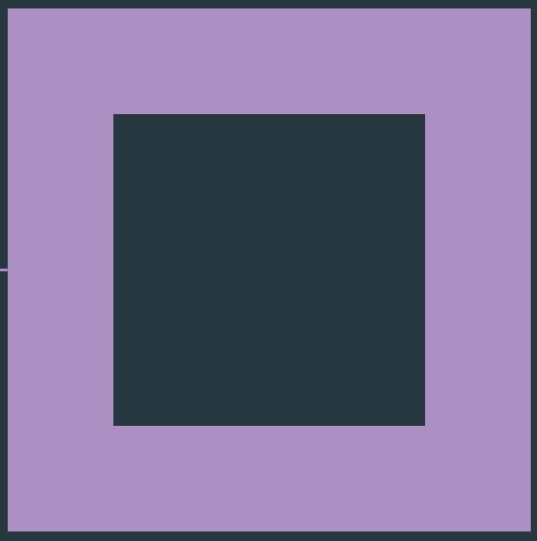
HOARE LEA

Engineers of human experiences.

Hoare Lea is an award-winning engineering consultancy with a creative team of engineers, designers, and technical specialists. We provide innovative solutions to complex engineering and design challenges for buildings.

Irrespective of the scale or complexity of a project, we provide a full range of MEP, environmental, and sustainability services, bringing buildings to life and ensuring that they perform in operation as well as they look.

HOARELEA.COM



Designed and produced
by Hoare Lea