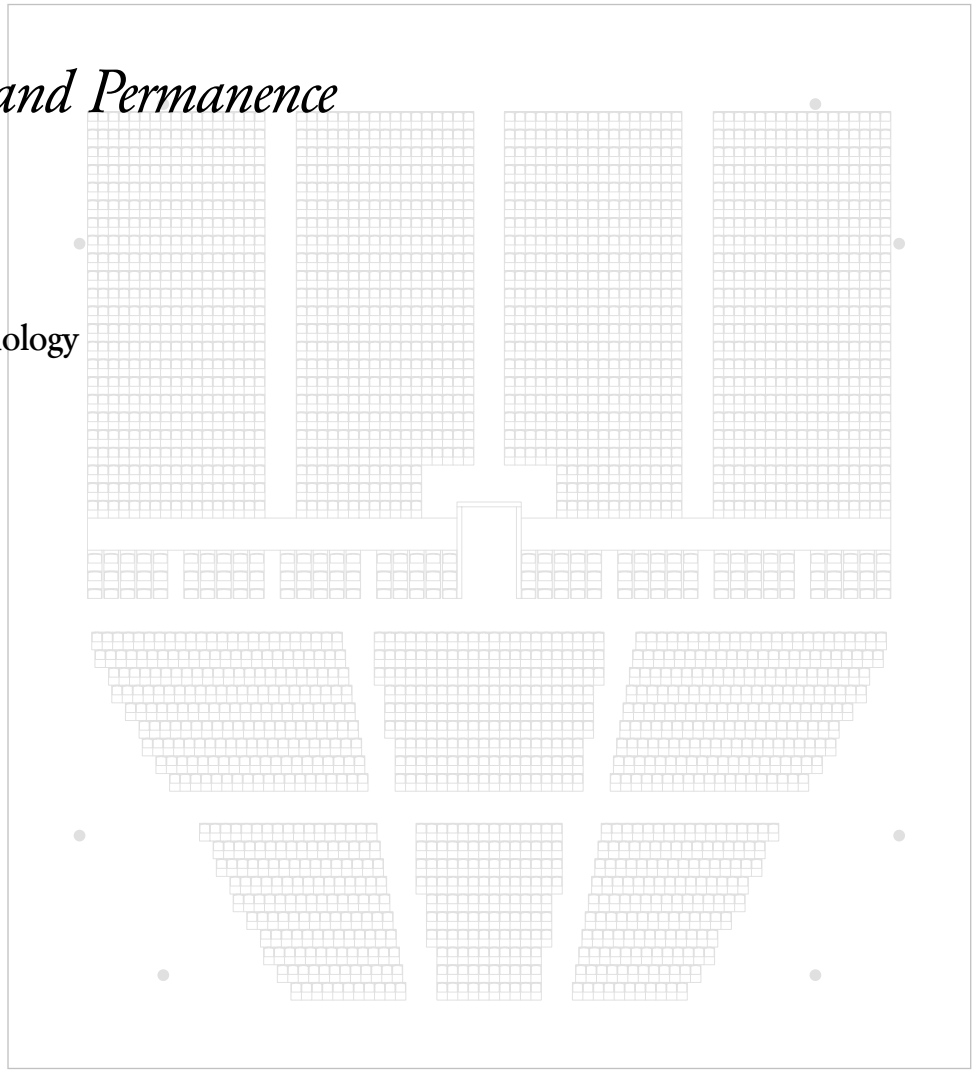
Fieldharmonics
Sound, Landscape, and Permanence



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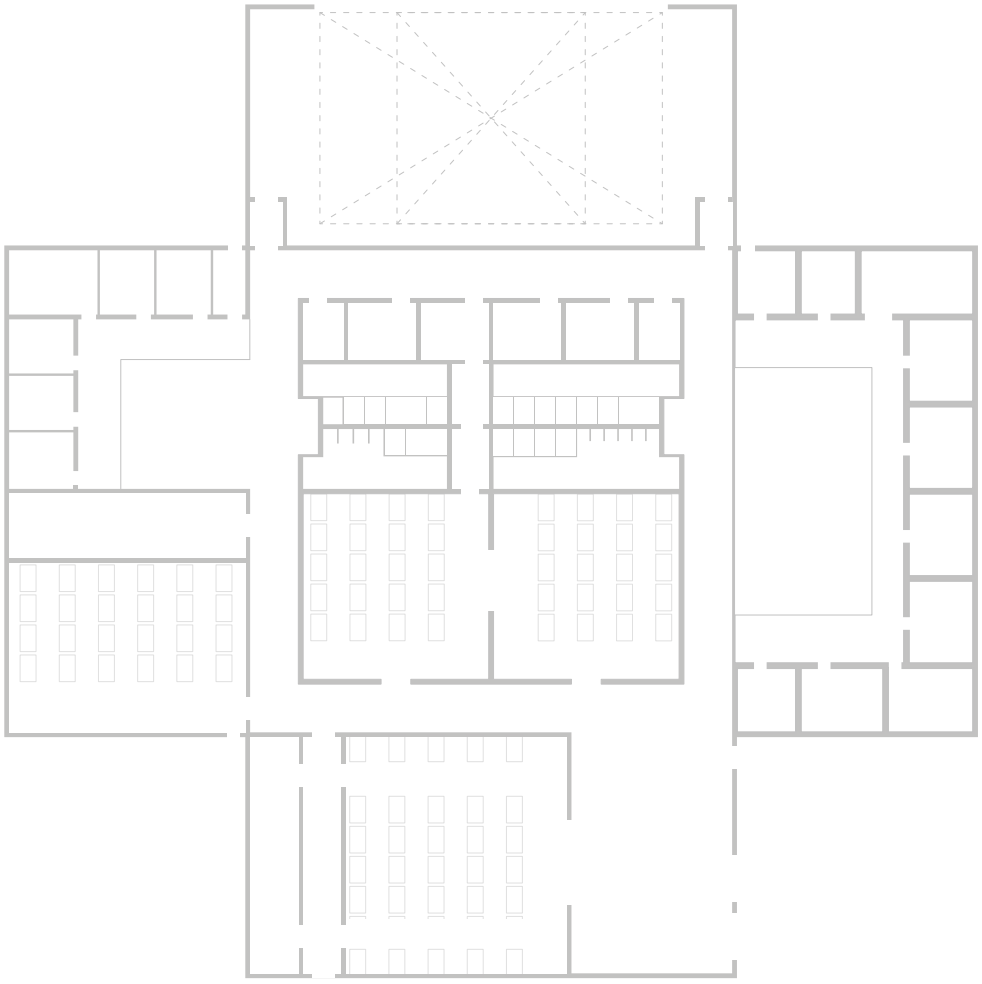

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1 The hammered steel topography became our first reading of the site. We drew on it, erased, and redrew. The model taught us, before any plan, that the landscape was to be met rather than altered.

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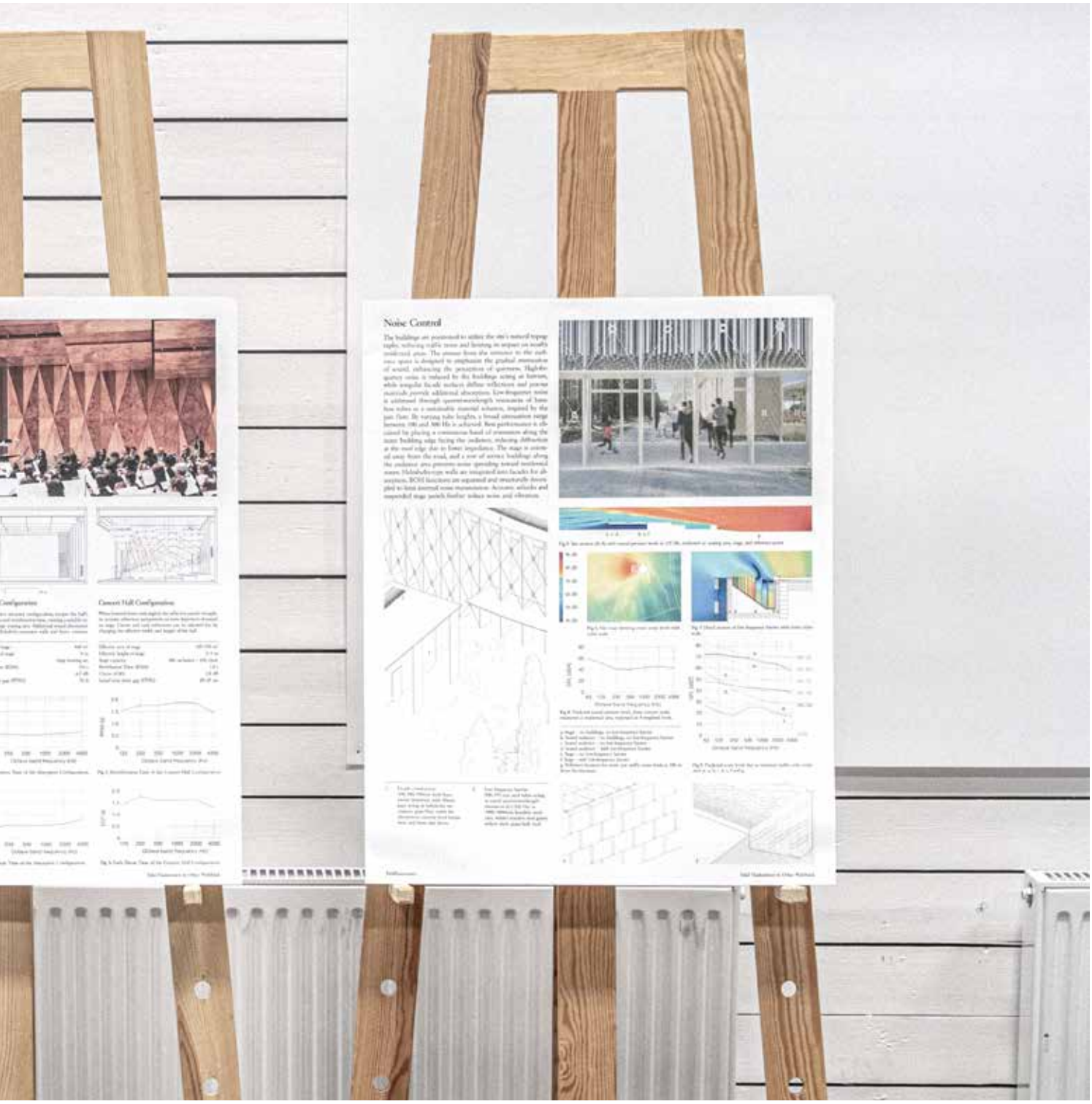
2 Competition posters.


Noise Control

[3]

3 *A Stage in A Landscape.* Exterior visualisation emphasizing the thin roof and the contrasting solid rammed-earth buildings.

[4]

4 Drawing directly on the steel surface provided direct iterations on site placement.

On the Making of a Competition Entry

The making of a building begins, for us, with understanding what is being asked. The program from the Acoustical Society of America and the Newman Award Student Fund seemed at first to leave little room for acoustic form. The audience would hear through electroacoustic amplifiers, and the acoustic question seemed already answered. But a closer reading revealed two questions still open. How could we shape a modular acoustic environment for the musicians on stage? And how could the architecture itself mitigate the traffic noise around the site? These became the two grounds of the project, which we centered our focus around throughout our work.

Before thinking about what our competition could entail, we felt the need to create a library of references – since the field was new to us, and our questions remained too open to take real form. We decided to travel to the cities of Copenhagen, Stockholm, Malmö and Lund to study the concert halls of Klas Anshelm, the landscapes of Sigurd Lewerentz, among many works by other architects. In the same vein, we began studying acoustic materials, resonators, and the systems used to dampen noise in train infrastructure. Afterward, the full program of the competition was posted on our wall, so that no decision in the weeks ahead could drift too far from what the brief asked of us. This patience at the beginning is, we believe, the most important phase of any project. By the time we began to draw, the references had already done much of their work.

The site was, oddly enough, given without a precise location, only a description: flat, open, without much else. We deduced it would lie somewhere in the Great Plains of the American interior and worked from there. The first tool for sensing the landscape was our topographical model in hammered steel, etched with a 100x100m scale grid. We drew on it, erased, redrew. It became our new basis for the planning of the site, and it taught us to see the landscape as something not to be altered, only met. From this, there naturally came a thin steel roof, drawn taut against the horizon, and the rammed-earth volume beneath it, robust and omnidirectional, holding the stage and the back-of-house. The architecture answered the landscape in two registers: one light, one heavy.

We wanted the building to be understood in three timescales. In ten seconds, one should understand the main concept: a cross in the field, four functions partitioned across four wings, joined by a wide corridor. In one minute, our heatmap reveals the sound pressure levels across the site, and one can notice the sheltering walls of resonators, and the variable panel system altering the natural acoustics on stage. In ten minutes, one reads the full spatial planning by the semi-transparent isometric drawing, holding acoustic panels, seating, structure, and site within a single compact frame. The competition posters were drawn alongside the building, not after it. This is not separate work; in this particular case, the way a project is shown is part of the project. Reflecting on this, we believe this alters the form. Maybe, the most optimal plan for ourla would not embody this cross formation, for example. But legibility is integral to our competition entry, and working in parallel allows for a clear vision of our solutions.

Not being provided with an acoustician of our own, we had to learn the subject on our own. We saw this initial difficulty gradually ameliorated; it forced us to understand every part of the project and to bind the architecture and acoustics to one another until, in places, they became the same decision. The origami-folding variable panel system on stage was actually born from this, we believe. Furthermore, successfully receiving access to an industry leading cloud-based waveform solver gave us precision in acoustical analysis we could not have reached otherwise. Throughout, we worked as design partners in parallel on every part of the project, anchoring each idea in another mind through continuous exchange and weighing it from both sides.

What we sought, in the end, was a project that felt self-evident. That it could not have been largely another way, and where every question the program raised had been met, and answered, quietly, in the architecture itself. The list, by the end, was a record of decisions, and each item could be traced to a wall thickness, a panel, a line of the roof. This, for us, is what it means to make a building, even one that exists only on paper.

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5 Terrain photo collage of competition site. The fictional location is sourced from the Newman Student Competition Program. Placement is judged in regards to noise control impact on surroundings.

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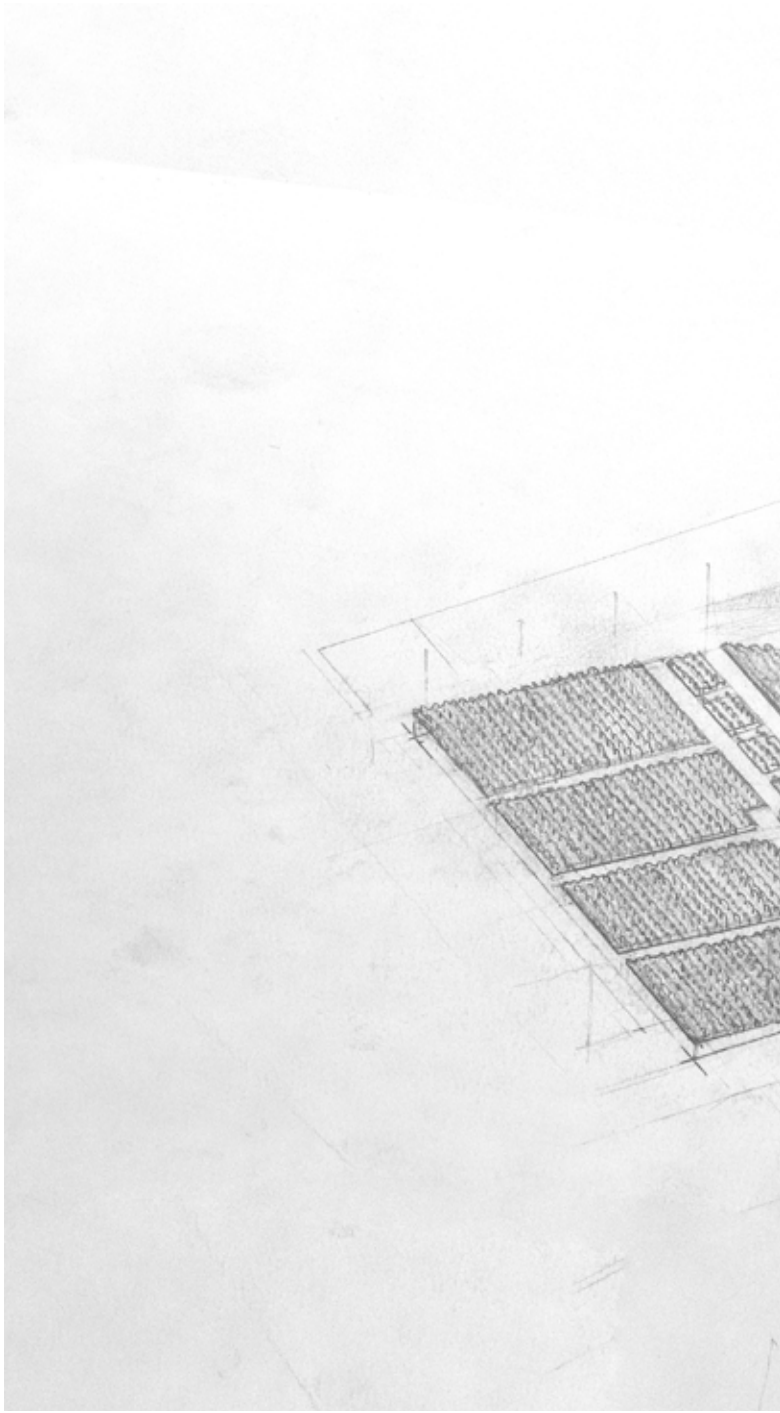
6 The plan was drawn with 0.5 HB graphite, with one transparent sheet per floor level.



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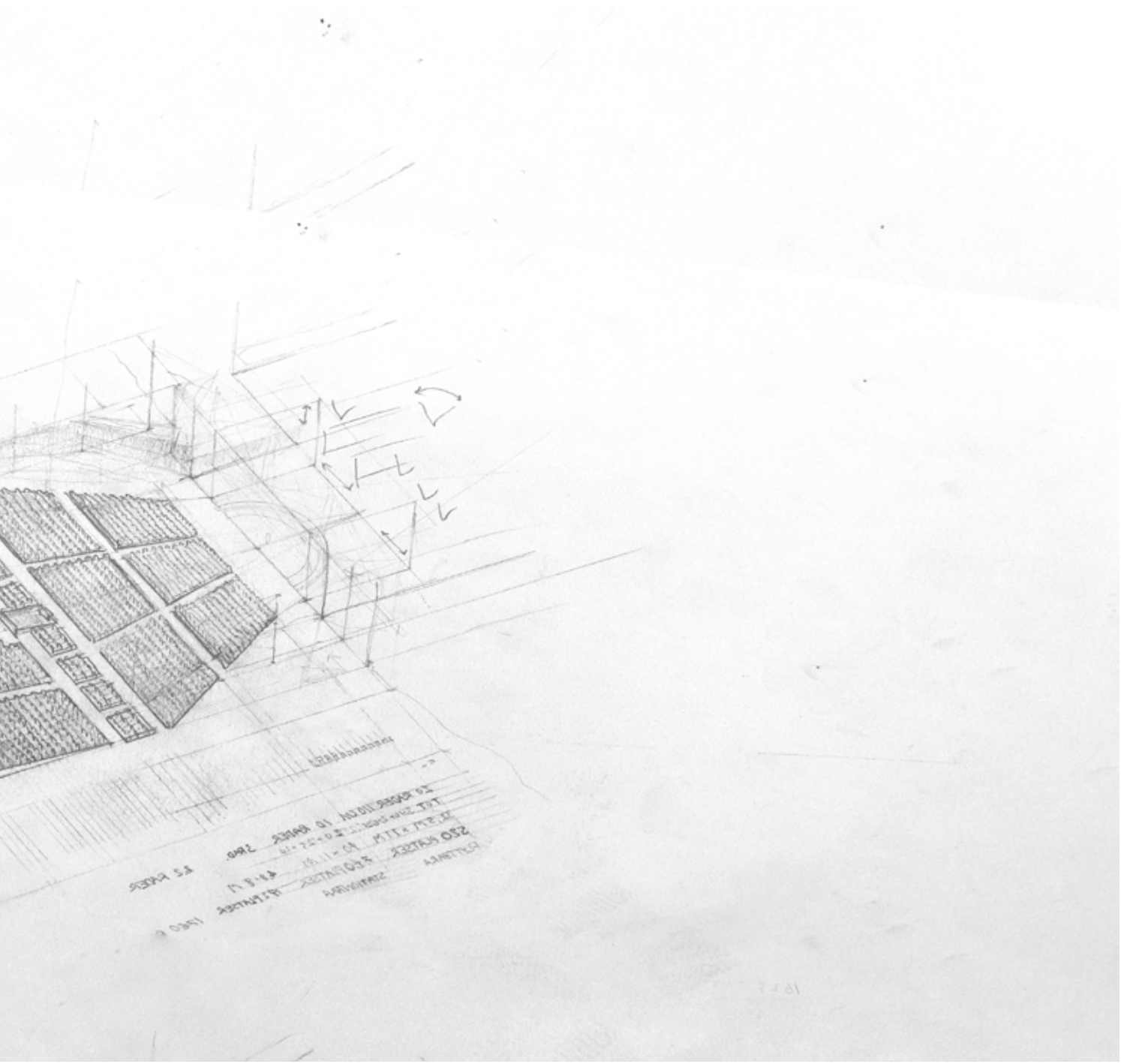
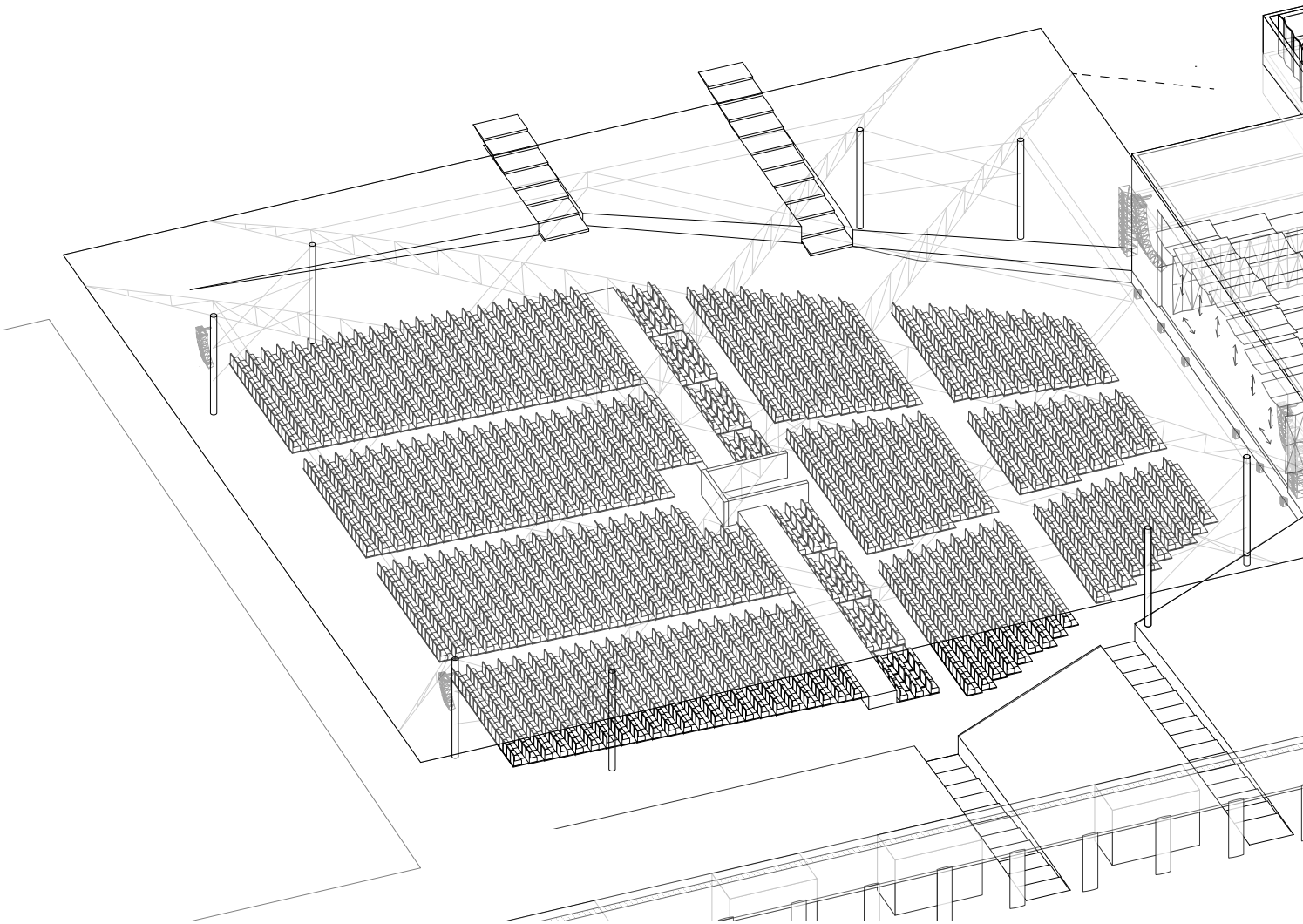
7 Seating arrangement was also planned by hand, with isometric measurement.





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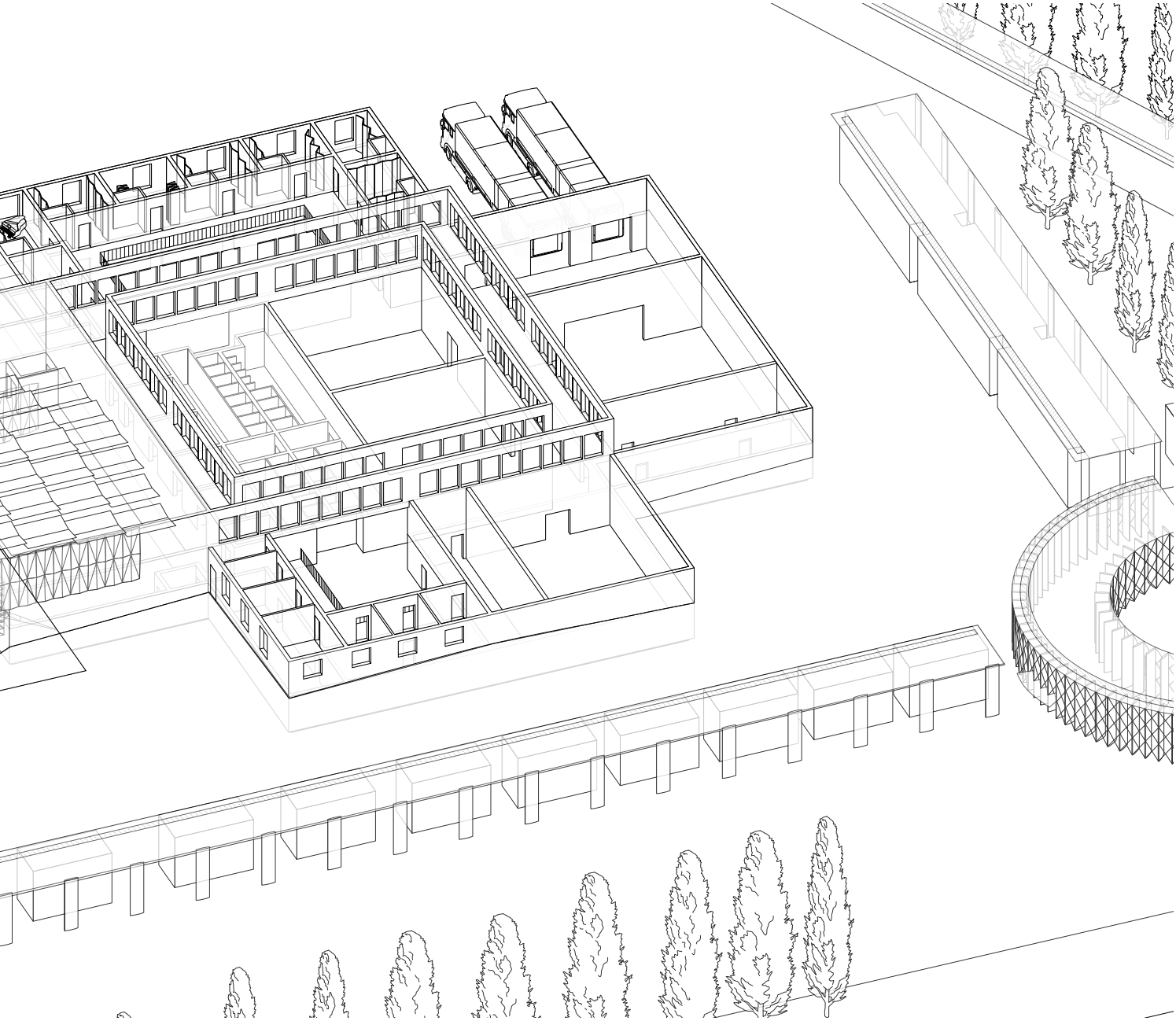
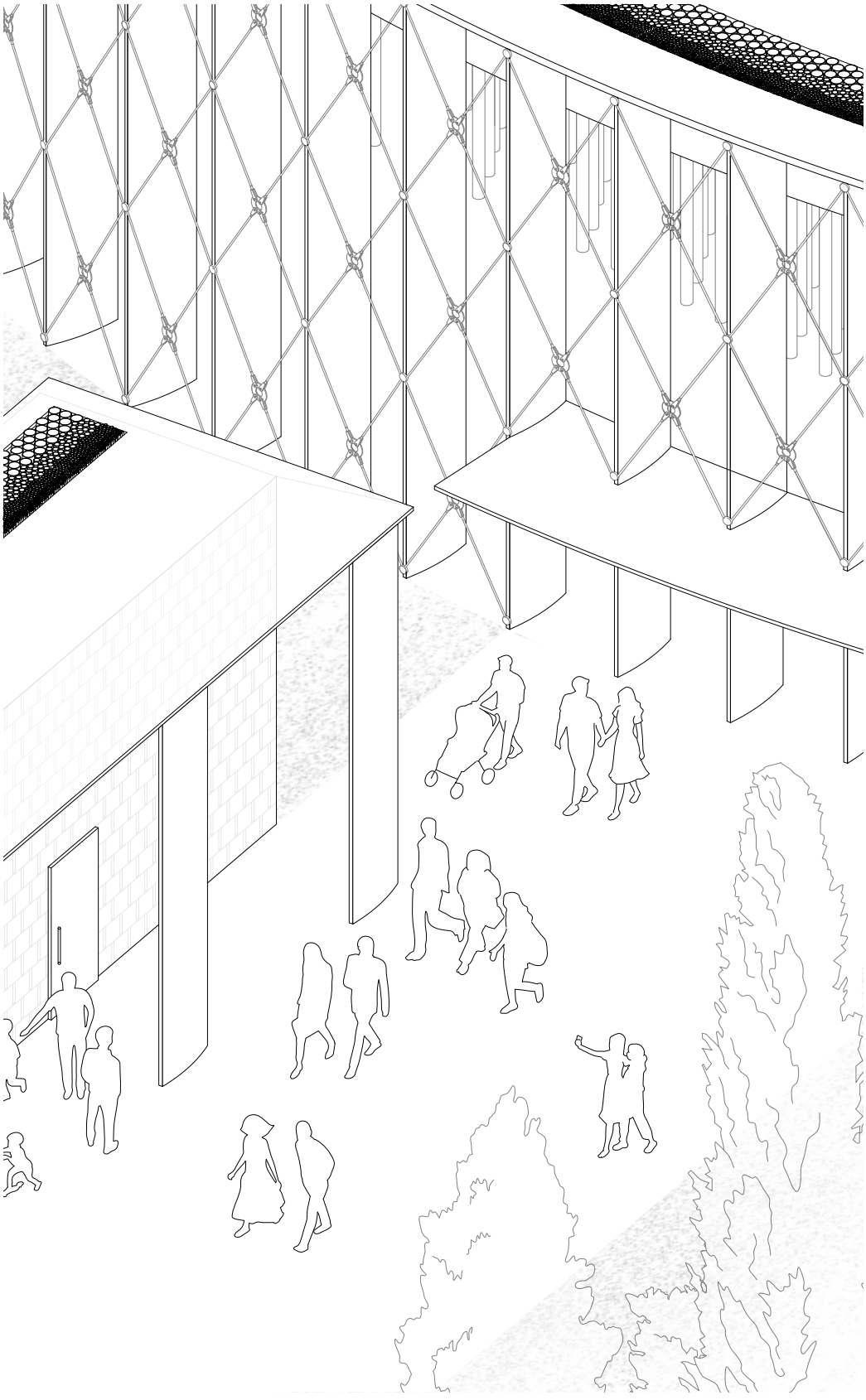
8 Building Axonometry. The plan is cross-shaped, with each wing serving a separate function; stage, orchestra quarters, logistics, and service. A continuous, level corridor connects each function effectively.





[9]

9 Line isometric drawing of entrance with acoustical barrier element on roof.

The Architectural Expressions of Sound

In an open landscape in the Great Plains, a thin steel roof is suspended above the ground. Beside it, a robust, omnidirectional rammed-earth structure stands in quiet harmony with its surroundings. These two volumes form the core of the music pavilion, a summer house for a symphonic orchestra and, with its open form and modular stage, a venue equally able to host touring acts. The whole project rests on four architectural commitments: a relationship to landscape, an honesty of material, a fidelity to human scale, and an atmosphere of openness held in balance with acoustic precision.

The landscape came first, and remained first. The Great Plains gave us a horizon that we chose to home in on and put at the centre of our music pavilion's form. From this came our two-register answer: something thin against something heavy, the steel canopy drawn taut against the sky, the rammed-earth volume settled firmly into the ground. To place a robust thing and a delicate thing in an open field is, to us, still the most natural building one can make there. The rammed earth carries a timelessness and imposing silence, suited to a landscape with so few markers. We sought a building that could feel as though it had always been there.

The long service building stretches across the plain, similar to a ruler measuring a length. By spanning the landscape so explicitly, we think it makes the vastness of the field more legible than it would have been on its own. It enhances it, harmonizes with it, sets the tone, so to speak. Walking beneath its thin steel roof, supported on slender pillars on one side, the visitor experiences a stoa-like arcade. The pillars are thin because they carry little load. We arrived at their dimension by calculating minimum widths for Euler bending and introducing diagonal stabilisers, which let the steel become as fine as we hoped. The gaps between the volumes open gradual sightlines toward the pavilion, so that the building reveals itself in stages. From the curved entrance plaza, through the arcade, onto the lawn, the approach is composed in a crescendoing rhythm.

The diagonal stabilisers share their visual geometry with the folding acoustic panels on the stage and, at the largest scale, with the cross-shaped plan of the main building. The X appears at every register: in the line, in the panel, in the plan. This theme emerged from the structural and acoustic logics, and we let it connect the visual and the auditory. In hindsight, this motif certainly earns its place, and at three scales, it is an interesting architectural quality of its own, that could no doubt be developed further.

The materials are direct. Rammed earth, steel, brick, maple veneer. The outer stage walls are porous brick with cavities behind, functioning as a continuous field of Helmholtz resonators tuned to frequencies between 63 and 200 Hz. To shape an entire wall material that performs acoustic work at this resolution, while still reading as a wall, is one of the project's quieter achievements. Within the rammed-earth envelope of the stage, the foldable acoustic panels are clad in maple veneer. Their warmth and faint sheen create a glowing centre inside the heavy enclosure, a small interior sun held within the earth. Each material finish performs both an architectural and an acoustic function, and we would like the building to not need the visitor to distinguish between them.

As an audience member, one sits beneath the low, thin canopy. Its edges are sharpened and angled so that the roof appears as little more than a line drawn across the sky. From this position, the visitor feels the openness of the field while remaining held within a clear acoustic geometry: shielded from traffic noise by the resonators along the inner edge, supplied with even sound from the loudspeaker array above. And in the building, where the musicians stay, the clerestory windows of the main corridor admit natural light along its full length, on both sides. To feel open while hearing precisely, to sit in a field and hear a concert, is the central atmospheric ambition of the project.

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10–11 Early study models.

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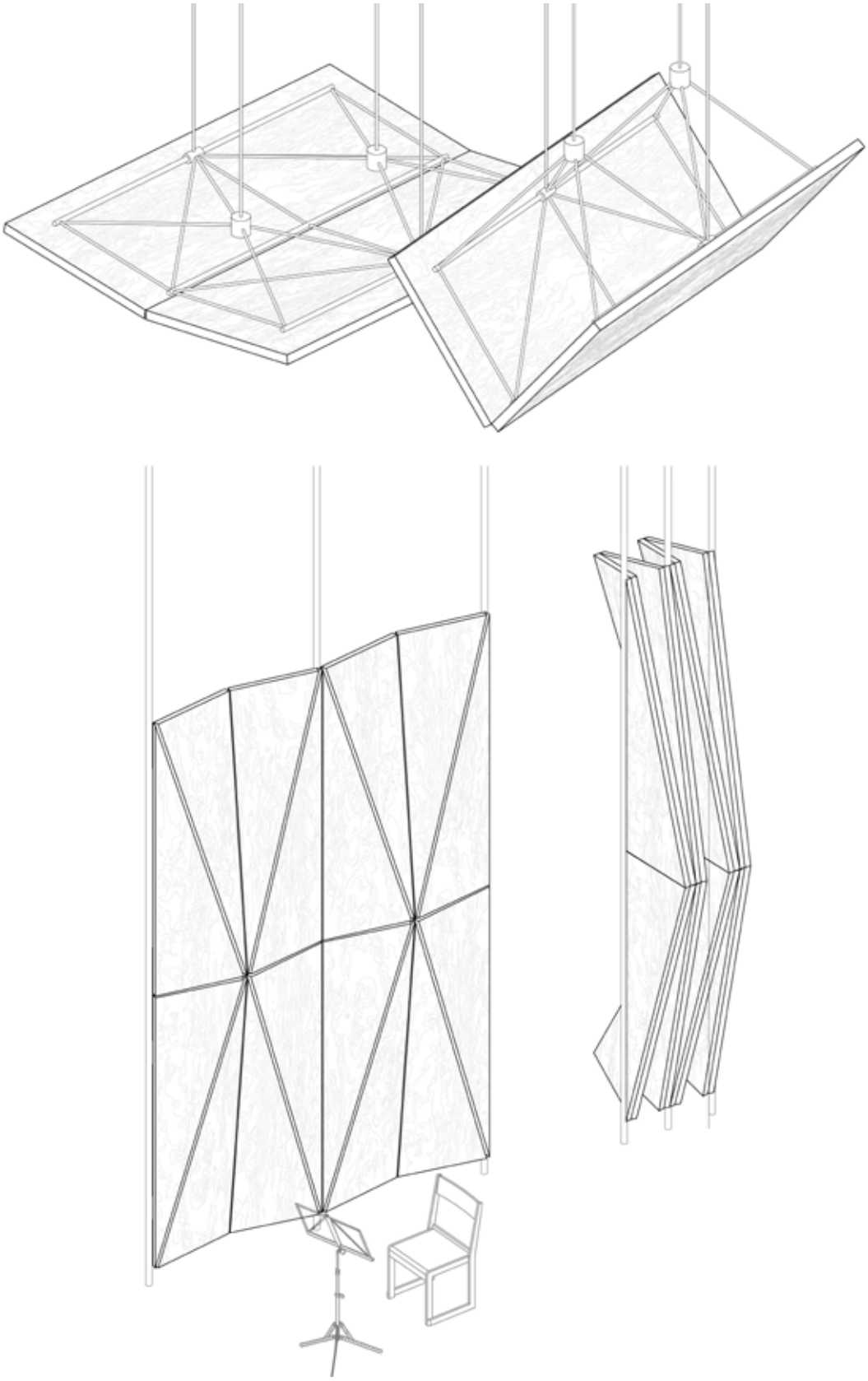

12 3675/1500/50 mm triangular cross-laminated panel, stainless steel bracing frames and suspended by stainless steel cables; concealed 4-bolt brass hinges beneath maple veneer.

13 Perspective section drawings of the concert hall configuration and attenuated configuration. The panels can move both horizontally and vertically, driven by a traverse system.

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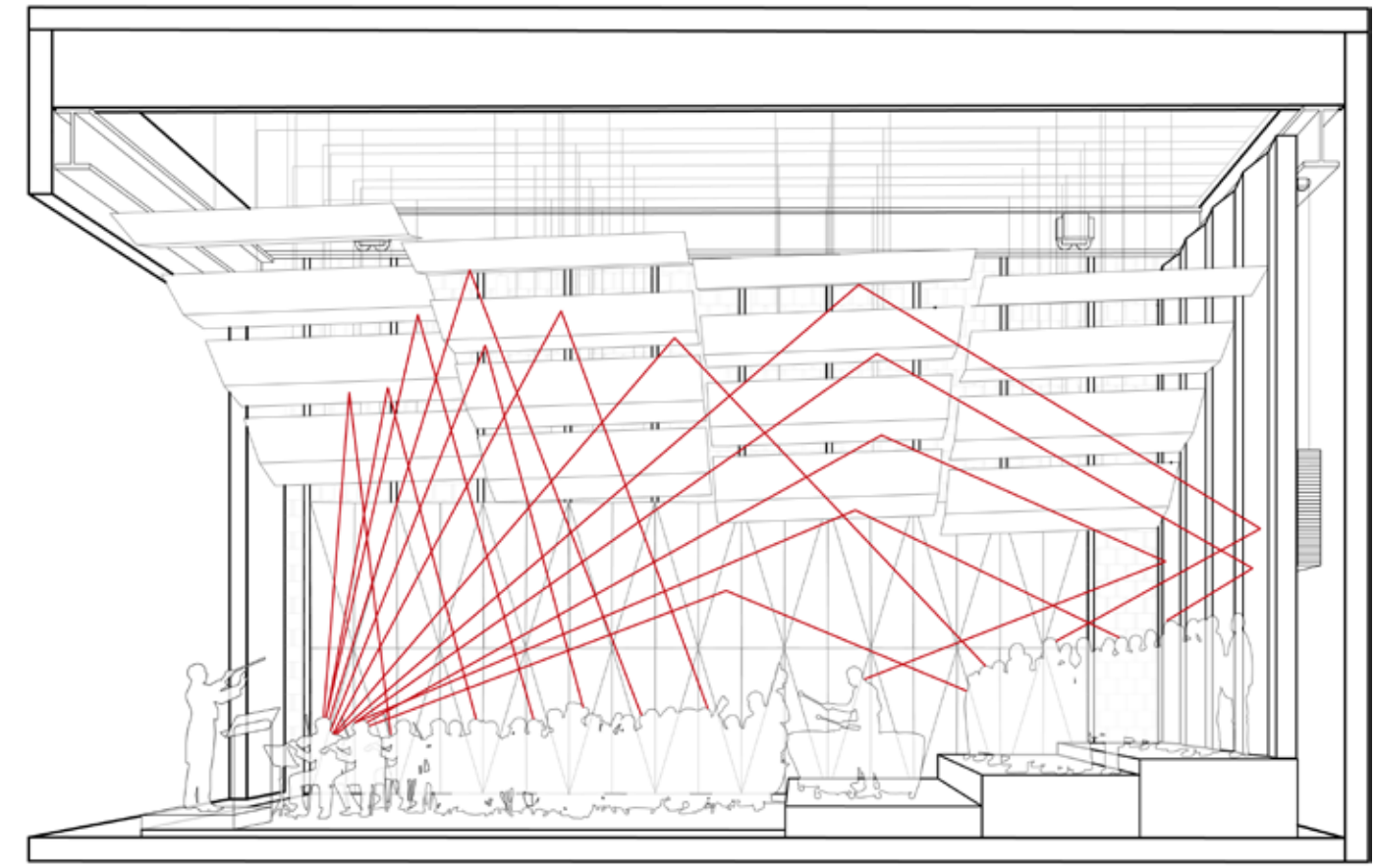

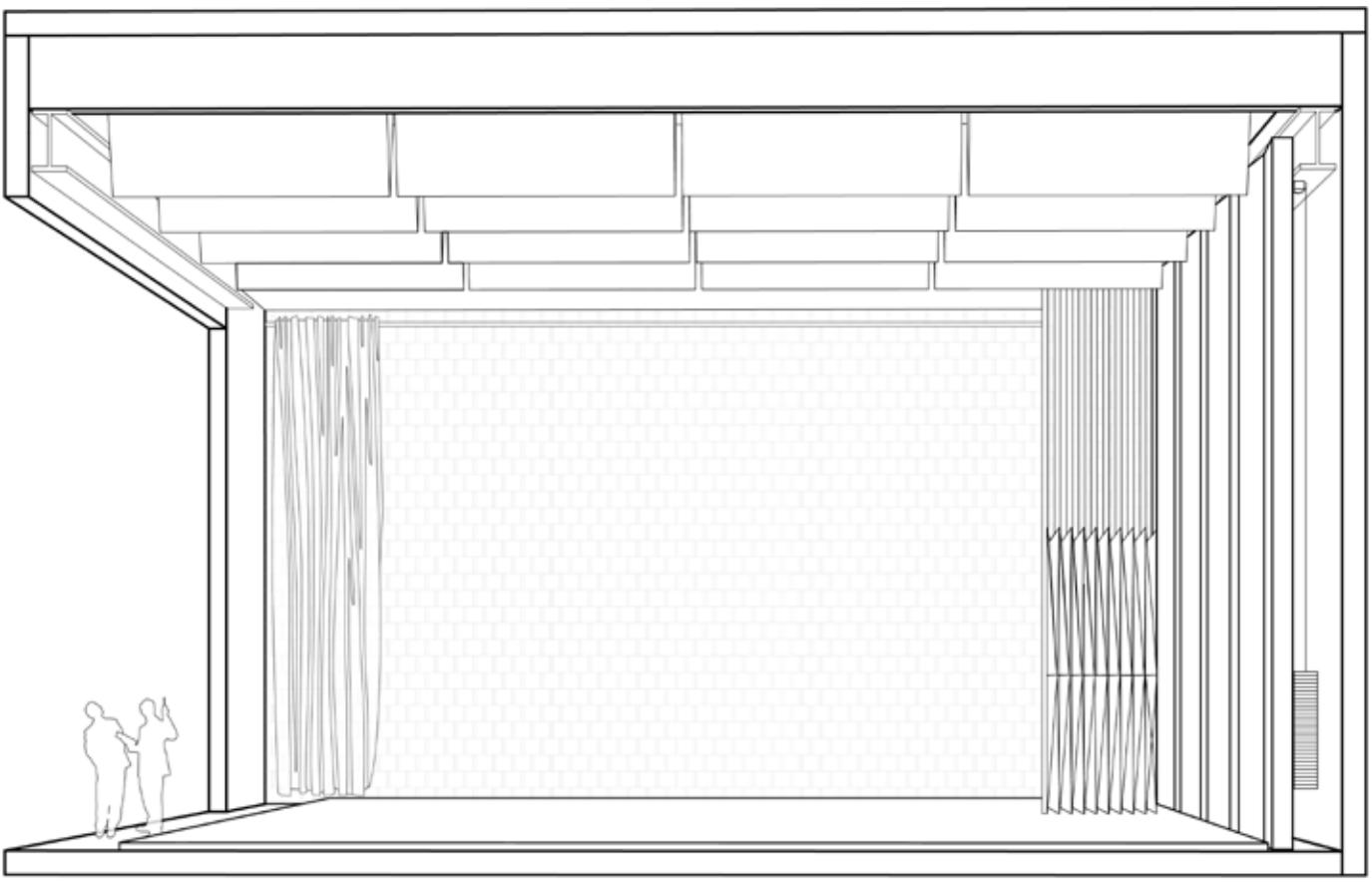

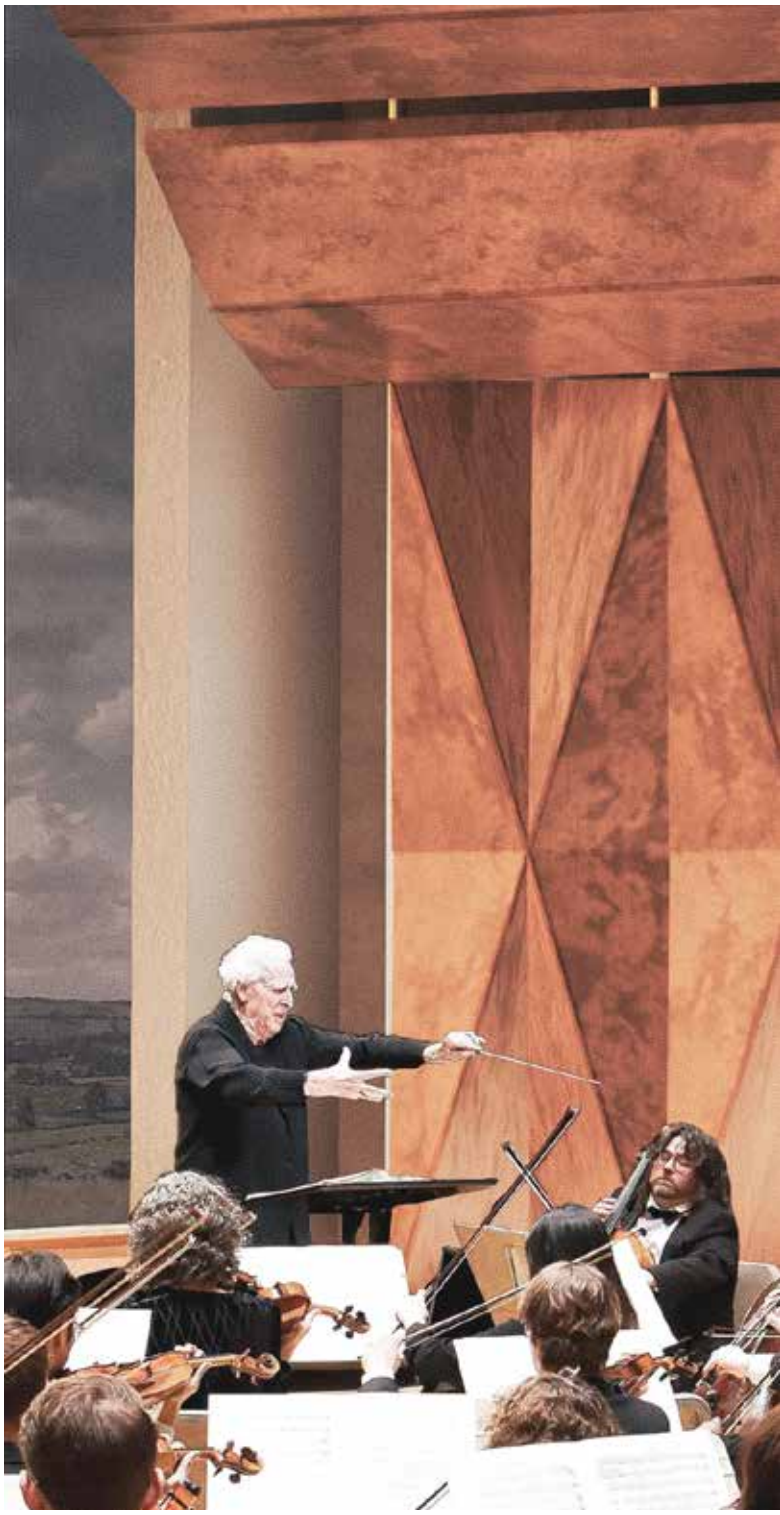

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14 Concert hall with maple veneer origami folding panel system fully extended. The visualisation is made from three images; the panel rendering, a landscape painting, and an orchestra photograph.