# AUDITORIUM DESIGN

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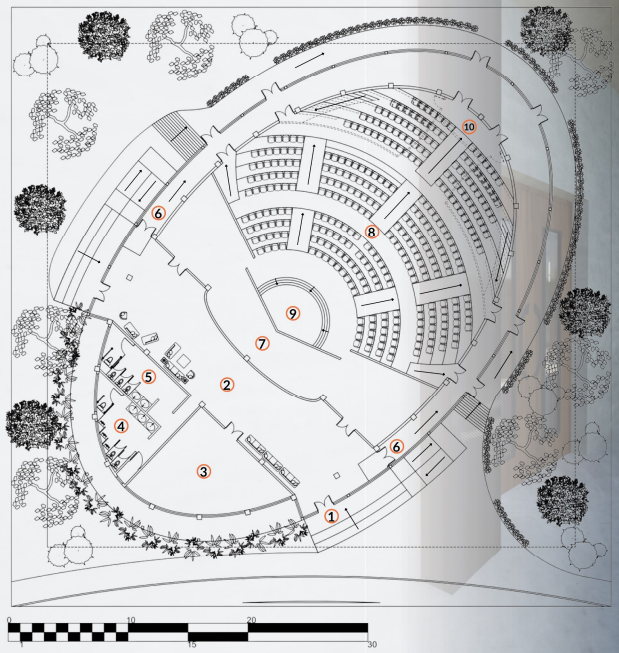
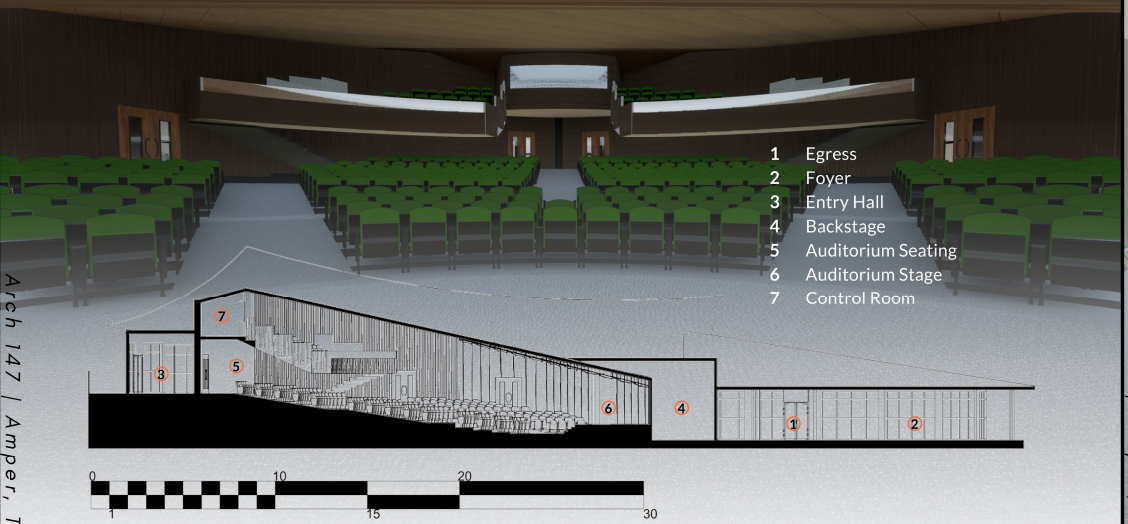



1 Egress
2 Foyer
3 Office
4 Women's Comfort Room
5 Men's Comfort Room
6 Entry Hall
7 Backstage
8 Auditorium Seating
9 Auditorium Stage
10 Control Room

## SITE DEVELOPMENT PLAN



*The auditorium takes advantage of the curves of an elliptical plan to allow sound to reflect at multiple angles, and creep around. The halls serve as air space between the auditorium and the outdoors.*

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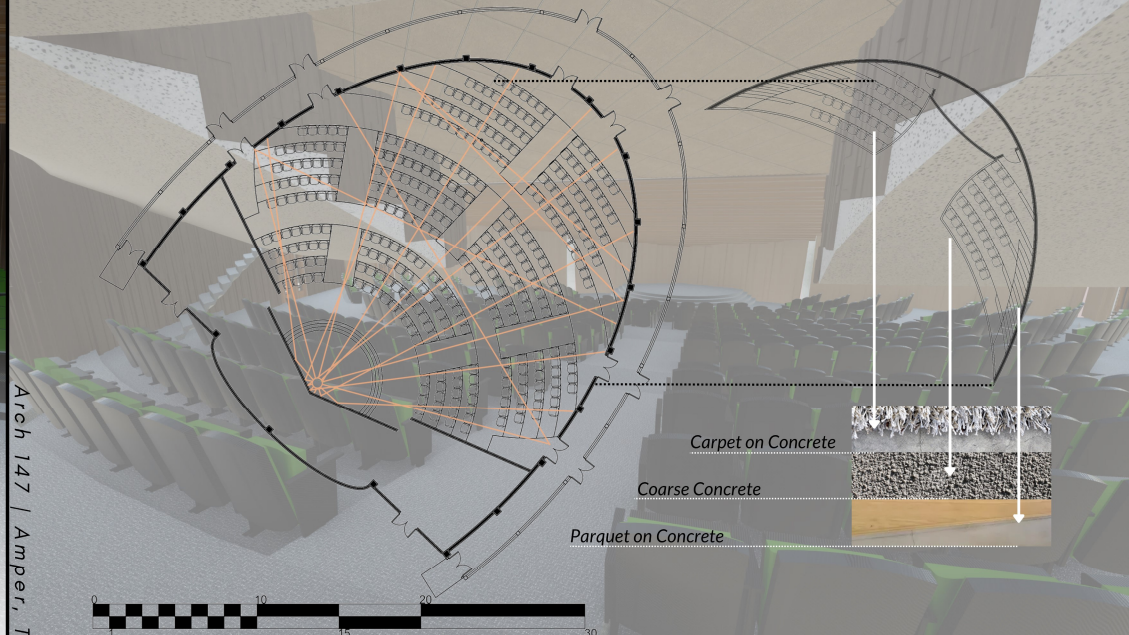
## LONGITUDINAL SECTION






## AUDITORIUM & BALCONY PLAN + RAY TRACING

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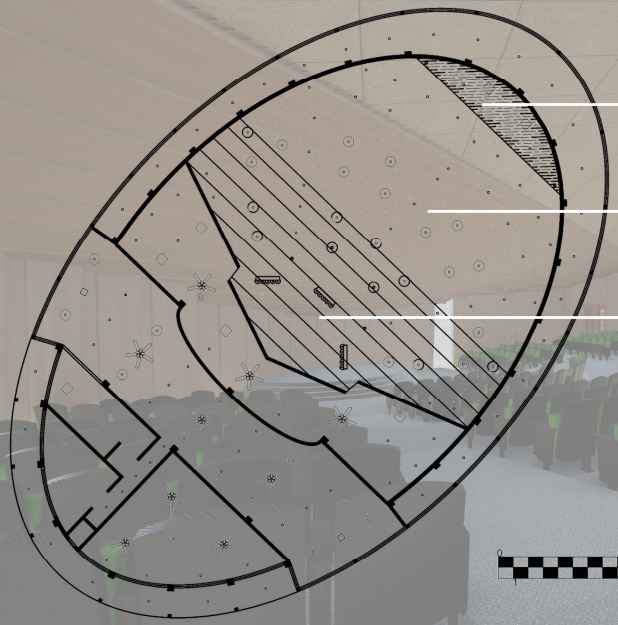
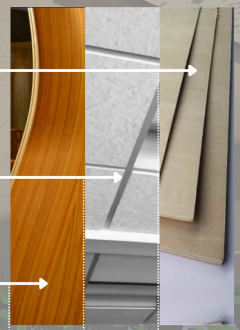
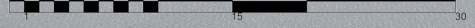




HAZA parametric wall panels

Gypsum board - fastened

6mm plywood, 100mm air space




## INTERIOR REFLECTED CEILING PLAN

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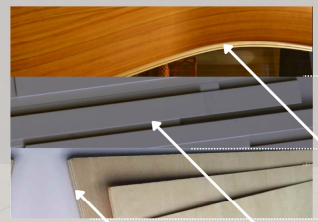
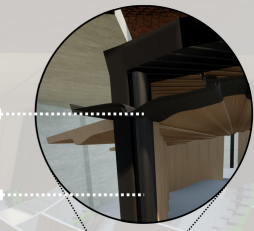
HAZA and SAPA parametric panels by Mikodam were selected. Compared to flat panels, HAZA promotes effective sound reflection and reduces acoustical problems such as echo. SAPA promotes effective sound diffusion with a higher absorption rating than HAZA. Both panels were employed to cancel out the acoustical problems of curved walls, while maximizing the benefits of the latter's continuity.



HAZA parametric wall panels

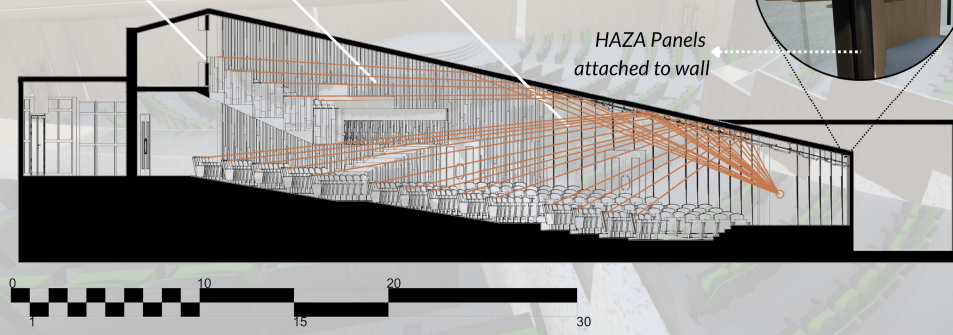
SAPA parametric wall panels

6mm plywood, 100mm air space



HAZA Panels attached to ceiling

HAZA Panels attached to wall




## AUDITORIUM LONGITUDINAL SECTION + RAY TRACING

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Auditorium

| | |
|---|---|
| Volume (V) (cu.m) | 1764.38 |
| Optimum RT (secs) | 0.674 |
| Allowable RT Range | 0.640 to 0.708 |
| Optimum A (sabines) | 418.86 |
| Calculated A (sabines) | 419.6695 |
| Calculated RT (secs) | 0.673 |
| Within range? | Yes |

| Surface | Area (sqm) or No. | Classification | Material | NRC | Absorption |
|---|---|---|---|---|---|
| Stage Walls | 98.44 | Reflective | Haza | 0.1 | 9.844 |
| Stage Total | 59.56 | Diffusive | Carpet on Concrete | 0.15 | 8.934 |
| Lower Orchestra Walls | 35.6 | Reflective | Haza | 0.1 | 3.56 |
| Lower Orchestra Ceiling | 193.18 | Reflective | Haza | 0.1 | 19.318 |
| Lower Orchestra Floor | 284.47 | Diffusive | Carpet on Concrete | 0.15 | 42.6705 |
| Upper Orchestra Walls | 162.59 | Diffusive | Sapa | 0.11 | 17.8849 |
| Upper Orchestra Ceiling | 209.77 | Diffusive | Gypsum Board - Fastened | 0.05 | 10.4885 |
| Upper Orchestra-Entrance Floor | 161.86 | Diffusive | Carpet on Concrete | 0.15 | 24.279 |
| Entrance Walls | 100.31 | Absorptive | 6mm plywood, 100mm air space | 0.4 | 40.124 |
| Entrance Ceiling | 39.77 | Absorptive | 6mm plywood, 100mm air space | 0.4 | 15.908 |
| Balcony Outer Walls | 29.7 | Diffusive | Sapa | 0.11 | 3.0756 |
| Balcony Inner Walls | 27.96 | Diffusive | Concrete, coarse | 0.15 | 8.6565 |
| Balcony Underside | 57.71 | Diffusive | Concrete, coarse | 0.15 | 8.6565 |
| Balcony Floor | 96.76 | Reflective-Diffusive | Carpet on concrete | 0.15 | 14.514 |
| Balcony Stairs | 27.56 | Diffusive | Parquet on Concrete | 0.1 | 2.756 |
| Chairs | 420 | - | Upholstered and Occupied | 0.45 | 189 |
| | | | *Sum A (sabines)* | | 419.6695 |

## COMPUTATIONS OF NRC, SURFACE ABSORPTION, TOTAL ABSORPTION, AND OPTIMUM AND DESIGNED REVERBERATION TIME

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