

# Facade *as* Avian Habitat

*Designing Multispecies  
Cohabitation at the  
University of Maryland*



SCHOOL OF  
ARCHITECTURE,  
PLANNING & PRESERVATION

**STUDIO REPORT**

**ARCH 408: Architecture Design Studio**

**Instructor: Michael Ezban RA, ASLA**

**SUMMER 2021**

## Acknowledgements

Many thanks to the six talented students enrolled in ARCH 408 in Summer 2021 for the many hours of work they put into their projects: Emily Kelly, Aylin Garcia, Hamza Rashid, Marcos Rojas, Venancio Cartagena, and Karen Santamaria.

## Course Information

ARCH 408 is a 6-credit design studio that is focused designing relations between human and nonhuman animals. The course was taught by Michael Ezban, RA, ASLA, Clinical Assistant Professor of Architecture. The work in this studio report covers a 3-week assignment—an introductory design project within the larger 9-week course.

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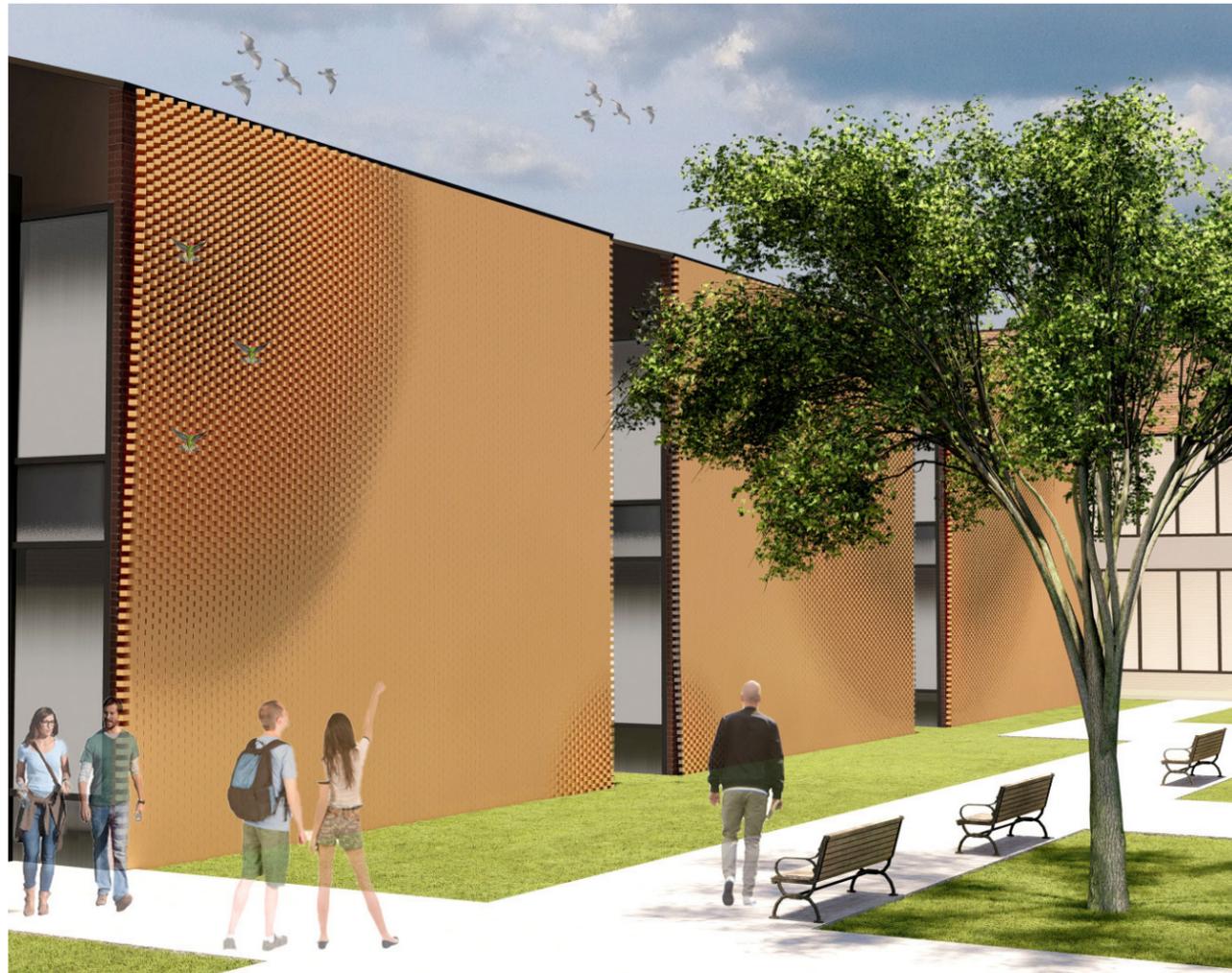
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# 01

## Project Summary

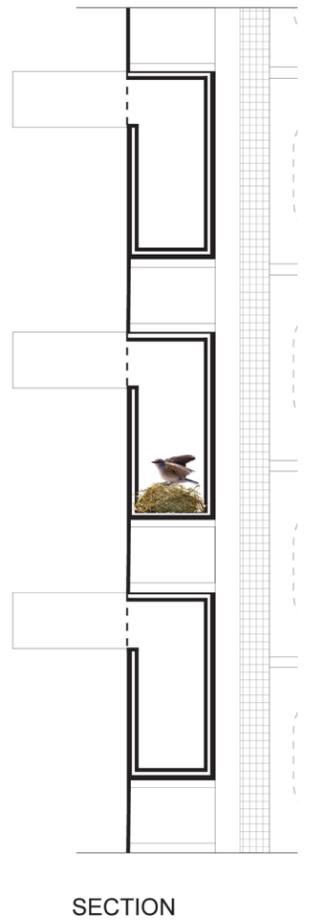
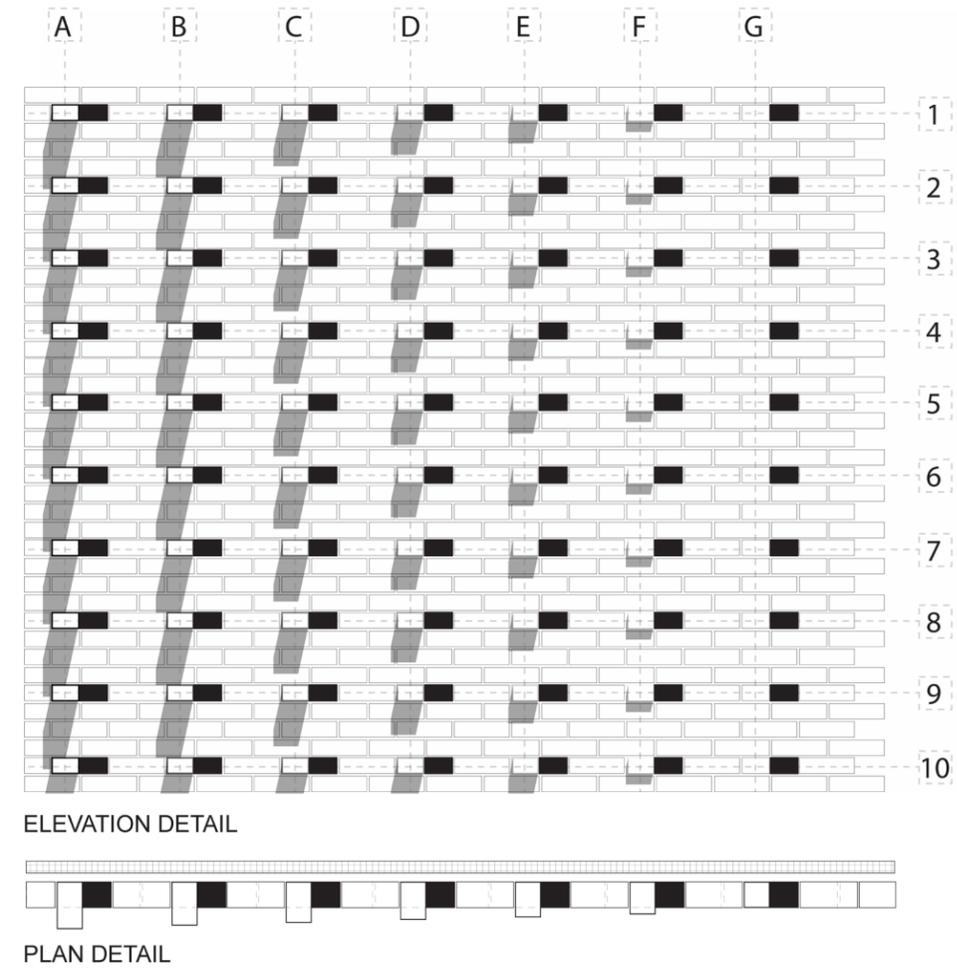
Students were challenged to redesign the existing south-facing brick facade of the Architecture School building at the University of Maryland, College Park, using an aesthetically appealing new brick bond that functions as viable habitat for small birds of various species. Students also proposed ways of altering the existing glazing at the building to make it bird-safe.

The facades are intended to integrate with the building's entry courtyard landscape to foster a more biodiverse public space for humans and nonhuman animals. They are also meant to demonstrate an approach to facade design that is inclusive and respectful of multiple species.



by Venancio Cartagena

Pattern-making using brick bonds is a venerable architectural tradition, and the projections and recesses formed through brick rotation and spacing can be more than ornamental—they can create the ledges and nooks that birds can occupy to perch and roost. In this studio, students explored various methods of designing brick bonding, including both conventional modeling and parametric modeling, to create aesthetically sophisticated brick bonds that attract and house birds.



by Aylin Garcia

# 02

## Case Study Projects

In the 21st century, architects and artists have participated in advancing the design of habitable facades both through speculative projects and real-world construction. Examples of four such projects are found in this section.

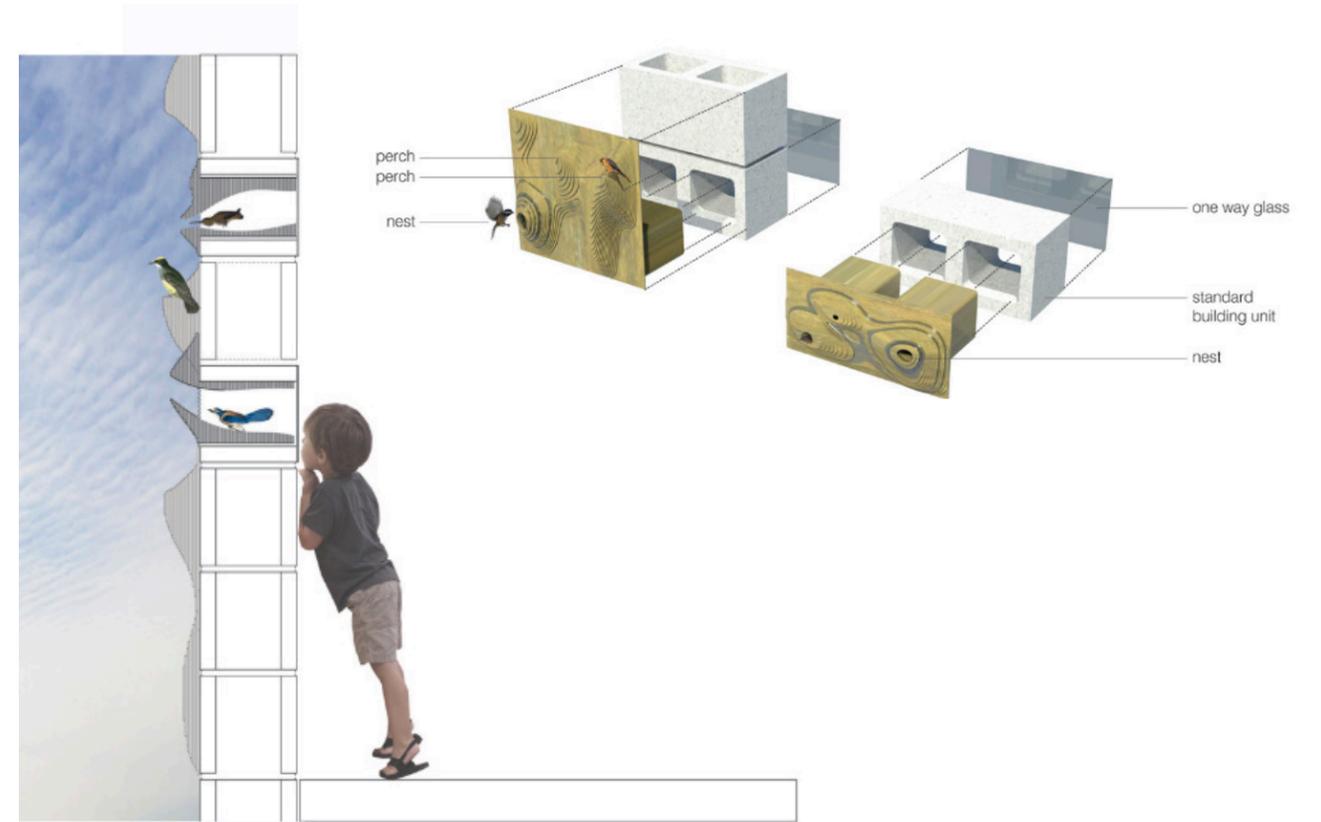
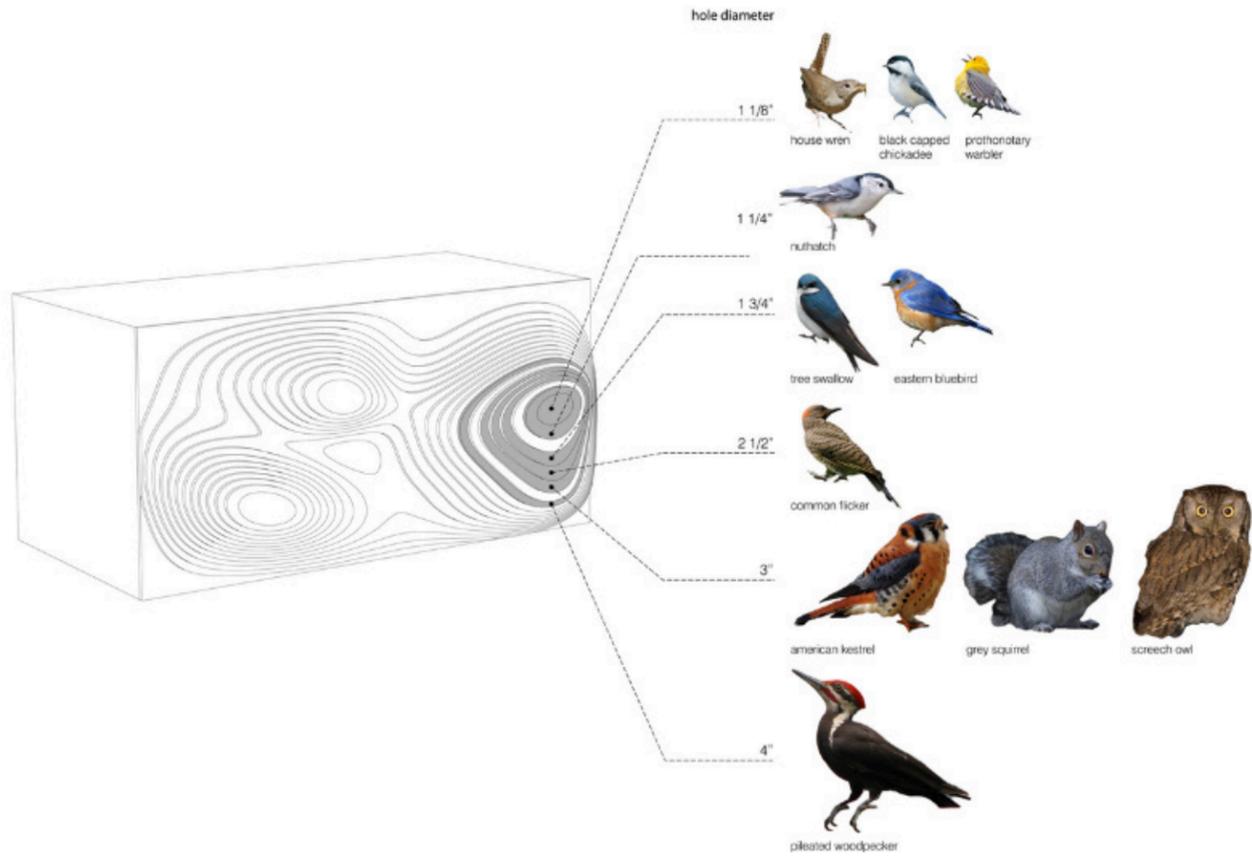
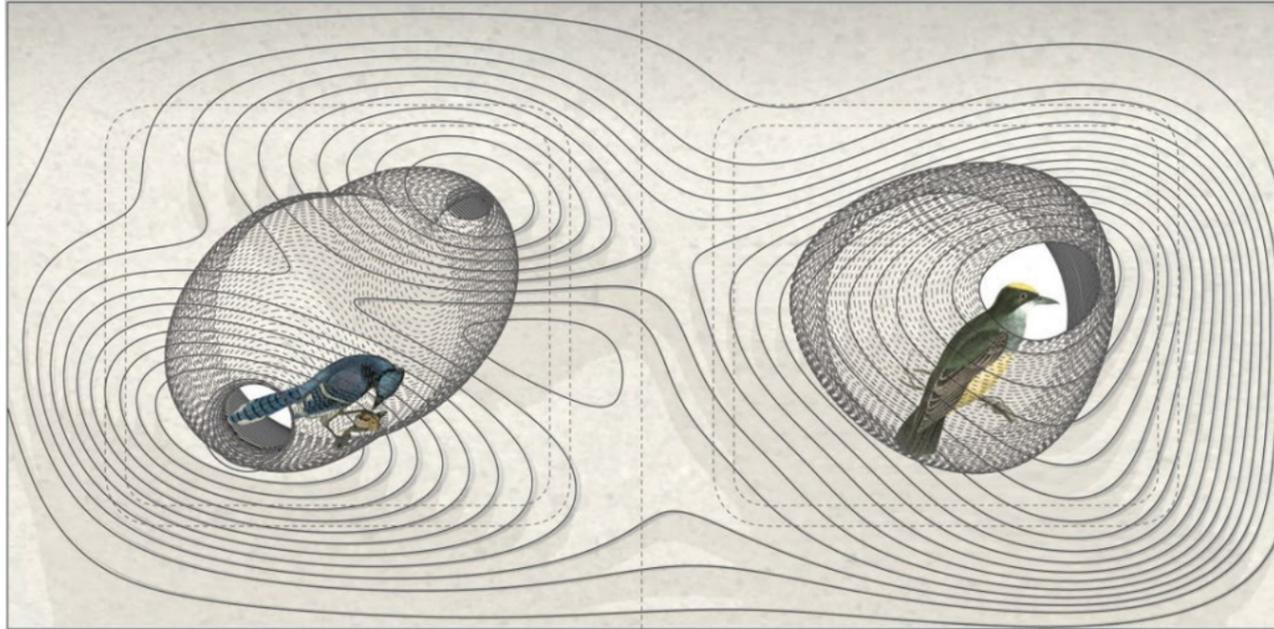
Two of the cases illustrate how digital fabrication practices can create variable conditions across a facade that not only allow for avian nesting, but vegetal growth, insect habitation, water collection, and unique opportunities to view nesting birds.

A recurrent feature of these case study designs is that facade elements are spatially organized as “fields”—patterns that consist of similar but variable units that aggregate to form a dynamic surface.

# Case Study 01

Urban-est | England

Snohetta



## Case Study 02

Mellor Primary School | England

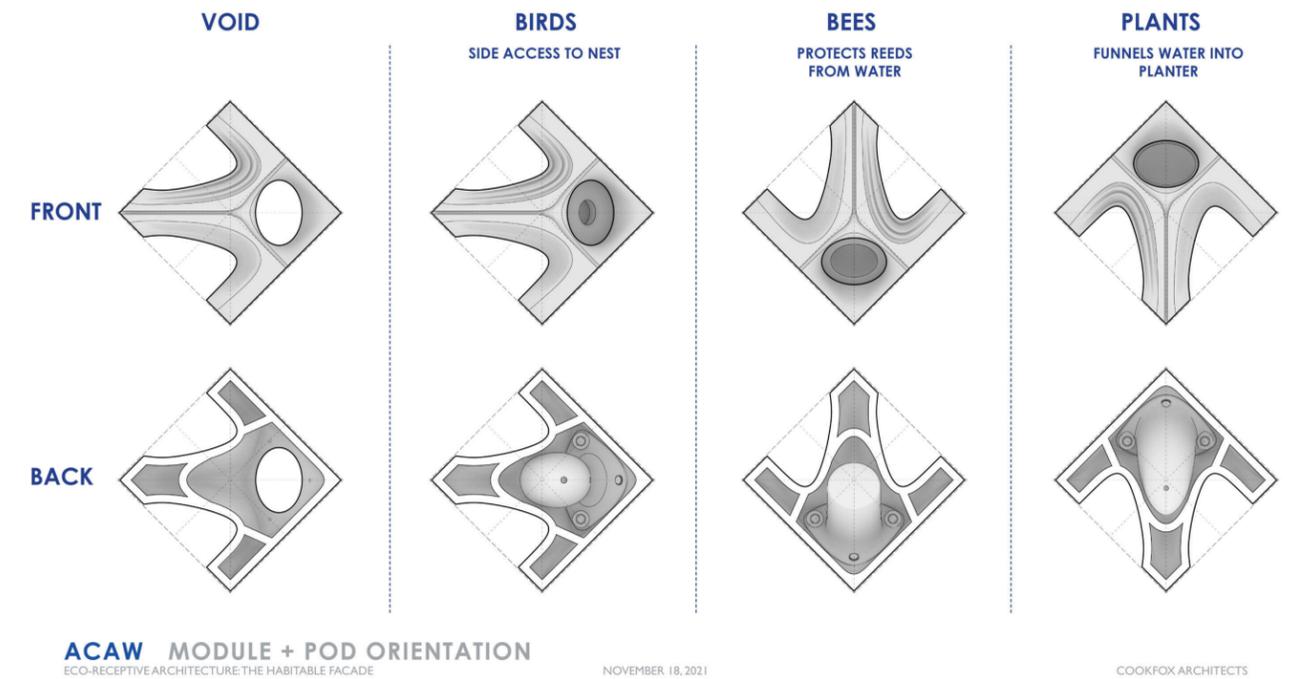
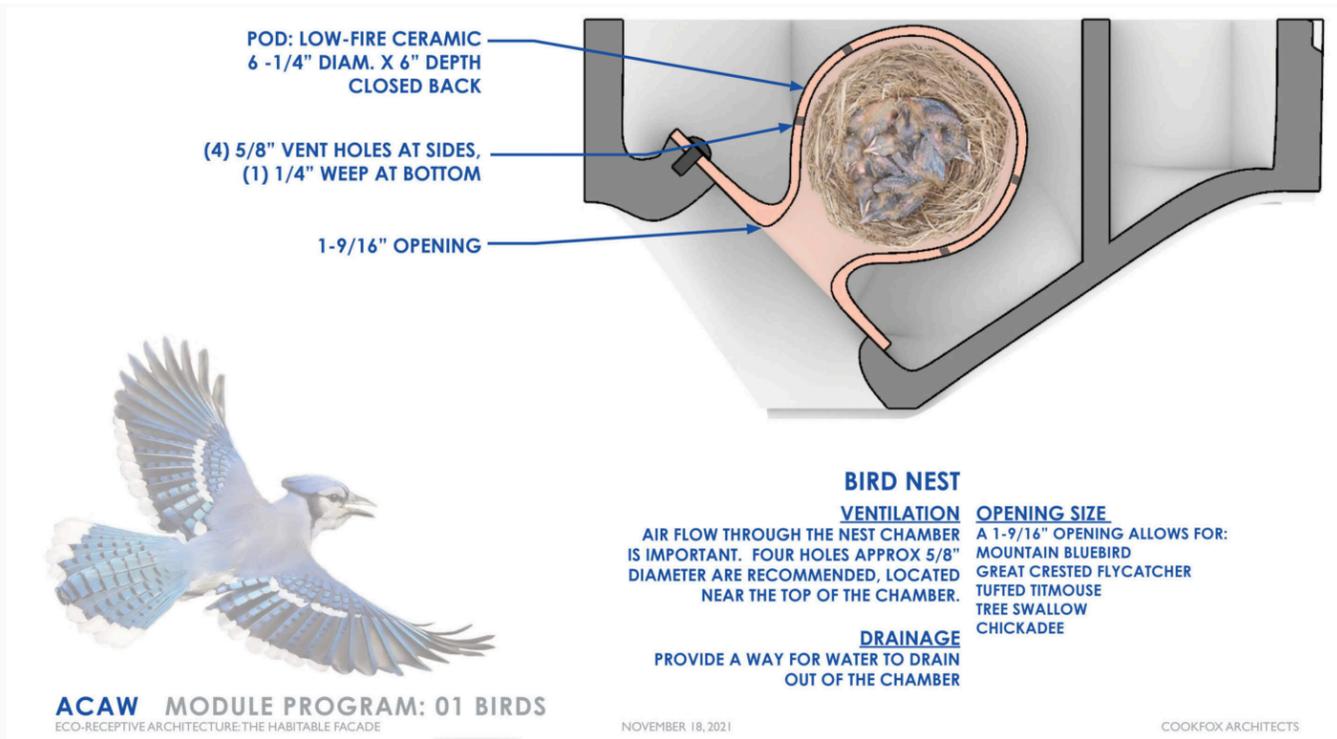
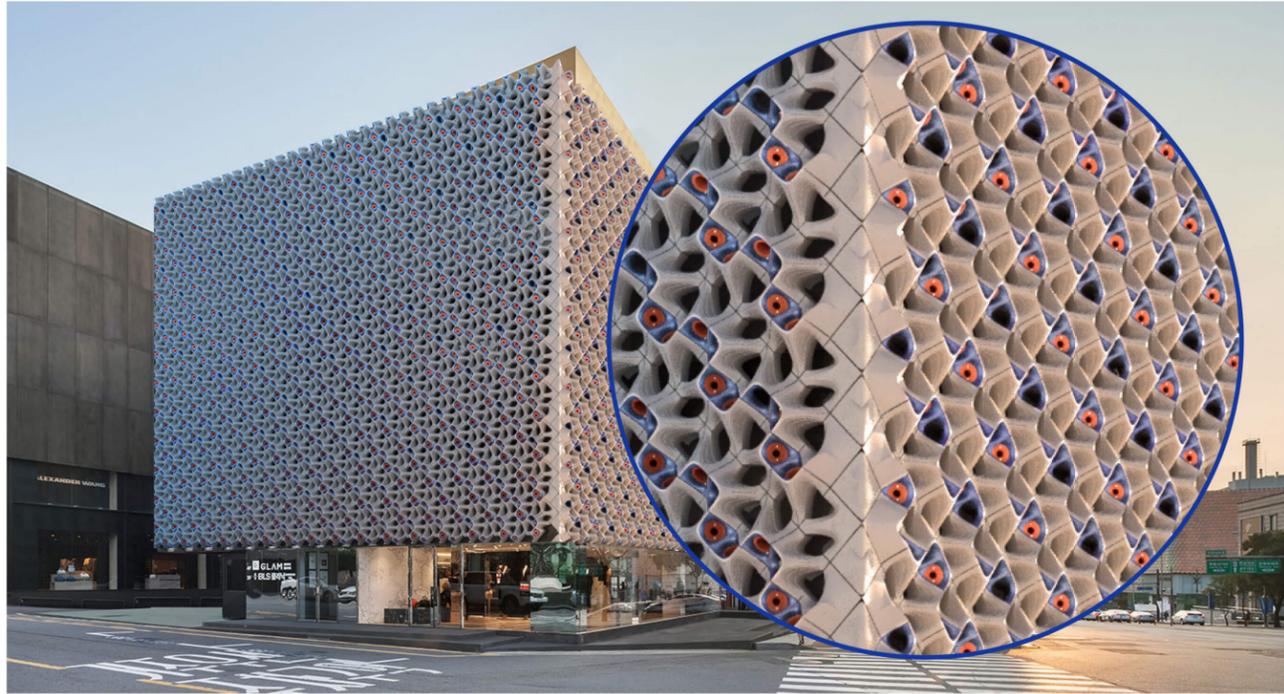
Sarah Wigglesworth Architects



# Case Study 03

## Eco-Receptive Architecture: Habitable Facade | France

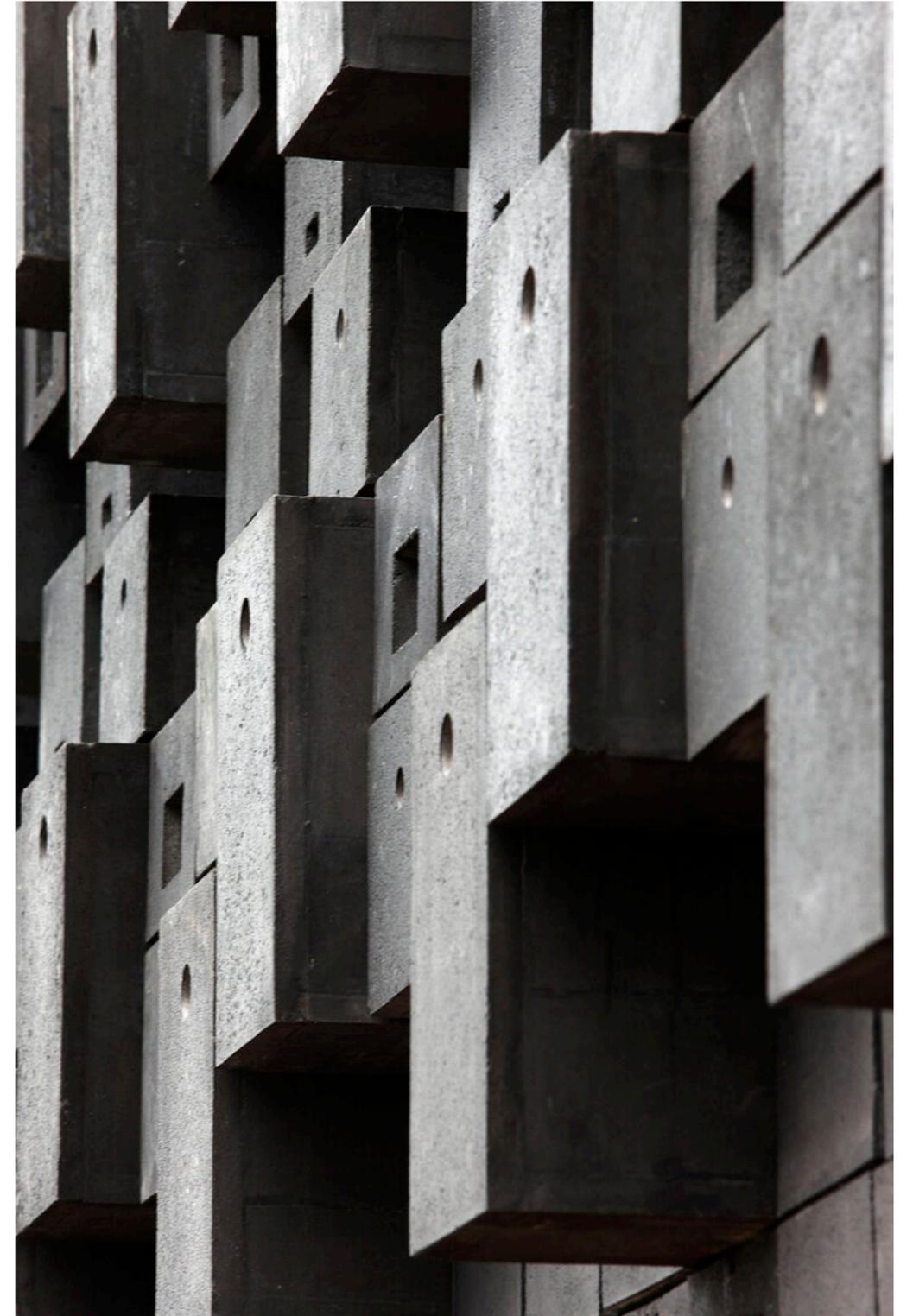
CookFox



## Case Study 04

### Cardiff Bay Animal Wall | Wales

Gitta Gschwendtner



# 03

## Brick Bond Catalog

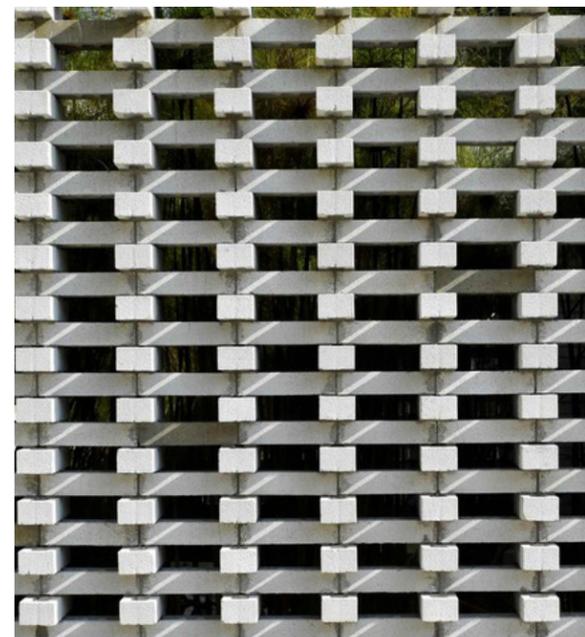
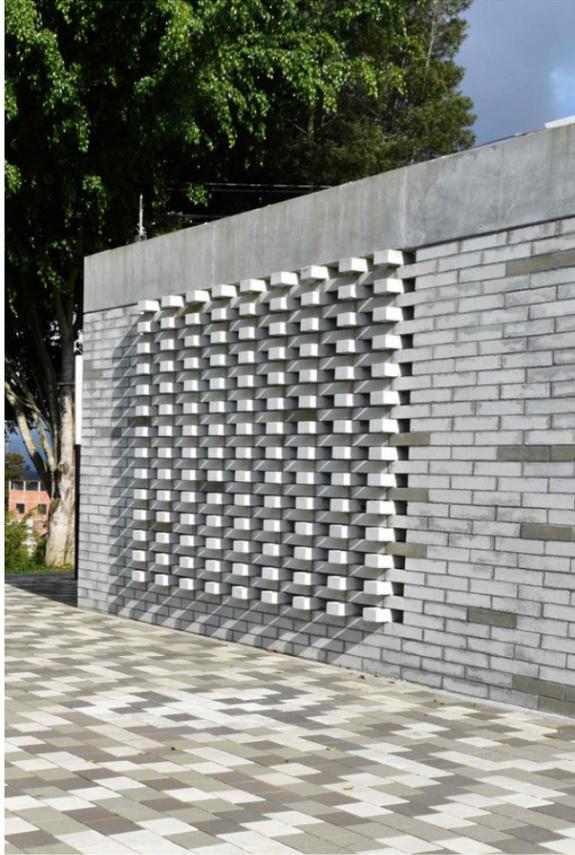
Pattern-making using brick bonds is a venerable architectural tradition, and contemporary architects continue this mode of expression on the facades of brick buildings. Projections and recesses formed through brick rotation and spacing can be more than ornamental—they create the ledges and nooks that birds can occupy to perch and roost.

This section contains examples of four patterns of projections and recesses in brick bonds: grid, gradient, random, and striated. While these patterns were not necessarily created by architects for avian habitation, they serve as exemplars of how creative modifications to conventional bonds can serve to increase the biodiversity of masonry walls.

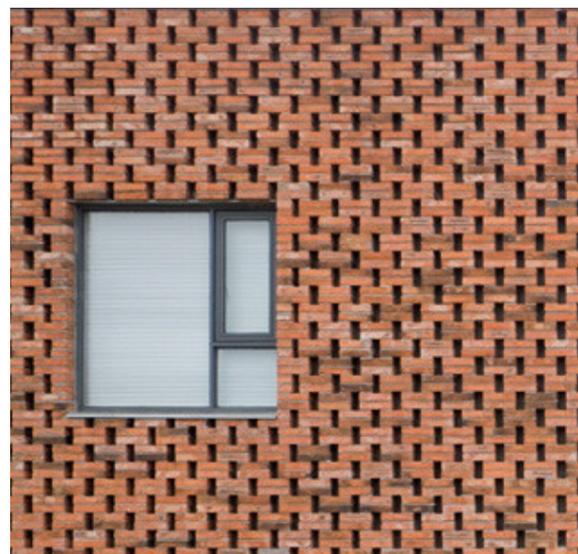
The section also shows how hollow bricks, created explicitly for bird and bat occupation, have entered the market and becoming integrated with conventional masonry construction. This is evident most prominently in the United Kingdom, where some municipalities are beginning to mandate that all new public building construction include hollow bricks as avian habitat.

## Grid Bond

Raíces Educational Park | Colombia  
Taller Piloto Arquitectos

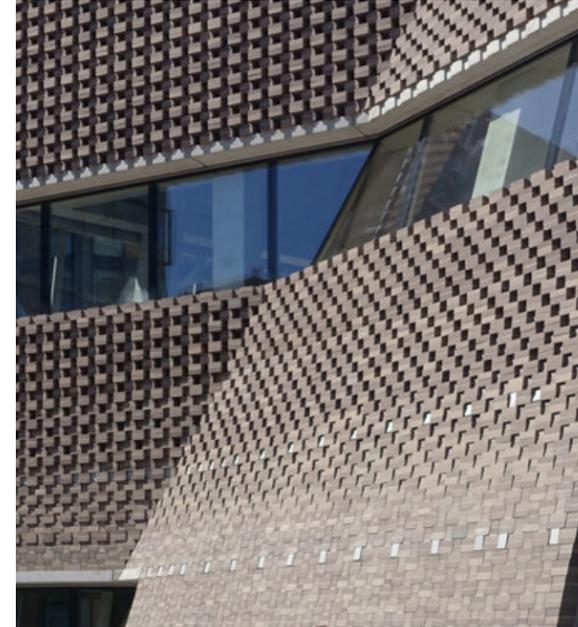


Brick House | China  
AZL architects

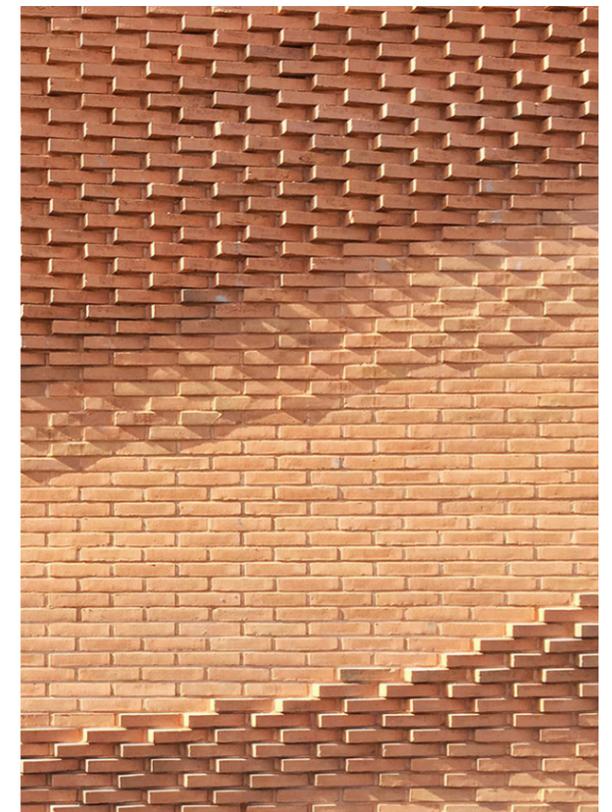
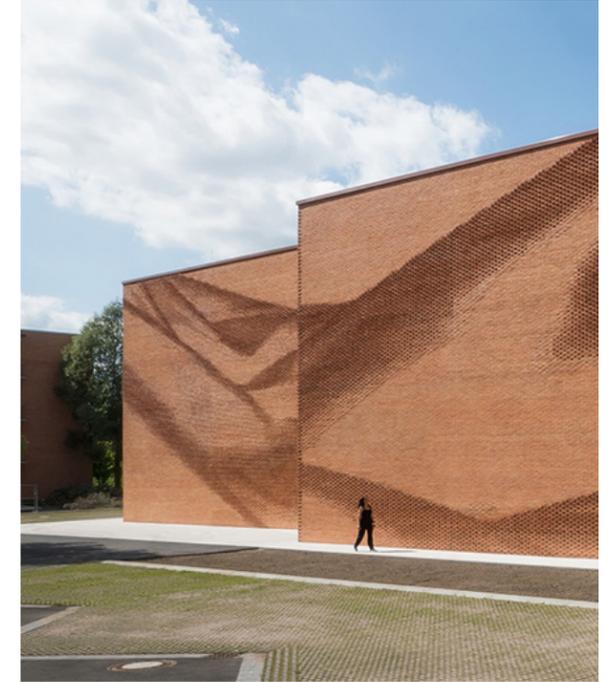


## Gradient Bond

Tate Modern Switch House | England  
Herzog & de Meuron



Administrative Building Textilverband | Germany  
Behet Bondzio Lin Architekten

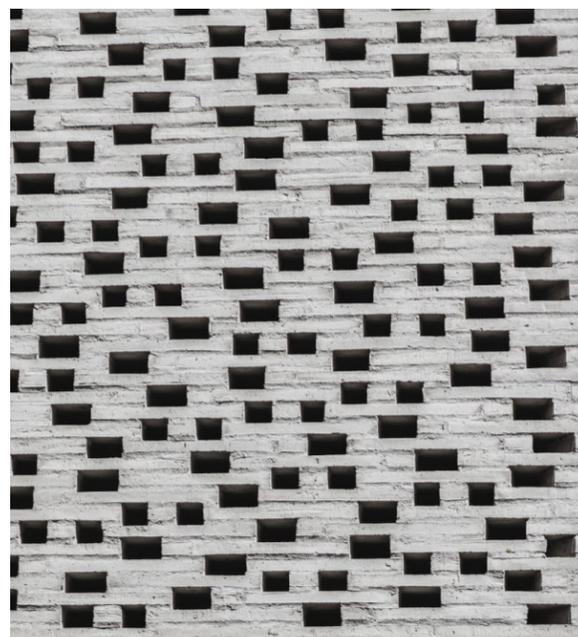
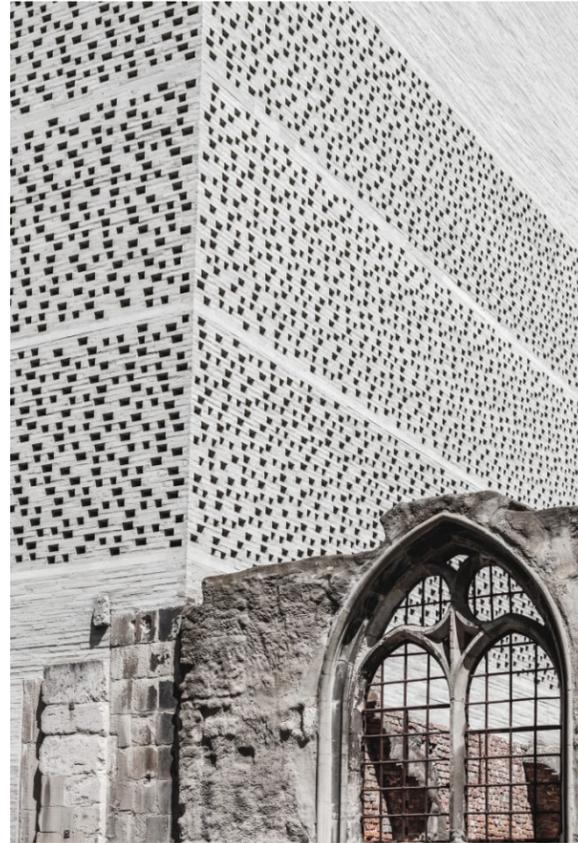


## Random Bond

School Group Paulette-Deblock | France  
zigzag architecture

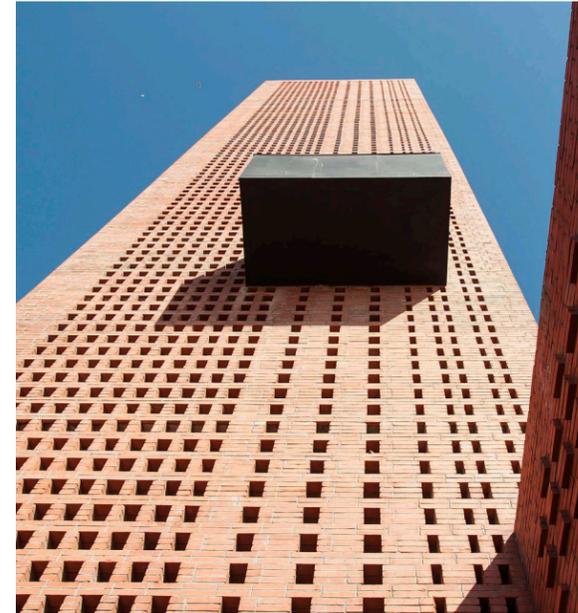


Kolumba Museum | Germany  
Peter Zumthor



## Striated Bond

Tower of Bricks | China  
Interval Architects



Museum Nairac Extension | The Netherlands  
Van Hoogevest Architecten

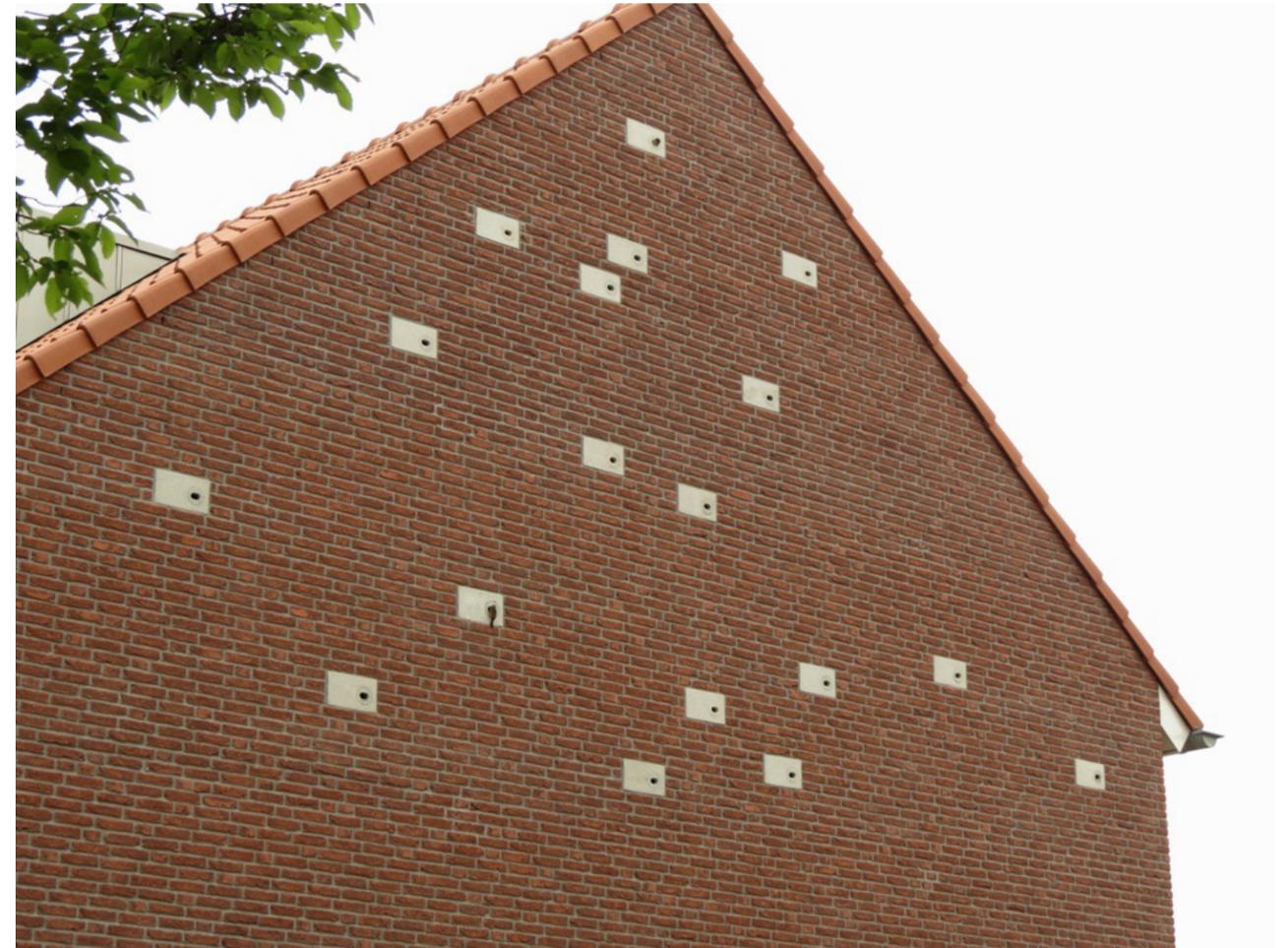
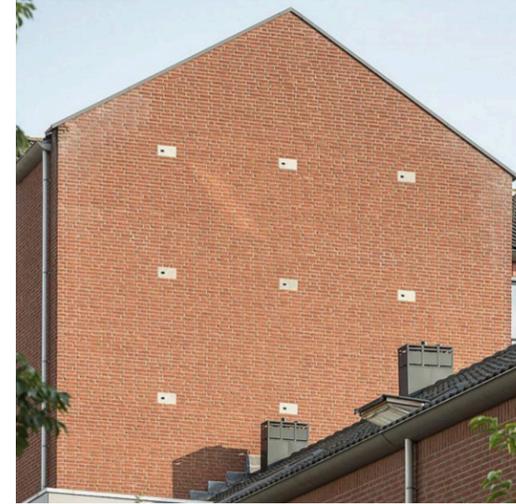


## Hollow Brick

Sparrow Terraces | England  
Bird Brick Houses, Ltd.



Swift Box (Grid and Random Pattern) | England  
Vivaria Pro



# 04

## Design Proposals

Three student designs to transform brick-veneer, south-facing facades at the UMD School of Architecture are found in this section.

Project 1, by Venancio Cartagena, employs parametric design to create a brick veneer with small, medium, and large-scale habitable “bulges.” The bulges are created through incrementally rotated bricks, and the rotation allows for openings in hollow bricks within the bulge zone to be accessible to birds.

Project 2, by Emily Kelly, features a high, horizontal band of bird boxes for nesting birds arrayed in a running bond pattern. The boxes include angled and projected ledges for perched birds, which create an animated shadow pattern across the facade throughout the day.

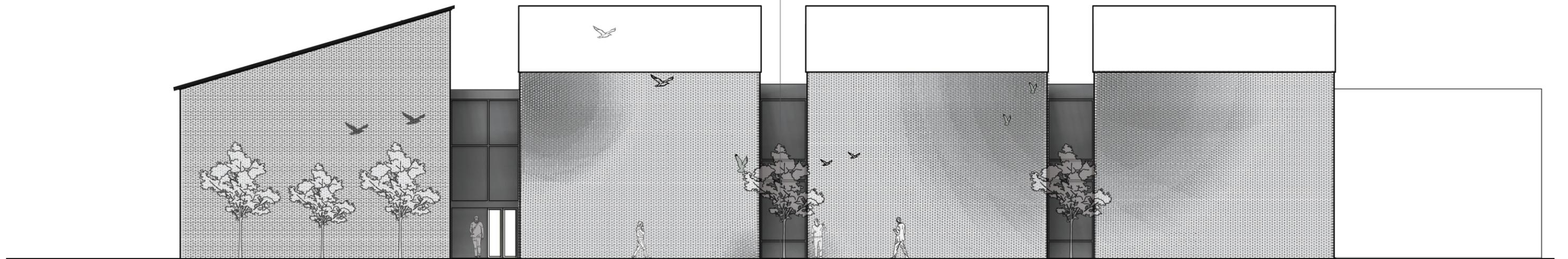
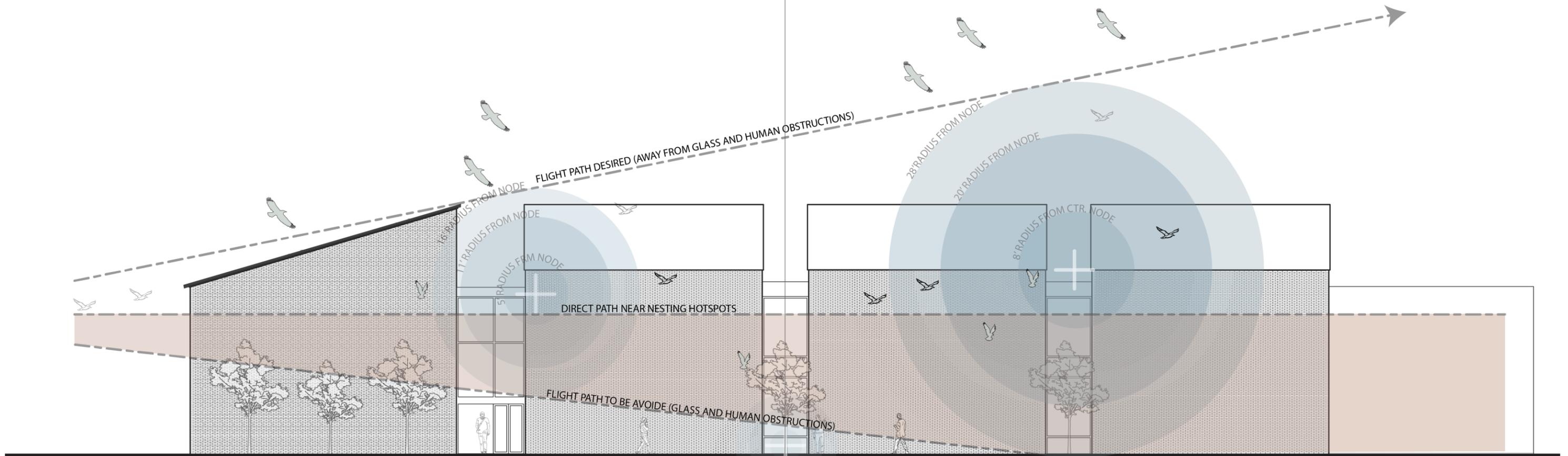
Project 3, by Aylin Garcia, associates openings for birds with openings for humans in the existing facade. The design includes a vertical pattern of brick veneered bird boxes and brick ledges. The ledges—formed by rotating bricks 90 degrees—project different lengths from wall, creating a gradient of shadows.



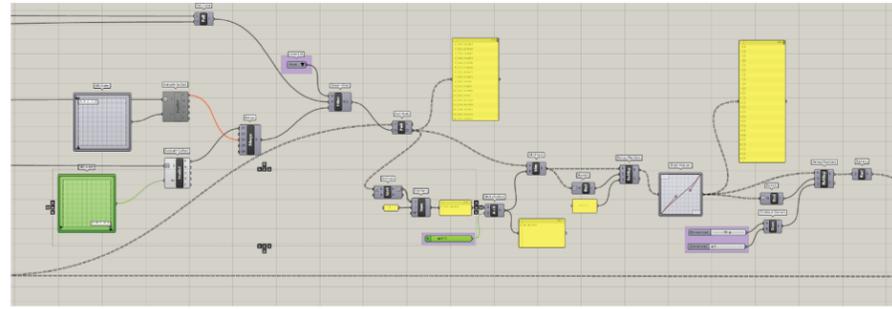
## Bulging Bird Wall

designed by Venancio Cartagena

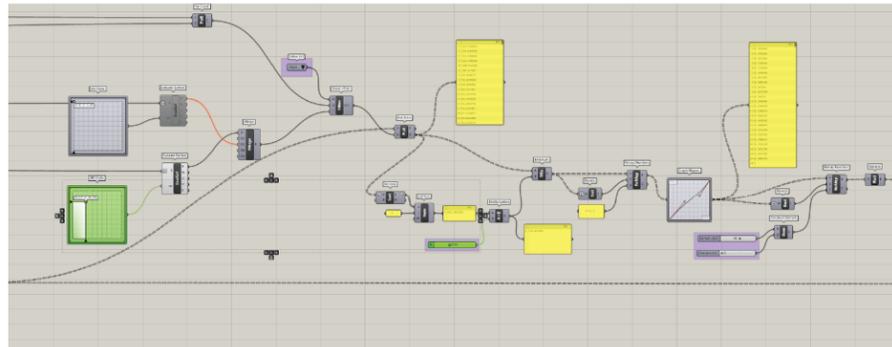
This project employs parametric design to create a brick veneer with small, medium, and large-scale "bulges" that are habitable by birds. Bulges are created through incrementally rotated bricks, and the rotation allows for openings in hollow bricks within the bulge zone to be accessible to birds. The bulges are positioned relatively high on the facade to keep bird nests away from human activity in the courtyard.



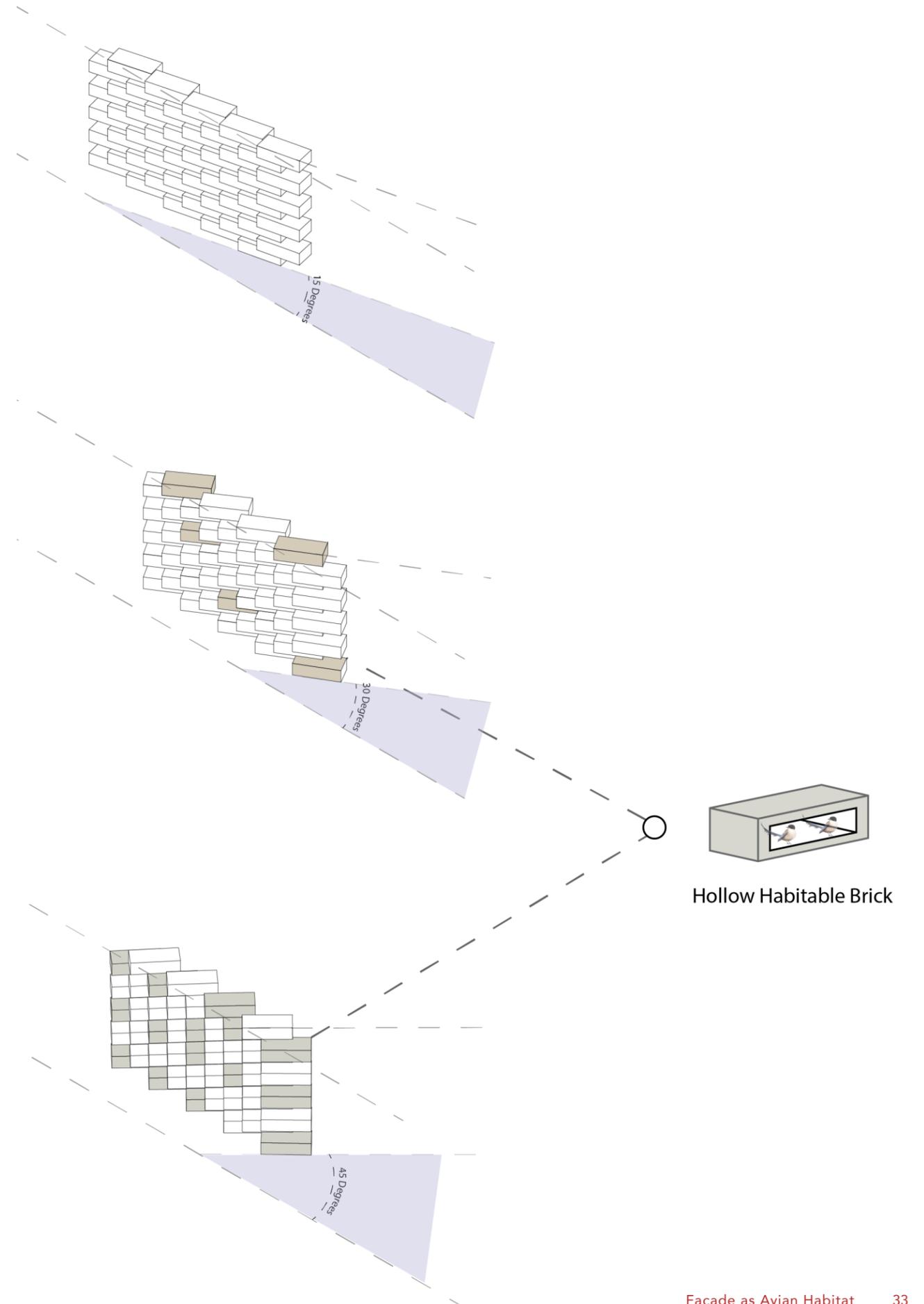
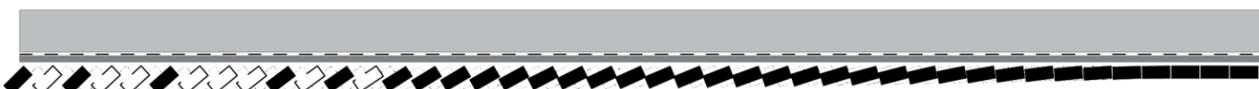
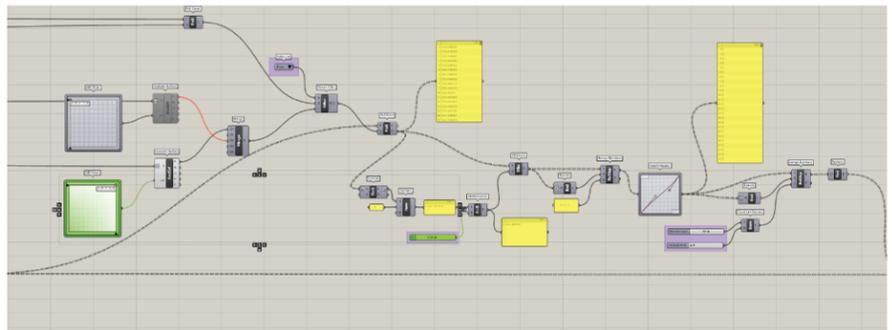
SMALL NODE

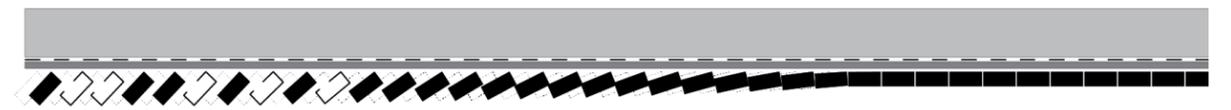
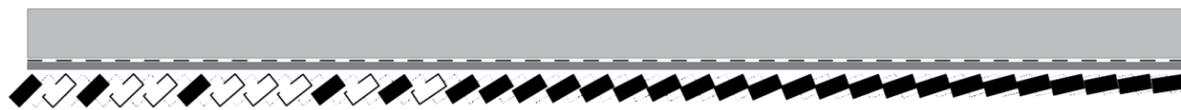
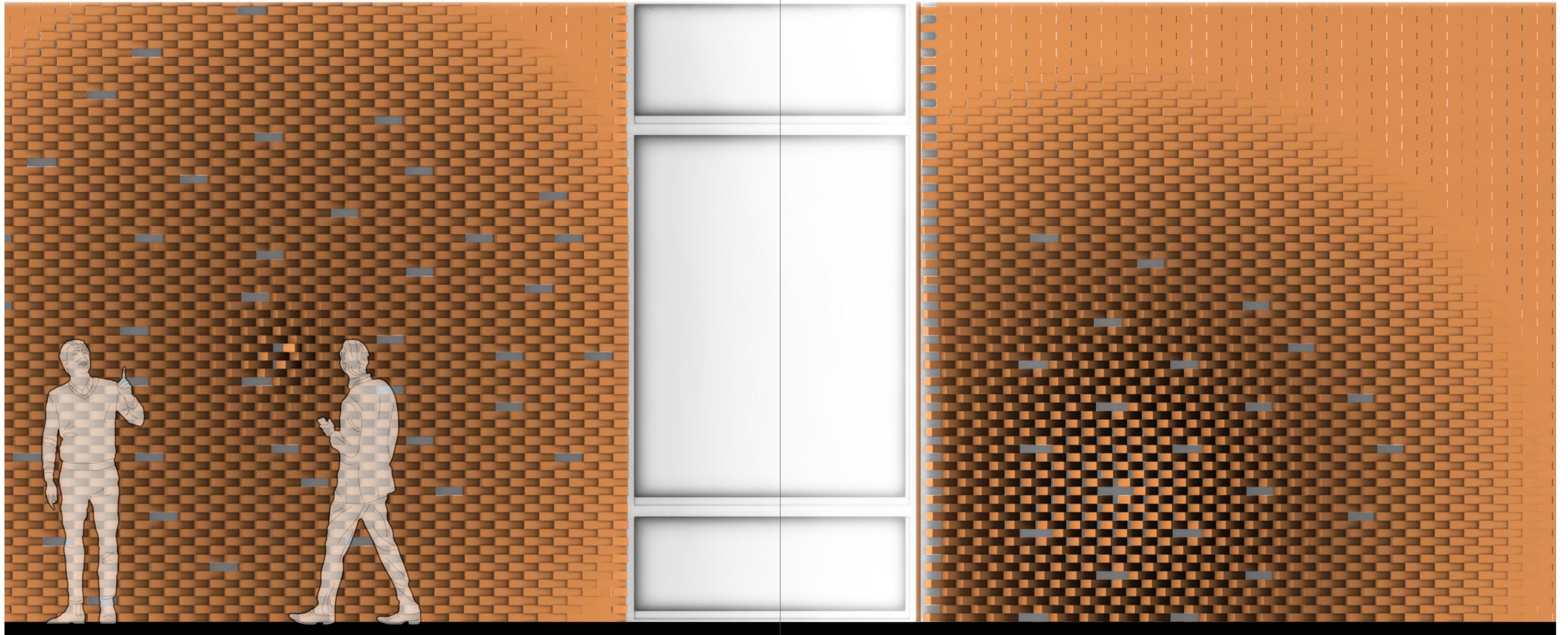


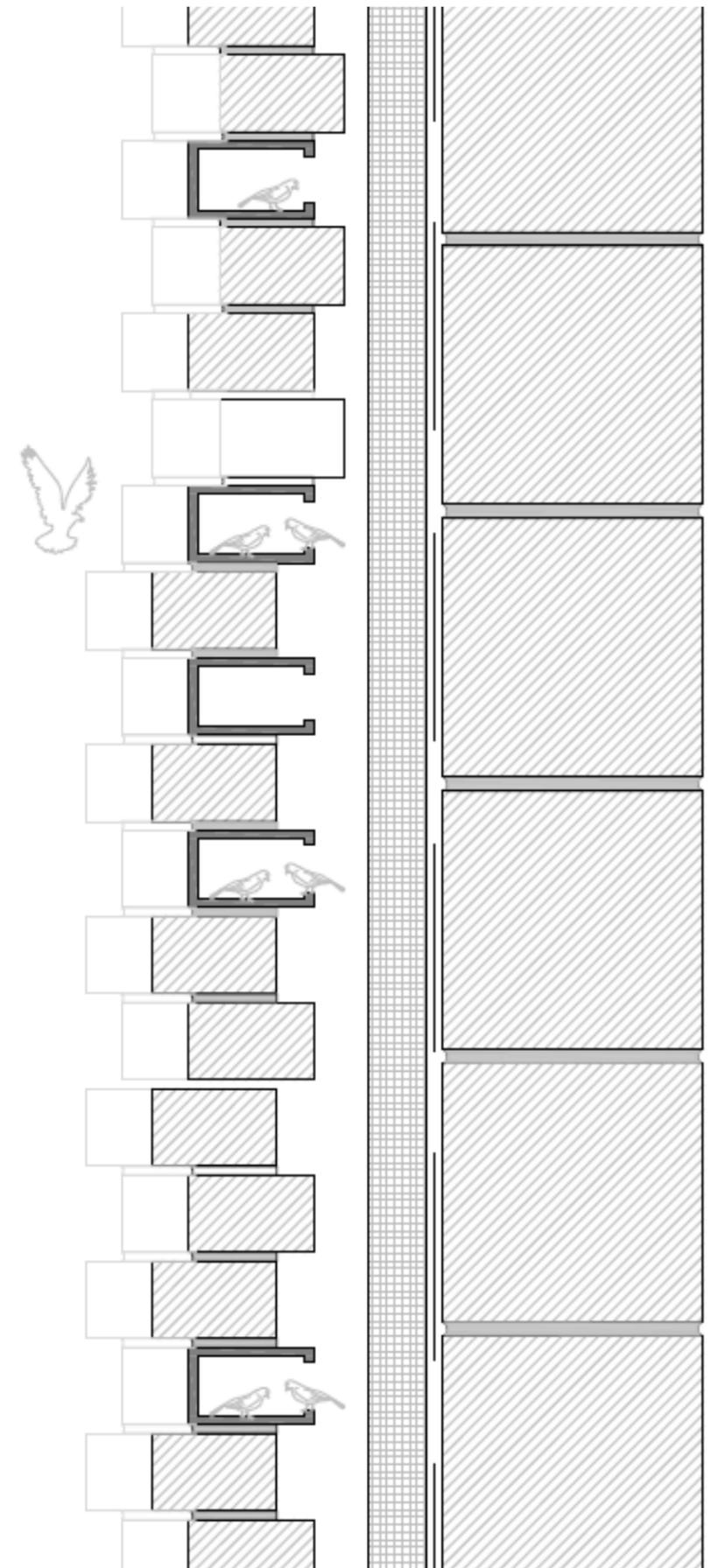
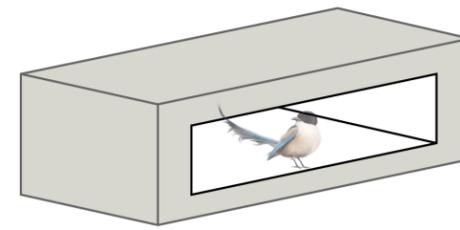
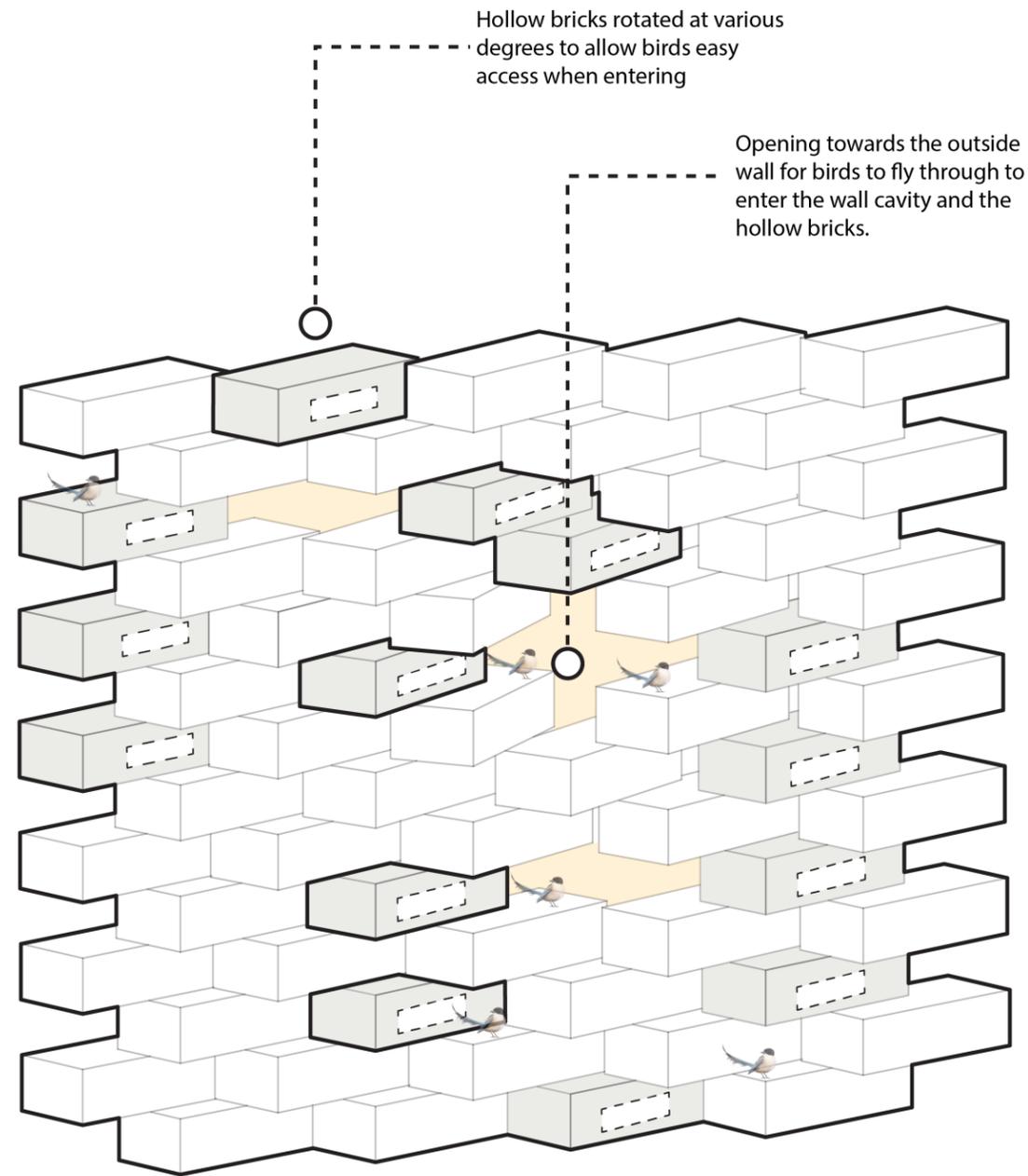
MEDIUM NODE

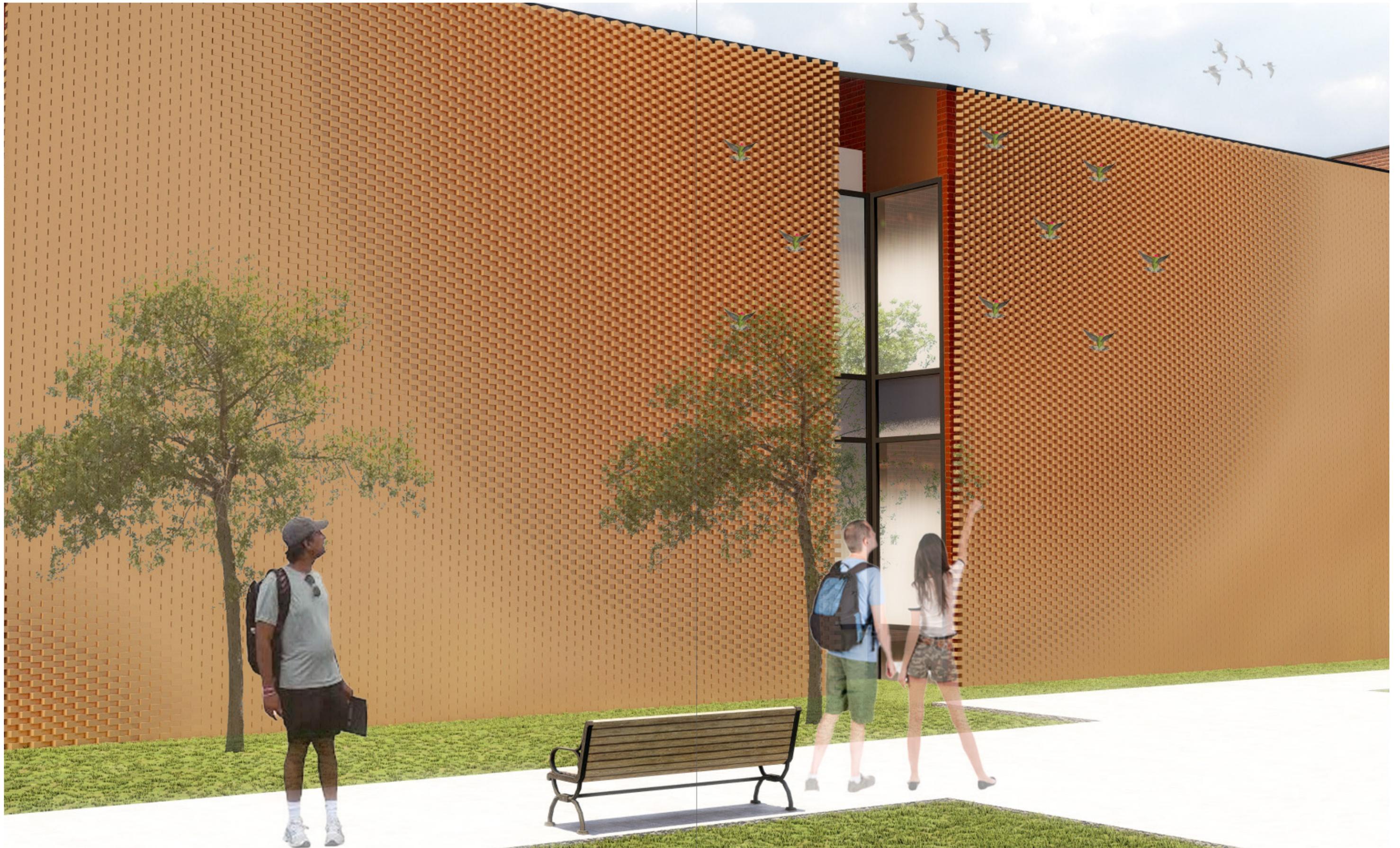


LARGE NODE







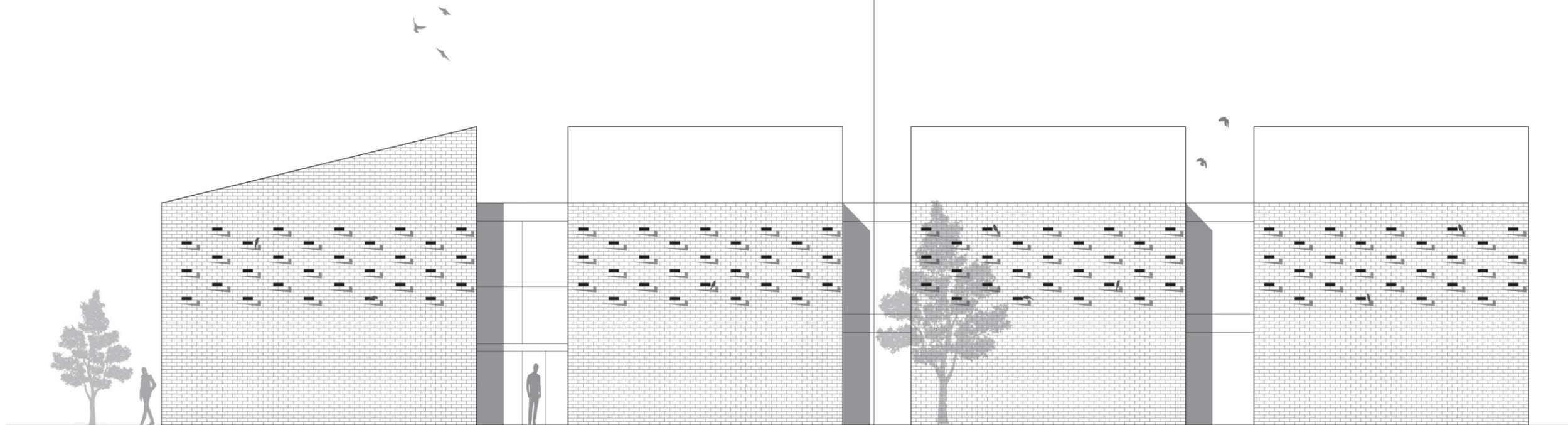
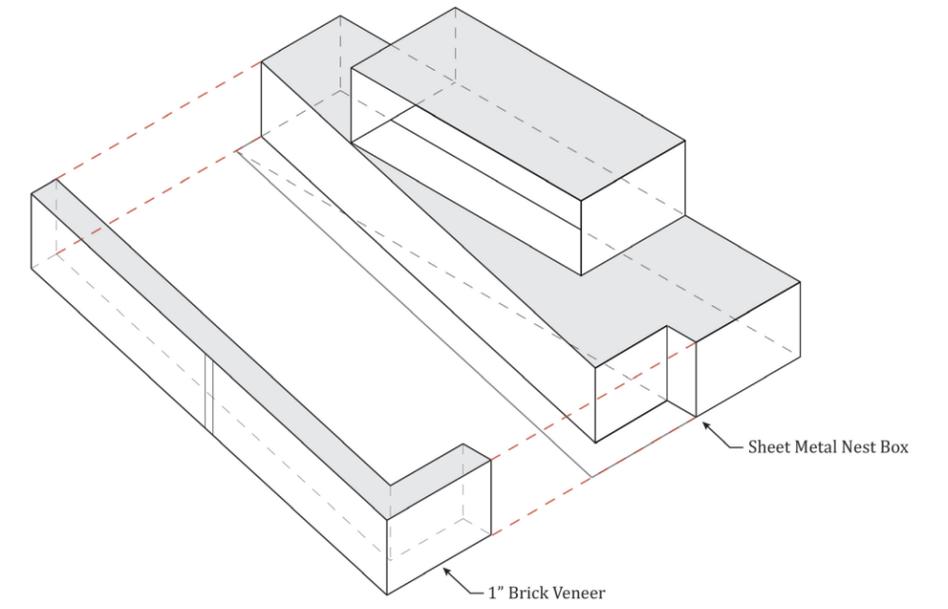
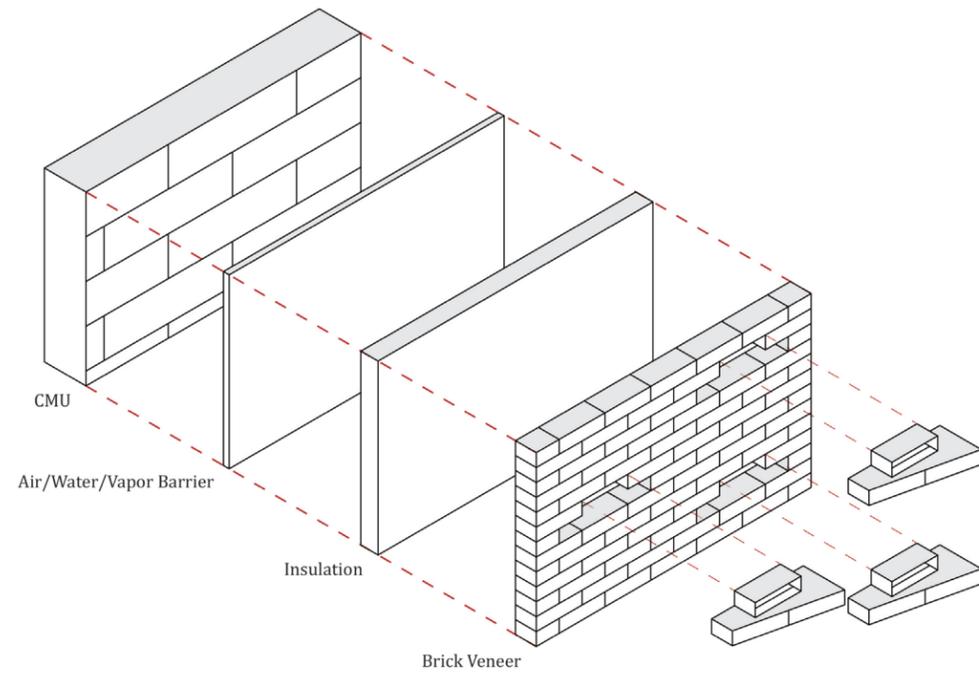


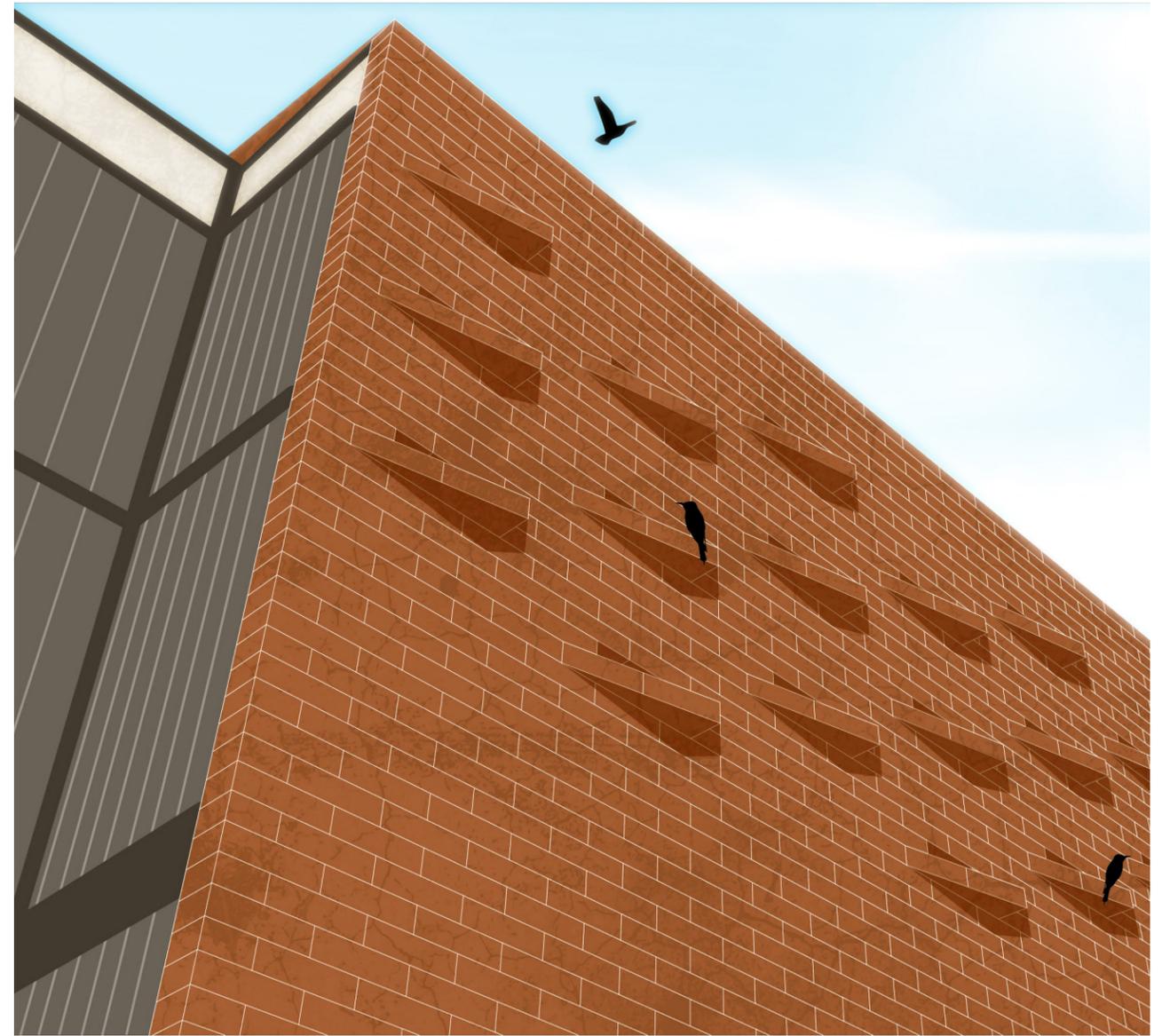
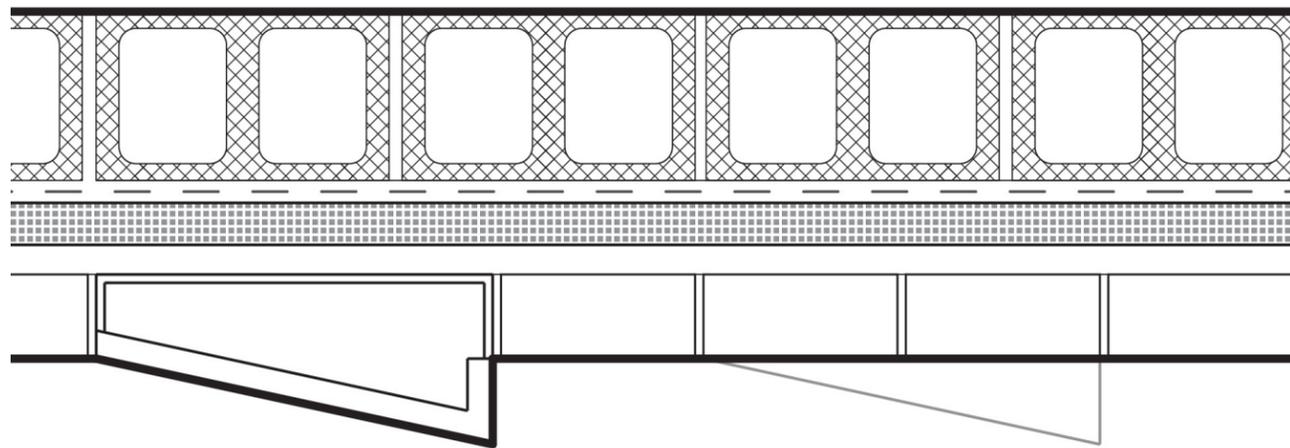
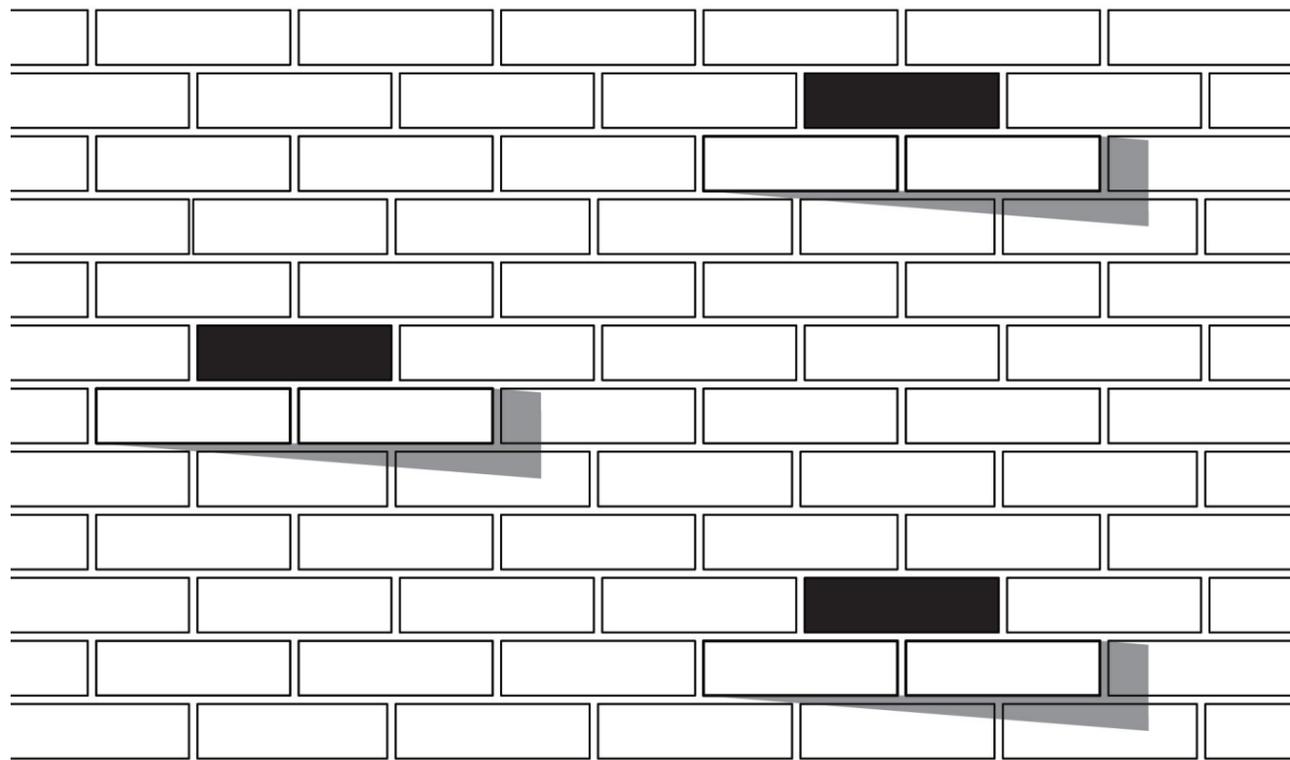


## Bonding to/for Birds

designed by Emily Kelly

This project features a high, horizontal band of bird boxes for nesting birds. The boxes are distributed in a running bond pattern that echoes the existing brick bond of the facade. Angled and projected ledges for perched birds animate the relatively blank existing facade, and create a dynamic shadow pattern across the facade throughout the day.

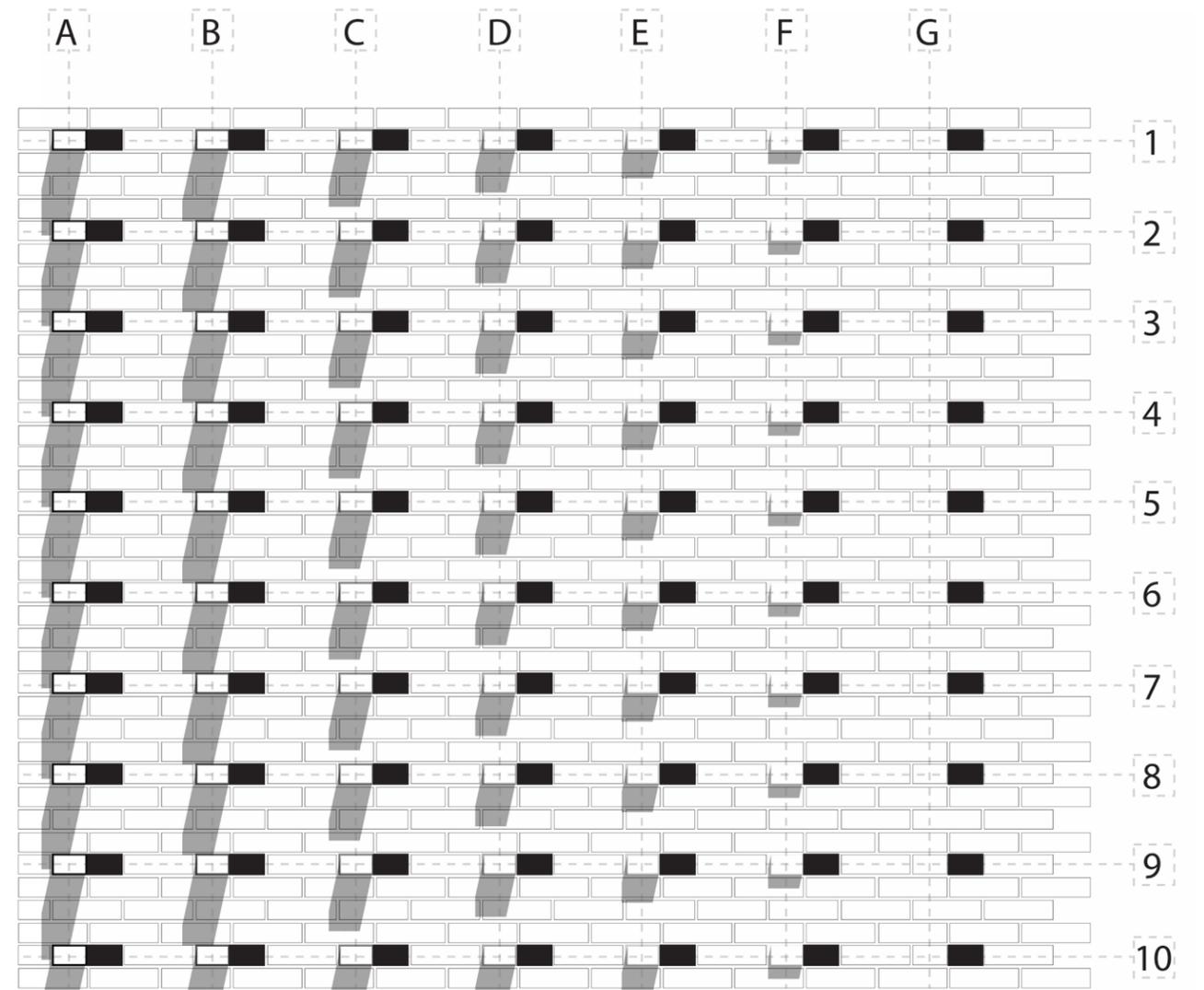




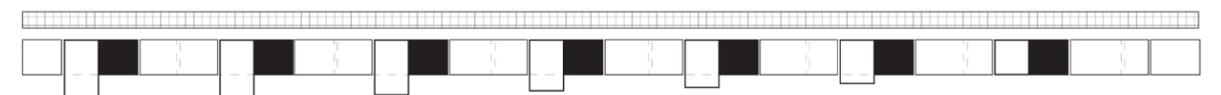


# Avian Walls

designed by Aylin Garcia

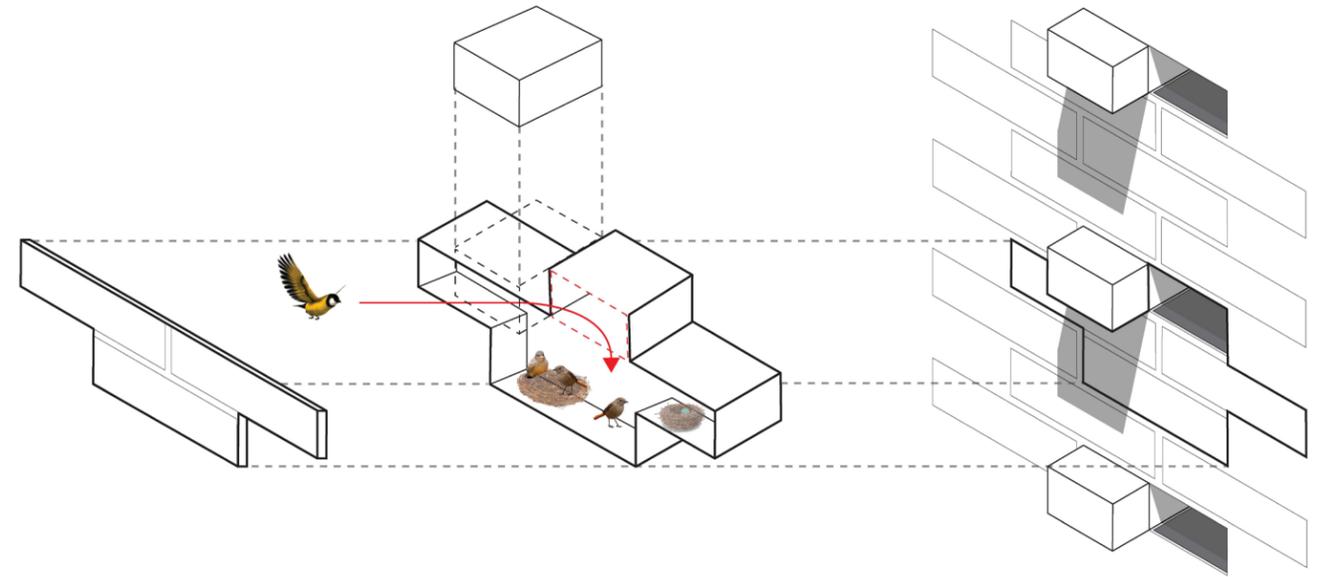
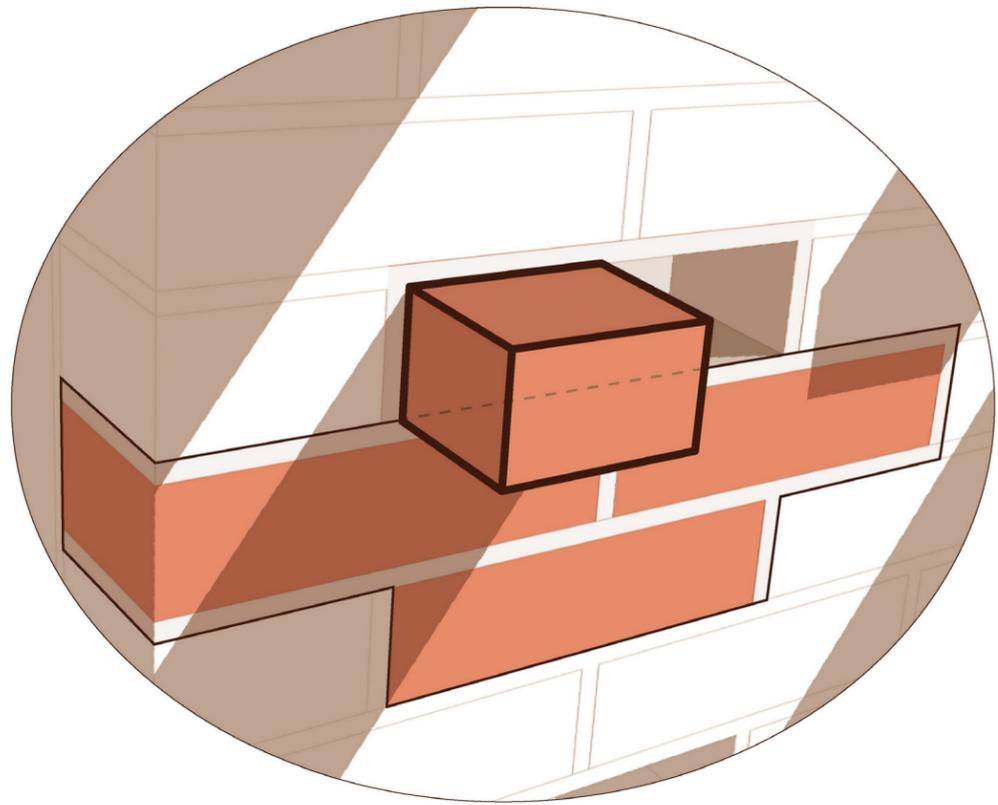


ELEVATION DETAIL

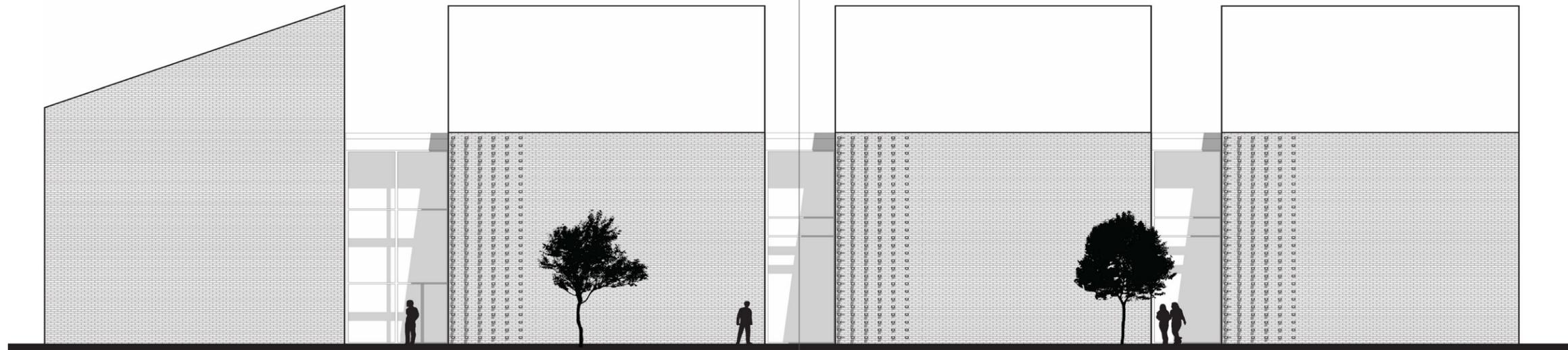


PLAN DETAIL

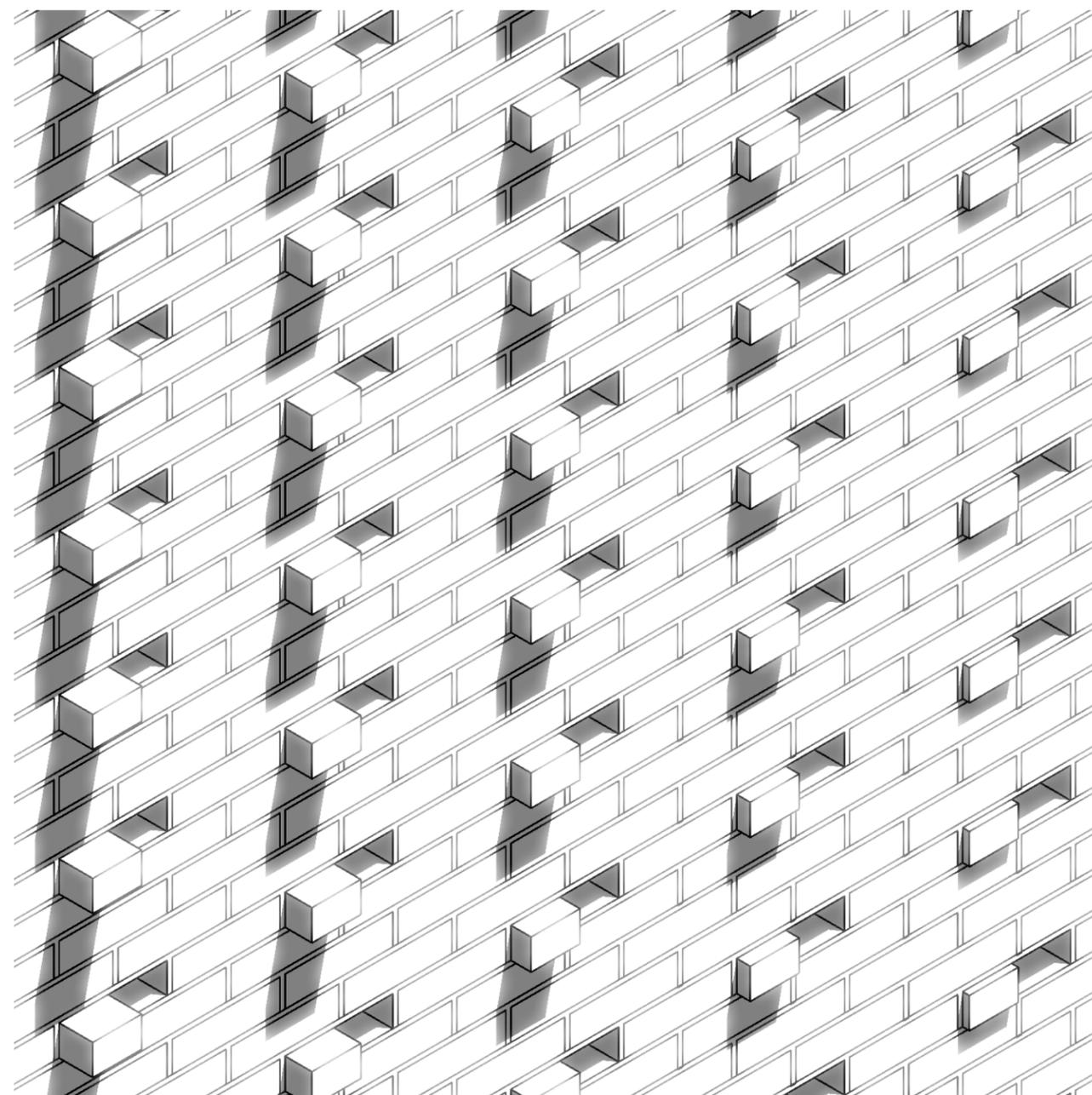
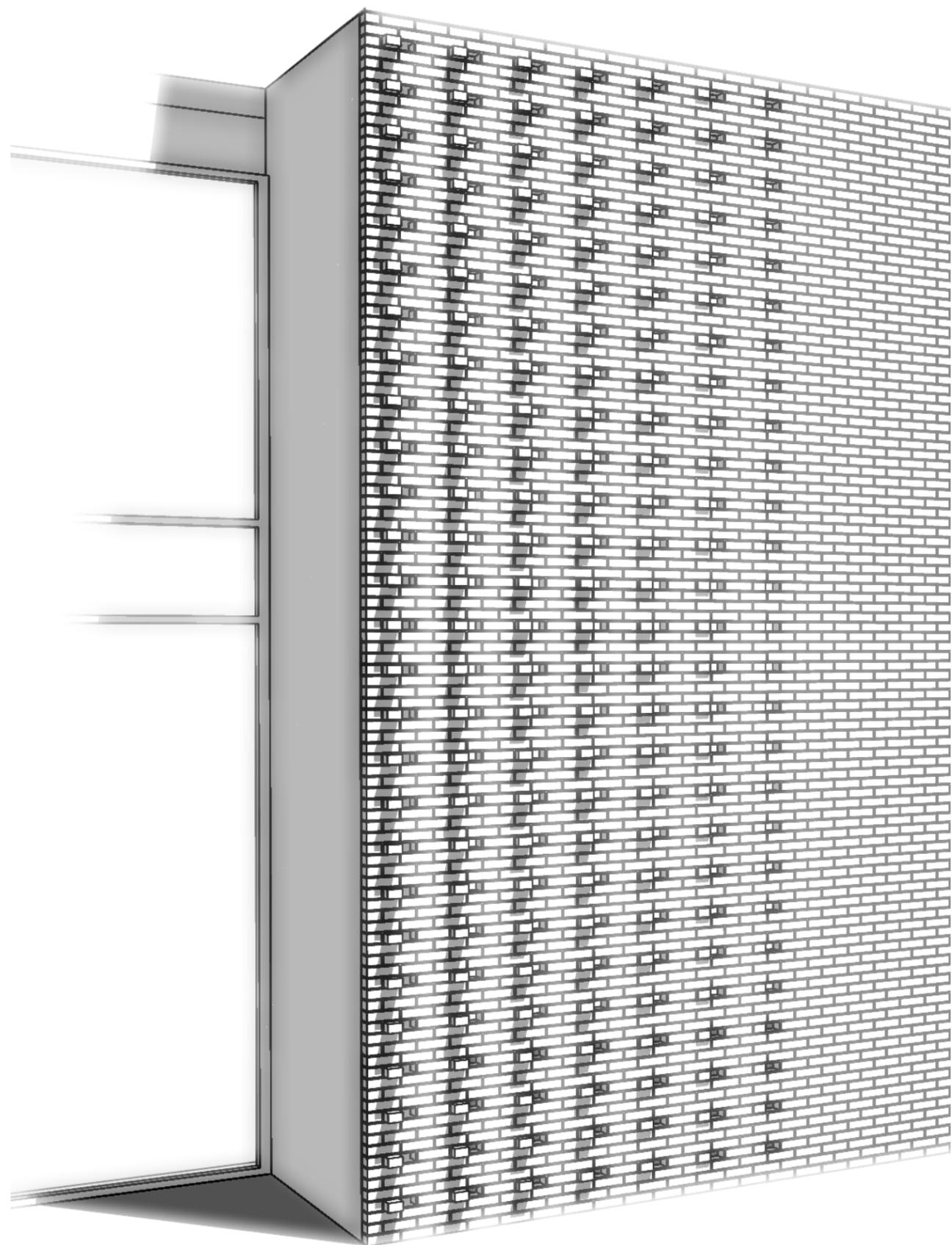
This project associates openings in the facade for birds with the prominent windows and door openings for humans in the existing facade. The design includes a vertical pattern of brick veneered bird boxes and brick ledges. The ledges—formed by rotating bricks 90 degrees—project different lengths from the face of the wall, creating a gradient of shadows.

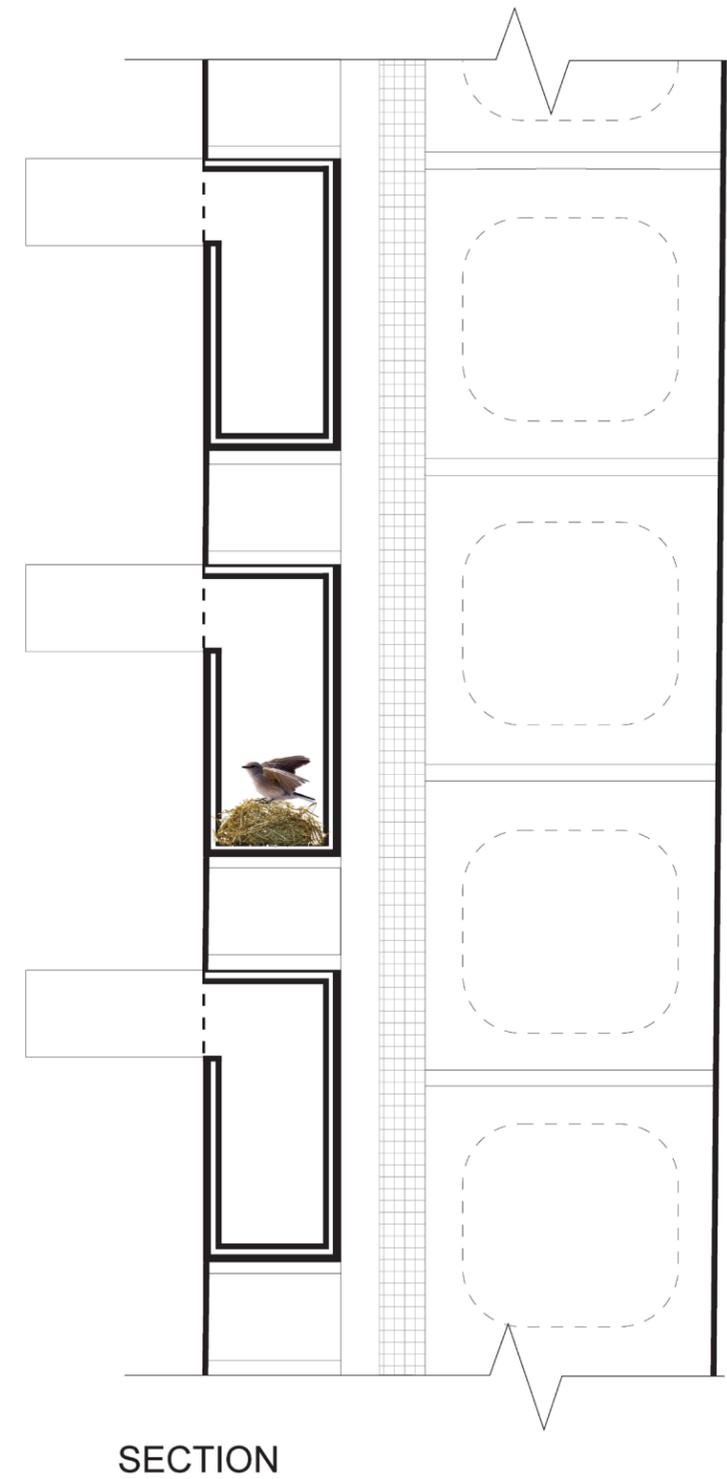
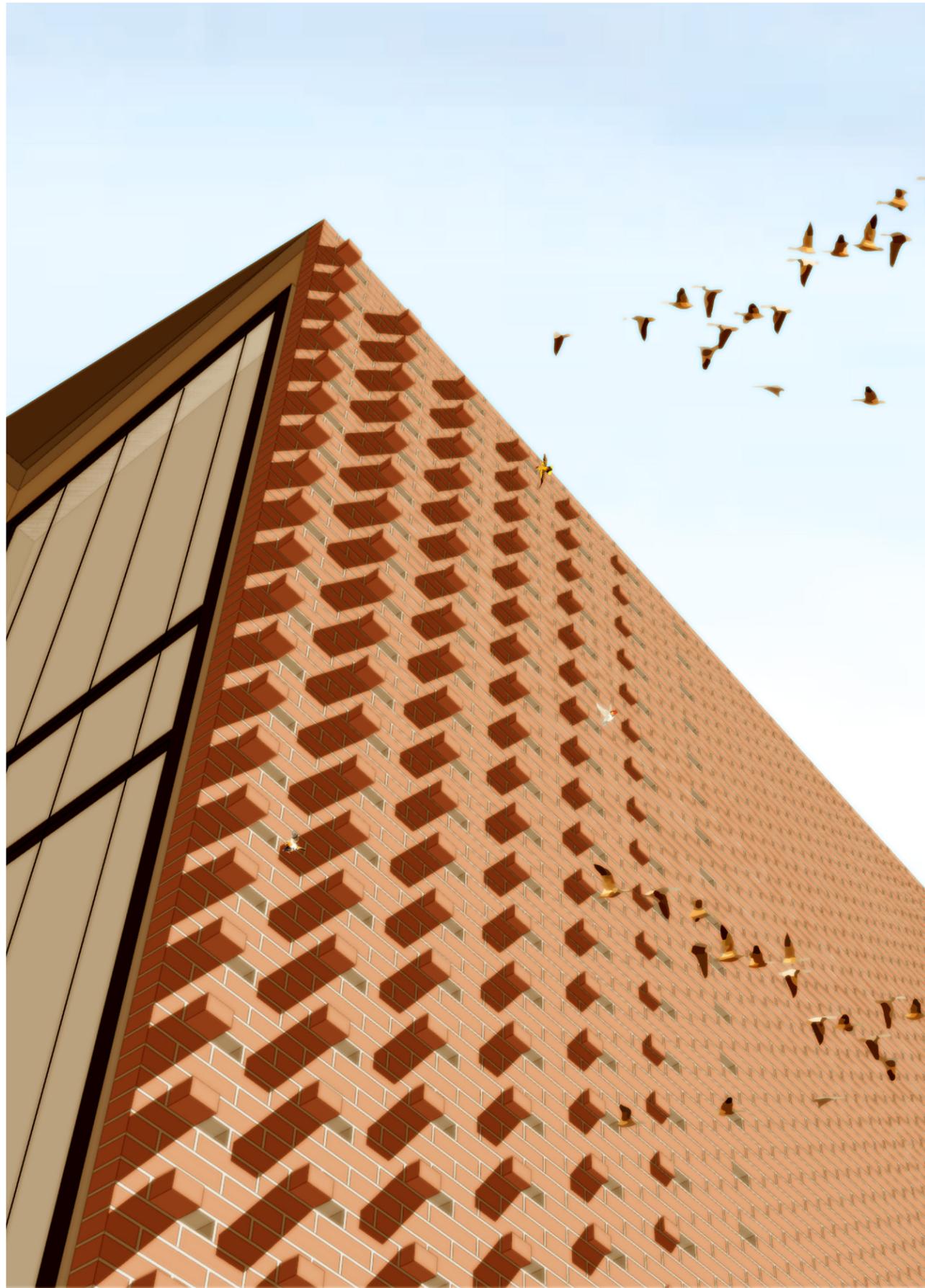


EXPLODED AXON



ELEVATION







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