

## Airport of the Future

Raquib Pramanik - Team Leader - Senior Structural Engineer



### Conceptual Design

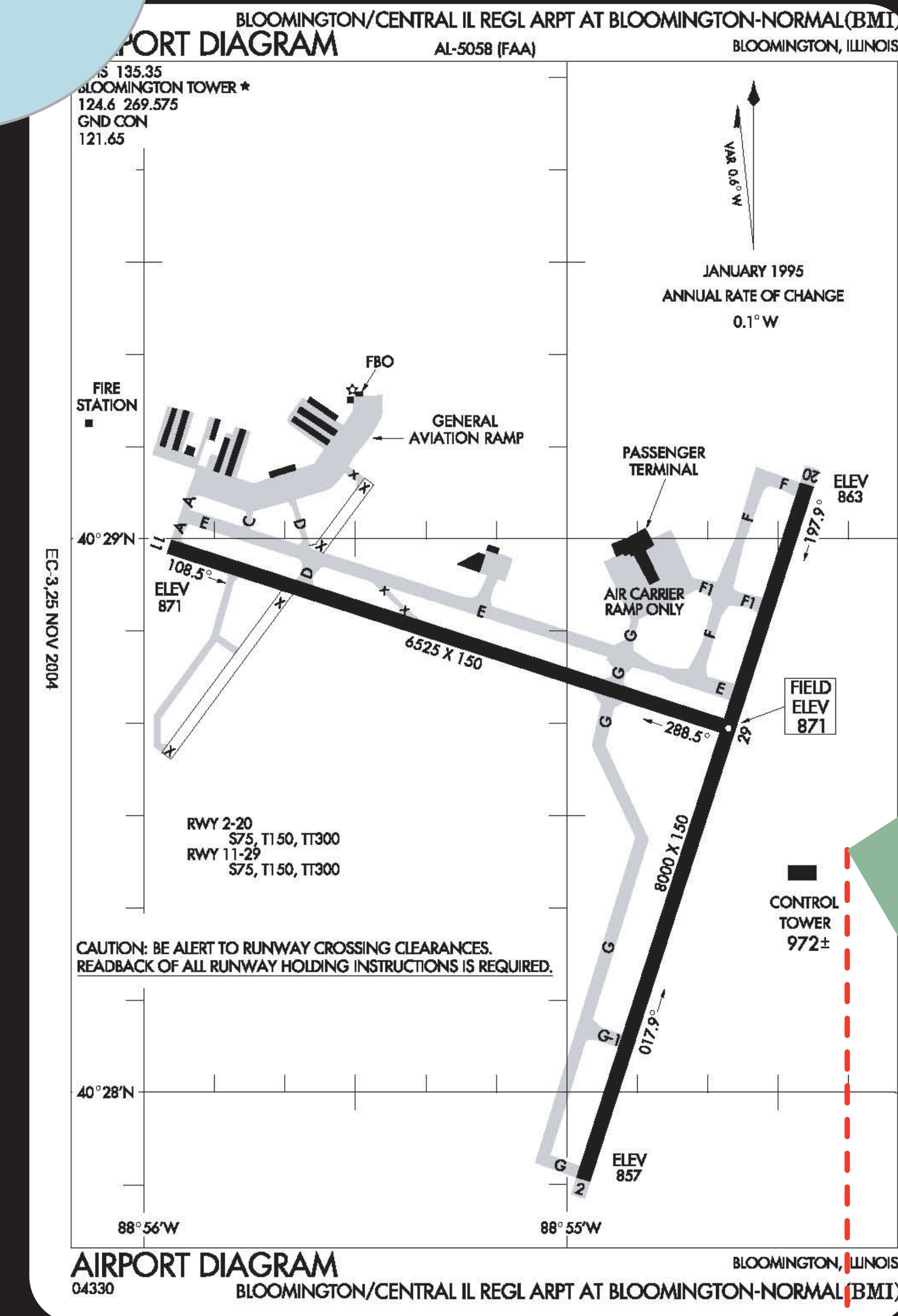
As flights get cheaper and more readily available to more citizens, flying as a means of travel has become one of the easiest ways to get from one place to another. Not only can an airport be a place to wait for a person's arrival or departure, but an airport can become a "city center" accommodating a majority of visitors for a city. With a large retail shopping area, an upper-class restaurant, lounge area for business meetings and relaxation, a conference room, and a large café space – all with abundant natural lighting so that one can see the sky and planes take off, the airport can be a destination and not only a place to walk through. A beautiful airport will also be a glamorous entrance to a new city.

For future expansion, this simple 160' x 240' airport can be connected together sideways to accommodate more terminals, and a hotel, a high-rise commercial building, and even a railroad to connect all various aspects can be added.

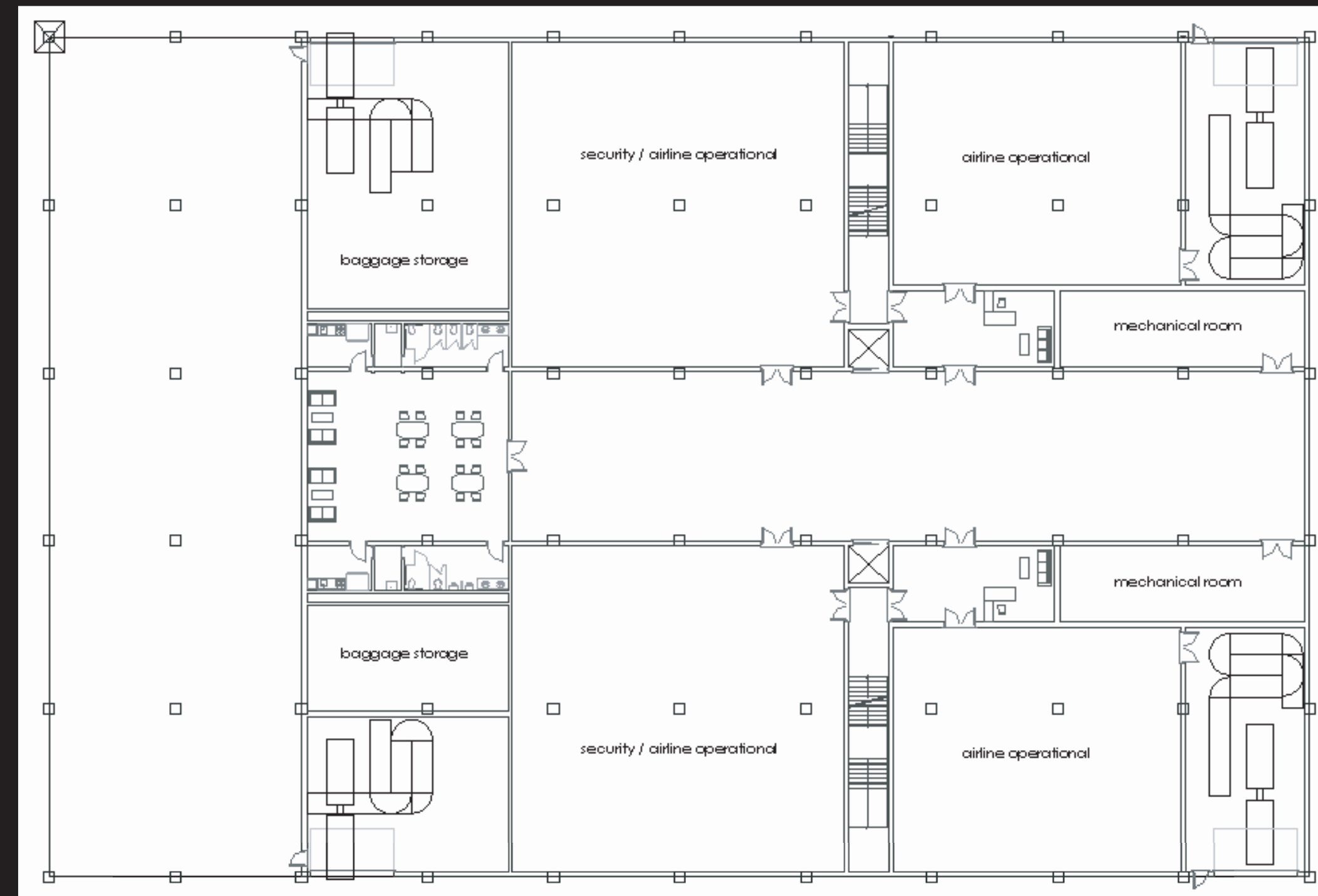
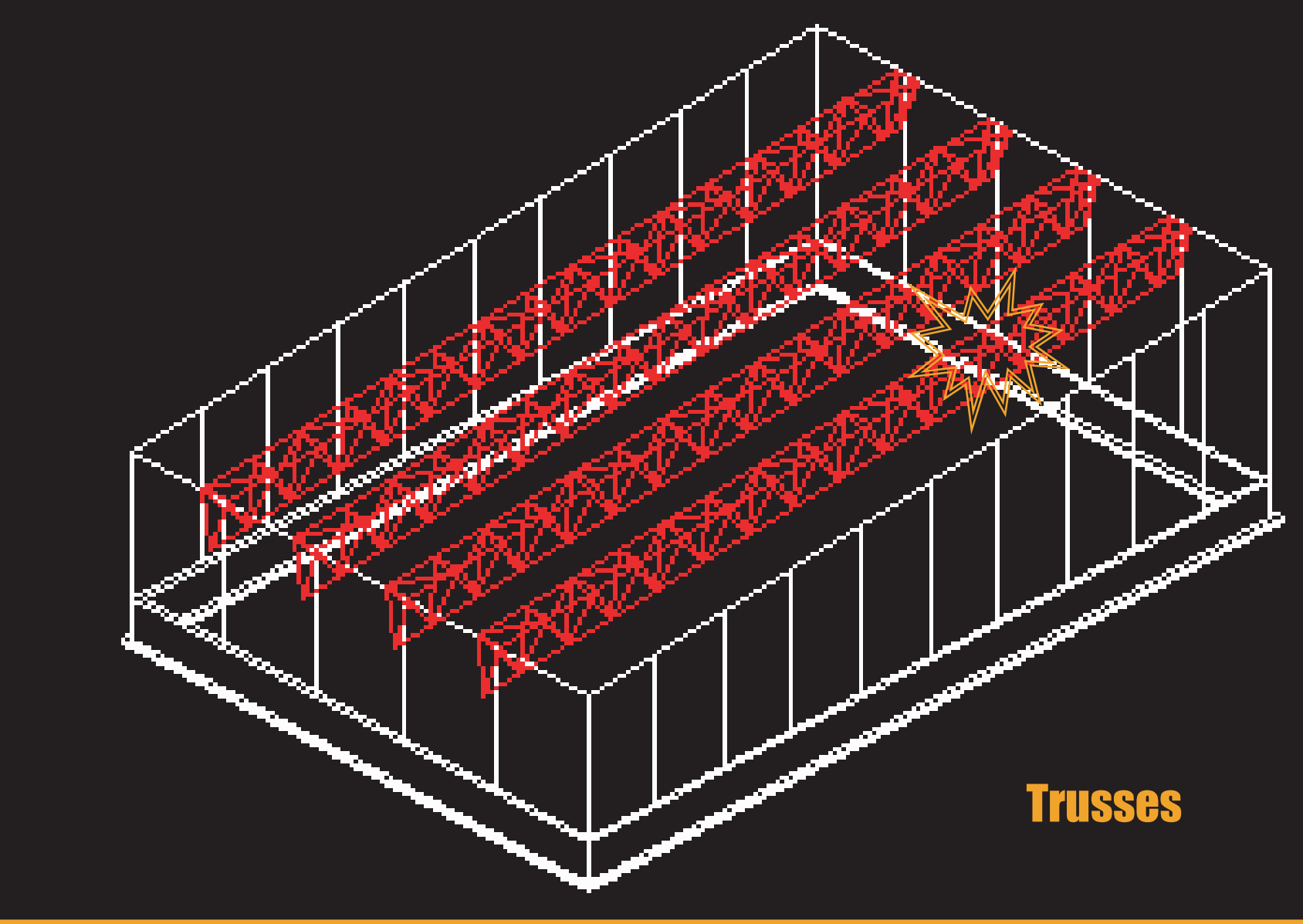
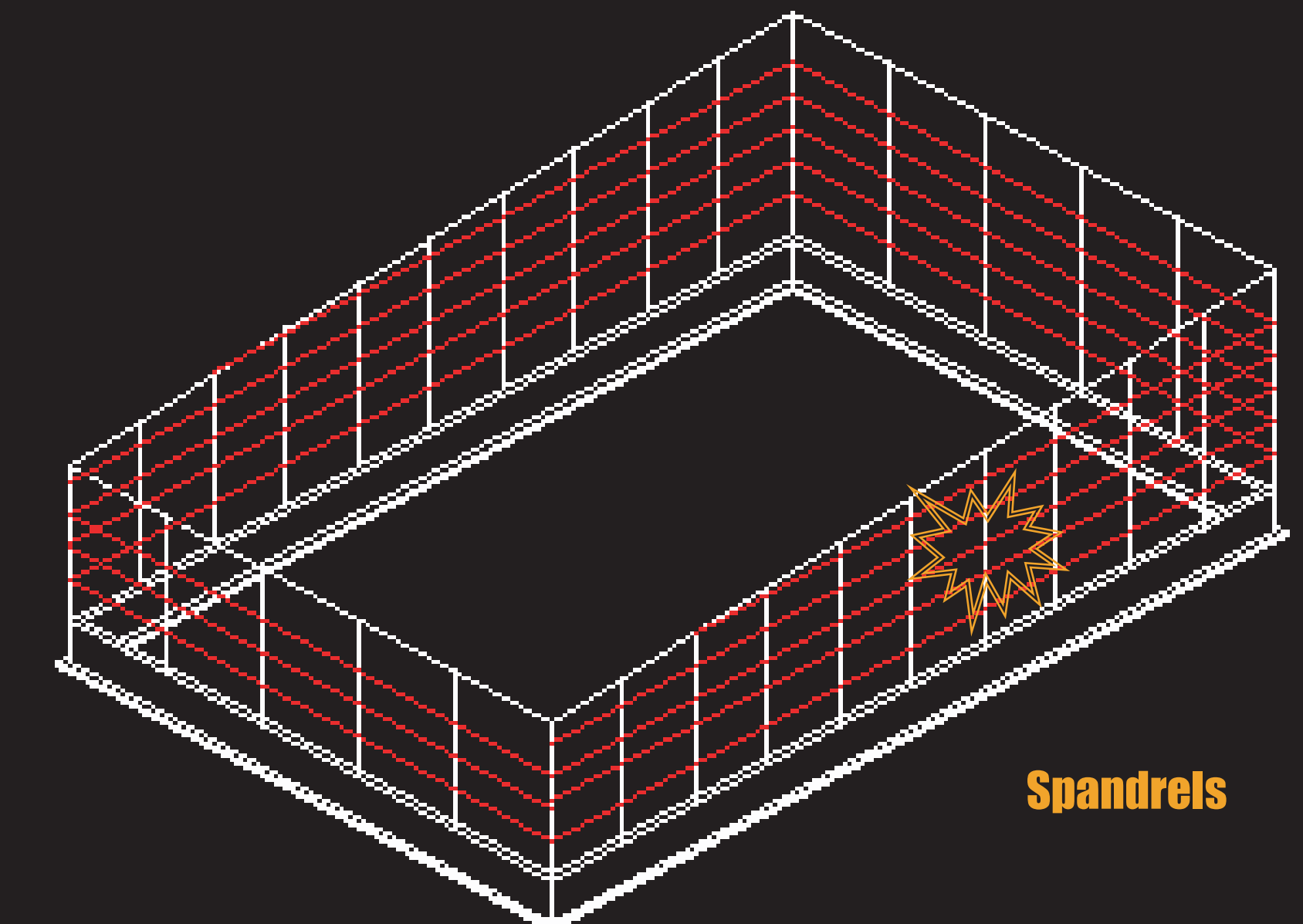
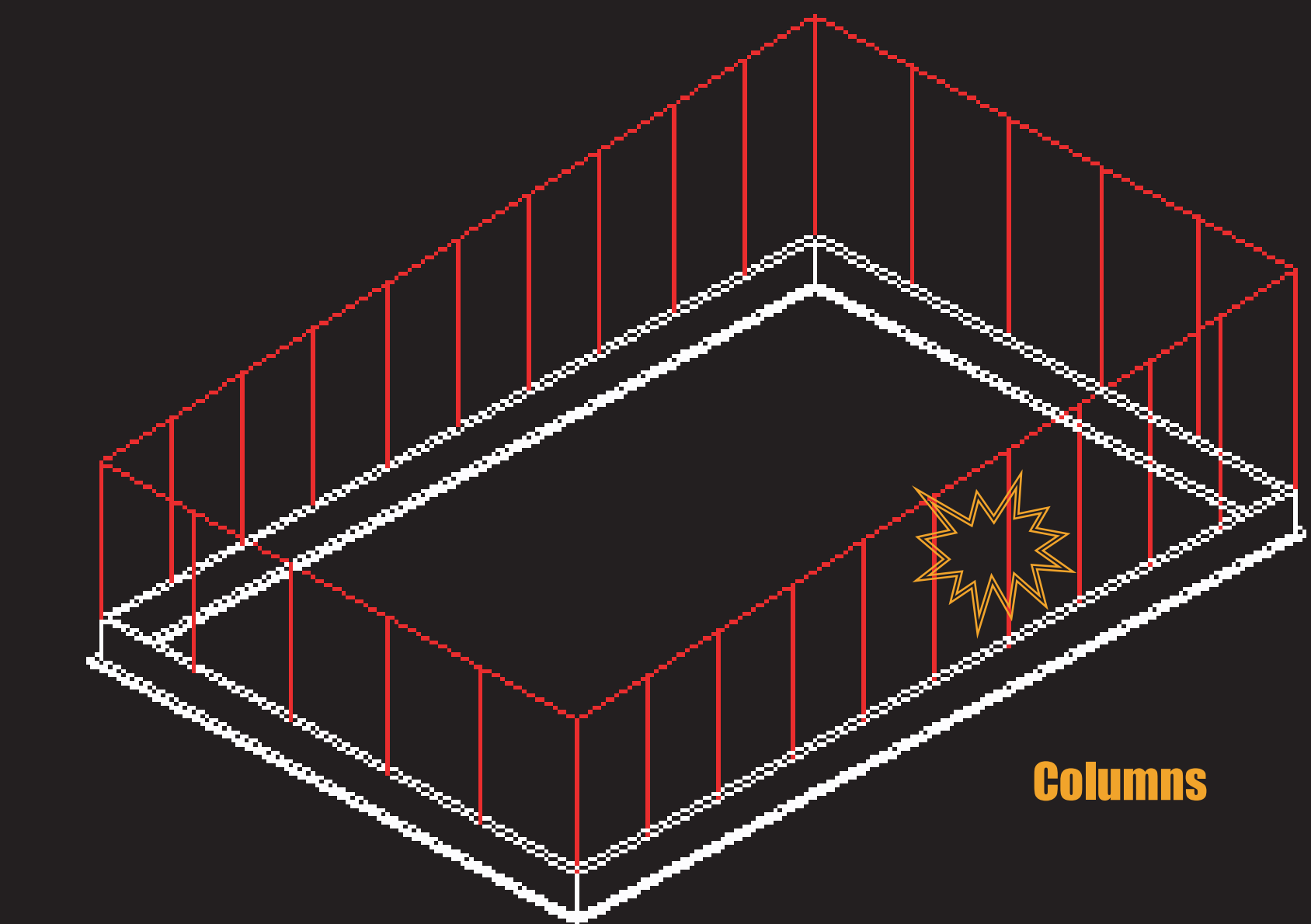
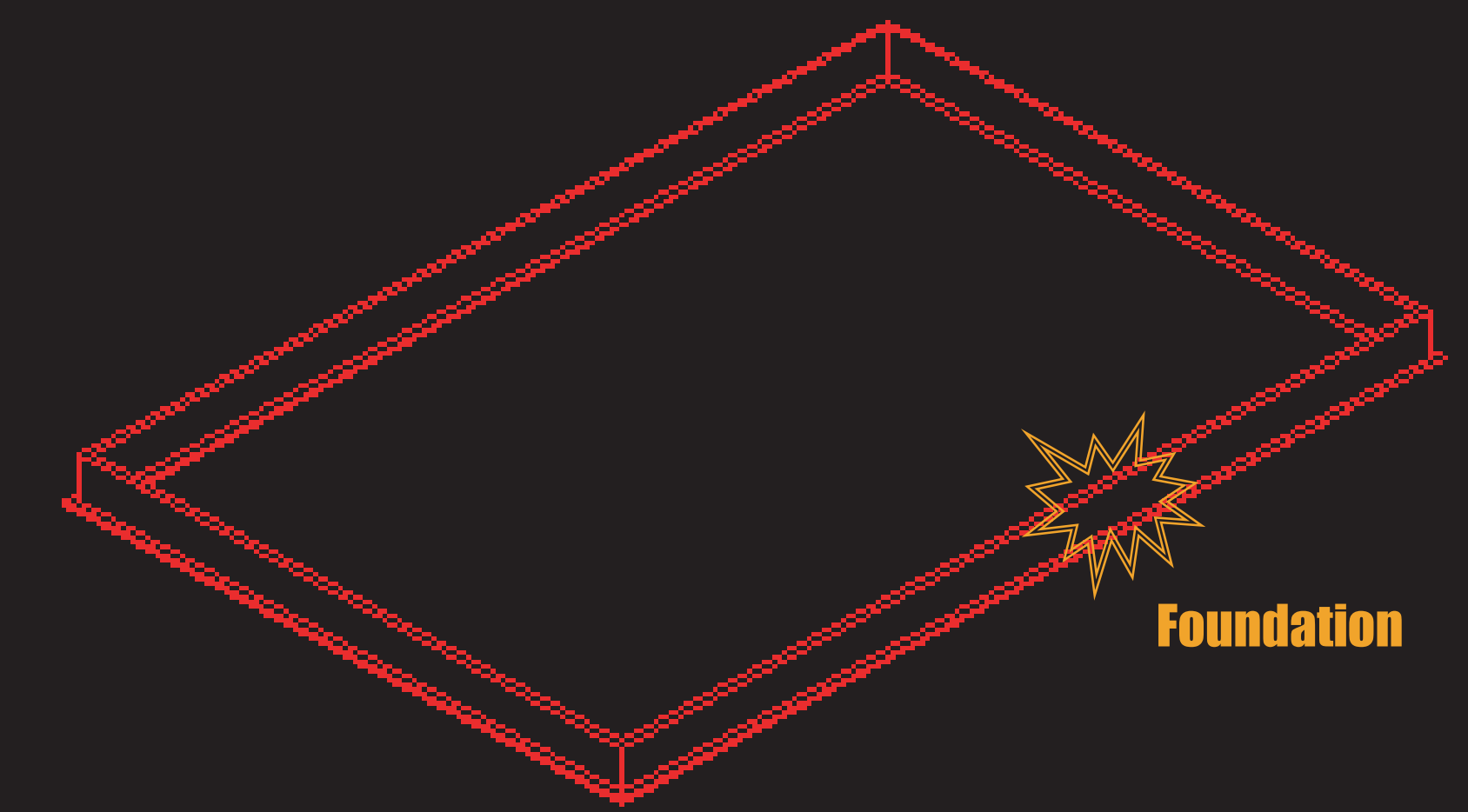
To allow such abundance of light, the façade is double-skinned, allowing for better sound control, natural ventilation, walkways in each spire to allow for easier cleaning and maintenance of the glass, and glare control.



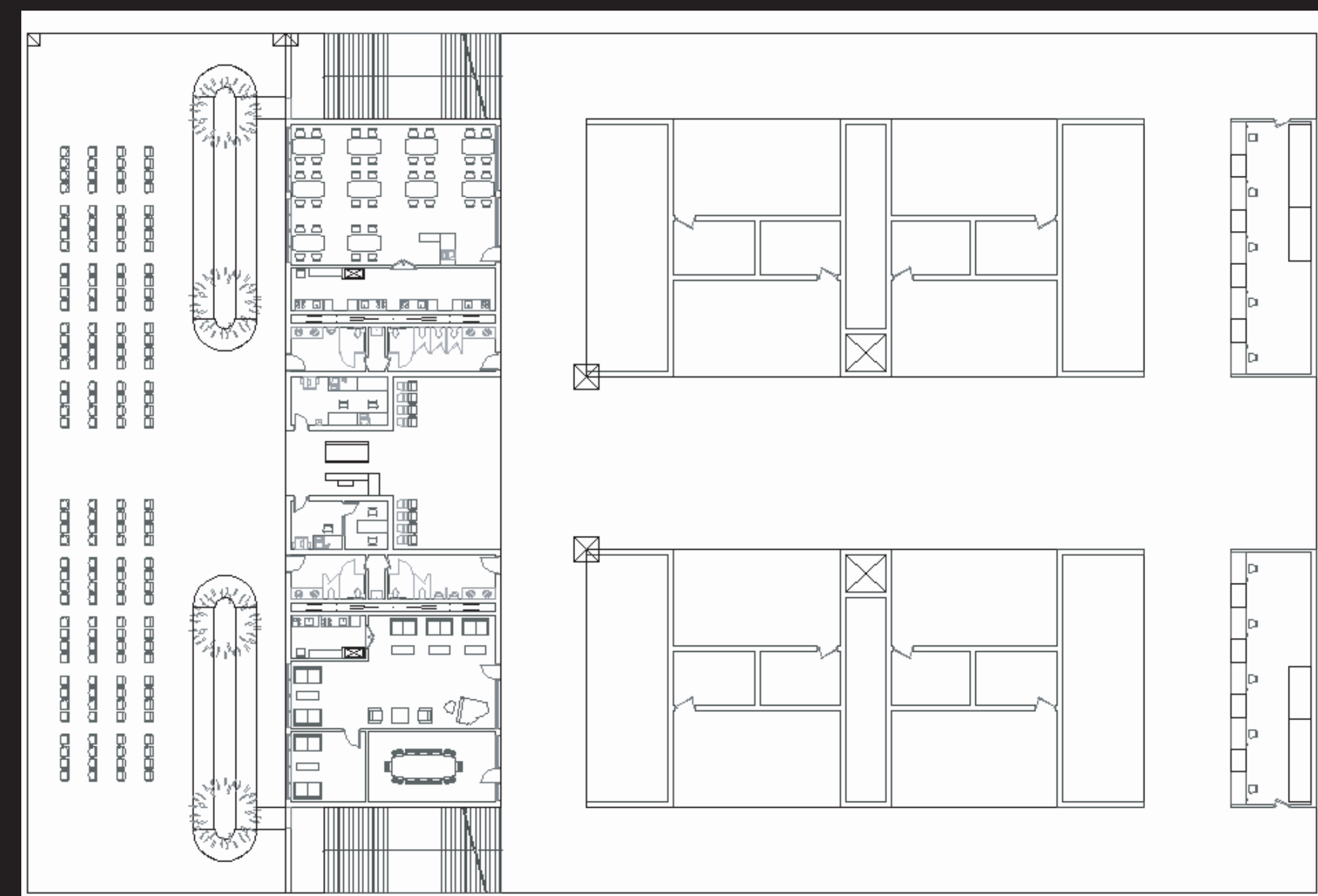
Hana Ishikawa – 4<sup>th</sup> yr Architecture



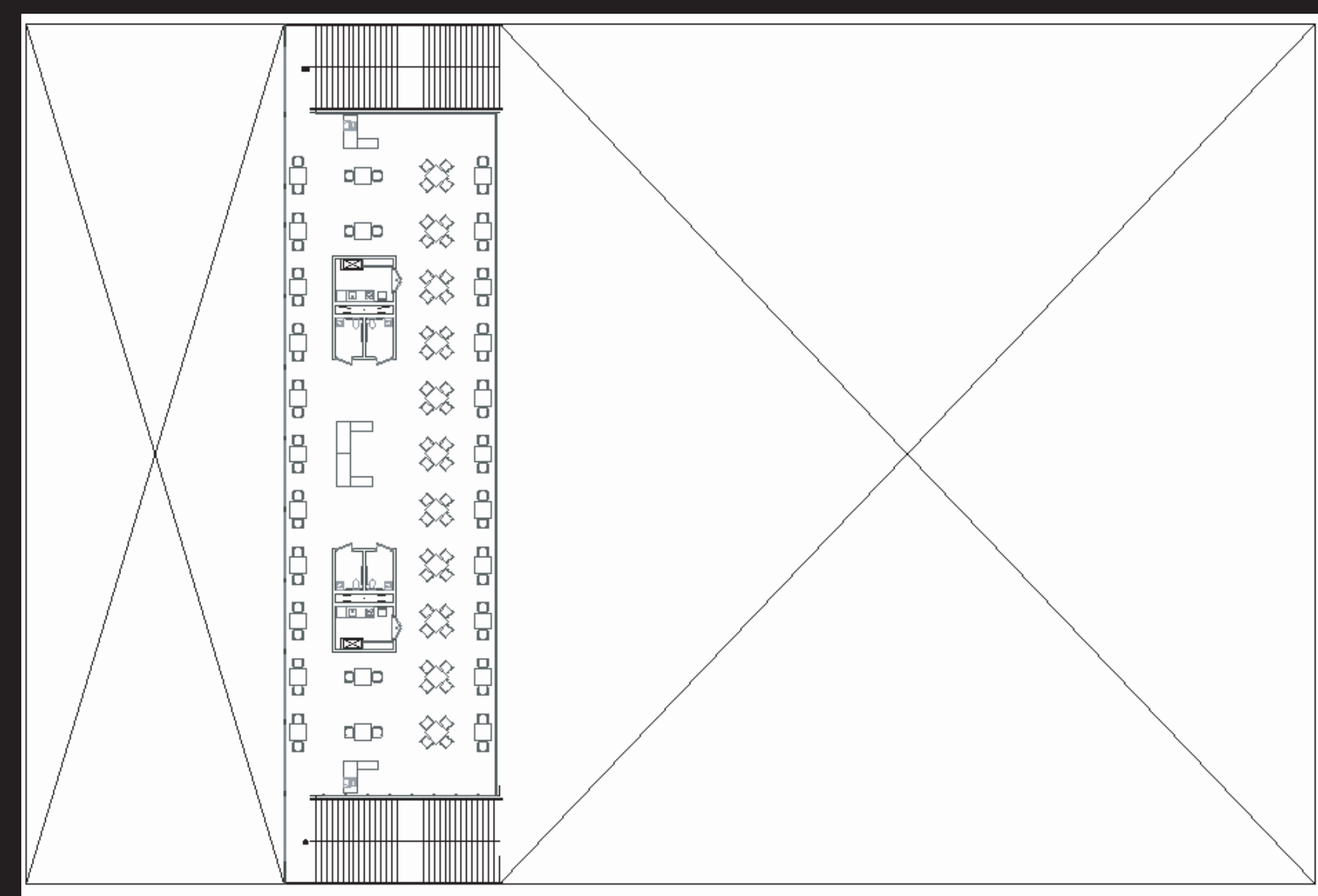
•Upper Floor Café  
•View of the entire terminal  
•Open to above



First - Administrative Floor Plan



Second - Terminal Floor Plan



Third - Mezzanine Floor Plan



...and even a meeting room and a lounge...



•Shopping Arcade (Retail)  
•"Streets" open to above  
•"Stores" enclosed



Restaurants  
Upper-scale  
Special Occasions

### Structure

To maximize natural daylighting and to create a sense of "uninhibited openness" to the extremes, a four-sided glass facade needed to be designed, as well as an open plan spanning 240-feet.

The task: To design and proportion overall structural framework, individual members, and their connections to fail in a predictable, "safe" manner:

- Consider all failure modes (Limit-States)
- Favor failure modes which allow members to slowly show distress (ductile yielding) over sudden failure / collapse (brittle fracture)

Also, while calculating for:

- Deflection, Acceleration, Vibration & Cracking.

Revision of members according to:

- Strength, Serviceability, Economy & Coordination with other design disciplines



John G. Doles  
senior structural engineer