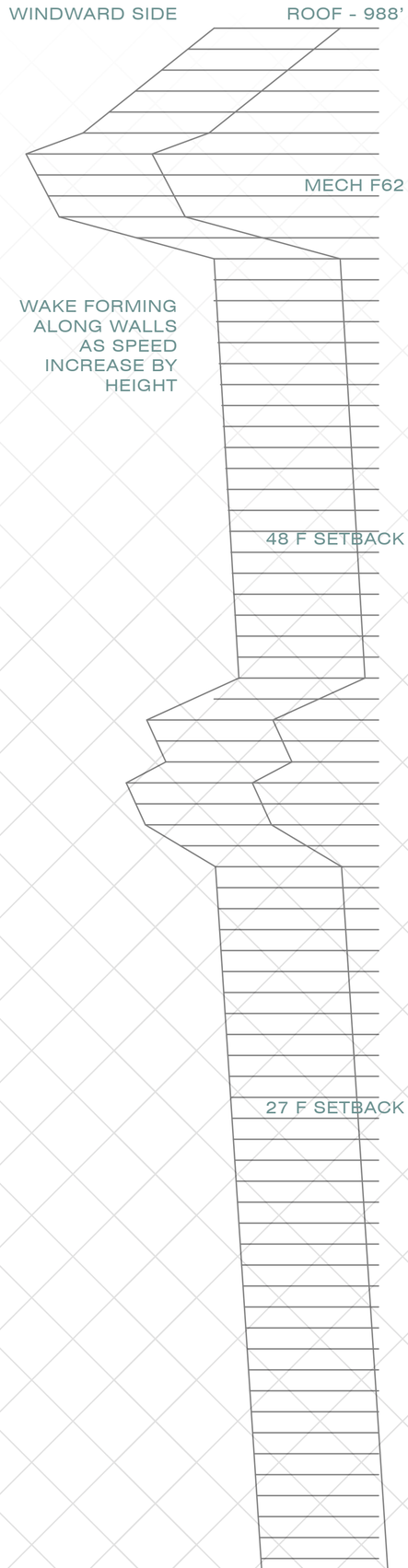
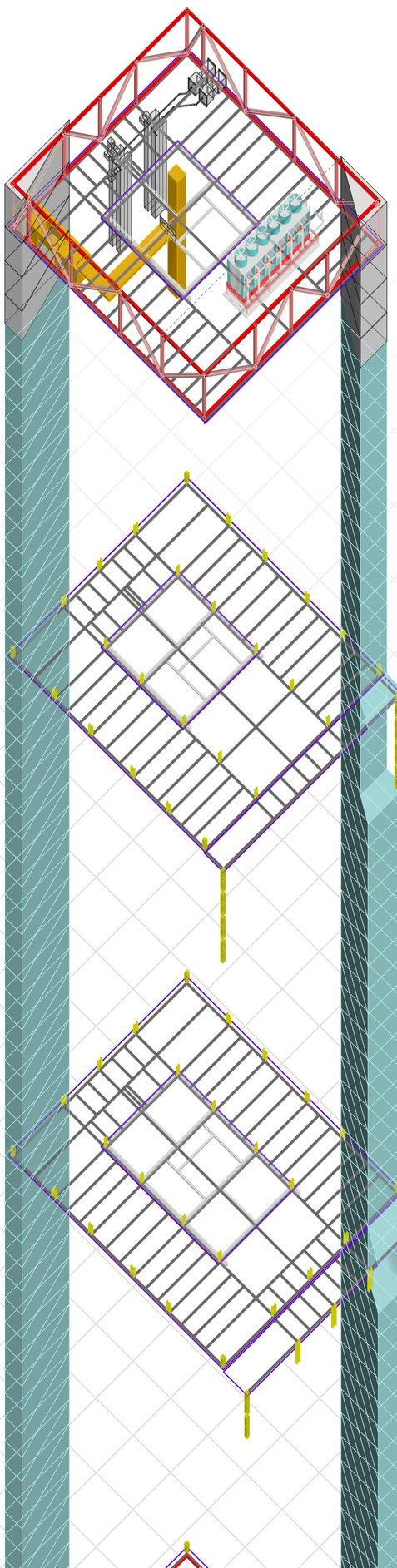
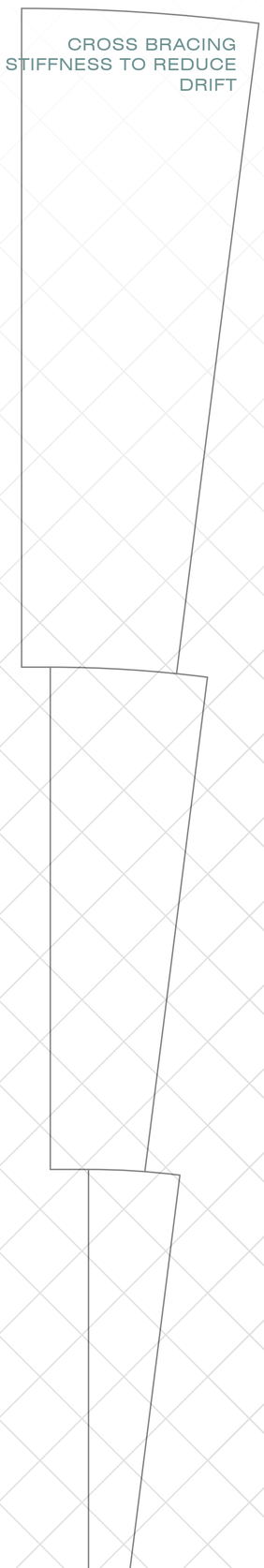
SYNTHESIS PLAZA : STRUCTURE & MEP

1K X-RAY

VORTEX SHEDDING







CODE:

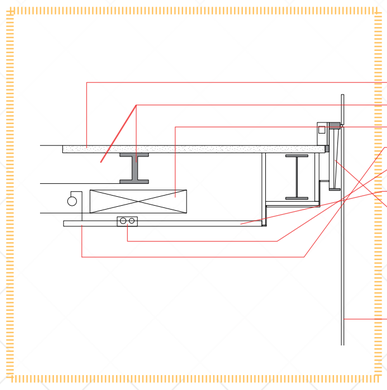
403.2.1 TYPES OF CONSTRUCTION
-THE FOLLOWING MODIFICATIONS TO THE MINIMUM FIRE RESISTANCE RATING OF THE BUILDING ELEMENTS IN TABLE 601 SHALL BE AS FOLLOWS: 1. HIGH RISE BUILDINGS 420' (128 000 MM) OR GREATER IN BUILDING HIEGHT SHALL BE CONSTRUCTED OF TYPE IA CONSTRUCTION.

403.3 ELEVATOR LOBBIES
-ELAVATOR LOBBIES SHALL BE PROVIDED IN ACCORDANCE WITH SECTION 708.14.2

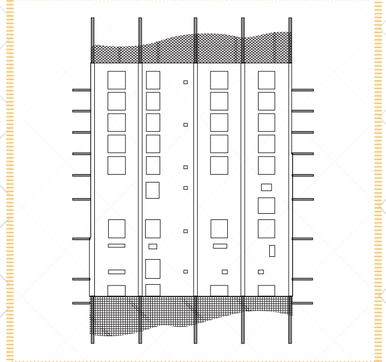
403.7 OUTDOOR AIR INTAKES.
-FOR HIGH-RISE BUILDINGS, OUTDOOR AIR INTAKES SERVING SPACES ABOVE TEH SECOND

STORY AND SERVING SPACES GREATER TAHN 10,000 SQUARE FEET (929M^2) OF FLOOR AREA SHALL BE LOCATED IN ACCORDANCE WITH SECTION 401.5 OF THE NEW YORK CITY MECHANICAL CODE.

CH.5, 909.1.1
SMOKE CONTROL SYSTEM, MECHANICAL, AN ENGINEERED SYSTEM TAHT USES MECHANICAL FANS TO PRODUCE PRESSURE DIFFERENCES ACROSS SMOKE BARRIERS OR THAT ESTABLISHES AIRFLOWS TO LIMIT AND DIRECT SMOKE MOVEMENT

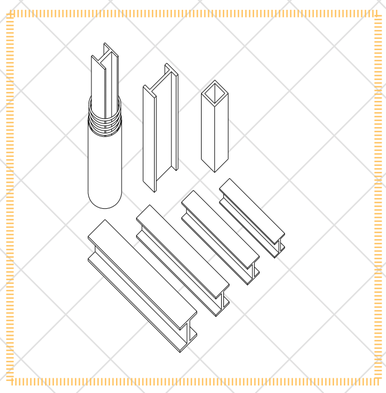


CEILING SANDWICH



SHEAR STACK

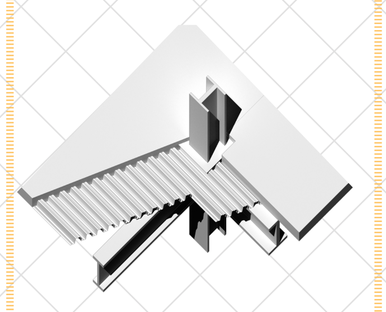
CODE:
-Link Beam
-Verticle Continuity
-Shear Walls Beyond
-Steel Rebar
-Steel Columns erected first, followed by shear pour
-Shear wall shrinks the higher it climbs



BEAM BUFFET

-Caisson w/ concrete and steel column
-20 x 42
-24 x 24

-W18
-W21
-W24
-W30



SLAB UNITY

Intersection of office floors and core floors. The office's metal decking tiews into the foundation wall, while the 6" core walls remain inside the core.

Mesh is lade where columns pierce the slabs to tie into beams below.

Note: the strongest metal decking flooring orientation is perpendicular to Beam.

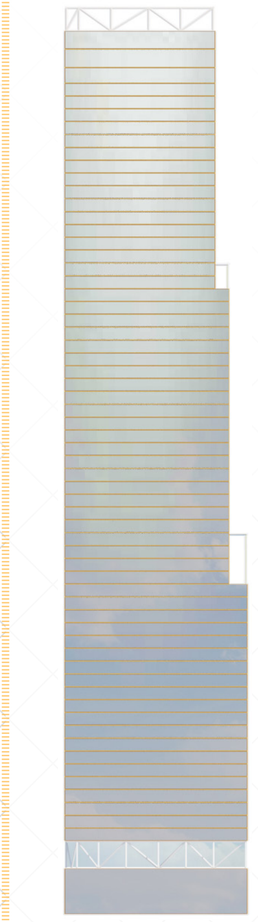
Note: Floor rebar within concrete pours for strength and stability.

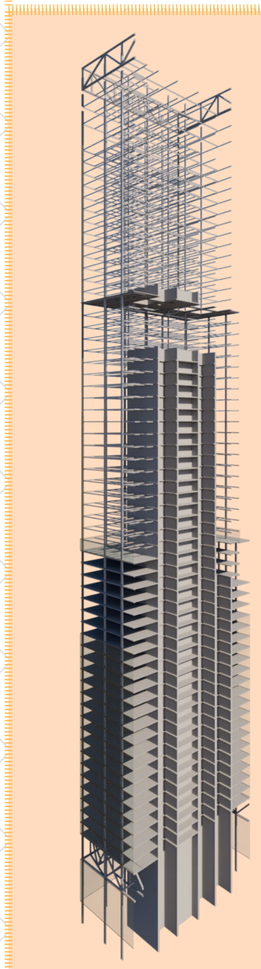
STEEL INTERSECT

Belt Truss Connection Detail
Intersection steel beams cut/ welded and bolted together to create secure connection at trusses and throughout tower

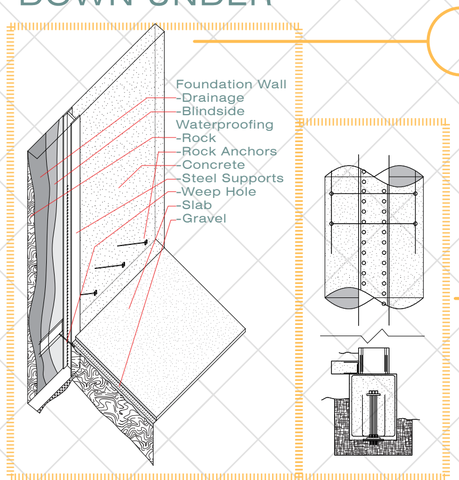
(IMAGE VIA PROFESSOR DOSSO, SUPERTALL SP21 GSAPP)

EXTERIOR VIEW & CROSS-BRACING

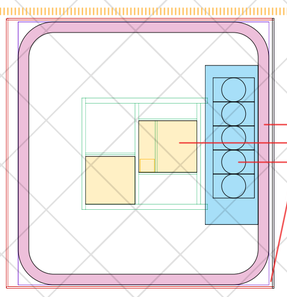


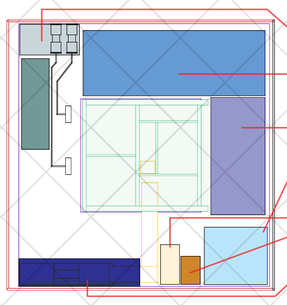


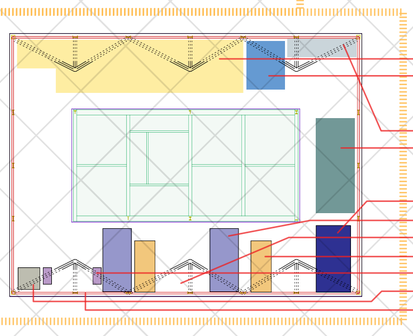
DOWN UNDER

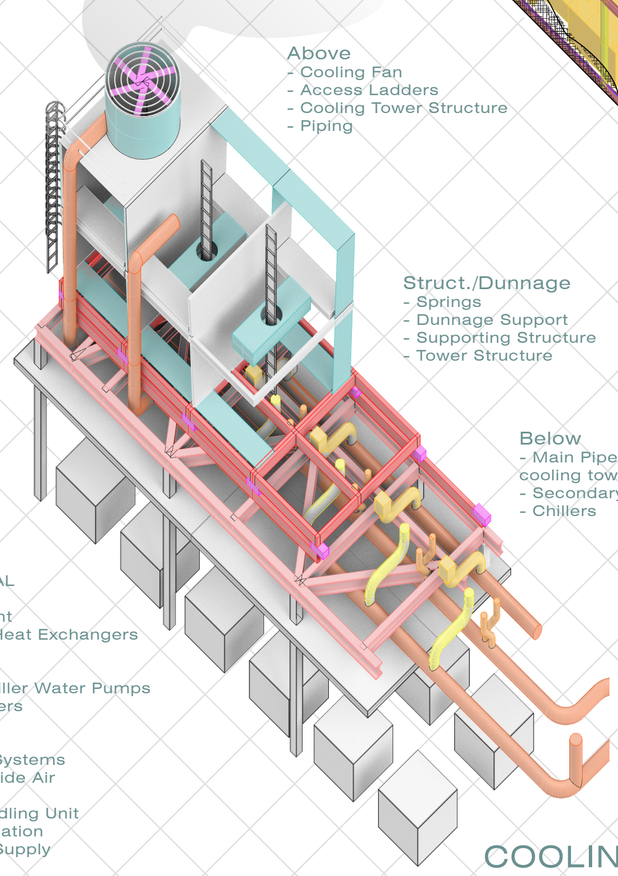


MECHANICAL SYNTHESIS









COOLING SYNTHESIS

CONSTRUCTION PROCESS

FAN & SMOKE PURGE DISTRIBUTION