

THE LONG-TERM IMPACTS OF COVID-19 ON BUILDINGS & CITIES

part one:(3) case studies for immediate action

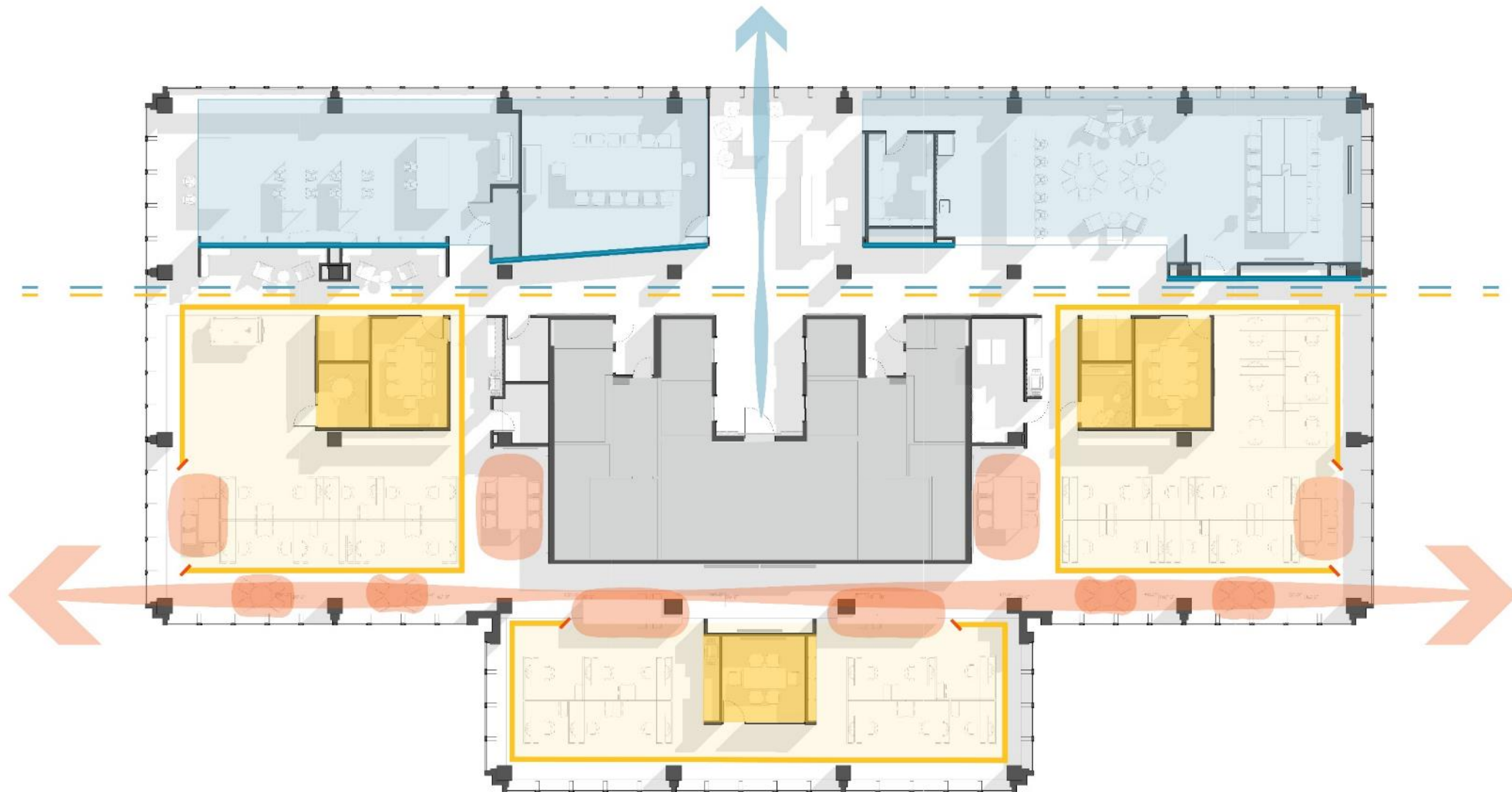
16 SEPTEMBER 2020

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Quinn Evans

CASE STUDY 01: **ADAPTING THE MODERN OFFICE**

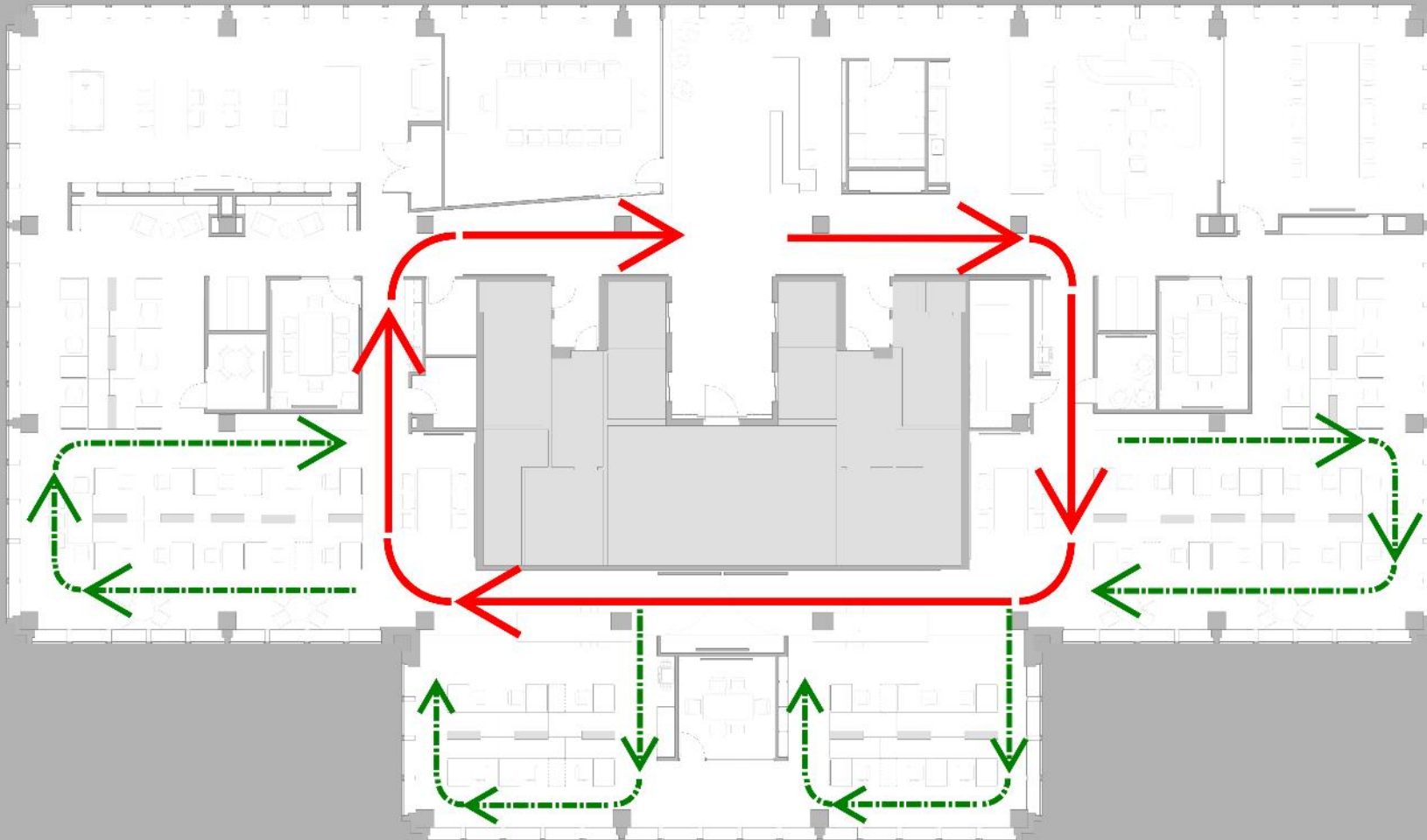
How flexible planning strategies allows modern office to adapt







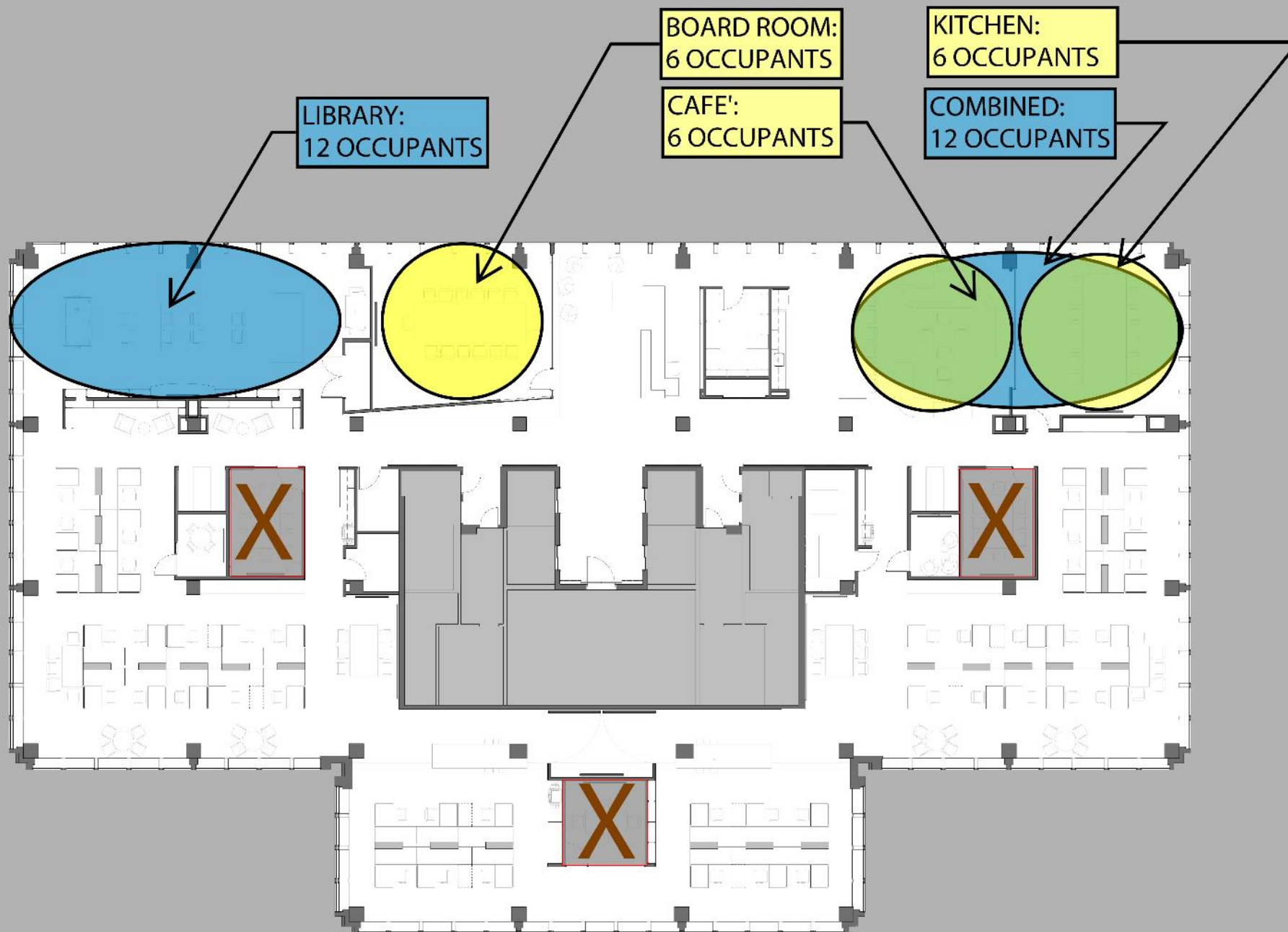
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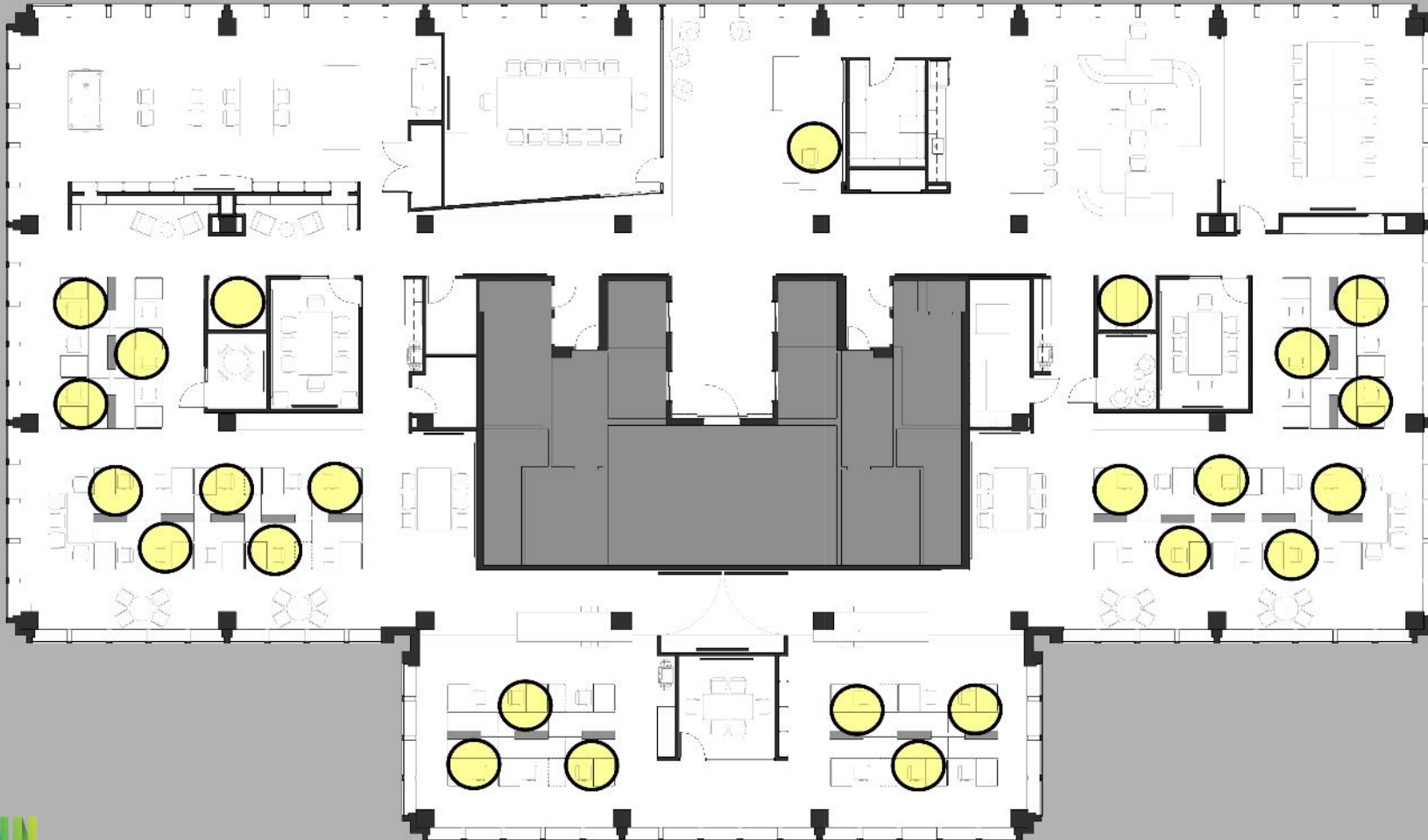
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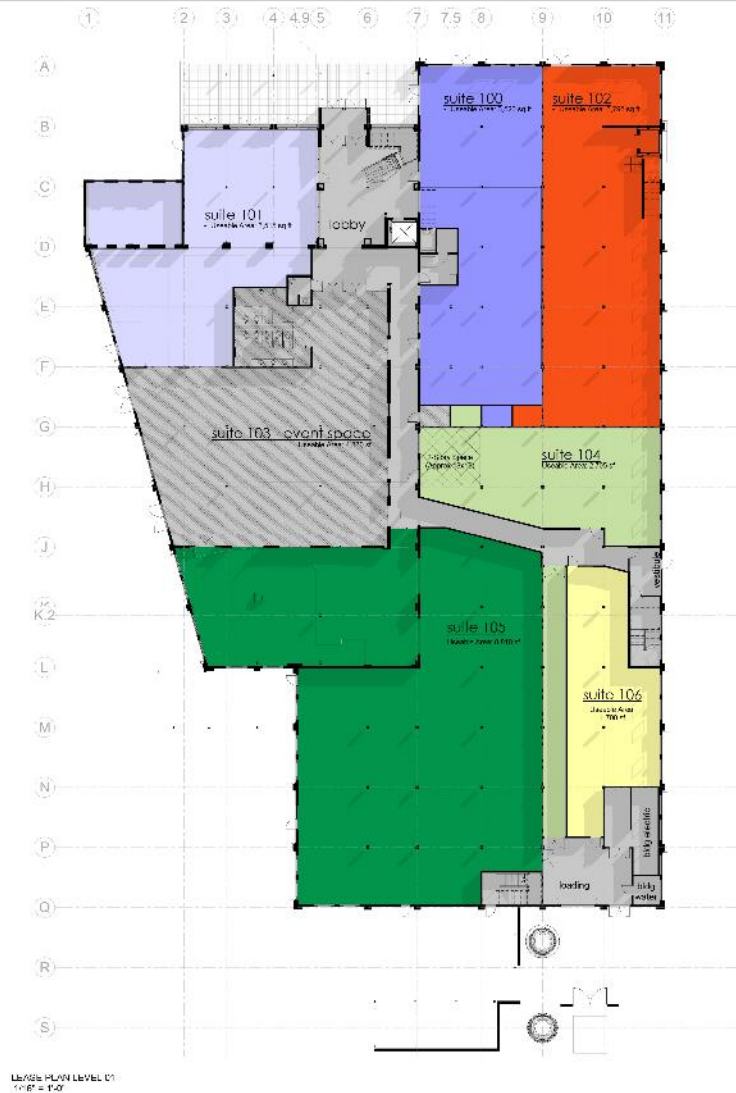




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CASE STUDY 02:
MEASURES TO ADDRESS AIR QUALITY
Speculative Core and Shell Design





LEVEL 01

USEABLE AREA: 28,875 SQ.FT.
GROSS AREA: 34,015 SQ.FT.
EFFICIENCY FACTOR: 84.9%

LEVEL 02

USEABLE AREA: 22,245 SQ.FT.
GROSS AREA: 25,465 SQ.FT.
EFFICIENCY FACTOR: 87.4%

OVERALL BUILDING:

USEABLE AREA: 51,120 SQ.FT.
GROSS AREA: 59,480 SQ.FT.
EFFICIENCY FACTOR: 85.9%



	Plasma Air	Particle Filtration	HEPA / Fine Grain Filters ¹	Carbon Filters ²	Ultraviolet ³	Biofilters	Chemical Scrubber	PCO ⁴
Description	BIPOLAR IONIZATION	PRE-FILTERS, BAG FILTERS, PRE-TREATED FILTERS, FIBERGLASS FILTERS FOR LARGER AIRBORNE PARTICLES	CAPTURES FINE AIRBORNE PARTICLES	ABSORBS AND FILTERS CHEMICALS	ULTRAVIOLET LIGHT KILLS GERMS AND REMOVE AIRBORNE PARTICLES	TREATS EXHAUSTED AIR THROUGH BIOLOGICAL MEDIA BY REACTING WITH CONTAMINANTS	TREATS EXHAUSTED AIR THROUGH CHEMICAL MEDIA BY REACTING WITH CONTAMINANTS	FILTERED MEDIA IS COATED WITH MATERIAL THAT REACTS WITH CHEMICALS
Energy savings	UP TO 30%	NONE	NONE	NONE	NONE	NONE	NONE	NONE
Pressure drop	MINOR	MINOR	LARGE	MEDIUM	NONE	VERY HIGH	HIGH	MEDIUM
Particle size	SMALL	LARGE(> 5UM)	SMALL(< 0.01UM)	N/A	N/A	N/A	N/A	LARGE
Treats air in room	YES	NO	NO	NO	NO	NO	NO	NO
Treats Make-up / Supply air	YES	YES	YES	YES	YES	NO	NO	YES
Treats return air	YES	YES	YES	RARELY	YES	NO	NO	YES
Treats exhaust air	YES	RARELY	NO	YES	RARELY	YES	YES	RARELY
Capital costs	LOW	LOW	MEDIUM	HIGH	MEDIUM	VERY HIGH	VERY HIGH	HIGH
O&M Costs	LOW	LOW	LOW TO MEDIUM	HIGH	MARGINAL	VERY HIGH	VERY HIGH	HIGH
Energy Costs	LOW	LOW	HIGH	HIGH	LOW	HIGH	HIGH	MEDIUM
Disposal Costs	NONE	LOW	DEPENDS ON CONTAMINATION	HIGH	MARGINAL	HIGH	HIGH	HIGH
Success rates	99%	MINIMAL	0-80%	MARGINAL	MINIMAL	MARGINAL	MARGINAL	MARGINAL

1. HEPA filters add significant pressure drop resulting in larger horsepower motors and increased fan energy. 2. Carbon has high first cost, additional space requirements in the air handling units and prohibitive media replacement costs. 3. At high levels, UV can create noxious gases and is mutagenic. Bacteria kill rates are negligible with no effectiveness in the occupied space. 2. PCO can produce formaldehyde.



CASE STUDY 03: CREATING VALUABLE URBAN SPACES

Maintaining physical distance while creating social connections



SITEPLAN

0 10 20 40 ft



painted sidewalk grid:
for queuing or passerbys

**concessions &
art storage:**
modified shipping containers

11x12 deck module:
can be implemented off site
as prototype module

gravel module:
site specific to address
topograpahy & drainage

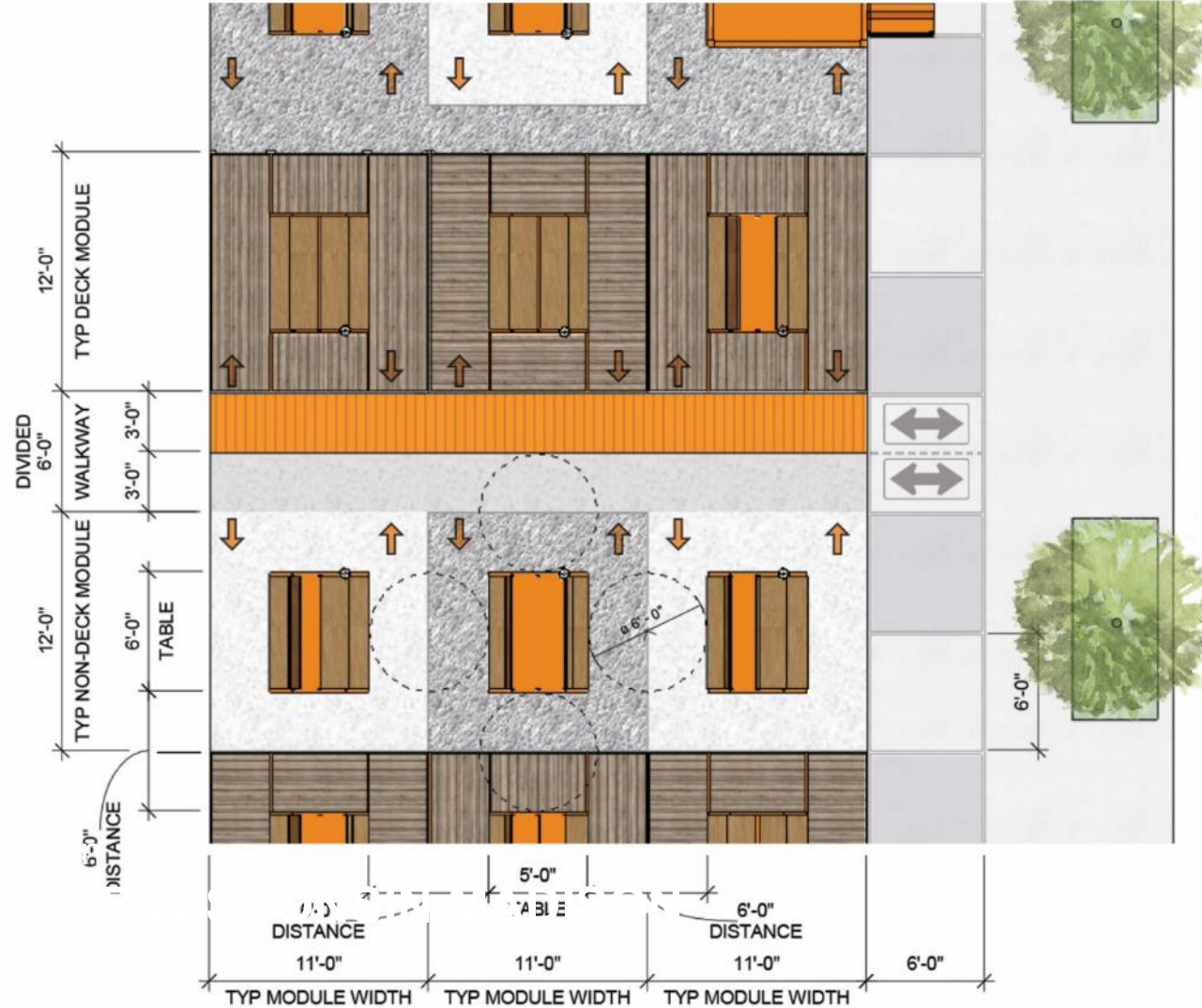
circulation:
(2) zones to encourage
physical separation

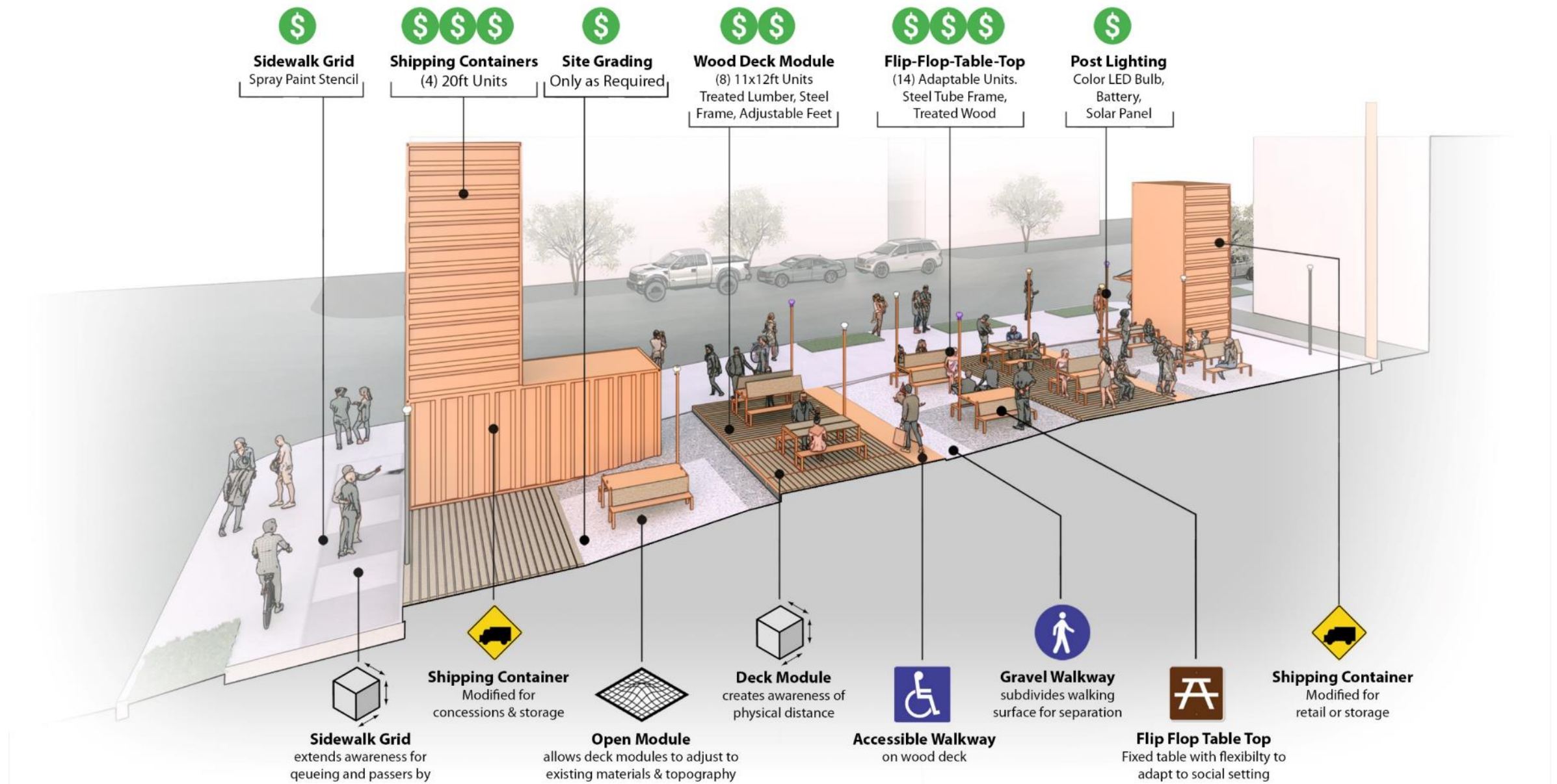
retail / supplies:
modified shipping
container

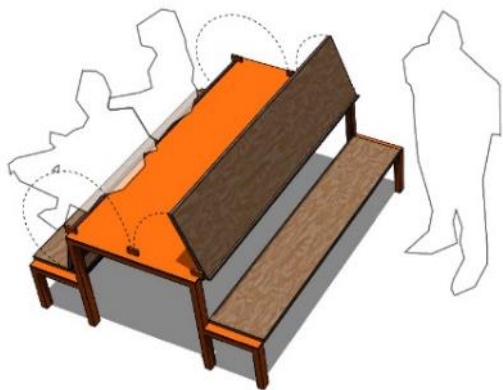
**storage / potential
restrooms:**
modified shipping container

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**DESIGN FOR
DISTANCING
COMPETITION
WINNER**

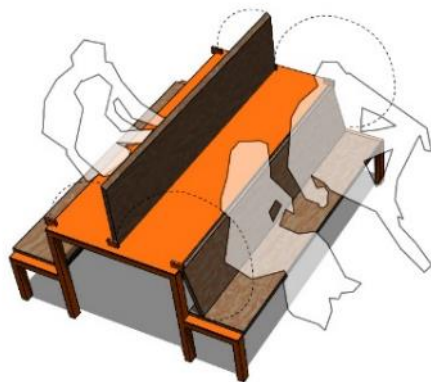
ENLARGED PLAN







bench back | easel



divider | bench back

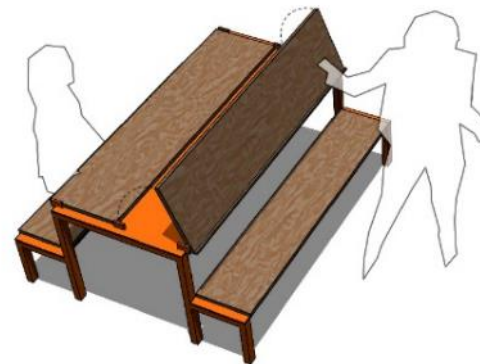


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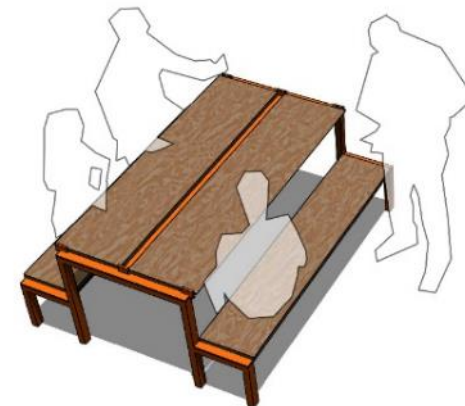
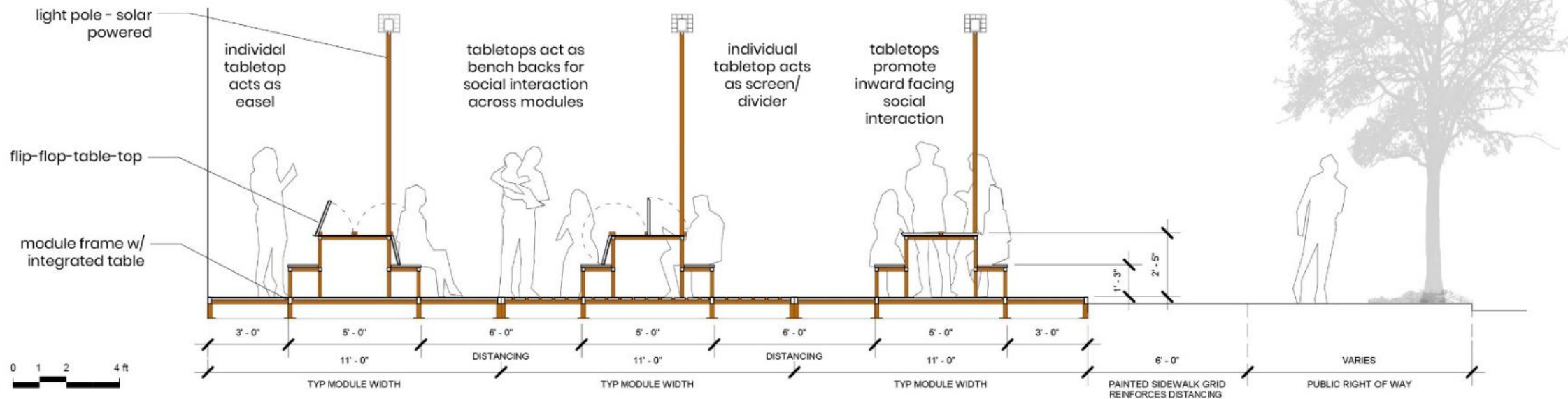
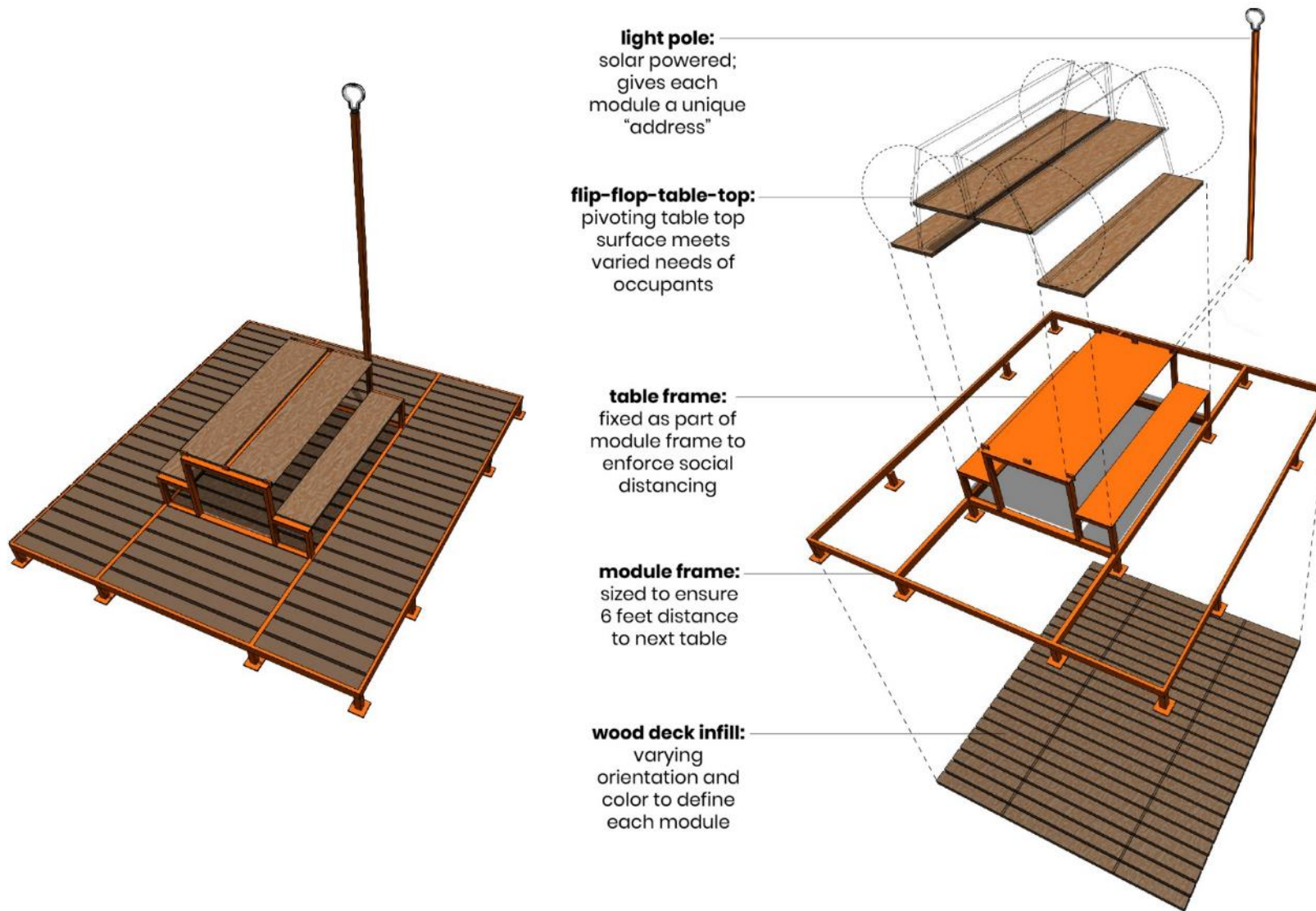


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