

HUMPHREYS & PARTNERS ARCHITECTS, L.P.

20 M I D 18
Y E A R
W E B I N A R

OUR SPEAKERS



GREG FAULKNER
PRESIDENT



WALTER HUGHES
VICE PRESIDENT OF DESIGN



DANIEL GEHMAN
STUDIO DIRECTOR, CALIFORNIA

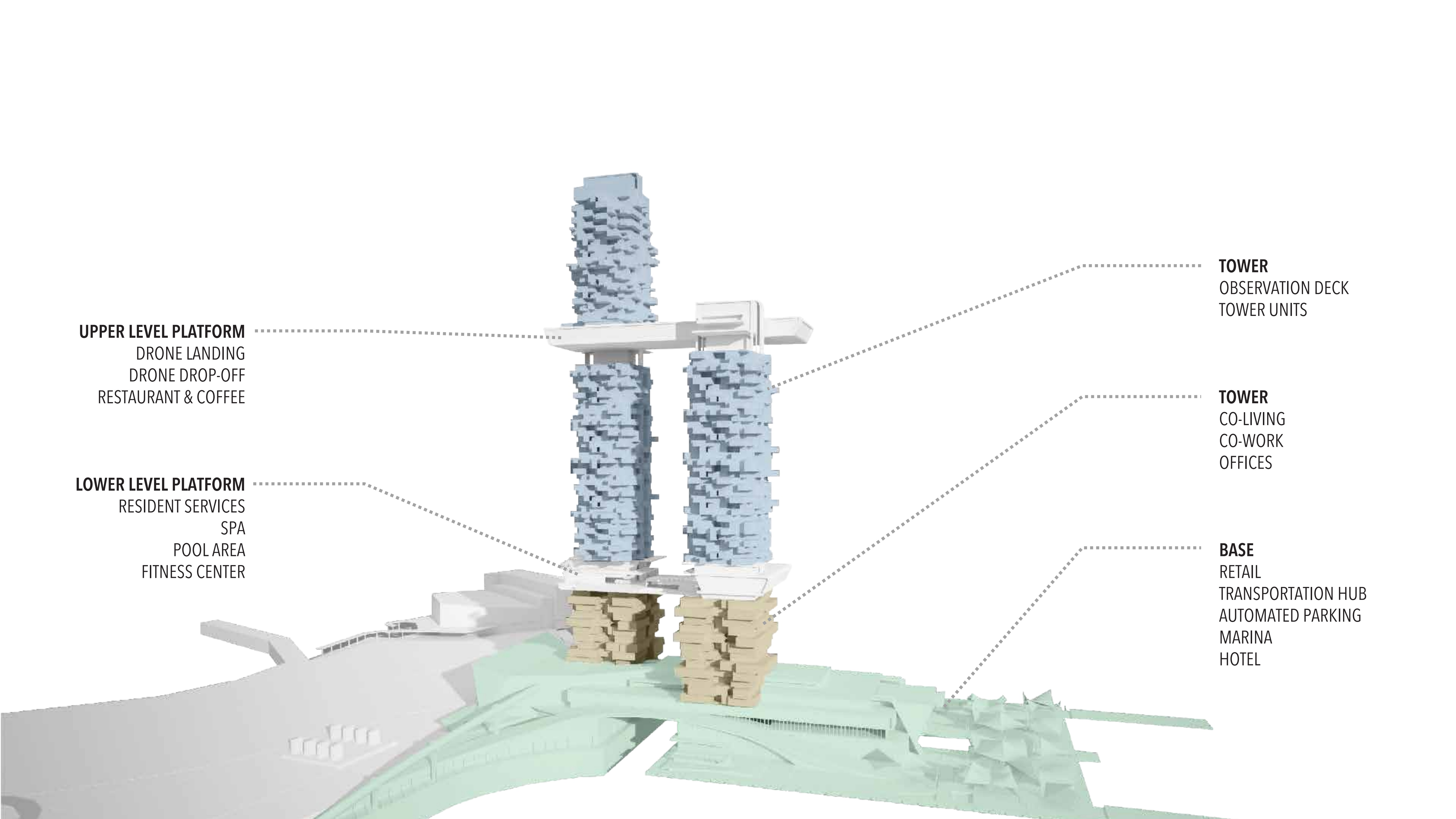


W E L C O M E T O

PIER 2

BUILDING OF THE FUTURE

.



UPPER LEVEL PLATFORM

DRONE LANDING
DRONE DROP-OFF
RESTAURANT & COFFEE

LOWER LEVEL PLATFORM

RESIDENT SERVICES
SPA
POOL AREA
FITNESS CENTER

TOWER
OBSERVATION DECK
TOWER UNITS

TOWER
CO-LIVING
CO-WORK
OFFICES

BASE
RETAIL
TRANSPORTATION HUB
AUTOMATED PARKING
MARINA
HOTEL





TRENDS AND TECHNOLOGY AVAILABLE

TODAY

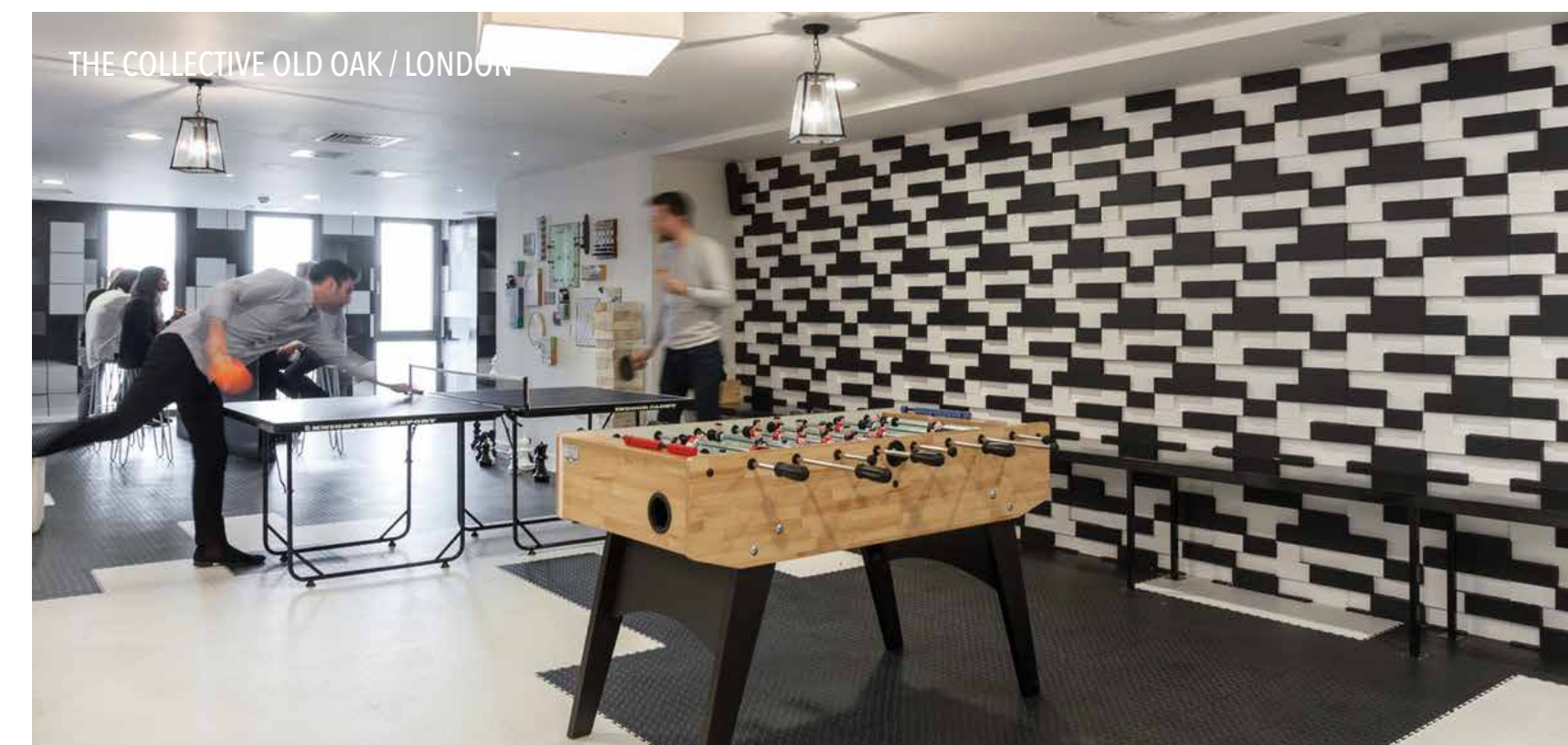


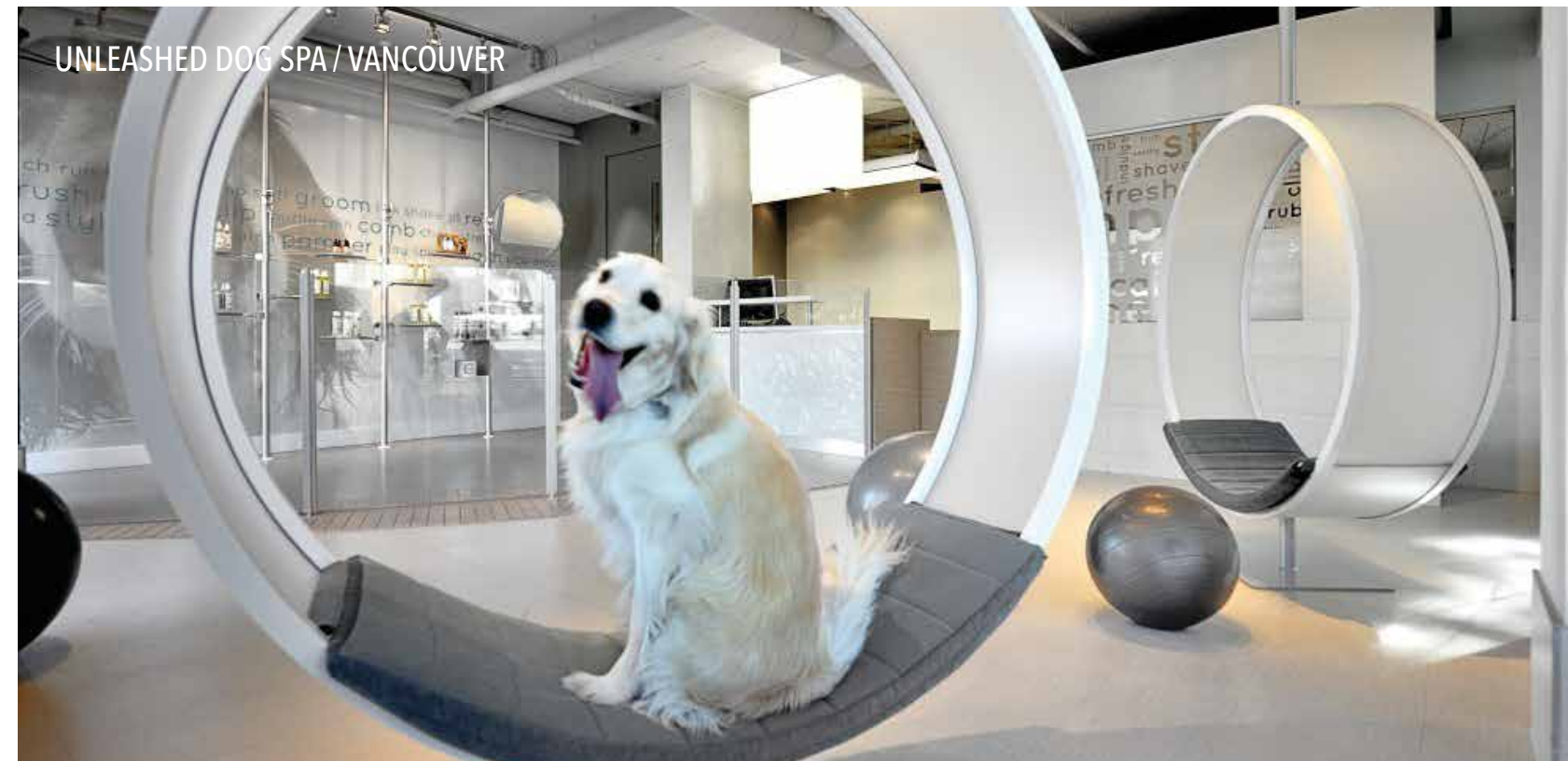
CO-WORKING

- . 84% of users are more motivated
- . 69% of users feel more successful
- . 82% have expanded their networks
- . 69% learned new skills

CO-LIVING

- . Unique community feel
- . Rapidly growing segment
- . Small units, loaded with services
- . One bill





LOWER LEVEL PLATFORM

AMENITIES

- . Cocktail bar
- . Private dining room
- . Cigar lounge
- . Poker room
- . Kids playroom
- . Fitness Center
 - . Rock climbing
 - . Electro-magnetic bikes
 - . Immersive fitness
 - . Hydro training
- . Spa
 - . Cryotherapy
- . Hot & cold storage
- . Package mail box
- . Pet services

BASE / PROMENADE

ENTERTAINMENT

5G network, real time connection, LED lightining, food, music and people watching.

OBSCURA

- Immersive experience
- Inspire audiences

ECHO

- Huge virtual image from a small projector
- Captivating and memorable
- Image directly onto the viewer's eye



TOWER / OFFICE

DIGITAL TECHNOLOGY INTERACTIVE GLASS

- Smart surface technology
- Transforms a variety of surfaces into functional touchscreens
- Watch TV shows in the kitchen while you cook
- Manage home appliances
- Bluetooth audio and online video
- Plan a bus trip on a interactive map





DOUBLE ROBOTICS



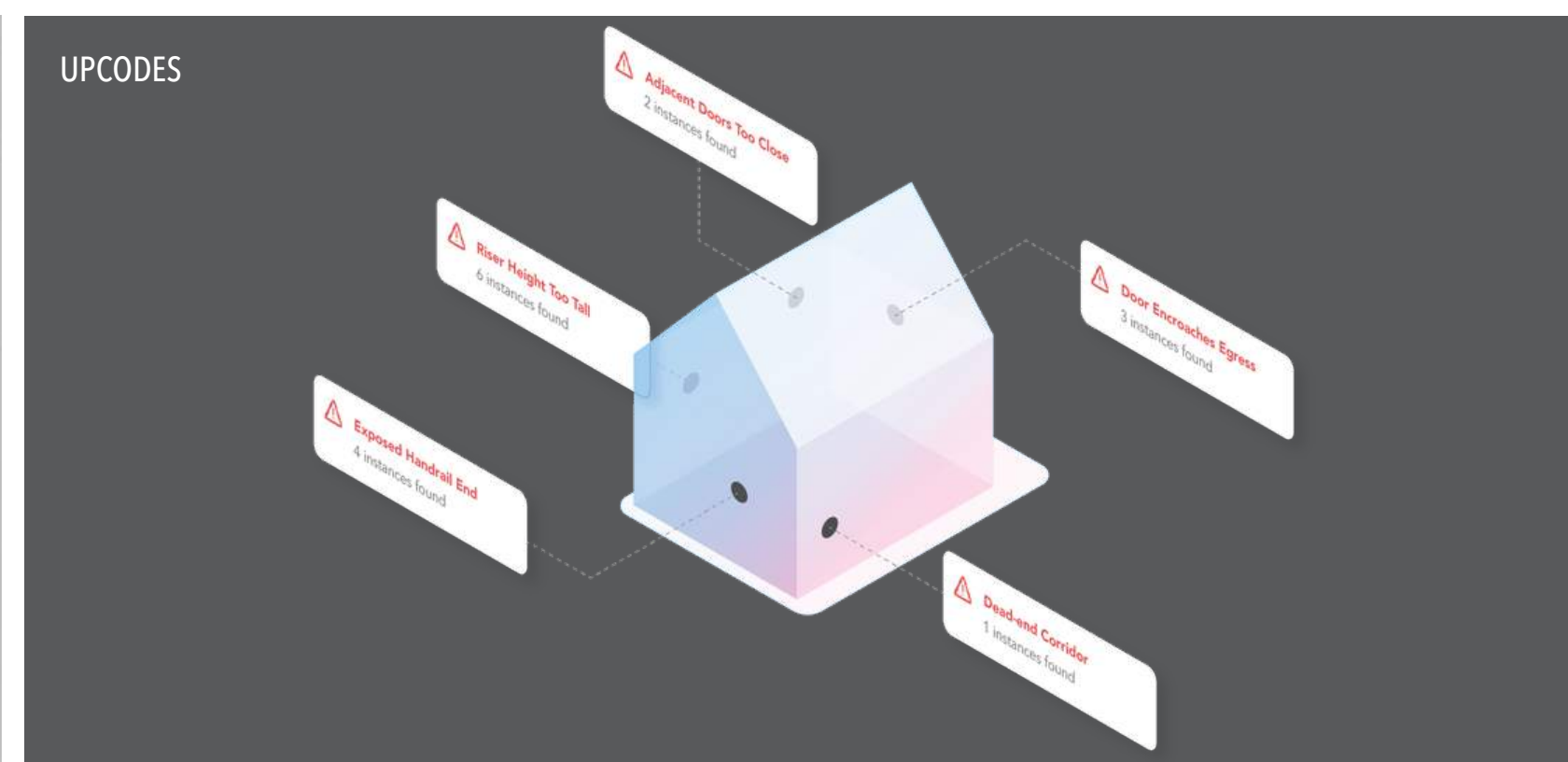
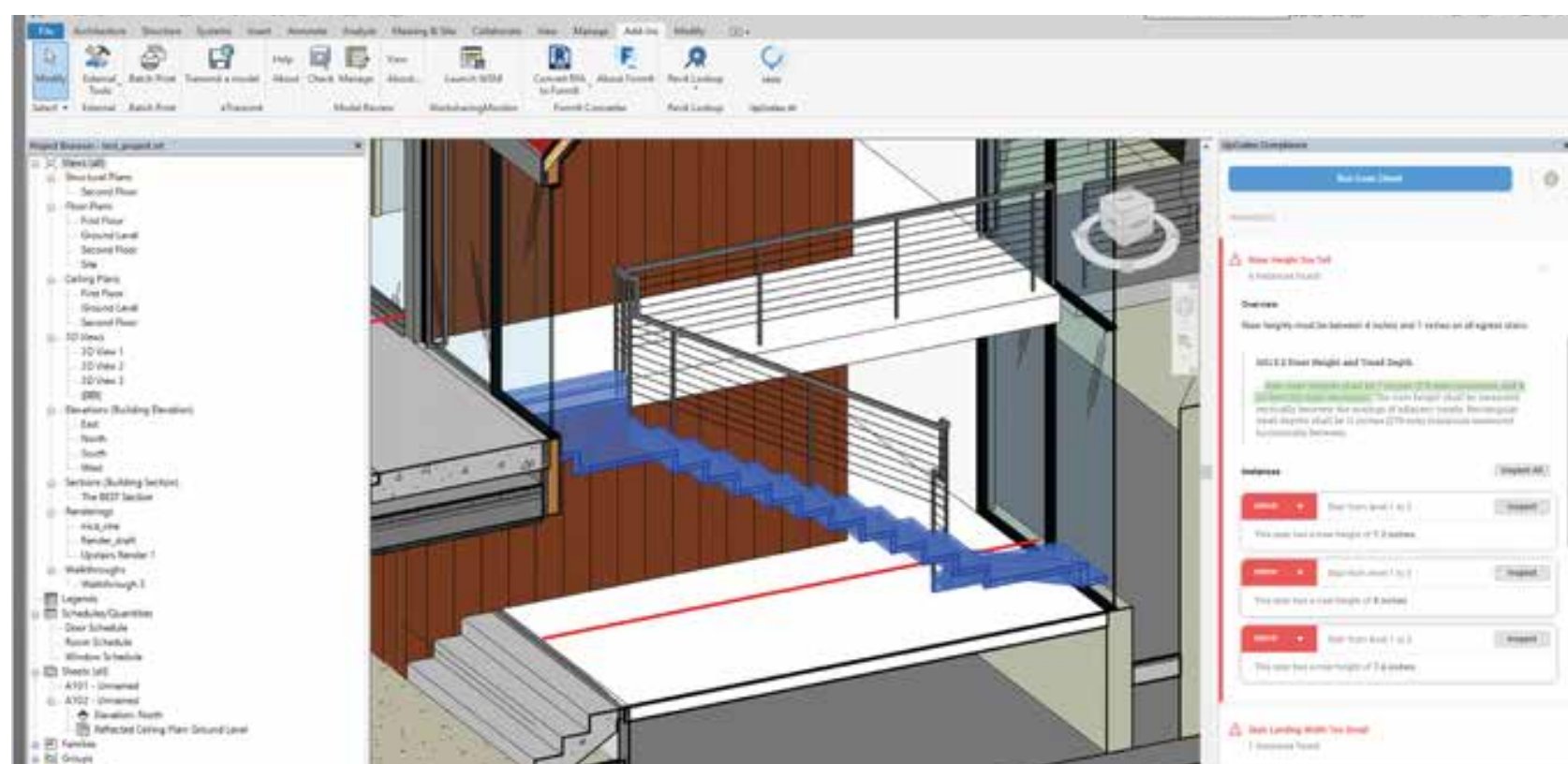
LOWER LEVEL PLATFORM

VIRTUAL REALITY



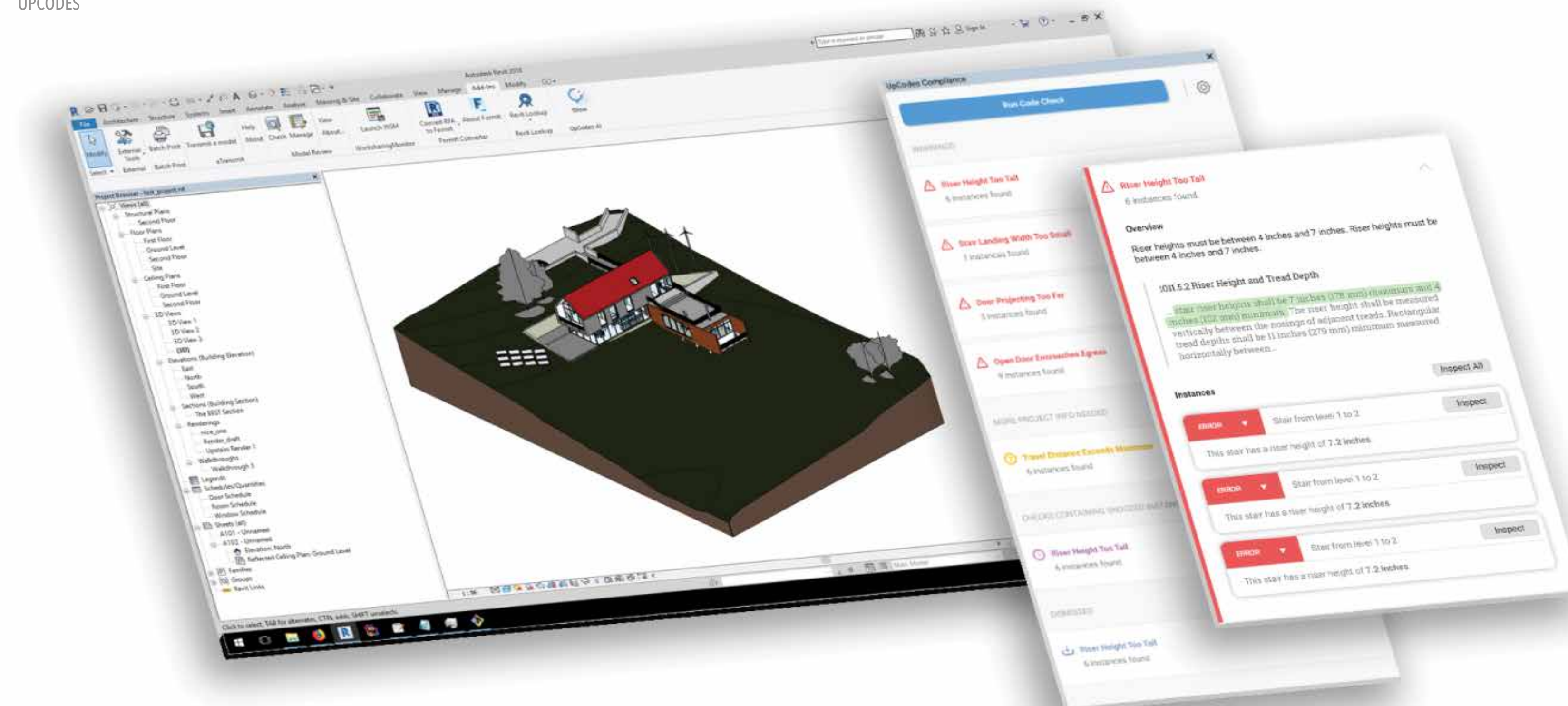
- Selling projects yet to be built
- Eliminates need for model units
- Easy finish out showcase
- 24/7 robot assistance
- Variety of finishes at the touch of a button



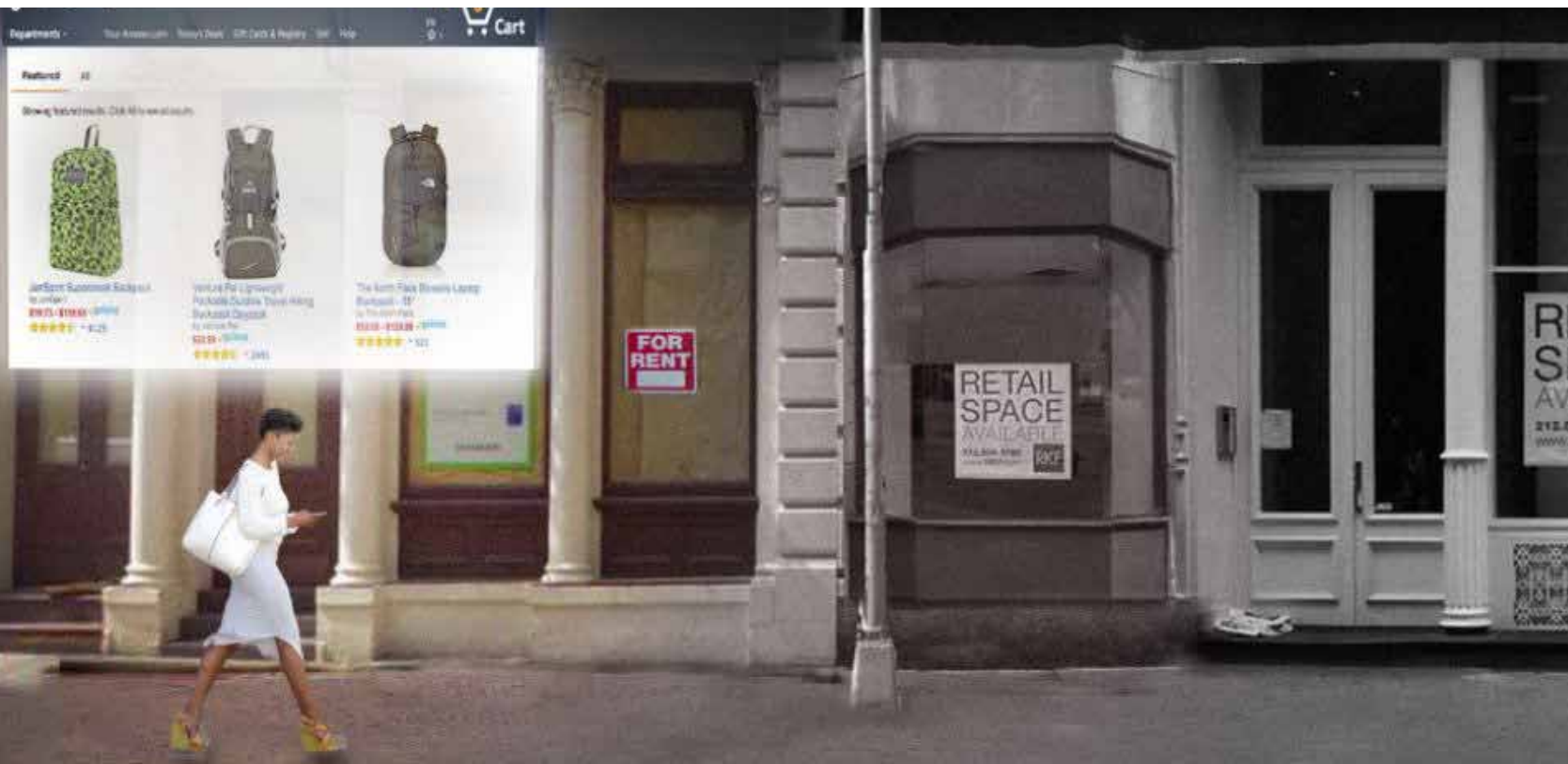


BUILDING CODE AUTOMATION

UPCODES



- For architects and engineers
- View code errors in Revit
- Accelerate project timelines
- Reduce errors



BASE / RETAIL

SMART SHOPPING

- Shoppers make 51% of their purchases online
- 44% of orders placed on smartphones
- E-commerce is growing 23% year over year
- In 2022 e-commerce sales are going to be \$640.000 million US

AMAZON GO

Amazon Go is a new kind of store featuring the world's most advanced shopping technology.

TOWER / HOME TECHNOLOGY

HOME ASSISTANTS

Google Home

- Hands-free help
- Control your smart home

Alexa

- Control your smart home
- Ask any question

Apple Home Kit

- Control your home kit



AMAZON



D-LINK



APPLE



TOWER / HOME TECHNOLOGY

TECHNOLOGY

Nest

- . Thermostat
 - . Energy savings 10% to 15%
- . Protect
 - . Lets you know where smoke is coming from
- . Hello
 - . Lets you know who's there 24/7
 - . Go back 3 hour snapshot history
- . Cam
 - . See your home 24/7
 - . Alert when something happens
- . Doorbell camera
- . Multi-credential property access control
- . A.I. vacuum
- . Glass cleaners

NEST THERMOSTAT



NEST CAM INDOOR



NEST PROTECT



LATCH

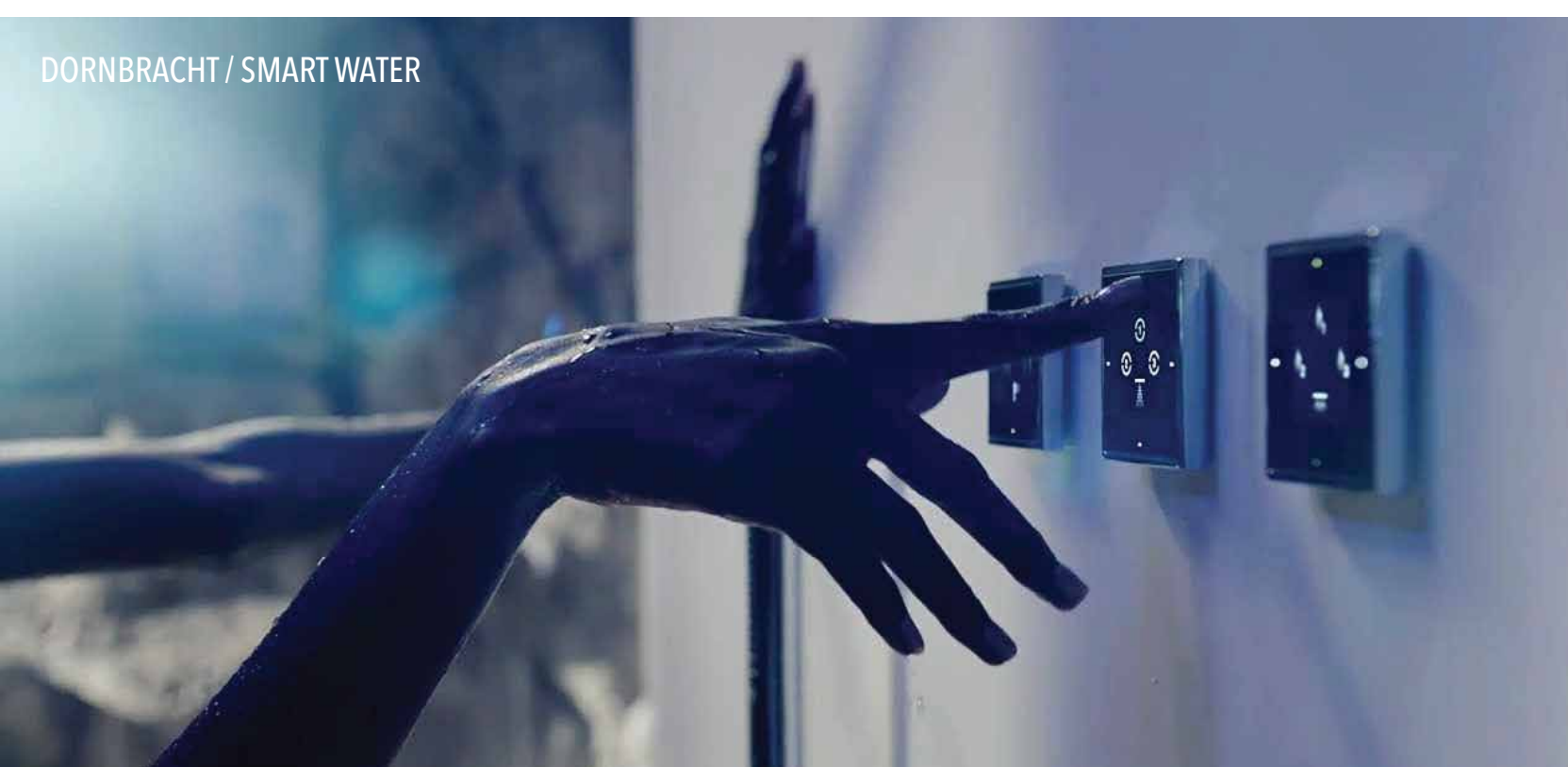
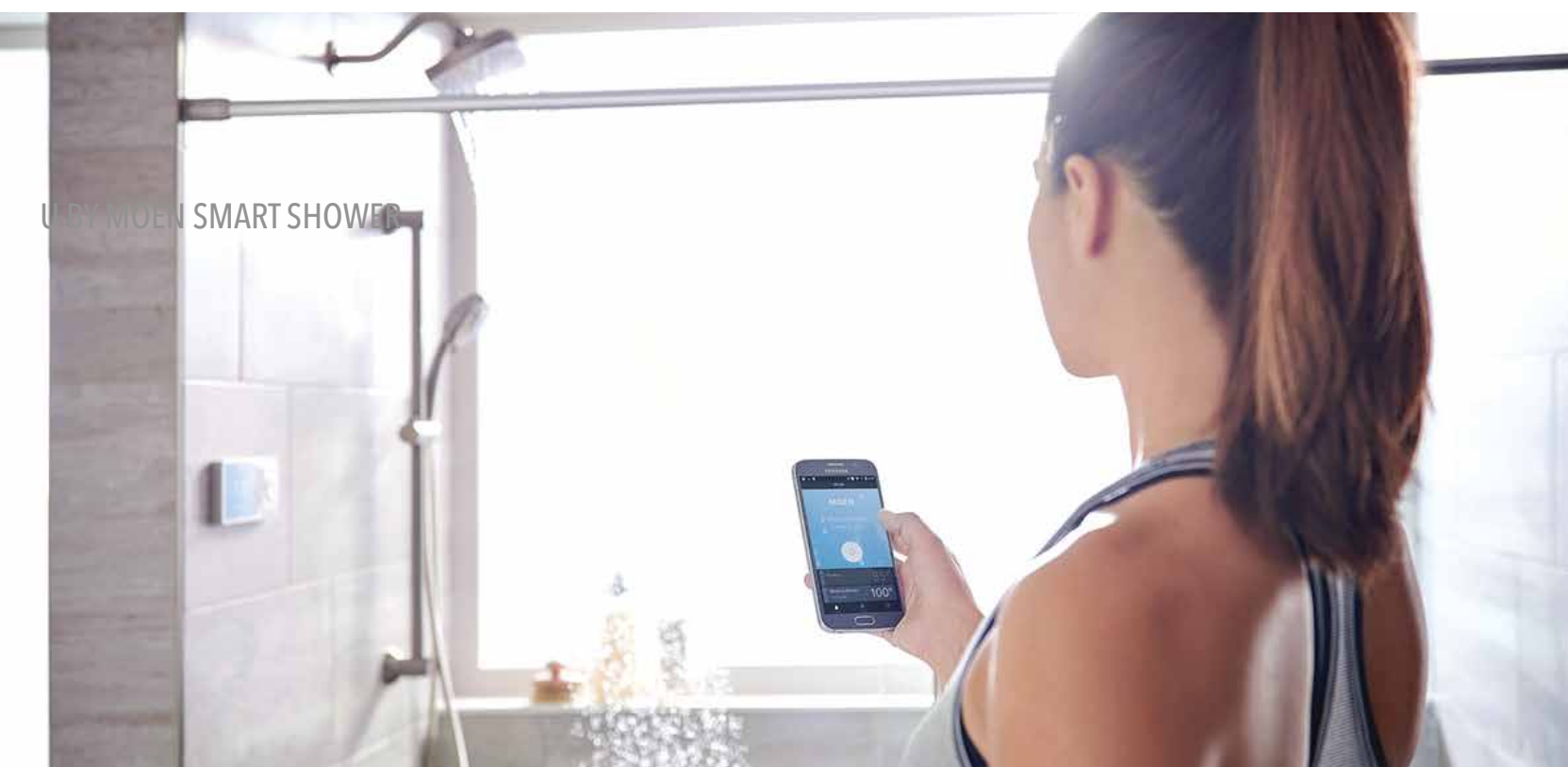


WINBOT



ROOMBA





TOWER / HOME TECHNOLOGY

SMART BATHROOM

U BY MOEN

- Digital Shower
- Control by voice, phone and controller
- Avoid wasting water
- Set temperature, length, notifications

SMART WATER

- Automatic bathtub filling
- Desire depth and temperature

NUMI HIGH TECH TOILET

- Motion-Activated cover and seat
- Deodorizer
- Heated seat
- Foot warmer
- Music



TOWER / HOME TECHNOLOGY

SMART KITCHEN

INTERACTIVE COOKTOP

- Embedded induction surface
- Multi-touch counter

MOLEY CHEF ROBOT

- Reproduces the human hands
- Operated from a touch screen or via smartphone

SMART REFRIGERATOR

- Create shopping list
- Peek inside your refrigerator

FOOD RECYCLER

- Zera converts 95% of waste into ready-to-use fertilizer

SOLAR TRASH COMPACTOR

- Powered by solar energy

SUSTAINABILITY

DYNAMIC GLASS

COOLING

- Saves 34% in cooling loads

LIGHTING

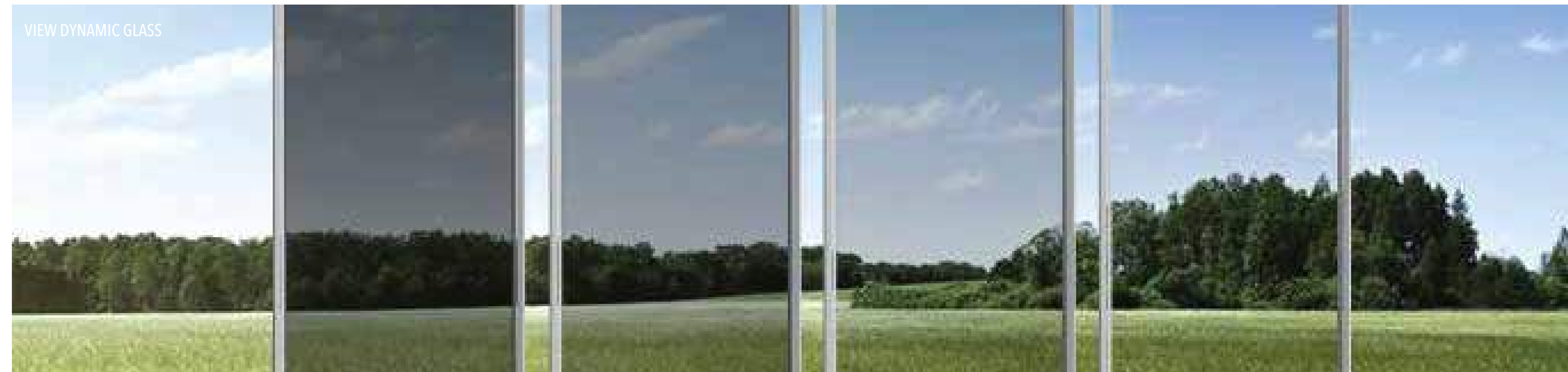
- Saves 29% in electrical use

VISIBLE LIGHT

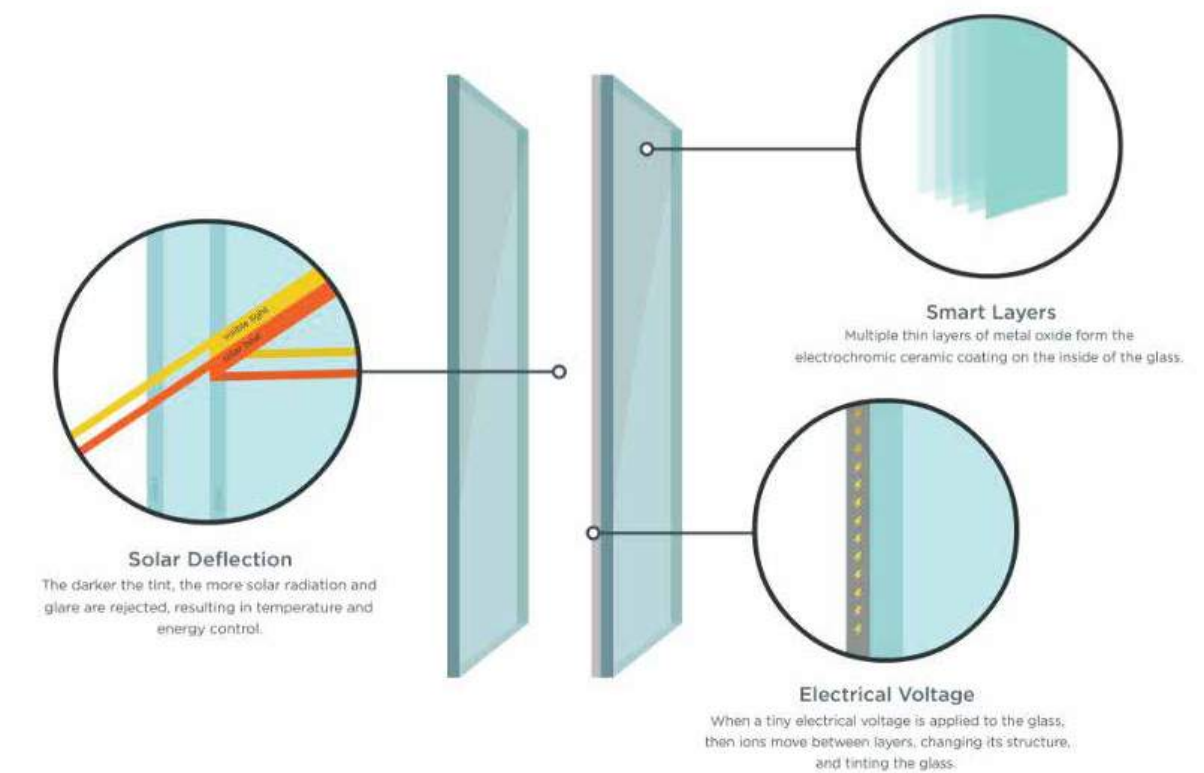
- Controls between 60%-1%

SOLAR HEAT

- Controls between 0.40-0.05



ARCHITECTURAL RECORD



TOWER / UNITS

PREFAB

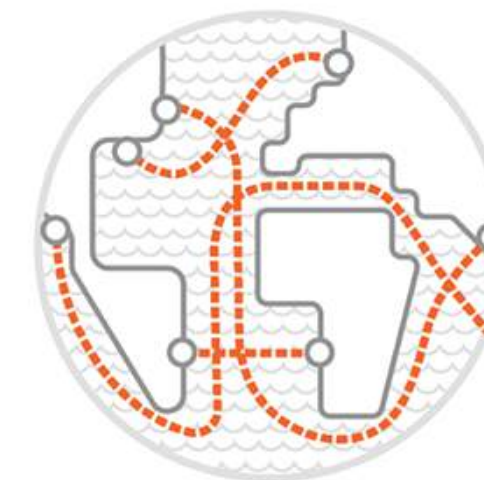
- . Offsite construction
- . Factory built
- . Standard buildings chassis
- . Mass production allows more time focused on delivering high quality and creative design solutions
- . Fast construction
- . Lower cost by buying in bulk
- . Katerra



ICONTAINERS



Right Now,
There are
20 Million Containers
Crossing The Seas



KATERRA



Building with wood
materials could reduce
global CO₂ emissions up to
31%

TOWER / UNITS

MODULAR

EXCEPTIONAL QUALITY

- Reach superior results than traditional techniques

SPEED

- Built in about 1/3 the time needed to construct a site-built building

COST SAVINGS

- Modular construction can save the consumer 10-20%

FLEXIBILITY OF DESIGN

ENERGY EFFICIENCY

- 50% more energy efficient

‘KASITA’ CONCEPT

- Small package
- Delivered ready



TOWER / UNITS

ALL IN ONE FURNITURE

- Ori
 - At the touch of a button, the full sized configuration transforms to offer a full scale bedroom, office and living room
- Versatility and mobility
- Cost savings
- Space savings



SUSTAINABILITY

WIND POWER

COST

- Less than 1 cent per kWh

ENERGY PER YEAR

- Small wind turbines could provide up to 1.5 TW.h

CARBON FOOTPRINT

- Yearly emissions eliminated

SOLAR POWER

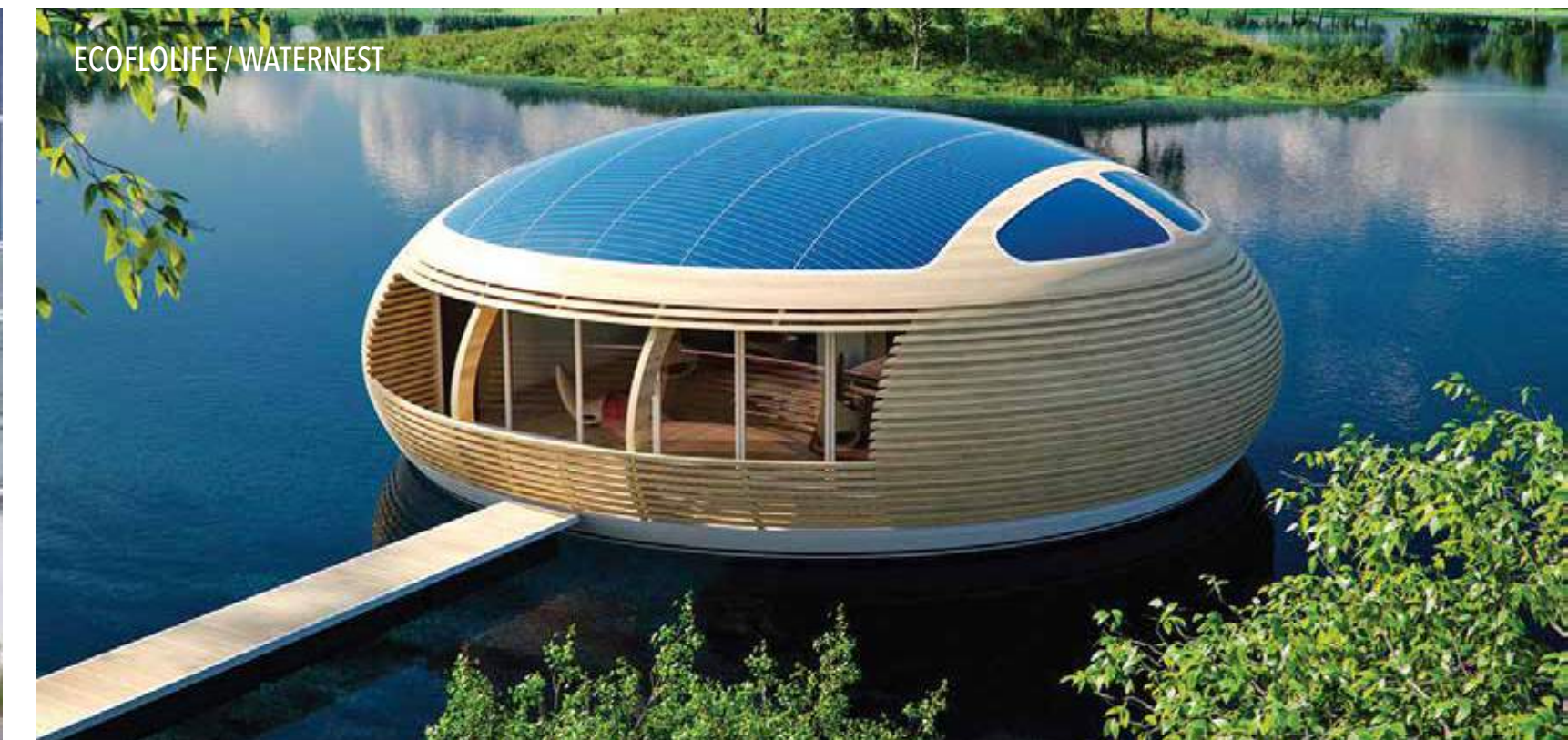
- Double digit growth year after year

COST

- 3.7 cents per kWh

ENERGY PER YEAR

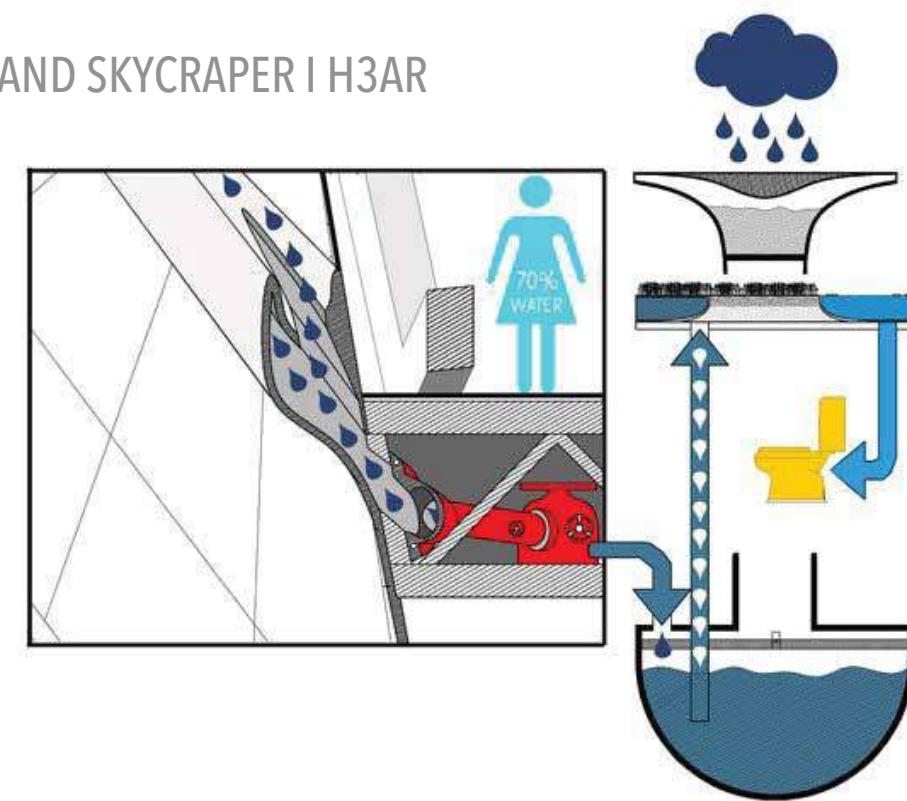
- 1 watt-peak of solar PV capacity generates 1 to 2 kWh





RAINDROP / STUDIO BAS VAN DER VEER

RAIN COLLECTOR AND SKYCRAPER | H3AR



SUSTAINABILITY

WATER

- Less than 5% of water is used for drinking and cooking
- Greywater makes up 65% of wastewater
- Reduces water bills 30%

VERTICAL FARMS

- 1 acre = 100 farmed acres
- 90% less waste



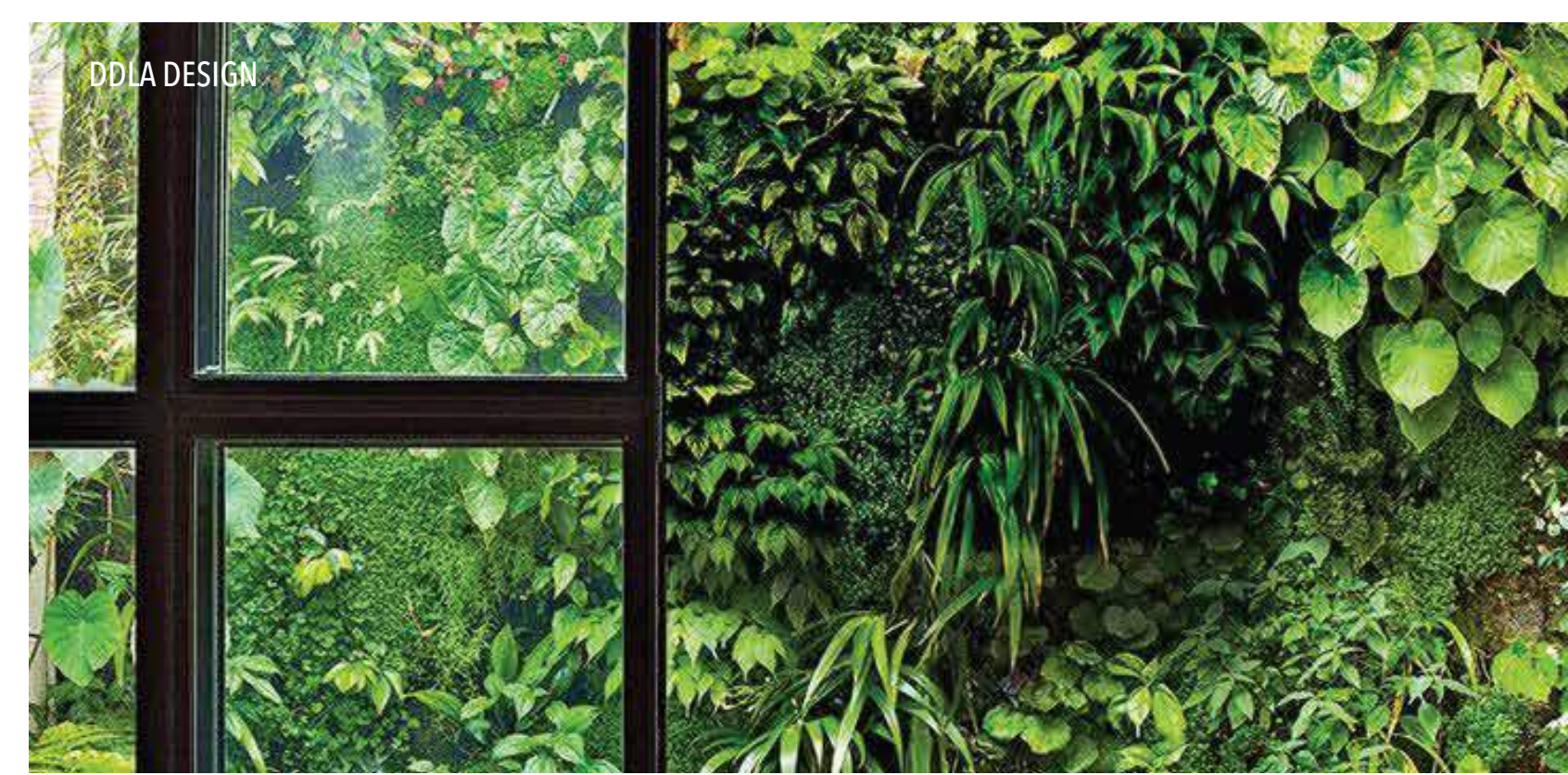
AGRO-AN-VILLE / ABB-LAB



MIRAI.CO



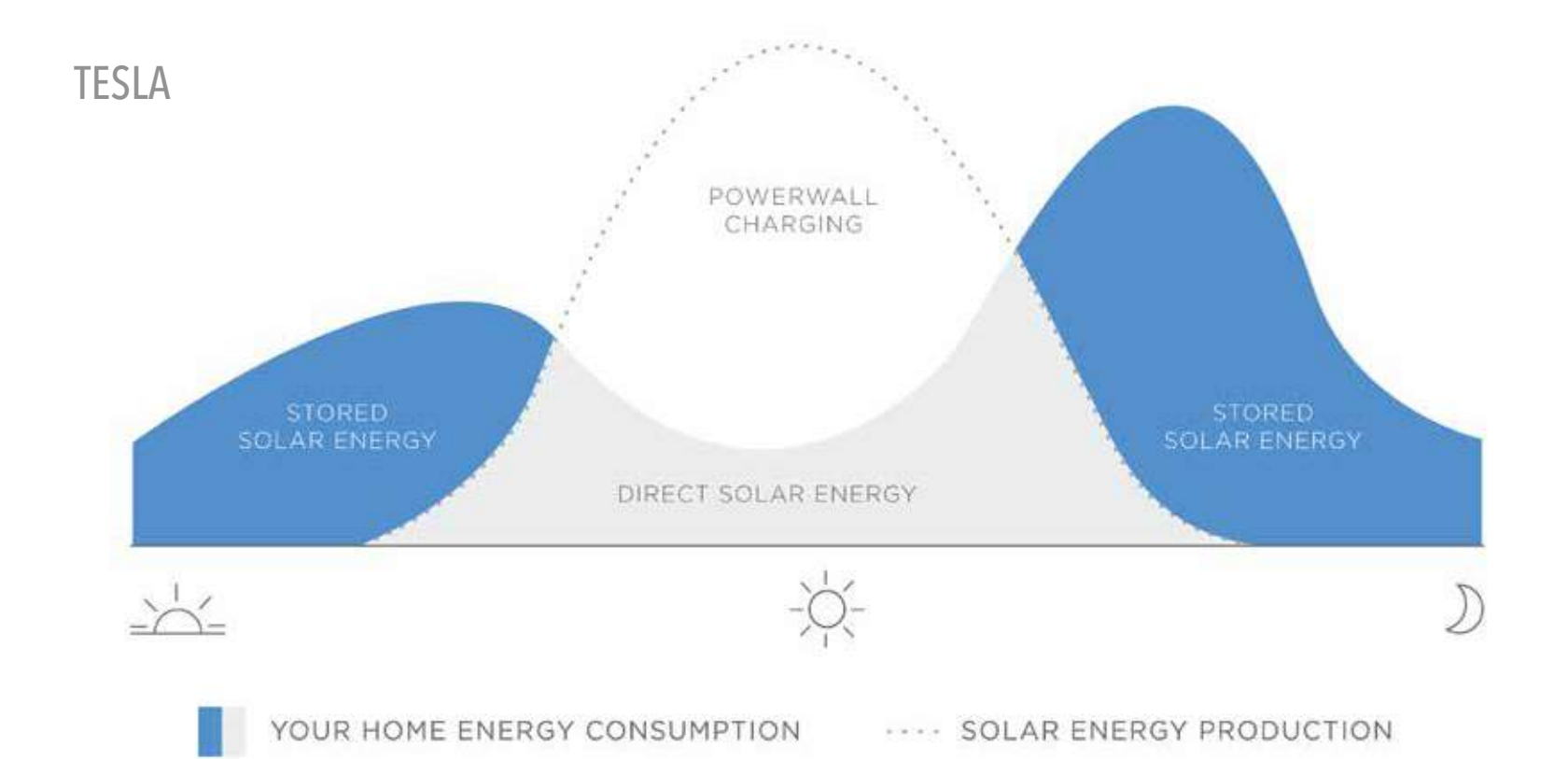
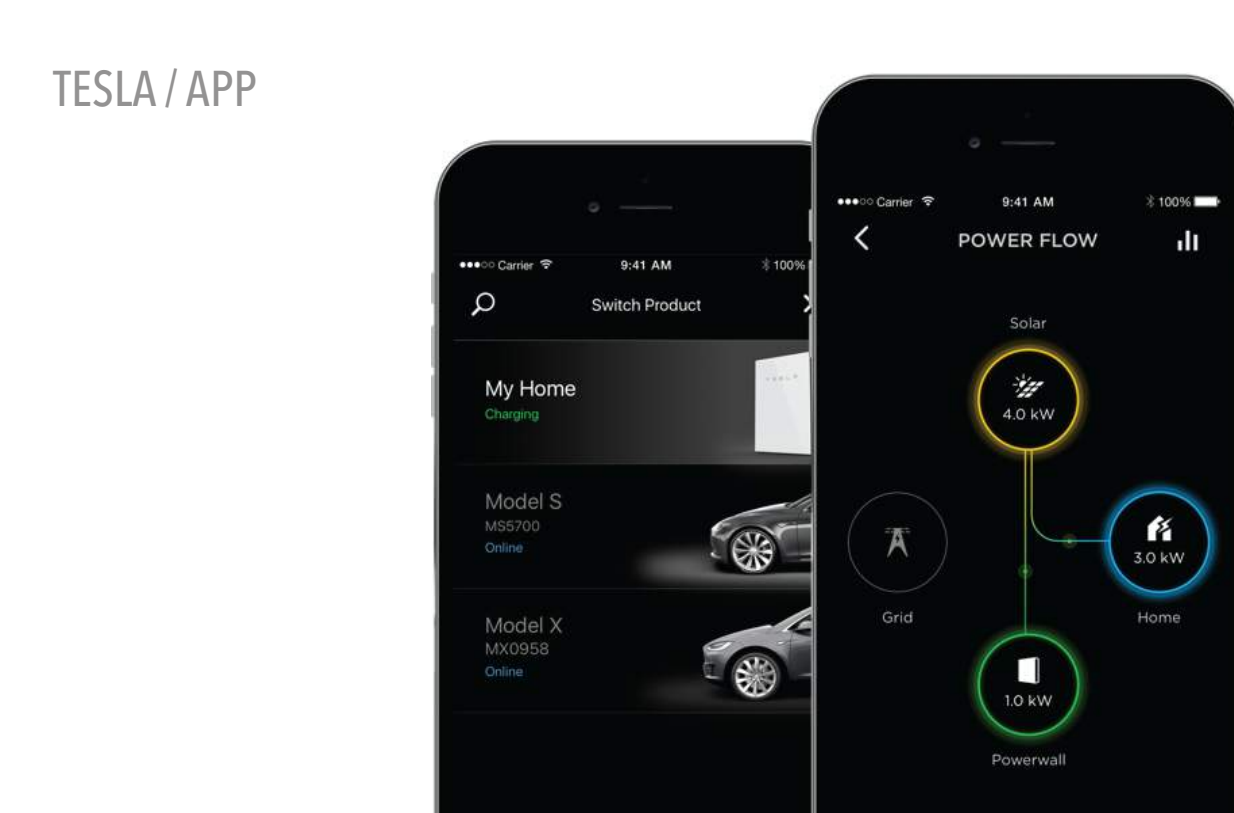
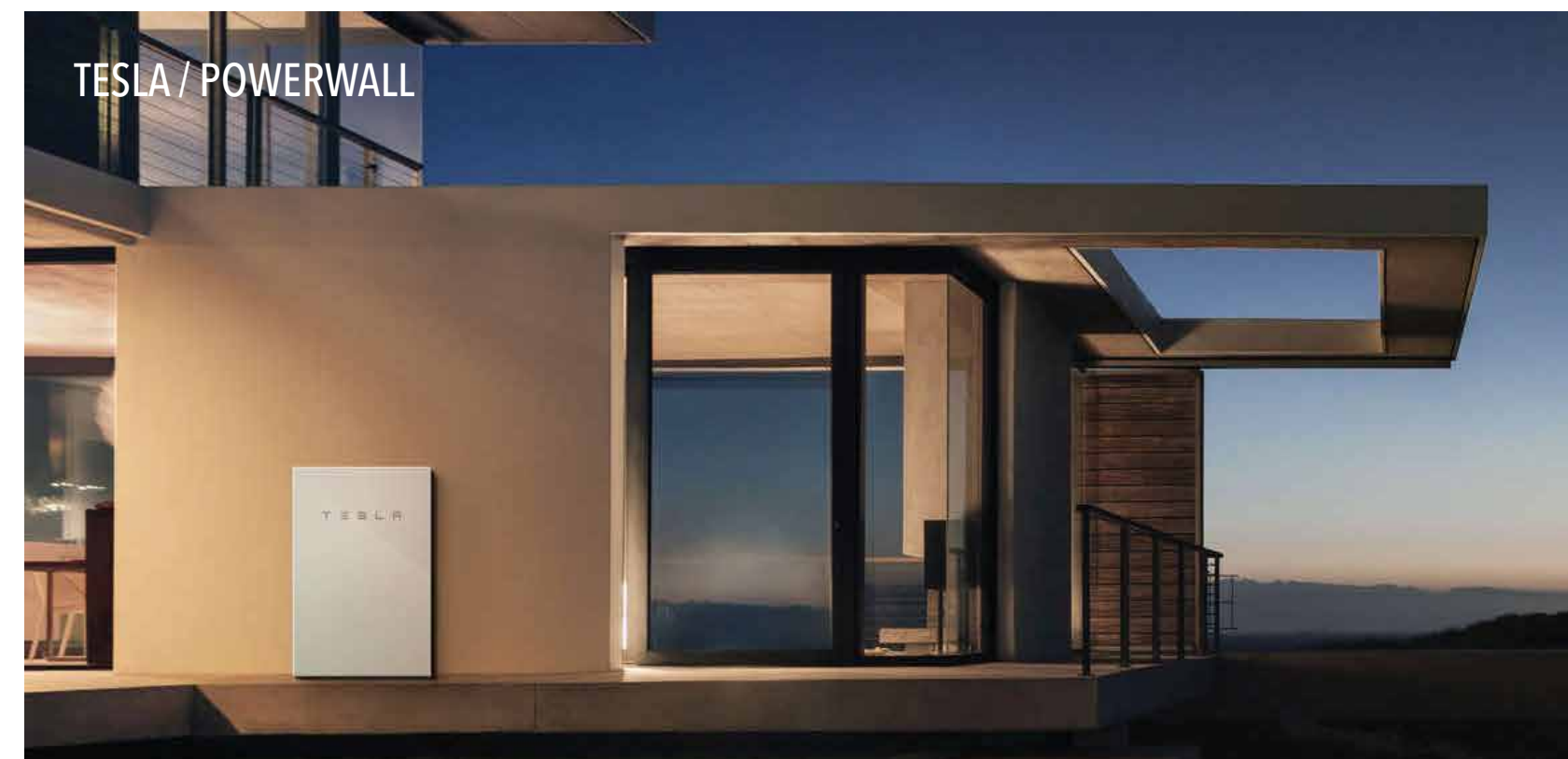
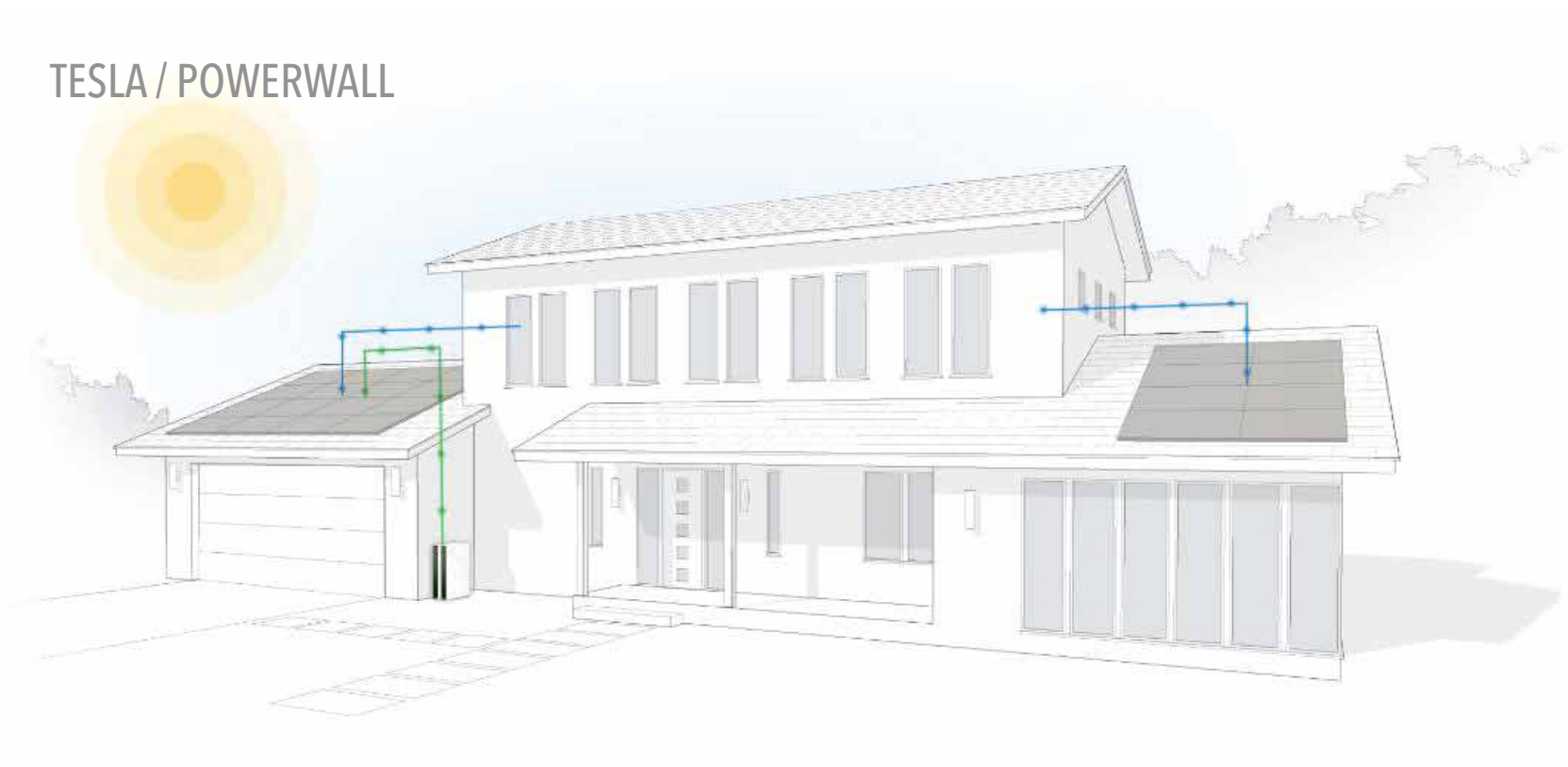
THE GREEN DIVAS



DDLA DESIGN

GREEN WALLS

- Reduces urban heat island effect
- Cleans air of pollutants



SUSTAINABILTY

TESLA ENERGY

SOLAR ROOF

- \$21.85 per square feet
- Invisible solar cells
- Infinite tile warranty
- \$5000 cost
- \$2000 installation

POWERWALL

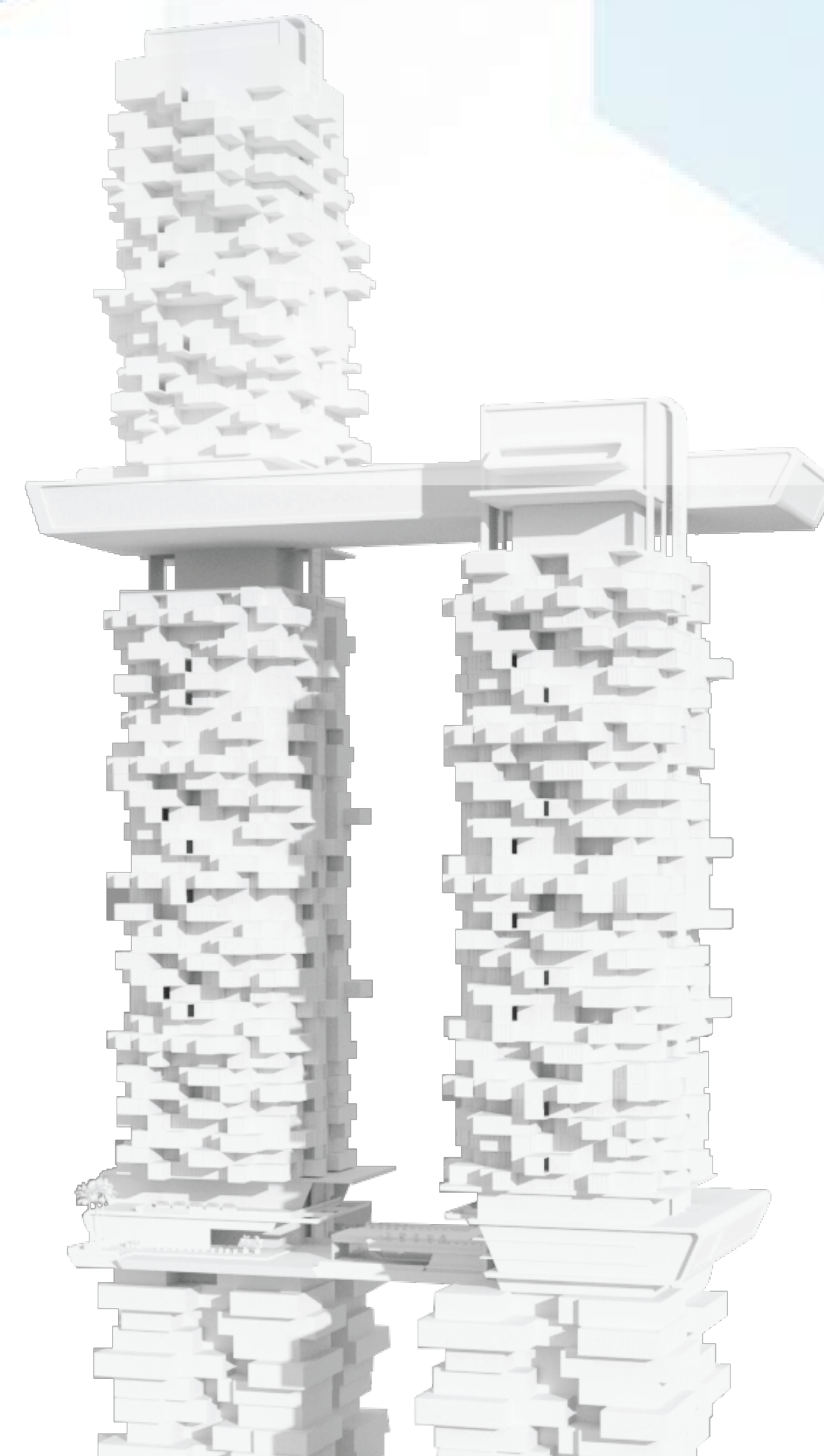
- Stores the excess solar energy

TESLA APP

- Monitor and manage your storage energy.

TRENDS AND TECHNOLOGY AVAILABLE
BETWEEN NOW AND

5 YEARS



TOWER / HOME TECHNOLOGY

A.I. PERSONAL ASSISTANT

TEMI

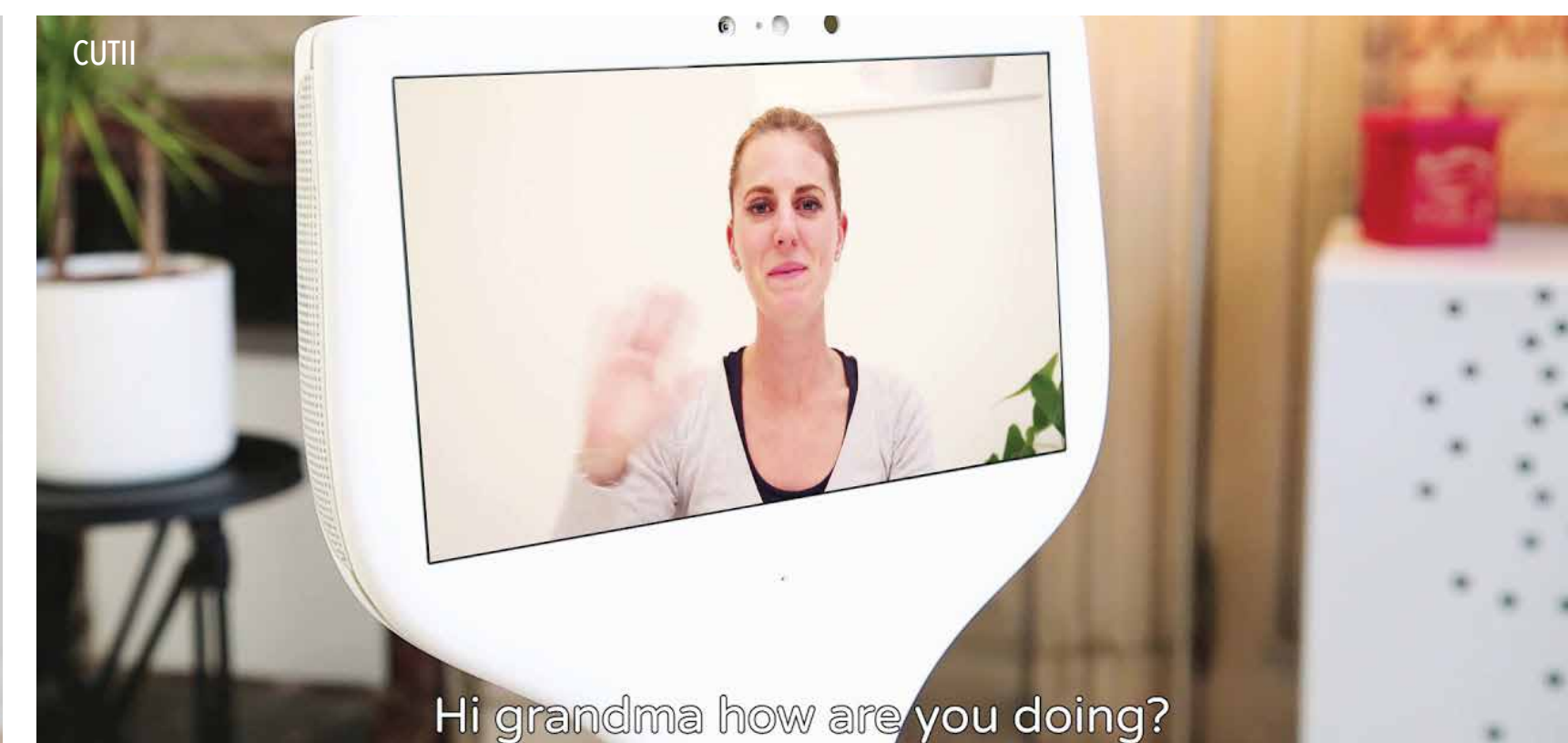
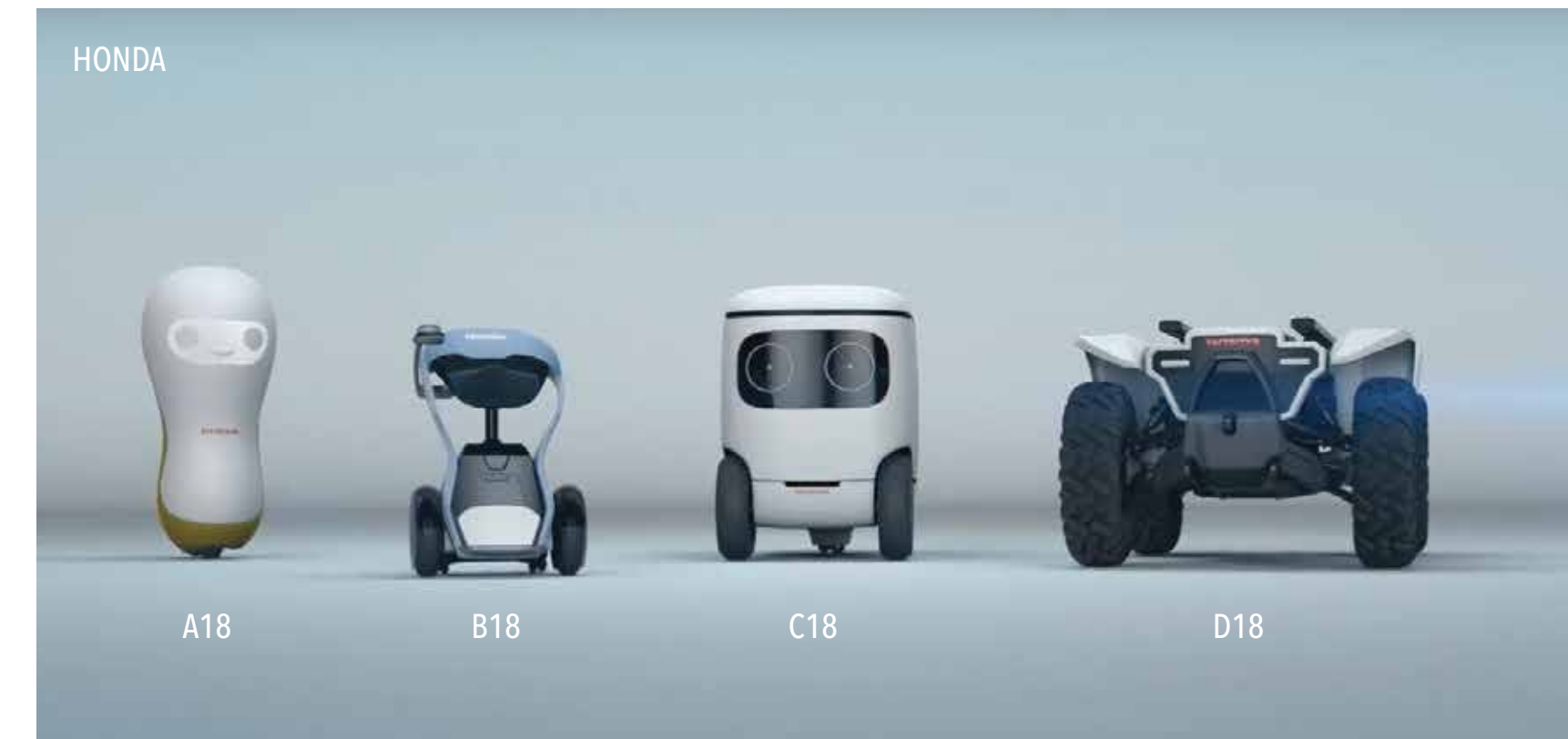
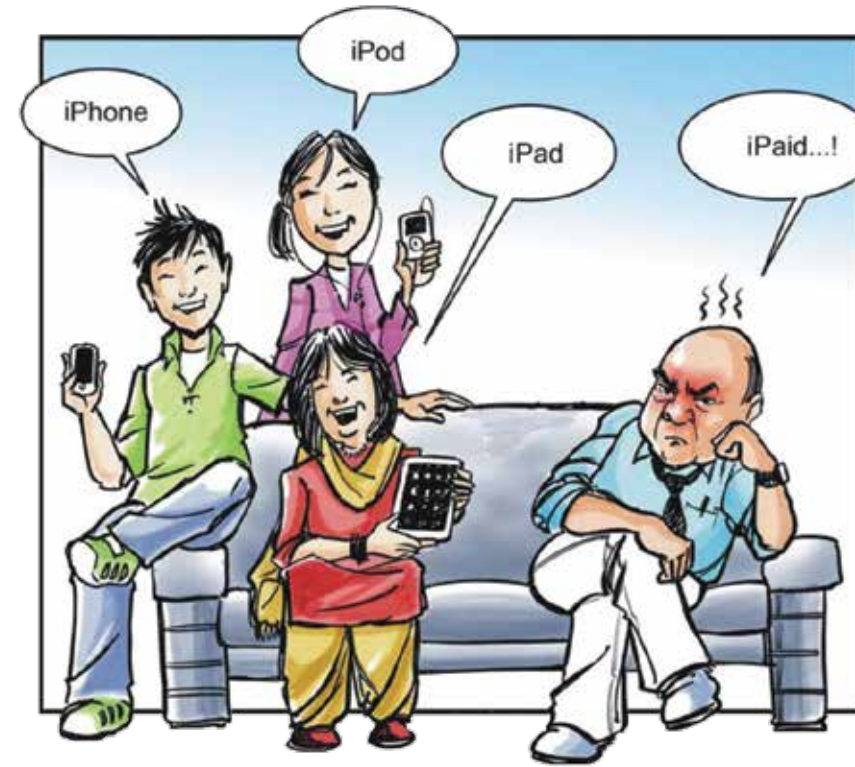
- Personal assistant

HONDA

- A18. Charming companion
- B18. Chair-type mobility
- C18. Multi-functional cargo
- D18. Autonomous off-road vehicle

CUTTI

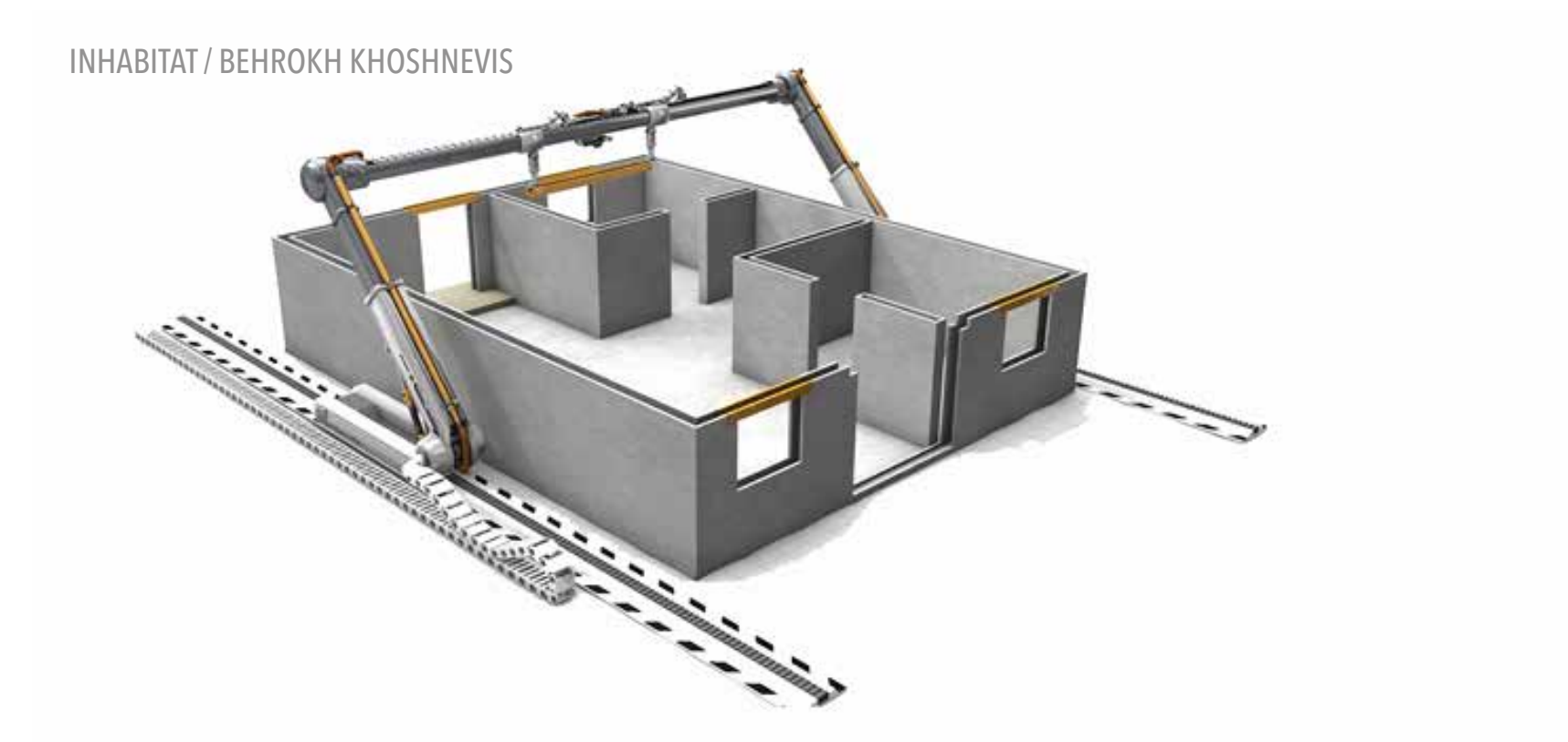
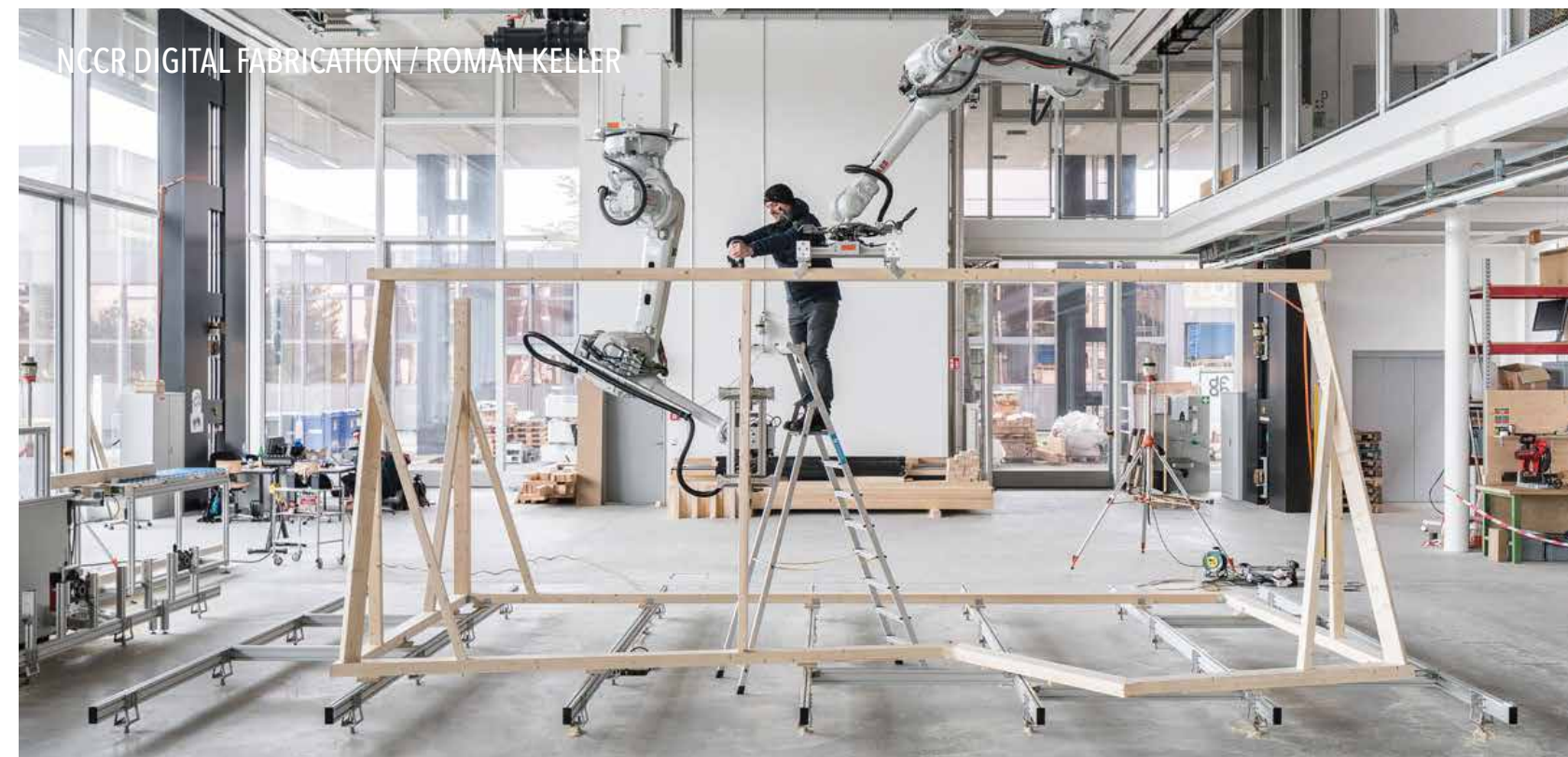
- Elder autonomy help



ROBOTIC CONSTRUCTION

TIMBER CONSTRUCTION

- Modules prefabricated by robots
- Robotic precision
- Computer-aided



3D PRINTING

- Computer controlled
- Enables almost any shape
- Fast and accurate construction
- Low labour costs
- Less material waste



PLATFORM'S CONNECTION

HORIZONTAL ELEVATORS

DIRECTION

- . Vertical and horizontal

FOOT PRINT

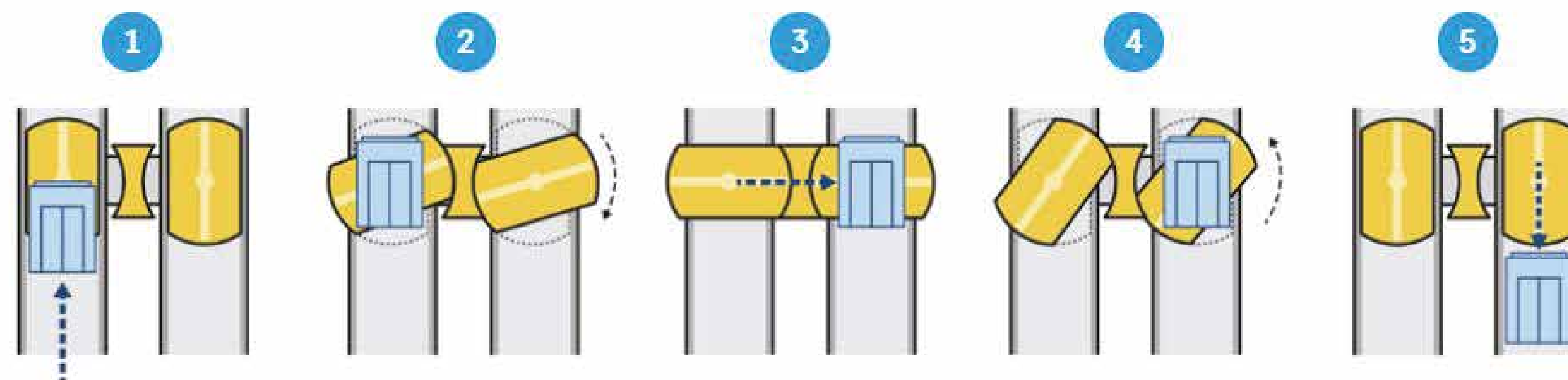
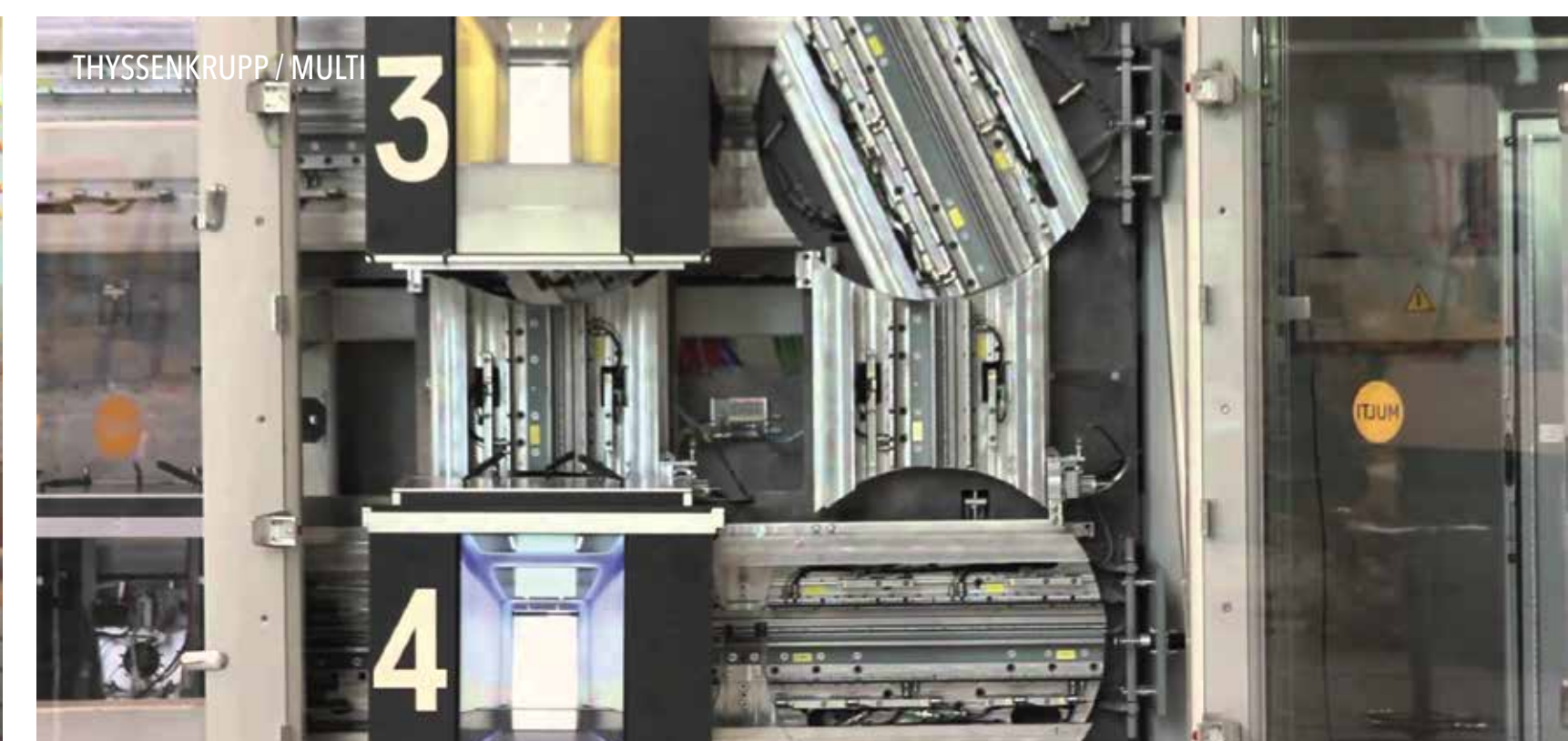
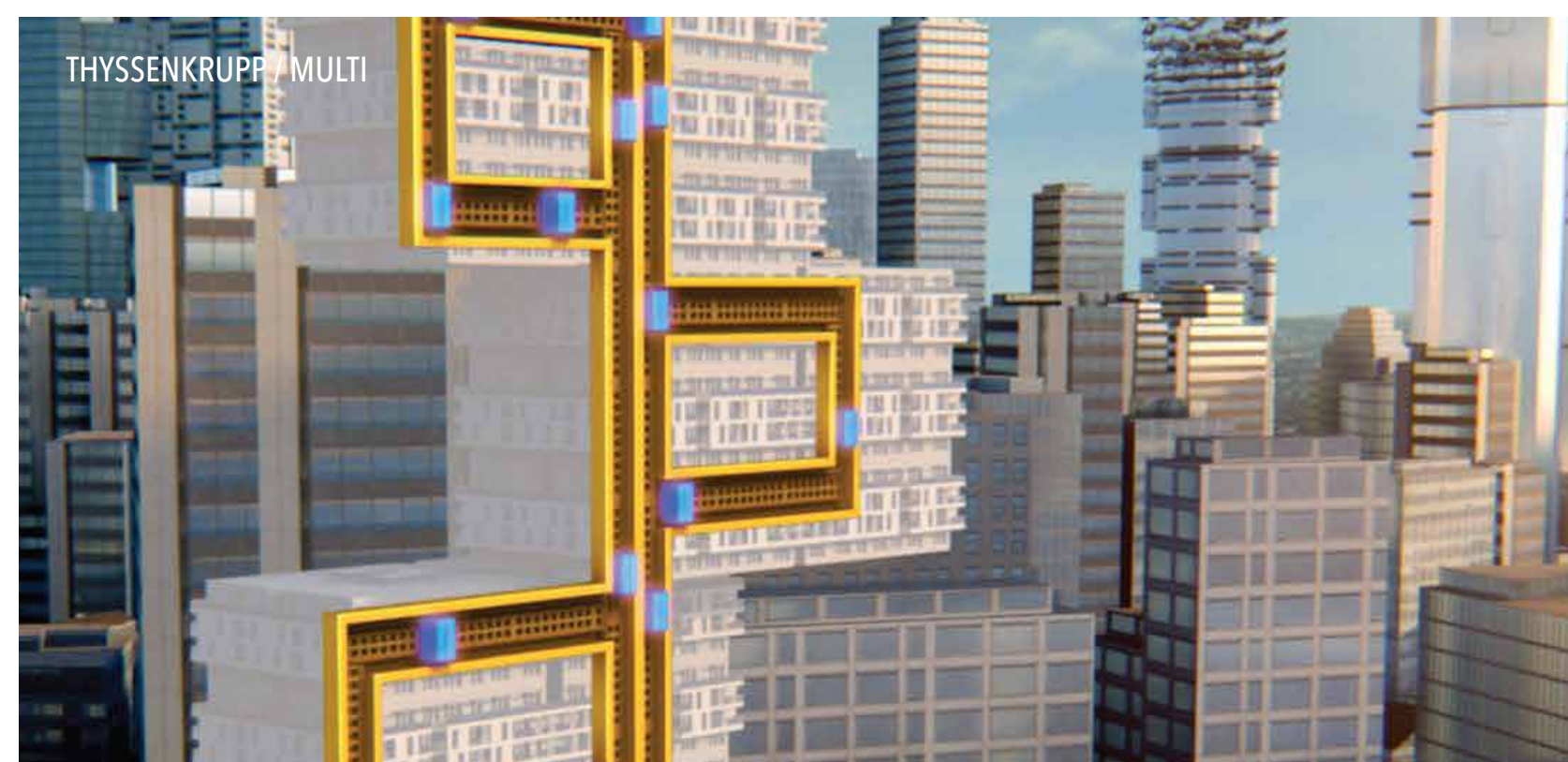
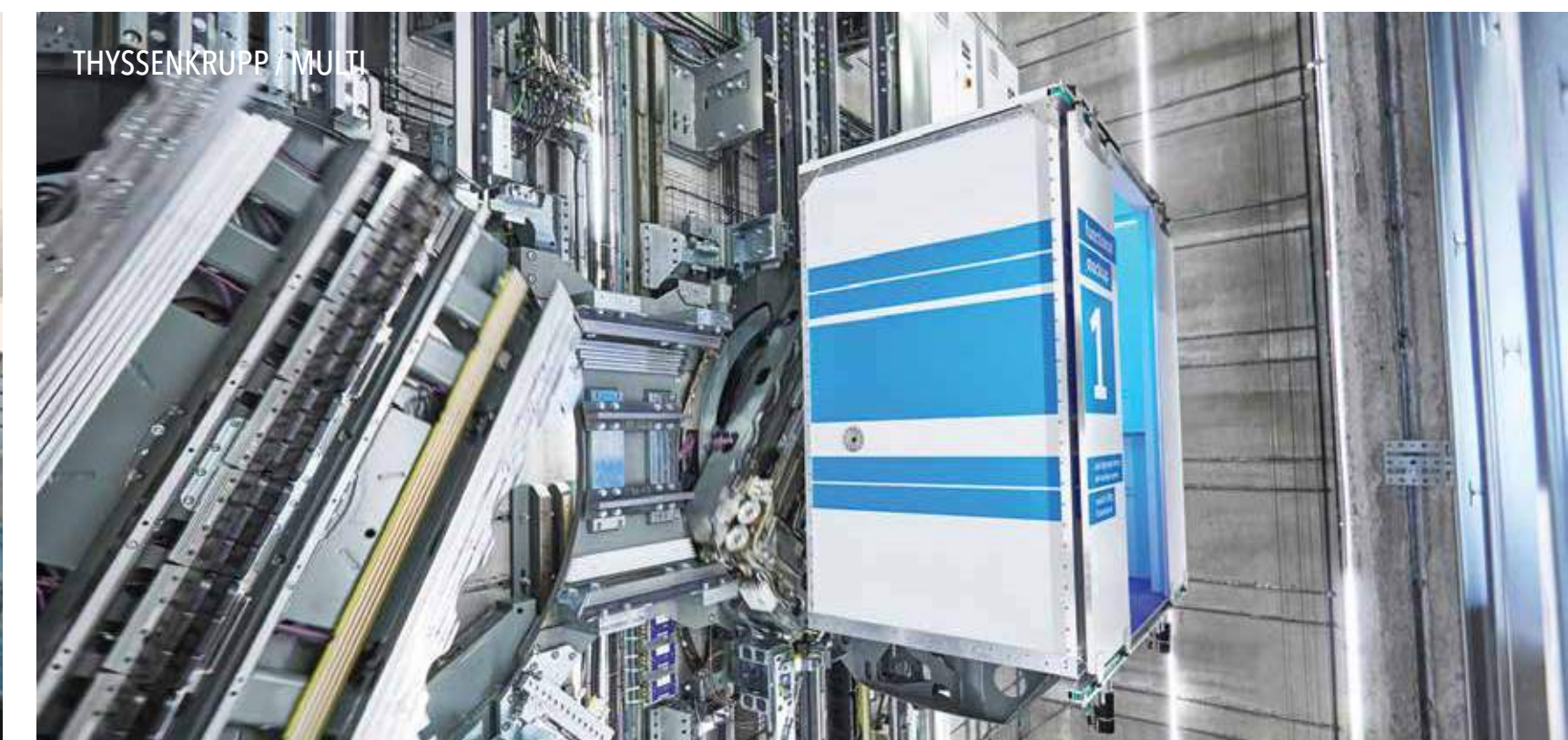
- . 50% less

CAPACITY

- . 50% more

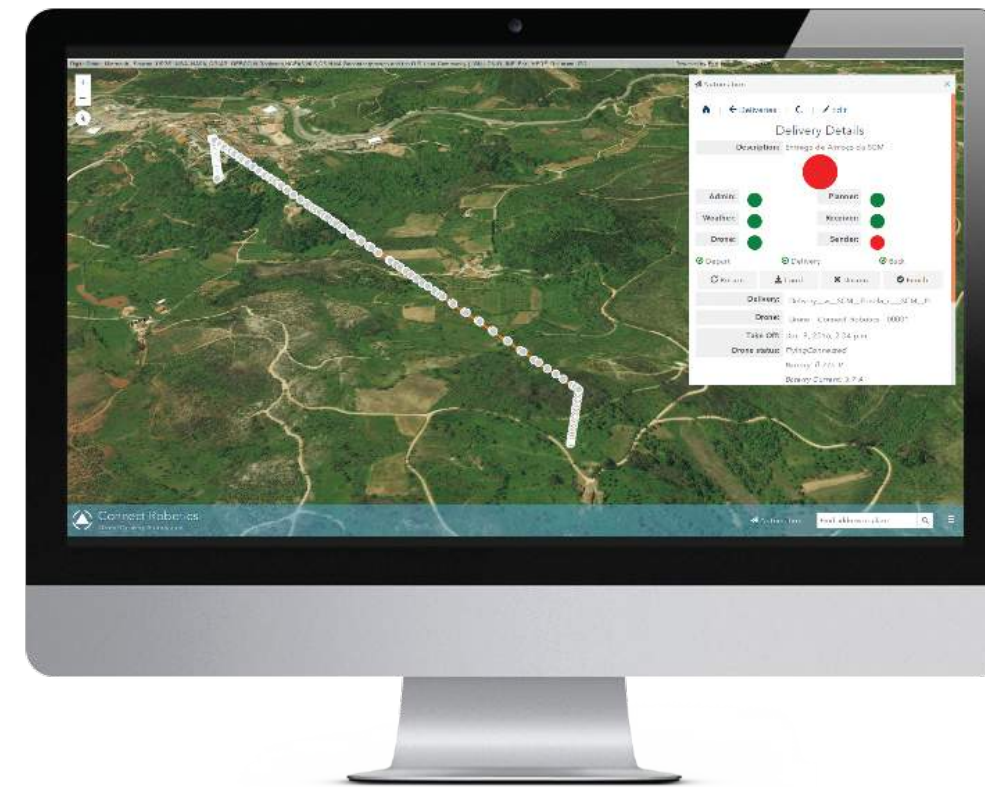
WEIGHT

- . 50% less compared to standard technologies
- . Allows for new building configurations





CONNECT ROBOTICS



UAV DELIVERY

UNMANNED AERIAL VEHICLE

- 60% reduction in delivery costs

AMAZON PRIME AIR

- Improves road safety
- Reduces delivery time, less than 30 minutes
- Package delivery up to 5 pounds



CONNECT ROBOTICS

- Drone delivery service wherever it is needed
- Don't have to buy any equipment
- Seller and customer connected
- Drone takes off after the payment is done in the app
- Fully automated, end-to-end





AVs DELIVERY

DRIVER LESS

KROGER GROCERY DELIVERY

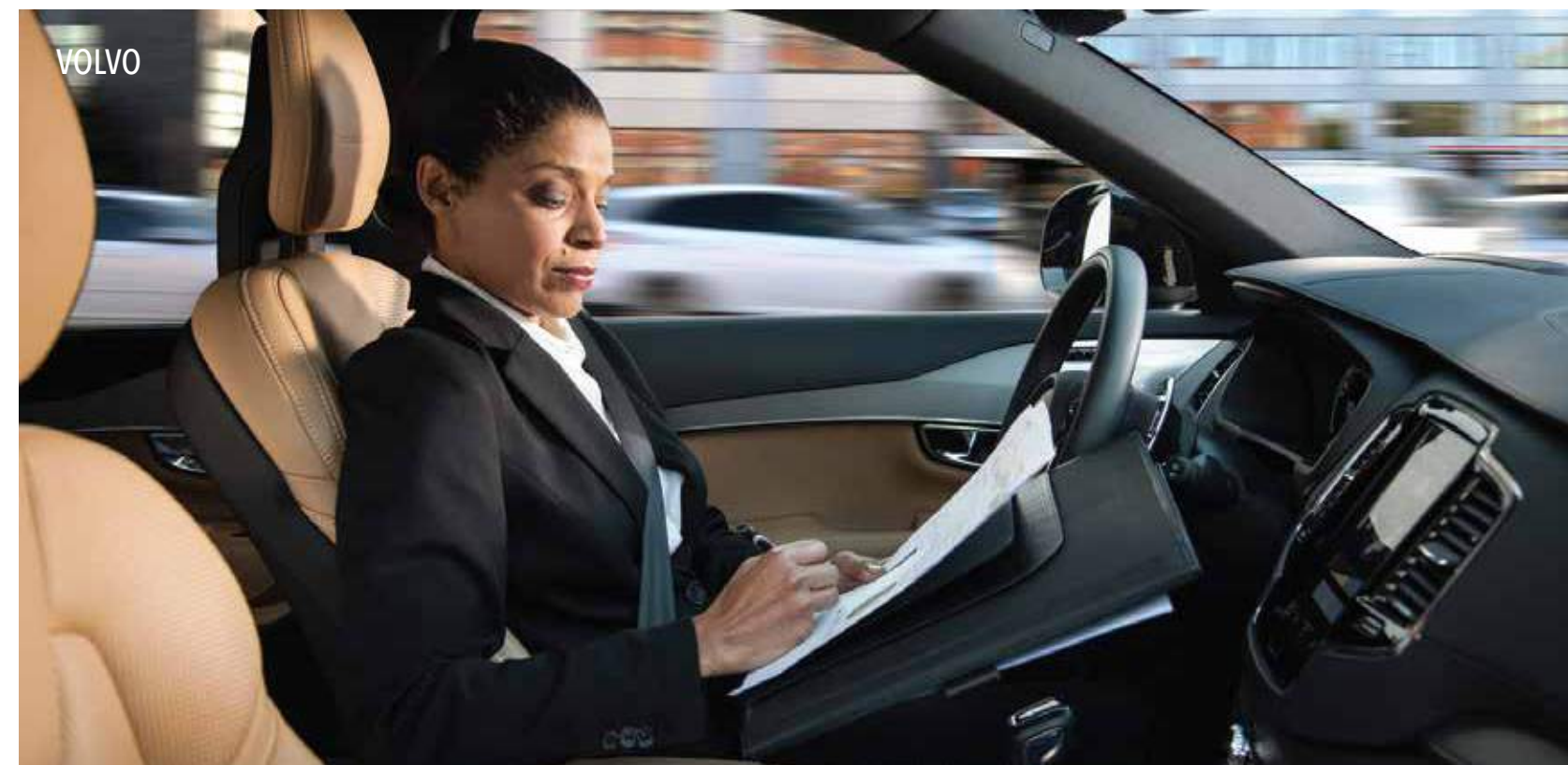
- . Vehicle for groceries
- . Take up very little space on the road

ROBOMART

- . Mobile grocery market
- . "Grab and Go" technology
- . Fresh fruit and vegetables stock

DOMINO'S PIZZA AV

- . Ford and Domino's fusion
- . Built-in pizza oven
- . Customer will have a PIN number



BASE / MEANS OF TRANSPORTATION

AUTONOMOUS VEHICLES

CAR

- . Tesla charger: 30 min charging your vehicle
- . Prevents 90% of car accidents
- . Increases road capacity by 273%

BUS

- . 100% autonomous
- . 15 passengers
- . 25 km/h operating speed
- . 9 hours autonomy



1 TUCK AWAY DRIVERLESS CARS
Driverless vehicle storage is packed in hyper-efficient rows on the top level. Garages designed for self-parking or autonomous vehicles can substantially increase their efficiency and use

2 INCREASE FLOOR TO FLOOR
Floor to floor heights are designed to accomodate future uses such as residential or office.

3 HARVEST TRAFFIC ENERGY
Energy-harvesting speed bumps recapture energy from passing vehicles.

4 WALK-UP PARKING ON LOWER LEVELS
Conventional parking is kept on lower levels for increased accessibility.

5 ARCHITECTURAL SKIN AS INTERACTIVE SURFACE
Faceted skin becomes a display for personal virtual reality headsets as augmented projections replace handheld screens.

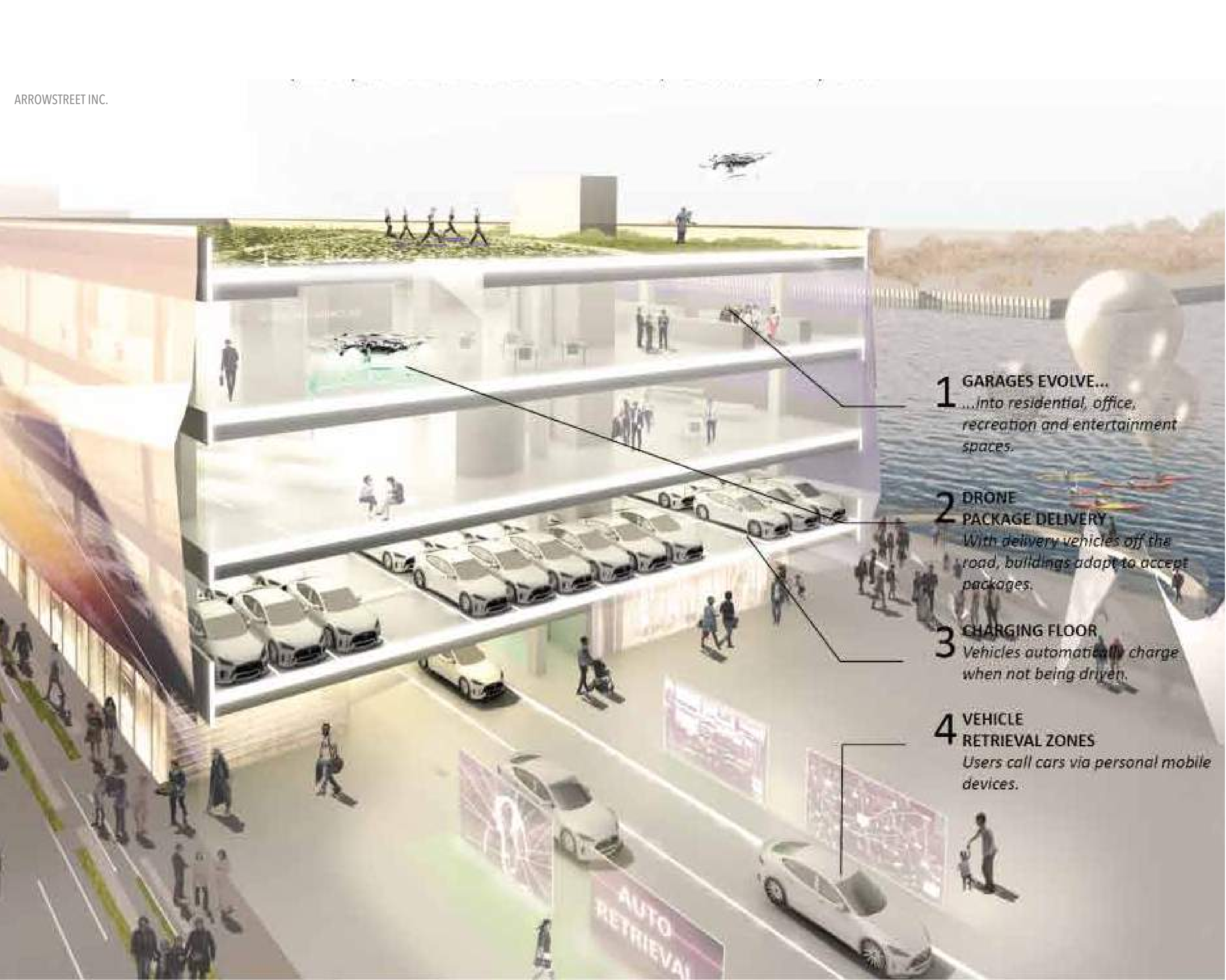
By 2025, fully autonomous cars are expected to be available to the general public for an additional \$10,000 Source: Boston Consulting Group

BASE / MEANS OF TRANSPORTATION

PARKING

CONVENTIONAL GARAGE DESIGNED TO ADAPT TO AUTONOMUS VEHICLES

- . Today the typical car is used only 5% of the time
- . 95% of the time it is parked at a house or on the street
- . By the time today's garages are built, self parking cars and shared fleets will be a reality



BASE / MEANS OF TRANSPORTATION

PARKING

PARKING GARAGE EVOLUTION

- . Car ownership will evolve to a subscription service with intelligent fleets
- . Less need for parking
- . In 2035, the need for parking should decline by more than 5.7 billion square meters in the United States

SMART CITIES

SIDEWALK LABS

- Transformation from an ownership model to a mixed model of fleet-owned vehicles
- Opportunity to right-size the automobile itself
- Driverless shuttle buses replace private cars
- Will have some kind of spatial differentiation or universal time-of-day pricing
- Elimination of on-street parking and transforming that space into bike lanes, bus lanes, and loading/unloading spaces
- Traffic lights track the flow of pedestrians



SIDEWALK LABS



SIDEWALK LABS



SIDEWALK LABS



SIDEWALK LABS



SIDEWALK LABS



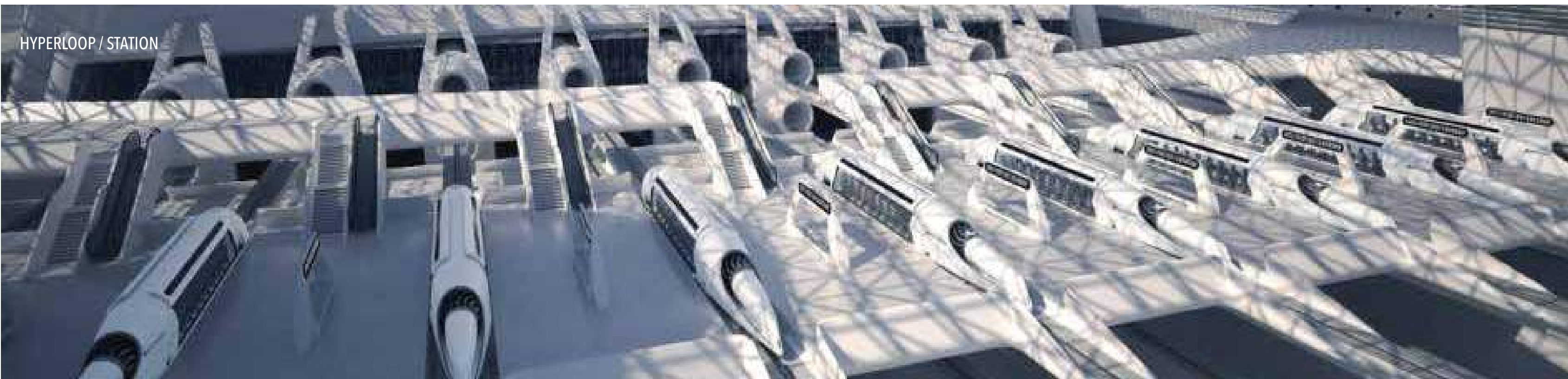
SIDEWALK LABS



TRENDS AND TECHNOLOGY
AVAILABLE IN

10 YEARS





BASE / MEANS OF TRANSPORTATION

TRANSPORTATION

HYPERLOOP

- System of tubes through which a pod travels free of air resistance and friction
- Average speed of 600 mph
- Goal of being in service by 2021

SPACE X

- NYC to Shanghai in 39 minutes
- Elon Musk, imagines carrying people from any part of the world in less than 30 minutes

UBER

- Drone flying car
- Rideshare network
- Operational by 2023



TOP PLATFORM

DRONES

FLIGHT SPEED

. 100 km/h

CRUISING DURATION

. 25 min

CRUISING ALTITUDE

. 500 m

TOWER

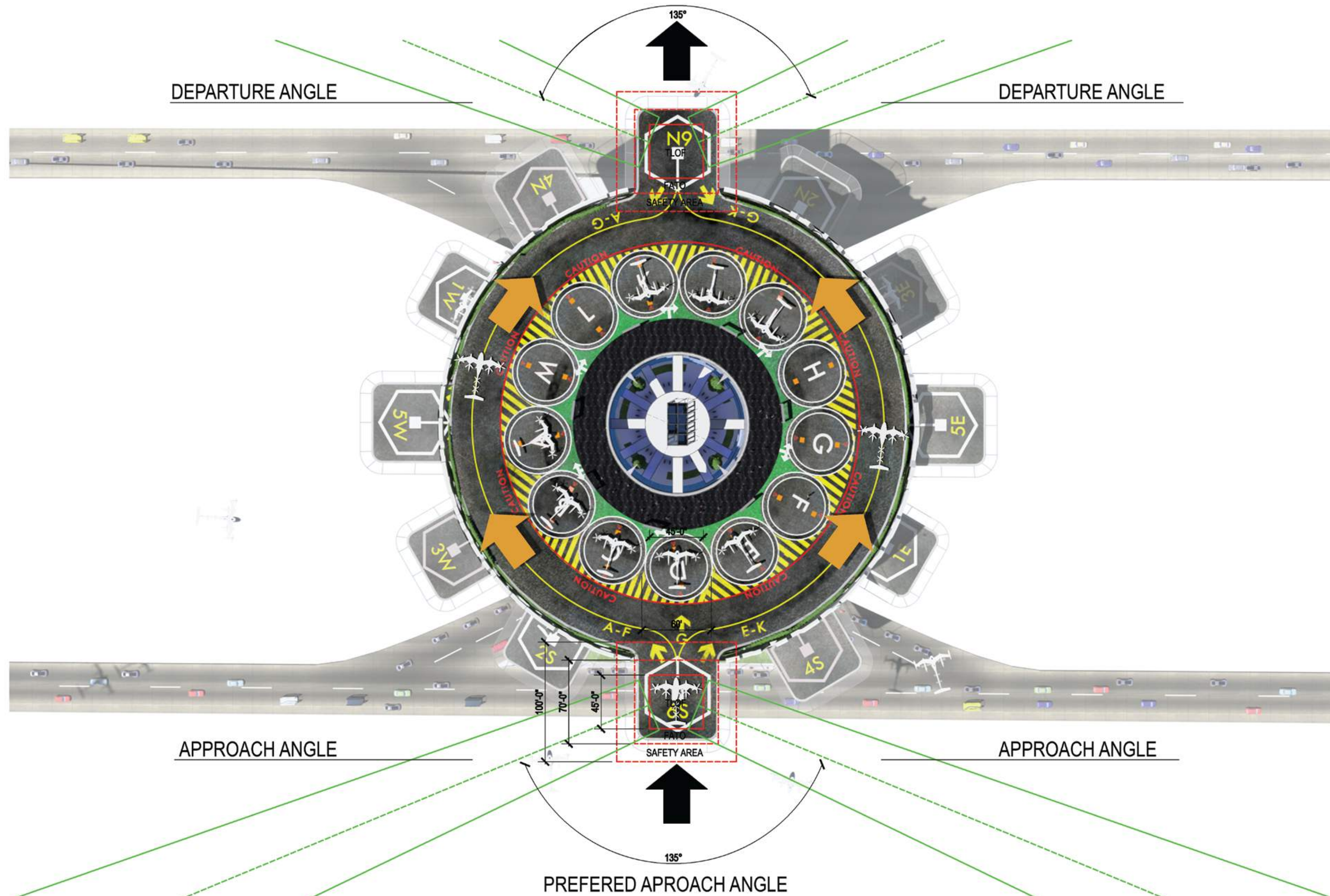
PRIVATE DRONE PLATFORM

The private drone platform can be used by penthouse owners.

. Called in via app













HYPERLOOP

PLAZA/ RETAIL CHECK IN

GROUND LEVEL

LIGHT RAIL

HIGHWAY

HIGHWAY

TRANSPARENT GLASS SOLAR CELLS - ENERGY GENERATION

BIO CONCRETE - SOUND / POLLUTION ABSORPTION

VEGETATION - AIR PURIFIER / SOUND ABSORPTION

HYPERLOOP

PLAZA RETAIL CHECK IN

GROUND LEVEL

HIGHWAY

TRAIN STATION

HIGHWAY





MODULAR MULTIFAMILY

THE NAKED TRUTH

IS MODULAR THE MULTI-FAMILY CONSTRUCTION?



UBER



airbnb

amazon

**SHALL WE CLARIFY
WHAT WE MEAN
BY MODULAR?**



**TODAY'S MODULAR
CONSTRUCTION IS
MUCH MORE THAN
DOUBLEWIDES AND
TRAILER PARKS.**





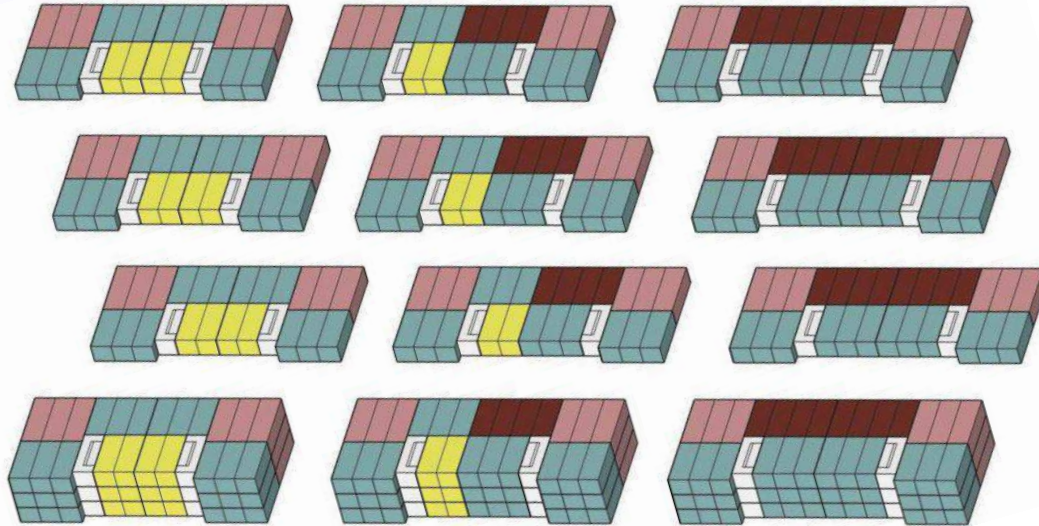
3

GOLDEN RULES

of

MODULAR

Minimum Number of Maximum-Sized Boxes



STRAIGHT, **FLAT**, RATIONAL





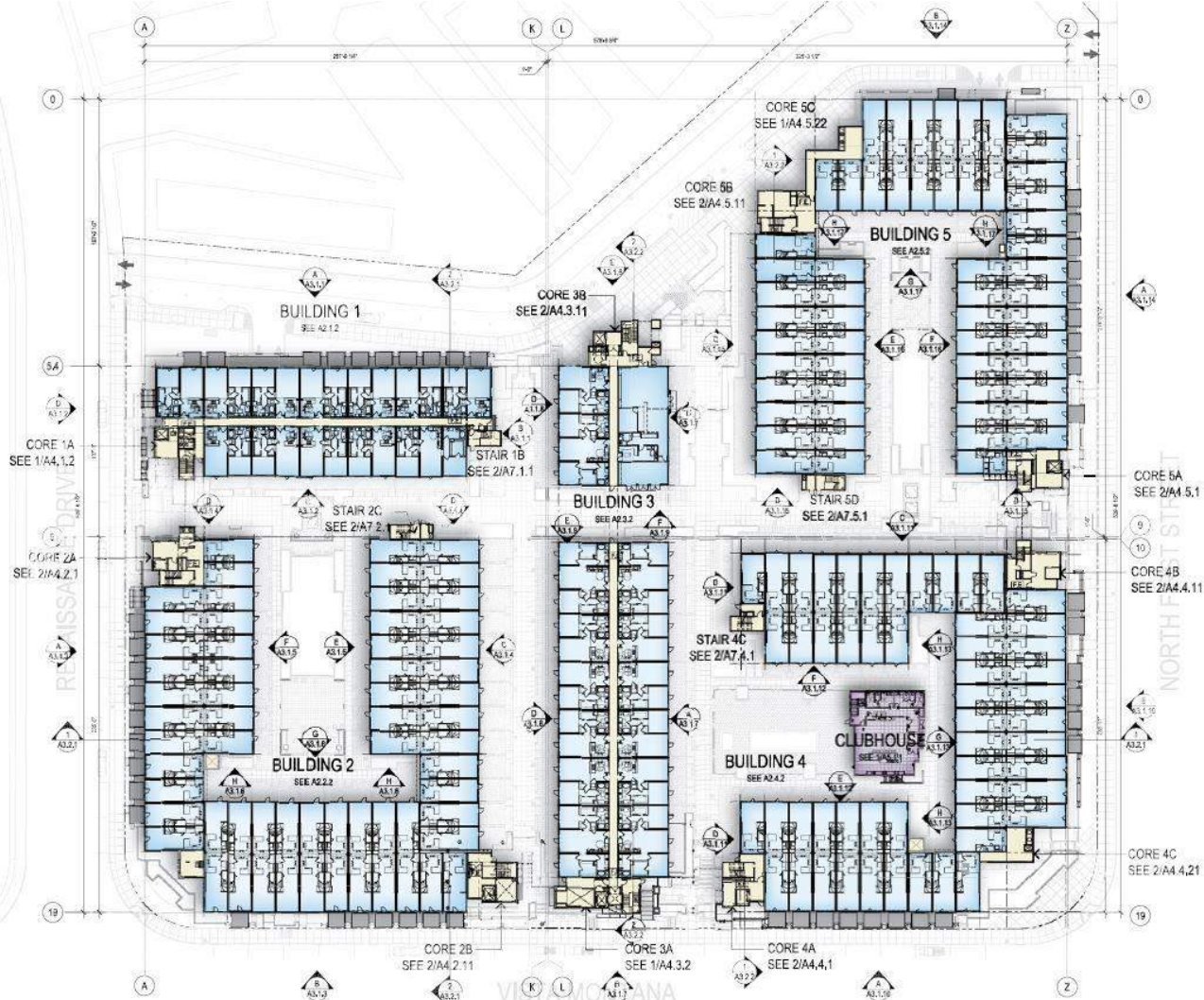
Highly Disciplined Design Team

Modular to Stick?

Ok, no problem.

Stick to Modular?

Fuhgeddaboutit!



WHAT MODULAR WANTS TO DO

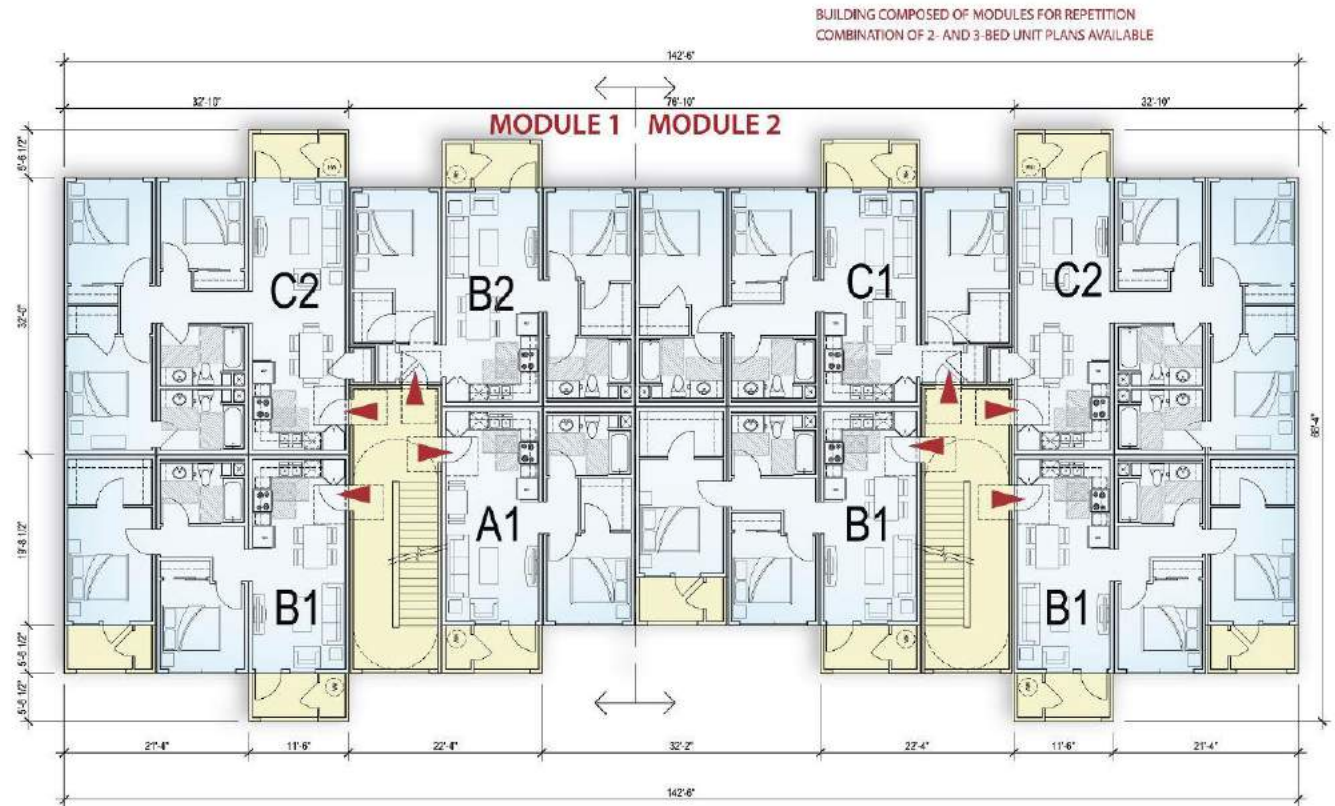


WHAT MODULAR
WANTS TO DO





WHAT MODULAR CAN DO



MODULAR PROS & CONS



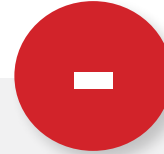
Labor Rate
Savings

Faster

Price Certainty

Better Quality

Safer, Security,
Noise....




Transportation &
Installation Costs

Early Decision
Making

\$\$\$ Front End
Loaded

Uses 20% More
Material

A large stack of colorful shipping containers (yellow, red, blue) under a sunset sky. The containers are stacked in a way that creates a sense of depth and height. The sky is a mix of blue and orange, suggesting a sunset or sunrise. The text "THINKING INSIDE THE BOX" is overlaid on the right side of the image.

THINKING INSIDE THE BOX

WHAT MODULAR WILL DO

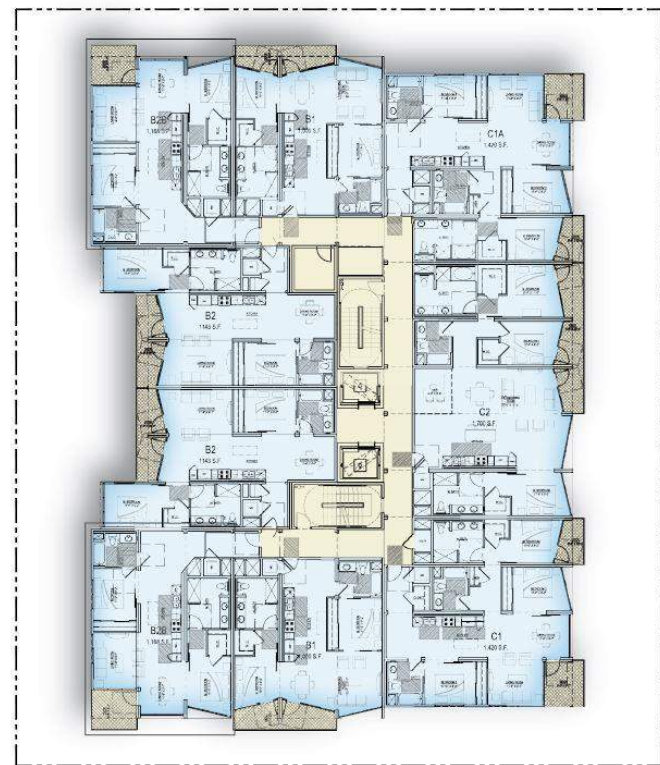
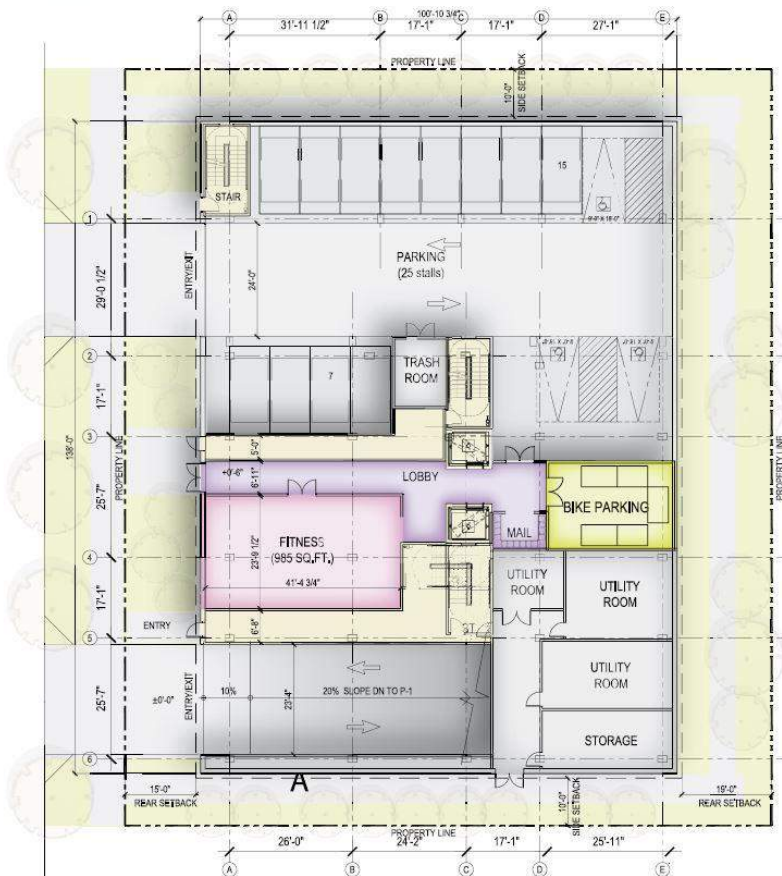


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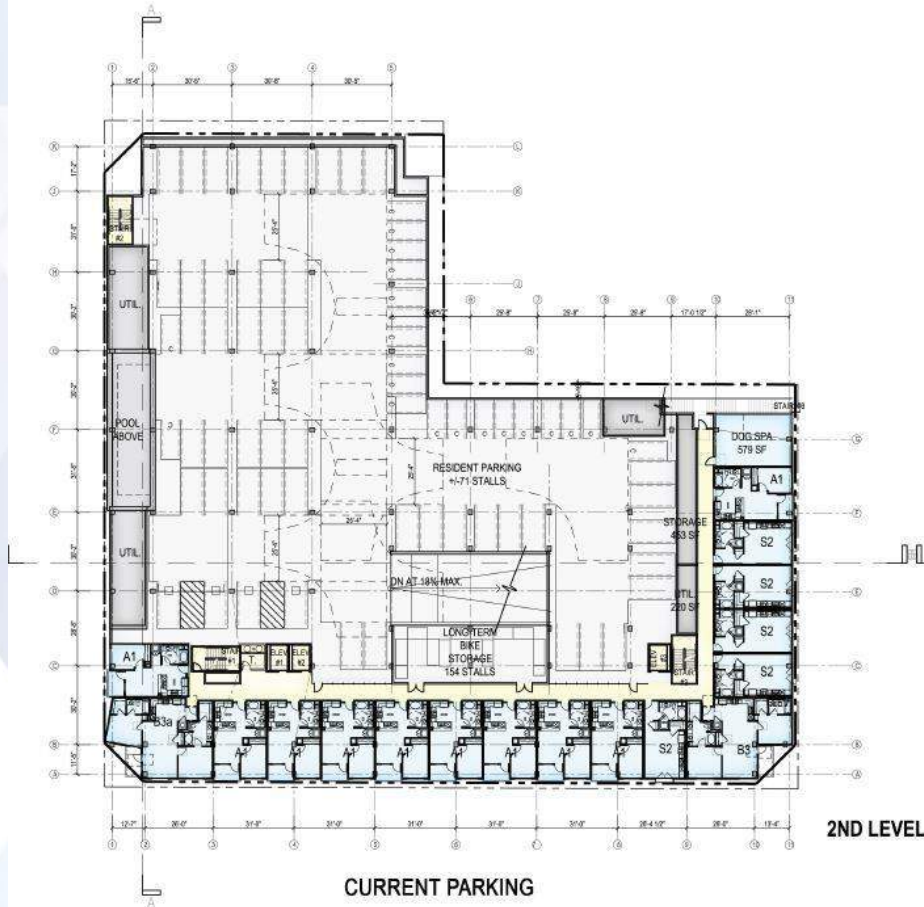
WHAT MODULAR **WILL** DO



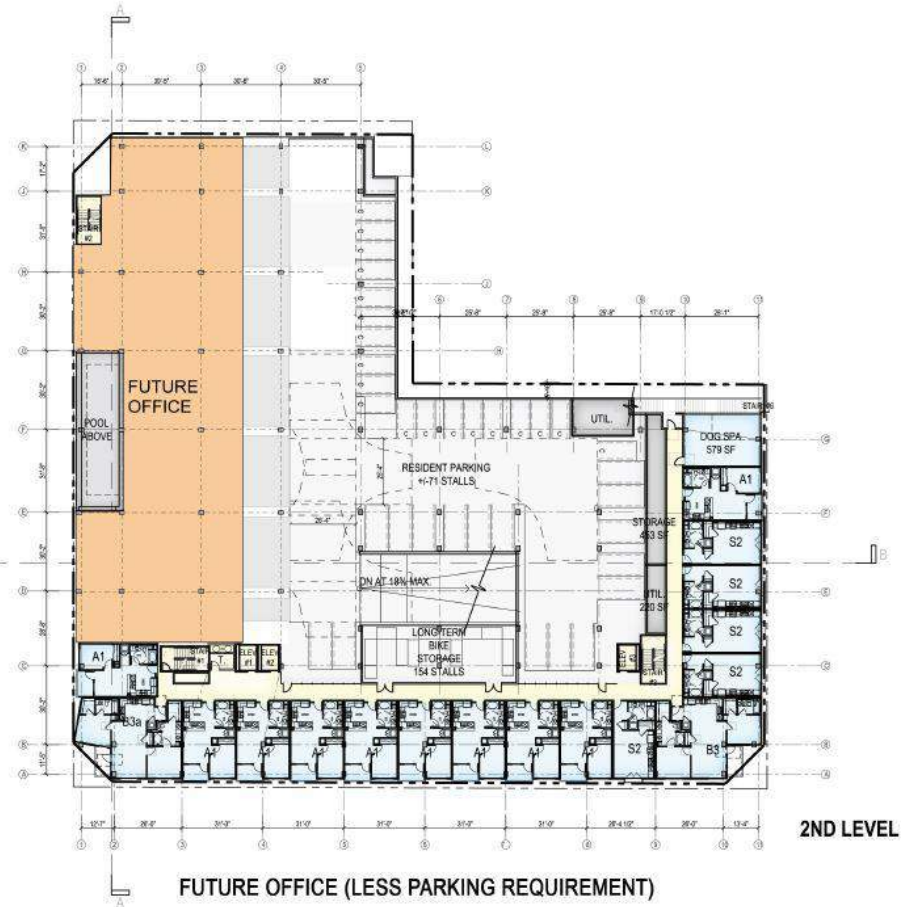




DESIGNING FOR FUTURE PARKING CONVERSION



2ND LEVEL



2ND LEVEL



HUMPHREYS & PARTNERS ARCHITECTS, L.P.

CONSTRUCTION COSTS 2018

CONSTRUCTION COSTS 2018

CONVENTIONAL
MULTIFAMILY



“Because of the unstable market right now, due to tariffs on steel and other imported materials, lumber cost, and labor issues, it is very difficult to provide numbers today that will hold up 6 months or more from now. Also, our spreads are a little bit wider due to timing, location, site conditions, and materials specified for each individual project.”

GINY KNUDSEN
gknudsen@ceitn.net

CONSTRUCTION COSTS 2018

CONVENTIONAL
MULTIFAMILY



“All price increases we have seen are commodity driven. There was a recent drop in lumber but its still high versus last quarter. A lot of the uncertainty from the tariffs has led to increases and we are actually seeing rebar increases now due to the tariffs. Most recent increases have been on quartz... all our concrete guys are pushing the rebar increases.

Labor is still a concern but it hasn't necessarily driven up pricing as its been factored in and projected for a couple years now.”

BRAD DINERSTEIN

Brad.Dinerstein@tdc-properties.com



MARC PADGETT

mpadgett@summitcontractors.com

CONSTRUCTION COSTS 2018

CONVENTIONAL MULTIFAMILY

Surface / Garden Style Product:

\$93-\$98/NSF - 1,000 SF Average - Without Sitework

HUD 221 D4 Note - Residential Davis Bacon Wage Rates Apply - We are seeing an increase of around 3-5% from conventional deals

E-Urban / Surface Parked Product:

\$110 - \$115 w/ minimal sitework

HUD 221 D4 Note - Residential Davis Bacon Wage Rates Apply - We are seeing an increase of around 3-5% from conventional deals

Wrap Garage Product (4-Story):

\$145-\$150 depending on location

HUD 221 D4 Note - Residential Davis Bacon Wage Rates Apply - We are seeing an increase of around 3-5% from conventional deals

Wrap Garage Product (5-Story):

\$175-\$180/ sq ft = 900 sq ft avg depending on location

HUD 221 D4 Note - Commercial Davis Bacon Wage Rates Apply - We are seeing an increase of around 8-10% from conventional deals

4-story Podium Parked Product:

\$185-\$190/NSF - NFPA 13R Type V construction - Depending on location & if any parking is buried below grade

HUD 221 D4 Note - Residential Davis Bacon Wage Rates Apply - We are seeing an increase of around 3-5% from conventional deals

5-story Podium Parked Product:

\$200-\$225 /NSF - NFPA 13 Type III Construction - Depending on location & if any parking is buried below grade

HUD 221 D4 Note - Commercial Davis Bacon Wage Rates Apply - We are seeing an increase of around 8-10% from conventional deals

HUD General Note - We also suggest owners carry additional contingency of at least 5% on top of what the HUD requires from conceptual estimate until 100% CDs are developed as some times the HUD approval process can be very time consuming.

Prices depend on square foot average, site conditions and other factors. *15% higher out West (not California, Midwest or Northeast) 15% to 30% higher in California, Midwest, Northeast and Pacific Northwest. 10% higher on 5-story product.

CONSTRUCTION COSTS 2018

CONVENTIONAL MULTIFAMILY



MARK LEAR
mlear@bblbuildingco.com

Surface / Garden
Style Product:
\$112 - \$125 NRSF

E-Urban / Surface
Parked Product:
\$120 - \$132 NRSF

Wrap Garage
Product (4-Story):
\$145 - \$160 NRSF

Wrap Garage
Product (5-Story):
\$150 - \$165 NRSF

5 Stories Over 1 Level
Podium (6 total)
\$160 - \$175 NRSF



JUSTIN MORRIS
jmorris@jordanfosterconstruction.com

Surface / Garden
Style Product:
\$110 - \$120 NRSF

E-Urban / Surface
Parked Product:
\$118 - \$130 NRSF

Wrap Garage
Product (4-Story):
\$140 - \$155 NRSF

Wrap Garage
Product (5-Story):
\$150 - \$165 NRSF

4 Stories Over 1 Level
Podium (5 total)
\$155 - \$165 NRSF

5 Stories Over
1 Level Podium (6 total)
\$160 - \$175 NRSF



LEIA SIDWA
LeiaS@ProvidentGC.com

Surface / Garden
Style Products:
\$115/\$125 NRSF

E-Urban / Surface
Parked Product:
\$122/\$130 NRSF

Wrap Garage
Product (4-Story):
\$145/\$155 NRSF

Wrap Garage
Product (5-Story):
\$155/\$165 NRSF

4 Stories Over
1 Level Podium (5 total):
\$165-\$175 NRSF

5 Stories Over
1 Level Podium (6 total):
\$170-\$185 NRSF



GINY KNUDSEN
gknudsen@ceitn.net

Surface / Garden
Style Products:
\$120/\$140 NRSF

E-Urban (3 story):
\$125/\$140 NRSF

E-Urban (4 story):
\$130/\$145 NRSF

Wrap Garage
Product (4-Story):
\$145/\$155 NRSF

Wrap Garage
Product (5-Story):
\$160/\$180 NRSF

4 Stories Over
1 Level Podium (5 total):
\$155-\$175 NRSF

5 Stories Over
1 Level Podium (6 total):
\$185-\$240 NRSF

Light Steel over
Concrete Podium:
\$220-\$260 NRSF

CONSTRUCTION COSTS 2018

HIGH RISE



FLORIDA
Student
\$265 NRSF (Prescient®)
\$100,000 a bed



PLANO, TEXAS
\$289 NRSF
HUD 221(d)4



PITTSBURGH, PENNSYLVANIA
\$259 per NRSF
Started 2 years ago
All Steel - Now 20% higher



MULTIFAMILY COUNTERTOP SOLUTIONS FOR THE 2018 QUARTZ TARIFF

- Many developers are scrambling to cope with the impending quartz tariffs
- GRS's products are domestically sourced, environmentally friendly
- Created from 85% recycled glass and porcelain mixed with 15% VOC-free epoxy resin
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- Similar to pre-tariff quartz price
- Can be installed nationally

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UPCOMING EVENTS

WE HOPE TO
SEE YOU THERE!

2018

SEPT.

17

MULTIFAMILY
EXECUTIVE
CONFERENCE
LAS VEGAS

OCT.

03

NMHC
STUDENT HOUSING
CONFERENCE
HUNTINGTON BEACH, CA

29

REAL SHARE
APARTMENTS
LOS ANGELES

2019

JAN.

29

NMHC ANNUAL
MEETING & APT.
STRATEGIES CONF.
SAN DIEGO

FEB.

19

INTERNATIONAL
BUILDERS SHOW
LAS VEGAS

CONTACT US



GREG FAULKNER

PRESIDENT

DALLAS
972.701.9636
greg@humphreys.com



WALTER HUGHES
VICE PRESIDENT OF DESIGN

DALLAS
972.701.9636
walter@humphreys.com



DANIEL GEHMAN

STUDIO DIRECTOR

NEWPORT BEACH/LOS ANGELES
949.955.9400
daniel@humphreys.com

FEEDBACK

WE WELCOME
YOUR OPINIONS

Contact us with your ideas and/or any questions on today's discussion. We look forward to hearing from you!



972.701.9636



marketing@humphreys.com



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What programs would you like to see in the future?

- New designs & concepts
- Student Housing
- Equity
- Other (please specify)
- Lending

HUMPHREYS & PARTNERS ARCHITECTS, L.P.

THANK YOU!

Please send any questions or comments to marketing@humphreys.com