

ECO distretti

Strategia di cambiamento per il futuro delle città



QUESTIONE AMBIENTALE



FOOD



WATER



OIL



POLLUTION



CLIMATE CHANGES



GARBAGE

CITTA' DOPO LA CRISI = SHRINKING CITIES

2030: IL 75% DELLA POPOLAZIONE VIVRA' IN CONTESTI URBANI

An aerial photograph of Detroit, Michigan, showing a dense urban grid. A large, dark, diagonal shape, likely a highway or a large industrial area, cuts across the lower-left portion of the image. The rest of the image is filled with a grid of city blocks. Many of the blocks are highlighted in black, indicating vacant lots or urban voids. The text 'Carte du centre de Détroit avec les parcelles inoccupées en noir.' is overlaid on the right side of the image.

Carte du centre de Détroit avec les parcelles inoccupées en noir.

Detroit's map. In black are highlighted the urban voids.

Source: *Mutations*, edited by Stefano Boeri, Rem Koolhaas, Sanford Kwinter, Hans Ulrich Obrist, Nadia Tazi, ACTAR, 2006



Leibniz
Universität
Hannover

Regionales Bauen und Siedlungsplanung
Institut für Entwerfen und Städtebau

Ph.D. Arch. Maddalena Ferretti
Universitätsprofessur für Regionales Bauen und Siedlungsplanung
am Institut für Entwerfen und Städtebau
Fakultät für Architektur und Landschaft

NUOVA DIMENSIONE ECOLOGICA



RIFERIMENTI

ARCHITETTURA BIOCLIMATICA



EARTH

Sticks and Stones House, Minnesota 1980
Source: <http://www.sorryoutofgas.org/>



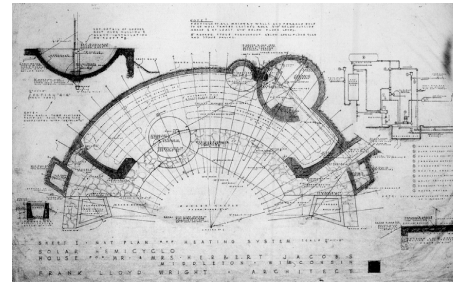
SUN

Baer House, Corrales, New Mexico, 1971, solar collectors and windmill waterpump
Source: <http://www.sorryoutofgas.org/>

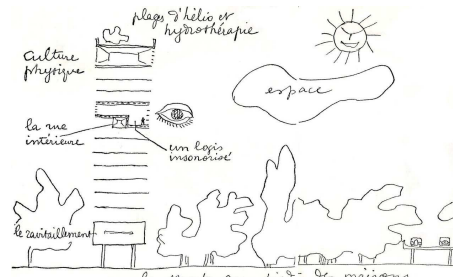


WIND

J.B. Buchanan, water-pumping windmills, Texas 1975
Source: <http://www.sorryoutofgas.org/>



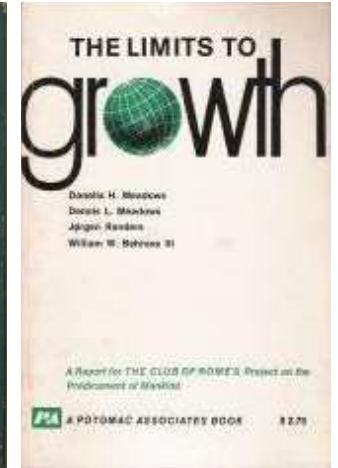
Frank Lloyd Wright, Jacobs House-Solar Hemicycle, Madison, Wisconsin, 1936-37



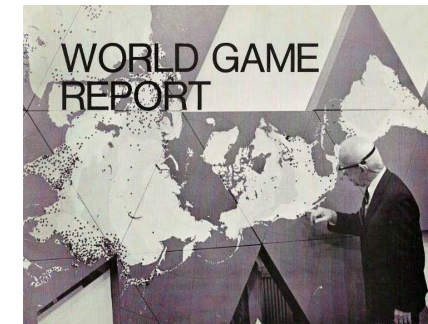
Le Corbusier, Tre elementi dell'architettura: sole, spazio, verde.



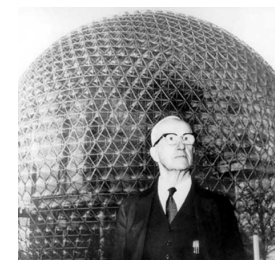
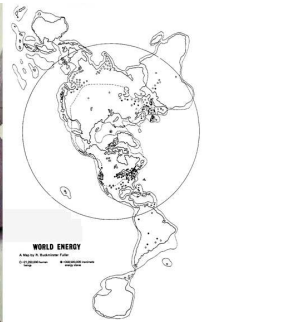
Rachel Carson, *Silent Spring*, 1962



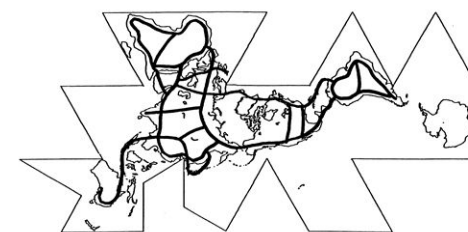
Club di Roma, *The limits to growth*, 1968



Buckminster Fuller, *World Game*.



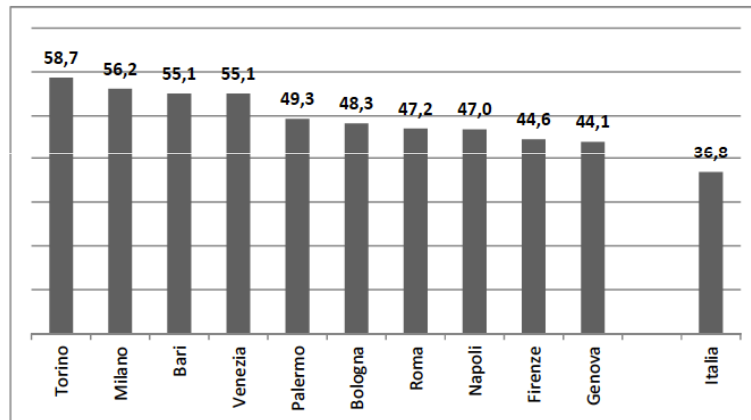
Buckminster Fuller was one of the leading figures among the researchers who proposed technologic and engineering solutions related to the environmental crisis. His geodesic domes (patented in 1954) are inspired by natural forms. On the right, the scheme represents the High Voltage Transmission Network, a possible global network for energy transfer.



RICICLARE

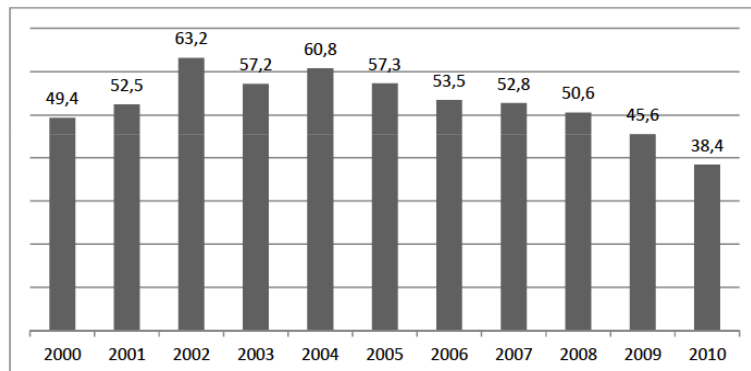
UN PIANO PER LA CITTA': Trasformazione urbana e sviluppo sostenibile. Materiali per una riflessione a tutto campo.
ANCE, CENSIS

Fig. 5 - Quota percentuale di abitazioni realizzate tra il 1946 ed il 1971 nelle principali città italiane sullo stock registrato al Censimento 2001



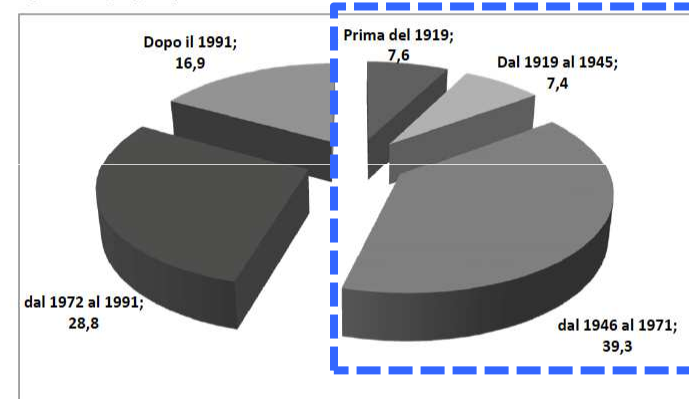
Fonte: elaborazione Censis su dati Istat

Fig. 9 - Stima dell'andamento del consumo medio di suolo (in ettari/giorno) nel periodo 2000-2010 in Italia al netto delle infrastrutture



Fonte: Censis, 2011

Fig. 6 - Famiglie per epoca di costruzione dell'edificio in cui risiedono



Fonte: elaborazione Censis su dati Istat "I consumi delle famiglie, 2009"

Quasi il 55% delle famiglie vive in edifici realizzati prima del 1971 ad alto consumo di energia (fig. 6). Nel 2009 il 35,2% dell'energia impiegata in Italia è stata destinata agli usi civili legati agli edifici (riscaldamento, luce, acqua calda, energia per cucinare): è un volume stimabile in 46,9 milioni di tonnellate di petrolio equivalente. Inoltre in Italia nel periodo 2001-2010 il consumo medio di suolo vergine per nuovi insediamenti è stato in media pari a 53,2 ha/giorno, cioè 194 Km² l'anno (fig. 9).

STRATEGIA DELLA TRASFORMAZIONE

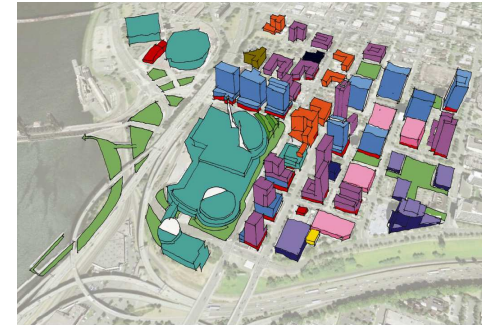
UNA TASSONOMIA DI PROGETTI

1. EDIFICI

Tour Bois-le-Prêtre, Parigi (FR)

Urban Renewal Europarei, Uithoorn (NL)

Quartiere Sant'Elia, Cagliari (IT)

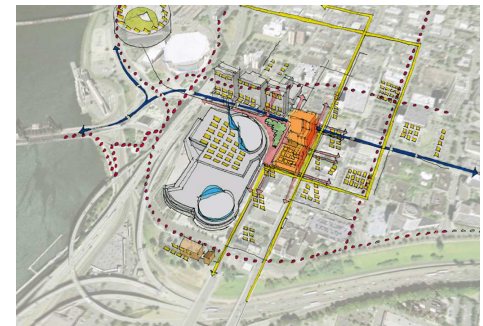


2. ENERGIA + SISTEMI A RETE

New California Academy of Science, San Francisco (US)

Bed-Zed, Sutton, Londra (UK)

Quartiere Larimer, Fort Collins, Colorado (US)



3. SPAZI PUBBLICI

Agropolis, Monaco di Baviera (DE)

Eco-boulevard, Madrid (SP)

Tramway Nice Métropole, Nizza (FR)



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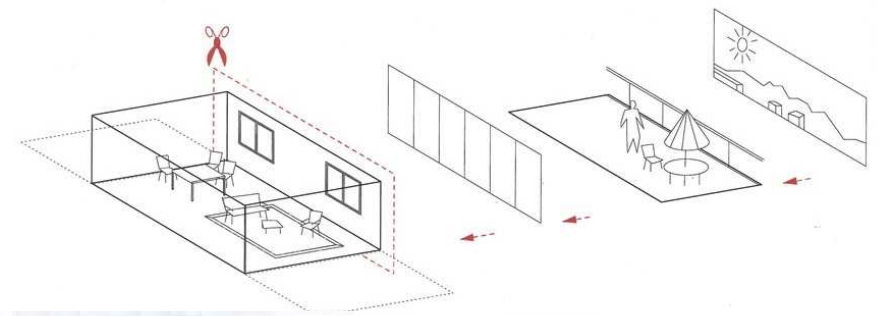
Urban Renewal Europarei, Uithoorn (NL)

Quartiere Sant'Elia, Cagliari (IT)



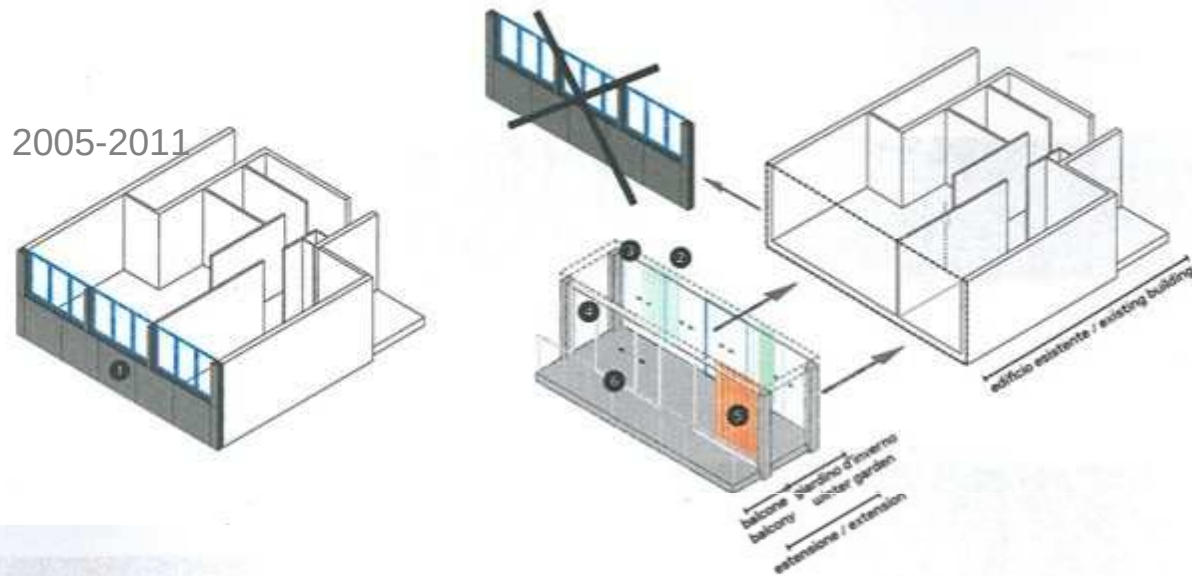
TOUR BOIS-LE-PRÊTRE

DRUOT+LACATON & VASSAL_PARIGI, FRANCIA, 2005-2011



TOUR BOIS-LE-PRÊTRE

DRUOT+LACATON & VASSAL_PARIGI, FRANCIA, 2005-2011



piano pari (14) / even floor (14) sezioni illustrate / illustrated sections



esistente / current state



trasformazione / conversion



progetto / project



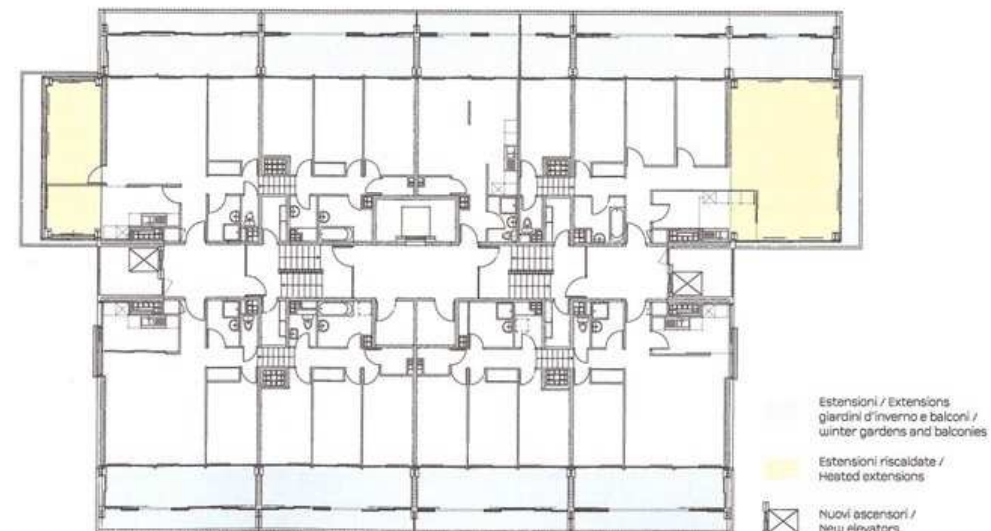
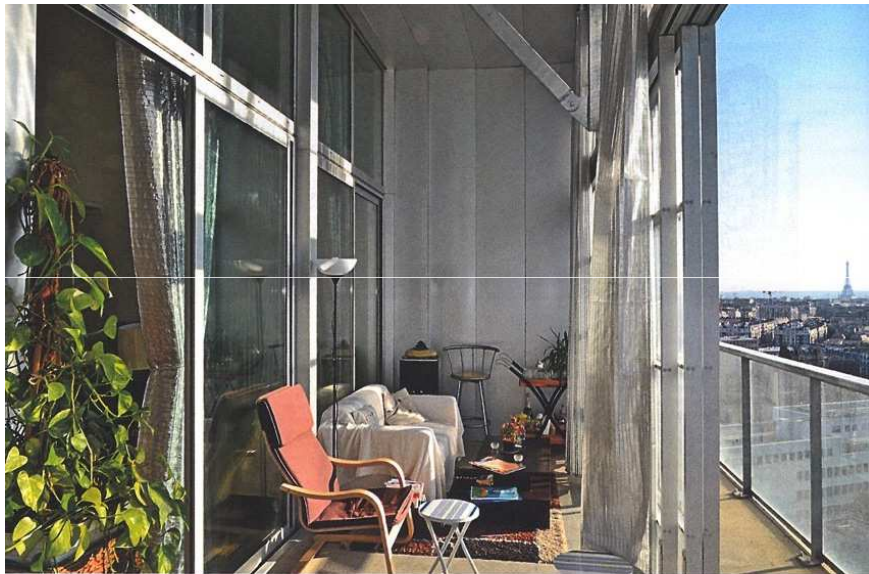
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TOUR BOIS-LE-PRÊTRE

DRUOT+LACATON & VASSAL_PARIGI, FRANCIA, 2005-2011



URBAN RENEWAL EUROPAREI

ATELIER KEMPE THILL_ UITHOORN, OLANDA, 2001-2012



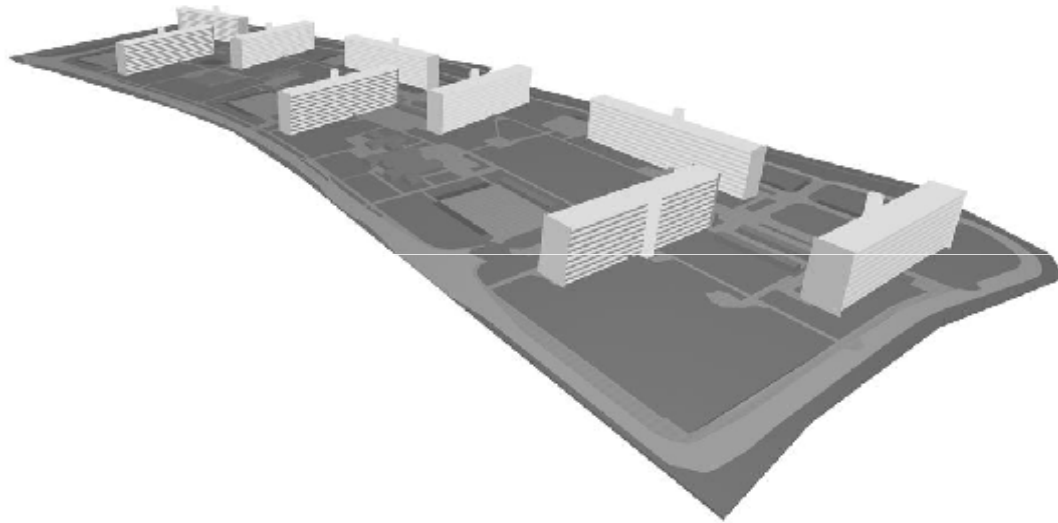
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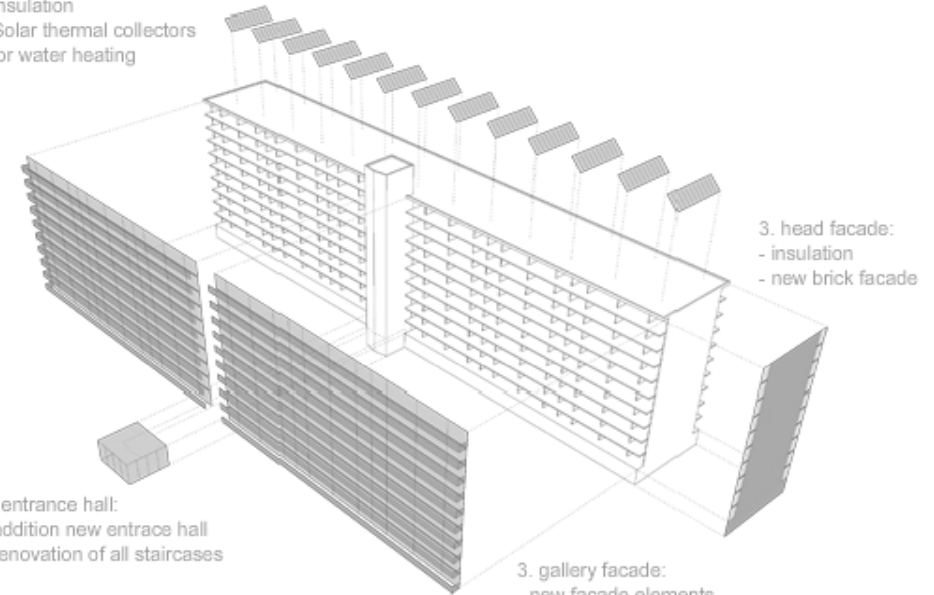
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URBAN RENEWAL EUROPAREI

ATELIER KEMPE THILL_UITHOORN, OLANDA, 2001-2012



1. roof:
- insulation
 - Solar thermal collectors for water heating



3. entrance hall:
- addition new entrance hall
 - renovation of all staircases

3. gallery facade:
- new facade elements
 - new balustrades

3. head facade:
- insulation
 - new brick facade



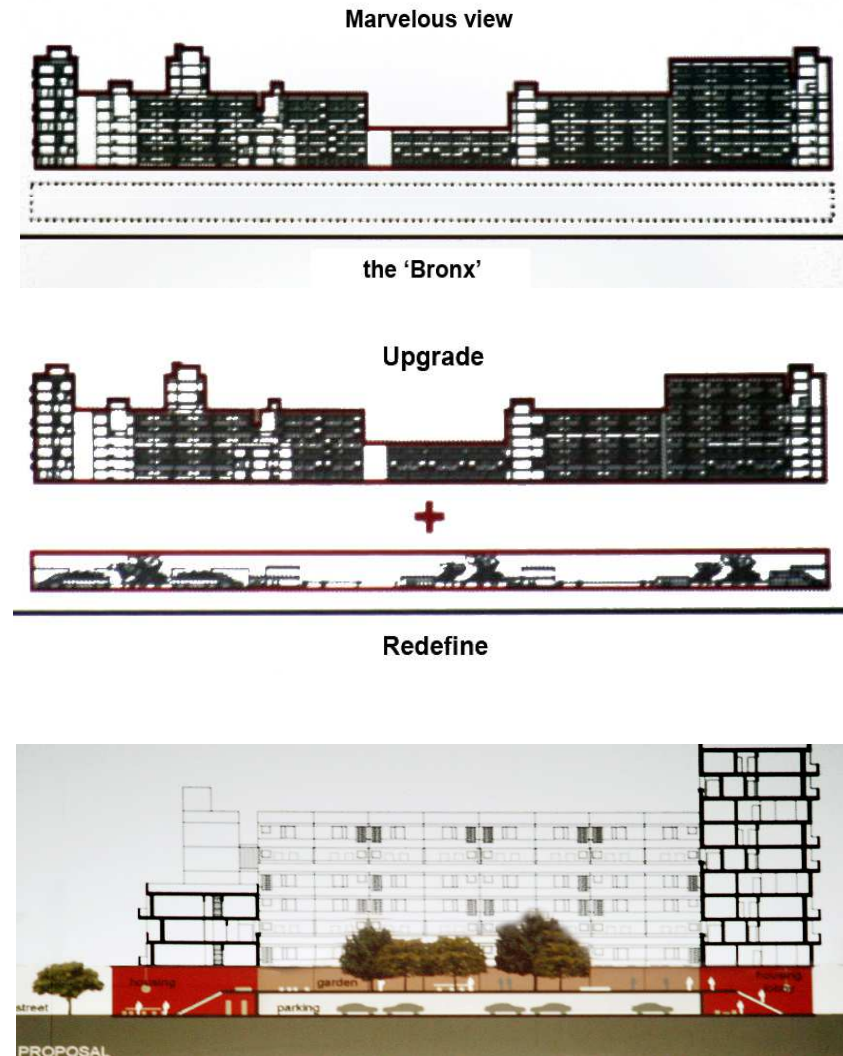
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QUARTIERE SANT'ELIA

REM KOOLHAAS + OMA_ CAGLIARI, ITALIA, 2008



QUARTIERE SANT'ELIA

REM KOOLHAAS + OMA_ CAGLIARI, ITALIA, 2008



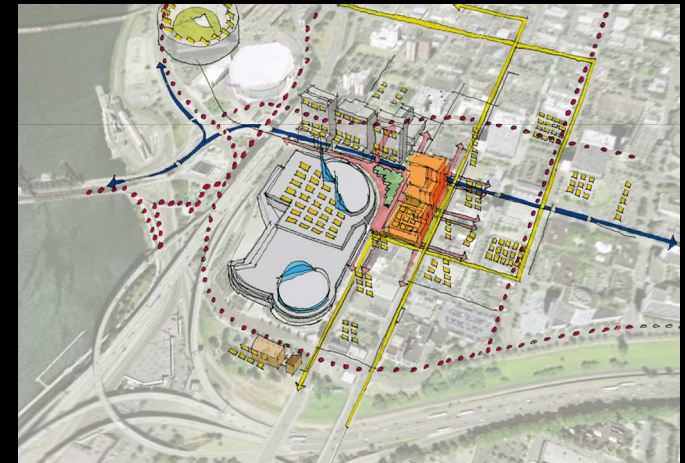
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Bed-Zed, Sutton, Londra (UK)

Quartiere Larimer, Fort Collins, Colorado (US)



NEW CALIFORNIA ACADEMY OF SCIENCE

RPBW_SAN FRANCISCO, CALIFORNIA, 2010



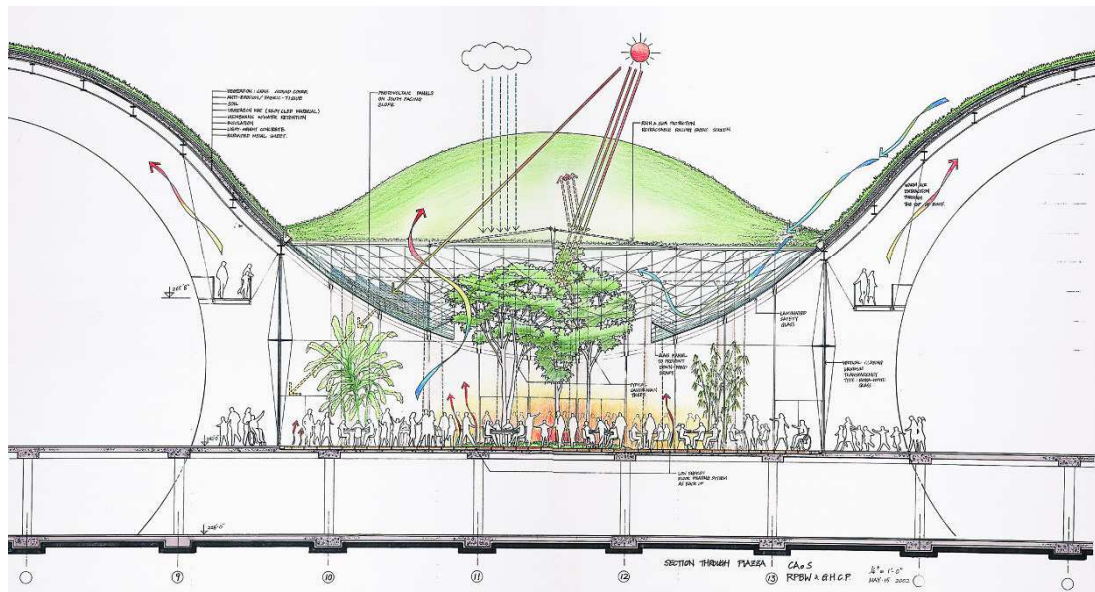
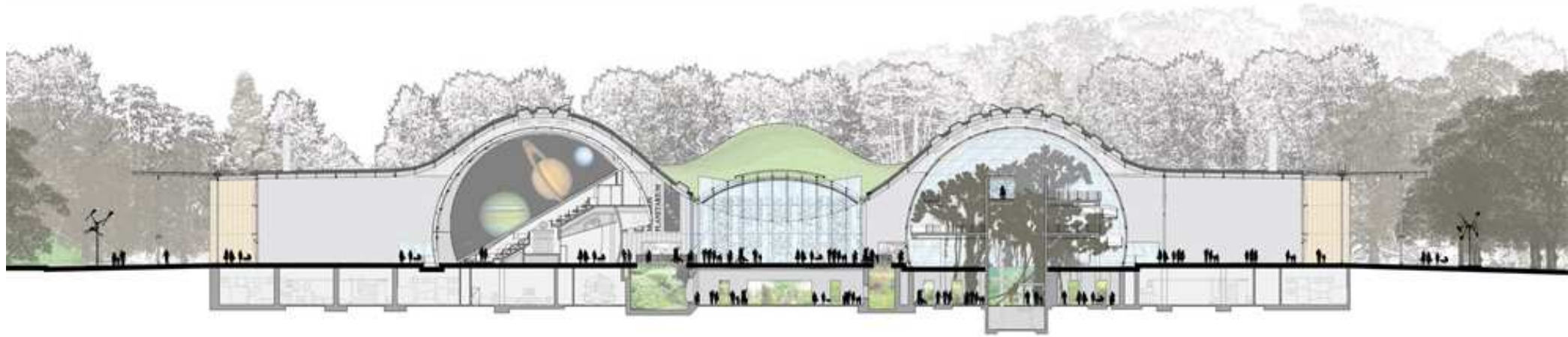
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RPBW_SAN FRANCISCO, CALIFORNIA, 2010



NEW CALIFORNIA ACADEMY OF SCIENCE

RPBW_SAN FRANCISCO, CALIFORNIA, 2010



BED ZED

BILL DUNSTER + ARUP_LONDRA, 2010



© Bill Dunster



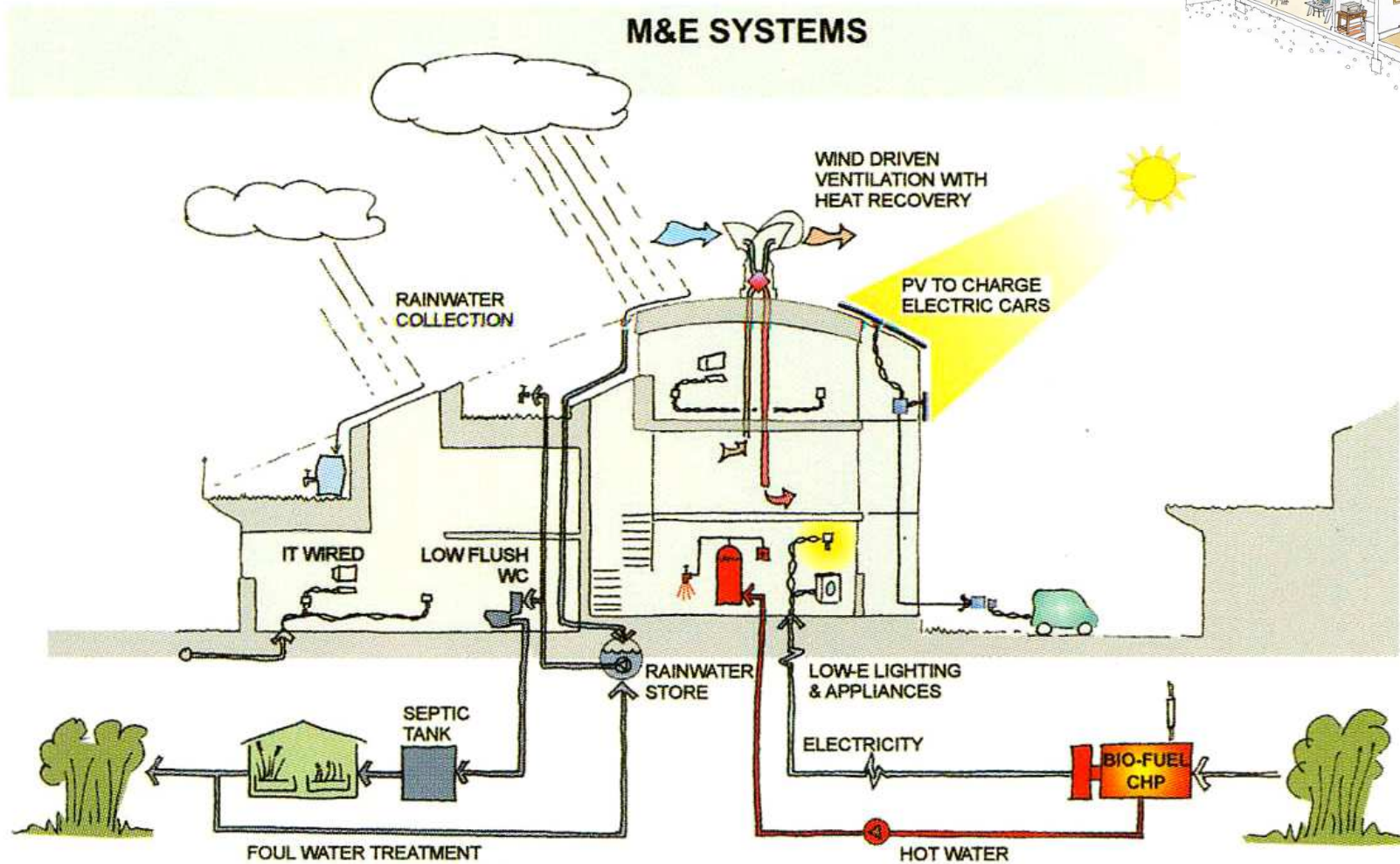
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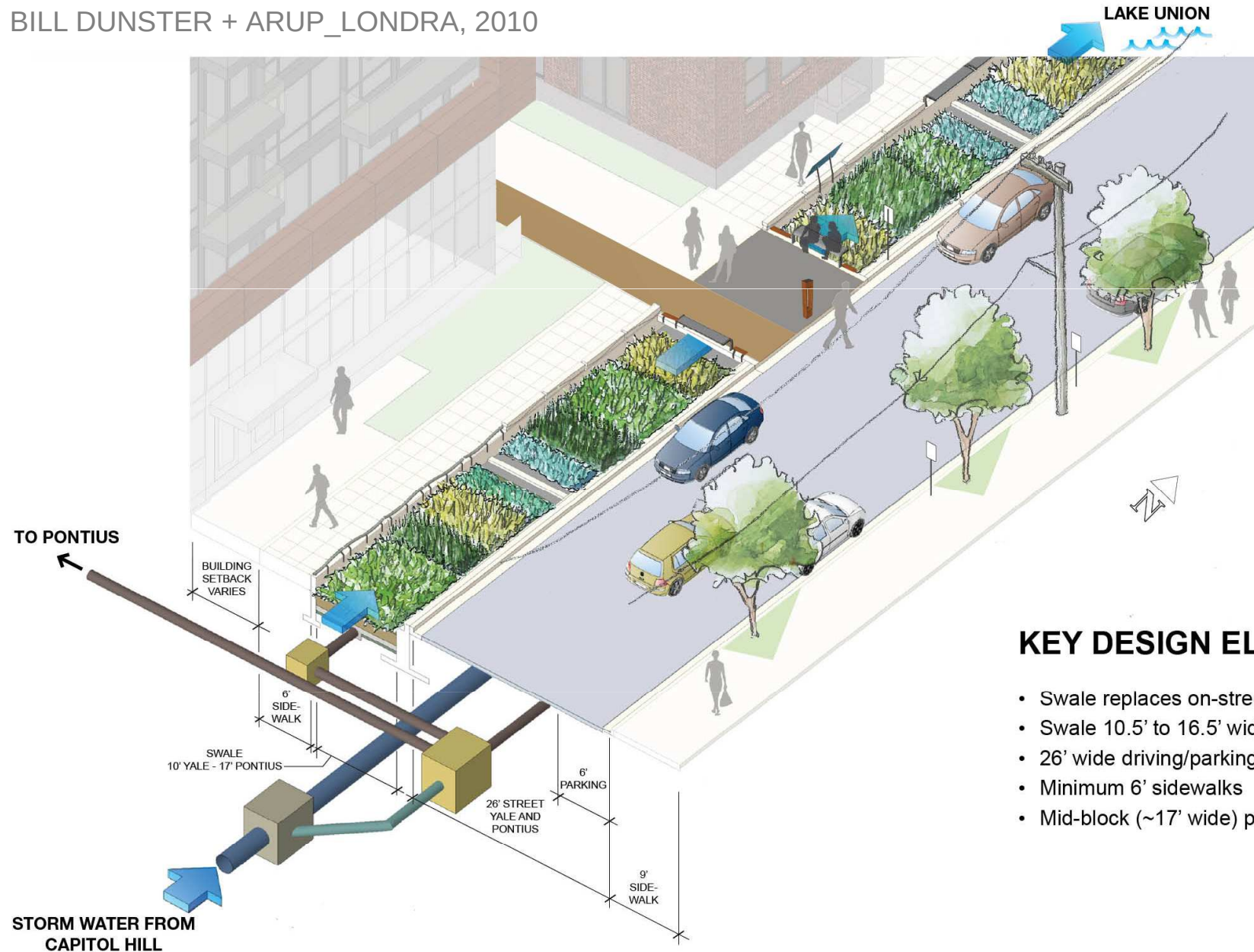
BED ZED

BILL DUNSTER + ARUP_LONDRA, 2010



BED ZED

BILL DUNSTER + ARUP_LONDRA, 2010



KEY DESIGN ELEMENTS

- Swale replaces on-street parking lane
- Swale 10.5' to 16.5' wide, 14" to 23" deep
- 26' wide driving/parking roadway
- Minimum 6' sidewalks
- Mid-block (~17' wide) pedestrian crossing

QUARTIERE LARIMER

EvolveEA_FORT COLLINS, COLORADO, 2011

The Living City :: Larimer

2035 population
6,500



stabilize

CONSOLIDATE RESOURCES
AGGREGATE OPEN SPACE
DENSIFY DEVELOPMENT
PRESERVE EQUITY

grow

ECONOMIC SECURITY
TRANSIT ORIENTED DEVELOPMENT
INVITE REGION WITH SPORTS ANCHOR
ENHANCE CONNECTIVITY

diversify

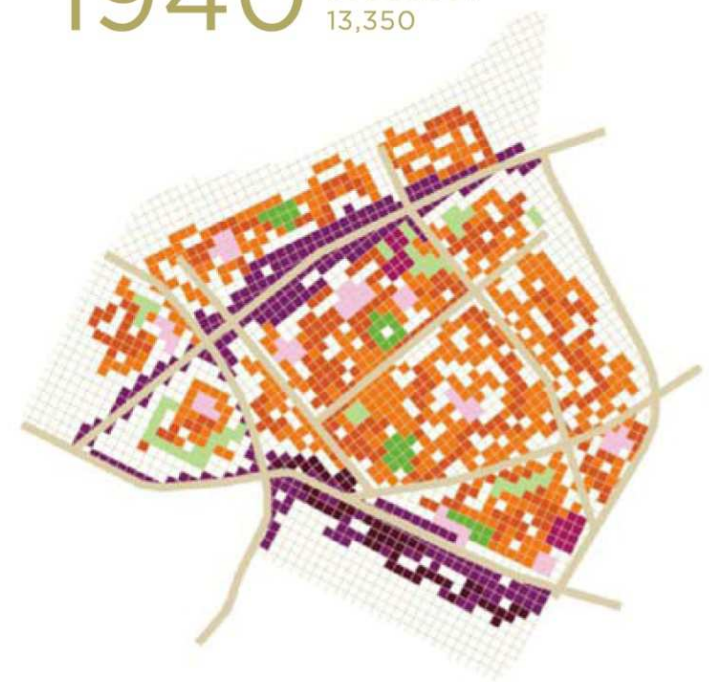
INCREASE RESILIENCY
VARY HOUSING TYPES
INCREASE COMMERCIAL
OPPORTUNITIES
IMPROVE ECOLOGICAL INTEGRITY

sustain

MAINTAIN VIBRANCY
CONTINUE INFILL DEVELOPMENT
IMPLEMENT RENEWABLE ENERGY
SOURCES
INNOVATE SUSTAINABLE LIVING

The Post-Industrial City :: Larimer

1940 population
13,350



residential :: commercial
urban farm :: park
energy :: water :: transit

COMMUNITY PROGRAM

SITE PROGRAM

INFRASTRUCTURE

commercial :: residential
park
transit

QUARTIERE LARIMER

EvolveEA_FORT COLLINS, COLORADO, 2011

ENERGY strategies

| LEVERAGE PUBLIC INFRASTRUCTURE IMPROVEMENTS

Leverage large scale public investment with energy infrastructure such as geothermal under fields and solar infrastructure shading devices over parking or structures.

| AGGREGATE RESIDENTIAL SYSTEMS

Blocks of residential development (new or renovated) create opportunities for development based geothermal or renewable systems.

| ENCOURAGE GREEN COMMERCIAL DEVELOPMENTS

Commercial and institutional developments integrate building and site based energy technologies and renewable and use building rating systems for construction and renovation. Aggregate multiple sites for larger and more efficient systems.

| INCENTIVIZE INDIVIDUAL ACTION WITH ENERGY DISTRICTS

Energy districts are created with infrastructure improvements and programs that incentivize individual action.



QUARTIERE LARIMER

EvolveEA_FORT COLLINS, COLORADO, 2011

WATER strategies

| REESTABLISH NATURAL SYSTEMS

Target major investment in locations where the reestablishment of wetlands and recharge zones can lessen stormwater impact on public infrastructure.

| CONNECT SYSTEMS WITH PUBLIC INFRASTRUCTURE

Linear raindrop parks can be community amenities and working landscapes that infiltrate, clean and convey water. They can be connected to larger investments in natural systems infrastructure.

| USE WATER FOR STRONG PLACEMAKING

Commercial and institutional developments integrate building and site based energy technologies and renewable and use building rating systems for construction and renovation. Aggregate multiple sites for larger and more efficient systems.

| TARGET NET ZERO WATER FOR NEW DEVELOPMENTS

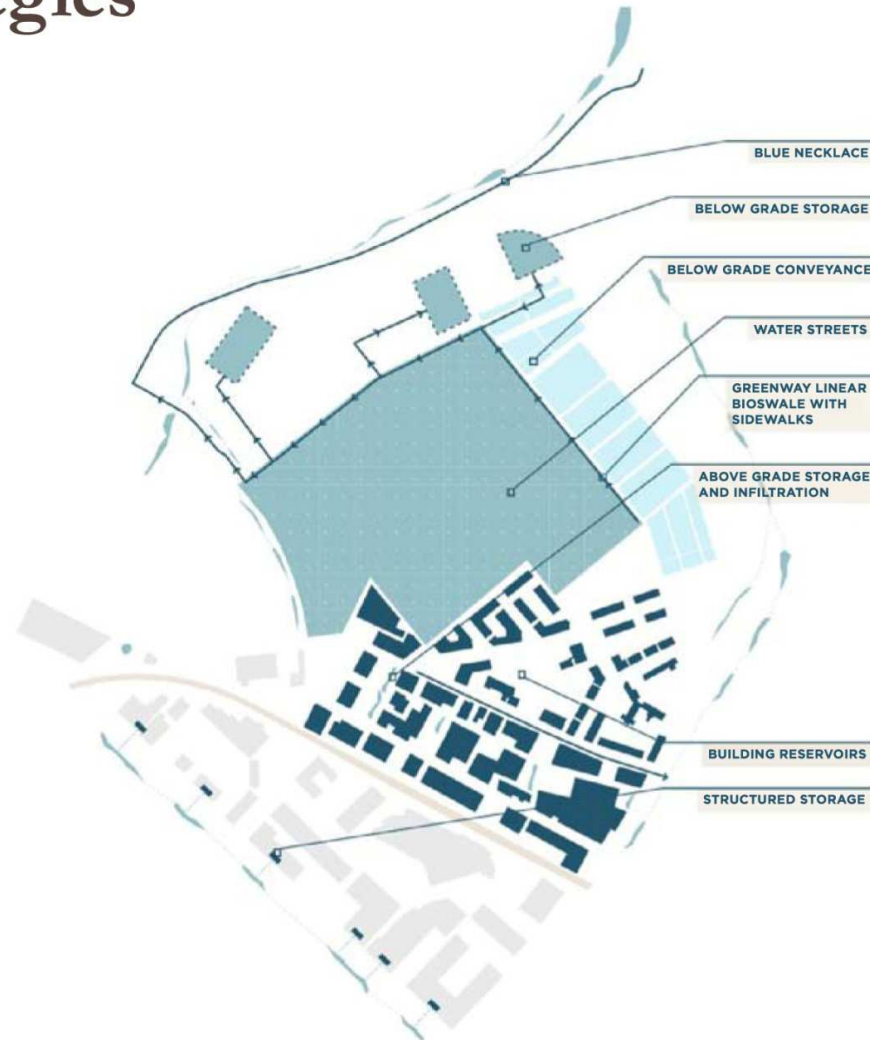
New commercial or multifamily residential sites can use localized collection and building systems that capture stormwater for on site reuse.

| MATCH SOURCES & USES

Inventory and align sources and uses based on water quality, quantity and availability. Shorten physical distances between source and use gravity to avoid energy penalty to move water. Aggregate sites for greater effectiveness.

| INCENTIVIZE INDIVIDUAL ACTION

Watershed districts create supportive networks for financial, legislative, and informational support to encourage individual action.



QUARTIERE LARIMER

EvolveEA_FORT COLLINS, COLORADO, 2011

NUTRIENTS strategies

| HARVEST FROM RESIDUAL & UNDER-UTILIZED SPACES

Look for under-utilized or under maintained spaces for opportunities to insert food growing plants and communities.

| OPTIMIZE FOR LOCALIZED ADMINISTRATION UNITS

The type and scale of urban agriculture is determined by the scale of the administrative unit. It may range in scale from an urban farm (aggregated properties with single administration), public green space (larger scale with public administration), vacant lots (smaller scale with individual administration) to edge condition or residual space (smaller scale with little or unidentified administration).

| ENCOURAGE GREEN COMMERCIAL DEVELOPMENTS

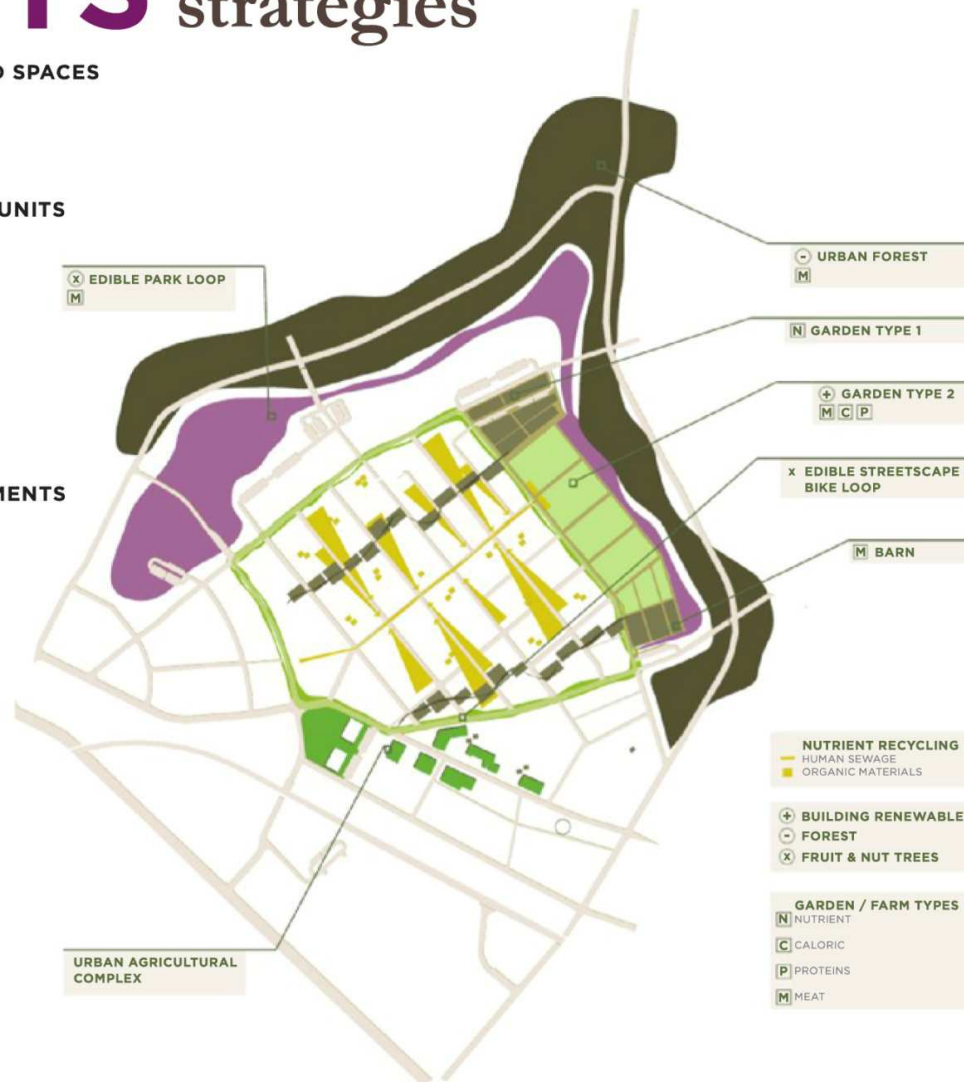
Commercial and institutional developments integrate building and site based energy technologies and renewable and use building rating systems for construction and renovation. Aggregate multiple sites for larger and more efficient systems.

| MATCH SOURCES & USES

Inventory and align sources and uses based on immediate neighborhood and local demand for fresh produce. Determine a partner for the produced goods whether it is a neighborhood market, local restaurant or grocer who can consistently support the supply.

| INCENTIVIZE INDIVIDUAL ACTION

Large scale urban agriculture provides a base infrastructure to support individual efforts in proximity to the resources and knowledge of large scale efforts. Encourage administration of large scale agriculture to provide community education support services.



STRATEGIA DELLA TRASFORMAZIONE

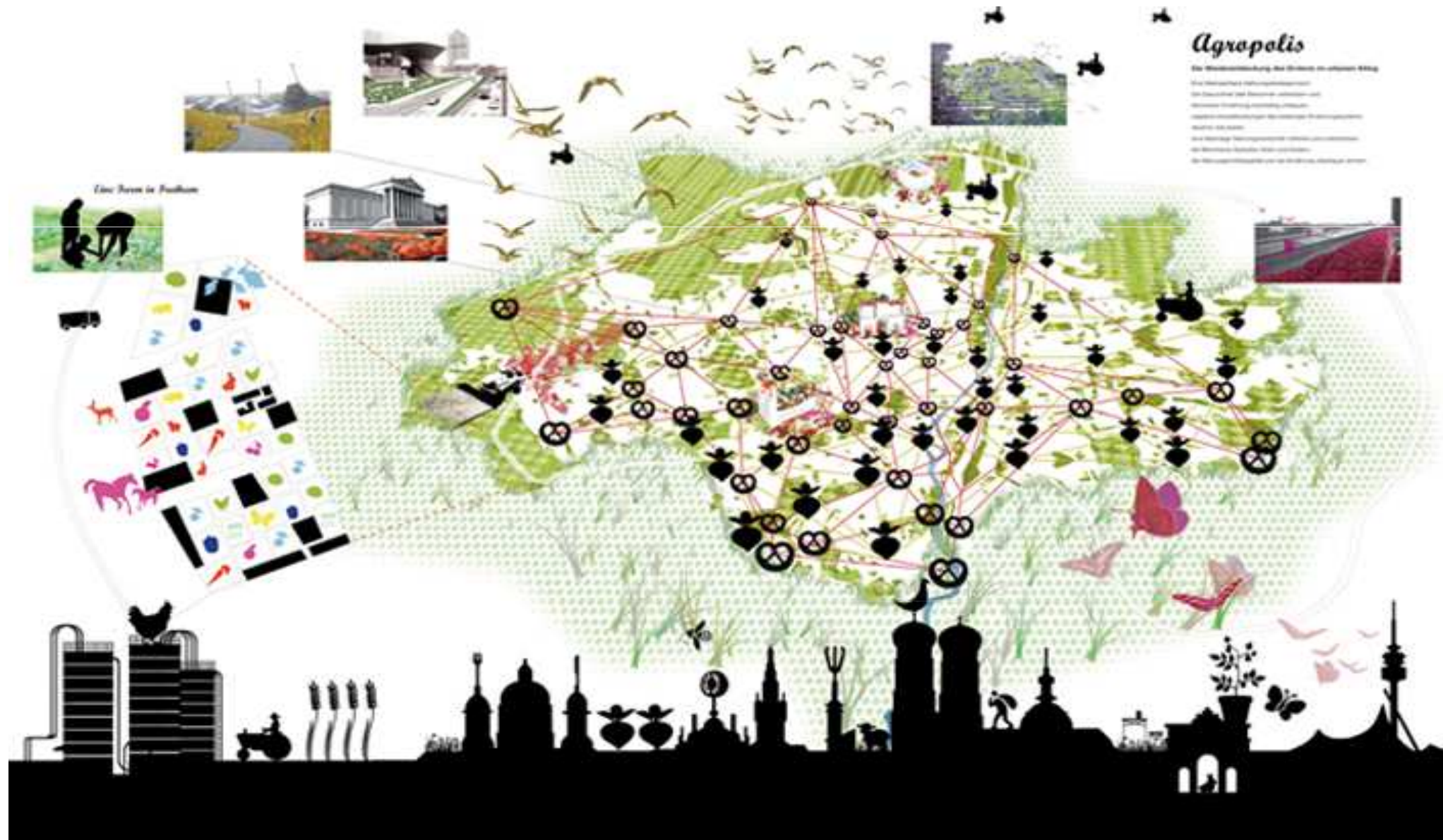
3. SPAZI PUBBLICI

Agropolis, Monaco di Baviera (DE)
Eco-boulevard, Madrid (SP)
Tramway Nice Métropole, Nizza (FR)



AGROPOLIS

STUDIO LANDRAUM, MONACO, 2009-in corso



AGROPOLIS

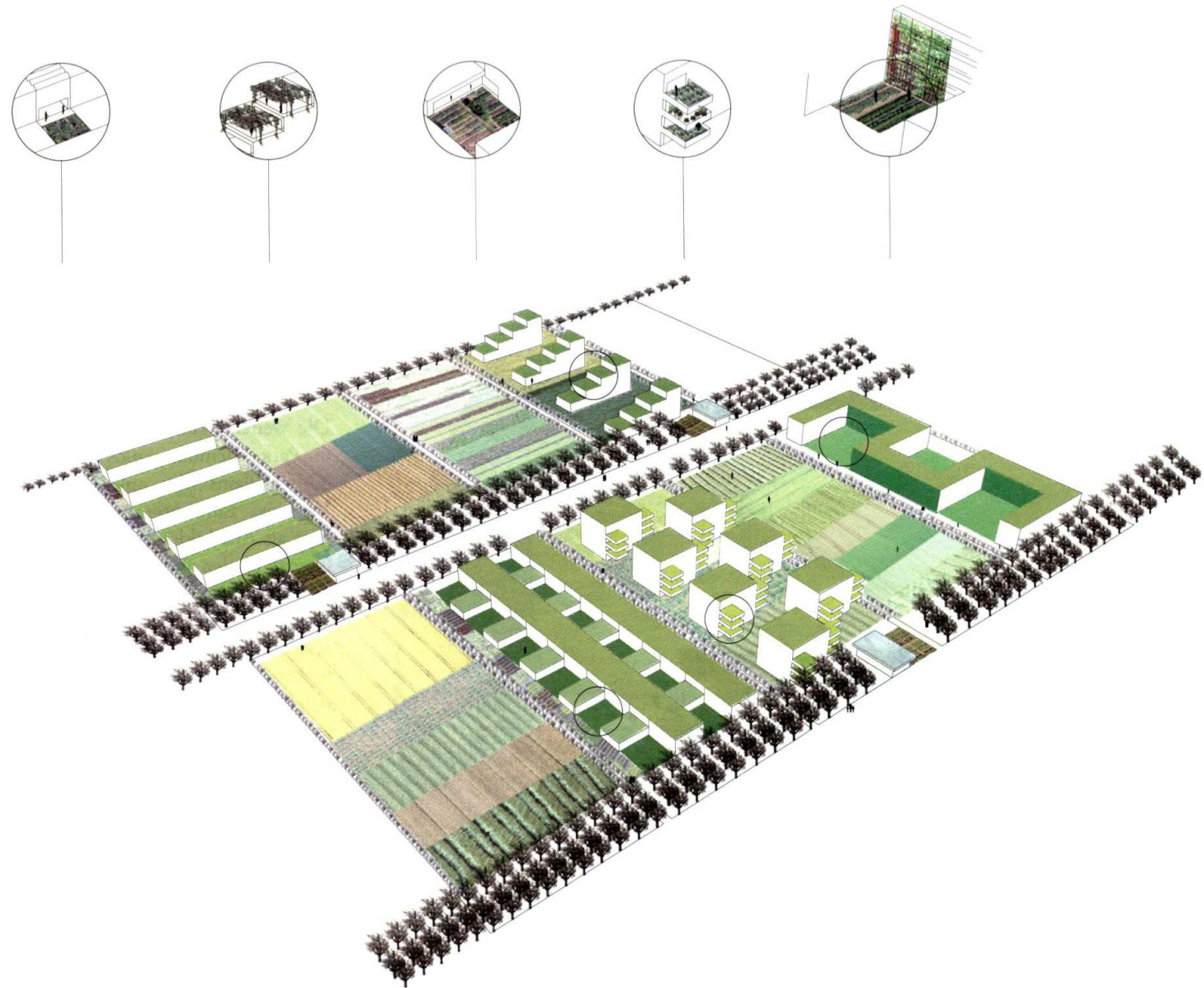
STUDIO LANDRAUM, MONACO, 2009-in corso

Picknick A5



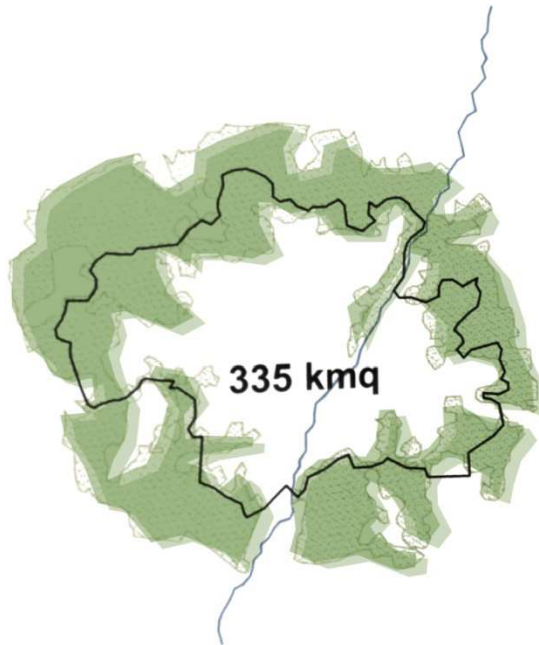
AGROPOLIS

STUDIO LANDRAUM, MONACO, 2009-in corso



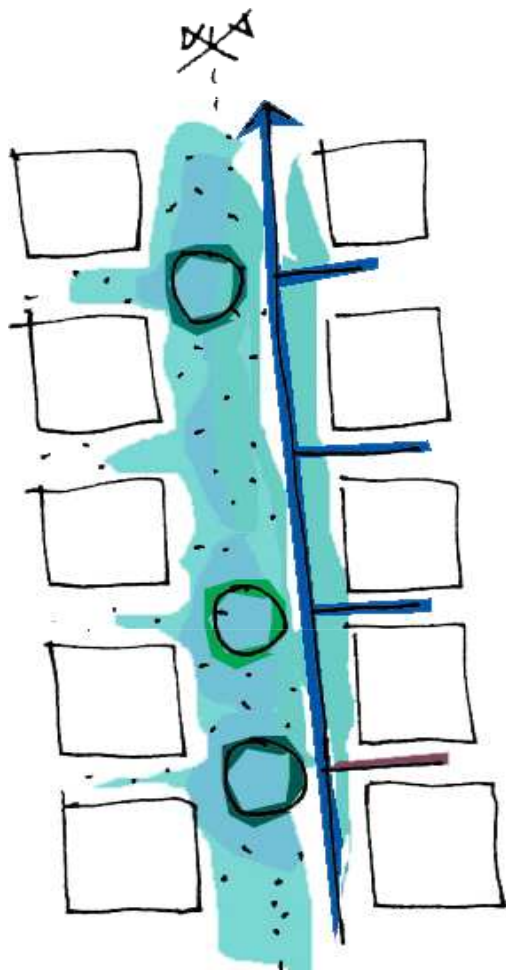
AGROPOLIS

STUDIO LANDRAUM, MONACO, 2009-in corso



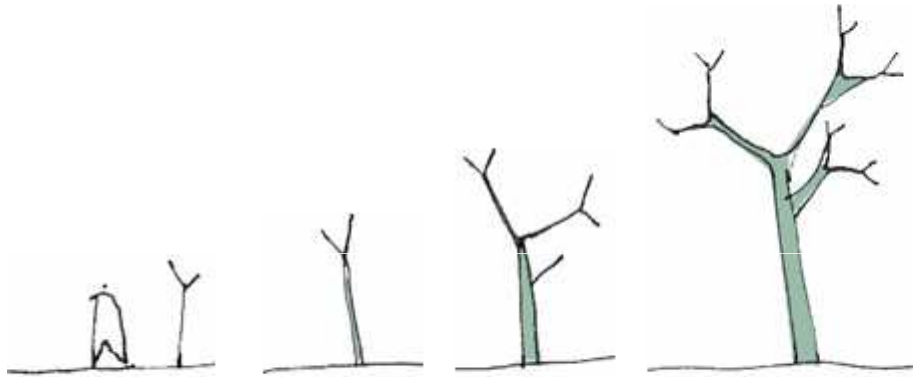
ECO-BOULEVARD

ECOSISTEMA URBANO, MADRID, 2004-2006

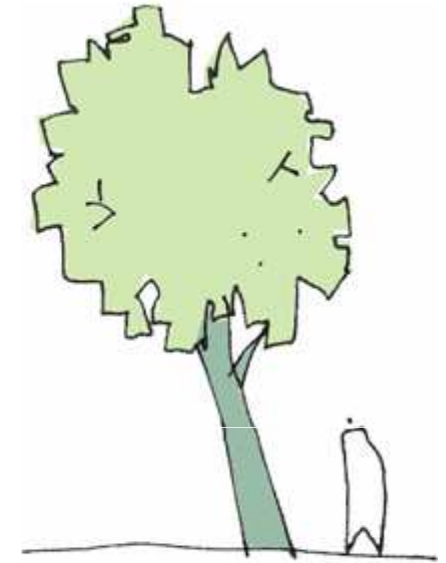
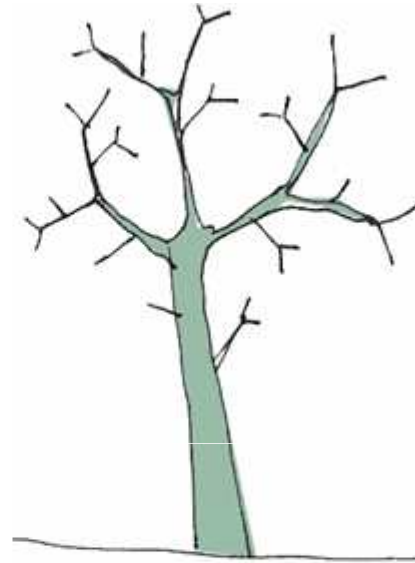


ECO-BOULEVARD

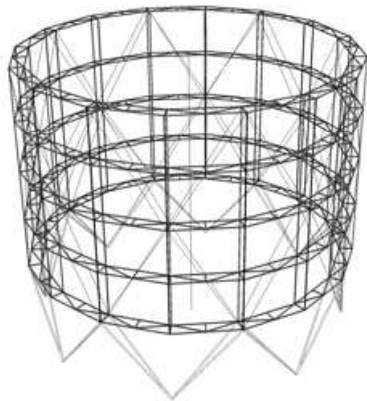
ECOSISTEMA URBANO, MADRID, 2004-2007



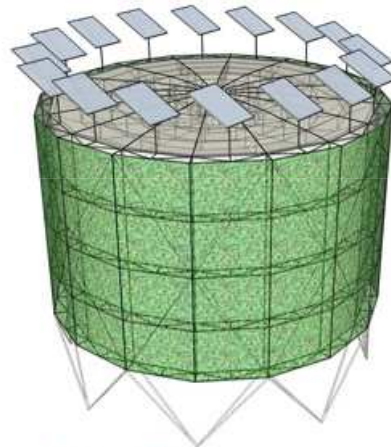
year 2005



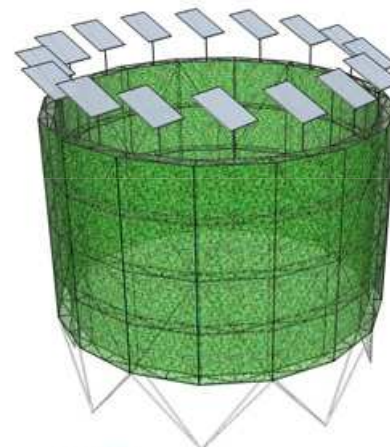
year 2030



estructura base



árbol mediático



árbol lúdico



árbol mediático

ECO-BOULEVARD

ECOSISTEMA URBANO, MADRID, 2004-2007



TRAMWAY NICE MÉTROPOLE

COMUNE DI NIZZA, NIZZA, 2007

1.2.3 Mobilitätsinfrastrukturen als Instrument der Stadterneuerung - Referenzbeispiel Linie 1 in Nizza

Eröffnung der Tramway Linie 1 im Nov. 2007

Bauherr: Communauté d'Agglomération Nice -
Côte d'Azur, Mission Tramway

Länge der Linie 1: 8,7 km mit 21 Haltestellen

Zu Stoßzeiten 4 Minutentakt

Linien 2 und 3 (36 km Gesamtlänge) in Planung,
Zeithorizont 2020

- 1 Depot und Werkstatt
- 2 Boulevard Comte de Falicon und de Gorbellea
- 3 Station du Ray
- 4 Ehem. Südbahnhof mit Rathausprojekt
- 5 Hauptbahnhof
- 6 Avenue Jean Médecin
- 7 Place Masséna
- 8 Promenade des Anglais
- 9 Geplante Linie 2
- 10 Boulevard Jean Jaurès
- 11 Altstadt
- 12 Place Garibaldi
- 13 Alter Hafen
- 14 Kongress- und Ausstellungsgebäude Acropolis
- 15 Rue Maréchal Vauban mit Universität St. Jean
- 16 Boulevard Virgile Borel
- 17 Veranstaltungszentrum „Bon Voyage“
- 18 Fluss Paillon
- 19 Klinikum Pasteur
- 20 Erweiterung der Linie 1
- 21 Sternwarte
- 22 Fort du Mont Boron



0 450m

Projekte der Stadterneuerung in Nizza -
Gebäude und Freiräume entlang der Linie 1

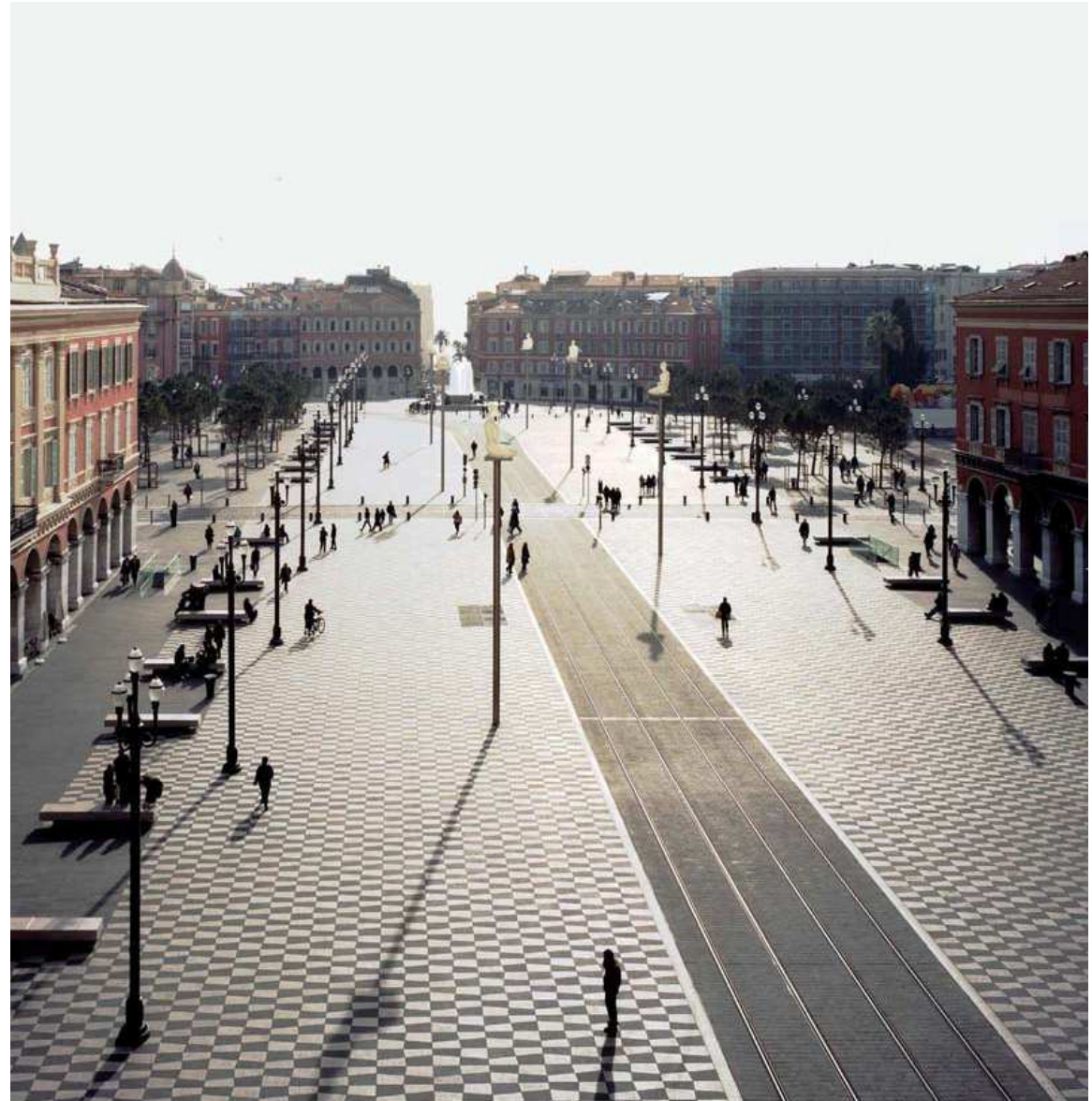
TRAMWAY NICE MÉTROPOLE

COMUNE DI NIZZA, NIZZA, 2007



TRAMWAY NICE MÉTROPOLE

COMUNE DI NIZZA, NIZZA, 2007



CONCLUSIONI

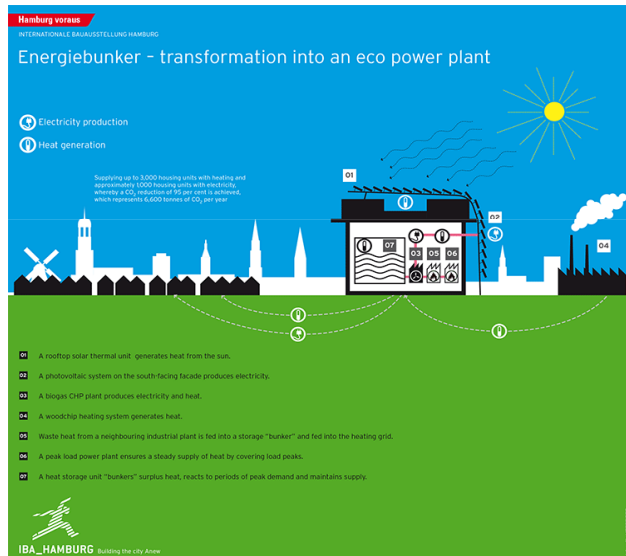
IBA HAMBURG 2013

IBA HAMBURG 2013



IBA HAMBURG 2013

ENERGY BUNKER, HAMBURG, 2010-2013



IBA HAMBURG 2013

GLOBAL NEIGHBORHOOD, HAMBURG, 2009-2013



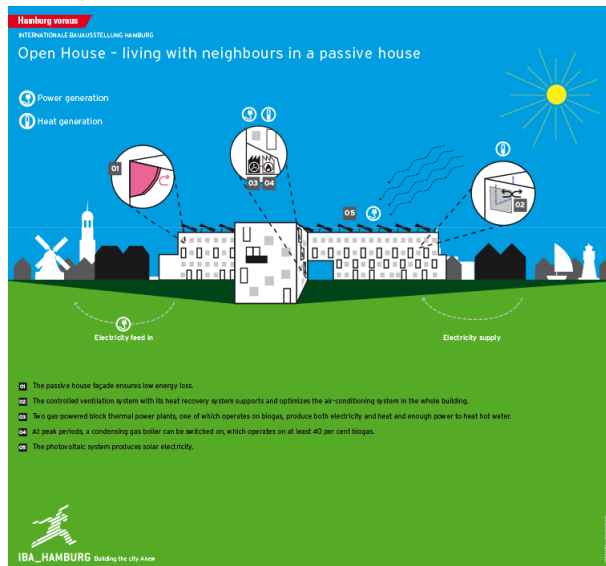
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IBA HAMBURG 2013

OPEN HOUSE, HAMBURG, 2010-2011



ECO-DISTRICTS_UNA STRATEGIA PER LECCO

TATTICHE



1. Edifici

aumento di cubatura / spessore / pelle dell'edificio
migliorie funzionali-spaziali
efficientamento edifici / sistemi di guadagno termico attivo e passivo

2. Energia + Sistemi a rete

produzione energie rinnovabili (fotovoltaico, solare termico, biomasse)
definizioni di Reti intelligenti (smart grids) + sistemi di co-generazione
miglioramento micro-clima (tetto verde, serre solari)
sistemi di raccolta (isole ecologiche) e riciclo dei rifiuti, anche ai fini della produzione energetica (biomasse)
sistemi di raccolta e riuso delle acque meteoriche e delle acque grigie

3. Spazi Pubblici

riuso dei lotti vacanti / aree di frangia / zone in dismissione per uso collettivo, sportivo o per la produzione agricola (giardini comunitari)

definizione di isole tecnologiche/nodi di interscambio (bici, tramvia, mezzi pubblici, auto)

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