Mixed-Use Development 101: The Design of Mixed-Use Buildings
Presentation Content

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• INTERNATIONAL EXAMPLES
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• CONCEPT for a SUSTAINABLE FUTURE
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**ULI DEFINITION**

- Three or more significant revenue-producing uses
- Functional and Physical integration of project components.

**WIKIPEDIA DEFINITION**

- Use of a building, set of buildings or a neighborhood *for more than one use.*
BRIEF HISTORY

A mix of uses was once the norm in the US prior to the implementation of modern zoning and land-use practices.

Mixes of commercial and residential uses flourished into the twentieth century, when development trends and patterns changed radically with the advent of the automobile.
BRIEF HISTORY

Modern zoning practices assigned land uses according to function.

Retail, work, living schools, etc., were segregated from each other.

From the 1910’s through the 1950’s, integrated land uses were rare in new developments.
BRIEF HISTORY
1960’s and 1970’s
Mixed-use re-emerged as a tool for urban revitalization, often as part of large scale public/private partnerships.

Faneuil Hall Marketplace, Boston

Inner Harbor, Baltimore
BRIEF HISTORY

Late 1970’s and 1980’s

Mixed-use developments began to be built on smaller scales than their predecessors.

They were more integrated into urban contexts, often relating to historic structures or districts.

Ghiradelli Square, San Francisco
BRIEF HISTORY

1990’s and 2000’s

Mixed-use developments emerged as manifestations of sustainable design, walkable urbanism and “smart growth” initiatives. Residential emerged as a primary use.

They became integral components of Transit Oriented Development (TOD’s), Traditional Neighborhood Developments (TND’s) and were considered an essential ingredient to the creation of “Livable Communities.”
BENEFITS of Mixed-use

SOCIAL / QUALITY of LIFE
• Pedestrian Friendly
• Social Connectivity
• Civic Amenities/ Spaces
• Public Safety

ECONOMIC
• Shared Public Infrastructure
• Shared Parking
• Higher Rents/ ROI

ENVIRONMENTAL
• Less Auto-dependent
• Focused Density (vs Sprawl)
• Supports Transit

The Creamery, Glenwood South in Raleigh
CONFIGURATIONS

VERTICAL INTEGRATION OF USES

• Low-rise to Mid-rise Structures (2 to 6 Stories)
• High-rise Towers (7 Stories +)
• Integrated Multi-story Structures

HORIZONTAL INTEGRATION OF USES

• Town Centers
• Urban Villages
MIXED-USE / TRIANGLE

DURHAM
- American Tobacco
- Pavilion East
- West Village

CHAPEL HILL
- Southern Village
- Meadowmont Village Center
- East Fifty-Four

RALEIGH
- 510 Glenwood
- North Hills
- RBC Tower
- Quorum Center
NORTH HILLS
Midtown Raleigh
2005-Present

• Retail
• Office
• Residential
• Hotel
510 GLENWOOD
Glenwood South
Completed 2001

• Retail (26.5K SF)
• Office (46.5K SF)
• Residential (36 DU)
• Parking (450 sp)
510 GLENWOOD

Glenwood South
Completed 2001

- Residential
- Office
- Retail
- Parking

Building Section

ONE STORY INDUSTRIAL

JOHNSON STREET

GLENWOOD AVE

SITE PLAN/RETAIL LEVEL

NORTH

PEDESTRIAN BRIDGE

SERVICE COURT (BELOW)

RESTAURANT

RETAIL

VEHICULAR ACCESS

PARKING DECK

EXISTING OFF. BLDG.
PAVILLION EAST
Durham
Completed 2008

• Retail  (40k sf)
• Office   (51k sf)
• Residential  (28 du)
• Parking   (870 sp)
PAVILLION EAST
Durham
Completed 2008
MEADOWMONT VILLAGE CENTER
Chapel Hill 2002

• Retail (125k sf)
• Office (102k sf)
• Residential (24 du)
SOUTHERN VILLAGE
TOWN CENTER
Chapel Hill  2002-04

• Retail
• Office
• Residential
PALLADIUM PLAZA
Downtown Raleigh
Completed 2008

- Residential (70 DU)
- Retail (4,000+ sf)
PALLADIUM PLAZA
Downtown Raleigh
Completed 2008
PALLADIUM PLAZA
Downtown Raleigh
Completed 2008
WEST at NORTH
Glenwood South
Completed 2009

• Residential (170 DU)
• Retail (16k sf)
WEST VILLAGE
Chesterfield Building
Durham
2011-2012
• Retail (11k sf)
• Office (90k sf)
• Residential (120 DU)
• Commercial Storage (27k sf)
WEST VILLAGE
Chesterfield Building
Durham
2011-2012
CHARTER SQUARE
Downtown Raleigh
Garage Completed 2008

- Retail (35k sf)
- Office (350k sf)
- Residential (191 du)
CHARTER SQUARE
Downtown Raleigh

• Retail
• Office
• Residential
EDISON Parking Deck

RBC Tower Beyond

Downtown Raleigh
EDISON
Downtown
Raleigh

Four
Tower
Proposal
2007
EDISON
Downtown Raleigh

- **Office** (530k sf)
- **Residential** (300 du)
- **Retail** (41k sf)
- **Hotel** (200 keys)
EDISON
Downtown Raleigh

Proposal for Corporate Headquarters 2010
EDISON
Downtown Raleigh

High Density
Apartment Proposal
2010-2011
Mixed-Use Development 101: The Design of Mixed-Use Buildings
Emerson University Dorms
Boston, MA
Hillsborough Mixed-Use Building
Raleigh, NC
Hillsborough Mixed-Use Building
Raleigh, NC
Hillsborough Mixed-Use Building
Raleigh, NC

5th - 8th Floor
13200 GSF
16 Keys

16-19
8350 GSF
3 Condos
Wuhan Gezouba Tower
Wuhan, China

- Rooftop Garden
- Rooftop
- Refuge
- Office
- Mech
- Tower Amenities
- Tower Lobby
- Parking/Pedestrian
- Retail
- Condo
- Condo Area of Refuge
- Condo Amenities
- Condo Lobby
Wuhan Gezouba Tower
Wuhan, China
Songdo Gateway Center
New Songdo City, South Korea
Songdo Gateway Center
New Songdo City, South Korea

- Residential
- Retail
- Office
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<td>Street</td>
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<tr>
<td>1007-09 Vine</td>
<td>5,252.0</td>
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<td>Street</td>
<td>0 SF</td>
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<tr>
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<tr>
<td>Street</td>
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<tr>
<td>Total</td>
<td>18,118.</td>
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<td></td>
<td>40 SF</td>
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**Total Gross Building Area**: 227,000 SF  
**Total Floors**: 23  

**Parking**  
**Garage**: 23 spaces  
**Basement**: Basement  
**Retail Spaces**: 11,112 sf  
**Ground Floor**:  
**Recreational Space**: 12,628 sf  
**2nd Floor**:  
**Office Spaces**: 15,720 sf  
**3rd to 5th Floor**:  
**Residential Spaces**: 106,596 sf  
**6th to 23rd Floor (18 floors)**:  

*Chinatown Community Center*  
Philadelphia, PA
Chinatown Community Center
Philadelphia, PA

COLOR LEGEND

- RAMP
- PARKING
- STORAGE AND MECHANICAL SPACE
- CORE
- CORRIDOR
- LOBBY
- RETAIL
- LOADING DOCK
- TRASH
- MAIL ROOM
- FIRE COMMAND CENTER
- OFFICE
- DATA
- ELECTRIC
- TOILET & JANITOR CLOSET

1. BASEMENT PLAN
2. GROUND FLOOR PLAN
Office Space
-15,720 sq. ft.
-Healthcare businesses
-Adult care center
-Charter School
-Etc.

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<td>72</td>
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<td>2 BR</td>
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<td>Chinatown Community Center</td>
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David Cole believes that the GSA building, with its adaptive zoning and sustainable design, should be explored with a design that allows for healthy social interaction between work and home, and to reuse energy and clean water from waste and flood. “Building like this requires not only an intelligent focus on energy, clean energy, and a lifestyle centered on conservation,” says Cole, who worked on the competition with his colleague from Knight architecture in Raleigh, North Carolina. “It’s not as simple as making mistakes.”

As a result, Cole and his team proposed a multi-purpose commercial and residential complex that would increase the daily drive, reduce transportation costs, and allow the same water to be used up to three times. “It’s not just about reducing consumption,” says Cole, who estimates the design would save over 100,000 liters of water in the competition. “This is where buildings become active producers of energy. We’ll borrow from the sun.”

The most spectacular feature is the design of the proposed building, which is divided into three sections: a lower floor of a 20,000 square-foot residential floor, an upper floor of a 20,000-square-foot commercial floor, and an intermediate floor of a 20,000-square-foot office building. The building would be designed to generate its own energy and water, and to be as self-sufficient as possible. As Cole explains, the design is intended to be an example of how the future of architecture should be more sustainable and energy-efficient.
Metropolis/GSA Competition
Los Angeles, CA
Metropolis/GSA Competition
Los Angeles, CA

BUSINESS AS USUAL TOTALS

ENERGY CONSUMPTION: 55,660 KWH/PERSON
WATER CONSUMPTION: 12,660 GAL/PERSON
WASTE PRODUCTION: 3.2 TONS/PERSON
POLLUTION: 35,710 LB CO2/PERSON
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<th>PROPOSED SOLUTION TOTALS</th>
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<td>WASTE PRODUCTION:</td>
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<td>POLLUTION:</td>
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KWH/PERSON
GAL/PERSON
TONS/PERSON
LB CO2/PERSON
Metropolis/GSA Competition
Los Angeles, CA

SKY COURT SECTION

SUN SHADING

DOUBLE SKIN: SHAFT BOX WALL

TEMPERED AIR FROM SHARED PATIO, PASSIVE COOLING

PERIMETER CHILLED/HOT WATER COIL PIPING TO PRE COOL AND REMOVE MOISTURE FOR AIR DURING SUMMER AND PREHEAT AIR IN WINTER

CONVECTION CHIMNEY

GREENHOUSE

INDIRECT LIGHTING WITH AUTOMATED DAYLIGHT CONTROLS

PASSIVE CHILLED BEAMS

RAISED ACCESS FLOOR WITH UNDER FLOOR AIR DISTRIBUTION THROUGHOUT INTERIOR SPACE

NATURAL AIR CONVECTION IN LIGHTWELL
WITH THE NATIONAL IMPLEMENTATION OF THESE STRATEGIES, WE CAN ELIMINATE:

10.2 COAL POWER PLANTS
AND
8.5 WATER TREATMENT PLANTS
AND
172,673 AUTOMOBILES
AND
45,140 TRUCK LOADS OF WASTE
CHALLENGES of Mixed-use Development

- CORRECT COMPLEMENT OF USES
- LOCATIONS supported by DENSITY
- FINANCING / CAPITAL
- PARKING
- STRUCTURAL / MECHANICAL SYSTEMS
- ENTITLEMENTS / ZONING / CODES
- ACCESS: Vehicular, Pedestrian, Service
- ACTIVE post –occupancy MANAGEMENT