

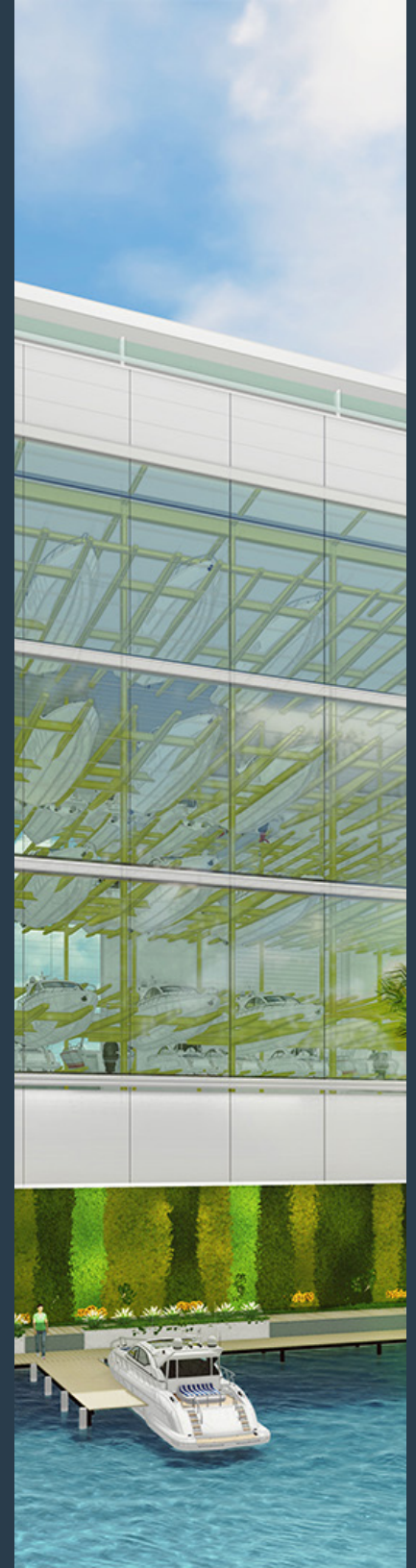
**DOCKS EXPO 2021**  
**November 29 - December 1**

# The Next Generation

of Automated Dry Stack Storage Systems

# PRESENTATION OUTLINE

- I. INTRODUCTION
- II. TRADITIONAL FORKLIFT DRY STACK SYSTEM
- III. AUTOMATED DRY STACK SYSTEM
- IV. ADVANTAGES & DISADVANTAGES
- V. AUTOMATED LAUNCHING & HANDLING SYSTEMS
  - ASAR - STACKER CRANE SYSTEM
  - IMWD - FIXED CRANE SYSTEM
  - F3 MARINAS - CABLE OVERHEAD CRANE SYSTEM
- VI. QUESTIONS



# INTRODUCTION

---



**Ron Schults, PE**  
CEO | Partner



**Mike Kenny, EIT**  
Engineer



# EDGEWATER RESOURCES

## SPECIALTY MARINA PLANNING / DESIGN / ENGINEERING FIRM

- CIVIL / MARINA / ENVIRONMENTAL / COASTAL ENGINEERING / HYDROGRAPHIC SURVEYING
- GEOTECHNICAL / STRUCTURAL / COMPUTER & PHYSICAL MODELING / OCEAN ENGINEERING
- PLANNING / LANDSCAPE ARCHITECTURE / COMMUNITY OUTREACH / PERMITTING
- MARKET ANALYSIS / FINANCIAL / ECONOMIC SPECIALISTS





# TRADITIONAL FORKLIFT DRY STACK





# TRADITIONAL FORKLIFT DRY STACK





# TRADITIONAL FORKLIFT DRY STACK





# TRADITIONAL FORKLIFT DRY STACK



**HAMILTON HARBOR YACHT CLUB**  
Naples, FL USA



# TRADITIONAL FORKLIFT DRY STACK



**ROSE MARINA**  
Marco Island, FL USA

# TRADITIONAL FORKLIFT DRY STACK

## ADVANTAGES

- Flexible Design / Space Constraints
- Simple System

## DISADVANTAGES

- Diesel Smoke / Tire Dust
- Limited Height / Weight Capacity
- Slower Cycle Time
- Limited Water Level Fluctuation
- Complex Concrete Slab





# AUTOMATED DRY STACK

## ADVANTAGES

- Higher Density / Taller Building - 80' - 150'
- Higher Weight Capacity at Top Rack
- Manual / Fully Automated Operations
- Faster Cycle Time
- Quieter / Energy Efficient
- Accommodates Substantial Water Level Fluctuations

## DISADVANTAGES

- Cost Varies Per System
- System Complexity



# BOAT WEIGHT / LENGTHS

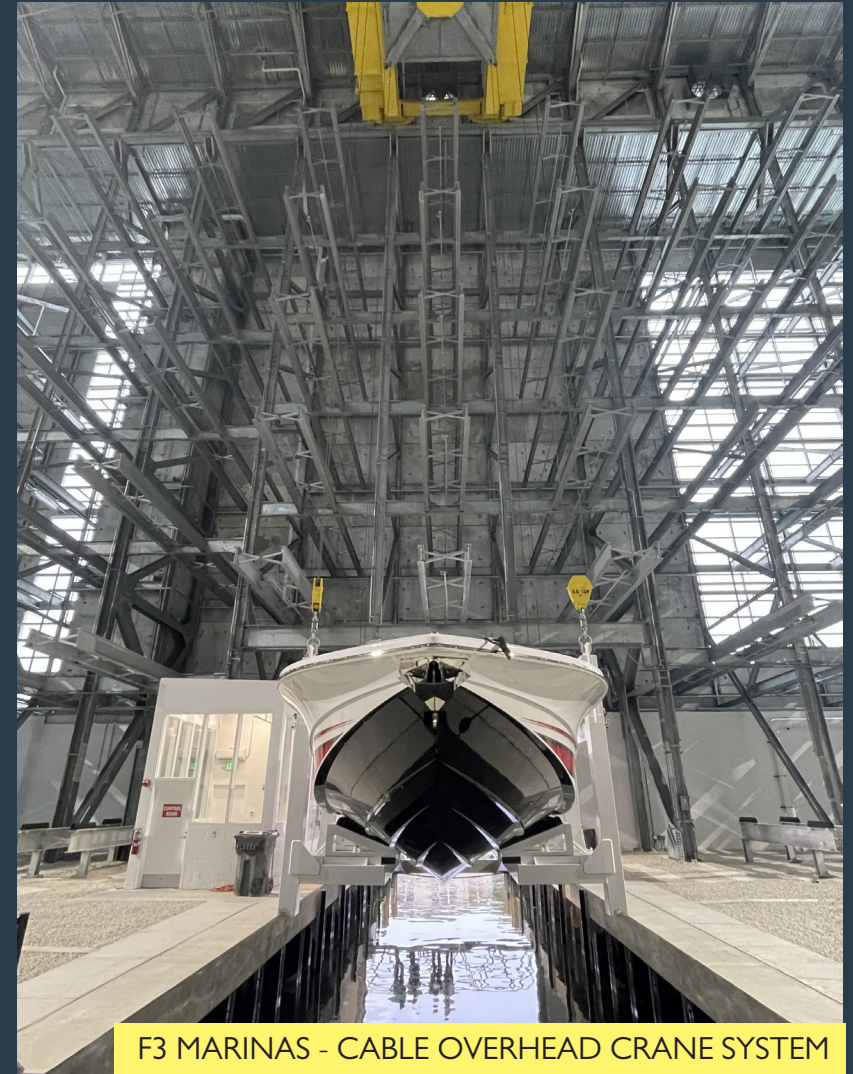
Vessel Inventory			
Make	Model	Length	Weight (loaded)
Tiara	Cruiser	46	30,000+ lbs
Regulator	41	41	25,400 lbs
Everglades	335cc	35	13,910 lbs
Scout	300 LXF	30	10,144 lbs
Boston Whaler	210 Montauk	21	3,650 lbs

# AUTOMATED DRY STACK SYSTEMS





# AUTOMATED HANDLING & LAUNCHING SYSTEMS



# ASAR SYSTEM



## **STACKER CRANE SYSTEM**

GULF STAR MARINA, FORT MYERS - 150 BOATS

[SEE VIDEO](#)



# ASAR SYSTEM





# ASAR SYSTEM



# ASAR SYSTEM



## VALUE & PROTECTION IN A CONCRETE DRY STACK



**+200-MPH  
Wind Rating**



**Total  
protection  
from the  
Environment**



**Reduces  
Interior and  
Exterior Noise**



**Lower  
Insurance  
Rates**





# ASAR SYSTEM

DRY STORAGE/OFFICE/RETAIL INTEGRATION



**PROPOSED MARINA**  
Key Largo, FL USA

**ASAR**  
— A SMART STORAGE SOLUTION —



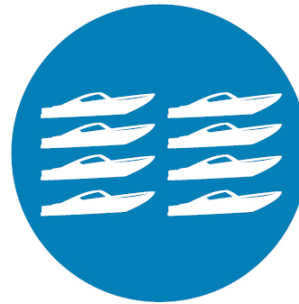
# ASAR SYSTEM



## ADVANTAGES OF AUTOMATION



**30-50% Increase  
in Rentable  
Cubic Space**



**Store Multiple  
Vessels Deep**

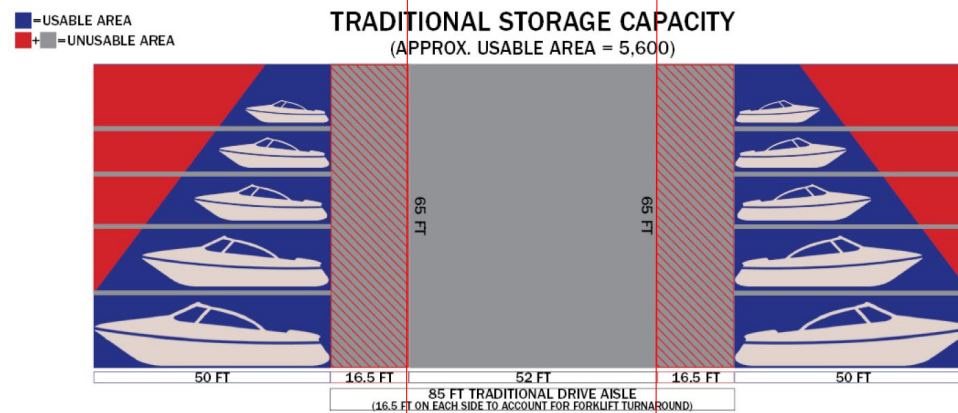
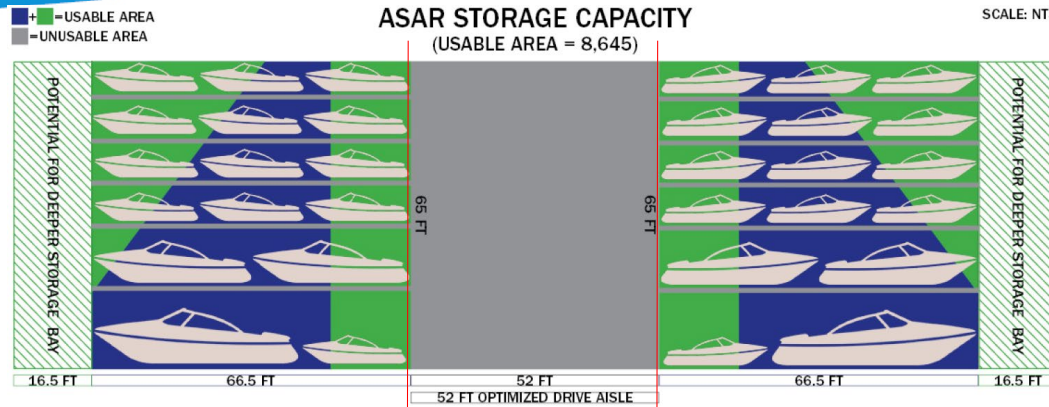


**Store Full Size  
Vessels up to  
the Top Rack**



**44% Reduction  
in Drive Aisle  
Space**

# ASAR SYSTEM





# IMWD SYSTEM



## **FIXED CRANE SYSTEM COASTAL ELEVATORS**

BAIGORRIA, ARGENTINA - 1400 BOATS  
TIGRE, ARGENTINA - 400 BOATS

[SEE VIDEO](#)


# IMWD SYSTEM


THE SOLUTION

## Higher aesthetic value

Designed to be a landmark 

International  
avant-garde design 

Focused on user and  
service experience 

Inspired in airport  
terminals 





# IMWD SYSTEM

THE SOLUTION

## Engineering & Technology



Coordinated cycles allow 2 boats being moved simultaneously



Fast and efficient cycles



Automated operation



Automated adjustments for precision movements



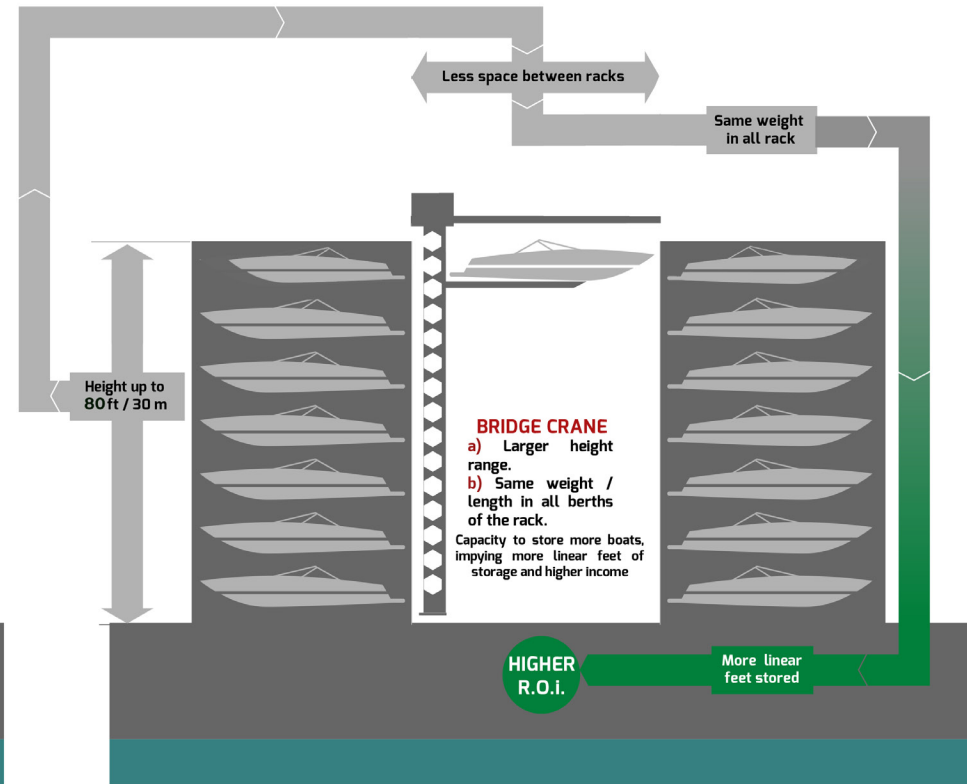
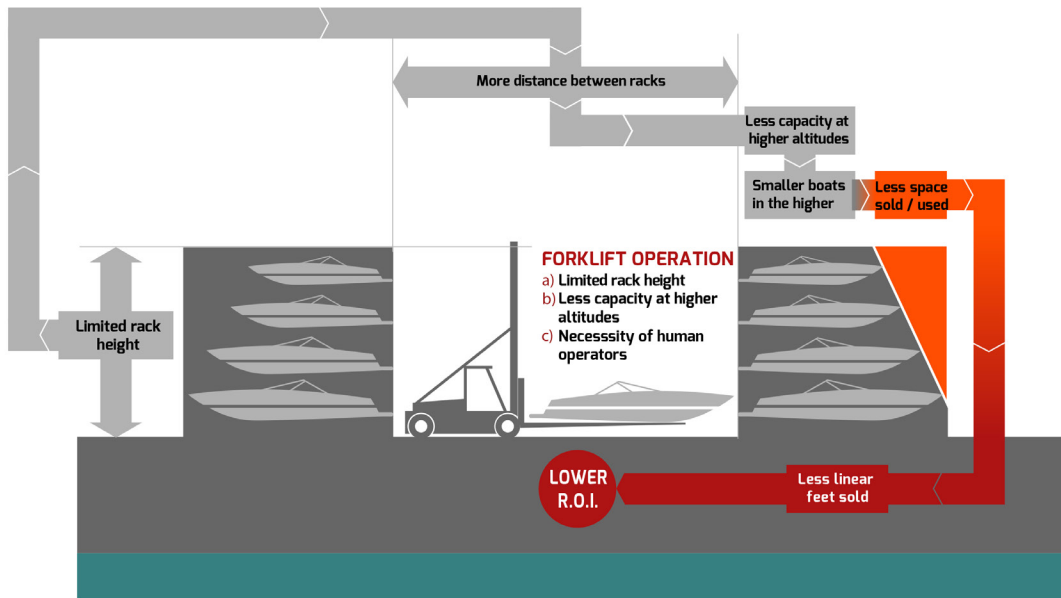
Position of the boats according to use frequency



# IMWD SYSTEM

TRADITIONAL DRY STACK MARINA

VS





# IMWD SYSTEM

THE SOLUTION

## Lower costs

100% electrical supply



Easy operation training



Scheduled predictive maintenance program



Equipment designed for high demand



Low damage level to the equipment



Dry stack

Less damage to the boats

Lower costs for users

Lower operation costs

Lower maintenance costs

Better rates

HIGHER R.O.I.





# IMWD SYSTEM

MARINA BAIGORRIA - ARGENTINA





# IMWD SYSTEM

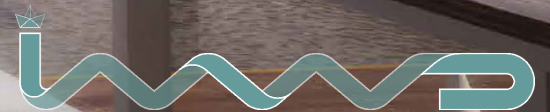
MARINA BAIGORRIA - ARGENTINA





# IMWD SYSTEM

MARINA TIGRE - ARGENTINA

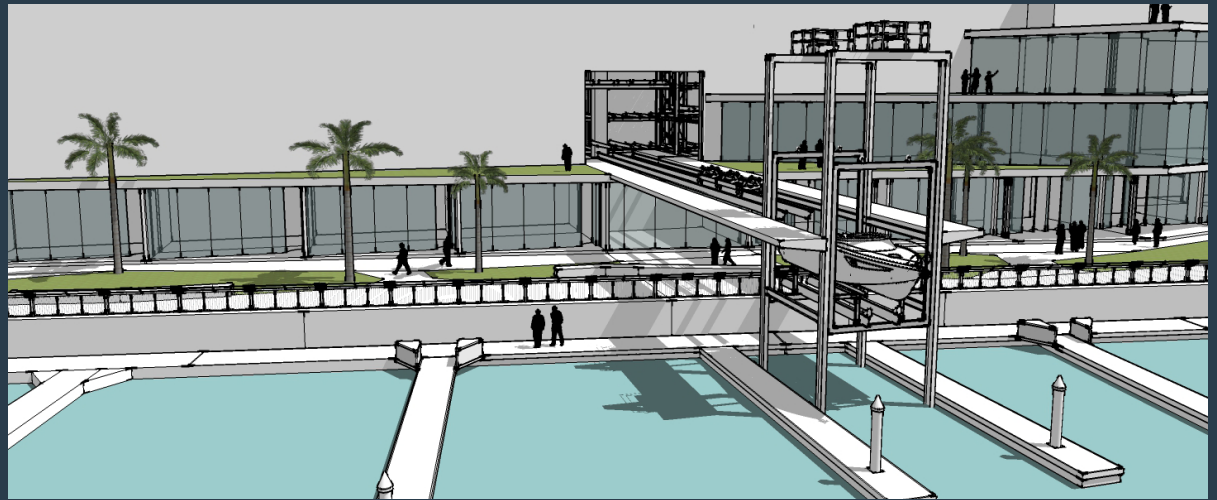
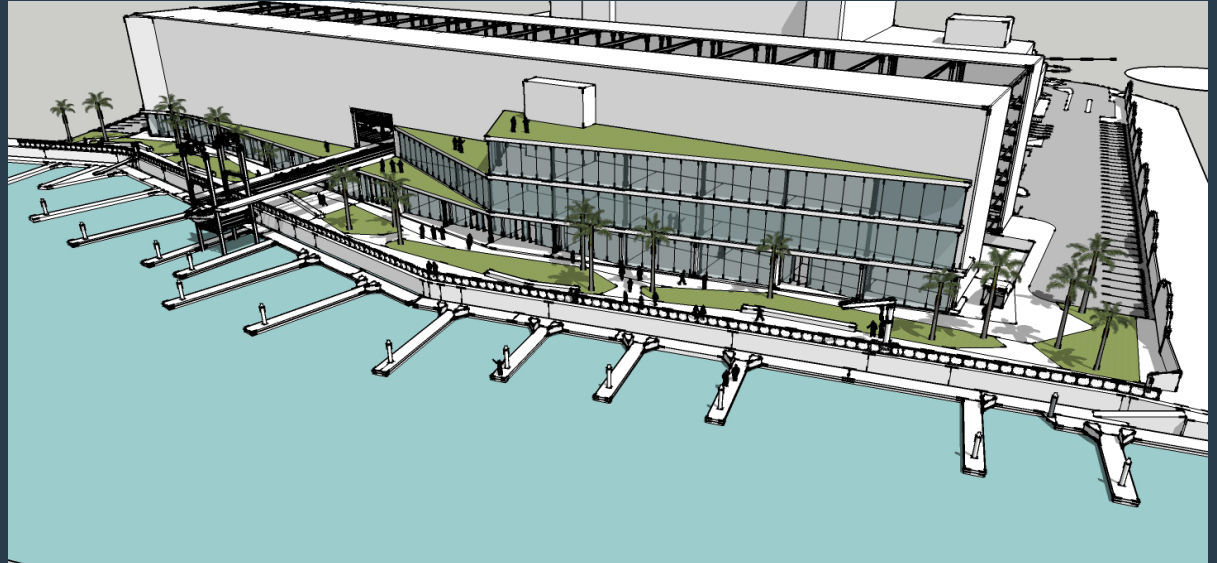
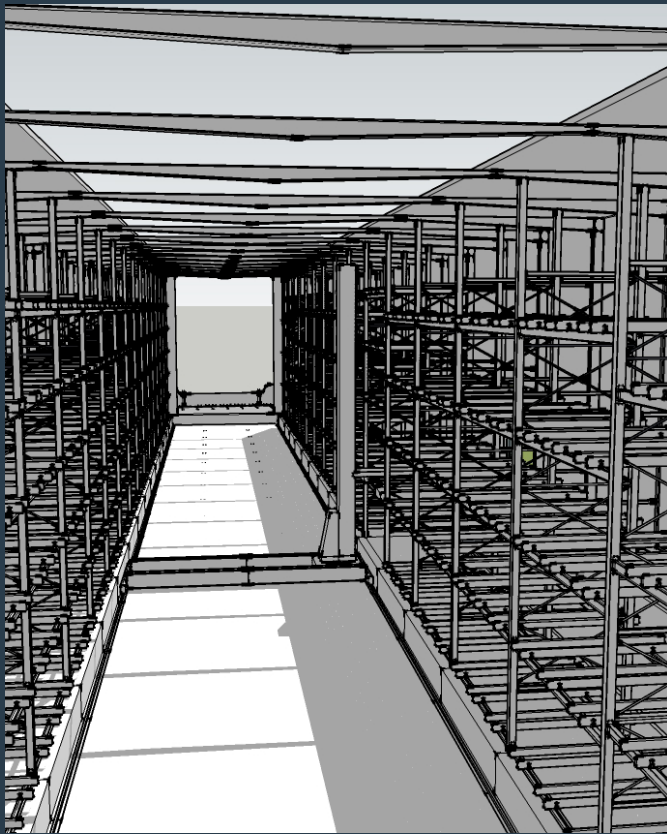




# IMWD PROPOSED SYSTEM

PUERTO VALLARTA

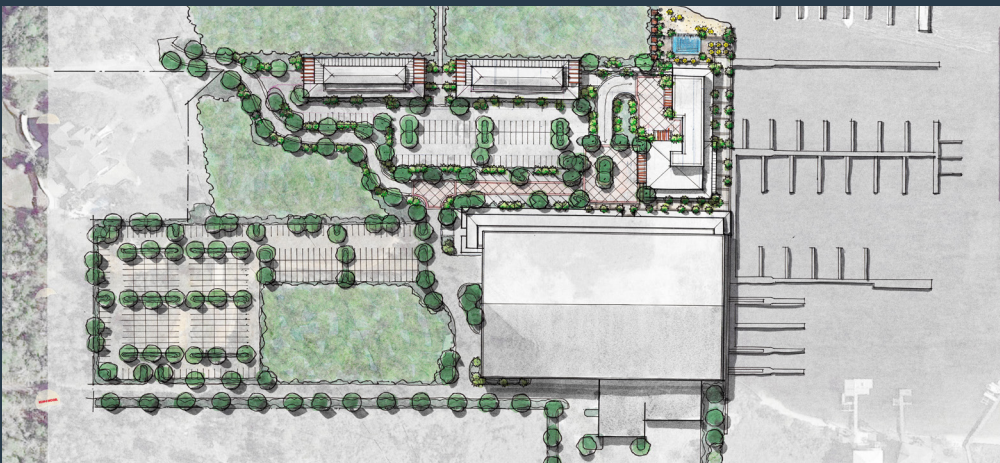
Combination horizontal trolley and vertical coastal elevator to protect public access and boardwalk below.





# IMWD SYSTEM

BILLFISH BAY MARINA - ALABAMA



 **Edgewater**  
resources

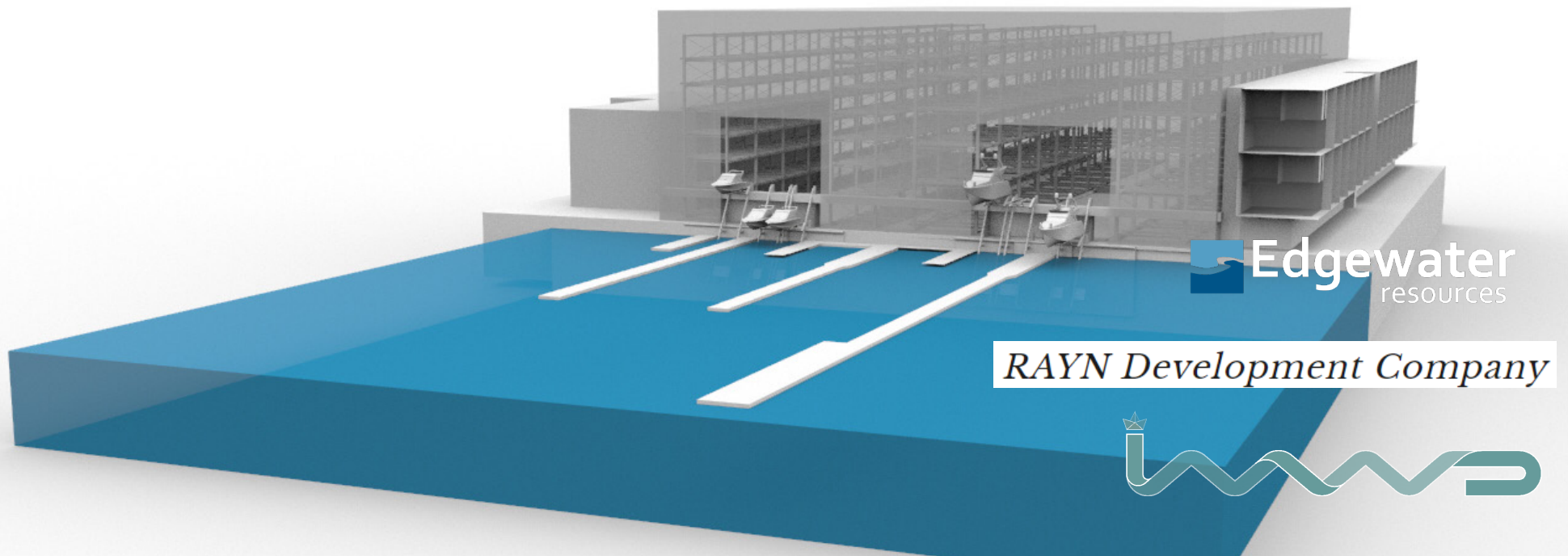
*RAYN Development Company*





# IMWD SYSTEM

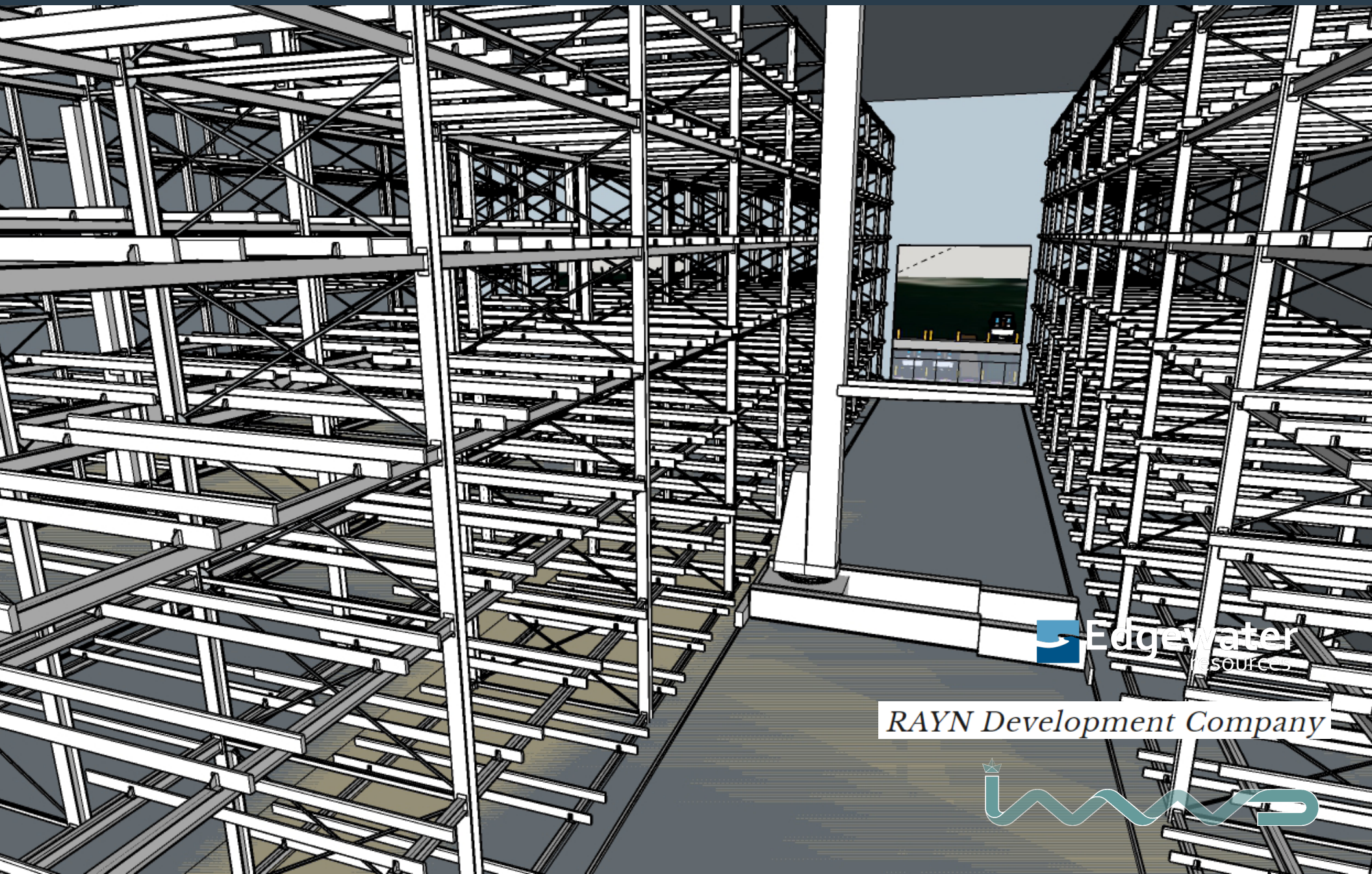
BILLFISH BAY MARINA - ALABAMA





# IMWD SYSTEM

BILLFISH BAY MARINA - ALABAMA



 **EdgeWater**  
SOURCES

*RAYN Development Company*





# F3 MARINAS SYSTEM



## **CABLE OVERHEAD CRANE SYSTEM**

PORT MARINA, FORT LAUDERDALE - 150 BOATS

F3 MARINA, FORT LAUDERDALE - 250 BOATS

[SEE VIDEO](#)

# F3 MARINAS SYSTEM

PORT MARINA - FORT LAUDERDALE





# F3 MARINAS SYSTEM

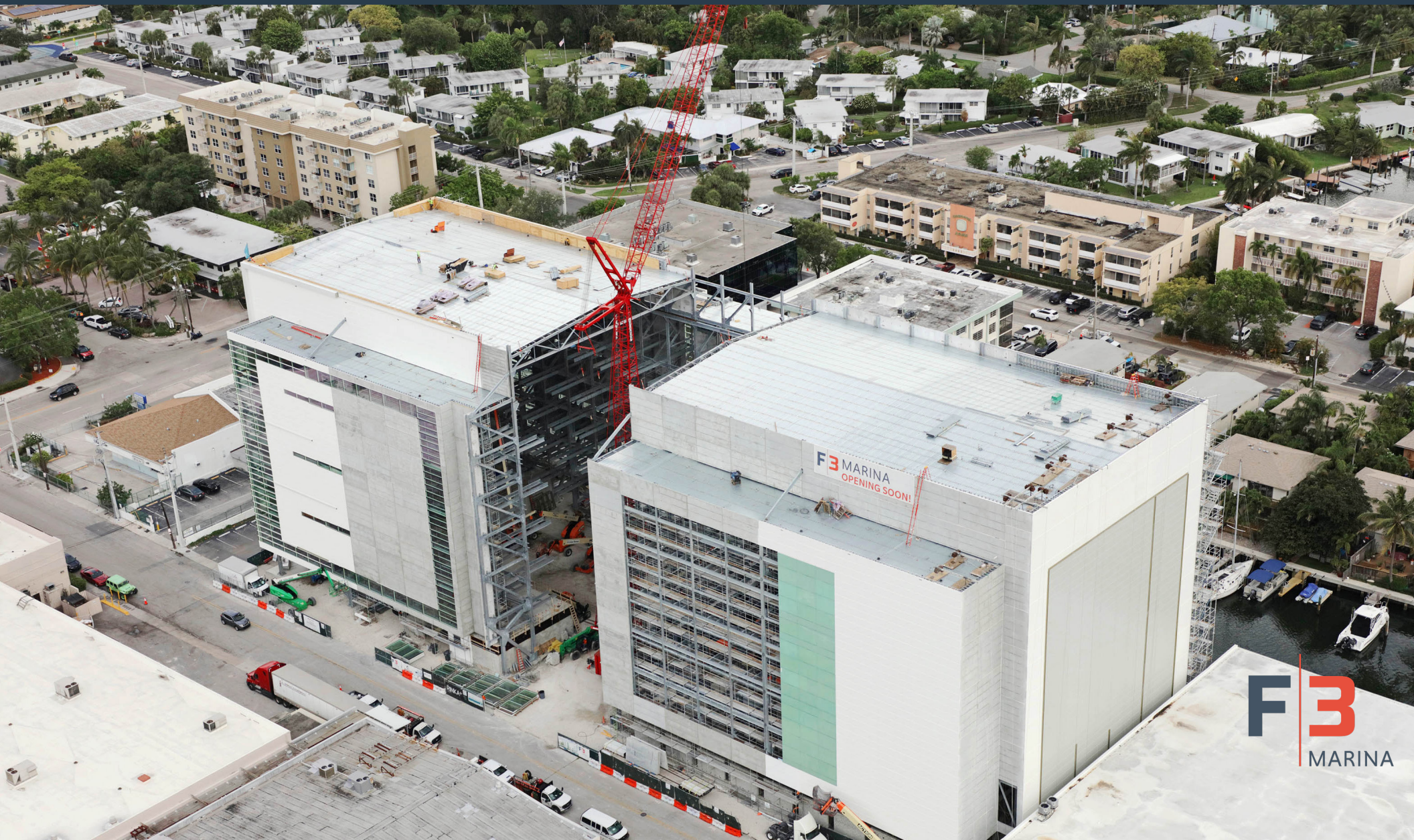
F3 MARINA - FORT LAUDERDALE





# F3 MARINAS SYSTEM

F3 MARINA - FORT LAUDERDALE



**F3**  
MARINA



# F3 MARINAS SYSTEM

F3 MARINA - FORT LAUDERDALE





# F3 MARINAS SYSTEM

F3 MARINA - FORT LAUDERDALE





# F3 MARINAS SYSTEM

F3 MARINA - FORT LAUDERDALE



**F3**  
MARINA



# QUESTIONS?