

**AMT**

**AUTOMATED  
MARINE  
TECHNOLOGIES™**

# WELCOME TO AUTOMATED MARINE TECHNOLOGIES

AMT specializes in supplying automated and integrated boat and car storage systems to the marine industry.

Our vision is to make the operation of every marina more efficient, financially rewarding and customer focused.

For decades storing a boat out of the water has been dominated by forklift operations that have been space, time, maintenance and labor inefficient. Now for the first time AMT offers state of the art materials handling technologies that have been tailored to the boat storage industry.

As a world first we offer the clients of the marina the opportunity to store their car in the storage position that their boat usually occupies when their boat is in use.

# 2 AUTOMATED STORAGE SYSTEMS TO CHOOSE FROM

AMT has 2 different automated boat storage systems that can be adapted to your marina depending on specific operational requirements.

Each application may vary according to:

- Cost
- Required throughput times
- Staging requirements
- Site specifics/constraints
- Waterfront interfaces

## CLIENT FOCUSED

AMT will assess and discuss each of these variables with the operator and suggest the appropriate system to be designed.

AMT and Lödige work with each client to deliver a comprehensive and tailored system solution including:

- Local marina market research
- Existing site assessment
- Concept design
- Detailed design
- Procurement and Manufacturing
- Installation
- Commissioning
- Start up support
- After sales support

## MODES OF OPERATION

AMT systems operate in 4 modes:

1. Fully automated (operator does not ride in cabin – operator manages an inventory control system from the marina office or over the web using secure log-in)
2. Semi automated (operator rides in cabin – 1 button takes operator to rack)
3. Manual (operator controls all movements from cabin)
4. Maintenance mode (for preventative maintenance procedures with safety override features)

## SYSTEM 1

Our Elevating Transfer Vehicle (ETV) system is ideal for boats up to 60ft long and 20 tons/53,000 lbs.

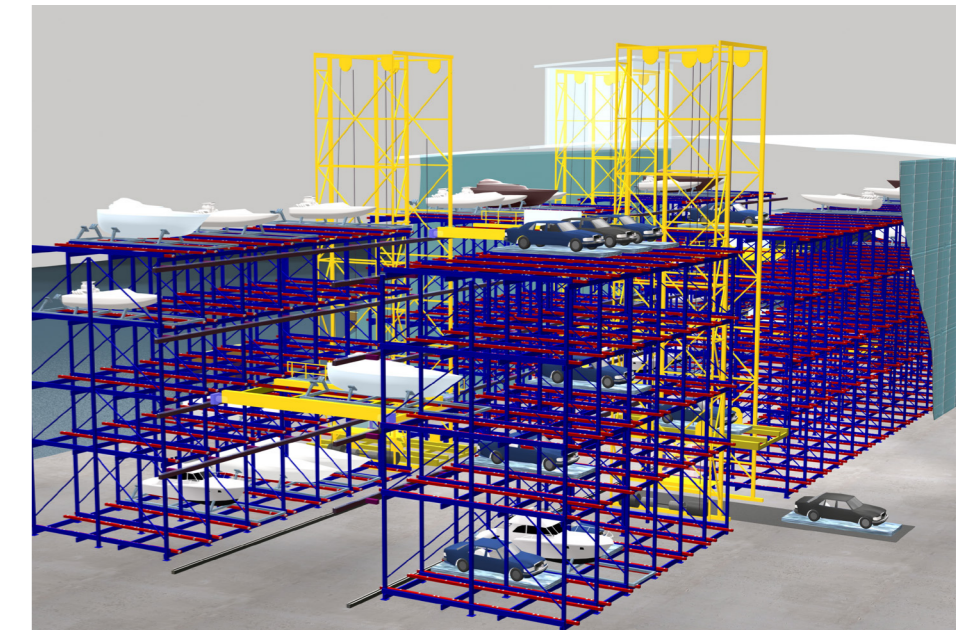
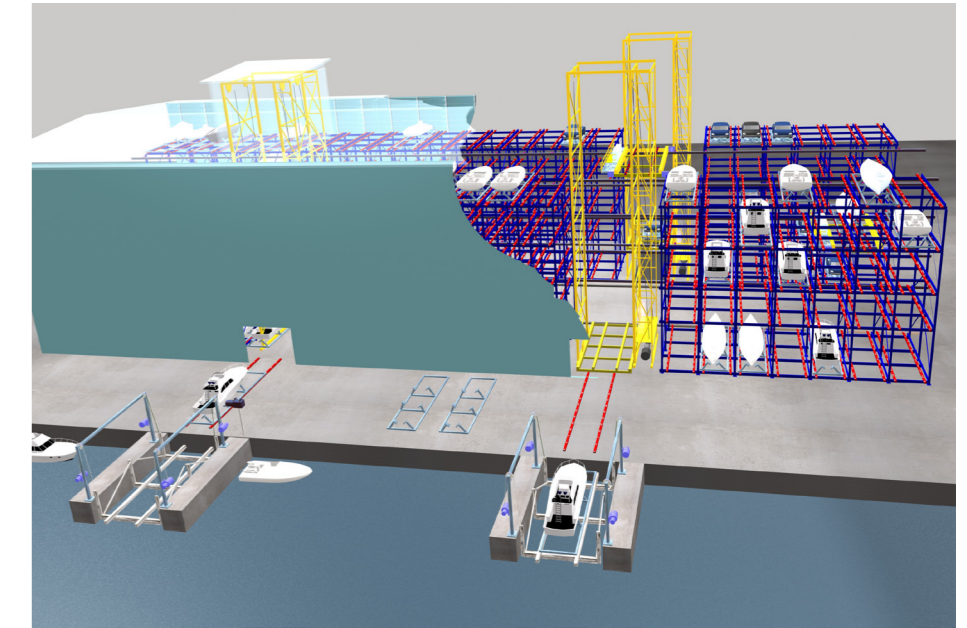
Boat throughput can be tailored to meet each client's requirements. If larger and heavier boats need to be accommodated our system can be modified to suit client specifications.



## SYSTEM 2

Our Lift and Run System is ideal for high throughput requirements and can store boats up to 60ft long and 20 tons/53,000 lbs. This system employs a mixture of Transfer Vehicles (TV's) and Vertical Lifts (VL's) to tailor the system to your operational requirements.

The TV system is more commonly used for marinas that require larger boat numbers. Throughput is limitless because the system is modular. The more Transfer Vehicles the higher throughput per level. The more Vertical Lifts the higher throughput to the waterfront.



# AFTER SALES SUPPORT

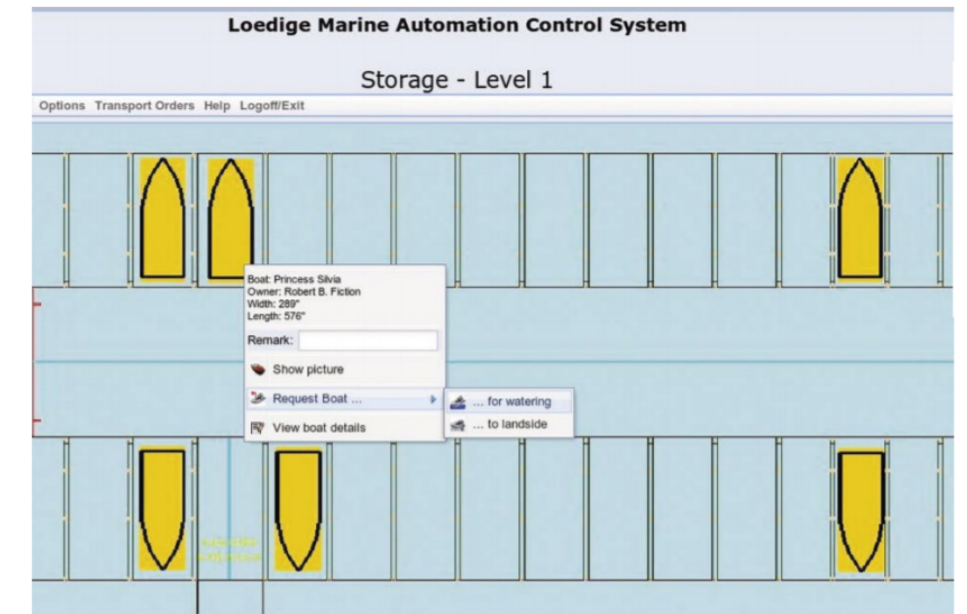
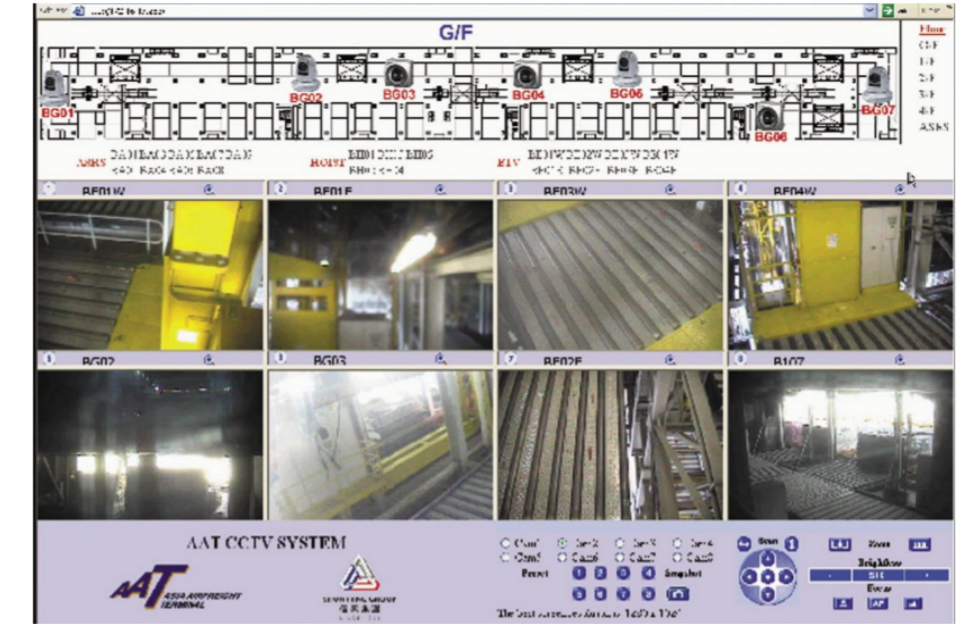
During installation of your system Lödige train your staff on preventative maintenance programs as well as visiting your site for regular maintenance checks and upgrades. A local maintenance contractor is also typically trained on some of the more complex maintenance requirements.

In addition to this, there is a live 24/7, 365 day internet connection from your IT System to Head Office in Germany where all CCTV cameras and sensors can be monitored to give immediate assistance should it be required.



# IT SYSTEMS

During installation of your system, Lödige will train your staff on how to use your IT System. This IT System can be configured to dovetail with other existing marina management software as well and handling most customer interfaces. For example it is possible for the customer to be given a log in and password so that when they are online they can queue their own boat without contacting the marina. Once they have queued their boat for retrieval they can then watch the boat through the CCTV cameras online be removed from the racking and placed into the water.



## CASE STUDY - FORKLIFT OPERATION

LENGTH (m)	# OF BOATS	\$ / MONTH	\$ / P.A.	REVENUE \$
7	97	700	8,400	814,800
8	117	875	10,500	1,228,500
9	107	1,095	13,140	1,405,980
10	63	1,370	16,440	1,035,720
11	73	1,715	20,580	1,502,340
12	43	2,150	25,800	1,109,400
<b>TOTAL</b>	500			
<b>RETURN</b>				7,096,740

## CASE STUDY - AMT OPERATION

LENGTH (m)	# OF BOATS	\$ / MONTH	\$ / P.A.	REVENUE \$
7	-	700	8,400	-
8	-	875	10,500	-
9	-	1,095	13,140	-
10	-	1,370	16,440	-
11	-	1,715	20,580	-
12	500	2,150	25,800	12,900,000
<b>TOTAL</b>	500			
<b>RETURN</b>				12,900,000

## PROS AND CONS OF EACH MODEL IN CASE STUDY

	FLT	AMT	% DIFFERENCE
<b>Total Building Area (square feet)</b>	50,590	39,288	-22%
<b>Total Building Area (square meters)</b>	4,700	3650	-22%
<b>Max Building Height (feet)</b>	66	131	100%
<b>Max Building Height (m)</b>	20	40	100%
<b>Max Boat Length (feet)</b>	50	50	0%
<b>Max Boat Length (m)</b>	15	15	0%
<b>Max Boat Weight (pounds)</b>	33,000 (ground floor)	33,000 (any height)	0%
<b>Max Boat Weight (kgs)</b>	15,000 (ground floor)	15,000 (any height)	0%
<b>Throughput Times (/hr)</b>	9 (1 x FLT)	unlimited	
<b>Throughput Times (/hr)</b>	18 (1 x FLT)	unlimited	
<b>Throughput Times (/hr)</b>	27 (1 x FLT)	unlimited	
<b>Labour Costs (\$)</b>	\$200,000	\$80,000	-120%
<b>Revenue (\$)</b>	\$7,096,740	\$12,900,000	+81%

## CONSTRUCTION BENEFITS OF AUTOMATED STORAGE

- Reduced capital costs due to more efficient site footprint.
- More space efficient use of available building area therefore other areas of the site are able to be developed for other revenue producing uses.
- AMT systems can be built to a height of over 40m whereas FLT systems typically can only be built to around 20m.
- AMT systems require no overhead clearance (in contrast to an overhead gantry crane application).

## OPERATIONAL BENEFITS OF AUTOMATED STORAGE

- Greater revenue as the largest/longest/heaviest boat can be stored in any rack (not just the bottom rack).
- AMT systems have a far greater boat throughput than any other system in the market. Throughput can be tailored to client requirements.
- Reduced maintenance costs and downtime.
- Reduced labour costs.
- Reduced operating costs as diesel is more expensive than electricity. Solar power and batteries can be used to power electric machinery.
- AMT systems have the ability to generate and store electricity by utilizing the movement in the machine.
- Far less internal lighting required as boats are stored without the need for an operator to “see”.
- AMT systems have a proven downtime of less than 1%. This discipline has been carried over from the Air Cargo industry where there is no scope for downtime.
- AMT systems has back up redundancy systems built in to the overall system should there be a problem that requires maintenance. For example there are 2 motors on the drive train system and if one motor were to fail, the system still uses the other motor and the effect is the speed of the system is reduced by half. More than one machine can be used in each aisleway.
- Automation is widely recognised to be safer than machinery operated by humans.

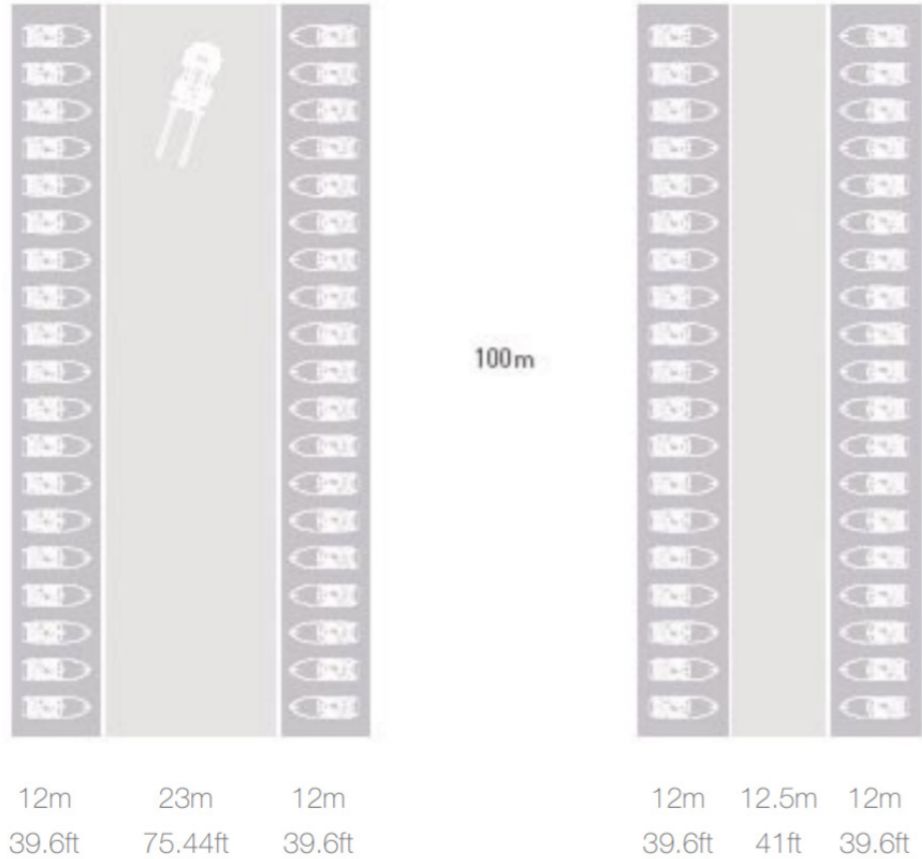
## ENVIRONMENTAL BENEFITS OF AUTOMATED STORAGE

- No toxic emissions from AMT systems (unlike traditional forklift trucks).
- No soot from FLT’s on boats in racking.
- AMT systems are far more quiet that traditional forklift systems, therefore operational hours can be extended.
- There is no potential for oil spills as AMT systems are fully electric.

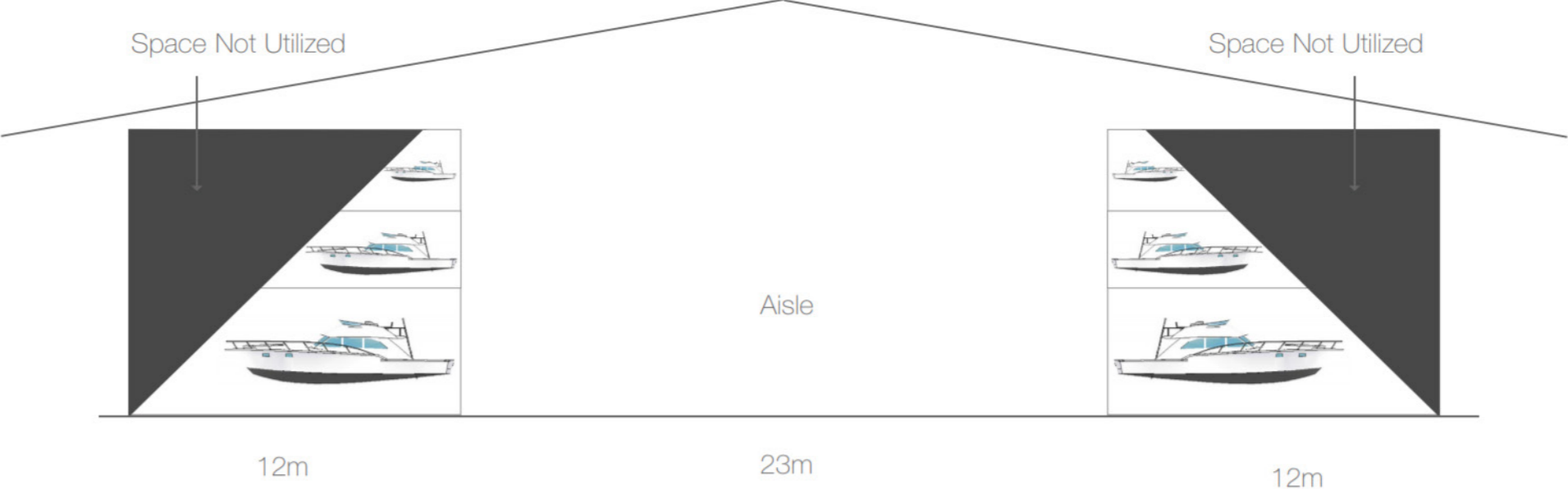


# EFFICIENCY OF THE FOOTPRINT

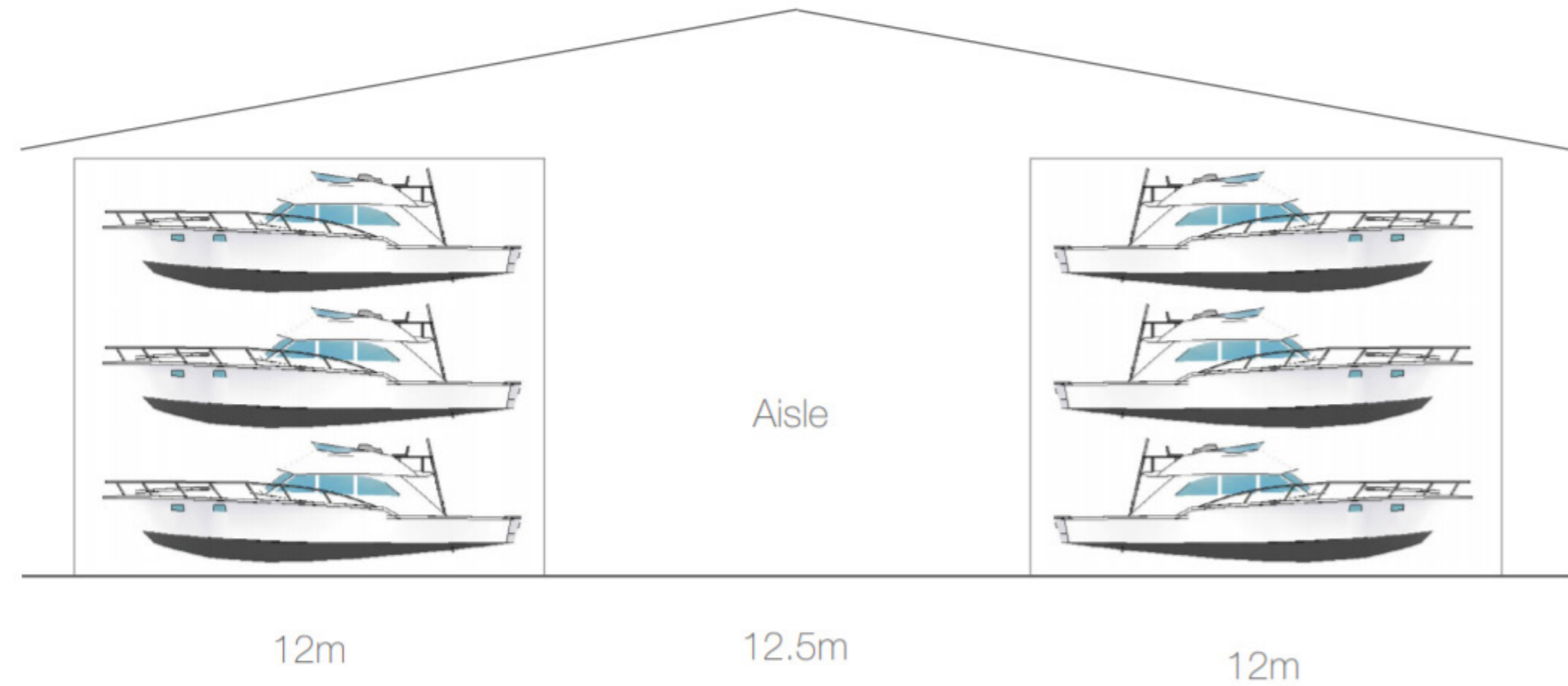
	FLT	AMT	% DIFFERENCE
Building Length (feet)	328	328	0%
Building Length (m)	100	100	0%
Rack Length (feet)	40	40	0%
Rack Length (m)	12	12	0%
Aisle Width (feet)	75.5	41	-84%
Aisle Width (m)	23	12.5	-84%
Total Building Area (square feet)	50,590	39,288	-22%
Total Building Area (square meters)	4,700	3,650	-22%



# EFFICIENCY OF THE CUBE - FLT SYSTEM

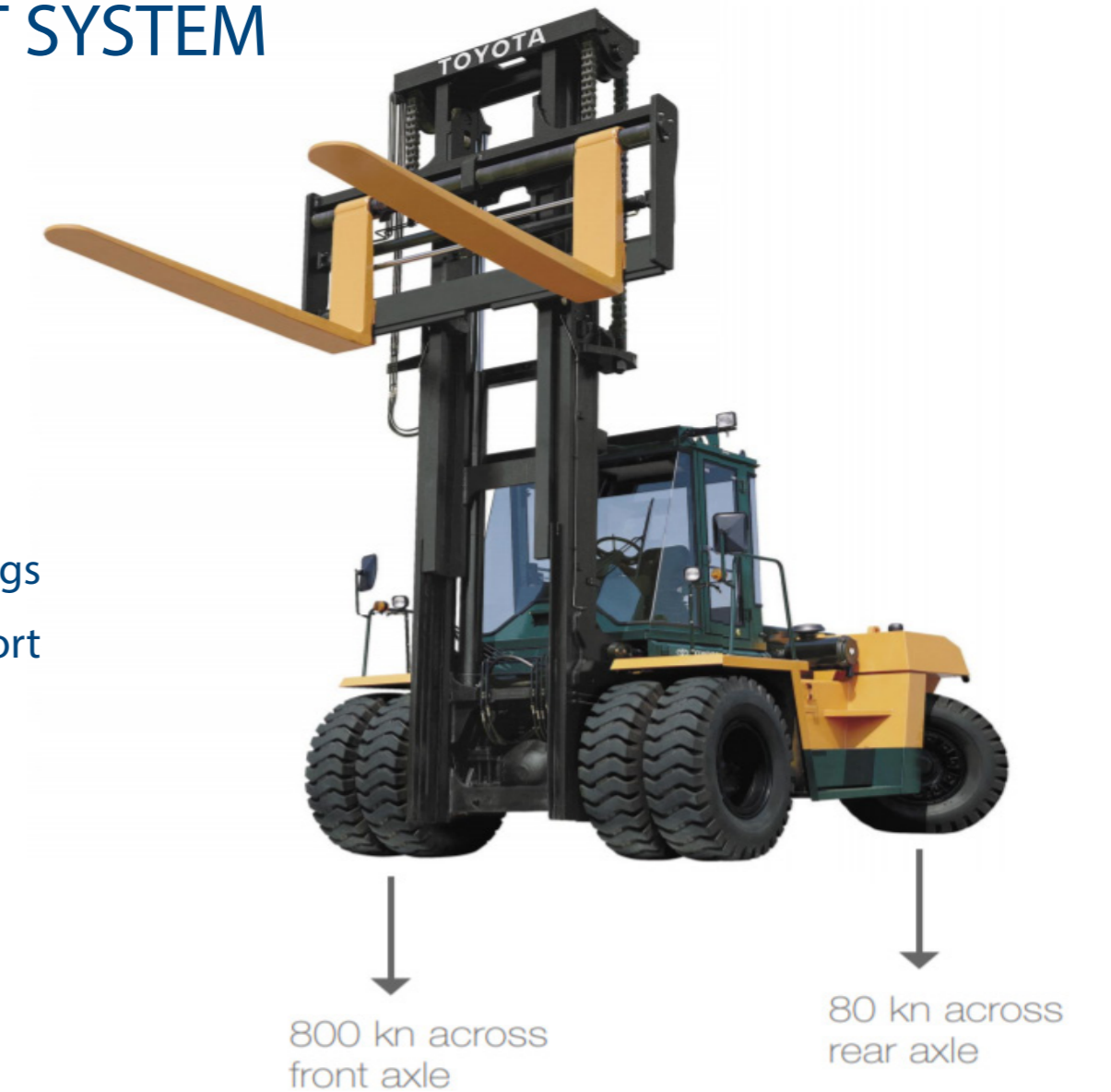


## EFFICIENCY OF THE CUBE - AMT SYSTEM



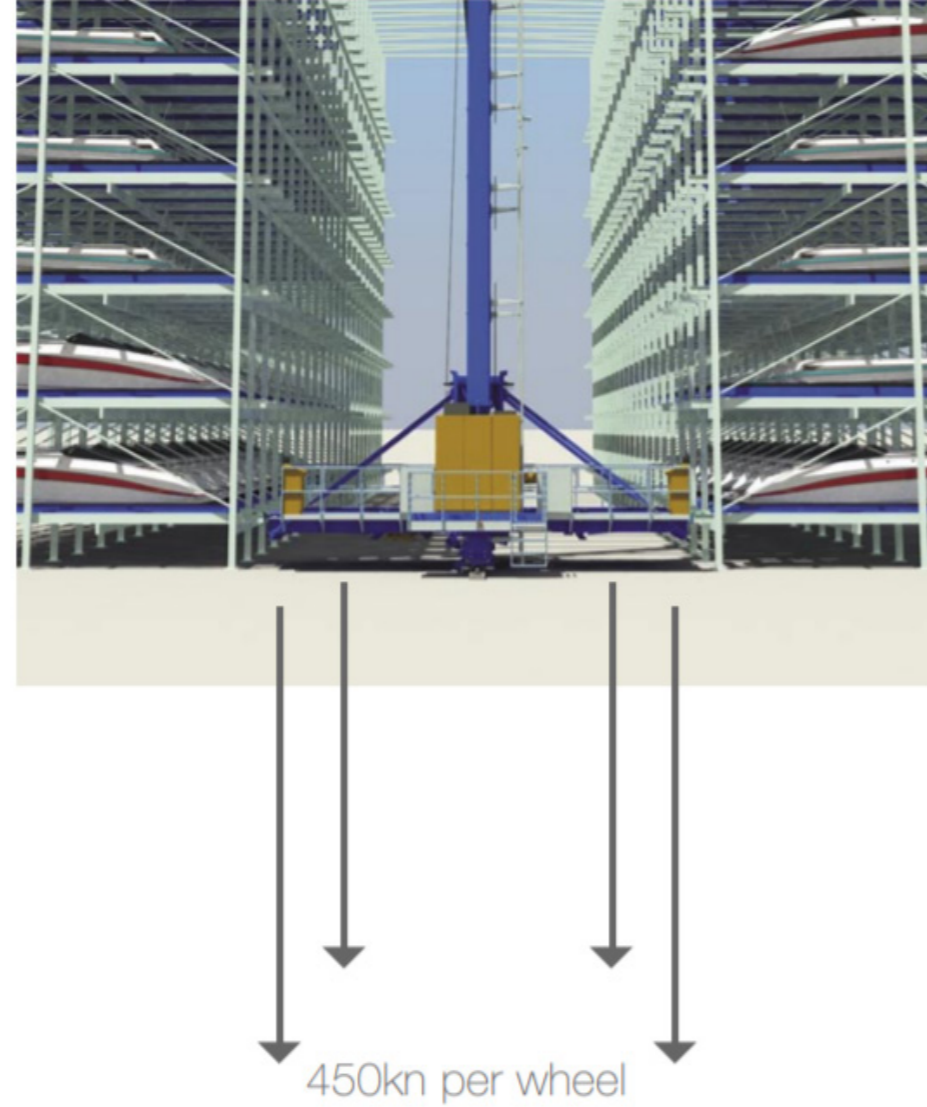
## POINT LOADINGS - FLT SYSTEM

High point loadings translate to significant pilings and substantial concreting (not dissimilar to loadings experienced on international airport runways).

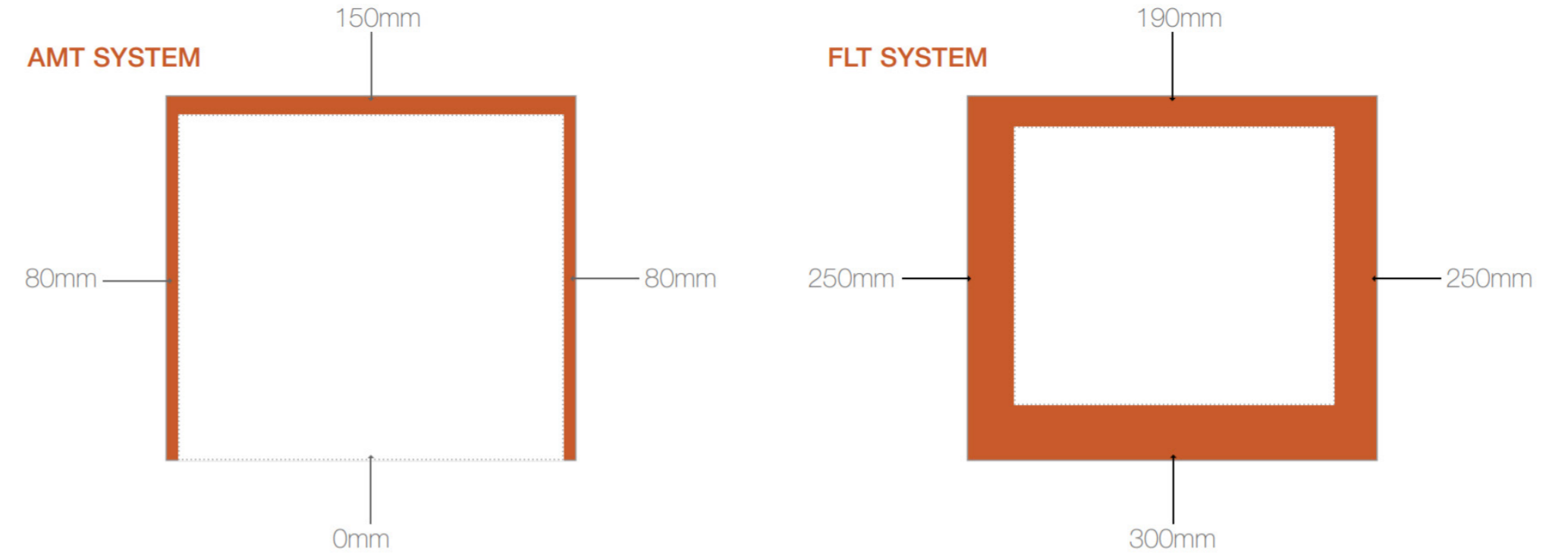


## POINT LOADINGS - AMT SYSTEM

As the total load is distributed evenly over 4 points along a rail system the requirements for piling are significantly less.  
(No load-bearing concrete in the aisle way is required).



## IN RACK TOLERANCES



# OVERHEAD CLEARANCE

AMT SYSTEM



GANTRY SYSTEM



# AUTOMATED CAR PARKING

Through the integration of our boat storage and car parking systems we now enable the operator to store more than just the boat within each racking position. In particular once each customer's boat has been placed into the water, they have the ability to have their car parked in the boat rack that their boat usually occupies. We are also able to modify our automated car parking systems to cater for trailer boats as well as cars. We recognize that waterfront land today is at a premium and storage of goods (e.g. cars) in addition to boats can be a more efficient use of the total site area.



## AUTOMATED CAR PARKING

Automated parking systems, aside from providing an unparalleled user experience, deliver up to 60% and more footprint efficiency and are critical to optimising the return on investment.



## AUTOMATED BOAT LIFT

Vertically moving boat lifts on the waterfront are supplementary to our overall boat storage system. By separating the machinery used to transport the boat from the boat storage building from the boat lifts, you do two things:

1. Reduce the throughput times as you free up the on-land boat handling system to return to the boat storage building (in contrast to a FLT);
2. And now you have dedicated machinery that's sole purpose is to be submerged under water. This machinery is drastically simplified as it only moves vertically and all moving parts can be designed to be out of the water.



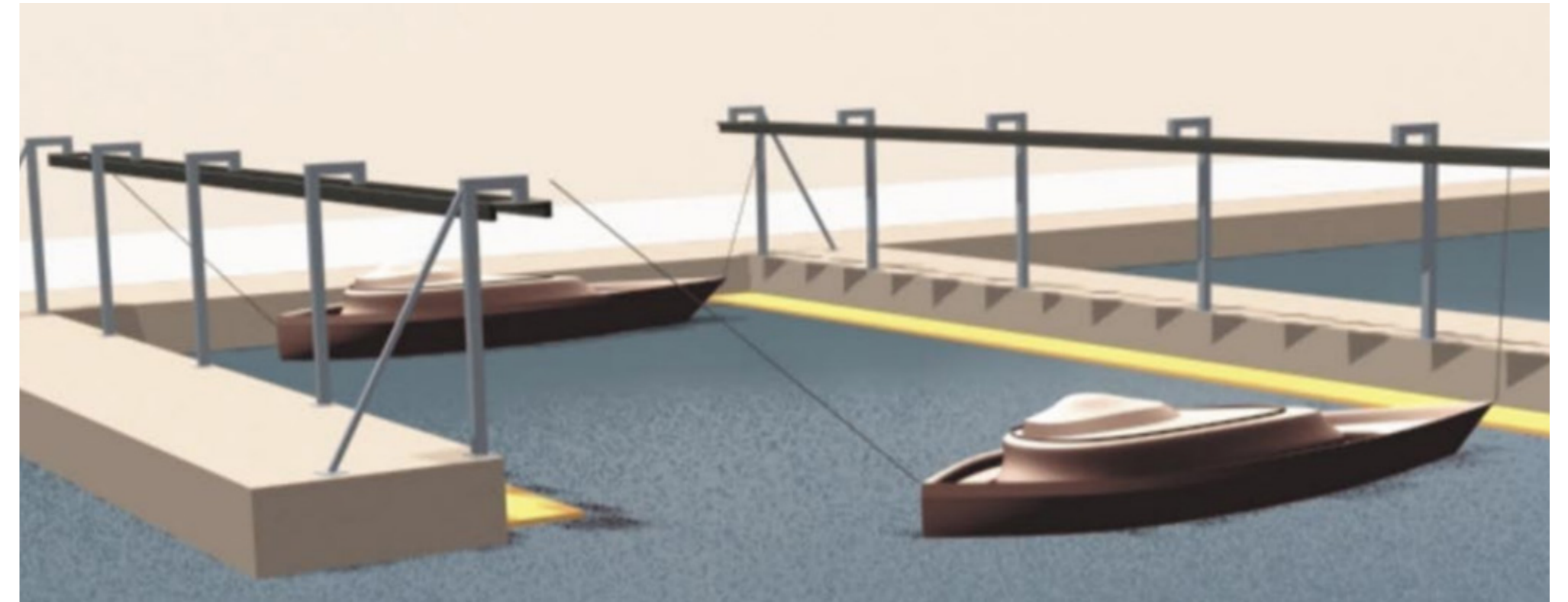
## AUTOMATED ON-LAND BOAT QUEUING

The throughput of our automated on-land boat queuing is just as important as our boat storage system. If each of the system components has a similar throughput then there will not be any significant bottlenecks. Depending on site constraints there are a number of solutions for transporting your boat to and from the boat storage building. We'll be able to supply you with the balance of the right solution with the right boat throughput at the right price.



## AUTOMATED ON-WATER BOAT QUEUING

AMT offers a more space and time efficient option for the temporary berthing of your clients' boat whilst you put it back into storage. Using a unique overhead conveyor system, boats on the marina can be slowly and safely queued towards the boat lift. This is far safer and more efficient than manually moving each boat to the boat lift by clients or staff.



## AUTOMATED BOAT HARDSTAND AND SERVICE AREAS

AMT employs technologies that allow the marina operator to be far more quickly and efficiently store boats. Using remote controlled boat trailers these boats can be stored more closely in the service area. Boat cradles (that are the same as used in AMT boat storage systems) allow the boat to be more safely stored as weight is more securely and evenly distributed. In transit boat trailers require less “swept path” to the boat itself, thus allowing even more boats to be stored and worked on within the hardstand.



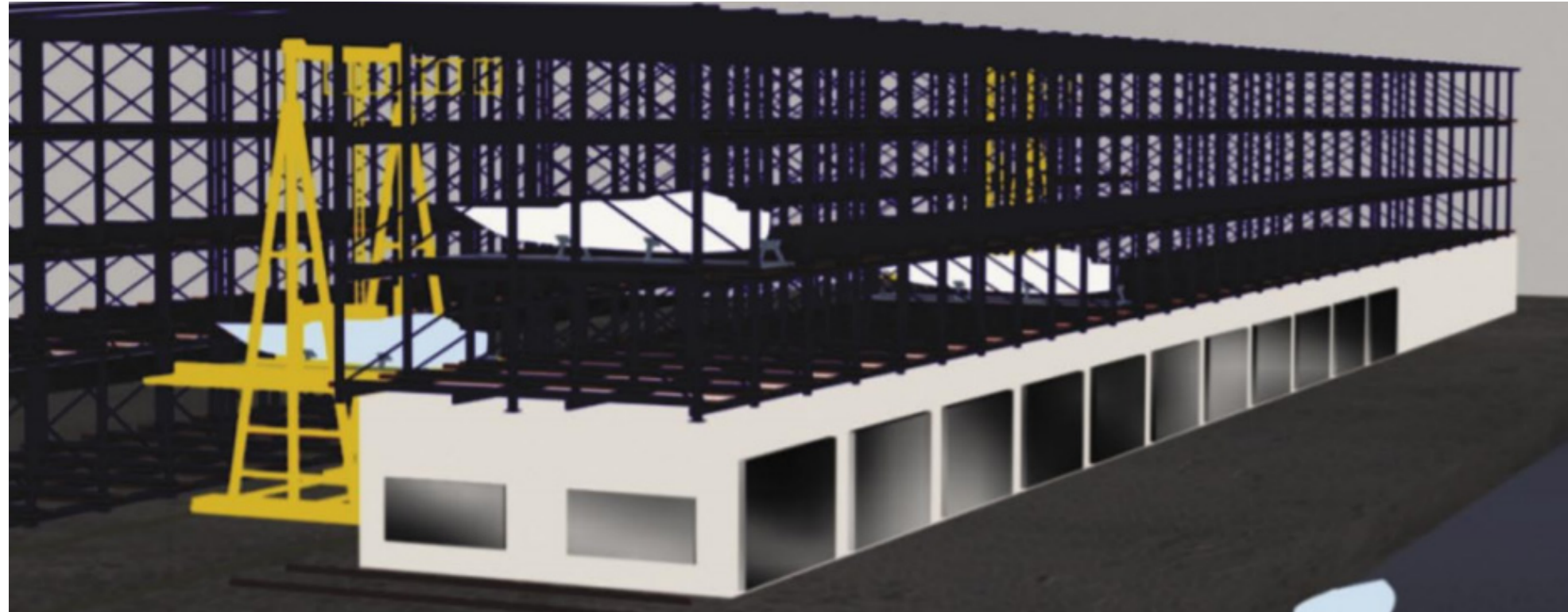
## AUTOMATED BOAT WASH

Washing your client’s boat down after a boat has been used is fast becoming an integral part of the boat storage process. Clients are quickly recognizing the importance of washing down their boat in addition to rinsing out the boats engines. AMT offers sophisticated semi or fully automated boat wash down systems that utilize light sensors / curtains in conjunction with high powered spray systems (not unlike many seen in car washes today). The boat wash then cleans off fresh/salt water and dirty residue. All the water used is then recycled using sophisticated water treatment systems.



## INTEGRATED RETAIL/COMMERCIAL/FOOD & BEVERAGE

Typically on the ground floor and within the boat racking structure, marina operators can now include other vital marina uses such as retail, commercial and dining concepts. This initiative provides for each of the vital marina offerings to be delivered within the most efficient and cost effective footprint possible.

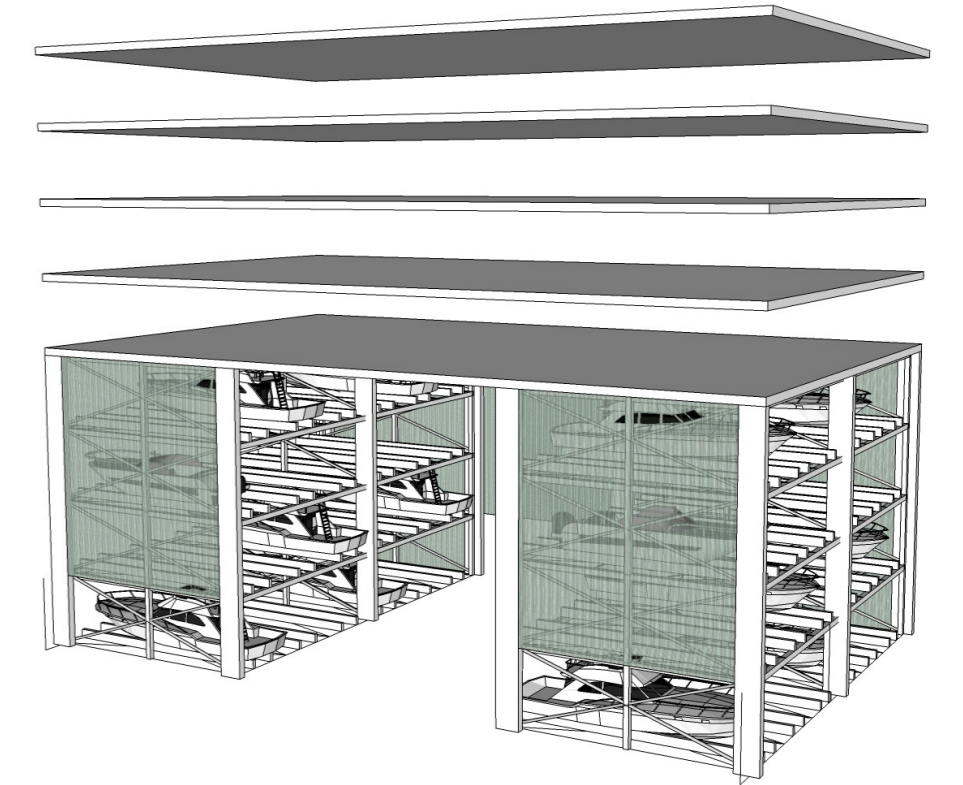


## INTEGRATED RESIDENTIAL

Now residential apartments can be placed above automated boat storage facilities.

Additionally integrated car storage within these facilities works well to provide owners with boat and car storage beneath their residence. The fact that the machinery works electronically means that the operation is extremely quiet.

Domestic pod storage in the storage facility below is also a good addition to the residential users requirements.





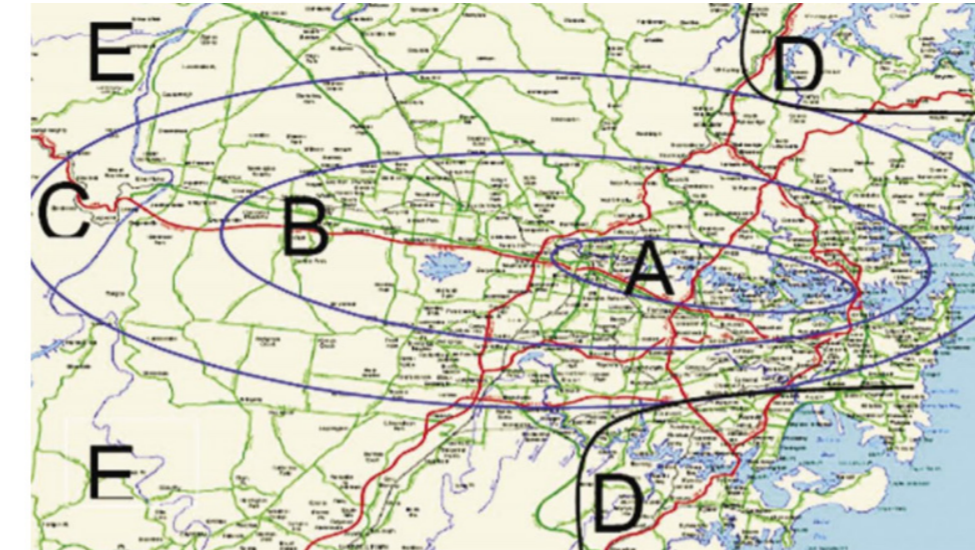
# AUTOMATED TRAILER BOAT STORAGE

In most boating markets trailerable boats are far more common and cheaper than boats stored on marinas. AMT recognizes that trailerable boats are becoming harder to store in garages and on streets. AMT can provide an integrated boat storage, car storage and trailer storage solution to meet your requirements or alternatively we can simply provide you with a dedicated boat trailer storage solution.

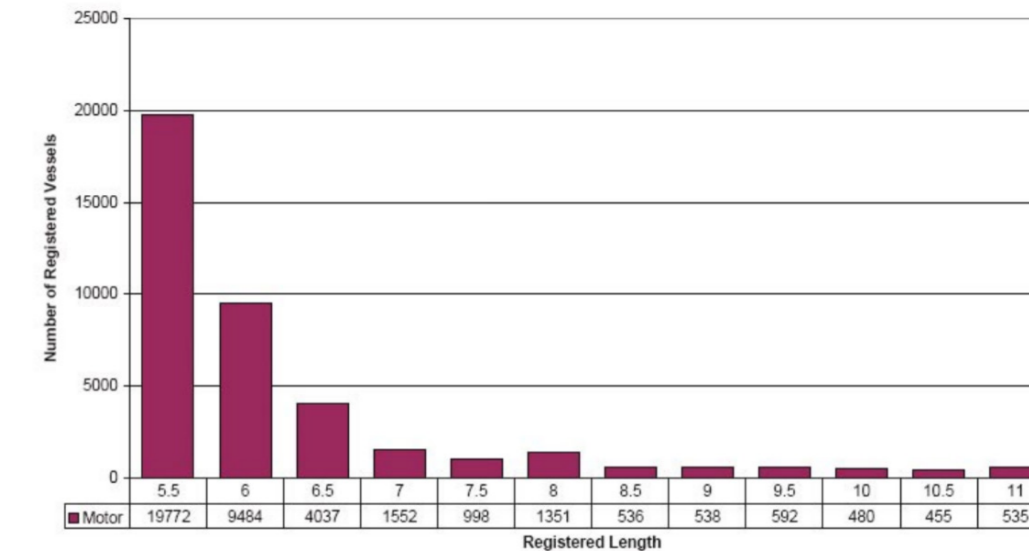


# MARINA MARKET ANALYSIS

Marina owners and developers often find it prudent to assess the local boat storage market before embarking on building a new facility or refurbishing an existing facility. This assessment will aid in providing vital information that will bring about security to not only the marina developer but to banks, valuation companies, and future investors.



(An example of acquisition targets for areas around the facility)



## ENVIRONMENTAL SYSTEMS

Today the pressure is growing on marinas to provide the best environmental solution to their operations is growing. AMT provides advice in the planning for the implementation of “world’s best practice” environmental systems. Everything from the harvesting of rainwater off roof tops to recycling of wash down water through water treatment systems to planting garden beds on storage facility rooftops.



## ABOUT US

The AMT Team is made up of a group of marina developers that have acquired a unique and wide range of knowledge through the development, operation and sale of a number of marine facilities.

Now for the first time we are able to join disciplines from two separate industries.

AMT and Lödige Industries ([www.loedige.com](http://www.loedige.com)) have partnered to create the opportunity of providing our clients with a range of integrated automated boat and car storage solutions. With an annual turnover of over \$100m Euro and a staff of over 600 across the globe, Lödige is a world leader in materials handling solutions stretching from automated air cargo technologies, to automated car parks, to industrial elevators. Lödige is perfectly placed to deliver everything from the detailed design, procurement and manufacturing, installation, commissioning, start up support and after sales support of each automated dry boat storage facility.

Now from the installation of a single boat lift to a fully automated commercial marina, the Lödige and AMT partnership offers a complete solution to your boat handling needs. For more information on Lödige please visit [www.loedige.com](http://www.loedige.com)

# CONTACT US

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