MatrixLab.

2021 designed

Products



MatrixLab is an architectural design & construction office specializing in modular fabricated buildings, off-site construction. Our activities are spread over many areas such as single homes, apartments, offices, hotels, nursing homes and hospital services. It is one of the important legs of a construction industry ecosystem where buildings will be produced clean, high quality and fast in factories as 3D modular.

In this document, you will find the new designs of MatrixLab, which reached its goals in 2020 with its ever-expanding experience and volume.

MatrixLab is strengthened with its partnership with the Turkey's prestigious and technological 3D Modular Building manufacturer Euromod and takes place in many projects at home and abroad.

CONTENT

			2	WHY NOW?
			3.1	M1 HOUSE
			3.2	M2 HOUSE
	3.3	M3 HOUSE		
		3.4	M4 HOUSE	
			4	COMFORT ZONE
14 M			5.1	PLAY ZONE
			5.2	SW ZONE
			5.3	SAFE.ZONE
			6	IMMEUBLE OFFICE
			7	SUNNY GARDENS
		[*]].	8	M'BOUR VILLAS

8		
10		
14		
24		
34		
46		
56		
68		
78		
88		
100		
110		

6

100

122

step-by-step guide for matrixLab. schedule



Detachable structures / Modular planning / Lightweight construction / Parametric design

Off-site fabrication is the practice of assembling components of a structure in a factory and transporting complete assemblies or subassemblies to the construction site where the building is to be located Off-site production in architecture has the potential to bring a balance between cost, schedule, and scope closer within reach by virtue of fabricating larger elements of buildings. Prefabrication in its earliest form was less about addressing quality and time or managing scope and costs—let alone about applying an environmental ethic-than it was about a fascination with industrial commoditization, production, and replication. Focused generally on housing typologies, the scalability of offsite fabrication was more focused on meeting a theoretical need for a booming housing market than it was on the integration of systems, materials, and production with the possibility for mass customization.



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how it works?

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phase V



SITE CONSTRUCTION

prefabrication of architecture

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environmental context

ecological resilience cultural/social resilience economical resilience

technology context automation personalization to mass customization BIM

organizational context

integrated project delivery linear organization integrated practice lean construction

why is that?

Modern Times: Change

Identify the problem, think answers /design solutions, act upon it, all actions always brings new issues, process begins again. This is change. We are in climate crisis, problem is here. And we think answers / design solutions. The first act of design in this world is the redesign of the relations among those responsible for the making of things. Re-entegrate the those separated issues Architecture/construction/industry/climate crises/ housing problem/industry 4.0/drawdown/workers wellbeing/ globalization/localization/old materials/ new techniques /material science/ resilience/

It seems Prefabrication of buildings / off-

- site construction may be one of the an-
- swers that we looking for because of its extended coverage among those issues.



off-site construction

why now?

Identify the problem, think answers /design solutions, act upon it!

The design side of these industries is also integrated usually with captive design divisions informing and collaborating with production teams, allowing for continuous evalution and improvement in society / cultural area is seems ready to adopt futuristic axelaritaions in architectural industry. Some say there will no need to architects in the future. Al will be ready soon to solve the problems that we are dealing today. Apparently, with this technology, the ground is ready for permanent change in the construction industry as a suggestion for our urgent problems.

coming. Existing production systematics; Other industries have changed the way they work andprovide products. The critical difference is that the air, ship, and auto industries integrate—both at the source of inspiration and at the source of supply. They have a captive supply chain and during the past two decades have integrated, redefined, and then reintegrated leaner supply chains and products. Efficiency begins at inception and is consistently interpreted and reintegrated throughout the design and production cycles.

It is not a tottaly new thechology. The lack of integration tools available to the industry conspired to doom the effort of early attempts of off-site construction. People were left demoralized, and discouraged from ever attempting

to change an industry so entrenched. What has changed in the world to make prefabrication viable today?

First of all reality of climate crises is forcing all industries to be a part of solution, to find out more energy efficient processes, quick answers, least destructive ways to existing needs of markets. Carbon economy is

2020 designed



m1 house

M1 modular housing project is designed to be produced in the factory for hot climates, using off-site production methods, within the MatrixLab Module. Flat roofs easily adapt to the Mediterranean climate and local texture.



m1 house carries all the comfort of conventional single houses together with the quality of materials and workmanship. It is designed with steel diaphragm carrier, which is the most durable construction method against all earthquake risks with its steel volumetric structure.



7











M1 House, produced in Euromod Istanbul factory with all interior and exterior finishing, lighting and fixed furniture, can be produced and shipped to the field in a short time like 3 months at the factory. The modules, which are placed on the foundations prepared in the field, can be connected to the urban infrastructure with the plug-and-play system, or used as off-grid if desired.

	total	182,7 m ²					
m1 house			1 terrace				
			2 entrance	4,3 m ²	6 kitchen	12,8 m ²	
			& hall	8,5 m ²	7 dinning room	6,7 m ²	
7			3 bedroom	14,3 m ²	8 living room	25 m ²	
7 modules			4 bathroom	3,2 m ²	9 terrace	31,2 m ²	
182,7 m2 total area	ground floor	93,6 m ²	5 storage	3,6 m ²	10 storage	3 m ²	
93,6 m2 floor area							
				1 hall	9,6 m ²		
On the ground floor, there is a				2 bedroo	m 14,3 m ²	5 bathroom	4,8 m ²
large living room and dining area, a				3 bathroo	om 3,3 m ²	6 bedroom	18,9 m ²
kitchen and a guest bedroom and	1st floor	89,1 m ²		4 stair	7,4 m ²	7 terrace	17m ²
a terrace, and on the 1st floor, the							



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residential unit with 2 bedrooms,

1 en-suite bathroom and terrace,

if desired, single residence can be

combined in adjacent row house

2 terraces at different levels.

order. Outdoor use is enriched with



m2 house

M2 modular housing project was designed to be produced in the MatrixLab Module, in temperate climates, maybe mountains, forests, in the factory, using off-site production methods. The M2 house, which is designed as a sloping roof and 1st solid painted aluminum clamped metal coating, creates a protective coating for the entire building system, especially for climates with snow and heavy rain.



Establishing a special connection with the landscape at every point, ground level living spaces make openings with a different mode within 3 facades. The connection of the dining room to the terrace with the retracted joinery allows the outdoor space to expand inward.

m2 home carries all the comfort of conventional single houses together with the quality of materials and workmanship. It is designed with steel diaphragm carrier, which is the most durable construction method against all earthquake risks with its steel volumetric structure.







M2 House, which is produced in Euromod, Istanbul factory with all interior and exterior finishes, lighting and fixed furniture, can be produced and shipped to the field in 3 months at the factory. The modules, which are placed on the foundations prepared in the field, can be connected to the urban infrastructure with the plug-and-play system, or used as off-grid if desired.





	total	205 m ²						
ouse			1 entrance	12.1 m ²	6 living roo	$m 12 m^2$		
			2 bathroom	2,4 m ²	7 store	2,6 m ²		
			3 kitchen	12,5 m ²	8 store	2,6 m ²		
Emodulos - 11E m2 platform			4 dinning room	8,9 m ²	9 terrace	9,2 m ²		
175 m2 total area	ground floor	85 m²	5 living room	19 m ²	10 terrace	10,1 m ²		
35 m2 ground floor area					1 hall	12,3 m ²		
On the ground fleer there is a large					2 bedroom	9,3 m ²		
					3 bedroom	11,2 m ²	6 master rooi	n 13,8 m ²
iving room and dining area, a kitch-					4 bathroom	4,9 m ²	7 balcony	7,8 m ²
en and a fireplace area that can	1st floor	90 m ²			5 bathroom	2,9 m ²	8 bedroom	14,4 m ²
be opened on both sides. On the						,		,



m2 hc

6 1 8

С e be opened on both sides. On the first floor, there are 3 bedrooms, 1 parent and 1 shared bathroom.



m3 house

Turnkey solution for smart accommodation requires special expertise. Details are very important when it comes to customer experience, convenience for staff, functionality of functions and the sense of safety of the environment. The design process, in which all aspects of the project are considered, from planning to operation, lays the cornerstones of a successful business.



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In our Matrixlab module, we collaborate with various industry companies to bring different solutions to our customers' needs. M3 modular houses are created with a combination of portable sized units that easily adapt to different geographical and climatic conditions and meet different density needs.











M3 House, which is produced in Euromod, Istanbul factory with all interior and exterior finishes, lighting and fixed furniture, can be produced and shipped to the field in 3 months at the factory. The modules, which are placed on the foundations prepared in the field, can be connected to the urban infrastructure with the plug-andplay system, or used as off-grid if desired.





4





The spaces are small and compact yet very comfortable and cozy, the approach to minimal living by combining wood with thoughtful design was definitely something that inspired our space.

m3 house

with 3 modules 3 different combinations m3-R module : 47 m2 m3-L module : 37 m2 plug module : 3,5 m2

total	87,5 m²					
		2 bedroom	20,5 m ²			
		3 storage	1,1 m ²			
		4 bathroom	9,5 m ²			
m3-R module	47 m ²	5 terrace	10,7 m ²			
			6 hall	1 m ²	10 living room	18,7
			7 storage	0,6 m ²	11 bed recess	3,5
			8 kitchen	3,2 m ²	12 bathroom	2,5
m3-L module	37 m ²		9 storage	1 m ²	13 terrace	8,4

M3 –R for private use as well as low density accommodation facilities. It is easy to install and offers different levels of privacy inside. M3_L is a residential module with a spacious living area, equipped kitchen, sleeping niche with double bed and bathroom. It can be combined with Module-R or used alone.Otatem ea consequi anduciend



45 5

m4 house

M4 House is designed for 2 as an escape or second house, with integrated terrace. Terrace is an extension of inner space directly. It is carved from the mass and covered with shutters. This gave the building privacy options and protection from whether condititions.

You can choose to open it up to the environment or close to invert.



It creates a non-predatory contrast with its surroundings with its aluminum clamped metal coating and its structure that appears in places. The M4 house, which will be produced as 2 modules with a completely volumetric modular structure system, is placed on the previously prepared foundations with a crane. It is assembled ready to use within 3 days. Modules transported to the field with all their equipment can be moved to another location at the same speed.









With its transparency and closure options, the facade and interior can accompany completely different moods. Large glass surfaces that allow wide perspectives bring the boundaries of the space to visual boundaries.

m4 house

	total	74,9 m ²		
1 module				
35 m² total area			1 entrance	1,5 m²
70 m² floor area			2 living space	20 m ²
			3 bedroom	11 m²
			4 bathroom	3,2 m²
The M4 house has a comfortable liv-			5 terrace	5,7 m ²

ing space with a bedroom, kitchen,
living room, bathroom and large terrace that can be completely closed.
All coatings and equipment are
used in first class quality.
Its electrical and mechanical system is of top quality so that it can
run smoothly for a long time.
Although the system meets all basic needs,
options can be added to increase comfort.

ground floor



33,5 m²

6 terrace

comfort.zone

Comfort.Zone was designed as a seperated, modular atomized hotel in the MatrixLab module to adapt to new conditions after the pandemic.



The rooms meet all the requirements of a hotel room. It is also terraced to support and enrich outdoor use.











Comfort.Zone-R Rooms have 2 courtyards. Its use will vary according to different conditions that will occur with different sun angles. The wooden wall is a windbreaker, but also provides privacy. It is a terrace curtain.

jan'2021









The Comfort.Zone-P module, which can be combined and expanded in different ways, was designed for the common areas in the planning created by making a business design to receive the entire hotel service. This design provides a spacious kitchen, warehouse and office facilities. It will also be used as a reception.

comfort.zone

2 alternatives
1 module per alternatives
comfort.zone r : 50 m ²
comfort.zone p : 40 m ²

Integration is very easy with our plug&play feature. It gives the flexibility to add new units for expansion of a facility or to replace it with a new unit. All-in-one plug&play connections; data, electric, heating, black water, grey water and cold water. You can connect or disconnect a building, a medical facility or a patient room according to your operational needs. Also with our off the grid solution we can provide sustainable solutions. Collecting fresh water, waste water treatment and energy generation. Our off the grid solution is for disaster zones, developing regions, temporary or affordable house.

		1 entrance terrace	40 m ²	
		2 living space	35,6 m ²	
		3 bathroom	8,3 m ²	
comfort.zone r	50 m ²	4 garden terrace	40 m ²	
		5 entrance	1 m ²	10 living
		6 storage	0,6 m ²	space
		7 entrance hall	1,3 m ²	11 preper- 19,7 m ²
a a mfart sana -	$10 m^2$	8 storage	0,6 m ²	ation 4,3 m ²
comort.zone p	40 III ²	9 storage	2,4 m ²	12 bathroom 2,7 m ²



90 m²

total



comfort.zone p

play.zone

play.zone is a workshop area that will host many age groups according to the content. The modular structure, which will be produced off-site and transferred to its place, has been developed to support many open area activities with its flexible plan and alternatives.

Created for wooden interior and exterior coverings, integrated storage areas, story shops, skill development groups. Planning, which allows 3 separate activities to be carried out at the same time, can also be used enlarged.





Since the workshop unit, which will be produced on order, does not require a foundation, it can be installed in many areas with mobile foundation systems in 2 days.

The factory production process of the play.zone units, which are produced volumetrically in the factory, is 6-8 weeks. matrixLab. fabricated spaces

71


Created for wooden interior and exterior coverings, integrated storage areas, story shops, skill development groups. Planning, which allows 3 separate activities to be carried out at the same time, can also be used enlarged. The unit, which is especially useful for garden activities, forest schools, local governments' activity areas, illustrates how sustainable construction techniques can be used even at the smallest scales with a very low carbon footprint score. All coatings, wet areas, including lighting fixtures will be produced at the factory. It will be built with 2 modules as terrace and building unit. The roof of the module, which can be easily integrated with all other energy systems, is suitable for mounting PV panels if desired.

Thanks to its lightness, the structure, which does not require a permanent foundation, can be put into service within 2 days after it is installed with the help of a truck and crane.





play.zone

1 modul

75 m² total area

total

indoor	41 m ²	4 entrance hall	10 m ²	5 wc 3 m ²
		3 activity zone	13 m ²	
		2 play zone	10 m ²	

It is a workshop area that will host many age groups according to the content. The modular structure, which will be produced off-site and transferred to its place, has been developed to support many open area activities with its flexible plan.

with 36 m² interior play & activity space

tivities	35 m ²	1 entrance terrace 3 m ²	9 playground
outdoor ac-			8 sandbox
			7 wooden ba
			6 organic far





rming area

alance boards

area

77

sw.zone

SW.Zone is designed as a pop-up office, store, sales office. SW.Zone, which has the ability to adapt to many different functions, is used as real estate sales offices, stores, and offices. It can be installed quickly and easily, minimizing the foundation requirement with its lightweight construction material.



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Its architectural design shows itself quite uniquely with its façade. Facade openings are clear and where required. The strong façade brought by this clarity creates a perception beyond its dimensions, and brings flexibility to the use of the interior.







It also has outdoor use with its terrace and balcony. Thus, the facade begins to establish a direct relationship with its surroundings.



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Stal 192 m ²	
1 entrance terrace 13,4 m ² 6 wc	2,6 m ²
2 reception 22,5 m ² 7 storage	6,8 m ²
3 hall 4 m ² 8 meeting roc	17,8 m ²
4 kitchenette8,3 m²9 showroom	22,5 m ²
round floor 96 m ² 5 wc 2,6 m ² 10 terrace	6,7 m ²
1 entrance terrace13,4 m²6 wc2 reception22,5 m²7 storage3 hall4 m²8 meeting roc4 kitchenette8,3 m²9 showroomround floor96 m²5 wc2,6 m²10 terrace	2,6 m ² 6,8 m ² 17,8 m ² 22,5 m ² 6,7 m ²

1st floor 96 m²



1 meeting area	14,8 m ²
2 open office	32,2 m ²
3 manager room	20 m ²
4 terrace	8 m ²



safe.zone

Safe.Zone Units are security (for police and similar security forces) buildings that are formed by a combination of portable sized units that can easily adapt to different geography and climate conditions and meet different density needs. Safe.Zone, which has two different types, takes its final shape according to the different needs of different areas.



The removal of eye-level windows and the use of a closed wall as a separate security point at the entrance allows it to be placed close to the street. The large backyard for safe transfer and handling allows large vehicles to be taken as needed.





Safe.Zone_U It is a unit designed for the daily security needs of urban busy areas. The fiction, which makes you feel accessible with the image of a reliable and powerful state institution, starts with 12 units.















97

Safe.Zone_R Unit, developed for rural areas and small neighborhoods, is easy to access and accessible to the public. Besides, it can be expanded from 1 unit to 12 units.age of a reliable and powerful state institution, starts with 12 units.

		total	590 m ²			1 entrance waiting	52,5 m ²		
safe	70Ne					2 patrol	36,7 m ²		
	-					3 record	24,5 m ²	13 restroom	24,5 m²
						4 armory	12,2 m ²	14 staff room	24,5 m²
	12 typical modules + 2 con-					5 administration	61,2 m ²	15 doctor	14 m ²
	nocting modulos	safa zana P	05 m²			6 roll call	12,2 m ²	16 lab	10,5 m²
	cafe zone P: 546 m ² total area		90 III-			7 dedective	36,7 m²	17 evidence	12,2 m²
	safe zone II: 590 m ² total area					8 wc	17,5 m²	18 officer room	12,2 m²
						9 storage	19,2 m²	19 jail	36,7 m²
	Safe.Zone, which has two different types,			u1 entrance terrace	142 m ²	10 dinning room	36,7 m²	20 cubbyholes	24,5 m²
	takes its final shape according to the dif-			u2 security and	94 m²	11 storage	12,2 m²	21 transfer hall	52,5 m²
	ferent needs of different areas.	safe.zone U	85 m²	entrance		12 mechanical	12,2 m ²	22 transfer courtyard	142 m ²





safe.zone U plan



safe.zone R plan

immeuble office

The location of the plot of the designed office building is in the southern part of the Dakar Peninsula. The area includes prestigious institutions, Government Buildings and the old city center. The plot subject to design is located on Rue de La Public, one of the most important axes of the city's historical center. There are historical buildings on th is axis.





The balconies on the façade also function as sun shading. Thus, the effects of the sun light coming up straight are alleviated. Inside the office is almost never exposed to direct sunlight.





103









107

basement floor

immeuble office	•					rr	
	m	m		h	$\mathbf{\Omega}$		ICO
			Cu				

1 module type
6430 m ² total area

450 m² floor area

The building houses reception and parking functions on the ground floor and offices on the upper floors. The core is grouped on two deaf sides. Office modules will be mounted to the reinforced concrete nest to be formed here.

		1 elevation hall	9,2 m ²	6 fire escape	25,7 m ²
		2 lobby	80 m ²	7 hall	13 m ²
		3 seminar hall	95 m ²	8 technical	31 m ²
		4 storage	6,3 m ²	9 technical	26 m ²
basement floor	427 m ²	5 wc	22,3 m ²	10 storage	46 m ²
		1 entrance	50 m ²		
		2 lobby	90 m ²	5 wc	13,5 m ²
		3 elevation hall	9,2 m ²	6 fire escape	25,7 m ²
ground floor	427 m ²	4 hall	93 m ²	7 parking area	100 m ²
		1 elevation hall	9,2 m ²	7 manager rooms	50 m ²
		2 stair hall	20 m ²	8 terraces	24 m ²
		3 reception	21 m ²	9 hall	6,1 m ²
		4 meeting room	11,5 m ²	10 storage	2,2 m ²
		5 fire escape	25,7 m ²	11 kitchenette	5,1 m ²
typical floors	450 m ²	6 open office	177,5 m ²	12 wc	18 m ²





basement floor plan

108

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typical floor plan



sunny gardens

Oznur Caglayan's project Sunny Gardens In Bamako received WA Awards in the category Architecture - Designed, 34th Cycle, June 2020.



vln Bamako, Senegal there is a lack of quality residenses. Therefore a big developer of Senegal wants to built new places for accomodation, retail, recreation in capital city Bamako. Medium size plots in the city's most prestigious neighbourhood are looks very suitable for this usage. Developers was concerned about the quality of the end product. All construction materials and qualified work force has to import. For that reason off-site construction methods was suitable for them. Bamako is changing fast and growing exponantially. The municipality rules are rapidly changing. So after a short period of time when the conditions change there should be a way to adapt that without demolish the building to the ground. The solution to these diffrent problems would be through construction method. We know what-to-built we need to discuss how-to-built.





Architectural Design in Semi-Arid Climate

The location of the design has challenging climate conditions. All elements concidered for decreasing the effects and the adopt to this conditions to keep spaces cool down to confartable, tolerable ranges of wide heat scale. Conditions shaped the building,

- Sun Protection
- Building Orientation: Carefully studied to protect from western and north sun.
- Building Shaping: created open, semi-open spaces,

inner gardens, a grande court-yard.

- Louvre Shades : to cover nearly all gardens because of long hours of vertical sun light.
- Plants are important to keep the air mousturise and create shade.
- Natural Ventilation

- Small façade openings: To protect sun light and speed the air up

- Opening combinations: same goal, speed it up.
- Shaded vs sunny side: to create tension between hot

and cool/shaded areas to move the air naturally.

- Semi-Close Areas
- side except peak hours of the day.
- graded spaces.
- stong sunlight.

- Wind corridors: to benefit of moving air's cooling effect.

- For outdoor use: Climates advanteges is the living out-

- Protected façades: important to keep indoor cool. And

- Shading variations: to prevent different affects of the







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Besides the preliminery conditions mentioned above, fast construction, easy to erract the building, clean manufacture, low carbon emissions and safety issues, decid ed with all actors to use volumetric, off-site light steel modular construction. All volumes are produced as designed and fully completed such as including façade cladding and interior materials (bathroom, cabinets, kitchen utensils, armatures, etc.). Ready-to-use construction modules are packed at the factory, and transferred to the site by tuck, vessel or aircraft. This also allows us to cost-control via manufacturing processes





Programme

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The ground floor occupied by retail, restaurant, carparking (at least 1 parking lot per residential unit) , technical and service, entrance functions. This alowed us to levelled up residency from street level. Ground floors façades are dedicated to retail on the edge of the main 3 streets. Arcaded entrances protect pedestrians from sunlight, and shade to shops. The Entrans to the residence is at the back of the building, facing a calm street. Public space in front of Ave de la Nation building façade gives perspective to the main axis by this move. Sharaton axis getting stonger. Top of this pedestal, residential units are placed through the exterior facade to create the wide courtyard required by the climate. Housing units were opened to create wind corridors in accordance with the main wind direction to increase natural ventilation. This openings will help to catch the wind and speed it up. There are 2 storey 3+1 units with private terraces and a 4 storey apartment contains 2+1 units with balconies. Apartment blok is set on the west edge of the courtyard because the height of the building's shade is covering the courtyard for much more hour.







120





m'bour villas

The MBOUR VILLAS project area is located in the resort area of Sal, an oceanfront holiday region near Dakar, the capital of Senegal. The coastal town, which is developing rapidly due to its climate, sea, long coastline and proximity to the capital of the 4th biggest economy of Africa, has motivated many foreign and domestic investors to produce tourism facilities. In addition to large hotels, summer residences are also planned in the region.



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14°17'50.8'N 16°55'38. <u>NBOUR</u> VILL

FABRICATED SPACES











NE 1



One of these plans is a 5-hectare land with a slight slope, also located on the 2nd band on the coast. Here, an inner lagoon is formed seasonally as a result of sea floods. The surrounding parcels come together and make this lagoon permanent and it is designed as a natural park, walking and recreation area for the inner parcels. In the work area overlooking this lagoon and nature park with its wide facade, it will be produced in the Euromod factory in Istanbul with volumetric modular construction technique, and production will be made with the residences we designed.









Collaboration with...

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