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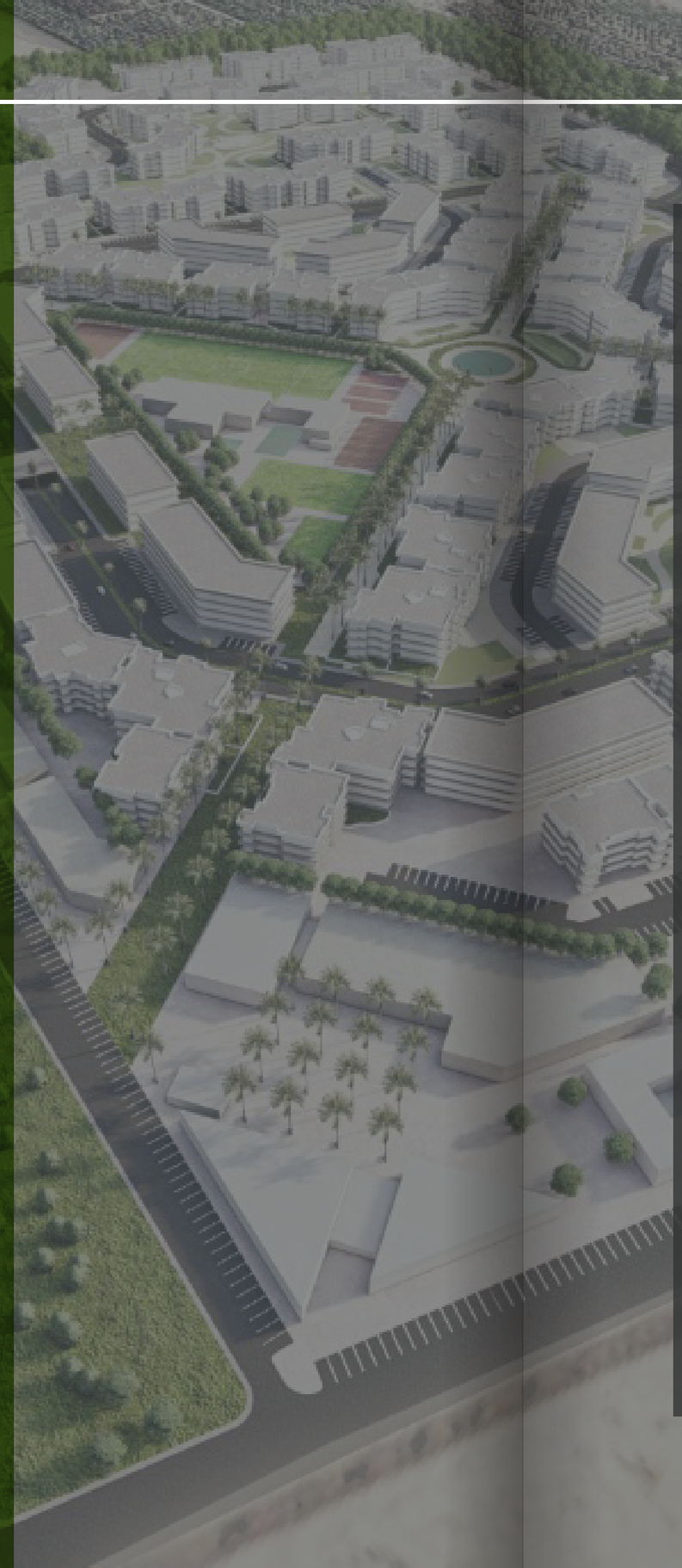
WE ARE ABLE TO MAKE A DESIGN THAT IS UNIQUELY YOURS AND GET IT TO REALITY

مداد
MEDAD

FALL EDITION

THIS EDITION FEATURES:



ABOUT MEDAD:

Medad is a creative design office providing architectural, urban and interior design along with project management and furniture procurement services for clients across the globe.

We design innovative retail, residential, hospitality, office and integrated mixed-use developments, with a focus on the people who use them. Our office is committed to creating unique and memorable destinations – projects and places that enhance their surroundings and improve the lives of those who populate and move through them daily.

Medad thinks globally but acts locally. We believe design should be timeless and inspiring yet practical for both their owners and occupants. We imagine things from both the outside to the inside and the inside to the outside. Our special expertise is the interlocking of the architecture to the interior design. With creativity and modern thinking we realize projects which stand out and the result is perfectly tailored to the user.
Medad has been part os the arcitecture community and engineering consulting for 34 years with a rich history of collaborations and ever enriched artistical, technical, and professional capabilities.
Medad also established several entities and sister companies (Egyptian Company for Building Industry "Madina", Arabian Wood industries Co. "Araek", "Madar" Project Management, United Group of Wood Industry "khashab Khan", TORATH for construction and urban development, FNON for the wood industry and finally AlMayan for handmade products).
with a continued creative activities and products with a high degree of excellence.
Medad`s brances extend to several countries including Saudi Arabia (Riyadh, Jeddah), Qatar (Doha), UAE (Ras Al Khaimah), Libya (Tripli), and finally Kenya (Nairobi).
Medad senior staff`s accumulated experinces are being passed on through an educational process, whether lecturing or arbitration projectsin various Egyptian universities such as Cairo University, American University in Cairo, Arab Academy for Science, Technology & Maritime Transport, and Modern Sciences and Art University (MSA).

OTHMAN CITY
Ismailia, Egypt

مدينة عثمان
الإسماعيلية، مصر

MEDAD`S COMMUNITY:

The directors and senior staff of Medad bring many years of collective experience to every project – we know what works. At the same time, we capture emerging trends worldwide and incorporate the best new ideas into our designs on a continual basis. Working with many of the world's strongest developers, designers, and retailers, we treat each new opportunity as a collaborative exploration, with the goal of meeting the expectations of our clients and our projects' end users.
We believe in investing in a team of strong collaborators and supporters of one another. Our process is an open studio where input and comment is sought and considered from all of members of our team guided by a strong design lead. Nurturing a creative atmosphere and drawing on a diverse and experienced team ensures effective and timely results.

OUR TEAM:

MEDAD Consultant Engineers, Relies on the talent of its experienced and professional team to create solutions that are functional, cost-effective and memorable.

Knowledge and anticipation are two key components of our design team`s ability to completely satisfy our client`s needs.

Medad maintains a staff of more than 40 dynamic, qualified and professional individuals whose purpose is to be creative in architecture and design, unique in concept development,and professional in execution.

OUR VALUES:

Collaboration Is the center of our creative process.
We believe in the power of people working together creatively. We actively engage with clients, consultants and our staff, encouraging open discussion throughout all phases of a project.

We build relationships. We care about our clients.
"Our word is our bond" and it is the guiding principle in all of our client relationships. This enables us to add value significantly and to build trust with our clients and partners.

Our designs are based on simple and elegant solutions, with the client in mind.
Our design approach is sensitive to location and culture, often combining the latest thinking with the local Islamic requirements to create truly inspirational spaces.

MEDAD`S VISION:

It's all about the people..

People are at the heart of what we do. Our culture is open and collaborative, and working in dynamic teams we inspire and challenge each other to achieve pioneering outcomes and service excellence for our clients. Our designers are committed to perform effectively in order to provide our clients with the ultimate well-conceived, innovative design solutions.

We foster a highly creative, collaborative work environment at our office and constantly infuse our various teams with developing young design talent. Our creative staff is comprised of exceptionally talented design professionals who have embraced Medad's philosophy of design.

DESIGN PHASES:

We aim to make the design process enjoyable for our clients, interpreting their ideas and developing a finished product that meets their expectations with added-value.

Pre-contract design stages:

-Briefing
-Concept Design
-Schematic Design
-Detailed Design

Post-contract construction stages:

-Tender
-ff&E Procurement
-Project Supervision

OUR SERVICES:

Medad is a full-service interior design firm known for its luxury, sophistication, and comfort in the world of architecture and interior design. Our skilled design team specializes in creating unique spaces. We do not have a predetermined style. Our goal is to create beautiful custom-made designs that fulfills our client's needs and reflect their unique personality.

Services:

-Architecture
-Urban Design
-Interior Design
-Project Supervision
-ff&E Procurement

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Rue De Rivoli Mall
New Administrative Capital, Egypt
مركز رو دي ريفولي التجاري
العاصمة الإدارية الجديدة، مصر

MEDAD NEWS

MEDAD NEWS

MEDAD OPENS A NEW BRANCH IN USA!

MEDAD CONSULTANT ENGINEERS

تخطو مداد مهندسون استشاريون خطوات واسعة نحو تحقيق رؤيتها المعمارية وسعيها الدائم في توطيد العلاقة بين العمارة والإنسان في مختلف الثقافات والبيئات بافتتاح فرعها الجديد في ولاية تكساس التابعة للولايات المتحدة الأمريكية.

UNITED STATES - USA:

Texas

Address : 888 W Sam Houston Pkwy S
Suite# 125 , Houston , Tx , 77042
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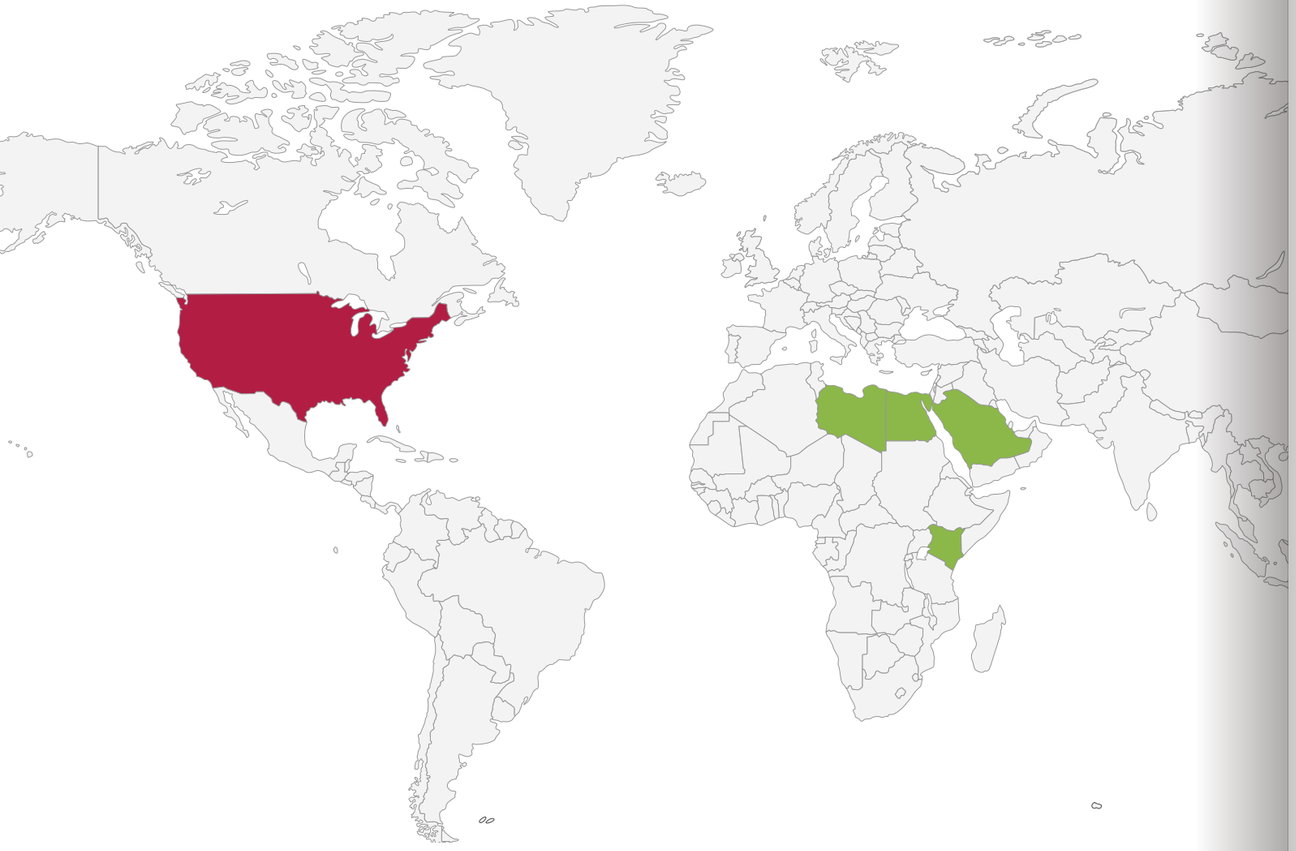

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UNITED STATES - USA:

Texas

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Mobile : (713)-463-9994 /(832)-339-2937

KINGDOM OF SAUDI ARABIA:

Jeddah

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Mobile : +966 555 789 474
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e.bakry@medadce-ksa.com

LIBYA

Tripoli

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Zawyet Dahmani, Tripoli, Libya
Mobile : + 218 (91) 369257
E-mail : info@medadce-lby.com

KENYA

Nairobi

Address : Westlands, Flat 25, LR No. 47/209 Muthithi Road,
P.O. Box 66883-00800 ,Nairobi, Kenya
E-mail : info@medadce-ke.com

MEDAD Succeeded In facing The Challenges In Asten College Project!

ASTEN COLLEGE
LUCIDA FUTURUM

خلال 10 أشهر فقط انتهت مداد مهندسون استشاريون من تنفيذ مشروع مدارس أستن كولدج الدولية والذي أُسند إليها التصميم والإشراف على تنفيذه بمشروع تاج سيتي. وهي إحدى مشروعات شركة التعليم المتوازن (BalancED) التي تتبع نظام التعليم البريطاني (IGCSE) ومن أول المدارس التي تطبق فكرة التحول الرقمي في التعليم من خلال الشراكة مع مايكروسوفت مصر.

وقد نجحت مداد في مواجهة تحديات كثيرة أهمها مسابقة الوقت لتبدأ المدارس باستقبال الطلاب مع بداية العام الدراسي الجديد.

ويتميز مشروع تاج سيتي بموقعه الاستراتيجي المتميز بمنطقة القاهرة الجديدة على الطريق الدائري بالقرب من مطار القاهرة الدولي حيث يبعد دقائق عن كل من منطقتى شرق القاهرة وهليوبوليس.

ONLY 10 MONTHS !!

DEC. 2022

SEP. 2023

DEC. 2022

FEB. 2023

MAY. 2023

SEP. 2023

MEDAD
CONSULTANT ENGINEERS

ENG. HUSSIEN SABBOUR MOSQUE
New Cairo, Egypt
مسجد المهندس. حسين صبور
القاهرة الجديدة، مصر

MEDAD PROJECTS

www.medadce.com

Asten International College, New Cairo, Egypt

مدارس أستن الدولية القاهرة الجديدة، مصر

Medad Consultant Engineers is proud to announce the successful completion of Asten College International Schools project ,which was entrusted with the design and supervision of its implementation in the Taj City project. It is one of the projects of the Balanced Education Company (BalancED), which follows the British education system (IGCSE), and is one of the first schools to implement the idea of digital transformation in education through a partnership with Microsoft Egypt.

01

The Taj City project is distinguished by its strategic location in the New Cairo area on the ring road near Cairo International Airport, as it is minutes away from both the East Cairo and Heliopolis areas.

The project consists of two buildings:
1. An administrative building (ground + two floors), with an area of 315 m2 per floor.
2. School building (ground + 3 floors) with an area of about 3,500 m2 per floor.

3D MODEL

SITE

خلال 10 أشهر فقط انتهت مداد مهندسون استشاريون من تنفيذ مشروع مدارس أستن كولدج الدولية والذي أُسند إليها التصميم والإشراف على تنفيذه بمشروع تاج سيتي. وهي إحدى مشروعات شركة التعليم المتوازن (BalancED) التي تتبع نظام التعليم البريطاني (IGCSE) ومن أول المدارس التي تطبق فكرة التحول الرقمي في التعليم من خلال الشراكة مع مايكروسوفت مصر.

ويتميز مشروع تاج سيتي بموقعه الاستراتيجي المتميز بمنطقة القاهرة الجديدة على الطريق الدائري بالقرب من مطار القاهرة الدولي حيث يبعد دقائق عن كل من منطقتى شرق القاهرة وهليوبوليس.

والمشروع عبارة عن مبنيين؛

1. مبنى إداري (أرضي + دورين) بمساحة حوالي 315 متر مربع لكل طابق.
2. مبنى المدرسة (أرضي + 3 أدوار) بمساحة حوالي 3500 متر مربع لكل طابق.

3D MODEL

SITE

TAJOURA REST HOUSE Tripoli, Libya

استراحة مزرعة تاجوراء طرابلس، ليبيا

The rest house is located within one of the farmlands of the Tajoura area in Tripoli. The building footprint is approximately 320 m2. It is intended to be used for local celebrations and other traditional events. This was achieved on the interior level as the local visual identity was used with a contemporary twist to it. Wooden beams dot the ceiling areas while stone masonry was used along both the exterior and interior walls. For further effect, Medad elected to use earthen, natural colours that create a sense of comfort and familiarity. Considering the rest house's location within a verdant farmland, the house was designed to maximize glass openings along the outer walls of the main spaces, to meld the outdoors with the indoors. To add to this, an inner courtyard was built, full of plants of its own.

SITE

02

تقع الاستراحة في إحدى المزارع بمنطقة تاجوراء بمدينة طرابلس بمساحة بنائية تقدر بحوالى 320 م2. و كان الهدف من الاستراحة هو استخدامها في الطقوس و المناسبات المحلية

فقد تم تحقيق ذلك في التصميم الداخلي من حيث دراسة و استخدام الطابع المحلى و تطبيقه بصورة معاصرة تحافظ على التراث المحلى. فتم استخدام ألواح الخشب المتعددة في السقف و استخدم الحجر في بعض الحوائط الداخلية و الخارجية و استخدام الدهانات الخشنة ذات الأساس الأسمنتي، كما تم استخدام الألوان الطبيعية الطينية التي تخلق جو مناسب للمستخدم و يساعد على الاسترخاء

و بما أن الاستراحة داخل مزرعة فقد تم التركيز على الإكثار من مسطح الزجاج الشفاف في الفراغات الرئيسية للدمج بين الخارج و الداخل مع عمل فناء مزروع مغلق في منتصف الاستراحة بدون الإخلال بالاعتبارات البيئية

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NAMAA SUMMIT 44
New Cairo, Egypt
مبنى نماء 44
القاهرة الجديدة، مصر

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THE PRITZKER ARCHITECTURE PRIZE

The Pritzker Architecture Prize

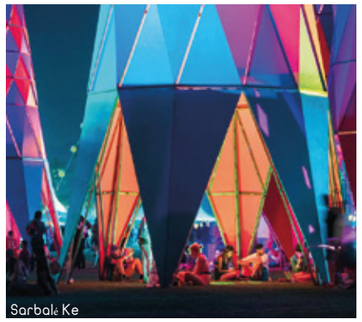
Diébédo francis Kéré

"I grew up in a community where there was no kindergarten, but where community was your family. Everyone took care of you and the entire village was your playground. My days were filled with securing food and water, but also simply being together, talking together, building houses together. I remember the room where my grandmother would sit and tell stories with a little light, while we would huddle close to each other and her voice inside the room enclosed us, summoning us to come closer and form a safe place. This was my first sense of architecture."

Gando Primary School

francis Kéré (b.1965) was born in Burkina faso - one of the world's least educated and most impoverished nations, a land void of clean drinking water, electricity and infrastructure, let alone architecture. His small childhood classroom in Tenkodogo was constructed of cement blocks and lacked ventilation and light. Trapped in that extreme climate with over one hundred classmates for hours at a time, he vowed to one day make schools better.

Sarbale Ke



Sarbale Ke

Kéré's mind never strayed from his homeland. His first building, Gando Primary School, was built by and for the people of Gando. Locals offered their input, labor and resources from conception to completion, crafting nearly every part of the school by hand, guided by the architect's inventive forms of indigenous materials and modern engineering.

Xylem

Léo Doctors' Housing

Burkina Institute of Technology

Burkina Institute of Technology

Kéré has bestowed purposeful ideas, technical knowledge, environmental understanding and aesthetic solutions, but his service to humanity through cultural sensitivity, process of engagement and devotion proves as a constant example of generosity to the world.

"I considered my work a private task, a duty to this community. But every person can take the time to go and investigate from things that are existing. We have to fight to create the quality that we need to improve people's lives."

In 1985, he uprooted again, this time, much further from home, traveling to Berlin on a vocational carpentry scholarship, learning to make roofs and furniture by day, while attending secondary classes at night. He was awarded a scholarship to attend Technische Universität Berlin (Berlin, Germany) in 1995, graduating in 2004 with an advanced degree in architecture.

His work has expanded beyond school buildings in African countries to include temporary and permanent structures in Denmark, Germany, Italy, Switzerland, the United Kingdom, and the United States. Two historic parliament buildings, the National Assembly of Burkina Faso (Ouagadougou, Burkina Faso) and Benin National Assembly (Porto-Novo, Republic of Benin), have been commissioned, with the latter currently under construction.

National Park of Mali

Benga Riverside School

Opera Village

The success of Gando Primary School awarded him the Aga Khan Award for Architecture in 2004, and was the catalyst for establishing his practice, Kéré Architecture, in Berlin, Germany in 2005. The realization of additional primary, secondary, postsecondary and medical facilities soon followed throughout Burkina Faso, Kenya, Mozambique and Uganda.

Kéré's built works in Africa have yielded exponential results, not only by providing academic education for children and medical treatment for the unwell, but by instilling occupational opportunities and abiding vocational skills for adults, therefore serving and stabilizing the future of entire communities..

Additional awards include the Cité de l'Architecture et du Patrimoine's Global Award for Sustainable Architecture (2009), BSI Swiss Architectural Award (2010); the Global Holcim Awards Gold (2012, Zurich, Switzerland), Schelling Architecture Award (2014); Arnold W Brunner Memorial Prize in Architecture from the American Academy of Arts & Letters (2017); and the Thomas Jefferson Foundation Medal in Architecture (2021).

The architect has been a visiting professor at the Harvard University Graduate School of Design (Massachusetts, United States), Yale School of Architecture (Connecticut, United States), and holds the inaugural Chair of Architectural Design and Participation professorship at the Technische Universität München (Munich, Germany) since 2017.
He is an Honorary Fellow of Royal Architectural Institute of Canada (2018) and the American Institute of Architects (2012) and a chartered member of the Royal Institute of British Architects (2009).
Kéré is a dual citizen of Burkina Faso and Germany and spends his time professionally and personally equally in both countries.


Centre for Health and Social Welfare


Centre for Health and Social Welfare


Surgical Clinic and Health Centre


Startup Lions Campus

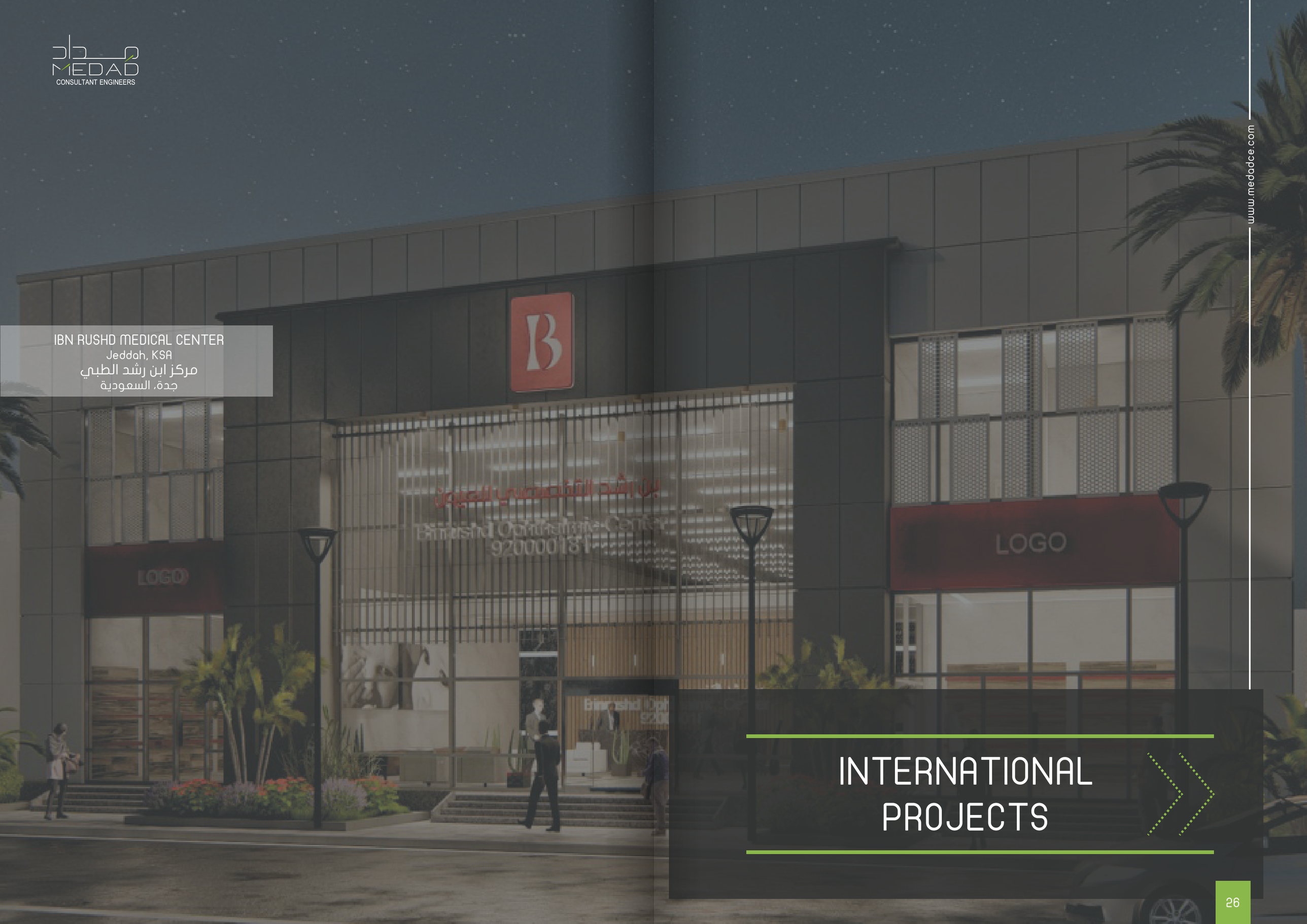

Lycée Schorge Secondary School


Serpentine Pavilion


Burkina Faso National Assembly, rendering courtesy of Kere Architecture


Benin National Assembly, rendering courtesy of Kere Architecture

ديابيدو فرانسيس كيري، أوّل إفريقي يفوز بجائزة بريتزكار Pritzker، يفضّل الكفاءات والمواد المحلية لتصميم مبانٍ أنيقة تحترم البيئة ومُتجذّرة في محيطها. يقوم منهجه على تشريك السّكان منذ المراحل الأولى للمشروع لخلق أماكن للحياة تتماشى مع حاجيّات السكان. ولد عام 1965 في قرية جاندو شرق واجادوجو عاصمة بوركينا فاسو، ونشأ في مكان حيث لا توجد مياه جارية أو كهرباء، تشاهده الآن، كمهندس معماري ناجح، بينما وجهه لايزال يحمل ندوب القبيلة التي تشير إلى أنه ابن رئيس القرية، وهو المنصب الذي منحه فرصة نادره للالتحاق بالمدرسة الثانوية في المدينة، وفي سن الثامنة عشر حصل على منحة دراسية لدراسة الأعمال الخشبية في ألمانيا. في عام 2017 تم اختياره كأول معماري أفريقي لتصميم جناح معرض "**سيربانتين**" السنوي في بريطانيا، وكان اختيار كيري حدثا كبيرا، واعترافا بموهبته الكبيرة، وأبهر الجميع بهيكله الخشبي الضخم الذي تعلوه منصة زرقاء جعلته أشبه بطبق طائر داخل حدائق قصر كينجستون التي يقام فيها المعرض. أصبح كيري واحدا من المعماريين الأفارقة القلائل الذين يتمتعون بشخصية عالمية، وأصبح وجه دائم ومرغوب في كبرى المعارض والمؤتمرات حول العالم،شارك في معرض Sensing Spaces التابع للأكاديمية الملكية، وكان ضمن المشاركين في بينالي شيكاغو عام 2015 ، وفي 2016 شارك في بينالي البندقية. وعند سؤاله عن نهجه في تدريس الهندسة المعمارية بصفته أستاذا في الجامعة التقنية ببرلين وجامعة هارفارد وويسكونسن، قال إنه يحاول تعليم الطلبة كيفية ربط التدريس والتفكير بعملية الصنع، عبر تصميمات واعية اجتماعيا بطبيعة المجتمع والبيئة التي سوف تقدم فيها، وإشراكهم في مشاريع حقيقية، وأدفعهم ليكونوا أصحاب رؤى خاصة بهم. يقول عن شعبه: " معظمهم لم يروا أبدا ارتفاعا أعلى من الشجرة"، وأبدى رغبته في بناء مبنى البرلمان الجديد الذي احترق عقب الانتفاضات التي شهدتها بلاده عام 2014، وقال إن هناك حاجة ملحة في وطنه إلى الانفتاح والشفافية، ليتمكن المواطنين أخيرا من التسلق فوق السياسيين أخيرا."



MEDAD
CONSULTANT ENGINEERS

IBN RUSHD MEDICAL CENTER
Jeddah, KSA
مركز ابن رشد الطبي
جدة، السعودية

INTERNATIONAL PROJECTS

www.medadce.com

Pan Pacific Orchard Hotel

Located at 10 Claymore Road,SINGAPORE.
Located at the ground level, the forest Terrace steps down from Claymore Road to Claymore Drive with a cascading water plaza edged by forest trees. This dramatic entrance doubles as a publicly accessible urban connection that connects Claymore Road to Orchard Road and offers both guests and the public a respite from the hustle and bustle of the densely built-up district. Traditional construction methods, whether for structural elements, roofing systems, pavements, or facades.The Garden Terrace oriented towards the quiet Claymore residential estate. the building replaces %200 of its site area with greenery.

At the top, the Cloud Terrace comprises a landscaped event plaza . The terrace is sheltered by a photovoltaic canopy above. Green columns anchor each terrace and visually connect the four strata. Together with the landscaping on the terraces.

Pan Pacific Orchard contributes to the vibrancy of the city by revealing celebrations that are normally hidden indoors. This is made possible by the open-air, cross-ventilated yet sheltered spaces, which are designed specifically for Singapore's equatorial climate, where warm, humid air, low wind speeds, and frequent, yet unpredictable, heavy rainfall make fully outdoor events a challenge.

These garden volumes provide views for both the rooms and the neighbors, creating a spatial interplay with the neighborhood that is lacking in most high-density environments.
The mirrored ceilings reveal the landscape and activities of the street below. Likewise, the signature creeper-clad columns make a powerful green statement.

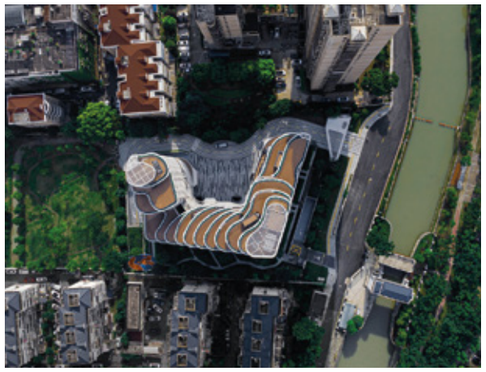
The huge volumes function as giant sunshades to the terrace and rooms, while the reflective ceilings act as thermal mirrors, providing radiant cooling by doubling the surface area of gardens and water.

Pan Pacific Orchard has obtained the Green Mark Platinum rating, Singapore's highest environmental certification, with its incorporation of active systems and passive design strategies that reduce energy and water needs. It will be Singapore's distinctive garden hotel and a green icon in its famed Orchard Road.

K. Wah Riverside E18 Residence

Located near the riverfront area in Shanghai,
K. Wah Riverside E18 Residence is a multifamily housing project with over 110 apartment units on a tight site surrounded by dense residential neighborhoods. In an environment where scale and speed are hyper-valued in the realm of development, the design of E18 Residence intends to break the mold of mass produced homogenous housing typologies in China, E18 Residence takes its unique building form from the geometric relationships between the allowable building envelope and sun path. The building utilizes a U shaped massing configuration, a solution to accommodate the residential program and establish continuity to the urban interface.

The massing is sculpted using sunlight studies, ensuring solar access for the surrounding existing neighborhood is not compromised. The height, form and position of the building are strategically developed guided by solar access analysis.



Block E18 is organized around a central courtyard with intimate gardens and a playground on the site, encouraging informal encounters and social interactions. The curvilinear geometry of the inner cascading roof terraces references to the flowing quality of the river nearby, while the rectilinear outline of the massing responds to the existing urban fabric.

The design of E18 Residence provides a transformative urban living experience, introducing multidimensional green terraces within the building.

K. Wah Riverside E18 Residence has a total of 114 units with an average of 90 sqm for typical units and 4 penthouse units, ranging from 2 bedroom units to 4 bedroom duplex units.
The project also consists of 36 different plans to accommodate the required program unit mix.

Each unit at the west wing is positioned at a 45 degree rotation intended to maximize sunlight exposure and optimal views to the river. Relatively small in comparison to its immediate surrounding buildings, the distinctive silhouette of E18 Residence has transformed the skyline of Shanghai and serves as a new prototype for urban living.

MEDAD
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URBAN DESIGN COMPETITION
Al Madinah Al Munawwarah, KSA
مسابقة التصميم العمرانية
المدينة المنورة، السعودية

ARTISTIC EYE

www.medadce.com

FAUVISM

Fishing Boats, Collioure
André Derain.1905

The name les fauves ('the wild beasts') was coined by the critic Louis Vauxcelles when he saw the work of Henri Matisse and André Derain in an exhibition. FAUVISM was the first of the avant-garde movements that flourished in France in the early years of the twentieth century. The fauve painters were the first to break with Impressionism as well as with older, traditional methods of perception. Their spontaneous, often subjective response to nature was expressed in bold, undisguised brushstrokes and high-keyed, vibrant colors directly from the tube.
The fauves were a loosely shaped group of artists sharing a similar approach to nature, but they had no definitive program.

The Seine at Chatou
Maurice de Vlaminck
1906

The Dessert: Harmony in Red
by Henri Matisse

Resnik
Nadežda Petrović1905

The Port of Saint-Tropez
Henri Charles Manguin1905

The fauves rejected optical realism created by Impressionism such as realistic portrayals, and did not apply perspective, or use light-shadow effects. The spontaneous and subjective responses to the subjects in their artworks were expressed through broken brushstrokes and bright colors, using paint straight from the tube. One of fauvism's major contributions to modern art was its radical goal of separating color from its descriptive, representational purpose and allowing it to exist on the canvas as an independent element. Color could project a mood and establish a structure within the work of art without having to be true to the natural world.

View Through A Window
Raoul Dufyca. 1925

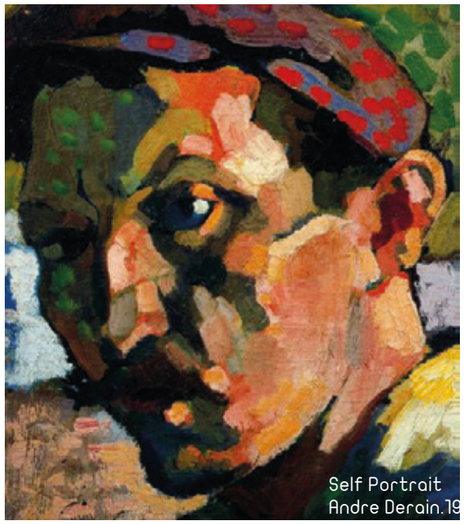
Window Opening on Nice
Raoul Dufy1928

Andre Derain-Co-founder of fauvism Art

Regent Street, London
André Derain ,1906

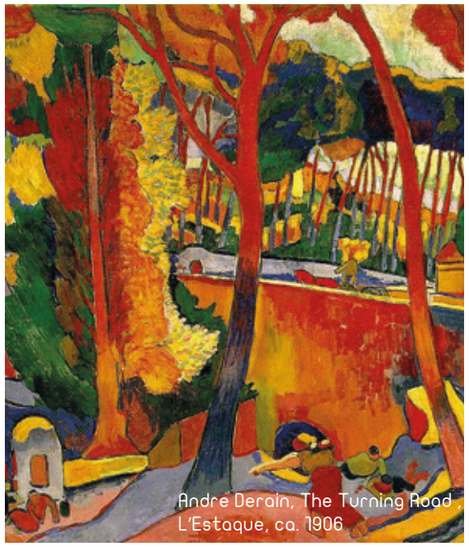
French painter and sculptor André Derain was a leading figure of the avant-garde during the late 19th and early 20th centuries. He was born in Chatou, France in 1880. He began to study art on his own in 1895 and while studying engineering he also took painting classes under Eugène Carrière where he met Henri Matisse. He also shared a studio with Maurice de Vlaminck and together they painted scenes of their neighbourhood.

Derain sustained significant commissions and experimented even more freely, synthesizing the chromatic richness of fauvism with the fragmentation of Pointillism, or Divisionism. In 1906, Ambroise Vollard sent Derain to London to produce a series of paintings of the city. In 30 paintings. Derain presented a portrait of London. That was radically different from anything done by previous painters on the subject, including Monet.



Self Portrait
Andre Derain.19

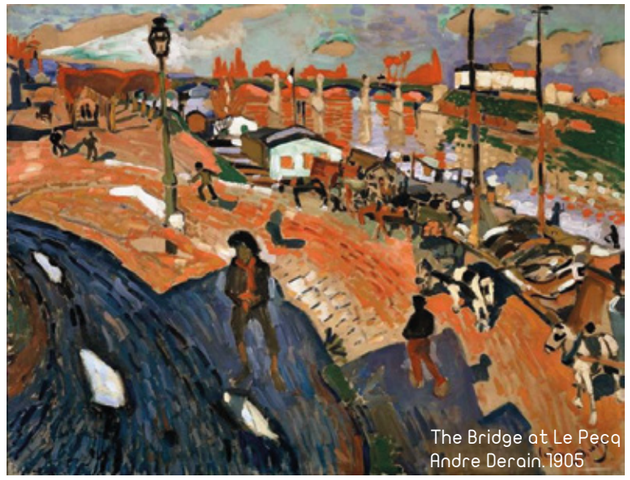
Houses of Parliament
by André Derain.1954



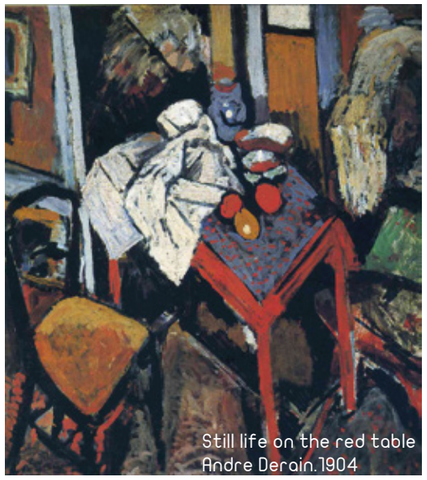
Andre Derain, The Turning Road
L'Estaque, ca. 1906

These bold colour compositions remain among his most popular work as noted by art critic T. G Rosenthal: "Not since Monet has anyone made London seem so fresh and yet remain quintessentially English." He moved to Montmartre to be closer to Picasso and created works influenced by Cubism and Cézanne.

Although he returned to a sense of classicism in his later career, Derain is best known for his role in the development of fauvism alongside Matisse at the turn of the century. His flattened forms and vibrant colours allowed for the liberation of colour from the mimetic representation of subject matter; the ways in which he abstracted his landscapes and figural scenes emphasized colour as a conveyer of meaning in its own right.



The Bridge at Le Pecq
Andre Derain.1905



Still life on the red table
Andre Derain.1904

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ARCHITECTURAL TECHNOLOGY

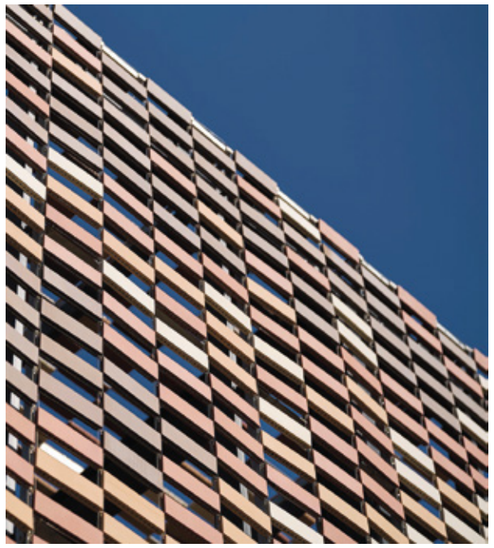
Flexible Bricks to Wrap Architectural Spaces

There are many building materials that have experienced minimal changes since their initial inception in the field of architecture. An example of this is brick, a timeless material that has been able to adapt over the years, serving functions such as walls, cladding, and flooring, among others.

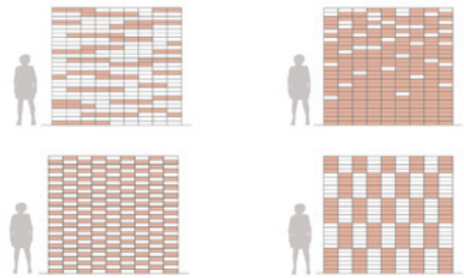
flexbrick

A ceramic textile with an industrialized system that combines flexible sheets to wrap architectural spaces. The modular design of flexbrick systems and their range of custom pieces allow for easy adaptability and flexibility, making it possible to create buildings that mold to any environment. These systems offer several advantages over traditional construction methods, whether for structural elements, roofing systems, pavements, or facades.

The pieces of ceramic textile are made by an industrialized system based on an interwoven steel wire mesh, which is enclosed in a mosaic of ceramic clay tiles stacked in horizontal and vertical bands.



Its main advantage is that it offers a new format that enhances traditional manual piece-by-piece installation. Being highly flexible, the textile can be folded onto pallets for storage and transportation, occupying minimal space and facilitating movement.



In terms of sustainability, flexbrick systems are designed to be sustainable, with a focus on waste reduction and energy consumption. The ceramics used are manufactured using biogas extracted from landfills. Through this strategy, a reduction of energy consumption and fossil fuels is achieved, significantly reducing carbon dioxide and other greenhouse gas emissions (approximately 16,700 tonnes/year of CO_2).

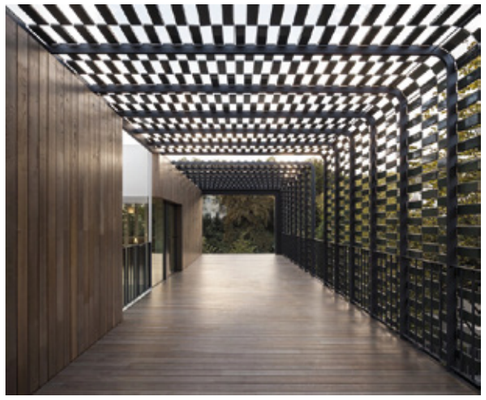
Additionally, flexbrick is a recyclable material composed of steel mesh and ceramic elements, which are easy to separate for recycling, reducing its carbon footprint compared to traditional systems. If used as a facade system, it also acts as a natural sunscreen and reduces solar radiation, creating tempered interspaces in buildings.

A prime example of the versatility of ceramic textile systems is the Opportunity Pavilion for Expo 2020 Dubai.

During its production, biogas was used to avoid CO_2 emissions, demonstrating an environmentally conscious approach and the integration of sustainable practices in parametric architecture. and interact inside.

The Maitland Hospital project

This structure not only fulfills a practical function by protecting pedestrians from direct sunlight and providing them with a shady and comfortable space as they make their way to the entrance but also becomes an artistic element of great relevance.



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SUSTAINABLE SOLUTIONS

Biotechnology and Green Tech: A New Material World!

Building materials and construction account for 11% of greenhouse gas emissions. Living materials for the built environment is a rapidly expanding area of inquiry, serving a wide array of objectives, from reducing carbon footprints, optimizing the use of resources, developing innovative properties to enhancing carbon sequestration.

Replacing Traditional Production with Organic Growth

At the University of Colorado Boulder, the Living Materials Laboratory investigated a new cement-free living building material that, unlike concrete, is entirely recyclable. The team used cyanobacteria, green microorganisms similar to algae that use CO_2 and sunlight to grow, and manufactured a bio cement that helps sequester CO_2. Harnessing the exponential growth of bacteria, the researchers grew the building blocks, demonstrating a new potential manufacturing method.

Mycelium is another prolific area of inquiry for construction materials that can be grown, as materials based on mycelium have good insulation properties, are fire retardants and don't produce toxic gasses.

Self-repairing materials for less resource consumption

With concrete responsible for almost 9% of global carbon emissions, numerous research endeavours focus on finding alternatives to traditional concrete, rethinking its production process or finding solutions for decreasing the demand.
At the Worcester Polytechnic Institute, researchers have developed a self-healing concrete, using an enzyme that transforms carbon dioxide in the atmosphere into calcium carbonate crystals, sealing millimetre-scale cracks and preventing further damage to the material.

Real-life testing and architectural applications

The Hub for Biotechnology in the Built Environment is a research project bringing together bio-scientists and architects, designers working to develop biotechnologies that would help create buildings responsive to their environment.
The research focuses on producing living engineered materials that would metabolize their waste, help reduce pollution, make construction processes more efficient and even generate energy. To test the findings at building scale, the research initiative built an experimental structure within the Newcastle University campus that would help replicate a domestic space.

The Integrated Design Research Lab at the University of North Carolina Charlotte developed an adaptable microalgae façade system that improves indoor air quality and produces renewable energy through integrated photobioreactors. With the Biochromic Window, the air is introduced within the façade system, and the oxygen produced by the algae is introduced into the HVAC system of the building. Fresh algae are introduced regularly into the system, and the carbon-loaded ones sink at the bottom and are transferred into a component that converts them into biofuel. The system has been adapted and developed for commercial use.

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