“Tate & Lyle and the unexpected future of sugar in the Royal Docks” Podcast Transcript – LFA Building Sounds

0:07 - Introduction

Eliza: Hello and welcome back to Building Sounds, the podcast exploring the stories behind some of the key buildings and projects in our city. Brought to you by the London Festival of Architecture, I’m your host Eliza Grosvenor.

We’re currently in our Key Actors series exploring the key people and projects shaping the Royal Docks. In this episode we’re exploring Tate & Lyle and the unexpected future of sugar in the Royal Docks.

To start with I’m joined by Chris Abell, head of property and local affairs at Tate & Lyle sugar.

After I’ll be joined by two individuals from the university of east London, Alan Chandler, dean of research, and Armor Gutierrez Rivas, senior lecturer.

0:50 - Chris Bel

Eliza: So to start with chris could you introduce yourself and your connection to Tate & Lyle

Chris: hi i'm chris abell i'm the head of property and local affairs at Tate & Lyle sugars i've worked for Tate & Lyle for about five years

my role encompasses a really interesting and broad range of different topics and responsibilities at Tate & Lyle, i think most interesting are probably real estate and town planning from a royal docks perspective i look after a small on-site museum we have which i'm very enthusiastic about which is the history of Tate & Lyle and i also handle a lot of our relationships in the community alongside polly we've been here in the royal docks for 144 years and we're really proud to play a big role in the community so we have some really deep and important connections there as well.

1:42 - History of Tate Lyle

Eliza: amazing i think you're the perfect person to be talking to about the history of Tate & Lyle then in that case and i think that's a great place to start their conversations so what is Tate & Lyle where did it start and how did it end up in the royal docks yeah

Chris: so i'll try and keep it to the abridged version because you could do a sort of six-part podcast on this but if we split it into mr tate and mr lyle and start from there so henry tate

was originally a green grocer in liverpool and he built up a relatively successful chain of green grocers shops where he sold a fair amount of sugar and in the late 1850s he decided to take a bit of a risk and try and move actually into the sugar refining and sugar production industry and he became a partner in a sugar refinery in 1859

over the years that went very well and by 1878 he wanted to expand into the larger and more prosperous London market and he bought what was then a derelict shipyard and today is the Thames refinery that you can see from London city airport DLR and here we are today

his key sort of or one of his biggest achievements should we say was introducing the sugar cube to the uk so he bought the patents for the cube off a German inventor called Eugene Langen in the 1870s and it was a really really clever business move because at the time he had a real problem with things like the adulteration of foods in that kind of victorian era for example with sugar people would mix like chalk dust into it and other horrible stuff

you also mainly bought sugar and you would have done this in henry's grocery shops originally from something called sugar loaves which are like big cones of sugar and that was the way sugar was refined at the time and it was actually quite inconvenient for the housewife you know or the end consumer buying it was sort of broken off in lumps and sold by weight when you got a cube you had something which was a convenient kind of single use portion that was actually easy to drop into a cup of tea or could work in a recipe and you could also tell it came from a factory it'd been untampered with no one had put anything in it you knew it hadn't been interfered with or adulterated

and a major part of the success of terms refinery in those early years was using that that sugar cube process and the popularity of that cube in the uk that displaced really the sugar loaf and became the main or the preferred way of buying sugar

so that's mr Tate mr Lyle and many people will know the little what's now a smaller factory than lyle's golden syrup factory that you can see by west silverton dlr you can see a big green tin on the side of the factory if you're going past on the dlr he was originally in the shipping business very successfully in scotland and he received essentially as payment for a debt um a load of raw sugar and v from that he basically got into the refining business in scotland but he only ever really had a share of a bit of a factory and he kind of wanted to really give it a go himself and he decided rather than do it up in greenwich where he was already based his shipping business based a bit like mr tate he decided that the place to do this is somewhere in the east end of london you're closest to the biggest market you could be on the river to receive cargos of raw sugar and he purchased a couple of wharves i think in 1881 he purchased a couple of wharves and a couple of years later another refinery opened up one about a mile down the road from henry tate's thames refinery which we call Plaistow or Plaistow wharf and he got going very successfully

his big product what he was best known for was lyle's golden syrup which is still one of our best products it's probably our best product today it's what we're best known for and it's an absolutely unique product with elements of a secret recipe to it as well

he essentially realized as part of the sugar refining process there was something called jets which is a sort of byproduct of turning raw sugar into white sugar he realized this this liquid contained a lot of sugar and a lot of flavor in it but it at the moment it was being thrown away and he employed three scottish brothers so two scottish brothers sorry called the eastic brothers who were some of the best chemists in the world at the time working in the city of london he said i want you to work on this and turn it into something which will be a nice product

not only did they turn into a nice product attending something that was absolutely delicious and i won't go into all of the secret processes around that partially because i i don't actually know we only have about seven people in the in the world who know that all of whom are based at Plaistow wharf but essentially found a way to turn this dark brown kind of watery sugary by-product into a sort of delicious thick golden syrup and we still sell it very successfully today every single drop of last golden syrup ever made has been made at that site in the royal docks

Eliza: amazing and i think i've got some last golden syrup in my cupboard right now and which i think can tell you how much it really is in everyone's cupboard and you just mentioned about the history and quite a few years of history there but it's still up and running today the factory's still there still working still producing things if i understand correctly

Chris: yeah i mean well that's just the beginning so i mean you've got another 140 years of history that we're very proud of from then onwards it wasn't for example until 1921 that this was the grandchildren of mr tate and mr lyle decided take so the masters of the cubes lyles are the masters the golden syrup instead of being rivals maybe we should be friends and they merged together in in 1921 but that rivalry still persisted for a number of years people used to say i work at tates's i work at lyles's meaning the two different factories I even when i started working at technology i got in a black cab once and the taxi driver went is it the tates is or the lyles' you're going to so that's still you know 130 something years later that difference has still survived uh yeah and then there's you know we see ourselves almost as a microcosm of british history here you've got all sorts of tales you know whether it's scientific and industrial history you know the innovation of the cube and the golden syrup but more broadly you've got things like combined heat and heat and power began in the sugar industry um you know at the moment the sustainability is a really big issue at the moment and we're looking at moving away from natural gas which is our main source of power to alternative fuel supplies over that's very difficult process and it will take a while but i was looking back in our company magazine from an issue in 1972 and front-page story that we were already proud of was moving from coal to natural gas as our main um source of power

so it the company is just replete with all sorts of history um you know in terms of social history i mentioned the company magazine we've got every single copy of that in our museum it's also stored in stratford library if any of the listeners would like to go and have a look at it which is easier to access you know that ran from over 50 years and you've got these lovely stories in that

i mean it's quite funny looking at it you've got columns like thames gossip for like the gossip that was going on in the factory and in the post-war years we employed you know several thousand people across east london most of them would have been within walking distance for a short bus ride to the factory um you had generations of whole families would work here people would very commonly meet their partner their husband or their wife at work that would get a little mentioned in the magazine you had all sorts of clubs and social activities across the road from us we've got the tate institute which was established by henry tate in 1897 i think supposedly for the industrial class of silvertown to relax i think that was at functions as a 10 social club for years and the social club the local community and used you know subsidised bar, dances, children's christmas parties, dart and snooker competitions in there

we used to have a large sports ground again that was just on the fringes of the royal docks as well where we'd have a annual sports day cricket teams football teams that went on for years so there's a really quite deep and rich social history it's a bit different now but we still have some people who can um trace back multiple generations working for us less than would have been the case 30 or 40 years ago but there's a really rich social history as well and then um occasionally we've played our part in sort of more broader kind of national and political history we've got our famous character mr cube who was invented in um 1949 he was invented to essentially campaign against nationalization which the labour government of the time was looking to nationalize a large number of industries clement at least government including the cane refining section of the sugar industry the the beat section was already essentially government owned and he featured on your sugar ration book holder he had all sorts of phrases like kill that snake state and the state will leave a hole in your packet of sugar and all sorts of little phrases like this

there were little dice games for children to play he appeared on the packets of sugar with all these phrases as well and part the logic of that was that reached exactly the audience you wanted to care about this and you wanted to influence and then to put pressure on politicians which at the time in the 50s was you know the housewife doing the weekly shopping so there's all these little different i've only just scratched the surface there and there's all these little different pockets and patches of history you know related to these two factories that we're still very proud of still going here in the um in the royal dock to this day

11:07 - The Royal Docks

Eliza: amazing i think it's a lot of history that people are familiar with and particularly i think the brand of tate and lyle most people in the in the uk and beyond will probably be aware of but probably not aware of the history that comes alongside that's uh which is fascinating and just thinking about it in the context of where it is the royal docks is an area of so much change transformation

how over 100 plus years has the changes in the royal docks affected both the factories, on people, on the buildings, what does so change it's been like and how has the factory sort of adapted to those changes

Chris: yeah i mean it's a really good question that we're quite rare in the sense that there was a change in in the it's almost the industrialization is probably the right way to look at it particularly in the docks of east london that affected the royal docks but also further upriver about what is now canary wharf and even further up than that for instance st catherine's docks and many of the wharves on either side of the river you essentially went through this this process of containerization where rather than goods essentially being hand unloaded by dockers most things were now packed into steel containers and unloaded in containers by cranes rather than coming as a sort of loose cargo

there are a few reasons as to why we were able to and continue to be where we are one of those is that we, prior to the process of containerization, we shifted to bulk sugar imports so essentially the sugar travels or bulk carriers is probably the right way to put it the sugar travels inside the hull of a ship as a raw material so a raw sugar travels inside the hull of the ship and then we unload that using cranes it looks a bit like brown sugar it is basically very similar to brown sugar and that those bulk carriers could be carrying coal or iron ore or something else the week before so we weren't affected in the same way by containerization as a number of our peers or similar industries were across and around the docks and we moved quickly towards that in the 50s and because we were quite innovative in the late 50s early early 60s further to that sugar refinery is not only incredibly complex it's also incredibly expensive to build so unlike some other economic or industrial activities the economics of us moving is very different

the cost of rebuilding a sugar refinery isn't necessarily paid back by selling land um if that makes sense and you'd have to find appropriate sites for Tate & Lyle to move to you'd have to find somewhere where we could have big ocean going ships you need to find 20 acres of land and it needs to be close to our customers and then thirdly i would say very importantly we also considered the royal docks to be our home we considered Thames and Plaistow we've been here a very long time it suits us and we don't see no reason to leave it's actually been a very good home to us and we like being here we play a large role in the royal docks and particularly with newham and the community wealth building program there so we like being here

in terms of the sort of changes aspect of your question much of the sort of evolution uh the refinery's grownups higgledy piggledy i i mentioned how complex it was and how expensive it is to rebuild that's because it has grown up higgledy piggledy bit by bit over over 144, 44 years so when people go past it on the dlr they will go oh that looks very complicated and bits that look like they're from the victorian era and bits that look like they're from the 1950s and some bits look really modern and that is actually the case so we've slowly and gently adapted over the years the broad of process i suppose has been towards more automation and then in recent years more computerization

yeah and i suppose the other big change for us is that Plaistow wharf last golden syrup factory did used to be a full size sugar refinery as big as thames refinery so that's the smaller golden syrup factory near west where silver town and we did consolidate that in the mid 60s we did consolidate most of the refining at thames refinery so at thames refinery we have about a 50 acre site and at Plaistow wharf it's about a 3.5 acre site

15:15 - Sugar factories

Eliza: well so quite a big space is taken up in the docks then, and are they all still running batteries or some of them being used for different things today how does that look

Chris: i mean it's fascinating from a sort of land and real estate planning perspective and how you work you know also with our core business you know manufacturing sugar production transport of sugar raw material sugar in by ship but the short answer is yeah both are still running working factories and really really important

i mean the Plaistow wharf people go past it and go all that and we've had this before with property developers going oh that's a dusty old factory that's that'll be closed down soon um you know and two years in a planning battle later they accept what you said to them in the first place that this is actually a really really important um factory every single drop of last golden syrup has been made there it's actually the most profitable site in the entire global group we're part of and the reason it looks quite dusty from the outside is you know in a bit bit rough around the edges is because you spend the money inside on having the best machinery the best technology the highest safety the highest food quality standards etc

at thames it's a little bit different as i mentioned very big land area there about 50 acres we do there again have significant issues with residential property developers not quite understanding that this factory is here to stay it is industrial it is noisy and the people who move into their apartments have every right to have a high quality piece of housing or apartment and an appropriate understanding that they're moving close to a noisy industrial process but we do have some bits we've done some quite interesting things within that 50 acre sites about somewhere between two thirds to sort of four fifths um i would say is core sugar refining activities um but we've expanded a bit over the years we've talked about

some industrial businesses moving out we've bought bits of land and either side and i think there's two or three things which are really really interesting

i think you'll be speaking with some people who are aware of some of the changes we've made recently around sort of land and real estate on some of those fringe areas of the thames refinery estate and i think these capture really nicely sort of evolution we're going through so i think you're due to speak with eric samuel mbe of community food enterprises now he's been a very long-standing charity partner of ours who occupies a warehouse on the western end of the thames refinery estate he provides about 135,000 meals per year in and around east london he essentially sources and collects in his warehouse prepares and then delivers food to a really wide variety of community centers and food banks and really any organization who are distributing to people in need he's been there 20 years and it's absolutely perfect for him because what he needs is a decent sized um warehouse with a supportive long-term landlord who's given the space for free and he likes being in somewhere which is you know big vans and big truck can turn up the focus is on space and racking that's what he needs so yeah i mean that's an example of something we've done for a long time where we have a bit of excess space and it reflects you know the quite long-standing community commitments we have and it's something we're really proud of not that we want there to be which is with food poverty in east london but unfortunately there are and it's wonderful to be able to do something really substantive and important and it's also important to recognize some of the other partners he's got in the royal docks at the excel center have been very supportive of himlondon city airport really supportive of him as well um and then the part of the site eric sits in is actually part of a broader roughly five acre site which had some dilapidated and run down buildings in it and some buildings that we use until relatively recently for sugar storage but you know we've listened and looked at things like the london plan and the new local plan about trying to intensify industrial land make sure industrial land is put into intense economic use at the best value for for that and it also makes economic sense for us and one and i think you'll also be speaking to nick cartwright who runs the very successful silver building and also is running a project on that area i'm talking about at Tate & Lyle called the factory project

so he's in partnership with himself and the royal docks team to started factory project down on this five acres and it will bring about a hundred thousand square foot of of industrial buildings plus a couple of acres of good quality open space yards back into that kind of economic use that i'm talking about and what's great about nick and his team at project is that they do things that just isn't our skill set as a sugar refiner

they're able to bring in these kind of cool trendy creative maker industries modern kind of light industrial stuff everything from i saw an enormous dragon being built up there uh yesterday and being filmed out in one of the yards we've had the mayor of london down launching the living wage rates and eric's received an upgrade to his warehouse we've had one of london's must-see art shows down there and i know some i'm also involved in the

new chamber of commerce we've got some really interesting small businesses at the moment i don't know exact stages of this looking to move in there as well so it's just a fascinating project the factory project sure nick will tell you more about it something we're really pleased to partner with him and the royal docks and we think it's a really good example of how as a big older style industrial landowner you can find quite interesting and exciting ways to use your land and to play a positive role in the regeneration of the royal docks

and then i just make a final point on that people often think of regeneration basically as just building a load of flats and turning disused or underused office buildings or industrial buildings into modern flats but we're really passionate about seeing what i'd call genuine sort of mixed-use regeneration here in the royal docks you know we think it's really well poised for that you've got people like ourselves we've been here a very very long time you've got things like UEL you've got some fascinating um research going on you've got some of the newer developments things like albert islands as well who've got significant industrial space and and rightly there is a housing crisis you've got some fantastic new residential developments um coming up some of which have already already been delivered and i think it's really interesting to see how this area will develop and how that mix of uses i think can knit together and you have not just houses but also hopefully some really good quality jobs and you and you know maybe even dare i set some Tate & Lyles of tomorrow who might be here in 140 years time doing a podcast.

21:38 - The importance of reviving spaces

Eliza: really exciting time it's so interesting to hear that so much going on in what you might think it just Tate & Lyle factory where sugar is made but actually there's so much going on and so much space being used that could have been lost maybe or just not used

it'd be interesting to get your thoughts on what's the importance of reviving spaces and not leaving warehouses just empty and actually allowing the community around to use it and really sort of giving back to the community in which the factories sit

Chris: yeah i think it's something we've become more aware of over recent years i mean one thing i do think is worth saying is we've been involved in something recently called the industrial land uh commission which brought together a number of different industrial i think probably users of industrial land in london is probably the right way to look at everything from small manufacturers of trays through to the sort of big industrial property developers through to food manufacturers like artisans

Something i've experienced running sort of real estate and town planning work streams here at 10 mile is how many calls i get from small and medium-sized businesses in and around east london you know everything from you know little food startups to garages which have

been running for 30 years to scrap metal yards all sorts who are just being put under pressure and their where their base is essentially being turned over to residential development and one of the reasons we've started this partnership with the factory project was because it was a way to provide opportunities for those types of businesses and that's not just the technical thing you can see the docks being a really good place of growth for those smes it's really well positioned for it you've got the silver building i

mentioned next other projects alongside the factory project we've also got something called expressway under the sort of silvertown flyover again which is a slightly different but a whole suite of small businesses based there and i think it's really interesting the way the docks is providing maybe a bit of a release valve for some of that some of the businesses being displaced from elsewhere in london i think more space is needed but yeah i think it's a really important issue yeah

23:43 - The future of Tate Lyle

Eliza: i think it'd be really interesting i think that's looking even in one year but five ten years time i think it can be really interesting and you mentioned just before a podcast in 140 years what's the future going to look like do you think for tate & lyle

Chris: yeah i mean i think there's a few things i'd say but i think i mentioned briefly earlier decarbonization i think sustainability is an absolutely massive theme in society in general at the moment and we are essentially an energy intensive industry we've got i think one of the biggest power stations i think might have the biggest or the second biggest power station within inside the end 25 that we used raw sugar into white sugar and that's a real it's both a challenge but it's also a fantastic opportunity and i'm really excited about a number of different things we're doing it in that regard and i think sustainability broadly rather than just focus on the carbon side of things it's really um interesting and

for example we have various different by-products that we'll find we've got something called calcium carbonate cake which comes out of part of the factory during uh sort of filtration and decolorization process called carbonitation and that happens as part of the sugar refining process we found some really interesting ways to put that to use and we look we're actually some conversations at the moment about whether we might be able to do some of this directly in the docks of Newham which would be absolutely fantastic but one that's up and running is we've worked with a um council who's looking to create butterfly banks and essentially we provide them with the calcium carbonate cake they lay it down on the ground in a relatively wide area of sort of grassland marshland golf courses the calcium carbonate cake is perfect to make chalky soil and there are certain plants which grow on chalky soil and these are the only plants that certain butterflies eat so in south london we've got i think it's something like 25 butterfly banks have been established using a byproduct from our refinery

which i hope i've explained that well enough but it's just extraordinary to me and just such a cool story of the circular economy

Similar project same by-product calcium carbonate cake can also be used to give bricks in brick manufacturing to give bricks slightly yellow tinge which certain types of london brick you quite often see them in victorian terraced houses they have that sort of yellowy tinge and traditionally that came from something called fire clay which came out of coal mines and we're running out of that in the uk and but if you use calcium carbonate instead of fire clay you can recreate the same colour and finish for the bricks and we've actually done that again successfully with a company called york had made bricks we've made tens of thousands of those bricks

Finally on the calcium carbonate cake i've already given you two uses but again i think i'm right and saying you'll soon be speaking with UEL and that's a great cross-docks collaboration our research and technology department does with them um sort of innovative building materials they'll be able to explain it much better than me but that's you know just three uses of one of our by products and no doubt we'll find more possibly with help from UEL

26:43 - Decarbonisation

Eliza: amazing i think there's so much history but also present and future projects that are going on i think people will be fascinated to hear about now for the first time but then also keep their eyes peeled as well on how they move forward in the future i know i personally am

i think we're coming up to the end of our time is there one final thing that you'd want people to know about tate & lyle

Chris: i mentioned decarbonization and that is going to be a big challenge for us over the coming years i can't go into all the details of it but we've got lots of work streams on that and we're very confident that we will make big progress in that regards and be able to move in the medium or longer term away from primarily fossil fuels at the same time we've got loads of efficiency projects going on to reduce our energy consumption that's always something you're trying to do you're always trying to reduce your energy consumption but they're even more important now and then i suppose the royal docks is our home and I think we will see some significant development on our site related to sugar as well i think over time there will be new processes and probably new warehousing needed as well so i think there will be continue to be significant investment in the sites in the coming years and i suppose more broadly we make about a quarter of the uk sugar at the site at the moment we're very proud of and i think we'd like to continue that grow that and we've got some fantastic we call it mpd new product development but we've in recent years brought out

some really interesting products things like coffee syrups if you go and get a you know hazelnut latte or a gingerbread latte these coffee shops is very good chance you're having a Tate & Lyle coffee syrup all the research and the science behind that and the kind of product development and marketing all of that's happened here in the royal docks you know in the labs we've got here with the experts we've got here so you know we're confident with and there's an awful lot more going on behind the walls of these big factories than people realize sometimes

28:34 - University of East London

Eliza: what a great place to end well thank you for chatting to us chris i think we definitely will learn something there and i think what a nice way to lead into the next conversation which is actually honing in on one of those projects which has been mentioned

so I'm now joined by Alan and Armor from the university of east london could you give us a little introduction to yourself but also to the project

Armor: hello everyone my name is armor and i'm a senior lecturer at the university of east london where i'm teaching a group of masters students for already five years and few years ago we started a very exciting collaboration with the royal docks where we were researching local industries and how we could look into empowering the new green industries that are being created around the royal docks and we started collaborating with the Tate & Lyle which has one of the main facilities very close to the royal docks and very close to where our university is located and that's how i got involved in the project

Alan: thanks Armor i'm Alan Chandler i have been teaching architecture technology and professional studies for 20 years or so and i initiated at the school the idea of live projects as part of the the mr program and so when Armor came to me with the sort of the potential for uh some of the materiality that these students and he have come up with in their studio program um i immediately wanted to kind of bring that into the the idea of the workshops so every year we do these kind of workshops which bring clients and issues and students together to kind of work together and solve problems and innovate

and so we brought the construction week project to bear on the discoveries that his students have made and we helped develop to the next level this potential material that we've come up with with Tate & Lyle so so yeah i'm very pleased to work with armor as always it's always a pleasure to work with him and the students and uh yeah now i'm the dean of research at uel it allows me to leverage other kind of aspects of research into the program so yeah taking it forward to the next level

30:38 - What is the project

Eliza: amazing so for people who don't know about the project what is the project you've been working on what's the material that you found

Armor: we have been working for i think it's already almost two years with the byproducts from sugar industry so there is a large network of sugarcane plantations and Tate & Lyle collaborate with the different countries around the world so the aim was to kind of find new materials that could be used for construction both locally where the plantations are located and also elsewhere such as europe or uk and use that waste that is generated on the sugarcane plantations to create new construction materials that can be used for insulation for cladding for load-bearing capacities we are still exploring the possibilities but the idea is that everything is based on waste products that gets reused into something different

31:35 - Discovering the material

Eliza: Thank you and i think you've just hinted upon a little bit but how did you discover the material and the possibilities that it had

Alan: yeah it's uh it sort of comes from being nosy i guess uh and it's something that we try and encourage our students to do um is just to kind of start digging at whatever they're given whether that's an urban situation or a building or a set of issues and so i think the the idea of inventing materials is something which we're really keen on because it's a kind of an initial starting point that the students have been a kind of waste product or a kind of residue or an excess of something and so the kind of the the intellectual challenge is to sort of take whatever it is and do something useful with it and the more critically you look at something more detailed you look at it the more opportunities you find and so instilling that sense of curiosity in the students is really critical

so as soon as you start looking around you and you start seeing there's an excess of something here or there's a byproduct or something there the ability to interrogate that and to start putting things together and to start solving new problems with this is something that we always really encourage so yeah some of the students got there got their teeth into literally teeth into waste sugar and from those early experiments you begin to see opportunities so that's what we encourage with our students just bringing them on and bringing them a sort of a sense of enthusiasm with materials and with what you can do with them so you can eventually solve two or three problems with one idea

Armor: i think that something quite interesting as well is when the students get into the tactility of the project and when they see the material not just as a concept but when they start touching the material exploring it realizing that it has very beautiful appearance and tactility and start to kind of making small prototypes and small models with it that's something that we encourage quite a lot to our students and it's something quite unique of

our university that is not only using that potential that the material has but also realizing that the material can become something quite beautiful in their projects

33:39 - Working with the students

Eliza: is that a way of working that you've done quite a bit with the university or is it a new way of working because obviously it's very collaborative with the students and teachers professors how does that relationship work is it something that you've done before or something you tried for the first time with this project

Alan: no it's something that we've really worked on for years it comes from a kind of deep-seated interest in the way materials work and how they contribute to architecture and it's something that i brought with my ex tutor peter salter who was running the school when I started and we were really encouraging the students to not think of architecture as drawings which you then hand to a builder but something that you have to understand fundamentally in order to be able to communicate accurately to contractors to clients to planners to whoever the user is so that it's only by really understanding what you're talking about can you actually really get people to also understand what you need and what the building has to be

so the aspect of materiality is really really present in what we teach and it's something that we've been using these live workshops over the years to kind of instill in students in in our mark we get a lot of students who haven't learnt with us before coming into the school so coming together around material invention processes tactility qualities of material performance of materials right at the start of their master's journey with us is really key because it kind of sets the tone it kind of sets the agenda for them and then that's something that we reinforce through the studio work for the next two years until they get their riba part twos

35:13 - Sustainability

Eliza: Amazing a really interesting way of working it's something i think that could be replicated slightly more in other places as well which is really interesting and you mentioned architecture beyond drawing and i guess on that point it's a waste material

is sustainability something that was a driving force is it something that just came across as you've discovered this material where does it fit into those conversations

Armor: we are always encouraging the students to understand the complexity of selecting a material and when you come into practice is something that you just kind of select from a website or that you just kind of write the name and that's the material that is applied to a very large scheme and knowing the implications of those materials the carbon footprint that they have the new values that they have and the impact that the material is going to have in in our environment we think that is key to what architecture represents nowadays

so for us it's more about them knowing that the material is something that you need to be very careful with whether the material is going to be exposed and it's going to be the finish of the building or whether it's going to be the insulation understanding all the layers that go into construction and making sure that you are aware that all of them have an impact in our built environment and it's not only necessarily about environmental which is very important but it's also about social sustainability so how can we allow people to kind of empower themselves by using certain materials by understanding that those materials have potential to build not only here where we are based with the university but elsewhere in the world

and to me something that the students take which i'm quite the whenever i hear the students finding jobs in practice and coming back to us saying when i did the interview, they were very impressed by our social and environmental agenda they were very impressed by not necessarily because everybody comes out of the university creating a new material but like just the thinking that is behind it like that curiosity that kind of pushing forward the way we understand architecture that's something that at least from my experience my students got very valued from employers and from people that got in touch with them after once they graduated so i think that there is there is a need for this type of research and this type of commitment from the students and from academia towards new materials towards being more careful with what we select and what we use

Alan: yeah i think it's about provenance i think i think it's increasingly becoming an issue you know the issues of embodied carbon issues of ethical kind of inputs into the way the materials are sourced uh processed distributed recycled

so the whole kind of circular economy question isn't some sort of abstract kind of intellectual sort of indulgence it's actually a complete reality and the students need to understand why things matter in order to tell clients and funders why they matter so that they are getting the best value for their expenditure the life cycle of a building how long does it last how adaptable is it what do you do with it when you finished with it, if we can't answer those questions and if the students can't be thinking about those questions then we're all in trouble so i think you know getting that sort of sense of responsibility right at the outset you know what is the building got to do what's he going to be made of what are you going to do with it after 50 years those kind of questions are sort of questions that often aren't asked and a lot of the kind of the slightly more floral and pretty kind of competition winning schemes from schools of architecture they kind of miss the point they're not really taking responsibility for what happens next and i think you know we call us pragmatists or realists or i'd actually think we're slightly romantic in the way that we think materials matter and i think that there's a huge space in architectural education for the role of materials and the kind of responsibility that specification has and it's not a sort of dull thing that isn't pretty attractive it actually becomes the reality of architecture

so getting students excited about that is really key because in the end that's where you get the most interesting architecture most interesting buildings i think

39:29 - Collaboration

Eliza: so there's a real combination of creativity science what's going on with the world it's not just architecture with a capital a there's a lot of sort of interesting ideas and thoughts and research going on is that something that you work on quite a bit do you work with other departments within the university

Armor: that's a very good question Eliza and the answer is yes and i think that's one of the main reasons why this project has been successful or or is leading into something that is quite exciting and i think that is not only us pushing the students to engage with our departments but also making them aware that the possibilities of universities in uk and at least myself coming from spain where the universities are much more segregated here normally it's very easy to work with different departments and with different disciplines and everybody's open to these collaborations like it seems that the students are a bit shy sometimes into going out and trying to reach out to other disciplines but i think that when that happens it leads always to something very interesting from my experience with our students at the university whenever somebody tries to engage with somebody from other department whether it's engineering or art which is very close to where we are in architecture we are sharing the building with them and there are so many facilities that are available for the students that most of the times they don't know about them so i think that this short of very engaging two weeks programs that we run at the beginning of the year which alan was explaining before which we call the construction week is very good for that because we kind of open up the university for two years where all the departments are open to all the students and then it's just up to the student to see how much do they want to push and how much do they want to research

for instance this project we started working within architecture but then we started collaborating with the sustainability research institute which is another partnership of the project that has been helping us a lot there is one material scientist who is an integral part of the project as well and he's been helping us with understanding how is the material made how is the reaction that creates the material and when the students look at the material in the microscope for the first time they saw an incredible universe that they will never think it could imagine and exist and out of that image that they got out the microscope they kind of turned that into a pattern that then was applying to a facade so i think that there is so much hidden within materiality that you can unravel just by collaborating with different disciplines and of course then there is more pragmatic questions so once the material is created or once you start working with materials that are a bit more innovative what do you need to do to make that material real what do you need to test

we have a new value to test the thermal conductivity of the material and that's something that we had in the university for many years but architectures students were not using it as

much so we are pushing them to know that that's your responsibility to understand how your material will perform in terms of kind of heating and cooling and the same for fire the same for compression and all those facilities are there so once the student understand that they are there to be used now i have maybe five or six students that have kind of branched out from the initial project and each one is testing something slightly different and all of them are collaborating with all this without our supervision anymore because they know that they can so i think that that's quite special to see how things can evolve out of an initial idea

Alan: yeah i think it's that sort of need to know idea i think that curiosity as i mentioned before is really key and the balancing of science and art in doing that i think is really critical you know architecture is this weird discipline that hovers in between the two and sort of it's neither but both so we've on the one hand got a material scientist who's breaking down to a molecular level what the material is doing and on the other hand we've got the textile stuff in the art school showing the students how to create different colored dyes from from plant fibers so that you could apply that to the mixes so you can actually color the product using natural dyes so you've got this kind of amazing set of potentials that students can become excited about and i think the key thing is to make sure that quite regularly you've got students producing this kind of work so that it wakes everybody else up and they start looking over their shoulders going oh hang on how come they're having fun what's going on and so i think that's part of the joy of my new role which is as dean of research i end up getting involved in in everybody's research psychology or the health and bioscience or fine art and seeing the opportunities to bring them all together with our architecture students so that the architectural students can see that the architecture as a social art can connect to people in ways even more diverse than just making buildings and that sometimes it's also about what those buildings can do what those spaces can achieve what events they can make and so really giving the students a sort of rounded sense of what collaboration can lead to i think is is really key

44:27 - Future of the industry

Eliza: i think that sounds really amazing and i wonder whether it's something that I wish i had when i was studying myself i think it sounds like such a interesting way of working

So just thinking about shifting slightly outside of the university to the application of this i know you're still in the testing phase you're still sort of understanding the material but have you thought at all about what this could mean for the future of the industry and buildings both i guess locally so you're based in the royal docks so what that could mean to the Royal Docks but also the rest of the uk to europe to the world have you thought about that at all

Alan: i think that's the genuinely exciting bit about this material you know its origins in the global south where sugarcane is is planted and harvested you know quite often the residues

are just burnt they either make electricity or they just burn it because it's just a waste product right so with a material that can harness that potential and find a different purpose for it to actually create materials that locally can be used to make valuable building materials can then be sold to create local sources of revenue and income can then be deployed and reused recycled locally you're looking at a material that can have great benefit where it comes from

then there's the potential for people locally there to export to be able to create larger revenue streams for the more privileged north hemisphere to be able to get products that are completely sustainable that hold more carbon than they've ever released that kind of exchange across hemispheres is the really exciting bit about this material so it in the end it benefits not just the shareholders of the company but it actually benefits a wider sort of community right down to grassroots level and the nice thing about working with tate and lyle is that they take their corporate social responsibility really rather seriously so they were immediately keen on exploring the idea of patents but not so much to make money out of them more to secure the ability to be able to use that material for that kind of global purpose so i think it's quite exciting when you can get a group of people around the material but it's not actually so much about profit it's about benefit and i think that's where it gets really exciting and that's a really good message for the students to take that your practice as an architect isn't simply about delivering profit for an investor but it's also about the kind of the the wider set of values that any kind of work that you do can bring

47:02 - Whats next

Eliza: and i think you just touched on it slightly sort of what's next for the project you mentioned a patent but it'd be wonderful to hear about what you're hoping to do next

Armor: yeah so as same you mentioned the license and that's before as well we are in the process of trying to patent the material and trying to kind of secure the use of the material not only for us but for a third countries where it's produced and that comes with a quite a process because you need to not only engage with the patent process but at the same time in parallel you need to run a number of tests that every material that can come into the market requires one of the main ones that we are developing at the moment is fire so making sure that the material is fire tested

we have done internally fire testing in our facilities which they have very promising results but now we need to get the actual rating and because it's a new material it's not that straightforward it's hard to find the facilities that understand that this is a material which is a mix of different components and comes in a certain way because the laboratories that are used to test materials that are kind of out of the shelf and it's always the same materials that they test yes maybe different compositions but this is something new so we are kind of in the middle of that development at the moment and then it will come as well of course

testing properly the acoustic properties which they are quite promising as well the thermal properties so it could be used for insulation

Tate & Lyle for instance around the royal docks i think you are doing a collaboration with them as well on the factory this former warehouses that they are transforming now at the moment into workshops and it could be a potential to kind of cover the internal part of those buildings and properly isolate them so the energy bill that they will have from the embodied carbon complete would be much slower than what it is at the moment so i think that we can then start looking into applications that can be local and global and i think that's something quite interesting as well from my end which which i think is quite fascinating when you see how students work is that you give them an idea or a starting point and then they kind of make that into many different outcomes so we have now one student that is looking into using recycled 3d printing material which is called PLA which is a bioplastic which comes from corn so all the leftovers of the 3d printers of the university have been collected by this student and then he's looking into melting that leftovers with the bagas waste material the sugarcane byproduct and then kind of creating tiles that could be used for cladding so they can weather and they can take different conditions in terms of water or sun

so it's starting from one element which is what we are aiming to to patent but now it seems that it's evolving into sub categories let's say which obviously they will regard the same effort later on but it's quite interesting to see that by itself it becomes something alive in a way that even if you are not doing the work of thinking how it could evolve there is like a lot of people that at the same time in parallel have interest and are developing that so for me that's quite interesting and i think that something that we are also very keen into testing is how this could come into a small prototypes into the market so we are collaborating with the grimshaw architect developing a prototype where these elements can be used to create the slabs normally they were doing the test with a stone and with different elements that are with post tension creating flat slabs so we are looking into replacing the stone with these materials and perhaps why not using it as a construction material that creates lab where you can stand so we are doing that as an initial testing the material and hopefully that means that it can develop into different strategies and into different results later on

Alan: it's interesting this material is throwing up a lot of kind of possibilities and i think that increasingly the role of materials play is changing we're looking at the performance of any material in so many more different ways than we used to I mean as long as it sort of stood up it was all right back in the day but i think particularly since the Grenfell disaster we're looking at materials really really closely and understanding that this material it's got structural potential it's got acoustic potential it is a vapor open material so the moisture can pass through it so that you're not trapping moisture within the fabric of a building the more you insulate a building the more you have to deal with the fact that as a race we've never produced more moisture in our homes you know back in the day nobody had a dishwasher

whereas now we're chucking moisture into the air constantly and yet we're sealing our homes up ever more effectively so that creates indoor air quality problems

so if you start to come up with a material that you can also deal with indoor air quality as well as as well as all the other things it can do you know it's really starting to open the eyes of the students to what the responsibilities of architecture are so yeah i think the the more we dig at this material and the more that we start kind of pushing it around and doing different things with it the greater the awareness is of how it's responding to these various challenges that we're having to put to materials so yeah it is a it's an exciting time but it's indicative of the responsibility that we all have about how how we create buildings they've never been more complicated so even something that's relatively straightforward like a slab that you stand on in a building grimshaws are desperately trying to work out ways of of reducing the carbon footprint of it as a material but also building it up as components so that you don't have to rely on the same old kind of like in-situ concrete kind of trucks on the road waste of carbon story

so you know everybody's getting on board with this kind of radical reinvention of of everything that we thought architecture was made of and it's really nice to have the students sort of centered on that kind of adventure

52:59 - Importance of the project

Eliza: Amazing and i think you've just touched on it quite nicely it comes across with both of you when you speak about the project but what is the importance of the project and material for yourselves, the industry what is it about the project that you really like and find so valuable

Armor: to me is for many years we have already been working with students in projects that had a lot of potential but never got materialized into something tangible because they became just student projects and they ended there but it's giving the opportunity to an idea that they started as part of a student project in a university to become something real to become something tangible and to become something that can have an impact both locally and globally and to me that transition between academia student work research and practicality and potentially becoming a construction material that can be used extensively or not but that's not that much the point is more about the process that comes from university and becomes something which is i think is what university should be doing it should be about creating and about having an impact into it and it feels or it feels to me at least that it tends to be really disengaged that what happens in university and what happens in industry doesn't kind of come together and that it seems that everything is already there for you to select and to use but you cannot have an impact on it and I think that's creating that link between the two to me is very exciting and from this the first time that i'm involved in a project that is kind of coming from teaching but then becoming research and is something

that i have been trying to do for for a long time and seeing how how it becomes real is very exciting

Alan: yeah i i was involved a few years ago through the construction projects with uh students of ours i think their first construction week project was building a community shed out of old pallets it was ended up being a really beautiful building and then fast forward they've graduated they support our construction project and then they invented a kind of self-build timber-based uh construction system called u-build they ended up winning sustainability architects of the year in 2018 and they built a house on channel 4's grand designs out of this system and that was developed with the students uh who were participating in prototyping at one to one and building little buildings with it uh and eventually just before the pandemic struck we used that system to empower the extinction rebellion in trafalgar square so it became protest architecture using these boxes to allow people to create structures that means that the police can't arrest them because they're two meters up in the air so i've sort of seen that kind of starting point with students going through that process of setting up their own business of becoming successful of innovating of coming back bringing the students back on board and then uh kind of influencing a kind of global xr event and so so when you see that happen you kind of know why you teach because it creates this kind of cycle of effect and that was slightly before Armor's time but but i think it's again seeing this opportunity once more to have the students kind of feeding into this kind of reality loop and making really positive change through their work it's just really exciting for me so i i just really you know it's kind of why i teach at uel basically it's for these kind of opportunities to come around

56:32 - One thing that has captured your heart

Eliza: it's really wonderful to hear that it must feel quite a nice job to have i think and i think we're coming up to time but it's so one thing that you'd want listeners to know about the project that we haven't yet covered is there one thing that has really captured your heart or something you want to share

Alan: i just say that i think it's really beautiful all the stuff that the students have come up with you know the texture the color of it it just sounds so nice uh and so it's so it's not like you're kind of being kind of hair-shirted about it oh we've got a very sustainable material yeah it looks like rubbish it actually is very beautiful and so that's the sort of icing on the cake you walk into the lab and you see this whole table covered in these cubes of all different sorts of shapes and sizes and the range of colors and they're kind of oh they're lovely you think i want to make a building out of this you know and i think that's the really nice bit is that you're not compromising beauty by being kind of pious you're actually able to produce a material that's really really lovely and it does a great job and i think that's the bit that i find really good i don't know about you Armor.

Armor: definitely i think that's one fantastic aspect of it that it looks really good and not only visually but also to the touch and acoustically and it creates a very warm atmosphere when we have tested in some large panels which i think will be probably our next step just kind of doing something a bit larger in terms of scale

and something perhaps to add to it which i found quite interesting when we were developing the construction week which is when we built most of the prototypes the group of students that we were having few years is probably one of the most diverse universities in the uk if not the most and we had students that were coming from nigeria from malaysia from egypt from sri lanka all of them working in the same kind of project and we asked them to think of how that material could be used locally where it's produced and it was something quite beautiful because all the students were coming from countries where the material was produced and they were thinking about how they could use the material back home

some of them contacted us saying that they had the opportunity to get in touch with real plantations and to try to promote the material locally

i don't think we are there yet but just the fact that the students are able to relate it back to where they come from and to see how it could benefit their local countries where they might come back or they might not but if they do if they come back with an idea of how to reuse waste into something new that could empower them it's not only us saying this can be done there but it's them coming back to their places and having something quite unique with them when they when they do so that kind of social aspect and not only the diversity but also the empowering the students to in a way be a bit different from any other student that just graduated from london and comes with a project they come with a project of course but they come with something else they come with an idea they become almost like entrepreneurs by the process because they see that it has a lot of potential where they come from and we had a couple of students that particularly ask us can we do this next step we said we are still not there but we will be very happy if they do so when when the time comes so hopefully we'll give opportunities for them to develop further into their own countries

59:57 - Conclusion

Eliza: what a lovely place to end well thank you Alan and Armor for sharing the project with us.

As Chris mentioned, we'll be back with a new episode next week exploring the factory project with Nick Hartwright from Projekt and Eric Samuel from community food enterprise.

Until then, if you've liked this episode and would like to hear to more like this make sure to subscribe to the channel and maybe share the episode with a friend, a colleague or a family member.

[Music]