

TSS170 - Prefab. The future of building

Matt Jones: [00:00:02] Warren McGregor, welcome to The Site Shed podcast.

Warren McGregor: [00:00:05] My pleasure. Thank you, Matt.

Matt Jones: [00:00:07] So Warren um this is a podcast which I'm kind of excited to be doing because I know over the years especially when I was working on the trades as a plumber I did notice that there was a lot of things that were starting to change in the industry. There was a lot of technology being introduced. There were a lot of different applications and different processes and ways of build things and what we're talking about today is certainly relevant to that because even when I was starting when I was starting to face myself out of the plumbing world I noticed there a lot of things starting to be introduced into the building environment which were Prefab be that walls or many many other different things and I'm sure between the time that I've left and where we are today there's been a lot more things that's been introduced. So

Warren McGregor: [00:00:59] (Laughs)

Matt Jones: [00:00:59] Obviously we've got a large a large audience of builders and tradespeople out there right around the world and I'm sure they'll be very interested to see and listen to you and your experiences do you know where it's come where it's come so far and where it could potentially end up. The whole world of Prefab.

Warren McGregor: [00:01:17] Well as you as you've alluded to it matters very I think exciting space and a very challenging space. And what's interesting is some of the parallels in different countries around the world are all getting some momentum pretty much at the same time and when we think about it whilst construction has been global in the sense that it happens all around the world it hasn't been a lot of interplay across countries. And one of the things that I site construction prefabrication modulo those terms that refer to the same broad space has done is create some of those linkages. And one of the really interesting things about prefabrication and its and its Mustique state let's say is that it means you can make an entire building can be made somewhere else and delivered to site and for report assembly and that means that by separating the project site from the construction element the elements that structure doesn't need to happen locally or even in the same country and we've literally got examples where whole buildings have been made in one country transported and then put together. I think Lego Meccano type rapid assembly on site obviously the connections and the other work has to be done. At the last stage but and that really has changed a whole lot of things that are going out there and as you've as you've suggested there's there's activity and in panel systems of various degrees in full what we call volumetrics are full boxes that are fully fitted with apartments hotels medical suedes whatever MacDonalDs restaurants they can be

inside those things they can be train stations they can reach all sorts of things. There's plenty happening there. And one thing I will just touch on that too that's also an interesting space is more in line with your earlier background. One of the places you were going to be a time was in the bathroom some bathroom pots what we called bathroom pots a fully finished bathroom room being

Matt Jones: [00:03:22] Yeah.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:03:23] Built in a factory now with the tiles on hand round porcelain. Everything in there except probably said toilet paper and then being taken to side rolled onto the floor of an apartment building or a hotel and rolled to the point that only to be connected to offer

Matt Jones: [00:03:42] Yeah.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:03:42] Services within an hour of landing on that floor. They'll be commissioned.

Matt Jones: [00:03:48] Amazing.

Warren McGregor: [00:03:48] So there's quite a lot happening in that space as well and and the people have listeners who have been involved in that side of it know the kind of concentration. Of trades materials and. And effects resolution and all. I can about in the wet areas. That's one of the reasons why that's been. The takeoff area for. Our. Site construction.

Matt Jones: [00:04:12] I know um back in or it would have been I think January of 2017. I had one of your colleagues Bill from Archy Blocks on the on the podcast and we were talking about modular homes that got us that's pretty much the only episode of recorded on modular style Prefab style building and it was very interesting. I feel like we're going to go down a slightly different path on this boardgames which is great. However you touched on those are the bathrooms the modular bathrooms or the Prefab bathrooms. I've I've been seeing those overseas for years and years and years like for as long as I can remember I've been seeing them in North America and places like throughout Europe you know they've they've all been doing this why why are we only just starting to do this now.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:05:00] Well the US is not that common actually I believe there will have been some and it's a bit like even here some of the stuff has been Prefab in Australia has been going a very long time and in some of the discussions I have I referred to a church in Melbourne that was made of steel prefabricated in the UK and shipped to Australia for rapid assembly and that was in 1850.

Matt Jones: [00:05:26] Oh wow.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:05:27] So we will of what has been saying the kind of logic about why a prefab off site can make sense in certain situations has been around a very long time

Matt Jones: [00:05:38] Okay.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:05:39] And in fact there have been a lot of proponents of it who have said at various stages are now as the as when prefabs going to take off and we had it after in the US we had it after it was we had it here rebuilding a lot of houses for service coming back home. We had various stages we worked. We've looked at and tried to do factory production of panels houses whatever in there particularly around the housing estate other than the other kind of buildings but for various reasons it's never really gone on we've gone on and and if we look at it now I I answer that question by saying well what's changed this time around what is it. What are the enabling factors that are going to mean that this thing really really gets going now and the kinds of things we would talk about on that would be the technologies

Matt Jones: [00:06:30] Yeah.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:06:30] That are things so we've got the whole space the simulation tools and sensors collaboration platforms. The whole thinking about lean manufacturing design for manufacturing and assembly technology is crucial because one of the beauties of doing construction the way I've done in the past is that we pretty much send all the materials and all the guys out there and we sort it out and you can see it unfolding and identify issues and people familiar how to deal with it. If you start breaking this up and do it in different places particularly different suppliers this stuff's got to come together seamlessly when it gets to a site that means it has to exactly anticipate what every other bit is going to look like and they have to be built precision built. And that's been very difficult until we've had these kind of technologies where we can we can share their designs to the classic resolution where the services are going to go how the voids are going to be used how the joins are going to come together what the fixings are then we get to that stage. So that's why this time around it's much more confidence that the things and the way this really started.

Matt Jones: [00:07:40] Okay.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:07:40] But sorry to come back to comment about prefab bathrooms or bathroom pods. In Europe they are definitely the standard thing. And then there wouldn't be a major hotel operator operating in Europe who would build a bathroom in situ anymore and in fact I've work with some of the players who who specialize in that area and they can show you the specifications for each hotel brand which define exactly what goes in there.

Matt Jones: [00:08:11] Okay.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:08:12] Each one of their ones and that's the point they've got to so they can just order them they're manufactured simultaneously with the site works and they come in installed quickly and the whole program runs faster or as a result.

Matt Jones: [00:08:23] So a couple

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:08:23] We never really got to that point here.

Matt Jones: [00:08:25] No no. So while we're on the preacher bathroom things couple of obvious questions were a lot of plumbers are listening to this and I suppose a lot of people a have been travelling and my experience with prefab baths or do you call them prefab bathrooms what you call

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:08:38] Well bathroom Polybuis is the

Matt Jones: [00:08:39] Bathroom pods. Okay.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:08:40] Most common term.

Matt Jones: [00:08:41] Okay. So my experience with bathroom pods to date anyway is that when you're in a hotel room that has a bathroom pod you can certainly tell You sort of have a bit of a defining look about them. They kinda look a bit cheap plasticky and you know they you can really tell the difference between a insitu bathroom and a bathroom pod. So I'm wondering is that space is that space starting to be evolved as well.

Warren McGregor: [00:09:15] Yes I think there are two things that have kind of melded together in that and I'm glad you brought up that kind of being able to identify some of this outside stuff and then there is a kind of a stigma around some of the modular product and all our listeners will have had have their own have their own views about prefab and off site on what it looks like and whether it's any good or not. And I think as a general comment I would say every one of those views will be correct but I doubt whether many of us including me have a full appreciation of the total spectrum of what's available out there now

Matt Jones: [00:09:56] Mhmm..

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:09:57] And that's that's what's really changing now and the design flexibility. The more projects that have been done the better technologies and in fact the high end whether they'd be bathroom pods or apartment buildings or hospital wings or they are you cannot tell the difference to look at them and that's actually the

ultimate objective is that just a superior way to deliver the same or even better quality than the other way.

Matt Jones: [00:10:24] The one thing that I that I noticed Bill Warren with the bathroom pose is that The plastic walls and the drum goodness of the walls in the pass.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:10:36] That's something that was purely that was purely a design specification and cost had something to do with the bathrooms. Now can be the most high and they can be whatever the client wants and they are not that's not typical at all. That will be a bathroom that's designed for a particular price point for a particular application and and that that was where a lot of them operate at the start. Now with the very high end bathrooms you wouldn't believe in the most 5 6 star hotels with built off site. So there's no limitations whatsoever on that anymore.

Matt Jones: [00:11:10] So while we're talking about limitations the obvious question that I asked coming from plumbing background is what happens if you've got a prefab unit which springs a water leak behind the shower assembly. How the heck do you get to it without chopping out tiles opening up a wall. Etc..

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:11:33] Pretty much you do do that.

Matt Jones: [00:11:34] I guess.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:11:34] Except that the two processes and the materials and the plumbing techniques that you using on the off side ones are done by prescribed by the tradies and put in using the same staff. So there's there's no real issue about dealing with that there these and they're not locked up boxes in the sense that you have to destroy them to get in the back to do any work on them.

Matt Jones: [00:11:59] Right because I know some of these you know in the past I've looked at some of these bathroom pods and I've thought if there's a wood lake behind me between the shower assembly and the basin unit it springs a leak there the whole thing's a sealed unit. How would you ever find where that leaks coming from.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:12:16] Right. Well I think that I think you're looking at some of the early regressions where there was much more fiberglass plastic type elements on the stuff. Now there certainly will be some of that stuff around maybe going into certain applications that maybe go into some of the mining sites set up some some other things but the space that prefab was operates in and our members focus on what we call permanent buildings so that rather than trads portables or relocatable or or peculiar things like that. And so these are conventional tiles the conventional bath fittings these are you don't have any allos limitations on it. What we do have in terms of take up you've got different regulations around the country. One of the one of the challenges for Australia I guess is that we have a

federal system and states we've got different regulations and approval processes. And just to give you one example in Queensland it's a bit of a battle to get the efficiencies of a bathroom pipe manufacturer, and still make the sign off requirements which which at the moment require a Council inspector to come and check the plumbing before it's covered up and if you're trying to run a production line and you need to stop it all the time so that somebody can come and check it and sign it off. You're not going to get the efficiency

Matt Jones: [00:13:39] Mhmm..

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:13:39] Of running things through and in for example in Victoria the coal fired tradesperson is in Iowa is allowed to self certify that product though their name will go on that thing and they can keep moving through the process. So there are some bits and pieces where the new processors clash with our traditional building regulations. I'd say not so much that code because everything has to be code everything has to be code compliant doesn't matter how it's manufactured. So that's not an issue for it. But in terms of how it gets signed off there are some clonking that still needs to be worked out there.

Matt Jones: [00:14:14] It is that code is that a, so your basic you know as Australian it's Australian standard code or is that does it have its own specific you know bathroom pod code for example.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:14:27] No it hasn't in the sense that for the for occupancy certificates and sign off on hand over to a purchaser or an apartment for example. It's the same requirements. In fact the building code doesn't prescribe how you get there. Normally it prescribes what you've got at the end and so all these have to be certified to the same standard no matter how the hell they're built. So that's not the issue.

Matt Jones: [00:14:53] When we're talking about the materials that are typically used and where most of us keep on track with the bathroom for now it will get off it soon. I mean I'm guessing that in terms of the plumbing the water pipework and things like that I'm guessing it's some sort of plastic piping in the walls right?

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:15:13] It's whatever it is whatever the client prescribes

Matt Jones: [00:15:15] Okay.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:15:16] They can find stuff all the light stuff and really we think it's one of the interesting things about it it's it's not a it's not a product prefabs in a sense it's not a product or a standard or a quality per say it is a different means of putting the building together or the bathroom put together which will have whatever the architect or client has prescribe for those fittings and fixtures and tiles and whatever it is

Matt Jones: [00:15:44] So you can effectively still have a bathroom pod that's been roughed him with copper pipe

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:15:50] Yes. If that's what you want you can offer that up.

Matt Jones: [00:15:53] Well like I call it. So one of the one of the things that

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:15:57] Just on that. Matt sorry it's been on there just to give you kind of an extreme example. There's an instance where kollel ideas are very very high end Italian let's call it a ceramics sheet that that can be used in place of tiles so you don't have all the grout and other things on there and that has been used in some offsite

Matt Jones: [00:16:26] Yeah.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:16:27] Bathrooms as a more efficient way. Even though it's much more expensive material to build that bathroom because the bathroom itself the shape and dimensions of it are within millimeter tolerance because the way the frame has actually been put together. So the curl I can pre-cut to fit that exact wall with any cut outs or required for services or access or whatever and then basically picked up and put on is one sheet on that wall. So you get a beautiful finish and then you just do the corner joints and it goes together much quicker for a very high thing. In fact the developer on that project was stunned that they were able to put that in a high rise apartment building in Melbourne he said. I mean he's doing very expensive his own home he said that's what I've chosen my home. Can you put it in there. (inaudible) that's economics is changed because we don't have someone laying all those tiles on there someone to pick this up put it in one place and that's only possible when you know that the room's structure and framing is going to be within tolerance because of the way you've built that to start with.

Matt Jones: [00:17:38] Gone I would just be so paranoid about like a breaching piece leaking or something behind the wall and having to smash the whole panel out to get to it.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:17:47] So I put that panel back in there. But anyway yes but there's no reason why they should be in fact be less reason why they should like

Matt Jones: [00:17:58] Oh no I appreciate that what I know from you know back as a maintenance plumber when you look at even things like slight structural movements were can cause brazed joints to start leaking things. I mean you can't foresee that kind of thing. That's just the that's just the nature of the landscape and sometimes those things will that sort of stuff will happen you know like you know and builds it You know thinking that it will but I mean inevitably it will at some point so there was always that raises another point as well that in the situation

where you do have to remove a panel for whatever reason what's the validity of say you know that product that you just spoke about that comes out of Europe being available in 10 15 years so you can replace it.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:18:40] Well that's that's an issue with styles and colors of tiles of any and they're very fashion type items so

Matt Jones: [00:18:47] Mhmm..

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:18:47] I wouldn't hazard a guess on that. I'm not sure it's going to be any better or worse than than other contemporary finishes that we're putting in the bathrooms.

Matt Jones: [00:18:55] So all we're talking about installing say a Prif a bathroom pod.

Matt Jones: [00:19:03] I'm very curious as to at what stage of the building process these things have to be put in. Because obviously if you've got confined walls and you've got a roof over top you drop a pot in there.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:19:17] Let's talk about the most common applications of them which would be in common slash student accommodation or hotel so high rise buildings. We've got repeats of that

Matt Jones: [00:19:32] Yeah.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:19:32] Kind of bathroom configuration

Matt Jones: [00:19:34] Yeah.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:19:34] Even they might have different versions of it through the building but you have multiples of each one and that set up what typically happens once you've got your core up and your floors in before you've done anything on the. You will land the required number of bathroom pots on that floor

Matt Jones: [00:19:52] Yeah

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:19:52] And then then just wheel them to their respective spots before you've done much else or a fit out

Matt Jones: [00:19:57] Gotcha. Okay. Yeah that makes sense. And then I suppose it's just a matter of plumbing up whatever comes out of the pod plumbing add up to existing plumbing

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:20:08] Yes the design of the existing plumbing and the services point on that side intended to be that's all got to be rethought out rather than done

Matt Jones: [00:20:20] Of course.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:20:20] I think. And that's that's for how that last exercise going to happen in under an hour to commissioners.

Matt Jones: [00:20:27] And so in terms of the code and all that kind of stuff when you're putting a pot in and when you're designing the hydraulic infrastructure behind the savours stack work for the sewerage or perhaps the water lines and that kind of stuff. First of all at the risk of asking a ridiculous question I'm guessing that when those pods come they've already been pressure tested and they're all certified and ticked off right.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:20:51] Yes they are yes.

Matt Jones: [00:20:52] Okay. And secondly that from a design perspective how do those pods comply with things like ventilation and all that kind of stuff.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:21:08] You're getting a bit technical for you. They have to comply in the same way the process of designing the bathroom by the architect and the engineers and whoever else needs to get involved in those dimensions of it is the same as just where it's built.

Matt Jones: [00:21:24] Yeah.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:21:25] So they'll they'll be they need to be specified right down to that level.

Matt Jones: [00:21:29] Okay so I need to pull a vent off at higher level than that can all come as part of the prefab.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:21:34] Yeah.

Matt Jones: [00:21:34] Okay. Gotcha. Okay. Sorry I'm getting a bit nerdy there with that sort of stuff but it's just questions that I've wanted to know if it was in the game.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:21:42] Far as your Terex

Matt Jones: [00:21:44] Right right. Well not anymore but yeah certainly wasn't it. But anyway okay so moving moving ahead I suppose moving away from the bathroom side of things a little bit. One of the things that I started seeing being introduced quite commonly back when I was

when I was plumbing was the prefab concrete wall set up so instead of you know having a million bricks out there throwing up bricks on the walls and they just basically bring a cranium with a panel drop it in place and then bolt another one on top of it. It seems to me like a lot of these high rise buildings now it's kind of common practice.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:22:19] What was the last comment that seems in the hospital.

Matt Jones: [00:22:21] Like a lot of these new buildings that are being constructed around the place that seems to be common practice these days like it's

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:22:29] Yeah.

Matt Jones: [00:22:29] Most the most of them are leaning towards that sort of style.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:22:32] The precast precast was well I think we're talking about the same thing that is very much a common part of the space and it's an excuse me and it's part of the whole prefabrication off site construction space. It's doing they're doing some interesting things in there but that's relatively well established outside rather than something that's that's undergoing a lot of change at the moment. And I think if we talk about the panels and particularly the blind walls for example in CBD buildings where you've got a buildings right next to each other behind walls there's a classic white or two to take over the panel. Well that was much broader than that these days because we couldn't get timber frame panels. We can get steel cage like a steel framed panels that can go in not just high rise buildings but low rise sun and domestic and other applications whereby they can have the framing even one or one cladding either the internal or external depending on what makes sense for the job. They can often increasingly be delivered to site with windows and doors in them. So what that looks like is a bit bit more along the lines of like an Ikea flatpack bookcase or whatever you open it up and this one's you know pre-cut corners and the fixings and get it together and when they go together for rapid assembly on there. And that's very much along the lines of the Swedish panelized building system that building kind of 40 years or so I went down that path for a few reasons but one of which is they've got very harsh winters and long winters so they've quite short time available onsite when they can do stuff sensibly.

Matt Jones: [00:24:23] Mhmm..

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:24:23] They're still waiting and wait three weeks for a slab to get to the point where they can and they can do anything else on it and that's the good part of the year for them because of the weather over there. So they do they've got a quite advanced stages and we're at where it makes most sense. In other countries and for a particular project we'll be quite project specific availability of trades is getting to lock up the most critical thing where the weather conditions and various things but you can take them they can be taken to the point where they're what we call close Pieman. So the internal linings are on

the wall the external claddings on the wall frame the insulation is in there and you either have conduits for your services or you can actually have the services pre-configured in in the wall ready so that when you put this together you can move it quite quickly and there's an example of this and this one is not the closed panel set up but I'm giving you an example of one being trialled in Melbourne at the moment three storey townhouse actually composed of five townhouses where the panels our what we call our Open panel they got Xcel cladding on them but not the internal in there and they were able to take that block of five townhouses three storey townhouses from slab to lock up in one way. And that's because they're basically picking up off the back of the truck the wall panels first they've got the doors and windows in them then they put what we call a floor cassette on top of that which is the floor structure top and bottom. Then they put the next floor wall panels on focus it makes wall panels then the roof structure on there the panels come with the first layer of Renda already on them and then as a matter of doing the joints and top cutting the render and ready for the trainees to come on out the building from the inside.

Matt Jones: [00:26:25] Good grief. So that was you've actually brought up two things that I wanted to talk about. First of all was the slabs which you've kind of addressed there with the slab cassette so effectively the walls go in first then they've got some sort of supporting bracket that the slabs come down and sit on it on top of it.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:26:42] What I was referring to in that instance was a floor cassette. So these are wood wood offsets.

Matt Jones: [00:26:47] Oh the timber. Gotcha.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:26:49] Yeah.

Matt Jones: [00:26:50] Okay okay. So is there such thing as a prefab concrete floor or is that not really exist.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:27:02] Yeah look there are there are variations of that and in there if we go back to the precast space you're talking about before there are some what they call the heavyweight but obviously that puts greater demands on your on your walls

Matt Jones: [00:27:15] Yeah.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:27:15] And you'll get up on the substructure and things. But there's a kind of a hollow core concrete concept now where they can get lighter versions with some very impressive spans 16 17 mile stretch bands on that. The other way that that's accomplished and it gets into the space that I call the kind of the hybrid materials whereby if you want to get a job and I think you're alluding to this you want to get the feel of a solid structure under you but with the speed and efficiency and light weight of a wood

Korkor said you can either do some kind of scrape which we've seen in various projects here and overseas or you can use a aerated concrete tile product like a table top so

Matt Jones: [00:28:03] Mhmm..

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:28:04] And then and by using those combinations you can achieve the desired level of it and eliminate any bounce in the floor. Yeah that's solid feel and structure you get some of the acoustic separation of qualities you're looking for.

Matt Jones: [00:28:18] Yeah.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:28:19] So it becomes a matter of saying well it's not just going to be this or that. What are we trying to achieve. What's the best mix of materials to to accomplish that.

Matt Jones: [00:28:28] The other thing that you touched on briefly which I liked which I'd like to elaborate on a little bit is the. I mean obviously they've been using this stuff throughout Europe for a long time. It gets pretty cold so you know for the thermal capacity of these products. Now I know living here in Sydney when you look at some of the older buildings like the one I'm living in right now even though it's a double brick house firmly it's bloody terrible in the winter. So I'm wondering if you know these things obviously they would have to comply with whatever it is our basic requirements over here and that kind of stuff being that technology comes out of Europe. I'm guessing that it's pretty well built for thermal capacity.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:29:12] Well that's really that's a design

Matt Jones: [00:29:14] Gotcha. Okay.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:29:14] Really it's an issue and a cost issue because one of the reasons why we've got away with it in Australia is partly our gentle climate but also cost more to do and one of our one of our builders for example who went on our study tour last year to Sweden we were looking at this you know beautiful beautiful triple glazed thermally broken frame windows and doors and the clock something like eighty thousand dollars a house and then it would just be prohibitive for most housing

Matt Jones: [00:29:49] Yeah. Gotcha.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:29:49] Applications in Australia. But we are seeing more of. We are seeing more double glazing happening and we're seeing some triple glazing here and we're seeing a more refined approach to getting there framing with the thermal break in them because our first adorations in Australia many of them the glass was

doing its job but the frame was in the thermal imagery would just show the heat and cold transfer running through the fibers rather than them. So you do have to get the whole package right. Otherwise the weak point in it but one of the things that off site construction can do is because a more controlled factory environment where they're being made. If you are running high energy efficiency specifications you've got to be in a better control mechanisms to make sure that it's built to that to the design to achieve that rather than perhaps getting some compromises on site or some things didn't really fit together some insulation missings whatever. Well there really is. You just need to have some spaces here where you've got leakage a leakage you're building or poor thermal breaks and some elements of and the weather will find its way through there. As you as you've discovered on yours is probably a Windows I respect and somewhat the unintended ventilation happening in or in your that's that

Matt Jones: [00:31:15] I don't even know where the breeze comes from is why sometimes as like everything sharp whereas that breeze comes on go anyway. So

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:31:22] Or other things they do these days is they do what they call a blower door test so they will cause all the windows and doors and then replace your front door with a door that's got a blower an enabler in it and pump it up and see how much air it holds and see how long it holds it for and what the transfer is without you doing anything just cut through leakage. Yep.

Matt Jones: [00:31:46] Like a pressure cooker pressure test.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:31:48] Yeah. In effect and it looks at the turnover of the air in there which is one of the important things from controlling energy costs. It's very much a part of the passive house concept which are very high and low energy usage specification out of Europe. But if you if you've got airflows happening not intending then that's really undermining all your efforts.

Matt Jones: [00:32:11] Fascinating.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:32:11] So it all happened somewhere.

Matt Jones: [00:32:13] So we've spoken about some of the more common I suppose applications for the prefab sort of stuff. What are some of the less common or some of the evolving spaces where prefabs starting to make a bit of a footprint.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:32:30] Well some interesting ones we've had in Victoria. I know I'm not sure about other places where train stations have been manufactured in factories and we're talking about either existing train stations that have been rebuilt or improved or expanded. Where you've got daily traffic so you really need to minimise your impact on daily commuters and it is the first ones that were done a few years ago actually

in Melbourne they were designing in Europe other London designers with no thought to how they would be built which actually in a funny way is why most designs are done not really thinking about how it's going to be built. That becomes the engineers and the other group and the builder

Matt Jones: [00:33:22] Yeah.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:33:22] And the struggle to sort out who is going to rebuild which is one of the very odd things

Matt Jones: [00:33:26] Yeah.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:33:26] About construction. To my mind or in my construction la la la safe whether it's in one of those situations you know we wouldn't design a car without knowing every bit is going to be sourced. How are you going to service it. How are you going to put it together. When do planes like that.

Matt Jones: [00:33:42] Yeah.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:33:42] And interestingly some of the design for manufacturing assembly and digital engineering that we're increasingly seeing in the construction space for buildings is has come from us as evolved in the automotive and aerospace where they're thinking about that. On day one how it's going to come together. We're going to see what shapes our standard what's not standard. Where are the guys going to be when they're girls in their cars. We're going to be when they're installing that doesn't mean we need scaffolding or not scaffolding or whatever it was that what's the access points. What is

Matt Jones: [00:34:15] Mhmm..

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:34:15] What is all that is actually thought of upfront that hasn't been the way we've gone about construction. Now

Matt Jones: [00:34:21] Well it's certainly true and the way they normally get around it here in Australia as well is to design and construct so here's the designer you go figure it out. But that certainly wouldn't be overly relevant I imagine when you're talking about prefabrication which raises another point which I want to ask you in the terms of that digital design space. So I mean obviously if you're going to come up with a design for a for a bathroom for example that, then has to comply I suppose and consider all the other services that you know. HPAC or electrical and all that kind of stuff. So when we're in a building or when they're looking to build a construction that's going to incorporate an element or a facet of the prefabrication within it does that mean that that coordination with the design process of that specific product that would have to be very heavily influenced by the designers of all the other infrastructure right mechanical engineers and all that kind of stuff.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:35:33] You you've alluded to yeah where you're exactly right Matt. What these stars the more off site construction you do the more front end resolution of the design of all those elements has to happen doesn't unfold

Matt Jones: [00:35:49] Okay.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:35:49] As you going during the course of the build. For two reasons one is because you've got to get that you've got to have it all to consider all the other elements but also you can't start you don't get the benefits of off site construction and the concurrent work program until you've started building that stuff off site and you can't start building it and you've said what is it going to be and what the fittings are going to be and how big the room is and how many times you need. If you haven't defined all that. You can't start it

Matt Jones: [00:36:19] Yeah.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:36:20] And it does front and land and one of the challenges of the change that prefabrication brings about to various degrees. But if you go to a lot of it off site it changes a lot about that whole. The whole thinking about and how you get organised and even to your project team is and how you design it, deliver and even how you procure it because the contracting can be. Influenced if you've got a lot of contract. I'm thinking of one Western Australian hotel. Probably 70 percent of the cost of the building was the apartment modules. That came from my supplier In this case. That's a fundamentally different make up of the procurement contract and the bill record only really directly he oversaw the other stuff we didn't directly make 70 per cent of any of the building that he set record for. So it does and that's one of the reasons why there's there's been it's been a slow take up and in certain sectors for prefabrication because it does fundamentally change the way we organize ourselves. Some issues for funding are and and when we think about the manufacturing type business model which we're really starting to if we're talking about companies that make bathroom pods for different projects they might need you know couple hundred to a typical hotel or student accommodation project could be 600 bathrooms so you need to have you need to be able to run at scale but you also need to have a flow of next orders because if you have a factory and you have your workforce and you have your technologies and machinery and stuff there

Matt Jones: [00:38:06] Yeah. Right.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:38:07] You can leave it dormant for patches in between and that's that's one of the big changes.

Matt Jones: [00:38:12] Mhmm..

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:38:13] The more manufacturing we bring to construction compared to the traditional model where there's a lot of subbies and you scale up when you've got projects on and you scale back down again that's

Matt Jones: [00:38:23] Yeah.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:38:23] A natural kind of adjustment. We don't have that in there so that that also changes the business models change

Matt Jones: [00:38:29] Mhmm..

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:38:29] A little bit on this stuff as well.

Matt Jones: [00:38:31] So I mean that's I mean that is a big limitation I suppose or potential limitation when you're talking about you know demand and being able to supply that demand from you know if for example if you do need to build a hotel it's got 600 bathrooms within it you know where we're at the moment. Would that come from our factories here locally. Does it do this stuff. What does it all come out of Europe or what's the what's the go.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:38:55] Now we've probably got a dozen

Matt Jones: [00:38:57] Yeah.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:38:58] Dozen bathroom pod manufacturers in Australia and probably four to six who who would be credible tenders for 600 bathroom projects. The other ones would you can operate at different levels with different volumes on it but that is starting to be created now. Now for the demand for the volumes the other part of the volume is that apart from the business model changing to really reap what everyone would like to see happen and get some cost decreases rather than just be cost competitive and maybe be higher quality and maybe be quicker to on the program for the project but to actually achieve some cost reductions through the manufacturing processes and supply chain management things

Matt Jones: [00:39:45] Yeah

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:39:45] We need to get some some volume we need to get sales

Matt Jones: [00:39:49] Right.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:39:49] At until we get a broader take up in the industry. It's hard to get efficiencies from scale not running at scale

Matt Jones: [00:39:57] Yeah.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:39:57] And our supply is relatively small market to start with. So it's quite interesting but we're getting some people who are investing in the technologies that can do more and more of this stuff efficiently in the factories. So we're we're starting to make some interesting progress on that front. And if we think if I look at more let's say Rob resolved more established models in Sweden for example there are some big panel manufacture timber. They're very much a timber scythe. In Sweden they grow a lot of timber. They value add to the timber industry and in fact they end up with more. They've got more timber growing each year than what they harvest even though they

Matt Jones: [00:40:40] Yeah.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:40:41] May be big players in the timber industry but some of the ones that are very big scale heavily invested in technology will have a couple of takes. They will be selling to the broader market and they will have their own development activities so they can marry across those two. And if for example some of their customer orders get delayed or slowed down for a while. So run the factory at an efficient level and run more product. Through to their own projects. And have it keep the volume happening that way.

Matt Jones: [00:41:11] There's a million things that I wanted to talk about like I keep talking about here but I really you've touched on something which was which was a big thing that I'd like to talk about for both for my personal reasoning and I suppose for I suppose the benefit of the listeners out there which is the environmental advantages and I know when we had out when we spoke off line a couple of weeks ago we were talking about the advantages in the space of waste reduction and how you know when you're not building on site of course there's far less stuff that you know off cuts and like kind of carry on. What about from a product perspective itself like the stuff that's being used in the construction of these products. How do they fare in the space of environmentally friendly renewable sustainable solutions that kind of stuff.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:42:01] The actual materials that are being used will be it will be a function of the design specification of what the client says but

Matt Jones: [00:42:08] Yeah.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:42:09] What it does because of the efficiencies in the supply chain management and the precision in the use of use of them and the reduction in wastage. It makes it more amenable or more efficient to use higher end ecological

products which tend to be more expensive you can you can count some of the cost of the thing because you're using it in a more efficient way.

Matt Jones: [00:42:31] Right.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:42:31] You don't have the wastage you don't have the breakage you don't have whatever's happening at onsite there and you can be very specific in the way you order the sizing of that stuff because you've got you've got very precise plans and very precise requirements for your bills and materials that you can. You can take off there. And so we're saying in some of these operations here and others we visited. We had a study to the US and Canada last month. In some of those things where they're buying non-standard material sizes. From the supplier because it means they're not having offcut double handling joining up. They can they can use them in an efficient way. Because they know exactly what they're going to need rather than having to kind of rebuilt it iterative and see what's happening on site and got some extra ones or gold or another whole box and just see what we need. They can be very specific and when they get down to the details on the digital engineering. They no matter how many screws they're going to need which slots for that project and they can even have for the bathroom. They can have a set of the ceramics and the tiles and everything go to that station rather than getting the boxes of all the tiles you need for the six bathrooms. You get them delivered in a pack for bathroom.

Matt Jones: [00:43:48] Right.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:43:49] That cuts to that station. So even you can even take out a lot of the packaging that that is normally associated with the way that stuff's dealt with.

Matt Jones: [00:43:56] Yeah. Right.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:43:57] So there there are a whole lot of things that are just starting to now evolve in there when we think about the supply chain management. So from the ability to incorporate efficiently cost efficiently higher ecological standards products it's helpful to be doing it in this way because for all those reasons

Matt Jones: [00:44:17] And you mentioned as well it makes sense I suppose you know if you want to make this a cost effective alternative to traditional building then it would normally come in the space of volume. So you know if you are building a hotel with 600 bathrooms or whatever then it's going to be obviously cheaper than getting a single pod for a single house for a lot of fun. So is it typically at this point in time is it. Is it really when we do our prefabrication is it kind of customized more towards the commercial development construction side of building as opposed to residential.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:44:59] It's both. We have two different players that tend to be doing many of our members do make. They make individual houses in a factory environment though they can do both kind of as standard set of designs

Matt Jones: [00:45:14] Of course.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:45:14] Which can have the normal variations that someone could ask for and they can also do them totally bespoke. So there are there are multimillion dollar homes not to hire some land I'm talking about homes being built and being transported in built in Melbourne for example and sent to Sydney for waterfront homes. So there are people but they tend to be different firms there's not somebody kind of doing big scale here one off

Matt Jones: [00:45:40] Right.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:45:40] So but they're quite specialised endeavours with different skill sets in them. But there are some of the players have now brought in-house the kind of the engineering the all the skill set in there so they can be pretty much self-contained and deliver the whole project to the customer for

Matt Jones: [00:46:00] Yeah.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:46:00] A home for example rather than having different tiers of people and the customer unsure who's responsible for this bid who's doing all the footings. What about this would I go back to if there's a problem later on if there's a supplier building this factory someone. So we do the whole thing. We are the builder we are the manufacturer we ran your project for you. You there with us. That's the end of the story.

Matt Jones: [00:46:21] Those are just two questions. Conscious of your time and the listeners out there first of all if you like from a installation perspective obviously a prefab is being done in a factory somewhere. So while the bulk work is being carried out by the supplier themselves who is then responsible for installing the product into a dwelling and I'm talking about I suppose realistically from a licensing and compliance perspective.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:46:53] The builder ultimately the builder is the builder can have their own arrangements and installation and or back to back warranties with the supplier on their own case they would normally also have vetted any supplier that they would be using on a on a larger project for example and customarily had some inspections during the course of the works that were happening offsite. So it's not a kind of mysterious thing that just appears one day there is very much a part of it although it's a different part to what it normally is because having a different place to it but that hasn't been one of the issues that we've we've had a lot of problem with.

Matt Jones: [00:47:34] I can say um in terms of like a certification perspective I mean if you guys supply the pod then you don't need a certain sort of say plumbing qualification in order to connect to it. Like any plumber can

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:47:51] Yes. Any any call hypot plumbers who who's who's authorized to certify the final connections can do that. There's not a the idea is that we're not building something that's got different connections and different things and create a whole new mistake on it.

Matt Jones: [00:48:07] Right.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:48:07] The material that is in the connections will be customary that we just be concentrated in one section of that of that bathroom pod ready to be connected.

Matt Jones: [00:48:16] Call and from a servicing perspective is it the same thing like any could any say qualified electrician qualified plumber do the servicing on a bathroom pod

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:48:28] Yeah

Matt Jones: [00:48:28] Right.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:48:28] It is there's no nobody's trying to make this specific. You've got to go back to the supplier to keep it.

Matt Jones: [00:48:34] Right.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:48:34] No there's no indication of that whatsoever. And I think there will be a major handicap. If anybody tried to go down that path.

Matt Jones: [00:48:42] Right

Matt Jones: [00:48:43] Like and the last question I have for you was you spoken. You mentioned that hasn't been one of your problems to date. What are some of the more common problems that you would you have been experiencing or if not you personally but not the industry

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:49:00] Yeah

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:49:01] Yeah. Well within the industry association so as our members who

Matt Jones: [00:49:04] Right.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:49:05] Were caught are caught up in this stuff. I think the education process is one of the

Matt Jones: [00:49:11] Yeah.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:49:11] More interesting parts about it because often for example the guys making bathroom posing I know we're focused a lot on that and there's are plenty of other things but let's keep it in that context for now. They look at some of the designs they get given and say you realise you know if we made this three 30 mil Wonga wall. We don't have to cut all the tiles down that side and other designs where they say look this height is this is we need to do it like this because our materials come in they standard sizes and we're happy we can make them whatever size you want but we're doing an extra exercise here and it's costing us money going to cost you money it's going to take us time and then we can take that out of the process. This thing's going to move a lot smoother so I think it wouldn't so much a problem but it was an executive.

Matt Jones: [00:50:00] Communication

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:50:02] Said saying with this we're with the guys who are thinking about doing this in a factory all over these kind of dimensions where more on site. So that's what that's the space I've got. That's what we ended up with. I'm going to make it fit and I know how to do that.

Matt Jones: [00:50:18] Yeah.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:50:18] It's they back a step and saying a better way to do this. Or what about this. What about that to to create that more collaborative discussion early on

Matt Jones: [00:50:28] Yes.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:50:28] Is really one of the fundamental changes with what we call early contractor involvement with how the how the designs are going to be from an efficiency point of view and only supplier involvement to have a supplier is a big part of the project. Have those discussions earlier on and and on out some of that stuff because they've got some they do this stuff day to day. They've got a lot of good suggestions. I'm not take em all up but that's good food for thought and some of them are just blindingly obvious but not picked up normally. And if it's too far down the design development process they've got to wear it and the project ultimately was a

Matt Jones: [00:51:07] Like I can certainly imagine that that paradigm alone would be a pretty confronting hurdle for a lot of organisations that are so tied into the traditional way of running a building project you know having to having to really knuckle down and screw down on that communication initially. That is so paramount.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:51:28] You know confronting is exactly the word I would have used the use there and it's it's changed this idea about being collaborative and having those discussions as opposed to the more combative type approach say here's what it is how much you're going to cost how what's going to what's what's your price what's your enterprise to do that because it's fundamentally different yet it's exactly what is done with the automotive aerospace

Matt Jones: [00:51:59] Yeah.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:51:59] Where they are talking to the suppliers who are making the gearstick or the instrument pods or whatever as they're putting this thing they're saying what about this one or what this is our spec you know we need this functionality you guys know other the materials you know how it needs to work we're not gonna tell you every bit and then try to screw them on the price to make something inefficiently that

Matt Jones: [00:52:19] Mhmm..

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:52:19] Way as we don't understand it which is what we're doing in a lot of our construction industry saying these are our performance specifications is where we need to (inaudible) to be of this way that this energy writing these kind of sustainability dimensions if there's a disability performance standard we want for the. Tell us all that.

Matt Jones: [00:52:40] Yeah.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:52:41] Give us the broad things and then you can get something back that will do the job better than it could have come up with without all this talking and flying over some months now it's not always going to work for you but just that different changing mindset is fundamentally confronting and and it could also affect relationships with established relationships with their own trades people in oversight for example or somebody started to introduce bathroom cards or some of their projects. Are not then using the trades that they've been using. There other projects

Matt Jones: [00:53:13] Yeah.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:53:14] That their established relationships that that people are very hesitant about disrupting.

Matt Jones: [00:53:19] So Warren as far as before we close off the end this has been a positive conversation. I'm so thrilled that we've learned a lot for sure and I know a lot of listeners out there as well. A couple of things before we talk about the upcoming conference that you guys are running but where is the future of this going? Like where is this Prefab future heading.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:53:44] I think what we'll find is that it becomes increasingly mainstream and though. But the real turning point for that will be when it's identified as being a superior outcome to conventional ways. We're not quite at that point yet. But what is interesting is we've had just talking about Australia alone we've had very successful Prefab projects in the transport in other parts of infrastructure medical suites hospitals every kind of residential from standalone housing townhouses student accommodation mid rise apartment buildings high rise apartment buildings we're starting to get that footprint across pretty much every kind of building type. We've had McDonald's restaurants built in Melbourne and installed Northern Western Australia and Northern Territory in remote locations. The full set up build fully run kitchens run the whole thing detach it take it away and put it back together in a couple of weeks on site. So we've got a we've now got Australia is interesting. We've got small scale but that's forced us to look across the various different markets so we've now got a nice thing but I think we've got many more of builders clients try these technical people engineers who are all your. So this is just a matter now. It is the future to do more of this stuff. It's not a solid smooth path to get there. And I think you'll increasingly see it will become a little bit more accepted as not being that different and that not that not that unusual and if we go back to one of the earlier transformations if we think about plaster hard plaster in the old days I then plaster that was in our plaster board was the first prefab version of plaster the old plaster. It's not considered anything like that. The robotic arm of the robot vacuum cleaners. We just think it was vacuum cleaners. Now we're starting to move into that space and I think we've probably got increased momentum and we've got some many more much more interest in this and we're getting some endorsement of off site construction by by governments in Singapore in particular as mandating of site construction in various ways.

Matt Jones: [00:56:07] Okay.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:56:07] The UK government is heavily endorsing and now looking to move to where they're going to prescribe that you know 20 percent of their procurement is off site so they can help create the volume that's required for the industry to invest in the skills and the manufacturing processes so the stuff happens so read a very interesting study it's not going to happen instantly but it's a very interesting stage for us to become more pervasive. And just to finish off as you mentioned we Prefab is site construction industry association so it's our members who were involved in this industry and they can be you know people who make these modules panels supply the equipment the builders who are involved in finishing off these projects and incorporating this stuff the architects engineers clients research agencies that are a whole host of different people and really it's that that whole kind of ecosystem that's required to bring about this kind of change. So we have a number of events during the year we have study tours overseas but our feature event is the annual

conference this year it's in September 10th to the 12th September at the Brisbane convention exhibition center.

Matt Jones: [00:57:20] Yeah. Right.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:57:24] So that's where

Matt Jones: [00:57:25] And so you were there to (inaudible) what the type of gas that you would typically like to see there is it. Is it builders or what sort of people are you looking for for that sort of who would benefit from it. So I just want to ask.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:57:37] Yeah well it's people who want to know more about what's happening this space. We will have leading practitioners from Australia as well as international speakers. We have speakers and delegates come from overseas because what we're doing here in Australia whilst not big in scale is very interesting and some of it is at the leading edge of quality and sophistication of what's going on. So people who have heard something about it think about what step they might think about taking let's see some case studies about projects that incorporated outside construction and how they went and to see who the other players are in and if we've got an exhibition area where some suppliers are also exhibiting. So it's kind of like a if someone is interested in this area we've got architects, engineers, all sorts of professions attend as well as present at our conference so it's not just the physical side of things but it's a kind of a crash course to if someone is interested in having a meeting he will be here three months later. You can compress it into two or three days the first day as a side business program where we actually visit this mix from year to year but in this case will be one of the factories which producing housing and school buildings and a couple of projects. One is a big cross Lamanite timber CBD office building the largest fire floor area in the world across them timber been in Brisbane and another is a townhouse development using light gauge steel framing manufactured in the factory and setting up a rapid assembly so get a bit of taste of practical projects on site and in the factory. One of the presentations and discussion panels.

Matt Jones: [00:59:32] Brilliant. Well look I can't promise that this episode is going to be long before that event goes out but I will definitely post a link to it within the Facebook community so the guys in there know that it's on and those a few guys up in Brisbane that would be very interested in this I dare say they will be a ring in any way. Warren, thank you.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:59:50] We'll have one next year to map and the next one will be in Sydney

Matt Jones: [00:59:54] Okay.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [00:59:54] Somewhere around

Matt Jones: [00:59:54] All right. Well you just keep us in the loop with that sort of stuff anyway and we'll definitely put the word out there for you. Warren McGregor, thank you very much for your time. It's been informative. It's been educational. It's been fun.

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [01:00:07] I've enjoyed it very much. Thank you, Matt

Matt Jones: [01:00:09] And so if people want to find out more about Prefab Aus, they can head across to Prefab Aus. All one word dot org dot AU. That's PREFAB AUS dot org dot AU. There's a lot of information on that page there. And they are across social media as well. So if you want to follow them on Facebook Twitter Instagram and LinkedIn you could also find that through the website and I'll post some links to that stuff within the show notes of course. And for the listeners out there if you've got any questions I suppose you inevitably will have in the space of Prefab. By all means wherever you see this episode posted whether that's come through in one of one of our emails or if it's across social media. If you want any answers to the questions by all means just hit me up and I'm sure Warren will be more than happy to ever come back on the show and answer them or answer them for you within the Facebook community or something like that. I think it's all right. I think we're pretty much there. Is there anything you want to add?

warrenmcgregor on 2018-07-19 at 08.43 (Track 2).mp3: [01:01:13] No that's fine. That's been a pleasure. Thank you for the opportunity, Matt.

Matt Jones: [01:01:18] Okey dokey. Well that is a wrap. You've been listening to The Site Shed Podcast. I'm Matt Jones, and we'll look forward to speaking to you in the following episodes.