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Dear Executive members

This letter is by way of notifying you of my intent, at Saturday 2 March, 2024 General Meeting where it is scheduled to consider a resolution to approve the expenditure of up to \$50,000 on an upgrading of the Memorial Hall's ceiling, to move the following Procedural Motion which, according to conventional meeting procedure, must be debated first.

PROCEDURAL MOTION: that the proposal to approve up to \$50,000 to upgrade the Memorial Hall's ceiling be deferred because:

- 1. The process to understand the issues we are proposing to solve did not include sufficient representation by the membership. That in the forum held in May 23' the potential solutions to the suggested issues were discussed at the same time, thus not allowing for the issue or the solutions to be adequately considered when asking for votes that considered both the issue and the resolution.
- 2. Subsequent briefings to the members did not cover an adequate representation of the membership for such significant changes to the hall and the amount being spent. The image presented once at the GM for the finished look of the Hall was not representative enough for the members to understand what it would actually look like.
- 3. There are too many conflicting views from people with varying degrees of professional experience (Specialists) about the benefits of what the work will achieve, whether everything has been considered (Weight or the panelling or the impact on the acoustics) and even how much it should cost.
- 4. From a heating and cooling perspective a Building Efficiency Consultant has not been engaged who understands building envelope performance. It would be prudent to be very confident that it will have a significant impact on comfort (both summer and winter) before spending \$50k, as no analysis or modelling specific to the hall or its construction has been carried out.
- 5. We're asking for approval to spend \$50k on stage 1a, but with no idea how much 1b-4 are going to cost, and what is the total expenditure being committed to? How long will this take, how will it be funded, what other projects or initiatives will have to be abandoned? We shouldn't be starting on a 4-stage project if we don't know how much it will cost.
- 6. The background information provided to the members does not provide sufficient information for even stage 1A to allow them to evaluate the spend of \$50k. It makes unsubstantiated claims and cherry picks information from the latest report thus missing important information.
- 7. If you ask people in isolation "would you like the ceiling insulated and painted, and we think it might make the hall more comfortable" they are likely to say yes, especially when not presented with any alternatives for how \$50k could be spent

Below is a review of the background information and the report it refers to be Ben Kearney and provides much of the rational for this motion. Ben was the lead consultant for all the work carried out last year on making the Hall into a safe place should we get cut off. Ben is Electrical engineer & Energy efficiency and Renewables Consultant, working on energy efficiency and renewables for 30 years.

Agreed long term plan

Although the "Background" summary and proposal hints at some consultation about upgrades to the hall, but it's not clear if there is a agreed consensus on the future for the hall. As I see it, the options boil down to 3 basic options which are:

- a. Existing hall, relatively simple community hub (maintain as is)
- b. Existing hall, upgrade to mid / high end event venue
- c. Knock down / rebuild.

For people to make an informed decision and for there to be general consensus about what is being done, a brief description / vision and costing for each of these options needs to be outlined, and people given the opportunity to select one of them. Starting to implement projects without this consensus or understanding of the implications (and options that are being cut-off) is concerning. I note there is talk of upgrading the kitchen and toilets and "connecting" the hall with the deck, which seems to point to the Option B Upgrade path, though perhaps this isn't universally understood.

It strikes me that the Association is facing what I call "the bowling club dilemma". Small bowlo with declining membership is struggling to raise enough funds to maintain the greens and clubhouse, and the lure of "biggering" keeps being brought up. Eventually a flashy investment banker convinces the committee to take out a \$20M loan and invest in turning the club into a pokie palace / bistro / pub. Yep it's bigger and flashier and they can afford to keep the bowlers bowling (on their one remaining green – the others were turned into a beer garden), and they are now also locked in to a "high finance / commercial" focus in order to pay the interest on the loans and the salary of the staff and managers. Very important to note – once you make this decision, you can NEVER go back.

The decision for the Assoc isn't quite as dramatic, but embodies the same choices. The kitchen etc are more than adequate for a simple community hall with the occasional event. To upgrade the kitchen to "commercial catering" standard is going to cost another \$50k (and probably another \$50k on top of that to relocate it so as to open up the hall to the deck), and probably landscape / upgrade the rear yard to make it suitable as an "event space". So option B is really committing to \$100k+ in "improvements" on top of the existing and looming "maintenance" costs. And it's still going to be a weatherboard hut, albeit with a bit of a fancier interior. In order to pay for that, the focus on event hire will need to increase, and non-paying community use will become secondary. A bit doom and gloom perhaps, but certainly one possible outcome of the path that has apparently been chosen.

I think the option being pursued, and the implications of that option (in terms of hall use, and total costs to the Assoc (and what other possible initiatives WON'T be able to happen if all funds are diverted to the hall)) should be clearly spelled out, and members given the opportunity to select which of the 3 basic paths they think the Association should be heading.

Simply presenting individual "upgrade" or "maintenance" projects without explaining which option they are part of is perhaps asking people to make decisions with incomplete information. Sure making the hall more comfortable or look nicer sounds good... but what is the total cost of the whole option people are being asked to commit to, and how will the Assoc fund all of this? What other options are being cut off?

Stage 1(A)

Firstly, as above, we're spending \$50k on stage 1a, but with no idea how much 1b-4 are going to cost, and what is the total expenditure being committed to? How long will this take, how will it be funded, what other projects or initiatives will have to be abandoned? We shouldn't be starting on a 4 stage project if we don't know how much it will cost. It seems stages 3 and 4 are essentially "concept" level of development, with no apparent timeline or funding. The bulk of the "items of concern" listed aren't addressed until these last stages, while stage 1 focusses only tangentially on only two of the 9 identified problems people want addressed.

Consulting with architects, engineers etc is certainly a good step, though what is documented doesn't necessarily show that the advice is thoroughly briefed or definitive. From what I can see a manager at a boutique engineering firm (with a good commercial building services and energy efficiency track record), had a conversation with an architect who doesn't specialise in passive design or building envelope performance, who was in turn briefed by another architect with only a few basic parameters about the size of the hall and a few photos. No one from the Engineering firm visited or inspected the hall. There is certainly some good expertise there, though not necessarily specialists in building envelope performance, and certainly not with a full understanding of the site. The best we can expect from that kind of process is a few motherhood statements ("insulation = good") but not a thorough or accurate assessment of the likely practical impacts of what is proposed. The intro to stage 1B even says "once the passive heating is assessed" which I interpret as "once we see if it makes any difference"... I suggest it would be prudent to be very confident it will have a significant impact on comfort (both summer and winter) before spending \$50k.

A few specific comments / nit picks on the "engineering report" (which is definitely not an "engineering report", and may also not be terribly independent):

- I have a roof pitch of 30deg in my solar models, which I can't guarantee is accurate, but as an important variable I'm pretty sure I would have based it on something reasonably accurate at the time. Compared to the 22deg used as the basis for the briefing and calculations, it results in a "cathedral roof height" component around 50% greater, and associated air volume.
- I remain highly sceptical of the assessment that "the insulation and closing the roof vents will greatly improve comfort in summer and winter". See discussion of building envelope below.
- I don't know what kind of insulation is proposed, but I note the thickness of R5 batts is around 240mm. From memory and a quick look at a couple of photos, I estimate the roof rafters are less than half this thickness, with the thicker "structural" beams still only ~200m deep. Put simply, you can't fit R5 insulation between the existing rafters, and squashing it in will greatly reduce the installed R value. I estimate 75-100mm deep rafters, which can accommodate at most R2-2.5. Installing R5 batts would require extensive framing to accommodate the batts and panelling to cover it and remove around 1' (~300mm) from the interior space over the full roof area, and significantly "close in" the airy feel of the hall. See discussion of building envelope / roof insulation below.
- "Radiant panels will only heat the upper roof space, not where required at the lower level" What??? The whole point of radiant panels (think a high-tech electric version of the patio heater or outdoor roof-mounted veranda heaters you commonly see in cafes and pubs) is to directly heat the people, rather than a large air space. Presumably whoever installs such panels would know to point them down rather than up.
- Existing windows do not offer adequate natural ventilation? They occupy a large area of the walls on 3 sides of the main hall space, all open, and can provide good cross-flow depending on wind direction. I'm not sure how much better you'll get. Also at odds with the advice to close the roof "ridge vents" (which could also be the gable louvres being mistaken for ridge mounted "whirlybirds"??). Certainly the thermal (insulating) properties of the windows is abysmal, but fixing the thermal performance of the walls and windows would involve complete replacement costing many many tens of \$000s.
- If you ask people in isolation "would you like the roof insulated and painted, and they think it might make the hall more comfortable" they are likely to say yes, especially when not presented with any alternatives for how \$50k could be spent or what it will look like.

I suspect this is a somewhat rosy and perhaps biased interpretation of some generic "insulation, aircon, fans, and ventilation will help improve comfort" motherhood statements, based on a brief conversation (without a full understanding of the building envelope,) and certainly no analysis or modelling specific to the hall or its construction.

For the record, I am a huge advocate for energy efficiency, and have spent a large portion of my career focusing on this. I've also seen lots of expensive white elephants that were never going to deliver on unrealistic expectations, or without understanding practical limitations. I also recognise it is extremely difficult to improve the thermal performance of existing buildings.

The hall is essentially "Queenslander" building design philosophy – high ceiling, low thermal mass, low insulation, lots of natural ventilation (including underfloor) and shade from covered verandas. It worked well enough in hot / tropical climates but was always going to result in uncomfortably cold buildings in winter in places like Sydney. In summer they will not keep you much cooler than you would be outside in the shade, but at least they won't heat up and keep you hot all night once the sun has gone down. Ok for warm climates and cheap, from a time before air-conditioning.

Hence the move to modern efficient building philosophy, which is basically the exact opposite. High thermal mass, insulated slab on ground, high insulation, airtight, with controllable ventilation and solar infiltration (windows and curtains that only let sunlight and drafts in when you want them to), and active heating and cooling (air-conditioning). Roof insulation is an important aspect of this design philosophy, where all other aspects of the building envelope (walls, floor, windows, ...) are high performance and work together not allowing heat to enter / escape. Insulation keeps a lot of the heat in / out, and the thermal mass takes time to heat and cool, smoothing out internal temperature variations during the daily cycle. Even so, a lot of modern buildings have pretty average orientation and solar passive design, and are operated poorly (leaving doors, windows and

thermal curtains open when they shouldn't be) and end up being comfortable via the sledgehammer approach – lots of air-conditioning.

Simply adding roof insulation to a "Queenslander" is not going to change much at all. With the walls, windows and floors at the hall, reducing heat flow through 1/3 of the building envelope will have a greatly reduced impact, and what heat is retained from the roof will simply go out one of the other existing paths. The best analogy I can think of is plugging up half the holes in a leaky bucket.

I'm unsure how R5 was chosen, but I can't see any rationale to dictate this much insulation. R5 or even 6 or 7 is the gold standard for new buildings constructed with high thermal mass and the rest of the building envelope similarly insulated, but in a lightweight construction hall it doesn't make any sense to me. The benefits of additional roof insulation will rapidly diminish, and the thickness of what is being proposed will result in significantly higher costs and change to the appearance of the roof space. I'm also unsure what kind of "V groove" panelling is proposed, but this will be a significant additional weight load on the roof structure. I don't see this addressed anywhere in the advice received from the mechanical engineer.

There's also the different heat behaviours between summer and winter. Summer you will get radiant heat from the sun coming through the tiles. Best insulation for radiant heat is reflective foil. You have hot air outside that will come in through the vents and draughts, and also conduction through the walls and windows. Hot air rises, so the worst of it will tend to move up to the top of the roof space, and back out through the vents at either end. Fans move the air which does two things – circulate and mix the hot and cold layers, and provide a breeze internally which will cool people's skin. Long and short of it... some foil backed batts on the roof will stop some of the radiant heat coming in through the roof, but the walls and windows will still allow heat and hot air in. This type of Queenslander construction will never be cooler inside than it is outside, but the worst of the heat will rise to the top of the high roof space, and provide some comfort down below. Fans will cool you a bit, but also bring the hot air down. The exact balance between these various heat flows really needs some proper energy modelling. The trees also provide a fair bit of shade and will stop some of the sun hitting the tiles. With the lightweight floors and walls, you're never going to store enough "cool" to make any difference. Basically, air-conditioning is the only thing that will make any difference.

Winter the sun isn't as much of a factor, and any heat that does come in through the roof tiles is a good thing. Convection (air) heaters like what is there will heat the air – problem is there's a lot of it due to the high ceiling, and what does get heated will rise to the top, leaving the cold air at the bottom. Fans can circulate this back down, but will also create a breeze that will have a cooling effect. The vents either end will let any warmer air escape, and the windows and walls will quickly lead any warmth left outside. At the end of the day, this Queenslander construction will always be a disaster in winter. Insulating the roof will be good and bad – stopping some warmth from the sun, but also trapping some heat in the air at the top – and will require some modelling to figure out if this is a net gain or loss. Being able to close the gable vents in winter would definitely help, but permanently closing them will also turn the hall into a greenhouse in summer. Ultimately there are two choices – hit it with a sledgehammer (lots of heaters and keep pumping heat in), or radiant panels above people's heads that can heat the people not the air. Short of rebuilding completely, the current hall construction will never be warm and cozy.

Some insulation on the roof would certainly help, though I doubt it will have any significant effect. It will need to have some foil to be most effective in summer. It can't be any more than ~100mm thick (about R2-2.5) if it is going to fit within the existing framing, and installing R5 as proposed will involve a false ceiling 250-300mm thick inside the whole of the existing roof structure, and significantly reduce the air volume and change the "look and feel" of the cathedral roof style of the hall significantly.

Rather than "insulate first, see if it does anything, and then install aircon", my inclination would be to do it the other way around. Rather than \$50k on insulation that may or may not have any practical benefit, spend \$5k on an air-conditioned that can provide both heating and cooling, and make the hall tolerable (if not completely comfortable) in both summer and winter. I'm generally not a fan of this "hit it with a sledgehammer" approach, but in this instance, I'll make an exception – the cost of improving insulation is very high for questionable results, and the solar / battery system has enough capacity to run an aircon for a several hours each day that is still 100% renewable energy and zero running cost and any additional cost of no insulation is likely to be 5 cents for every a few extra kWh that doesn't get fed into the grid. Provided it is not abused or left on continuously, it should be a

low-cost option and probably do more for comfort levels than all the other options that could be implemented put together.

And for what it's worth... the cost seems pretty high. I get around 200m2 of roof area that would need to be insulated and lined. R5 is ~\$15/m2, V groove lining sheets ~\$45/m2, installation is probably about \$50/m2, and paining another \$20. That comes to \$27k, plus throw in a few thousand for relocating some of the electricals so it's not buried under insulation and panelling. The cost being quoted is somewhere between a third higher to double this.

It would fix the problem of the appearance of the roof, with just painting what's there probably costing half this amount anyway. Still... \$10-15k on painting + \$5k for air-conditioning will address the same issues, arguably better, at less than half the cost. I also saw something about choosing the paint colour once half the panelling is installed, which is very puzzling to me. You can paint this stuff on the ground before installing it, or you can wait till it is all up and then separately get a painter in with scaffolding to do a second pass over all the roof area that had a different guy installing insulation a week prior. Doesn't seem like the most efficient or cost-effective option. Pick the colour now and paint it as its being installed.

Stage 1(B)

After we've spent \$50k on insulation, we'll see whether it's made any difference, and whether we should have spent \$50k on insulation. Then we'll install an air-conditioned anyway.

Radiant panels are a bit of a niche technology but have been used very effectively by "out of the box thinking" energy efficiency engineers to heat spaces exactly like this – large air volumes that are difficult to heat. They will also change the look and feel of the hall somewhat (creating a "false ceiling" effect), and most people won't be familiar with how to use them. Not a silver bullet, and maybe not even necessary once there is air conditioning, but perhaps worth considering or trialling. Point them down towards the people, not up at the roof, if this really needs clarifying.

Stage 2 floor sanding

Now we're finally starting to address the condition and look of the hall. One day. I would say go with the half price Stage 1 option and use the rest to get the floors done now.

Also not worth doing until after the kitchen has been done... if it is going to be moved (which does make some sense) to extend the hall out to the rear deck, then the floor for the whole space should be done in one go to avoid a patchwork look. So back to having a full plan and costing and timetable for everything, and sequencing and scheduling the various stages appropriately to (a) be most efficient and cost effective and (b) address the biggest issues first if it is going to take several years.

Stage 3 / 4

Absolutely paint inside and out. Can be done pretty much anytime (independent of other works), but makes sense to do it after any major alterations.

Relocating and updating the kitchen would absolutely be nice... improving the flow to the deck area would make it much more usable, but effectively means putting the kitchen where the existing storeroom is, and greatly reducing storage space. Becomes an issue of priority given to different uses for the hall... do we want a craft group to be able to store a few boxes of stuff, or do we sacrifice the storage space to prioritise catering for events (ie income from paid bookings). Given the kitchen upgrade will cost \$50k... what is the payback period from the additional hall bookings this will allow, and is this a sensible investment?

Also... by the time we've done this we're at least \$150k in to band-aids on a 70 year old building, that will require the roof to be replaced at some point, and will never be very comfortable. At what point does it become cheaper to just knock-down and rebuild? Better to look at the costs and options now, rather than after \$150k has been spent.

To finish

I don't doubt this has been done with good intentions. I just disagree with spending that kind of money on roof insulation, which I think is a triumph of wishful thinking over a detailed technical understanding of the complex energy balances at play. And certainly not in my top 5 for what I would spend \$50k on.

Certainly "insulation good, air-conditioning bad" has been a prevalent if simplistic mantra in the energy efficiency / green community for many years, and not without some justification (and agreement in principle from me). But with thermal performance of buildings, and particularly trying to retrofit old buildings, one size does not fit all.

If it is for the community, then ask them what they want from the hall. The basic choices are:

- Keep our dated but quaint hall, with its imperfections, and make a few improvements. 10yr budget: Maintenance/running costs \$100k, improvements \$25k
- Update and modernise the existing hall, improve kitchen and layout for functions. 10yr budget: Maintenance/running \$75k, improvements \$150-250k. Additional fundraising / diverted expenditure = \$x per year.
- Knock down and rebuild. 10yr budget \$1M. Additional fundraising / diverted expenditure = \$x per year.

Once people have agreed on one of these... what needs to be maintained / fixed? That comes first. THEN, how much money do we have left over for improvements? Start addressing concerns starting with highest priority / biggest bang for buck.

But if you ask people in isolation "would you like the ceiling insulated and painted, and we think it might make the hall more comfortable" they will of course say yes, especially when not presented with any alternatives for how \$50k could be spent.

And when I look at the 4 stages proposed, it looks like we're on the "update and modernise" strategy, consciously or subconsciously. I'm not sure this has been spelled out to the community, nor have they had the opportunity to express a preference knowing the full costs and trade-offs.

And yes, I agree the community are probably happy enough with the existing kitchen facilities. To pay for a major kitchen upgrade and relocation, you'll need at least 1 \$5k wedding/event booking per month. Yes the community will get a fancier kitchen to make coffee and heat up a few sausage rolls, but for those who regularly use the hall would they prefer to keep some storage space and have the floor done?