



Teen Build Pays Off for Everyone

Teenagers building an aircraft, under the supervision of some wise old hands, are learning far more than how to build an aircraft.

Everybody wins really. The technology students get to work on something concrete, that requires them to be absolutely precise, giving them skills they might never have otherwise developed.

They're led by vastly experienced elders, who are imbuing them, not just with engineering expertise and a love and respect for aviation, but with some valuable life lessons.

And those elders are, in the words of one, "getting even more of a kick out of the thing than the young ones."

The students are from Mercury Bay Area School (MBAS) in Whitianga, and are the second group from the school to undertake the construction of an aeroplane.

Their mentors are three aviation-loving engineers, a trio of pilots with more than 80 years' flying between them, and a car enthusiast. Most of them have built their own aircraft or have helped other people build theirs.

The plane is a kitset VANS RV-12. It comes with all metal parts pre-punched and a complete set of plans. The only things not included are fluids and paint.

The MBAS teen build programme began in 2012, after one of the mentors, Jim Evans, approached the school, saying he would bring the kit into the country, if they could find the young people interested enough to help build it.

"I wanted to get young people interested in aviation," Jim says. "If you look at the age of current recreational flyers, they are mostly 60 years old, or older."

That 20-month project culminated in the maiden flight of ZK-MBA (for Mercury Bay Area) on 8 November 2013, piloted by a second mentor, Alan Coubray.

The aircraft was bought by the local aero club for members to hire, and is registered as a microlight.

The current project is being financed by Auckland flier, Allan Kearney, for his own use.

"I trust Jim implicitly in leading the teenagers in this build," Allan says.

"I've visited the team at Whitianga and Jim's control of the project is complete. His standards are really high and nothing slips past him. I have no concerns that it's teenagers putting my aircraft together."

Seventeen-year-old Rian Wheeler, one of seven students involved in the current project, laughs and says, "I think it's great that Allan trusts us!"

Each Wednesday at midday, four boys and three girls arrive at Jim's workshop on the edge of the Mercury Bay Aero Club grounds. They work until 5 pm.

The fuselage is now standing on its landing gear, and the team has most recently been working on the fin and rudder.

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A number of the students turn up even during the school holidays, despite some strict government from their mentors.

"We explain to them," says Alan, "that it is critical to get everything just right.

"We make sure that whatever part is called for by the plans, is exactly the part they've got in their hands; that one of the other kids has double-checked it's the right part; and that it's being handled in exactly the way it should be, according to the plans.

"They learn that one day the aircraft will fly with someone on board, and Jim instills in them that there is nothing half-cocked about it – what they are doing has to be perfect. They can't make assumptions, they can't just say 'oh, near enough is good enough'."

One of the first disciplines the team must learn is how to use the imperial measurement system favoured by the Americans.

"It's really hard!" says 16-year old Oliver Hunt. "I'm still having trouble with feet and inches."

The teens – a demographic not generally known for their patient attention to detail – are learning, not just about how critical it is to be accurate in their work, but also about some work ethics.

"Jim is very old school," says Alan. "The first teen to drill a hole in the bench has to buy lunch for everyone. So they learn to use an old piece of wood to drill a hole."

He indicates the spotless workshop. "You can see how clean the work area is. Every time we leave the workshop it's no different, every week, it looks like that.

"A lot of these kids go home and throw everything on the ground and Mum picks up after them.

"But we're not their mothers; the mentors don't do the cleaning up. The students do the cleaning up, and we insist on having it the way we want it."

That's not to say the mentors are all 'do this, do that'.

Their teacher, Karlos Bosson, says there was quite a transformation in the elders, during the first build.

"It was fascinating. They realised the students were not going to take orders that well. The mentors needed to approach them more like guides, than sergeants-major.

"The interesting thing is they won the students' respect more when they began tackling the teaching a bit differently."

Jim Evans admits to the change.

"We've learned to be more tolerant. The young ones do think differently from us oldies, and we accept that.

"But we still don't let them have cellphones in the workshop!"

"I mean, how many 17-year olds can say they've helped build a plane!"

So how do the teens manage with such inflexibility from what Jim calls "us old farts".

Rian Wheeler says it isn't difficult.

"They *are* pretty tough. But they have to be. This plane is going to fly one day with people in it. In the end we really respect these guys, so it's not that hard to follow the rules."

Oliver Hunt says it helps that the mentors are "genuinely funny".

"You don't have to try hard to have a really good time with them. And that probably makes it easier to accept what they are telling you to do."

Alan says the young people, too, change during the build.

"When they first come in, there's always lots of joking. It is fun all the way through really, the bantering between the kids and the mentors is really funny.

"They've got a great sense of humour, and they test us quite often, but they also learn when it's okay to be a bit foolish, and when to be serious.

Alan Coubray explains to some of 2015's Young Eagles how the first RV-12 came together.

From left: Tom Steel, Luc Wesson, Brodie Taylor, Ryan Wensel, Alan Coubray.



If you wish to discuss your Social Activities, be used except 3pm Break
No Cell Phones To be used outside - Then go home

- 1/ Read and follow plans. Step after Step
- 2/ Sign off completed work
- 3/ Check That Part Number of panel / Box is correct for job being undertaken
- 4/ Wash paint brushes clean after use.
- 5/ Put Tools away in correct location after use

"So when they start, it's all frolicking, but after a while they realise it's a serious thing they are doing. So yeah, they take it on board and they take some ownership of it.

"They end up more mature in their thinking and their approach."

Karlos Bosson agrees. "You could see the cocky ones become a bit more humble and respectful; the quiet ones build in confidence, and the academic spin-offs, particularly in maths, have been amazing.

"Some of them went from being so shy, you couldn't get a word out of them, to being – and this was in their other classes as well – happy to offer their opinion and ideas, and to have a meaningful conversation with their teacher.

"The same thing is happening with the second group."

Rian Wheeler says that could be partially because the mentors actually consider suggestions from the group.

"They don't just dismiss what we have to say. It makes it feel worthwhile to offer our ideas."

Oliver Hunt, who is interested in both engineering and aviation, says until joining the RV-12 project, he would 'wing' things a bit in engineering class.

"If it didn't turn out right, I'd go 'oh well', but now I try to make things a little bit more perfect."

The project has certainly gone down well with the teen builders' peers. A waiting list grew to get on the current team, as other students saw the benefits of it.

"I've got friends who've seen what I'm doing and want to get involved," says Rian, "but there aren't enough spots for everyone."

Jim says he would love to hear from other retired engineers who might want to be involved.

"We could play golf, or bowls. How boring! We all have an engineering background and love passing on what we know to the next generation."

Alan Coubray says the shared emotion of mentors and students on the day MBA first flew was really something.

"To see the pride on those young faces was truly awesome," he says, clearly still moved by the memory.

CAA's Manager of Recreational Aviation, Rex Kenny, issued the flight permit for ZK-MBA.



Engineering student Cody Bennett (left) and mentor Bob Walters work on the first RV-12 project.

Photo: Kyla McLean, *The Plane Project*

"I'm very impressed by the teens' dedication to constructing a quality product and doing it with professionalism and enthusiasm.

"A project like this has a significant flow-on effect into other areas of education and life skills in general. Long may it continue!"

So has the project achieved what Jim set out to do – imbue more young people with a love of flying, and engineering?

"Well," he says, "from the first build, one student went into the air force, one to a helicopter maintenance company, one to Pacific Aerospace, and a fourth got a fitting and turning apprenticeship."

Rian Wheeler, who wants to go to AUT University next year to do mechanical engineering, says the most important things he's learning are the importance of being precise, and of going back to the books and manuals for guidance.

"It's great how everything fits together perfectly. It arrives in pieces in a box and then slowly comes together. It's great watching that happen, and being a part of it."

He says the project is giving him a head start for next year.

"I mean, how many 17-year olds can say they've helped build a plane!" ■