

## **3M Transcript for the following interview: Ep-37 Fall Arrest v Fall Restraint in Fall Protection**

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Welcome to the 3M Science of Safety podcast presented by 3M Australia and New Zealand Personal Safety Division. This is a podcast that is curious about the signs and systems of all things work, health and safety, that keep workers safe and protect their health. I am Mark Reggers, an occupational hygienist, who likes to ask the questions Why, How, and Please Explain. Whether you are a safety professional, occupational hygienist, or someone with any level of WHS responsibility in the workplace, maybe you are a user of safety products or maybe you are a bit of a safety nerd who finds this stuff really interesting, then this is a podcast for you.

(R) Today we're talking with Rick Millar around fall arrest vs fall restraint in fall protection and working in heights. Welcome back, Rick.

(M) Thank you, Mark.

(R) Great to have you back. You did such a great job last time, we couldn't not get you back. So, Rick, for those who haven't heard the previous episode we did, can you please introduce yourself? Who are you, where are you from and maybe a little bit of your background?

(M) Yes, Mark, I'm the technical manager for 3M fall protection, looking after soft goods which covers such items as anchorages, body harnesses, connectors, descent and rescue.

(R) So, all those A, B, C, D, E and F that we spoke about last time, which were all those aspects if you do need to work in a fall arrest harness situation, all the considerations.

(M) Correct.

(R) I also believe you're involved in the Australian Standards as well in the working at heights space. Can you tell us a bit more about that?

(M) Yes, I'm on the SF/15 Committee for Australian Standards. This committee looks after Australian Standards 1891.1, 2, 3 and 4, 5532 and 4488.

(R) So, just a couple there and not to give away your age, but you were involved in the first Australian Standard a fair while ago, the first that got introduced in Australia. So, I guess you've seen a lot of changes in your time in the industry.

(M) I became involved in height safety back in 1975, 1976 when a company I was working for decided to make the first of the narrow fabric, such as polyester, harnesses in Australia.

(R) And we've come a long way since then I'd imagine, some of those changes you've seen.

(M) We've come a long way from the old leather belts through to the harnesses that we use today. The standards, the original standard was set up with the

assistance of the Victorian regulator. We started that in 1976 and of course it's changed many times over the years.

(R) As required as industry knowledge and technology changes.

(M) Correct.

(R) So, a bit of a recap from before about just general working at heights. When is somebody or a worker considered to be working at heights?

(M) We need to be protected when our feet leave the ground, so if we're actually going to start to leave the ground and start to do some work at height, we need to look at the way in which we are going to do that.

(R) We may be standing on the step ladder, which may be quite low, but need to assess the situation because that fall can create something very serious in the wrong circumstances.

(M) It can do. There have been situations where people have fallen at very low levels and caused death or major injury. The New South Wales regulator recently put together a team to look at trips, slips and falls. Now we think of trips, slips and falls as being everything on the ground but it's not true. When you start to think about trips, slips and falls, it means that we're walking along the ground, we can trip over but if we actually take our feet off the ground and work on a structure which may only be X distance off the ground, we still have these trips, slips and falls; it still occurs

(R) So, considering as soon as your feet leave the ground, maybe looking at what's happening is not necessarily going to be a harness but as you get higher up, a fall arrest harness system may be the option. But looking higher up the controls than a

harness, where should a workplace be starting in that hierarchy of controls and the working at heights space?

(M) As I said to you earlier, it can be engineered out, or it can be that you can't engineer it out and you're going to use the harnesses and the lanyards, etcetera, a decision that needs to be made at the time that you're going to set the work up.

(R) I think a good example you used last time we spoke about say air conditioning units on a roof. Can we put that actually on the ground?

(M) Correct.

(R) Can we put that in the centre of a roof building rather than putting it right on the edge? So, I know that comes more in the planning stage, but that just makes everything afterwards safer and better and being able to maintain equipment.

(M) Oh, it does, and we have to look at our access. How do we access the area of work and what risks have we got in place when we actually do access that workplace?

(R) And I've seen certain roofs that have anchor points along the spine of the roof or the top of the roof but nothing to actually get them to the anchor point, so they've got to get up there, not attached to...then attach, which seems a bit counterintuitive to...

(M) Well, it's true.

(R) It would be unsafe to get somewhere I can be safe for the connection.

(M) There's a number of places which are like that, but then it comes down also too, just in fact why are those anchor points there? For instance, if the anchor points are in place and you're there to actually connect your system to it to keep you safe, it's good. But let's say that they're sitting at about 15 degrees or less, as far as the roof slope's concerned, then really you could walk up to it and connect.

(R) Then what are some of those engineering controls that can be considered for work in heights?

(M) Some of the engineering controls can be items of manufacture where you actually have clamps or various pieces of equipment where in other words you can stand on the ground, use posts or poles, whatever it might be, to put something up in the air and change a lightbulb. It depends what you're doing, so if you do it from the ground rather than do it by getting up high using your harnesses and lanyards. Or you could use a scissor lift. So, there's all sorts of different things that you could use to enable you to work at height without having to put yourself at risk through fall protection.

(R) So, that's those engineering controls. Then we get to working in a harness and fall arrest and fall restraint, which is the meaty part of the conversation I was hoping to have because last time we did speak, we mentioned those two terms. I thought it might be good to cover them in a bit more detail. So, can you go through what is fall restraint, what is fall arrest and the differences between them?

(R) So, on a roof. I've got my anchor point and there's three metres to the edge, so if I have a two-metre lanyard, I can't go anymore than two metres to get to that edge in broad, explaining terms.

(M) Well, in principle, that's the general idea, yes. Fall arrest is where a person is working and there is an opportunity to fall, so what we want to do is ensure that if

he does take a fall over an edge, falls through something, the lanyard will take up, reduce the load that's applied to him and leave him suspended in a position where he may be rescued.

(R) So, fall arrest situation has a much higher level of risk then if you're acknowledging that yes, a person can fall vs fall restraint.

(M) Yes.

(R) So, is there fall restraint equipment?

(M) Fall restraint equipment is the same equipment that's used in fall arrest. That is confusing to some people because they think that if you're in restraint, why do you need to have fall arrest equipment? The answer is that there's always potential that the restraint position you find yourself in may change due to something occurring in the way of structural change or something whilst you're in the area.

(R) Falling through a roof sheet or something where you're not walking near an edge but...

(M) But suddenly the roof gives way underneath you. In other words, there could be any number of reasons for you to be in fall arrest equipment. And if you look at Australian Standards 1891.4, it does state that if you are in restraint, you will wear fall arrest equipment.

(R) And that probably makes it easier from a business, buying one set of equipment rather than fall restraint equipment that has a lower rating versus fall arrest equipment which has a higher rating. So, the same bit of gear will cover both situations and many workplaces probably change from fall restraint to fall arrest in the same day, depending on what they're doing and where they're doing it.

(M) Yes, you are right, but there is a difference in fall restraint has an anchorage requirement of 12 kilonewtons where fall arrest is 15, but that's still in recognition of the fact that there is a potential for you to have a fall. So, we're still keeping that anchorage up at a high level, so it's basically we know that if you fall, you won't be subjected to more than six kilonewtons of force but if you think about the anchorage that you're connected to, it's still the 2:1 safety factor on that anchorage.

(R) As a workplace, and I've got to put my workers up at height, I should be going down that heights hierarchy and looking at how I can work in fall restraint before fall arrest. Is that how you'd be approaching from a work planning situation?

(M) Yes.

(R) And I've heard of the terms 'restraint technique' and 'total restraint'. What's the difference between them in that fall restraint side of things?

(M) Well, if you look at fall restraint, they give you two types, but the end result is that you are to look at where the worker's working. Fall restraint takes you to an edge and will stop you going over an edge.

(R) Which is the ideal situation, but that may not always be possible, as we know.

(M) Mm hm.

(R) Also, last time we spoke, Rick, we spoke about the requirement to have a rescue plan. If I'm working in restraint, do I still need to have a rescue plan, because it's not fall arrest?

(M) Any time that you're working in an area of potential risk of a fall, you need to have a rescue plan. It's like most rescue equipment; we hope it never gets used. But when there is a potential, then yes, you need to have a plan. You need to recognise the fact that the person's working at height and there is a...If something went wrong, how are you going to actually respond to that situation, whatever it may be? Now that height can be underground. It can be above ground and you have restraint underground as much as you can have restraint above ground. So, you need to take that into account when you're actually setting up your work procedures. Your men have to be aware of what that rescue plan is and be prepared to activate it.

(R) So, you before you person on height, you will have worked out what those things may be.

(M) Yes.

(R) Does it have to be complex?

(M) No.

(R) You see firies. It looks very complex but from an industrial point of view, what are the things that are an easy thing to consider for a respondent?

(M) First of them is, is it reasonable to assume the person can do a self-rescue? Now, we have available in a range of product, RSQs and things like that which enable a person to actually descend to the ground if something goes wrong.

(R) So, they fall and they're still conscious and initiate something, whatever that may be.

(M) They can initiate a self-rescue. That could work quite well. If they can't initiate a self-rescue, then the question is, have you got the equipment available to actually...and the training available to get them down? It may mean that you've got a simple system in place which could be a rope and descender system, which you've been trained to actually use a pick up off for the person and take them to ground. It may be that you'll require the assist...depending on where you are, you may require the assistance of another organisation, emergency services if necessary, and you need to have those decisions to be made on the day in relationship to the work you're doing. But if that's part of your plan, that's fine, but it can only be part of the plan as a secondary side of it. You can't use them up as the first part of your plan. So, you need to decide what you can do to help the person. You think that he can do a self-rescue, good. Well and done. If you think there's a way you can get him to the ground without causing injury or causing more issues with the problem, then do so. Train for it. This becomes part of education.

(R) Education, as you've hinted, I mean is such a critical component on fall arrest, fall restraint. You have an understanding in the prework, during the work and also the post-work. Any comments you've got around that education around this fall arrest, fall restraint side of things?

(M) When we talk about education, we've talked about understanding the products that are used in these areas. Through the training organisations, we teach people how to use this equipment, how to adjust it to suit their needs, how to attach, how to basically keep themselves away from the areas of risk and then we also help them by explaining if they do get caught in a fall situation, what they can do to help themselves and then on top of that, we can teach rescue techniques for actually rescuing people from both on the ground and above ground, it makes it easier for the people who are doing their work to ensure that the people that are at risk are basically protected and can be rescued, using simple rescue systems.

(R) A lot of these skills would be perishable skills. If you're not using them, you're going to be losing them, so practising those would be a critical component as well.

(M) It is a critical part, but it's an interesting comment, that one. There's nothing in the Regulation or the Standard that I've seen that says that a person has to renew his skill every month, six months, year or any time, particularly.

(R) So that appropriate interval statement that you commonly see, because what's appropriate for one organisation...

(M) It may not be appropriate for the next, so in general, it comes down to management looking at the skills that their people require and making a decision on the...and this can be done in conjunction with the training organisation to basically decide on the period of time between being trained. In other words, from the first time they're trained to doing refreshers. Is it every six months? More than likely it's going to be every one to two years, as long as they've got a fairly stable workforce doing similar sorts of work. But if they've got a changeover of staff, then they might need to do it more often.

(R) It's going to depend. Horses for courses, or whatever that situation is. That's their responsibility to do that.

(M) Mm hm.

(R) And, each state and territory is going to have their own specific requirements, so I'll just remind listeners, whatever area you are working in, check what your legal obligations are and do make sure you are meeting those because they will vary slightly, but overall, how do we prevent harm, injury to our workers and co-workers and so forth?

(M) As I said, Standards and the Regulations don't seem to have a time frame for refreshers in education for working at heights, but it doesn't mean to say that that won't change. Standards are always being looked at, specifically Australian Standards 1891.4 where a lot of this information comes from.

(R) And that's the responsibility of every workplace, whenever you're listening to this, make sure that whatever the requirements are, you are across that. So, to sum up fall arrest vs fall restraint, anything you'd like to leave our listeners with today?

(M) I think it's just wise to think that regardless of whether it's fall arrest or restraint, as I said, you will be working in fall arrest equipment and it is best always to try and keep your workers in restraint, rather than in fall arrest situations. So, if they're going to work, keep them as safe as you can, by limiting the areas in which the risk of a fall can take place.

(R) And we've only really only skimmed the surface; delved a little bit. So, for those workplaces and individuals that want to get a bit more information, where's a good starting point they could check out?

(M) Well, they can use organisations such as the regulators, both state and federal. We have the Working at Heights Association. They again, can assist in getting information through to people. They can talk to the training organisations that are out there for working at heights or in the industrial safety area and of course, you can contact 3M their technical team, through to the technical team, to gather information as well.

(R) There's plenty of information out there so if you are unsure exactly what steps to take or you just want to doublecheck something, please contact any one of

those resources. I'm sure they can help you put you on the right path and some other considerations as well. Thanks for your time, Rick. Enjoyed it once again.

(M) Thank you, Mark.

(R) Well, thanks for listening everyone. If you have any questions, comments, suggestions for future topics or guests that you think we should get into the studio, you can send us an email to [scienceofsafetyanz@mmm.com](mailto:scienceofsafetyanz@mmm.com). You could also contact us via that email if you need any information around PPE, fall protection, rescue equipment, 3M are here to help. You can also visit our website, [3m.com.au/sospodcast](http://3m.com.au/sospodcast), which is a transcript of the chat that Rick and I have just had, as well as resources and transcripts for all the other previous episodes we have recorded. Be sure to subscribe to the podcast through Apple Podcasts, Spotify, Google Podcast or wherever you get this podcast from so you don't miss any future episodes. If you enjoyed the podcast or found it informative, we would really appreciate it if you can take a few moments and leave us a review as it really does help other people to find the podcast. And as Ayn Rand said, "The question isn't who is going to let me. It is who is going to stop me." Thanks for listening and have a safe day.