Guide to Construction

Full Colour Video Scoreboards

Phone: 02 6581 2504
Web: www.aussport.com.au

Installing a Scoreboard. The reality

A very common request we get is for Clubs to install their own board. It makes sense, the Clubs have limited funds and have capable volunteer members who will enthusiastically donate their time, expertise and sometimes materials.

At AusSport we have been manufacturing and installing scoreboards all over Australia since 1999. We have literally seen hundreds of sites and an amazing array of installations. Some are great, some are not quite so great and some have ended in tears.☺

We are here to help you. Right from the start we need you to heed our warnings.

Building a scoreboard is a serious, expensive endeavour. You need to be confident you can commit significant time and money to get a successful result.

It is crucial the scoreboard when constructed is a safe, stable structure that cannot do harm to anyone standing near or under it.

If you take on this task you must make absolutely sure you have obtained all necessary approvals and engineering certification.

OK so you still want to DIY?☺

We are here to help you.

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Inside this document you will find some very useful and practical information.

When you have actually purchased a scoreboard from us we then give you precise information related to your board. That way you will have all the numbers and info you need to complete the work.

First of all we have a general guide to what we would do if we were installing your scoreboard.

It will be helpful for you to determine the sequence the work should be done in and how much time to allow. Of course when using volunteers your timings could be vastly different to what we show. Also we are using experienced installers and contractors who have done it a few times before so they know the onsite shortcuts.

Next we show the specific information needed for the trade involved at that point. It is not an exhaustive list of things they have to do. We have to assume a certain level of expertise is available to complete each trade task. We are just pointing out the important things related to scoreboard construction.

Finally we provide example drawings to help you design, fabricate and construct your scoreboard. **NB. These drawings are not a certified engineers plan for your site. We cannot provide that for a site that our engineer has not been involved in.**

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Our Process for Installation

Installation is undertaken by our experienced sub contractors. We assemble the scoreboard to it's support frame, tested and commissioned in our factory. That way our site installation is limited to the installation of the legs and rear access gantry (if one is required) and then lift the scoreboard and it's support frame onto the legs. This means a significant saving on site time as each individual electronics cabinet does not have to be assembled to the frame on site.

Prior to installation we complete a site inspection to review the proposed installation location to ensure clear access and condition of the install area. We also would require a site geo-technical report.

Our program of works generally consists of the following sequence:

Day 1 – excavation & form work

Day 2 – form work and placing of conduits for power and data. NB engineer approval required prior to pouring footings.

Day 3 – pour footings

Day 4 to 14 – concrete curing & communication works to run during concrete curing time

Day 15/16 – drill and set anchor bolts for support legs, stand support legs, stand scoreboard and secure to legs

Day 17 – electrical and data connection

Day 18 – test & commission

Day 19 – operator training, scoreboard familiarisation & final hand over

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Preliminary Design Work

Location

You definitely don't want to change the location of the scoreboard after it is installed! So it is important to take time and choose the location carefully. It needs to be clearly seen by spectators. That sounds obvious but we have seen a number of installations where that was not the result.

The further you are away from spectators the larger your screen will need to be. That ensures spectators can actually see the scores clearly and any other information you are displaying.

The optimum location is directly opposite the grandstand or location where most people gather to watch the sport.

Keep in mind sun orientation at the time when the majority of sport is being played. While our screens are amongst the brightest in the industry it is still better to not face them directly into the west if at all possible.

Vegetation

Make sure trees or structures are not in your sight lines to the spectators. Keep in mind your scoreboard will be a few metres above your eyeline when you stand at the location. Ideally you should have a ladder or other vertical access equipment on site so you can fully confirm the scoreboard will be clearly seen by the spectators.

Be aware that removal of vegetation is a controlled process in most locations and there may be specific steps necessary to gain approvals.

Power

Give consideration to available power where you wish to locate. It is expensive to do long runs of trenching and cable. It may be possible to utilize a power circuit that is used for lighting towers although you should seek expert electrical advice on this.

A broad rule of thumb to use for power load is the following:

Pixel Pitch (mm)	Max Power Rating (kW/m2)
16	1.5 – 2.0
10	2.5 – 3.0
6	2.5 – 3.0

Council Approvals

A building approval will most likely be required by your local Council. It will depend on ownership of the ground, whether the board is replacing an existing one, and on the size of the scoreboard.

Requirements vary from Council to Council, however, generally details including location, frame detail, height & engineering detail for frame construction and footing construction will be required.

We strongly recommend you engage the services of a private certifier to deal with & manage the Council building application process.

Engineering Drawings

These are a very important part of the process. They ensure you get a successful result. If the scoreboard is being installed on Council property it will be a mandatory requirement. We will provide you with our suggested installation drawings. These drawings are based on previous

installations we have done and are based on our engineer's advice on those installations. These drawings are provided to help you with your design development. They do not take into account local conditions such as wind and soil composition which crucially affect your design at your site.

We strongly recommend you engage a local engineer to develop a design specifically for your board and installation location.

The drawings we give you are not certified for your specific location.

Geo-Technical Report

This involves testing the soil at the site to determine how stable it is. Your engineer most likely will ask for this (and so might the Council) unless there is prior knowledge regarding the site.

Ideally the soil will be undisturbed and not consist of construction fill or refuse overburden. Many sporting fields are built on disused tip sites or on reclaimed ground or on flood prone ground. These are all factors that impact on the building of the scoreboard.

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Construction

For the Concreter / Excavator

Make sure all nearby services have been either relocated or clearly identified as not being in the area of the scoreboard.

All excavations should be carefully inspected to ensure they meet the planned size of the slab.

If the ground is found to have soft spots they should be dug out and replaced with compacted crushed rock.

Any compacted fill that is used below the footing should be rolled or vibrated using compactor equipment.

Ensure the electrician has installed any necessary conduits prior to the concrete pour.

Ensure the hold down bolts are accurately positioned and secured prior to the pour.

The concrete should be installed as per the engineering drawings & relevant certification should be produced by the contractor to certify the slab has been constructed in accordance with the engineering detail.

A minimum curing time of 7 days is always specified on our boards to ensure a long life for the slab.

Framing Fabrication

We provide simple construction information for you. We should have attached an associated pdf example with this guide. If you have not received it please let us know.

Dependent upon the size of your scoreboard the structure can become quite large and unmanageable for the DIY person who only occasionally fabricates steel construction jobs.

Certainly any board over 5 metres square should be in the hands of a competent fabricator.

All welds should be performed by an experienced, qualified welder and comply with appropriate standards.

High strength bolts (8.8) should be used where required.

Our frames are grit blasted to class 2.5 and then painted with protective layers.

We recommend that you have your frame hot dipped galvanised.

If you are installing flanges on the frame to support the electronic cabinets then you should:

- ensure they are accurately located
- hole sizes are appropriately oversized or elongated to allow the cabinets some adjustment room.
- Welds are not going to impinge on the electronics cabinets in any location. If they do then you may find it impossible to get the cabinets to sit squarely.

Relevant certification should be produced by the contractor to certify that the frame has been manufactured in accordance with the engineering detail.

Installing the Electronics Cabinets

These are very important to get right. Naturally!

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Each cabinet has to go in a specific location. We mark them up so you can see clearly. They are marked alphabetically by row from the bottom upward and numerically by column from the left as viewed from the back. The attached image shows an example of a smaller screen.

BACK OF SCREEN

The cabinets at the end of the scoreboard are secured to the flanges built into the frame supports. The cabinets in the middle of the scoreboard are secured to the vertical ribs of the frame either by:

- using the pinch plates and bolts supplied by AusSport.
- OR using flanges welded to the frame. These would have been fabricated with the frame. The bolts supplied by AusSport would be used for these.

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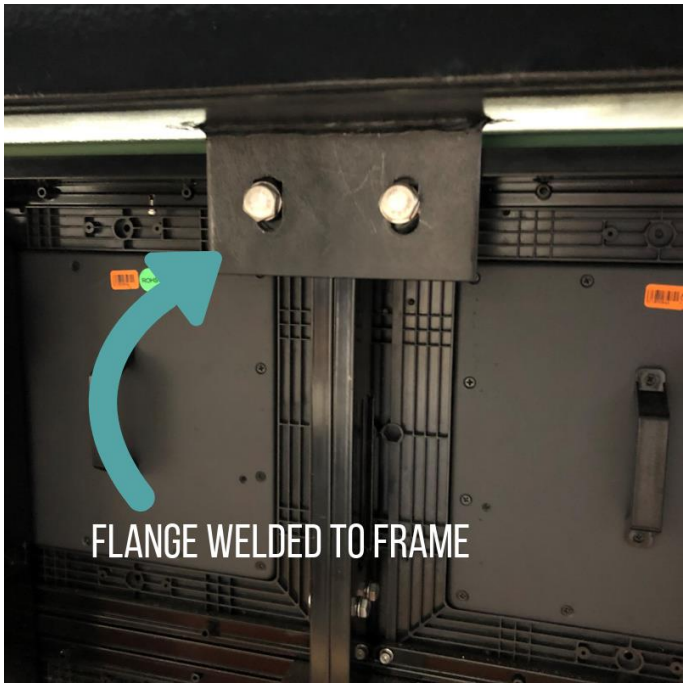
Fitting the electronic cabinets to the frame is most easily done on the ground if you can secure the frame vertically without risk of it falling over. That is the way we do it in our workshop. Of course you can only do this if you have lifting equipment available that can put the scoreboard and frame up all in the one go.

The weight is 30-35kg/metres squared for the electronics. Cabinets come in various sizes so their weights vary. Nearly always the fitting of cabinets is a two person operation as it is too difficult to manhandle each of them and lift them into position without assistance.



With the heights involved with bigger boards (or smaller boards mounted at height) vertical access equipment such as scissor or boom lifts are necessary.

Make sure everyone understands the weights being lifted and they have appropriate tickets to operate any machinery on site.

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The Control Cabinet

The “brains” of the scoreboard will be installed in a control cabinet. It houses the PC, the video processor, the siren controls and power supplies. On the outside of the cabinet there is a wireless base station. Your particular scoreboard might have some or all of these depending on what you have ordered.

We provide a connection point within the control cabinet for your electrician to connect 240V power.

We also provide the control cables (usually two) that run to the scoreboard. These are ethernet style cables. These will be clearly labelled so you know exactly where they run to on the scoreboard.

The control cabinet can be installed either:

- in an easily accessible location so you can plug USB or SD Cards into the PC to allow showing of videos. It also means maintenance access is not difficult.
- OR up behind the scoreboard where it will be away from potential vandal attack or unauthorised access.

NB. We have observed that very few people bother with the USB or SD Card approach these days – you can still transfer videos to the PC using the wireless link. The only downside is you have to wait for the transfer to complete before you can watch the video on the screen.

Typical example of a control cabinet.

Often the cabinet is installed on the back of the support legs for the scoreboard. It might also be installed on a nearby wall if this is convenient. Remember the control cables must be run to the scoreboard. We provide cables that are approximately 15 metres in length. You can extend to up to 70-80 metres but this should be confirmed with us before committing to a permanent installation.

Remember also to make sure the wireless base station is orientated with a clear line of sight to where the scorers are placed with their wireless station.

Electrical

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Most of the time you will be hardwiring the scoreboard to the power supply usually via an isolating switch and circuit breakers. You will require a licensed electrician to complete these works.

Often the electrician will need to install a small electrical cabinet to house the breakers and the switch. Often this is mounted on the back of the scoreboard support leg but each installation varies.

Sometimes you can save money by having the trench for electricity supply dug at the same time as the holes for the footing of the scoreboard.

Ensure an electrical certificate of compliance is issued in accordance with State regulations.

We always provide a power cable (or cables) for permanent wiring and we show you exactly where it plugs into the scoreboard.

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Conclusion

We have provided this guide to help you through the complex project that building a scoreboard is.

If after reading through you don't think your Club has the expertise or resources to make it happen then please do not hesitate to make contact with us. There are options:

We can provide you with a complete turnkey approach where we take care of every aspect of designing, fabricating and constructing your scoreboard.

We can provide you with the frame and cabinets all assembled and your Club members then do the concrete slab and erection.

If you need any further information please let us know. We are happy to help where we can but please note we cannot provide complete engineers details for any site where our engineer has not been engaged to provide a design.

We are looking forward to helping you get a fantastic scoreboard constructed for your Club.

Cheers

The AusSport Team