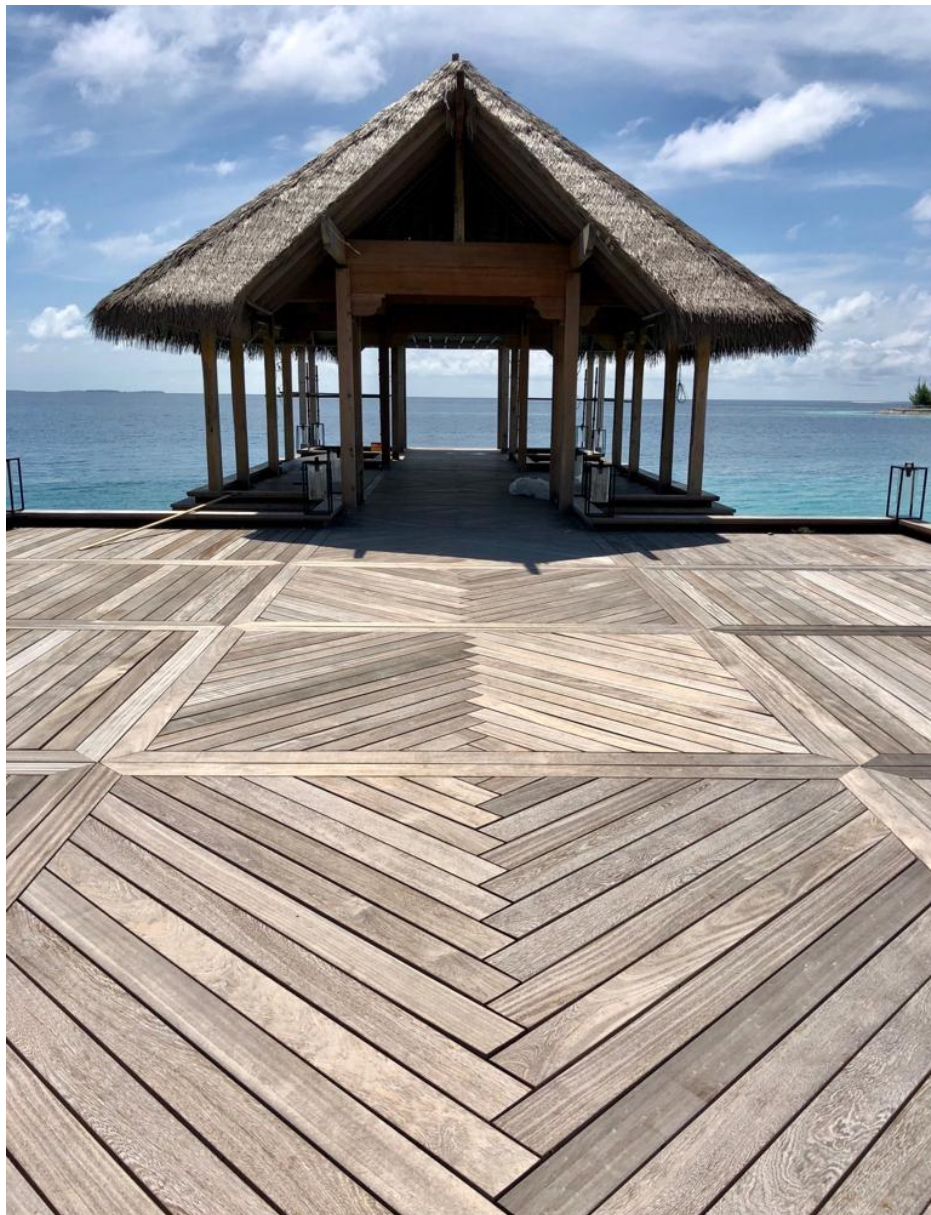




For Association of Professional landscapers

## APL Installation Guide for 15-year Timber Decking and Composite

Written by Karl Harrison



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**Ecodek**

<https://ecodek.co.uk/>

**Saige**

<https://www.compositedecking.co.uk/>

APL decking practice

Association of Professional landscapers

APL Installation Guide Specification for 15 year Timber Decking Structure

## **2. Introduction**

Introduced hundreds of years ago in North America and Canada timber decking is a solution to providing a safe platform over an uneven surface and rapid changes in elevation.

Decking platforms can be designed to meet many requirements. It is essential that whilst Members of the APL strive for excellence in construction it is important to provide a decking installation that will last for a minimum of 15 years.

There are three fundamental and industry standards for service life of a timber decking installation.

15 years for basic and domestic applications

30 years for some commercial applications

60 years which needs to be satisfied to meet NHBC standards for new build properties

All should be ready for inspection and regularly maintained.

Clients are choosing to use decking for their terraces, so it is essential that a standard of construction be observed.

Manufacturers, wood protection Association, BRE (Building Research Establishment), TRADA (Timber and Research and Development Association) and EU/BS Standards have been consulted and observed in the preparation of this document.

APL members when following this guide should be in the forefront of decking construction. They should be the first choice for Garden designers, Architects, and property developers where a professional, warranted decking platform is required.

### **3. What is a raised decking platform?**

- If any part of the deck platform is more than 60cms above the ground
- It must not be higher than 2.4m from the ground
- If it is an addition to a new build after NHBC certificate has been issued and subject to planning, then it should be have a 30 year service life
- If it is installed as part of the original house design which is certified by NHBC then it has to be warranted for a 60 year service life

Any timber decking structure under 60cms in height is considered by the APL as low level decking.

Raised decks are more complex to build because of the lateral and vertical forces that a deck may be exposed to during its service life. The safety of those using the deck is the principal structural consideration.

### **4. Decking platform classification**

- Ground Level Decking platform
- Raised Timber Decking Platform
- High Level Timber Decking Platform
- Balcony or Roof level Timber Decking Platform

### **5. APL Decking Practice**

The APL decking practice applies to raised decking platforms where a service life of 15 years is required.

Decking platforms where specific heavy loads are situated are not covered in this APL guide, in this instance a Structural Engineer should design the platform.

All dimensions illustrated should conform to the decking tables as per EC5 by TRADA

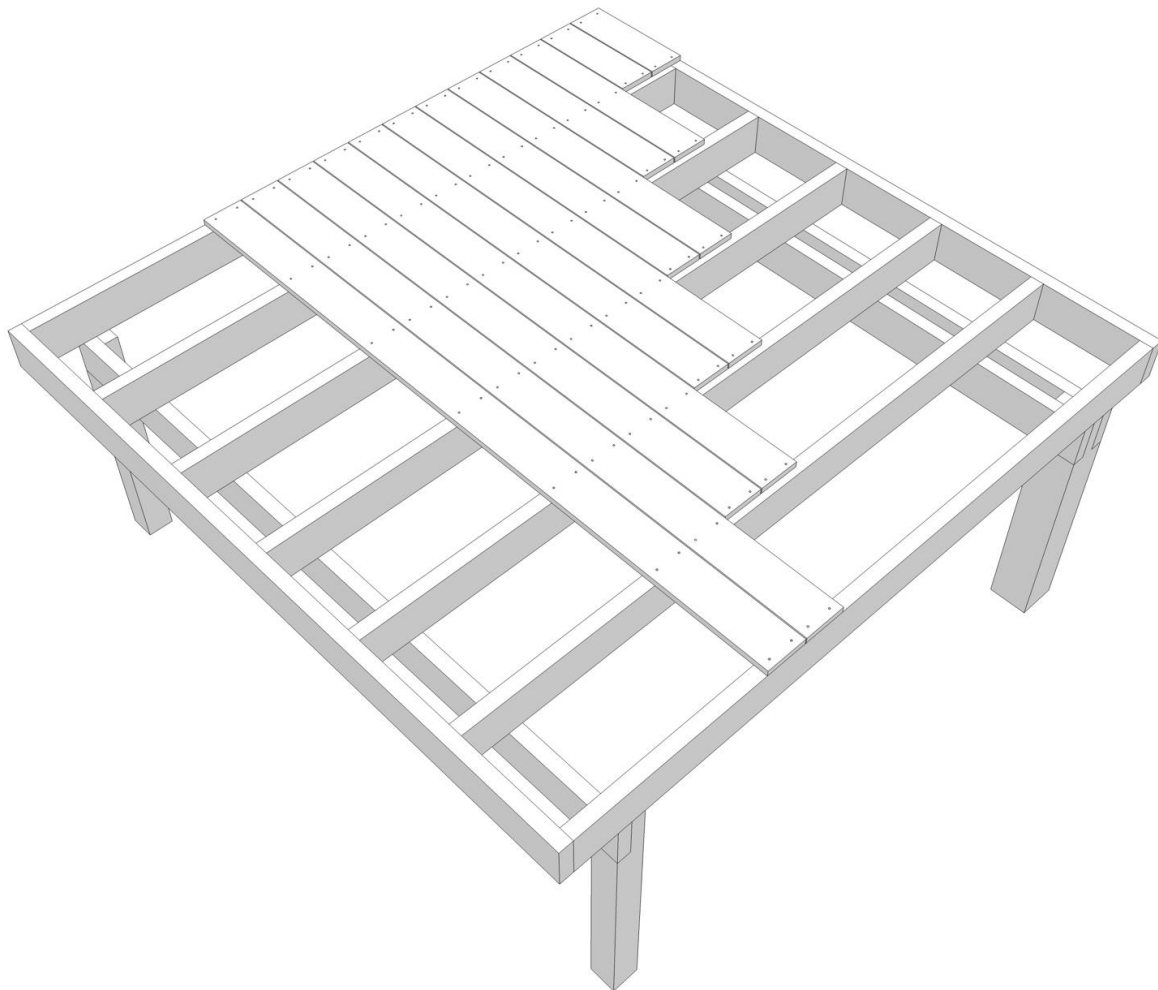


Fig.1

## 6. Decking structure general arrangement

Figure one explained; a simple structure with 150 x 47 C24 Kiln dried or Air dried joists treated to Use Class III

Joists at 400 millimetre centres supported by an end plate of timber in the same dimension, supported by a single beam (double beam also shown for reference).

Note all posts are rebated to take the full dimension of the beams.

Beams to be mechanically made secure by blind drilling through with minimum M10 coated bolts in pairs staggered at 45 degrees. Square plate and shake proof washers are advisable.

## 7. Decking Tape for use on timber joists

The APL advises that all timber decking structures should use appropriate decking tape to enhance the longevity of the structure. Particular attention should be focused on applying the tape to the rebated portion of the timber posts.

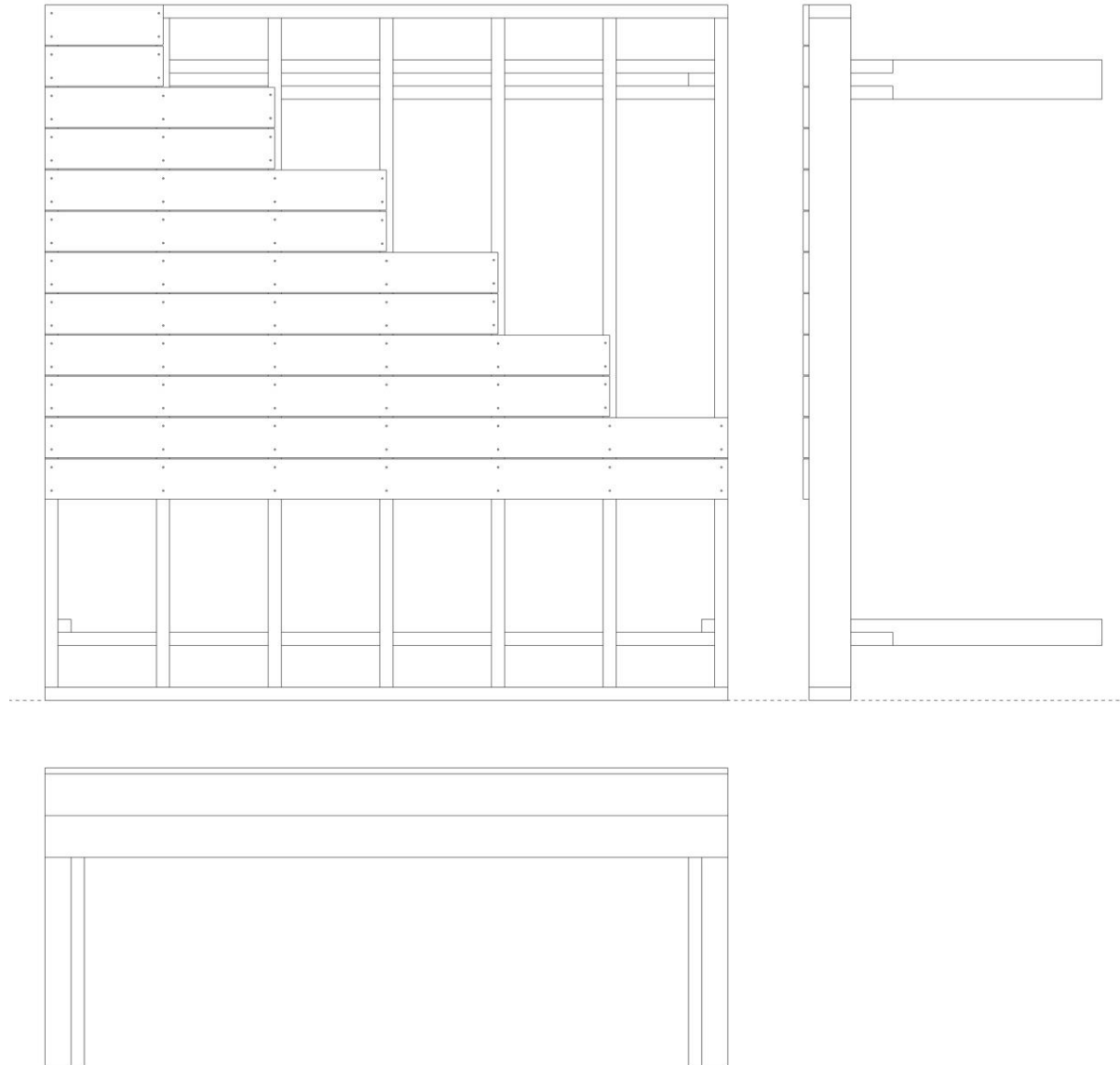


Fig.2

## 8. Decking load ability

For all occurrences of a raised deck, consult an SE prior to committing to your design.

The APL guide in this 15 year raised structure is for a uniformly distributed load of 3.0 kN/m<sup>2</sup> and concentrated load of 1.5 kN for the decking platform. This construction is for raised timber deck on a residential property.

The balustrade has been omitted from this section. The APL advises in all balustrade design you should contact your SE that they specify the correct structure. The balustrade structure must withstand a horizontal load of 0.74 kN per linear metre.

If you purchase one of the very many options of balustrade available, even if the manufacturer states a load ability, you must not assume that your decking design will be able to support this load ability. Refer to your SE for advice.

## 9. Communal decking Platforms

If your decking structure is shared with another dwelling or has public access then it is considered a commercial use area. Therefore, it has to be designed with this in mind with a minimum of 4.0kN/m<sup>2</sup> with a single concentrated load 1.4kN, your SE refers.

## 10. Deck structure fixings

Prior to selecting your fixings, you should consult the manufacturers data information to ensure the fixings are suitable for exterior use. Coated fixings are considered acceptable for a 15-year deck. If the longevity is more than 15 years then Stainless or Hot Dipped Galvanised fixings should be used (BS 7371-6 refers).

## 11. Timber selection for Decking

We understand the importance of correct design of a decking structure It is also important to select the correct timber for both the structure and the decking.

When specifying a set of materials that will match the intended service live of 15 years and more you should consider the attributes of its natural durability and its treatment class.

A 15-year warranted deck can only be satisfied if:

- a) The timber selected has a natural resistance to fungal decay. This is based on only heartwood. All sapwood is not permitted, as this is prone to rapid decay.
- b) The timber has been treated with at least Use-Class 3 preservative
- c) The timber is already modified such as Accoya® or Kebony®

It is also important to consider the environment in that FSC or PEFC certified timber is used. Installers do have to confirm to EUTR and keep a record of timber use.

## 12. Timber Durability and Use Class guide

### Timber Durability Table

5	Perishable
4	Slightly Durable
3	Moderately Durable
2	Durable
1	Very Durable

Use class	Location	service life	15 years	30 years	60 years
1	Interior/Dry		N/A		
2	Interior/Not exposed		N/A		
3.1	Exterior limited wet exposure	4		3	2
3.2	Exterior very wet exposure	3		2	1
4	Exterior in ground fresh water	2		1	specialist advice
5	Saltwater immersion		consult your SE		

## 13. Decking Board Guide

Timber Durability		Strength	Movement	Impact Abrasion	15/30/60
<b>Softwood</b>					
WR Cedar	2	Low	Small	Very Low	15/30
Scots Pine	4	Medium	Medium	Medium	15
Redwood	4	Medium	Medium	Medium	15
Douglas Fir (C)	3-4	Medium	Medium	Medium	15/30
Siberian Larch	3-4	Medium	Medium/small	Medium/High	15/30
S/Yellow Pine	4	High	Medium/High	Medium/High	15/30

Timber	Durability	Strength	Movement	Impact Abrasion	15/30/60
<b>Hardwood</b>					
Balau	2	Very High	High	High	15/30/60
Cumaru	1	Very High	Medium	Very High	15/30/60
Garapa	3	High	Medium	High	15/30
Iroko	1	High	Low	High	15/30/60
Ipe	1	Very High	Very Low	Very High	15/30/60
Massaranduba	1	Very High	Very High	Very High	15/30/60
Oak	4-2	High	Medium	High	15/30/60
Teak	3-2	High	Very Low	Medium	15/30/60

Timber	Durability	Strength	Movement	Impact Abrasion	15/30/60
<b>Modified</b>					
Accoya®	1	Very High	Nil	High	15/30/60
Kebony®	1-2	very High	Very Low	High	15/30/60

#### **14. Further deck board Treatment**

Deck boards that conform to the 15 guide must have Use-Class 3 preservation chemicals applied. Modified timber and hardwood timber does not need treatment, the exception to softwoods is Western Red Cedar as this does not require preservation treatment.

Hardwood decking boards as listed in the table on the previous page have a BS EN 350:2016 class 1 (very durable) or class 2 (durable) rating and can surpass the 15 year APL Guide to over 30 years.

#### **15. Substructure for Decking Platforms - Strength class of timber**

There is a safety critical requirement of UK Building Regulations in that all structural timber in a raised deck is to be made from strength graded timber with a minimum grade of C16. If a warranty is required, then the APL Guide recommends the use of strength graded deck boards.

BS EN 338: Structural Timber covers the strength classes of Graded timber. The strength classes for softwoods are nominated with a letter C and hardwoods with the letter D. The minimum grade of soft wood is C16 for raised deck construction, where C24 allows for a longer span ability.

The majority of hardwoods are not graded as structural timber. For an APL Guide of 15 years the structural grading for hardwood decking is not required, if you choose to use hardwood for your structure then D30 is the minimum strength class for hardwoods. It is advisable to use the same timber for all of your structure, combinations of different timber strength class are not advisable.

#### **16. Moisture content of installation timber**

It is necessary to understand that timber moves naturally. This is mainly due to the localised humidity and temperature which is directly related to the moisture content of the timber. As does the humidity and temperature, which is weather dependent, so does the movement of the timber. Timber will expand and contract in all axes, length, width and thickness.

It is advised that the timber should be at an equilibrium moisture content with the surroundings, this means the wood is stabilised and movement will be minimal.

The equilibrium moisture content is usually between 13% and 22%. Installations in all situations should be less than the upper moisture content of 22%.

All timber for use should be stored locally, off the ground and protected from the weather whilst allowing the timber to acclimatise until required for use.

TRADA has carried out an independent evaluation of Accoya<sup>®</sup> for deck structures and this material has a normal moisture content of 7% and structurally graded to C24 in EC5

## 17. Designing a raised deck

The ability of a decking platform to have an enhanced service life is determined by the design. Consideration must be given to ventilation and ability of the structure to dry itself as efficiently as possible. Decks that retain moisture do not last as long as decking structures that have adequate ventilation.

***At no time should any horizontal structure come in contact with the ground***

## 18. Support posts or columns

For low use and light loaded decking structures a Use-Class 4 treated 100 x 100 post maybe considered. For all other raised structures, a standard Use-Class 4 treated 150 x 150 section should be used.

Round columns are not easy to connect and should not be used unless correctly detailed and suitably rebated to receive the Beams.

If laminated posts are to be used, they must be suitable for in ground use and have a bonding that conforms to Standard EN204 which is denoted as D4.

The structural column or post should not be used at an enhanced length to act as a support post for a balustrade. This element of the structure should be considered a separate balustrade item.

## 19. Foundations, footings and concrete

If the posts are to be placed in the ground and surrounded by concrete, then this is an acceptable method for the APL Guide for 15 years (and up to 30 years). This assumes the correct class of treatment for the post or column.

To enhance the life of the post structure it is recommended to use a poured concrete footing with a stainless post support fixed to the surface with anchor bolts.

Posts or support columns may be spaced at regular intervals and these dimensions are governed by a number of factors:

- Beam position and frequency
- Beam dimension
- Load requirement of the decking platform
- Structural class of the timber used

Single Member Beams with Strength class C 16												
Beam size		Imposed Load 1.5kN										
Beam centres (joist Span)		Beam centres (joist Span)										
Width	Depth	1.2	1.8	2.4	3	3.6	4.2					
47	122	1.58	1.29	1.12	1 -	-	-					
47	147	1.87	1.53	1.32	1.18	1.06	-					
47	170	2.16	1.76	1.53	1.37	1.23	1.05					
47	195	2.48	2.02	1.75	1.57	1.41	1.21					
Single Member Beams with Strength class C 24												
Beam size		Imposed Load 1.5kN										
Beam centres (joist Span)		Beam centres (joist Span)										
Width	Depth	1.2	1.8	2.4	3	3.6	4.2					
47	122	1.89	1.58	1.37	1.23	1.11	-					
47	147	2.27	1.87	1.62	1.45	1.32	1.14					
47	170	2.63	2.16	1.87	1.67	1.53	1.31					
47	195	3.02	2.48	2.15	1.92	1.75	1.51					
Single Member Beams with Strength class Oak TH1												
Beam size		Imposed Load 1.5kN										
Beam centres (joist Span)		Beam centres (joist Span)										
Width	Depth	1.2	1.8	2.4	3	3.6	4.2					
47	122	1.89	1.64	1.48	1.269	1.07	-					
47	147	2.27	1.97	1.78	1.55	1.29	1.11					
47	170	2.63	2.28	2.06	1.79	1.49	1.28					
47	195	3.02	2.62	2.36	2.06	1.71	1.47					
Double Member Beams with Strength class C 24												
Beam size		Imposed Load 1.5kN										
Beam centres (joist Span)		Beam centres (joist Span)										
Width	Depth	1.2	1.8	2.4	3	3.6	4.2					
2 x 47	122	2.4	2.08	1.89	1.73	1.58	1.47					
2 x 47	147	2.89	2.51	2.27	2.05	1.8	1.73					
2 x 47	170	3.34	2.91	2.63	2.37	2.16	2					
2 x 47	195	3.83	3.33	3.02	2.71	2.48	2.29					

Single Member Beams with Strength class C 16												
Beam size		Imposed Load 4kN										
Beam centres (joist Span)		Beam centres (joist Span)										
Width	Depth	1.2	1.8	2.4	3	3.6	4.2					
47	122	1.01	-	-	-	-	-					
47	147	1.2	-	-	-	-	-					
47	170	1.38	1	-	-	-	-					
47	195	1.58	1.15	-	-	-	-					
Single Member Beams with Strength class C 24												
Beam size		Imposed Load 4kN										
Beam centres (joist Span)		Beam centres (joist Span)										
Width	Depth	1.2	1.8	2.4	3	3.6	4.2					
47	122	1.24	-	-	-	-	-					
47	147	1.46	1.08	-	-	-	-					
47	170	1.69	1.25	1.08	-	-	-					
47	195	1.94	1.44	1.21	-	-	-					
Single Member Beams with Strength class Oak TH1												
Beam size		Imposed Load 4kN										
Beam centres (joist Span)		Beam centres (joist Span)										
Width	Depth	1.2	1.8	2.4	3	3.6	4.2					
47	122	1.31	-	-	-	-	-					
47	147	1.58	1.06	-	-	-	-					
47	170	1.83	1.22	-	-	-	-					
47	195	2.1	1.4	1.05	-	-	-					
Double Member Beams with Strength class C 24												
Beam size		Imposed Load 4kN										
Beam centres (joist Span)		Beam centres (joist Span)										
Width	Depth	1.2	1.8	2.4	3	3.6	4.2					
2 x 47	122	1.75	1.43	1.24	1.08	-	-					
2 x 47	147	2.07	1.69	1.46	1.3	1.08	-					
2 x 47	170	2.39	1.95	1.69	1.5	1.25	1.07					
2 x 47	195	2.74	2.24	1.94	1.2	1.44	1.23					

## 20. Selecting the correct Beam

For most deck structures a single beam is considered and in some circumstances for higher loading a double beam may be used.

There are complex tables promulgated by TRADA which conform to EC5. These should be followed where possible.

## 21. Beam to post or column connection

Beams are mechanically fixed to support posts by means of rebating the column and using 12 mm through bolts at 100 mm centres. All through bolts shall have washers at the bolt head and nut.

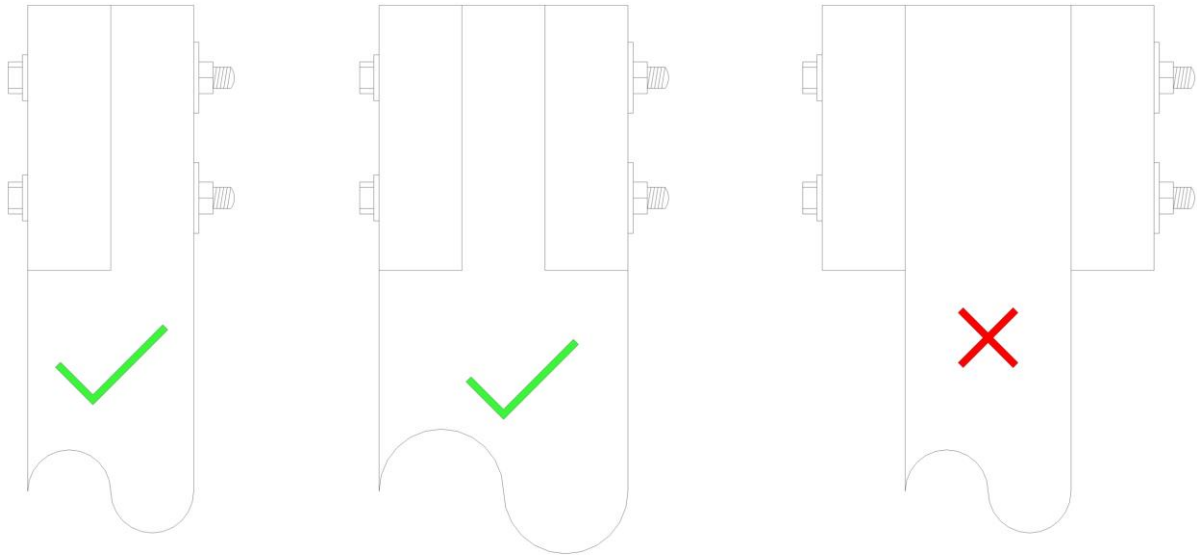


Fig. 3

As shown in Figure 3, bolts fixed with flat washer, optional with shake proof washers or Nylock nuts. 2 x 12mm in a coated fixing to withstand 15 years minimum and for enhanced 30 and 60 years decks 316 stainless steel is recommended by the APL. As shown above, the beam must be fully located in the rebate.

## 22. Fixing a beam to a wall

The decking structure should be fixed to a property to reduce the lateral movement wherever possible. This reduces the number of posts supports or columns required on the project.

The Beam that is fitted using the above method is called a ledger board in the USA and a wall plate in the UK. The ledger board must be the same dimension as the joist that is to be used for the rest of the project.

The fixings selected for the purpose of wall anchoring mechanically or by the use of a resin/chemical method.

A gap of no less than 10mm should be adopted between the wall plate beam and wall by using hot dipped galvanised or stainless square plate washers. This will prevent ingress of excessive moisture which causes damp. See Figure 4.

If the ledger board is to be fixed to an existing timber framed property, specialist advice should be sought from a SE as to the design to ascertain what can and can't be fixed to it.

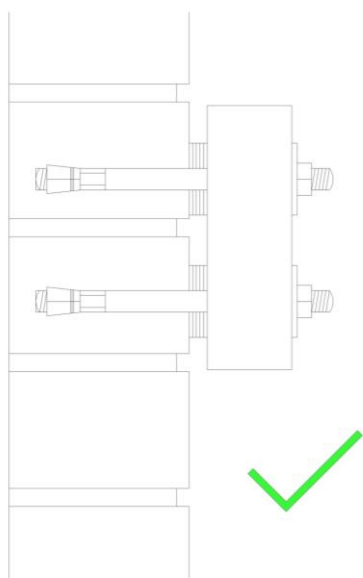


Fig. 4

### 23. Selecting the correct Joist

The most common joist used is 150 x 47mm. It is recommended that this is the minimum dimension for decking platforms.

The best practice is to use certified timber joists that have been regularized, air or kiln dried and also treated to at least Use-Class 3 for the APL 15 year deck or Use-Class 4 for enhanced durability. Do consider the timber sustainability by choosing FSC or PEFC certified timbers.

Joists can be fixed to wall plates by two methods, joist hanger connection or joist sat directly on top of the beam.

### 24. Noggins, blocking and bracing

Noggins are fixed between joists to prevent lateral movement of the joists. Consider joists over 2.4 metres and that they will require noggins and blocking. These two words all mean the same...

Diagonal bracing provides lateral stability between the beam to posts and column. These braces should be used on all decks that exceed 1.45 m in height.

Dead Loads 0.25 kN, includes weight of the C16 joists							
Size of joist		Imposed Load 1.5kN			Imposed Load 4kN		
		Spacing of Joists (Joist Centres)					
Width	Depth	400	500	600	400	500	600
		Maximum Joist Span					
47	97	1.79	1.77	1.71	1.29	1.28	1.22
47	22	2.47	2.29	2.15	1.82	1.64	1.5
47	147	2.97	1.95	2.59	2.17	1.94	1.77
47	170	3.44	3.19	2.99	2.51	2.24	2.05

Dead Loads 0.25 kN, includes weight of the C24 joists							
Size of joist		Imposed Load 1.5kN			Imposed Load 4kN		
		Spacing of Joists (Joist Centres)					
Width	Depth	400	500	600	400	500	600
		Maximum Joist Span					
47	97	2.1	2.03	1.91	1.61	1.49	1.4
47	22	2.75	2.55	2.4	2.03	1.88	1.76
47	147	3.32	3.07	2.89	2.45	2.26	2.13
47	170	3.83	3.55	3.34	2.83	2.62	2.46

Dead Loads 0.25 kN, includes weight of the Oak TH1 joists							
Size of joist		Imposed Load 1.5kN			Imposed Load 4kN		
		Spacing of Joists (Joist Centres)					
Width	Depth	400	500	600	400	500	600
		Maximum Joist Span					
47	97	2.1	2.03	1.91	1.61	1.49	1.4
47	22	2.75	2.55	2.4	2.03	1.88	1.76
47	147	3.32	3.07	2.89	2.45	2.26	2.13
47	170	3.83	3.55	3.34	2.83	2.62	2.46

## 25. Deck board selection

All decking boards should be inspected before and during installation for any defect that will affect the standard for that species of timber. It is preferred that grooved decking is used smooth side up. This aids the running off water and makes maintenance much easier. It is also less slippery when compared to grooved or ribbed decking.

Complex decking design arrangement should be encouraged if the structure under the design is structurally correct for this design.

Your decking species can be selected from the Wood Species Durability table on page 8.

## 26. Surface drainage

Decking platforms should consider the water runoff. The shape of the decking board should facilitate the water to run off the sides of the board and in such a case the decking can be installed level. If standard profile timber is used, then your platform should be constructed with a 1:100 run off along the length of the decking board. Your decking surface will have a gap between boards to enhance water run-off. No decking should be abutted.

## 27. Deck board fixings

Only use nails if the decking structure is temporary. Screws that are designed for exterior decking should be used.

A nominal decking board of 21mm should have a 63mm fixing used. Hot Dipped Galvanised screws or similar coated fixings are acceptable for APL 15 year decking structures. Warranted specialist fixings or stainless 316 are appropriate for deck of 30 or more.

***“Using impact drivers are NOT recommended as they will reduce the life span of the fixing by introducing premature fatigue and they will most certainly affect the structure of the decking board.”***

Countersink the fixings where possible that they are lower than the surface of the board

25mm at the board end is a key dimension to avoid end board splitting. Predrilling is always advisable, use a 2mm larger drill bit for the hole.

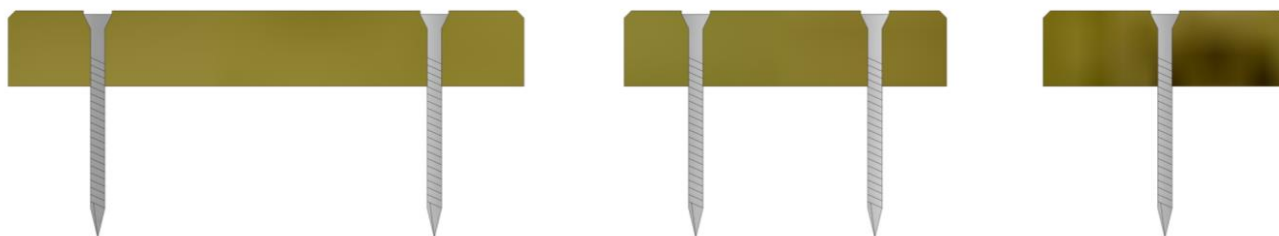


Fig. 5

The image demonstrates the fixings, 25% from the board width outside edge. Based on 144mm and 90mm boards which require two fixings at every joist interval. Anything less than 70mm requires only one fixing in the centre of the board.

## 28. Decking maintenance

There are far too many timber species and conditions of decking to create a maintenance guide within this document.

Owatrol UK have full technical support and are the industry leader in decking maintenance products.

## 29. Composite decking

For all occurrences, detailing and specification please refer to the manufacturer's instructions.

### 30. Standards and References

BS EN 1995-1-1:2004+A1:2008 UK National Annex to Eurocode 5: Design of timber structures. General. Common rules and rules for buildings

BS EN 336:2013 Structural timber. Sizes, permitted deviations BS EN 338:2016: Structural timber. Strength classes

BS EN 1912:2012: Structural Timber. Strength classes. Assignment of visual grades and species

BS 4978:2007+A1:201: Visual strength grading of softwood.

BS EN ISO 3506-1:2009 Mechanical properties of corrosion-resistant stainless steel fasteners. Bolts, screws and studs

Timber Decking "The Professional's Manual" TDA 3<sup>rd</sup> edition Exova (UK) Ltd  
Prepared for the APL by Karl Harrison.

## Plastic substructure for Composite decking

### 31. Introduction

Introduced in the late 1980's composite decking is a solution to replace timber as a decking material. Composites promote the reduction of maintenance and have lifetime warranties.

Decking platforms can be designed to meet many requirements. It is essential that whilst Members of the APL strive for excellence it is important to provide a decking installation that will last for as long as the materials are warranted for.

The service life of a composite deck is dependent on each of the manufacturer's warranty

If you are choosing a composite decking terrace it is essential that a standard of construction pertaining to the manufacturer's installation instructions be followed.

Manufacturers have been consulted and individual instructions observed in the preparation of this document.

This guide is to be read alongside the manufacturer's instructions. This guide does not replace the manufacturer's instructions for installation.

#### **NB**

***All composite decking manufacturers are different, with different product, different fixings and different installation instructions. Each installation should be completed in accordance with the latest manufacturer's instructions.***

### 32. APL Decking Practice

The APL decking practice applies to decking platforms where a service life of the installation matches the manufacturer's warranty.

Decking platforms where specific heavy loads are situated are not covered in this APL guide. In this instance a Structural Engineer (SE) should design the platform

### 33. Types of composite or plastic substructure

There are many manufacturers with their own brand of composite decking structure. In the main they are a composition of wood flour, dye, and recycled plastic. They are all *different* and the individual manufacturers own specific *advice and guidance should be followed*.

Plastic joists (High Density Polyethylene or recycled plastic) are used by many composite suppliers and are a common practice amongst landscapers and decking installers. Some decking manufactures have their own brand of plastic joists.

### 34. HDPE Plastic decking structure general arrangement

Figure 6 and 7 show a simple structure with HDPE Joists drawn at 400-millimetre centres, supported by single beams

Note that the posts are not rebated.

Beams to be mechanically made secure by blind drilling through with minimum M10 coated bolts in pairs staggered at 45 degrees. Square plate and shake proof washers are advisable.

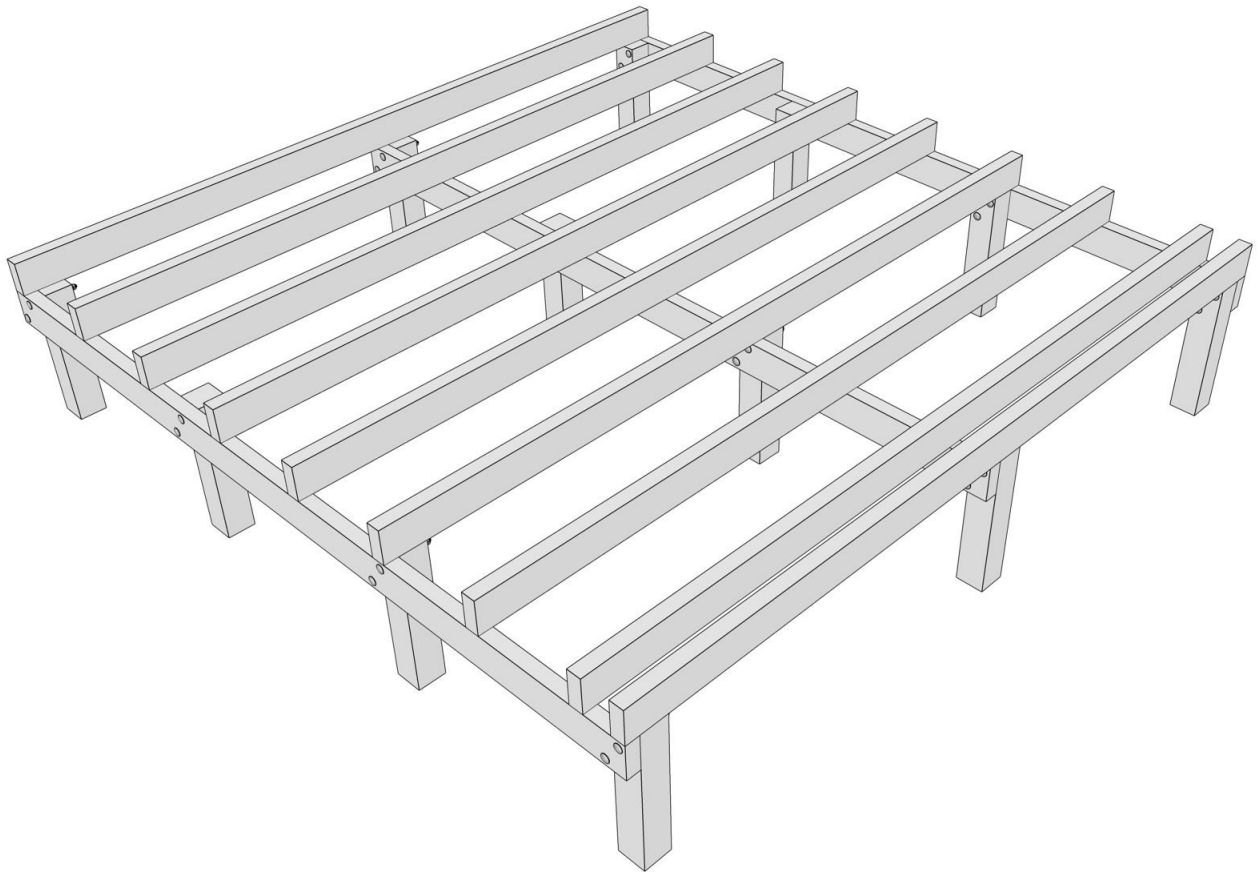


Fig. 6

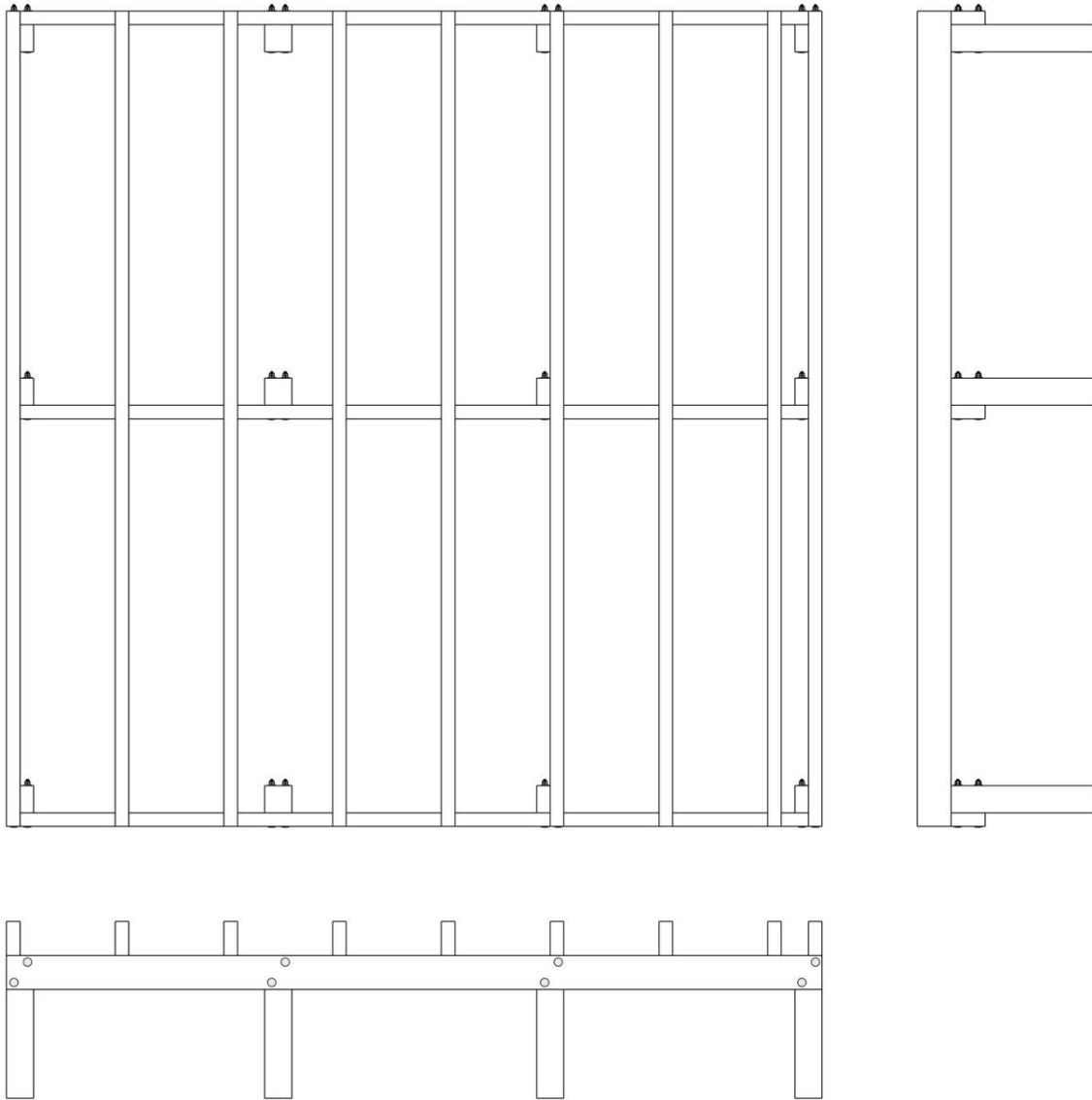


Fig. 7

### 35. Decking load ability

For all occurrences of an HDPE structure over 600mm high, consult an SE prior to committing to your design.

The APL guide HDPE structure is for a uniformly distributed load of  $3.0 \text{ kN/m}^2$  and concentrated load of  $1.5 \text{ kN}$  for the decking platform. This construction is for raised timber deck on a residential property.

The dimensions of the HDPE Joists and Beams are  $125\text{mm} \times 50\text{mm}$  and at a standard  $3\text{m}$  length.

HDPE posts are  $100\text{mm} \times 100\text{mm}$

### 36. Deck structure fixings

Prior to selecting your fixings, you should consult the manufacturers data information to ensure the fixings are suitable for exterior use. Coated fixings are considered acceptable for a 15-year deck. If the longevity is more than 15 years then Stainless or Hot Dipped Galvanised should be used (in accordance with BS 7371-6).

### 37. Composite selection for Decking

We understand the importance of correct design of a decking structure. It is also important to select the correct composite for both the structure and the decking.

The manufacturer will specify the duration of any warranty so long as the following criteria be met

- a) The manufacturers guide specification is followed
- b) The correct joists spacings are used
- c) The correct fixings are used
- d) The correct fall ratio is used

### 38. Plastic substructure for Decking Platforms

The posts for HDPE decking structures should be a minimum of 100mm x 100mm, beams and joists should be a minimum of 125mm x 50mm

For composite decking structural materials always ask the manufacturer and be sure that it meets the minimum criteria for uniformly distributed load of 3.0 kN/m<sup>2</sup> and concentrated load of 1.5 kN for the decking platform when correctly constructed.

Substructure Joist Spacings (residential only) Each manufacturer has its own specification for joist centres. *NB, these figures are subject to change as per the manufacturer's instruction*

<b>Manufacturer</b>	<b>Joist Centre</b>
TREX®	400mm
Ecodek	455mm
SAiGE	400mm
Composite Prime	300mm

This assumes a simple square design, the 45 degree angle or patterns may have a different joist centres.

### 39. Expansion and contraction

HDPE structural materials expand and contract up to 6mm per linear metre. It is advised to allow for an equal gap at the abutting ends of the beams and joists to allow for this movement.

### 40. Support posts or columns

If your HDPE support posts are more than 600mm out of the ground you should consult a SE.

For composite support posts you should ask your manufacturer and follow the guidance specification from them.

### 41. Foundations, footings and concrete

HDPE posts can be placed in the ground with no affect on longevity or durability.

For composite support posts you should ask your manufacturer and follow the guidance specification from them.

### 42. Selecting the right Beam

125mm Beams are mechanically fixed to support posts by using 12 mm through bolts at 100 mm centres All through bolts shall have washers at the bolt head and nut. See figure 8.

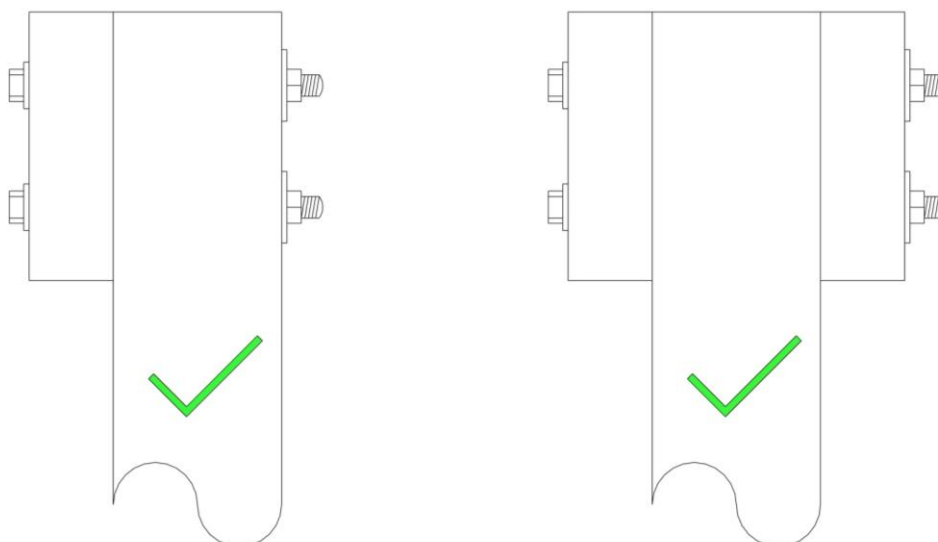


Fig. 8

Bolts should be fixed with a flat washer, optional with shake proof washers or Nylock nuts. 2 x 12mm in a coated fixing to withstand 15 years minimum and for enhanced 30 and 60 years decks 316 stainless steel is recommended by the APL.

#### 43. Fixing a beam plate to a wall

The decking structure should be fixed to a property to reduce the lateral movement where ever possible. This reduces the number of posts supports or columns required on the project.

The Beam that is fitted using the above method is called a ledger board in the USA and a wall plate in the UK.

The ledger board must be the same dimension as the joist that is to be used for the rest of the project.

The fixings should for the purpose of wall anchoring mechanically or by the use of a resin/chemical method. See figure 9.

A gap of no less than 10mm should be adopted by using hot dipped galvanised or stainless square plate washers. This will prevent ingress of excessive moisture which causes damp.

If the ledger board is to be fixed to an existing timber frame property, specialist advice should be sought as to the design to ascertain what can and can't be fixed to it.

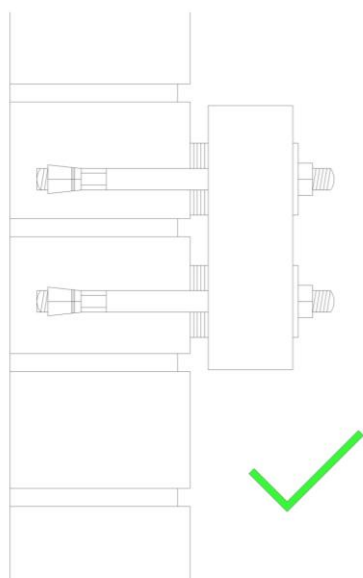


Fig. 9

#### 44. Composite Deck board selection

All composite decking boards should be inspected before and during installation for any defect that will affect the warranty from the manufacturer

Complex decking design arrangement should be encouraged as long as the structure under the design is structurally correct for this design.

#### 45. Surface drainage

Decking platforms may need to consider the water run-off. This is a simple guide to demonstrate that there is a differing requirement depending upon which manufacture is used

<b>Manufacturer</b>	<b>Gradient (fall ratio) for water run off</b>
TREX®	Level
Ecodek	Level
SAiGE	0.8% (8mm in 1M)
Composite Prime	1% (10mm in 1M)

#### 46. Deck board fixings

Only use the prescribed fixings by the manufacturer

#### 47. Decking maintenance

Only used the prescribed maintenance procedure recommended by your manufacturer