

3151D DIMOND HIBOND COMPOSITE FLOOR SYSTEM

1 GENERAL

This section relates to the supply and installation of a **Dimond** Hibond composite steel/concrete floor systems.

It includes;

- **Hibond 55** metal flooring system.
- **Hibond 80** metal flooring system.

1.1 RELATED WORK

Refer to ~ for ~

1.2 ABBREVIATIONS AND DEFINITIONS

Refer to the general section 1232 INTERPRETATION & DEFINITIONS for abbreviations and definitions used throughout the specification.

The following definitions apply specifically to this section:

ACRS Australian Certification Authority for Reinforcing Steels - An independent certification scheme for reinforcing steel and structural steel, by product and manufacturer/processor. Certifies compliance with Australia/New Zealand Standards.
ACRS Web site - www.steelcertification.com

Documents

1.3 DOCUMENTS

Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

NZBC B1/VM1	Structure
AS/NZS 1554.2	Structural steel welding: stud welding (steel studs to steel)
NZS 3101.1	Concrete Structures Standard - The design of concrete structures
NZS 3104	Specification for concrete production
NZS 3114	Concrete surface finishes
NZS 3121	Water and aggregate for concrete
NZS 3122	Portland and blended cements (general and special purpose)
NZS 3404.1:1997	Steel Structures Standard
NZS 3603	Timber structures standard
AS/NZS 4671	Steel reinforcing materials
AS 1397	Continuous hot-dip metallic coated steel sheet and strip - Coatings of zinc and zinc alloyed with aluminium and magnesium

Documents listed above and cited in the clauses that follow are part of this specification. However, this specification takes precedence in the event of it being at variance with the cited document.

1.4 MANUFACTURER/SUPPLIER DOCUMENTS

Manufacturer's and supplier's documents relating to work in this section are:

Dimond Structural Systems Manual (web based Manual with dated update pages)
Dimond Installation Guide - Hibond Flooring

Copies of the above literature are available from:

Company: **Dimond**
Web: www.dimond.co.nz
Telephone: 0800 346 663 (0800 DIMOND)

Requirements

1.5 NO SUBSTITUTIONS

Substitutions are not permitted to any specified system, or associated components and products.

1.6 STEEL REINFORCING COMPLIANCE

Steel reinforcing materials for concrete to [AS/NZS 4671](#). Steel to be manufactured in New Zealand, or by an overseas manufacturer holding a current valid (or equivalent) NZ S Mark or ACRS certificate for that type of steel. Confirm compliance and provide evidence if requested.

2 PRODUCTS

Materials

2.1 HIBOND 55 STEEL DECK

Dimond Hibond 55 roll formed G550 high tensile galvanized steel sheet with Z275 zinc coating to AS 1397.

2.2 HIBOND 80 STEEL DECK

Dimond Hibond 80 roll formed G550 / G500 high tensile galvanized steel sheet with Z275 zinc coating to AS 1397.

2.3 TIMBER FORMWORK

Machine stress graded SG6 radiata pine and dressing or merchantable grade radiata pine boards to [NZS 3603](#), to obtain the concrete finish specified for adjoining concrete work.

2.4 REINFORCING STEEL

Grade 500 E Ductile deformed bars to [AS/NZS 4671](#).

2.5 STEEL MESH

Hard drawn steel wire spot welded to [AS/NZS 4671](#), deformed and to mesh dimensions shown on the drawings.

Any 500E mesh to [AS/NZS 4671](#) as modified by NZS B1/VM1.

Refer to SELECTIONS for type.

2.6 TYING WIRE

Mild steel drawn wire not less than 1.2mm diameter.

2.7 CONCRETE

The concrete producer is responsible for mix design and properties to [NZS 3104](#).

Cement: To [NZS 3122](#)

Aggregate: To [NZS 3121](#)

Rate of sampling: For compressive strength testing - one sample per batch but not less than one for each day of use.

2.8 TEMPORARY BEARERS AND PROPS

Machine stress graded SG8 radiata pine. Refer to SELECTIONS/drawings for type.

Components

2.9 EDGE FORMS

Dimond Hibond edge forms folded from G250, 1.15mm thickness, Z275 galvanized steel. Dimensions as scheduled/as shown on drawings.

2.10 END CAPS

Dimond Hibond end caps folded from G250, 0.55mm thickness, Z275 galvanized steel.

2.11 SHEAR CONNECTORS

Welded steel studs as scheduled/as shown on the drawings.

2.12 FASTENERS

Powder actuated fasteners with cone washers.

3 EXECUTION

Conditions

3.1 DEFECTS

Discard material showing visual defects affecting its structural integrity and/or appearance.

3.2 DELIVERY, STORAGE AND HANDLING

Keep all components dry in transit. Store on a level firm base, clear of the ground, protected from weather, contamination and damage and away from current work areas. Prevent water and condensation from being trapped between adjacent surfaces.

Do not drag sheets across each other or other materials. Protect edges and surfaces from damage and ensure that section shape is not damaged during handling, storage or installation.

3.3 CONFORM

Conform to [NZS 3101.1](#) and [NZS 3404.1](#) in the design, materials and manufacture of the steel decking.

Application

3.4 MODIFICATIONS

Cutting, drilling or modification of steel decking unless shown on the drawings, may only be carried out after receiving written approval from the design engineer.

3.5 CUTTING

Cutting of steel decking by metal cutting power saw or angle grinder only. Clean off cutting swarf.

3.6 PROPPING

Locate bearers and props as shown on the drawings level, true to line, vertical and rigidly braced to fully support the steel decking and the construction work.

3.7 ERECT AND PLACE

Erect and place the **Hibond** decking as shown on the drawings to Dimond requirements. Lay sheets square and true to line and level and screwed together using 10g-16 x 16mm self drilling screws at 750mm centres maximum, to **Dimond** requirements. Fasten to permanent support structure as detailed on the drawings.

3.8 FIX HIBOND EDGE FORMS AND END CAPS

Fit to **Dimond** requirements using self drilling screws.

3.9 SITE WELD SHEAR CONNECTORS

Site flash weld steel stud shear connectors where detailed on the drawings. Provide a Producer Statement confirming compliance with the procedural control procedures of [AS/NZS 1554.2](#).

3.10 FORM OPENINGS

Form openings and penetrations as detailed and to **Dimond** requirements.

3.11 EDGE BOXING

Form and fix edge timber boxing and day forms.

3.12 PLACE REINFORCEMENT

Place mesh and reinforcement as detailed. Minimum top cover 25mm, unless specifically detailed otherwise. Refer to [NZS 3101.1](#).

3.13 CONCRETING

Ensure **Hibond** is clean, free of debris and free water and place and vibrate concrete.

3.14 SLAB FINISHING

Screed and provide a U3 finish to [NZS 3114](#), table 2.

Finishing

3.15 CONCRETE CURING

Confirm the curing method being used, but keep continuously damp for seven days. Keep time between placing and start of curing concrete to an absolute minimum.

3.16 PROP REMOVAL

Do not remove temporary props until concrete has achieved a full 28 day cure, without the written direction of the design engineer.

3.17 PRIMING

Prime the underside of the steel decking.

Completion**3.18 CLEAN DOWN**

At completion of concrete placement, clean the underside of the steel decking of any concrete or slurry to ensure surface is not damaged or marked.

3.19 LEAVE

Leave work to the standard required by the following procedures.

3.20 CLEAN UP

Clean up surrounding areas following completion of the concrete placement.

3.21 REMOVE

Remove debris, unused materials and elements from the site.

4 SELECTIONS

For further details on selections go to www.dimond.co.nz
Substitutions are not permitted to the following, unless stated otherwise.

4.1 HIBOND 55 STEEL DECK

Sheet length: ~ metres minimum
Grade: G550
BMT: 0.75mm

4.2 HIBOND 80 STEEL DECK

Sheet length: ~ metres minimum
Grade: G550
BMT: 0.75mm

4.3 REINFORCING STEEL

Bar diameter: ~mm
Bar grade: Grade 500E

4.4 STEEL MESH

Mesh type: ~
Mesh grade: Grade 500E
Mesh size: ~

4.5 SHEAR STUDS

Stud height: ~mm
Diameter: ~mm
Number per pan: ~

4.6 CONCRETE

Mix: ~
Strength: ~ MPa
Thickness: ~mm
Aggregate size: ~mm nominal maximum
Admixture: ~

4.7 TEMPORARY BEARERS AND PROPS

Bearers: ~mm x ~mm
Props: ~mm x ~mm