DESIGN GUIDELINES:

DG08. COMPARISON OF F17 HARDWOOD JOISTS WITH TECBEAM JOISTS

JOISTS		RECOMMENDED SPANS [1] m	
TYPE	SIZE	450 crs	600 crs
F17 Hardwood[2]	240 x 45	5.20	4.80
T259aP10[3]	248 x 88	5.50	5.07
T259bP10	248 x 88	5.62	5.19
F17 Hardwood[2]	290 x 45	6.00	5.60
T309bP10	302 x 88	6.16	5.70
T309cP10	302 x 88	6.27	5.81

Notes on joist comparison:

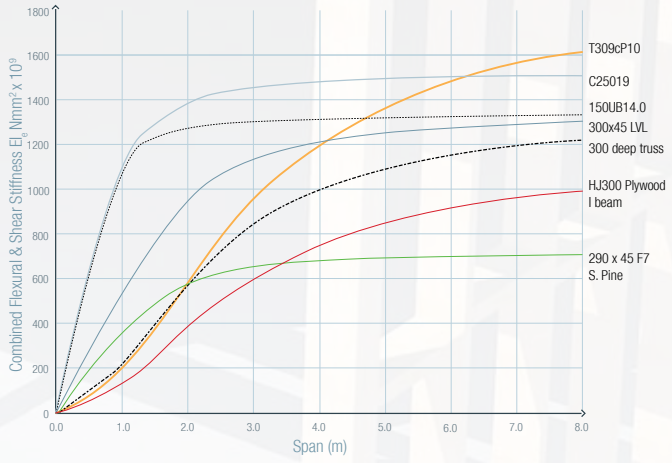
1. Residential live loads to AS/NZS 1170.1, and design criteria to AS 1684.1.
2. Timber Framing Hardwood Span Tables, Timber Promotion Council.
3. Beam Code T259aP10 represents: T25 = 25cm depth, 9 = 9cm joist width, a = galvanised steel web thickness 0.80mm (b = 1.0mm, c = 1.2mm), P10 = MGP10 timber flange grade.
4. *For normal floor joist loading, F17 Hardwood joists can be directly substituted with Tecbeam joists of the same depth and spacing,* (or with an increased spacing where indicated in the table).
5. STIFFNESS (a measure of how much a beam will deflect) determines the maximum spans, based on a live load of 1.5kPa, for the floor joists in the above table.
6. STRENGTH (a measure of bending and shear capacity) Tecbeam T25-P910 and T30-P910 have 70% of the strength of 240x45 F17 and 290x45 F17 respectively. For applications involving loads greater than the normal loading of floor joists, where strength requirements control, the difference can be easily accommodated by reducing spacing (0.7 x spacing), or adding one extra Tecbeam for every 2.5, ie. 2 extra joists in every 5.
7. CREEP (a measure of additional deflection over time due to long-term loads) Creep factors for various beams are:

	J_2
Steel Beam:	1.0
Tecbeam (composite steel & timber)	1.4
Seasoned or KD Solid Timber, eg F17	2.0
Unseasoned or 'Green' Solid Timber	3.0

8. The low creep factor in Tecbeam joists means fewer joists are required compared with F17 joists in applications where there is a high proportion of dead load.

COMPARISON OF TECBEAM STIFFNESS WITH OTHER BEAMS

Short term loading (live load)



Long term loading (dead load + permanent live load)