Summary of Design Checks for FEP Connections

Design is based on determining V_{des}, the design capacity of the connection which is the minimum of the design capacities V_a, V_b, V_c, V_d, V_e, V_f, V_g.

The design requirement is then $V_{des} \geq V^*$ (design shear force).

From AS 4100 Clause 9.1.4(b)(ii) (Ref. 1) this connection must be designed for a minimum design shear force of 40kN, or 0.15 x member design shear capacity, whichever is the lesser.

SUMMARY OF CHECKS REQUIRED (REF. 5)

DESIGN CHECK NO.1	Detailing limitations
DESIGN CHECK NO.2	Design capacity of weld to supporting member
DESIGN CHECK NO.3	Design capacity of bolt group - Alternatives A and B
DESIGN CHECK NO.4	Design capacity of web side plate (Shear, bending, block shear)
DESIGN CHECK NO.5	Design capacity of supported member (Shear - un-coped or coped)
DESIGN CHECK NO.6	Design capacity of supported member (Block shear - coped sections)
DESIGN CHECK NO.7	Design capacity of supported member (Bending of coped sections)
DESIGN CHECK NO.8	Beam rotation check
DESIGN CHECK NO.9	Local stability of coped supported member
DESIGN CHECK NO.10	Local capacity of supporting member

The design capacity tables in these Simple Connections DCTs, V3 are based on DESIGN CHECKS 1 to 6 inclusive. DESIGN CHECKS 7 to 10 must be carried out in addition.

Angle Cleat Connection

The angle cleat connection consists of either a single angle bolted to a supported member web or two angles bolted each side of a supported member web. The angle or angles are in turn bolted to the supporting member with some typical examples shown in Fig. 16.

The supported member may require the flange and/or the web to be coped in order to enable the connection to be effected (ref. Figure 16).

Features of the connection are:

— The component is a standard angle, grade 300 (one or two angles).

— The bolting category normally used is 8.8/S.

— The component does not extend to the bottom flange of the supported beam in order to ensure that the beam can rotate without touching the supporting member.

— The connection can only be used to hollow section columns if studs or special bolts are used. Such studs or bolts are not considered in the Simple Connections DCTs, V3.

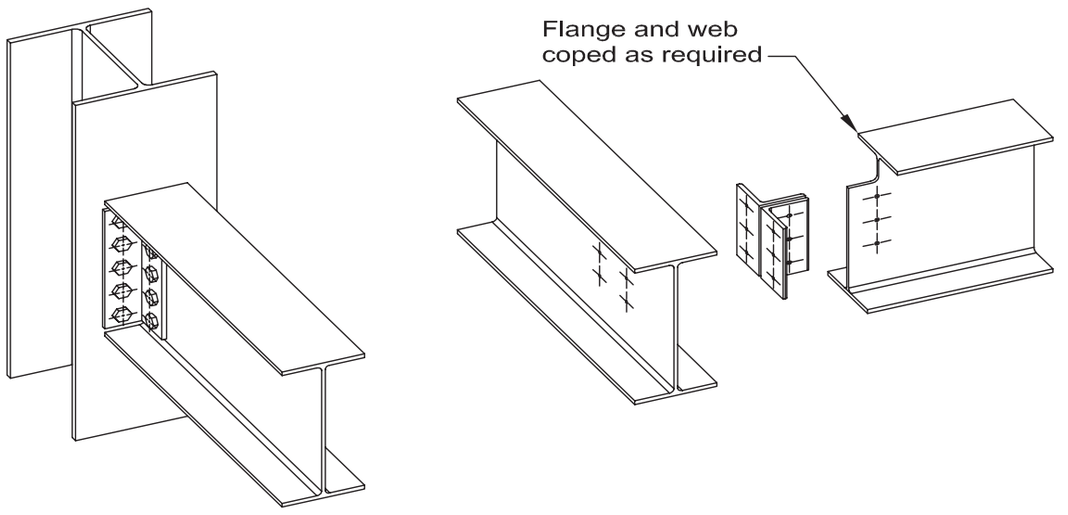

FIGURE 16. TYPICAL ANGLE CLEAT CONNECTIONS

Design is based on determining V_{des}, the design capacity of the connection, which is the minimum of the design capacities V_a, V_b, V_c, V_d, V_e, V_f, V_g, V_h.

The design requirement is then $V_{des} \geq V^*$ (design shear force).

From AS 4100, Clause 9.1.4(b)(ii) (Ref. 1) this connection must be designed for a minimum design shear force of 40kN or 0.15 x member design shear capacity, whichever is the lesser.

SUMMARY OF CHECKS—DOUBLE ANGLE CLEATS (REF. 6)

DESIGN CHECK NO.1	Detailing limitations
DESIGN CHECK NO.2	Design capacity of weld to supporting member
DESIGN CHECK NO.3	Design capacity of bolt group - Alternatives A and B
DESIGN CHECK NO.4	Design capacity of web side plate (Shear, bending, block shear)
DESIGN CHECK NO.5	Design capacity of supported member (Shear - un-coped or coped)
DESIGN CHECK NO.6	Design capacity of supported member (Block shear - coped sections)
DESIGN CHECK NO.7	Design capacity of supported member (Bending of coped sections)
DESIGN CHECK NO.8	Beam rotation check
DESIGN CHECK NO.9	Local stability of coped supported member
DESIGN CHECK NO.10	Local capacity of supporting member

The design capacity tables in this Simple Connections DCTs, V3 are based on DESIGN CHECKS 1 to 6 inclusive. DESIGN CHECKS 7 to 10 must be carried out in addition.

Contents of Simple Connections DCT, V3 include: