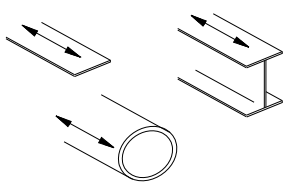
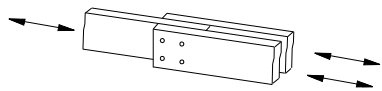

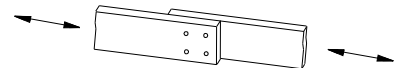
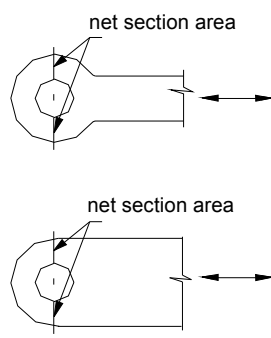
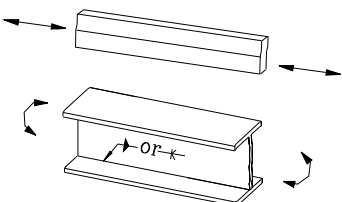
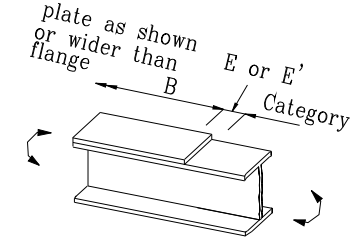
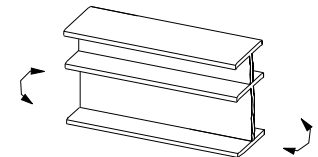
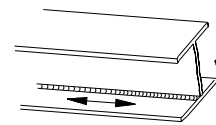
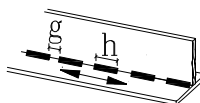
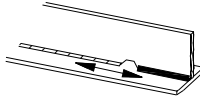
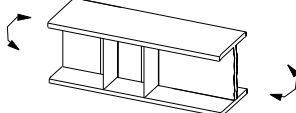


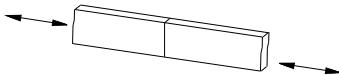
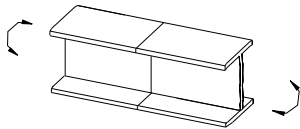
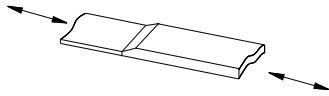
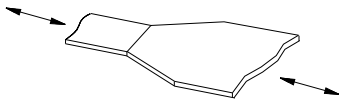
Table 4.3. Classification of details

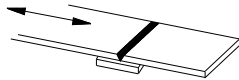
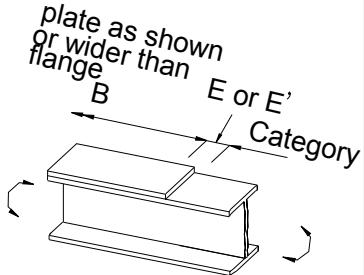
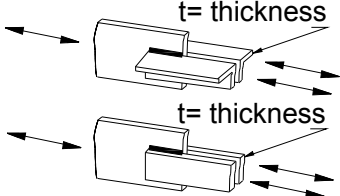
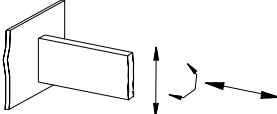
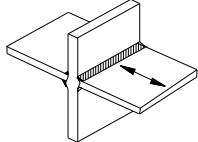
Group 1: Non-Welded Details

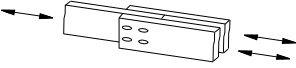
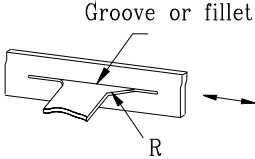
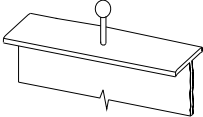
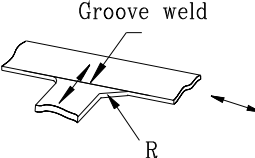
Description	Illustration	Class
1.1. Base metal with rolled or cleaned surfaces; flame cut edges with a surface roughness less than $25 \mu\text{m}$		A
1.2. Base metal with sheared or flame cut edges with a surface roughness less than $50 \mu\text{m}$		B
2.1. Base metal at gross section of high strength bolted slip resistant (friction) connections, except axially loaded joints which induce out of plane bending in connected material.		B
2.2. Base metal at net section of fully tensioned high strength bolted bearing type connections		B'
2.3. Base metal at net section of other mechanically fastened joints (ordinary bolts & rivets).		D
3. Base metal at net section of eye-bar head or pin plate.		E

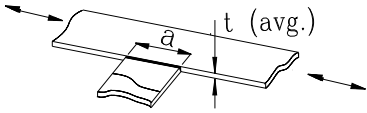
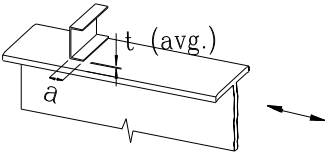
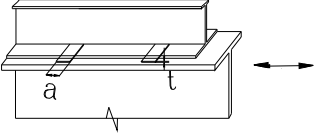
Group 2: Welded Structural Elements

Description	Illustration	Class
4.1. Base metal in members without attachments, built up plates or shapes connected by continuous full penetration groove welds or by continuous fillet welds carried out from both sides without start stop positions parallel to the direction of applied stress.		B
4.2. Same as (4.1.) with welds having stop - start positions.		B'
4.3. Base metal in members without attachments, built-up plates or shapes connected by continuous full penetration groove welds with backing bars not removed, or by partial penetration groove welds parallel to the direction of applied stress.		B'
5. Base metal at continuous manual longitudinal fillet or full penetration groove welds carried out from one side only. A good fit between flange and web plates is essential and a weld preparation at the web edge such that the root face is adequate for the achievement of regular root penetration.		C
6. Base metal at zones of intermittent longitudinal welds with gap ratio $g/h < 2.5$		D
7. Base metal at zones containing copes in longitudinally welded T-joints.		D
8. Base metal at toe of welds on girder webs or flanges adjacent to welded transverse stiffeners.		C


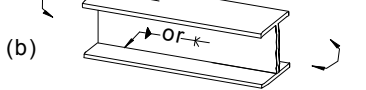
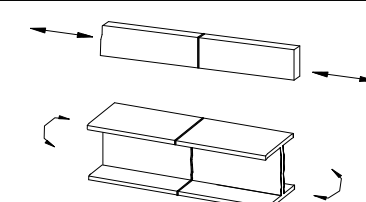
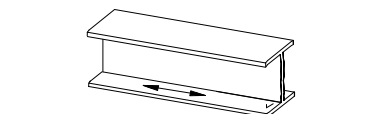
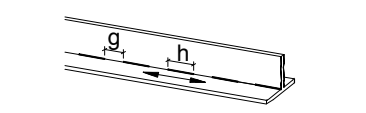
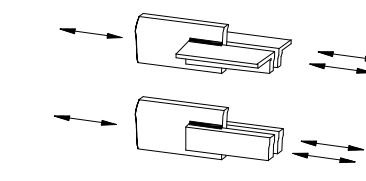
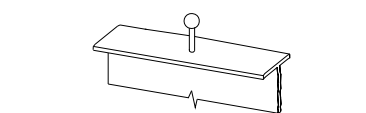
Description	Illustration	Class
<p>9.1. Base metal and weld metal at full penetration groove welded splices (weld made from both sides) of parts of similar cross sections ground flush, with grinding in the direction of applied stress and weld soundness established by radiographic or ultrasonic inspection.</p>		B
<p>9.2. Same as (9.1.) but with reinforcement not removed and less than 0.10 of weld width.</p>		C
<p>9.3. Same as (9.2.) with reinforcement more than 0.10 of weld width.</p>		D
<p>10.1. Base metal and weld metal at full penetration groove welded splices (weld made from both sides) at transitions in width or thickness, with welds ground to provide slopes no steeper than 1 to 2.5 with grinding in the direction of applied stress, and with weld soundness established by radiographic or ultrasonic inspection.</p>	 	B'
<p>10.2. Same as (10.1.) but with reinforcement not removed and less than 0.10 of weld width.</p>		C
<p>10.3. Same as (10.2.) with slopes more than 1 to 2.5</p>		D
<p>10.4. Same as (10.1.) to (10.3.) but with welds made from one side only.</p>		E'

Description	Illustration	Class
11.1. Base metal and weld metal at transverse full penetration groove welded splices on a backing bar. The end of the fillet weld of the backing strip is more than 10 mm from the edges of the stressed plate		D
11.2. Same as (11.1) with the fillet weld less than 10 mm from the edges of the stressed plate.		E
12.1. Base metal at ends of partial length welded cover plates narrower than the flange having square or tapered ends, with or without welds across the ends or wider than the flange with welds at the ends. Flange thickness ≤ 20 mm		E
Flange thickness > 20 mm		E'
12.2 Base metal at ends of partial length welded cover plates wider than the flange without end welds.		E'
13. Base metal at axially loaded members with fillet welded connections. $t \leq 25$ mm		E
$t > 25$ mm		E'
14. Base metal at members connected with transverse fillet welds.		C
15.1. Base metal at full penetration weld in cruciform joints made of a special quality weld.		D
15.2. Same as (15.1) with partial penetration or fillet welds of normal quality.		E'

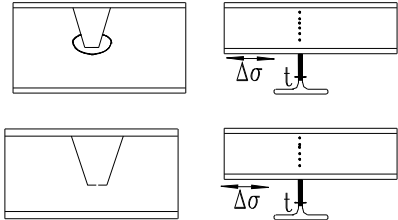
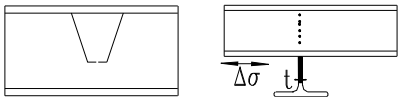
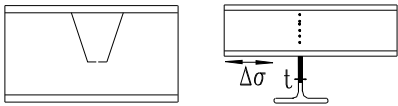
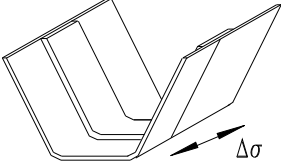
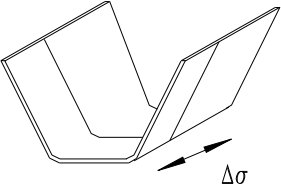
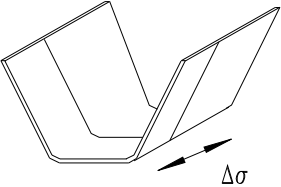
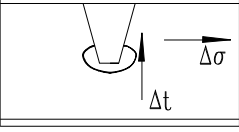
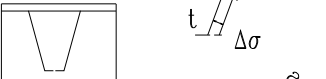
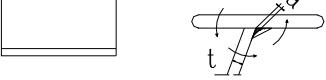
Description	Illustration	Class
16. Base metal at plug or slot welds.		E
17. Base metal and attachment at fillet welds or partial penetration groove welds with main material subjected to longitudinal loading and weld termination ground smooth R > 50 mm		D
R < 50 mm		E
18. Base metal at stud- type shear connector attached by fillet weld or automatic end weld.		C
19.1. Base metal at details attached by full penetration groove welds subject to longitudinal loading with weld termination ground smooth. Weld soundness established by radiographic or ultrasonic inspection R > 610 mm		B
610 mm > R > 150 mm		C
150 mm > R > 50 mm		D
R < 50 mm		E
19.2. Same as (19.1.) with transverse loading, equal thickness, and reinforcement removed. R > 610 mm		B
610 mm > R > 150 mm		C
150 mm > R > 50 mm		D
R < 50 mm		E

Description	Illustration	Class
19.3. Same as (19.2.) but reinforcement not removed $R > 610 \text{ mm}$		C
610 mm $>$ R $>$ 50 mm		C
150 mm $>$ R $>$ 50 mm		D
R $>$ 50 mm		E
19.4. Same as (19.2.) but with unequal thickness		D
R $>$ 50 mm		E
R $<$ 50 mm		E
19.5. Same as (19.4.) but with reinforcement not removed and for all R	E	
20. Base metal at detail attached by full penetration groove welds subject to longitudinal loading $50\text{-mm} < a < 12t$ or 100 mm		D
$a > 12t$ or 100 mm ($t < 25 \text{ mm}$)		E
$a > 12t$ or 100 mm ($t > 25 \text{ mm}$)		E'
21. Base metal at detail attached by fillet welds or partial penetration groove welds subject to longitudinal loading $a < 50 \text{ mm}$	 	C
$50 \text{ mm} < a < 12t$ or 100 mm		D
$a > 12t$ or 100 mm ($t < 25 \text{ mm}$)		E
$a > 12t$ or 100 mm ($t > 25 \text{ mm}$)		E'

Group 3: Fasteners (Welds and bolts)

Description	Illustration	Class
22.1. Weld metal of full penetration groove welds parallel to the direction of applied stress (weld from both sides)	(a) 	B
22.2. Same as (22.1.) but with weld from one side only.	(b) 	
22.3. Weld metal of partial penetration transverse groove weld based on the effective throat area of the weld.		F
23.1 Weld metal of continuous manual or automatic longitudinal fillet welds transmitting a continuous shear flow.		D
23.2 Weld metal of intermittent longitudinal fillet welds transmitting a continuous shear flow.		E
23.3 Weld metal at fillet welded lap joints.		E'
24. Transversally loaded fillet welds.		E'
25. Shear on plug or slot welds.		F
26. Shear stress on nominal area of stud-type shear connectors.(Failure in the weld or heat affected zone.)		F
27.1. High strength bolts in single or double shear (fitted bolt of bearing type).		C
27.2. Rivets and ordinary bolts in shear.		D
28. Bolts and threaded rods in tension (on net area)		F

Group 4: Orthotropic Deck Bridges

Description	Illustration	Class
<p>29.1. Base metal at continuous longitudinal rib with or without additional cutout in cross girder. (Bending stress range in the rib) $t \leq 12\text{mm}$</p>		C
<p>29.2. Same as (29.1.) $t > 12\text{mm}$</p>		D
<p>30. Base metal at separate longitudinal ribs on each side of the cross girder. (Bending stress range in the rib)</p>		E'
<p>31. Base metal at rib joints made of full penetration weld with backing plate. (Bending stress range in the rib)</p>		D
<p>32.1. Base metal at rib joints made of full penetration weld without backing plate. All welds ground flush to plate surface in the direction of stress. Slope of thickness transition < 1:4. (Bending stress range in the rib)</p>		B'
<p>32.2. Same as (32.1.) with weld reinforcement ≤ 0.2</p>		C
<p>33. Base metal at connection of continuous longitudinal rib to cross girder. (Equivalent stress range in the cross girder web).</p>		E'
<p>34.1. Weld metal at full penetration weld connecting deck plate to rib section.</p>		D
<p>34.2. Weld metal at fillet weld connecting deck plate to rib section.</p>		E'