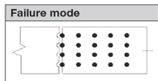
	Item	Where	What	Description	Upload
# 1	Incorrect reference	Cl ZZ 4A 7.2.2.4.2.3	The last paragraph in this paragraph tells you to use Table ZZ 4.12	The last paragraph in this paragraph should tell you to use Table ZZ 4.11	
# 2	Verified Timber/Seasoned Timber	Clause 1.7.2.21 and Table ZZ2.1	The moisture content specified for seasoned timber (15%) is different to NZS3602 (18%) NZS3622 (16%). Clause ZZ2.2.3 is not clear enough that the moisture content used in NZS3622 should also be reduced.	Include a definition of "seasoned timber" in ZZ1.7 which includes reference to NZS3622 e.g "timber, verified in accordance with NZS3622, shall be considered seasoned"	
# 3	Detailed Design - Small dowels - Undefined term	Clause ZZ4A.7.2.4.1 and table 4.9	"dz" is not defined. This means "H" (as defined in table ZZ 4.9) cannot be calculated. This means lambda1 to lambda 3 (equations ZZ4.81 to ZZ 4.83) cannot be calculated, and so on and so forth.	Define dz. Preferrably with a diagram, perhaps Figure ZZ 4.1a or Figure ZZ 4.1b	
# 4	ZZ4A.7.3.2.2.3 Rope Effect 0.25 Double Counted	Clause ZZ4A.7.3.2.2.3 Identical error in ZZ4A.7.2.2.2.3	In clause ZZ4A.7.3.2.2.3 the fastener axial capacities are multiplied by 0.25 to calculate the term n_rope. However when n_rope is implemented in the EYM in Table ZZ4.12 and Table ZZ4.13 the rope effect is again multiplied by a factor of 0.25. This lead to the fastener axial capacity being multiplied by 0.25 twice meaning that the rope effect term is now 0.25*0.25=6.25% of the fastener axial capacity.	It is assumed that the author's intent was not to limit rope effect to 6.25% of the fastener withdrawal capacity. Therefore the 0.25 factor needs to be removed from either the Tables ZZ3.12/13 or from Clause ZZ4A.7.3.2.2.3. Given the way the limits of rope effect to 25% of EYM term are set up, it makes the most sense to remove the 0.25 factor from the Tables ZZ3.12/13 This same fix also needs to be implemented for Clause ZZ4A.7.2.2.2.3 and Tables ZZ4.7/4.8	
# 5	Typo Eq ZZ4.1 Member Brittle Design Strength	Eq ZZ4.1	Equation reads f * ft', but it means: phi * ft'	Fix the typo and swap the f for phi	**Table ZZ4.2 – Residual member brittle failures and strengths at a joint** Failure mode:  Member brittle design strength in newtons Design net tensile strength $N_{0,t}$ $N_{0,t} = f f_t' A_n k_1 k_{15}$ .....(Eq. ZZ4.1) where ϕ = member capacity factor (see ZZ2.3) f_t' = member characteristic tensile strength, in MPa A_n = member net cross-sectional area, in mm² A_n shall be ≥ 0.75 A_g A_g = member gross cross-sectional area, in mm² k_1 = factor for load duration k_{15} = service-condition factor
# 6	Typo Eq ZZ4.118 Embedment of Plywood	Eq ZZ4.118	The equation reads fi,phi = alpha y *0.11... which is clear typo with the alpha and phi terms being swapped	Swap the alpha and phi terms to correct the equation.	The design embedment strength of plywood loaded at all angles to the surface grain, in MPa, is given as: $f_{i,\phi} = \alpha_y 0.11 \rho' (1 - 0.01D) k_1 k_{15}$ .....(Eq. ZZ4.118) If no rules are given for a material, its design embedment strength ($f_{i,\alpha}$) shall be determined according to ISO 10984-2.
# 7	Net Area Definition Eq ZZ4.123 for Group Tear Out	Eq ZZ4.123	The net area between the two outer rows is determined as A_GT-net = (a_2-D) * (n_r-1) in mm^2 However, this only gives the clear distance between the rows of fasteners. Should this not include a term for the the net thickness of the timber to give the area between fasteners being loaded in tension?	Needs review.	

	Item	Where	What	Description	Upload
# 8	Capacity factor formatting	Eq ZZ4.14	Formatting of capacity factor	f should be written in Greek letters	
# 9	Equation not correct/applicable	Eq ZZ4.14	Equation 54 t1 does not apply to timber members, except for thin plywood panels, see correspondence with Ying Hei Chui and paper "Derivation of code requirement to prevent head pull-through failure of wood screws". This equation should not be used for LVL, glulam etc.	Head pull through should refer to axial capacity of Type 2 joints for bolts, section 4.4.3.3, equation 4.4(6)	See Appendix B below
# 10	Typo Eq ZZ4.14 Screw Head Pull Through	Eq ZZ4.14	In Eq ZZ4.14 the t1 term is subscripted, where it should not be. Please note that this error was only found in the version of 1720.1 that includes the AS text. When checking the excludes AS text version error, this error was not apparent.	Remove the subscript formatting from t1 on the appropriate standard version.	(b) Design head pull-through strength ($N_{ax,d}$) of a screw group with withdrawal loads $N_{ax,d} = n_{ax,d}\, n$ ..... (Eq. ZZ4.12) where $n_{ax,d}$ = design head pull-through strength of a single screw = $\phi_{ax,w} t_1 D_{cf} f_{uf}$ through a light-gauge steel side-plate with a thickness of less than 2 mm, in newtons ..... (Eq. ZZ4.13) = $f_{ax,w}\, 54_{t1}$ through timber, glulam, LVL, plywood, or OSB in Newtons ..... (Eq. ZZ4.14))
# 11	Double Counting of k1,k15 in Coach Screw Withdrawal	Eq ZZ4.20 Eq ZZ4.21	Eq ZZ4.21 is used to calculate a the design withdrawal strength of a single coach screw n_axw. Eq ZZ4.20 references the value of n_axw from Eq ZZ4.21 and multiplies this by the number of fasteners in the joint to calculate the design withdrawal strength of a group of coach screws N_axw. However both these equations account for k1 and k15. When used as written in the code, the factors k1 and k15 would be counted twice. It is not thought that this is author's intention.	Remove reference of k1 and k15 from Eq ZZ4.20 Consider whether the k13 factor is more appropriate in Eq ZZ4.20 or ZZ4.21	
# 12	Typo Eq ZZ4.34 EYM for Nails, Screws, Rivets	Eq ZZ4.34 Table ZZ4.7	The beta^3 term is written as beta subscript 3. The last (t2/t1) within the square root term is missing its squared term.	The beta subscript 3 needs to be changed to beta superscript 3 The (t2/t1) term identified needs to be squared. See picture for clarification on which term.	**Table ZZ4.7 – Fastener yielding failure and strength for single-shear joints** Configuration | Fastener design yielding strength ($n_{a,y}$), in newtons | Equation  $n_{a,y} = f_{1a} D t_1$ | Eq. ZZ4.32  $n_{a,y} = f_{2a} D t_2$ | Eq. ZZ4.33 Configuration | Yield model term + rope effect  $n_{a,y} = \frac{f_{1a} t_1 D}{1+\beta}\left[\sqrt{\beta + 2\beta^2\left[1+\frac{t_2}{t_1}+\left(\frac{t_2}{t_1}\right)^2\right]+\beta_3\left(\frac{t_2}{t_1}\right)^2}-\beta\left(1+\frac{t_2}{t_1}\right)\right]+0.25 n_{rope}$ | Eq. ZZ4.34  $n_{a,y} = \frac{f_{1a} t_1 D}{2+\beta}\left[\sqrt{2\beta(1+\beta)+\frac{4\beta(2+\beta)M_y}{f_{1a} D t_1^2}}-\beta\right]+0.25 n_{rope}$ | Eq. ZZ4.35  $n_{a,y} = \frac{f_{1a} t_2 D}{1+2\beta}\left[\sqrt{2\beta^2(1+\beta)+\frac{4\beta(1+2\beta)M_y}{f_{1a} D t_2^2}}-\beta\right]+0.25 n_{rope}$ | Eq. ZZ4.36  $n_{a,y} = \sqrt{\frac{2\beta}{1+\beta}}\sqrt{2 M_y f_{1a} D}+0.25 n_{rope}$ | Eq. ZZ4.37

	Item	Where	What	Description	Upload
# 13	Whole standard is not fit for purpose	Everything	I cannot believe that we waited 29 years to get a standard that is an unclear and unusable butchering of a standard that Australia produced in 2010. It is a complete disgrace as it is so difficult to use. Did anyone at Standards NZ consider the absolute mind-boggling loss of productivity lost across the industry as everyone has to have two PDFs open at once to be able to use this (the Appendices open on one window and the body of the standard in another)? It is no exaggeration that this will cost the industry millions of dollars in wasted time through the life of this standard, let alone the very high potential for mistakes resulting from the incredible complexity and confusion of using it.	I cannot believe that we are in a position to have to give this feedback. The standard is so obviously not fit for purpose. 29 years for this? The entire standard needs to be rewritten as a standard and not as an Appendix. Get rid of the ZZ notation that makes it so difficult to understand what is going on, and have all clauses combined so that we don't have to click through everything twice.	
# 14	Layout	EVERYWHERE	The problem with the current layout is that all the NZ-specific changes are lumped together at the start of the document, but the clauses that they change are spread throughout the original Australian section. What this means in practice is that, for example, if you wanted to read the clauses in order you'd need to read: • Start on page 125 of the pdf for the first half of clause 1.1 • Back to page 19 of the pdf for the second half of clause 1.1 • Forwards to page 125 for clause 1.2 • Back to page 20 for clause 1.3 and the first quarter of clause 1.4 • Forwards to page 127 for the rest of clause 1.4 • … and so on. • The original, Australian standard is 166 pages long (not including the introduction, bibliography, etc). The NZ changes are 105 pages long. That's a lot of backwards and forwards. I don't feel like this layout is fit for purpose. There's a good chance it will lead to NZ buildings being improperly designed because an engineer mis-reads a clause or loses their place.	Insert the NZ clauses in between the original Australian clauses, instead of lumping them all at the beginning and putting the onus of figuring it out on the reader	See Appendix A below
# 15	wc (Table ZZ 4.9)	Table ZZ 4.9	wc has multiple different formulae, but they are all labelled as wc	wc have additional subscript corresponding to the failure mode. And/or Table ZZ 4.9 subdivided into more sub-tables. wc,w1 = a2 (nr - 1) wc,w2 = a2 (nr - 1) + 2 a4c wc,w3 = a2 (nr - 1)	

	Item	Where	What	Description	Upload
# 16	Detailed Design - Small dowels - Zero capacity answer	Table ZZ 4.9	If you have only a single row of fasteners (for instance along the edge of a braced wall system) then the code tells you it has zero capacity. wc = a2 (nr - 1) = zero because nr = 1 Ath = t0,eff,e.wc = zero because wc = 0 N'0,wh,e = 0 because Ath = 0 This then propagates through equations ZZ 4.70 ; ZZ 4.69 ; ZZ 4.67; ZZ 4.24 ; ZZ 4.23 and sets them all to zero.	Either make having 2 rows of fastener a minimum code requirement, or fix the definition of N'0,w,e to have an exception for a 1 row system.	
# 17	Typo Table ZZ4.12 EYM Bolts, Dowels, Coach Screws	Table ZZ4.12	The parameters descriptions below refer to diameter as uppercase D, whereas it is written as lower case d in the equations above.	Change all references to either d or D to be consistent. Correct rope effect (see above items)	**Table ZZ4.12 – Fastener yielding failure and strength for single-shear joints** Configuration / Fastener design yielding strength ($n_{\alpha,y}$), in newtons / Equation $n_{\alpha,y} = f_{1\alpha} d t_1$ — Eq. ZZ4.102 $n_{\alpha,y} = f_{2\alpha} d t_2$ — Eq. ZZ4.103 $n_{\alpha,y} = \frac{f_{1\alpha} t_1 d}{1+\beta}\left[\sqrt{\beta + 2\beta^2\left[1+\frac{t_2}{t_1}+\left(\frac{t_2}{t_1}\right)^2\right]+\beta^3\left(\frac{t_2}{t_1}\right)^2}-\beta\left(1+\frac{t_2}{t_1}\right)\right]+0.25n_{rope}$ — Eq. ZZ4.104 $n_{\alpha,y} = \frac{f_{1\alpha} t_1 d}{2+\beta}\left[\sqrt{2\beta(1+\beta)+\frac{4\beta(2+\beta)M_y}{f_{1\alpha} d t_1^2}}-\beta\right]+0.25n_{rope}$ — Eq. ZZ4.105 $n_{\alpha,y} = \frac{f_{1\alpha} t_2 d}{1+2\beta}\left[\sqrt{2\beta^2(1+\beta)+\frac{4\beta(1+2\beta)M_y}{f_{1\alpha} d t_2^2}}-\beta\right]+0.25n_{rope}$ — Eq. ZZ4.106 $n_{\alpha,y} = \sqrt{\frac{2\beta}{1+\beta}}\sqrt{2M_y f_{1\alpha} d}+0.25n_{rope}$ — Eq. ZZ4.107 where $f_{1\alpha}$, $f_{2\alpha}$ = design embedment strength of members 1 and 2 at yield or ultimate, in MPa, as applicable, determined from ZZ4A.7.3.2.2.1 β = ratio of $f_{2\alpha}$ over $f_{1\alpha}$ D = diameter
# 18	Equation incorrect	Table ZZ4.14 Eq. ZZ4.123	Equation for AGT-net is incorrect. D (fastener of diameter) replaced by fastener hole diameter To be multiplied by timber thickness, t	AGT-net = (a2 – Dhole)(nr – 1)t	
# 19	Double up of brittle failure mode checks	Table ZZ4.2	Equations ZZ4.2 and ZZ4.3 require to check for brittle failure modes for all connections. These failure modes perpendicular to grain are however also checked as per table ZZ4.10 for small dowel-type fasteners and in table ZZ4.15 for large dowel-type fasteners. It is unclear, why the same or similar failure modes are to be checked several times.	Clarification needs to be provided on which of the perpendicular to grain failure modes are effectively required. We cannot provide a suggestion for amendment, as the reasoning and theory of the failure modes is not unknown	
# 20	Appropriate capacity factor not defined	Table ZZ4.2, equation ZZ4.3	It is unclear which capacity factor is to be taken. The one from the timber member to ZZ2.3 (as per the other equations in this table), or the capacity factors for brittle failure modes to ZZ4A.4.1, table ZZ4.3.	Provide annotation and reference for capacity factor in equation ZZ4.3	

	Item	Where	What	Description	Upload
# 21	Rope effect term incorrect	Table ZZ4.7 Table ZZ4.8 Table ZZ4.12 Table ZZ4.13	correction required	Remove the **0.25** and leave nrope in the EYM equations.	see item #28 for the correction of the rope effect.
# 22	Typos and formatting in equation	Table ZZ4.7, Eq. ZZ4.34	3 should be 3 The last (t2/t1) under the square root should be squared	see item # 1 and see corrected equation and -->	$n_{\alpha,y} = \frac{f_{1\alpha} t_1 D}{1+\beta}\left[\sqrt{\beta + 2\beta^2\left[1+\frac{t_2}{t_1}+\left(\frac{t_2}{t_1}\right)^2\right]+\beta_3^3\left(\frac{t_2}{t_1}\right)^2}-\beta\left(1+\frac{t_2}{t_1}\right)\right]+ n_{rope}$
# 23	Nr of subheadings	Throughout the standard	The new NZS AS 1720.1 uses up to 6 subheadings. This is non-user firendly and makes the standard even harder to read,. For instance refer to ZZ4A.7.2.2.4.2.2. New standards like the next generations of Eurocode are now being edited specifically to ensure they are userfriendly and easy to follow. Our new standard fails to address this and it seems to be written for academic purposes, rather than a DESIGN standard.	The number of headings is to be reduced to max 3 subheadings. The standards is to be formatted and structured to be easy to follow. As a minimum the following shoul be considered: - reduce cross-references - ensure cross-references to not end in circles or do not lead to a dead end - ensure wording is consistent	
# 24	Clean compiled copy	Whole document	It is not helpful to have the New Zealand version of the standard as a set of revision overrites over the Australian version of the Standard, it means you constantly have to cross reference between the two and can easily miss something.	Simply publish a clean copy of the NZ version of the standard.	
# 25	Scope of simplified method – shear walls and diaphragms	ZZ4.1.1	It was proposed that the exception of requiring the detailed method for nails as PDE is extended to plywood shearwalls and diaphragms. This is because brittle failure modes are unlikely governing (and difficult to check).	Add plywood shear walls and diaphragms under the exception. Alternatively, exclude the requirement of checking brittle failure modes, but leave the requirement of using the EYM.	
# 26	k17 factor	ZZ4A.7.2.2.1	k17 does not specify that the number of nails is to be taken along one edge in shear walls and diaphragms.	Change first line of definition of k17 to 1.3 for connections in shear walls and diaphragms with wood-based sheathing materials and with 50 or more nails along one edge of the diaphragm or wall.	

	Item	Where	What	Description	Upload
# 27	k17 factor	ZZ4A.7.2.2.1 General	"k17= 1.3 for connections containing 50 or more nails. For fewer nails, the factor shall be obtained by linear interpolation to the value of 1 for 4 nails." k17 does not specify that the number of nails is to be taken along "one edge" in shear walls and diaphragms.	ZZ4.2 reduction of this factor should be limited to the connector on one edge at the time and not for the whole wall. This requires a more specific description to avoid misinterpretation.	
# 28	Annotation definition of kD	ZZ9.2.12.3	Factor kDt is still referred in the annotation definition table, although it does not appear in the standard anymore (as the proposed value has been removed)	Remove kDt and definition	
# 29	General Layout			Include the ZZ sections within the actual code itself. Having two separate parts we're supposed to read in tandem is not a great approach. It not only increases the likelihood of missing critical sections, but the amount of time spent thumbing back and forward adds up. It would seem obvious that the amount of time and money spent by the publisher on integrating the two documents properly will pale in comparison the collective cost across the industry, of each of us effectively having to do it ourselves.	
# 31	Wrong reference to effective thicknesses	Table ZZ4.10	The reference and link to the effective thicknesses is incorrect in the this table	Update references	
# 32	Applicability of perp to grain failure modes for small dowel fasteners	ZZ4a.7.2.2.4 and Table ZZ4.10	It is not clear that failure modes as per equation ZZ4.84 only needs to be checked for fasteners with partial penetration into the timber. On the other hand, it is also not clear that equation ZZ4.85 only applies for cases where the small dowel fasteners pass through the whole member.	Clarify which failure modes are to be checked, in reference to figures ZZ4.9	
# 33	Missing definition of fastener distances	Figures ZZ4.6 and ZZ4.7, Table ZZ4.10	Fastener distances a3cl, a5 left and a5 right are not clearly defined in Figures ZZ4.6 and ZZ4.7 and are open to interpretation	Provide definition of the distances as required in Table ZZ4.10	
# 34	Missing definition of fastener distances	Figures ZZ4.6 and ZZ4.7, Table ZZ4.10	Fastener distances a3cl, a5 left and a5 right are not clearly defined in Figures ZZ4.6 and ZZ4.7 and are open to interpretation	Provide definition of the distances as required in Table ZZ4.10	
# 35	Clarification on parameter for single row of fastener for perp to grain splitting check for small dowel fasteners	Table ZZ4.10, equation ZZ4.84	Parameter epsilon cannot be calculated for connections with only one row of fasteners as a2 does not exist or is 0	Clarify that with only one row of fasteners, epsilon tends to infinite and Ct=1	
# 36	Formatting	ZZ4A.8.3	The average lateral deformation Dl should have D written in Greek font	Correct symbol/font	
# 37	Formatting	ZZ4A.8	The annotation for fattener deformation is inconsistent with the use of lowercase and uppercase d in Greek font	Make deformation annotation consistent	
# 38	Inconsistency of fastener deformation definition	ZZ4A.8 and ZZ10.2.5	The fastener slip has different definition in the different section, varying from average deformation, average lateral deformation to fastener slip	Make fastener deformation definition consistent	

	Item	Where	What	Description	Upload
# 39	Missing background and research information	Throughout section 4	Can TDC or SNZ please make the background information and research work available in order to understand the new standard clauses. A standard does not necessarily provide the theory and explanation of a design approach check, and designers normally are referred back to university course notes or text books / guidelines.	Since this standard publishes new research, it is paramount that designers are given the reference documents, so that they can edcuate themselves and apply the design equations with confidence	
# 40	k9 factor not in shear strength formula	3.2.5, equation 3.2(14)	The factor for loadsharing k9 is not included in equation 3.2(14). My understanding was that this factor allowed for the lesser effect of defects on the design strength when multiple members acting concurrently. In NZS3603 the k4 parallel support factor is in the flexural shear strength calculation equation 3.2.	include k9 in equation 3.2(14).	
# 41	k15 moisture factor	Table ZZ4.4	The k15 moisture factor for detailed method assessment is quite blunt (as per Table ZZ4.4), as there is no gradual transition between dry and green timber. This conservatism flows directly into ductility / over-strength effects to all related members	I would suggest the k15 factor be modified to transition with increasing moisture content from dry to green state. NIWA does have good regional temperature / humidity records, so an appropriate intermediate moisture content value can be readily determined from these sources.	
# 42	k1 factor in withdrawal	AS 1720.1 Table 2.3	The note under table 2.3 in AS 1720.1 allows for a load duration factor of 1 for all load duration. This is not aligned with other international standards and literature. With the use of engineered wood screws in tension (as rope effect or loaded axially), ignoring long term loading effects could be unconservative. Withdrawal of bolts actives compression perpendicular to grain, which although being a ductile failure mechanism, undergoes a lot of creep and the load duration should be taken into consideration. Finally, withdrawal capacity is directly affecting the EYM capacities through rope effect. It would be inconsistent to use k1 =1 for the rope effect part, but not the yielding part.	k1 for withdrawal of all fasteners should be as for connections in general.	
# 43	Deformation of bolts and dowels and coach screws	ZZ4A.8.3 and ZZ4A.8.4	Annotation in equations ZZ4.139 and ZZ4.130 are wrong	Annotation under equation should refer to Nalfa, instead of Na*. Alternative change the annotation in the equation to match text under	
# 44	Deformation of nails and screws	ZZ4A.8.1 Nails and screws	The deformation equation ZZ4.125 for screws requires the ultimate yielding strength as derived by the detailed method. It does currently not allow to use the capacity provided in the simplified method.	Allow for the use of the screw and nail capacities as per the simplified method in calculating the deformation.	
# 45	Missing failure mode in EYM equations	Tables ZZ4.7 and ZZ4.12	The EYM equations provided do not capture the failure mechanism as per equation (8.9) case (a) under section 8.2.3 in Eurocode 5. This mechanism occurs in narrow timber members, regularly used in NZ.	Add pertinent equations from the general theory of the EYM to the tables.	

	Item	Where	What	Description	Upload
# 46	use of k4 factor on round timbers	ZZ6.1.1 design procedures & ZZ6.6 - Seasoned use conditions	ZZ6.1.1 states that design procedure shall be similar to that given ins section 3. In section 3, the factor k4 takes account of timber in unseasoned used, however the design data for round timber is already in it's unseasoned state. If you were to take this at face value, you would then be applying a further reduction factor to the unseasoned values. This is backed up by factor k22 (clZZ6.6) which which increased the unseasoned properties by 25% for the seasoned case.	in addition to ZZ6.1.1 - Factor k4 need not apply to round timbers, as the properties provided in table ZZ6.1 are for the unseasoned case (refer cl ZZ6.1.2 & ZZ6.6)	
# 47	Unseasoned timber	ZZ2.1	For sawn timber, NZS AS 1720 only gives strength properties for dry timber (Table ZZ2.1). The k4 factor (Partial seasoning factor) is given as 1.0 for both unseasoned and seasoned timber. The only place I can see where there is a difference between unseasoned and seasoned timber is in the material constant rho b, (but only in the AS section, not for the NZ appendix ZZ3 values).	It seems to me that there is either a Green Timber Properties table missing or k4 should be something like 0.7 for unseasoned use.	
# 48	Glulam	Table ZZ7.1	The shear strength of GL8 and GL10 (3.7MPa) is less than for plain SG8, SG10 etc (3.8MPa)	Should these be the same (or greater?)	
# 49	Capacity factors etc	ZZ2.3 etc	What is the logic behind adopting an Australian Standard but then ignoring it when it comes to for example the selection of the Capacity Factor? Any advantages gained in having a common design standard are cancelled by all of the exceptions to the rules	If we are going to adopt a brand new Standard just adopt the standard with minimal exceptions for NZ specific conditions only. Don't try to convert the new standard into the old one.	
# 50	Joint group for LVL	Table ZZ8.1	The current unified LVL grades do not provide joint groups which are still required for the simplifed connection designs. Clause 8.5.2 of AS 1720.1 refers to manufacturer's data, which was to be avoided based on the new unified LVL grades	Add joint groups to Table ZZ8.1	
# 51	Load duration factor of brittle failure modes nodes not clearly defined	Table 2.3 AS1720.1	AS 1720.1 provides different load duration factors for timber members and connections. It is not clear which of the two is to be applied to the brittle failure modes. Although they are part of the connection, what is being checked is the member.	Clarify the correct load duration factor under all brittle failure modes with reference to Table 2.3 AS1720.1. We recommend using the load duration factor for members for brittle failure modes.	
# 52	Annotation not consistent between bolts and coach screws	Cl. ZZ4A.6.4 and ZZ4A.6.5 NZS AS1720.1 &	Currently ZZ4A.6.4 indicates bolt capacities in lower case annotation (i.e. nax,cp, nax,t), whereas ZZ4A.6.5 indicates coach screws capacities in upper case annotation (i.e. Nax,w, Nax,cp, Nax,t)	Ensure the annotations in sections ZZ4A.6.4 and ZZ4A.6.5 are made consistent.	
# 53	No equation or reference to “design-compression perpendicular to grain strength under the washer” is provided	Cl. ZZ4A.6.4 and ZZ4A.6.5 NZS AS1720.1	Neither ZZ4A.6.4 nor ZZ4A.6.5 provide the equation or reference to the “design-compression perpendicular to grain strength under the washer”. We assume the idea is to refer to Section 4.4.3.3 of AS 1720.1	Reference to Section 4.4.3.3 of AS 1720.1 or similar should be made (refer to other submission items related to this, i.e. definition of capacity factors and definition of f’pj which references has been deleted by NZS AS 1720.1 and required joint group information)	
# 54	Capacity factor for axial capacity of bolts/ coach screws not clearly defined	Cl. ZZ4A.6.4 and ZZ4A.6.5 NZS AS1720.1	Section ZZ4A.4.1 requires a capacity factor of fax,w = 0.6 for “withdrawal of fasteners”. This value is conservative, considering the scatter and brittle nature of withdrawal strengths. The withdrawal strength of bolts/coach screws is governed by bearing under the washer head and is hence ductile.	Allow for the use of the capacity factor for “yielding failure of timber” fy = 0.8 for the withdrawal strength of bolts and coach screws.	

	Item	Where	What	Description	Upload
# 55	Load duration factor for axial capacity of bolts/coach screws not clearly defined	Cl. ZZ4A.6.4 and ZZ4A.6.5 NZS AS1720.1	The load duration factor for axially loaded bolts/coach screws is not clearly defined. Are they part of a member check or connection check?	Clarify the correct load duration factor for bearing under a washer with reference to Table 2.3 AS1720.1. We recommend using the load duration factor for members as this is a timber check, not a connection check.	
# 56	Inconsistent definition of spacing a4c	Cl. Z4A.5.5.4 and Figure ZZ4.17	Text of clause ZZA.5.5.4 states min spacing of a4c is 2D, however figure ZZ4.17 shows min spacing of a4c is greater of (2D,0.5a2)	Align the text and the figure, both should be referring to max(2D,0.5a2)	
# 57	Missing EYM failure modes	Table ZZ4.7 and ZZ4.12	Tables ZZ4.7 and ZZ4.12 in the new standard do not seem to cover failure mode (a) and possibly also failure mode (d) of Figure 8.3 of EN 1995-1-1. Failure mode (a) occurs for thin steel plates connected to timber, a regularly occurrence in NZ. Although a yielding failure mode, this mode should be considered in design, unless there is evidence that this mode never occurs.	Add the missing failure mode or provide evidence/information on why this is not an issue and under what conditions.	