

Appendix Table-C1: Coating System Damage Levels

| Appendix Table-C1: Coating System Damage Levels | | | | |
|---|---|--|---|--|
| | Damage | Damage Level Assessment | | |
| | | Bad | Mediocre | Reasonable |
| Topcoat Damage - loss of topcoat, hairline cracks UV chalking, or discolouration | | | | |
| Topcoat Damage | Surface damage to paint coatings on PFP. | Does not reduce PFP performance so not applicable. | Extensive areas of damage over the whole surface. Damage may cause long term loss of integrity. | A small number of local areas of damage on the surface. |
| Cracks – Part thickness, through thickness, hairline, wide | | | | |
| Cracks | Cracks (General guidance) in coatings on barriers and other components. | Single or multiple cracks that are: Of any length, and; With maximum width greater than 3mm, and; Part-thickness or through thickness, and; Coatings are disbonded from substrate. | Multiple cracks that are: Of any length, and; With maximum width greater than 3mm, and; Part-thickness or through thickness, and; Coatings still fully bonded to substrate. | Individual cracks that are: Of any length, and; With maximum width less than 3mm, and; fully or partially penetrating, and; Coatings still fully bonded to substrate |
| | Cracks in coatings on structural steelwork | As general cracking guidance but cracks not permitted on the edge or corner of a structural member. | As general cracking guidance but cracks not permitted on the edge or corner of a structural member | As general cracking guidance. |
| | Cracks in components containing flammable materials. | As general cracking guidance but cracks not permitted in bonded or disbonded material. | As general cracking guidance but multiple cracks not permitted. | No cracks accepted |

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| Disbondment from Substrate (Material MUST have no visible signs of cracking) | | | | |
| | Disbonded (hollow) material | Total disbonded area is greater than 1m ² | Total area of disbonded coating is less than 1m ² . | Small, individual, areas of disbondment |
| Part Thickness Damage - Chips, gouges, blisters, erosion, low material thickness | | | | |
| Partial Thickness Damage | Structural steelwork components | Total area of damage sites greater than 10% of component surface area, or Part thickness damage not permitted on the edge or corner of a structural member if greater than 150mm length. | Total area of damage greater than 3000mm ² and less than 10% of component surface area, or Part thickness damage not permitted on the edge or corner of a structural member if greater than 150mm length. | Any single area of damage less than 3000mm ² |
| | Components containing flammable materials | Total area of damage sites greater than 1% of component surface area, or; Any size of damage where less than 50% material thickness remaining. | Total area of damage greater than 3000mm ² and less than 1% of component surface area, with more than 50% PFP thickness remaining. | Any single area of damage less than 3000mm ² and with more than 50% material thickness remaining |
| | Fire divisions, partitions, etc. | Always Bad Rating invalid if material missing. | Always Bad Rating invalid if material missing. | Any single area of damage less than 3000mm ² but rating invalid if material missing. |
| | Other components | Total area of damage sites greater than 10% of component surface area. | Total area of damage greater than 3000mm ² and less than 10% of component surface area. | Any single area of damage less than 3000mm ² |

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| Full Thickness Damage - Chips, gouges, physical damage, blisters, material missing | | | | |
| Poor Material Condition - Low material hardness, waterlogged (LWC), activated material (Epoxy) | | | | |
| Full Thickness Damage or Poor Material Condition | Structural steelwork components | Total area of damage sites greater than 5% of component surface area, or; Full thickness damage not permitted on the edge or corner of a structural member if greater than 150mm length. | Total area of individual or multiple damage sites greater than 3000mm ² and less than 5% of component surface area, or; Full thickness damage not permitted on the edge or corner of a structural member if greater than 150mm length. | Any single area of damage less than 3000mm ² |
| | Components containing flammable materials | Always Bad CUI risk and potential failure in fire risk | Always Bad CUI risk and potential failure in fire risk | Always Bad CUI risk and potential failure in fire risk |
| | Fire divisions, partitions, etc. | Always Bad CUI risk and potential failure in fire risk | Always Bad CUI risk and potential failure in fire risk | Always Bad CUI risk and potential failure in fire risk |
| | Other components | Total area of damage sites greater than 5% of component surface area, or; | Total area of individual or multiple damage sites greater than 3000mm ² and less than 5% of component surface area | Any single area of damage less than 3000mm ² |
| Leaching/Staining from Within Coating - Corrosion product, Coloured Liquid, Salts | | | | |
| Leaching | All component types | Always Bad – Material may not react, or leaching is a sign of CUI. | Always Bad – Material may not react, or leaching is a sign of CUI. | Always Bad – Material may not react, or leaching is a sign of CUI. |

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| <p>Retention/Reinforcement/Terminations</p> <p>Missing, not at mid-point, not correctly overlapped, visible, mechanical fixings failed, damaged along edge feature, incorrectly detailed termination, missing or damaged termination</p> | | | | |
| Retention/Reinforcement/Terminations | All component types | <p>Damage with total area greater than 5% of component surface area on any individual protected component.</p> <p>Not permitted on the edge or corner of a structural member if greater than 150mm length.</p> | <p>Individual or multiple damage with total area greater than 3000mm² and less than 5% of component surface area on any individual protected item.</p> <p>Not permitted on the edge or corner of a structural member if greater than 150mm length.</p> <p>May be acceptable if fire threat is not a jet fire.</p> | <p>Any single area of damage less than 3000mm².</p> <p>Note - May be acceptable if fire threat is not a jet fire.</p> |

Appendix Table-C2: Dry-Fit System Damage Levels

| Appendix Table-C2: Dry-Fit System Damage Levels | | | | |
|---|--|---|--|--|
| | Damage | Damage Level Assessment | | |
| | | Bad | Mediocre | Reasonable |
| Dry Fit System Damage | Damage to epoxy or LWC materials used in pre-cast components | As coating Damage Levels | As coating Damage Levels | As coating Damage Levels |
| | Open joints/doors or hatches that cannot be secured | Substrate is visible through open joint in dry fit systems. | Joint is not fully secured or not tight. | Not permissible as reasonable |
| | Damaged or missing seals at joints | Seals are missing. | Seals are in place but are loose/perished/brittle. | Not permissible as reasonable. |
| | Damaged or missing external fixings | Multiple mechanical fixings are damaged or missing. | One mechanical fixing is damaged or missing. | Not permissible as reasonable. |
| | Contamination of fabric skin with flammable or corrosive liquids | Almost all of the surface is contaminated with flammable or corrosive liquids. | A large surface area of the surface is contaminated flammable or corrosive liquids. | A few local areas of the surface are contaminated by flammable or corrosive liquids. |
| | Rips and tears in fabric systems for jackets | Multiple surface tears, rips etc. which expose insulation and may be located close to fixing areas and could affect integrity. Tears are through to substrate or directly affect the integrity of the fixing arrangements. | Not permissible as mediocre | Individual surface tears, rips, etc. of any size, not affecting thermal properties or integrity of jacket. |
| | Missing panels | Always Bad | Always Bad | Always Bad |
| | Corrosion damage | Corrosion leading to loss of integrity of the external panel or frame and damage to the internal PFP. | Corrosion to external panel and framing, but internal PFP remains intact. | Surface corrosion or damage not penetrating external steel panel or affecting integrity of any framing. |
| | Waterlogging of internal MMMF insulation material | Always Bad | Always Bad | Always Bad |
| | Mechanical damage such as dents, gouges, etc. | Outer skin is penetrated, or joint is open, or frame extensively damaged. Impact severe enough to damage internal supporting mechanism. Insulation is waterlogged. | Physical damage visible but damage does not penetrate outer skin. Deformations may have caused a joint to open, or damage to an external fixing or frame. Waterlogging possible in which case damage is Bad. | Physical damage visible but damage does not penetrate outer skin. |

Appendix Table-C3: Wet Applied System Damage Levels

| Appendix Table-C3: Wet Applied System Damage Levels | | | | |
|---|---|--|--|-------------------------------------|
| | Damage | Damage Level Assessment | | |
| | | Bad | Mediocre | Reasonable |
| Wet Applied System Damage | Surface damage in the protective outer coating | See coatings. Any damage that exposes the insulation material beneath is Bad. | See coatings. Any damage that exposes the insulation material beneath is Bad. | See coatings. |
| | Delamination within material thickness | See coatings. | See coatings. | See coatings. |
| | Disbondment at substrate | See coatings. | See coatings. | See coatings. |
| | Reinforcement and retention system damage | See fixings for coatings or MMMF. | See fixings for coatings or MMMF. | See fixings for coatings or MMMF. |
| | Waterlogging of MMMF insulation material | Always Bad | Always Bad | Always Bad |
| | Open joints in insulation system beneath outer protective coating | See open joints in Dry-Fit Systems. | See open joints in Dry-Fit Systems. | See open joints in Dry-Fit Systems. |

Appendix Table-C4: Wet Applied System Damage Levels

| | | Damage Level Assessment | | | |
|------------------------------|---|---|---|--|--|
| Damage | | Bad | Mediocre | Reasonable | |
| Barrier System Damage | Corrosion or mechanical damage to metallic barriers | Significantly damaged panels, leading to open passage through wall. | Will be covered by establishment structural inspection guidelines but damage or corrosion to the supports of a metallic barrier will result in its premature failure due to a lack of ability to resist thermally induced strains | | |
| | Corrosion damage to welded connections retaining metallic barriers | Should be covered by establishment structural inspection guidelines but damage or corrosion to the supports of a metallic barrier will result in its premature failure due to a lack of ability to resist thermally induced strains | | | |
| | Damage to epoxy or LWC materials applied to barriers or supports and used to provide integrity/insulation | See coating damage | | | |
| | Reinforced concrete barriers/shield or brickwork shields | Should be covered by establishment structural inspection guidelines but damage to concrete/brick may pose an integrity problem and can lead to enhanced spalling in a fire. Unlikely to be a problem if barrier is not directly impacted by fire or barrier is a shield rather than applied PFP. If required refer to coatings damage. | | | |
| | Waterlogging of MMMF insulation material | Always Bad. Affects both insulation performance and causes a corrosion problem | | | |
| | Corrosion damage to MMMF retention system | Significant damage to system (pins and mesh/lath) leading to insulation material not being retained over area greater than 5% of total surface area. | Heavy corrosion with pins and mesh/lath failing if pushed/pulled with hand. Area less than 5% of total surface area | Light surface corrosion but system is intact and provides restraint. | |
| | Mechanical damage such as dents, gouges, creases etc. in non-metallic barriers. | Outer skin is penetrated, or connection or supporting structure is failed locally. | Damage significant but does not penetrate the barrier. Connection or support structure have deformed plastically but have not failed. | Physical damage visible but damage does not penetrate outer skin. | |
| | Mechanical damage to GRP or composite barrier | Refer to manufacturer for acceptance criteria | | | |

Appendix Table-C5: Penetration System Damage Levels

| Appendix Table-C5: Penetration System Damage Levels | | | | |
|---|--|--|---|---|
| | Damage | Damage Level Assessment | | |
| | | Bad | Mediocre | Reasonable |
| Penetration Seal Damage | Certified Pipe Penetrations Gaiter Type | <p>Rating does not match barrier.</p> <p>Seal is missing, installed incorrectly.</p> <p>Seal fabric is torn, stretched, disconnected or has major contamination.</p> <p>Retention straps are missing, damaged or non-standard.</p> <p>Insulation material within seal is waterlogged.</p> <p>Collar through barrier has major corrosion.</p> | <p>Not Applicable</p> <p>Note –If there is the potential for a seal to fail then it will allow smoke and gas into a safe area. Most significant forms of damage to a seal are usually sufficient to fail the seal and therefore partial damage is not acceptable.</p> | <p>Surface corrosion of fixings and collar</p> <p>Damaged but not through thickness of the fabric</p> |
| | Certified Pipe Penetrations Mastic Sealing Type | <p>Rating does not match barrier.</p> <p>Seal is missing, or not installed as certified.</p> <p>Mastic is split, disconnected, contaminated or not applied correctly.</p> <p>Collar through barrier has major corrosion.</p> | <p>Not Applicable</p> | <p>Surface corrosion of fixings and collar</p> |
| | Certified Pipe Penetration Pipe Collar-Type | <p>Rating does not match barrier.</p> <p>Seal is missing, or not installed as certified.</p> <p>Components, including bolts, missing or loose.</p> <p>Collar through barrier has major corrosion.</p> | <p>Not Applicable</p> | <p>Surface corrosion of fixings and collar</p> |
| | Cable Penetrations Transit blocks | <p>Rating does not match barrier</p> <p>Incorrectly fitted or missing blocks.</p> <p>Collar through barrier has major corrosion.</p> | <p>Not Applicable</p> | <p>Surface corrosion of fixings and collar</p> |

Appendix Table-C5: Penetration System Damage Levels

| Damage | Damage Level Assessment | | |
|---|---|----------------|---|
| | Bad | Mediocre | Reasonable |
| Non-standard Pipe Penetrations Bespoke arrangement | <p>Rating does not match barrier.</p> <p>Seal is missing.</p> <p>Not certified and no evidence of design calculations exists.</p> <p>Inadequate design of coatback or insulation arrangements to prevent heat transfer.</p> <p>Damage to coating material used for insulation (see coating damage assessment table.</p> <p>Insulation material within seal is waterlogged.</p> <p>Collar through barrier has major corrosion.</p> | Not Applicable | Surface corrosion of fixings and collar |
| Doors | <p>Rating does not match barrier.</p> <p>Installed incorrectly.</p> <p>Damaged hinges, latches, or seals</p> <p>Major corrosion damage to door skin or frame</p> | Not Applicable | Surface corrosion of door or frame. |
| Windows | <p>Rating does not match barrier.</p> <p>Glass cracked or broken, or seals damaged</p> <p>Major corrosion damage to window frames.</p> | Not Applicable | Surface corrosion of window frame. |
| Ducts | Treat as a bespoke penetration | Not Applicable | Treat as a bespoke penetration |