

AON SPRINKLER CERTIFICATION



Aon New Zealand

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Aon Sprinkler Certification Technical Note		
Note Number: TN-20-43	Issue: 1	Date: 28 July 2020
Subject	Pneumatic Pressure Tests	
Notice: Aon Sprinkler Certification Technical Notes provide guidance notes which may be used in certification of sprinkler installations by Aon New Zealand. If sprinkler installations are being certified by any other Sprinkler System Certifier, these Technical Notes may not apply.		

NZS4541 requires that pneumatic pressure test certificates are supplied to the SSC for dry and pre-action systems. NZS4541 allows a maximum of a 10kPa pressure drop over a 24 hour period, when the results are adjusted for any temperature differences.

The reason for such onerous criteria is to ensure that moist air is not drawn into a system, which, in freezers, can lead to ice plugs. This is a belt and braces approach, coupled with the need to use twin tower regenerative drier towers for systems where the pipework is exposed to sub-zero temperatures

Aon notes that a number of contractors have developed their own forms, which do not include the rigorous requirements of NZS4541 Appendix A.

Aon will be rejecting any forms that do not include enough information to judge whether a pneumatic pressure test meets the criteria of NZS4541.

Health and Safety

Aon recently received a pneumatic pressure test form which stated that the test had been carried out to 800kPa. A hydrostatic test requires very little compression of water and therefore stores little energy. For all intents and purposes, water is incompressible.

However, a pneumatic test requires that air is compressed, and therefore stores a significant amount of energy. Using an analogy, an air test at 800kPa (900kPa absolute) is like compressing a spring to 1/9th of its length. If a pipe failure occurs, this energy is released, with the potential to cause catastrophic damage. We are aware of a report of a plumber being killed when a 300mm cover was released during testing of a sewage pipe. We are also aware of a plumber being injured when an end cap was released while pressure testing a sprinkler system in the State of Victoria.

NZS4541 requires that the pneumatic test be carried out at 300kPa. We suggest that it is foolhardy to test at a higher pressure, without a safety plan being carefully generated.

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