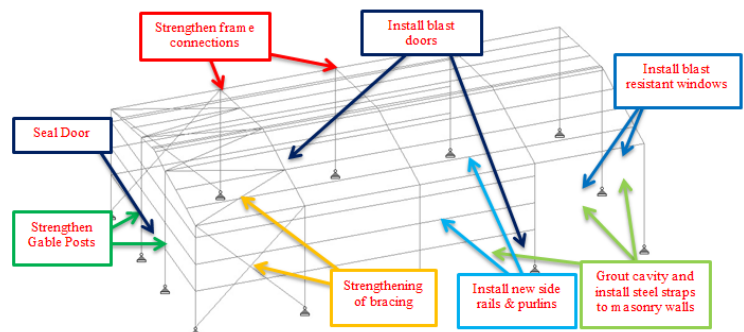
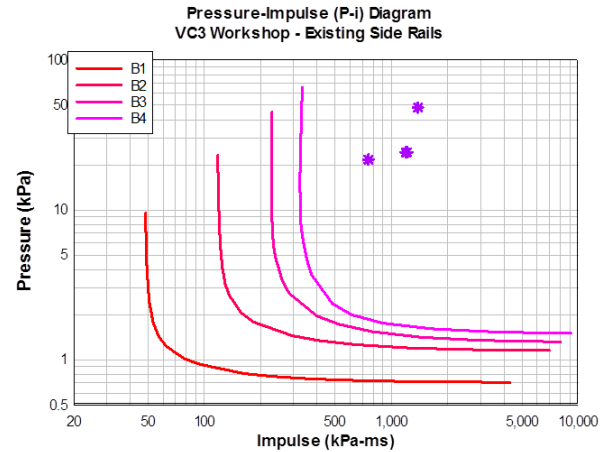


Blast Upgrade Feasibility Study for the VC3 Workshop

As part of a proposed site expansion, Patrick Mann & Associates (PMA) performed an upgrade feasibility study to investigate the options for converting a workshop building into a new office building at the INEOS ChlorVinyls Runcorn site. The project workscope comprised:

1. Derivation of the Blast Load Parameters – The existing QRA study only provided the distance to specific overpressure levels. The study used this data to back calculate the characteristics of the hazards sources and finally the peak overpressure and impulse demands on the building.
2. Blast Damage Assessment – An assessment was undertaken to determine the expected damage to the primary structure, external walls and windows, and the impact on the occupied areas. These results were used to determine exactly the building occupants would be exposed to an unacceptable risk thus where upgrade was require.
3. Upgrade Feasibility – An upgrade feasibility study was undertaken to evaluate different options that could be used to upgrading the building in order to reduce the risk to an acceptable level. Rough Order of Magnitude (RoM) costs were then developed to support cost-benefit analysis to determine the recommended upgrade option.



All blast design work was undertaken in accordance ASCE “Design of Blast Resistant Buildings in Petrochemical Facilities”, 2nd Edition.