

**Assessing the Risk Innovation**  
**by**  
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- FMEA**
- Analytical but qualitative
  - Interfaces and interactions
  - Consider what is at risk

**How could a component fail?**

**What would cause a component to fail?**

**What are the consequences of component failure?**

**How serious are these failure scenarios?**

**Can incipient failure be identified?**



**The level of risk is the product of 3 factors:**

**Probability of failure**

**Severity of failure**

**Likelihood of detection (before damage is evident)**

**Level of risk = probability x severity x detectability**

**A range of 1-5 may be attributed to each factor**

## Level of Risk = Risk Priority Number (RPN)

Maximum Score	=	$5 \times 5 \times 5$
	=	125
Low Risk	=	1 – 40
Definite Risk	=	40 – 80
Unacceptable Risk	=	80 – 125









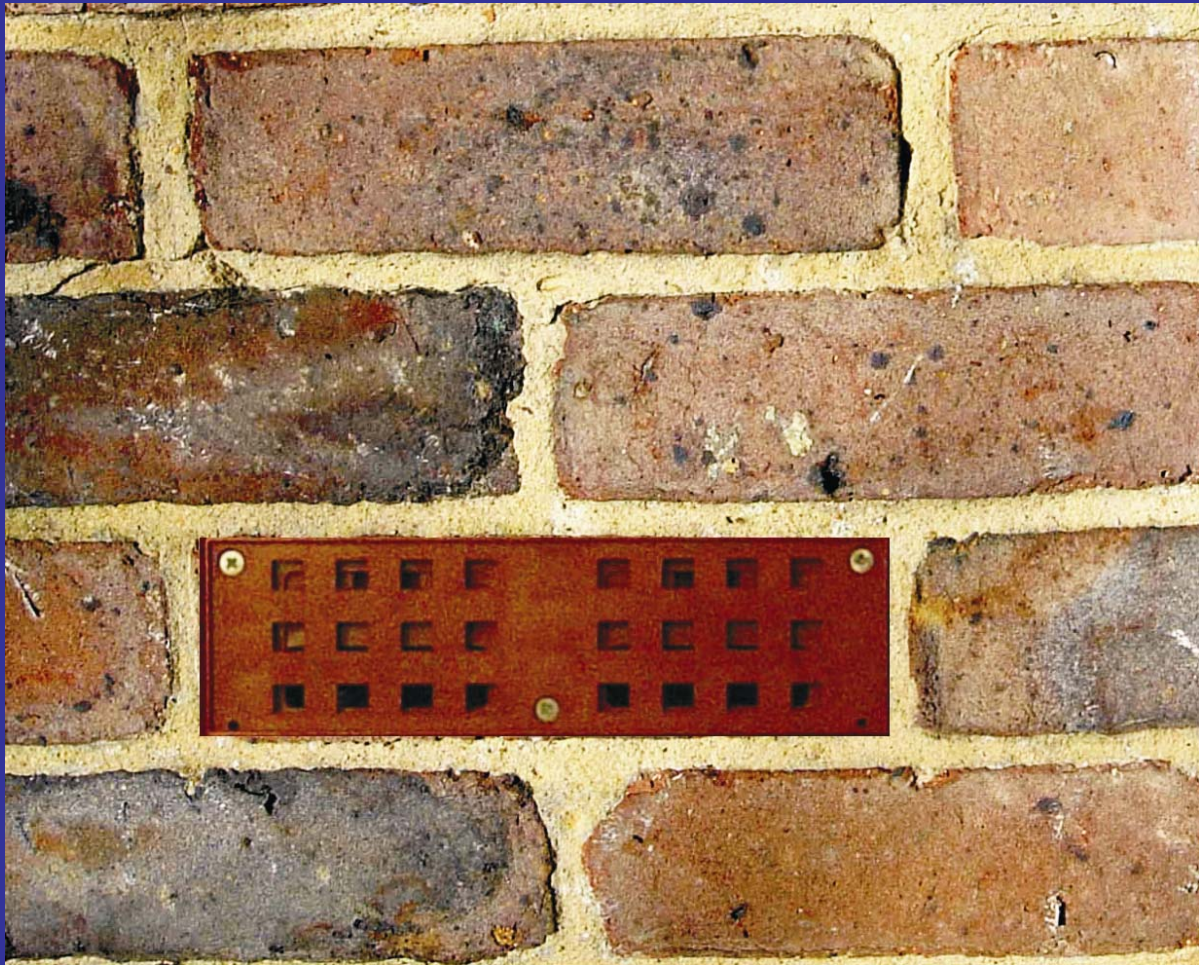
# Example

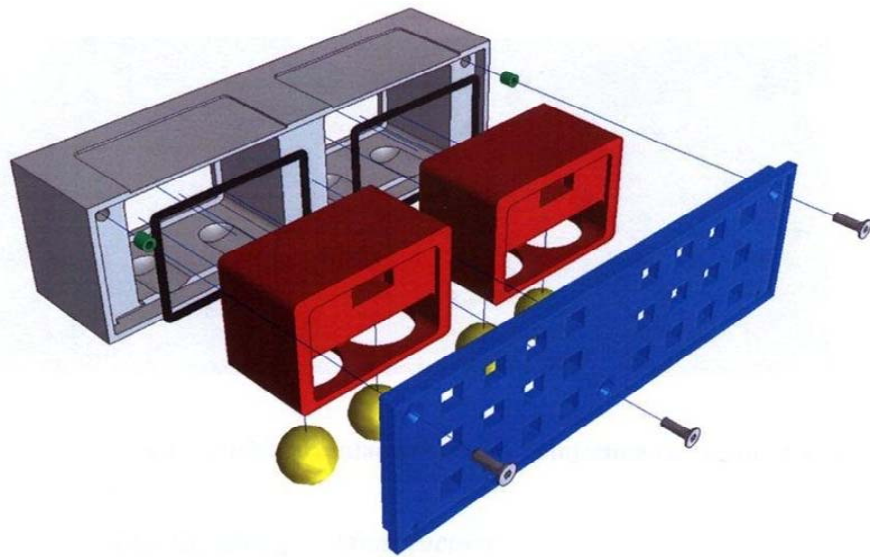
**Smart Airbrick (SAB)**

**British Patent GB2397592**

**26<sup>th</sup> January 2004**

**Eco Coverage Technologies**





2. The cabinet is assembled with the drawers and the door.

# Smart Air Brick

## 8 Interfaces considered

## 3 Critical elemental functions

- Compatibility of materials, product/building
- Operation of ball valve system
- Structural response in situ

## RPN Scores

<b>Ball Valve Operation</b>	<b>27</b>
<b>Materials Compatibility</b>	<b>18</b>
<b>Structural Response</b>	<b><u>18</u></b>
<b>Total</b>	<b>63</b>
<b>Average</b>	<b>21</b>

## **Additional Examples**

**Roof window that acts as a skylight  
(RPN = 32-48)**

**High friction road surfacing system  
(RPN = 8-48)**



# Conclusions & Recommendations

1. Encourage adoption of FMEA/FMECA methodologies when dealing with highly innovative and/or prototype construction building products.
2. Integrate FMEA/FMECA into product performance based assessments.
3. Present the information such that residual risk/benefit judgements can be made.
4. Consider ways of adapting FMEA/FMECA to make tailored to construction and building products.