

# Updates from PFPNet Projects and Training

An overview of key projects and work underway

# Contents



- An overview of the ongoing PFPNet technical projects
- Highlights of recent projects
- An introduction to the training offered by PFPNet

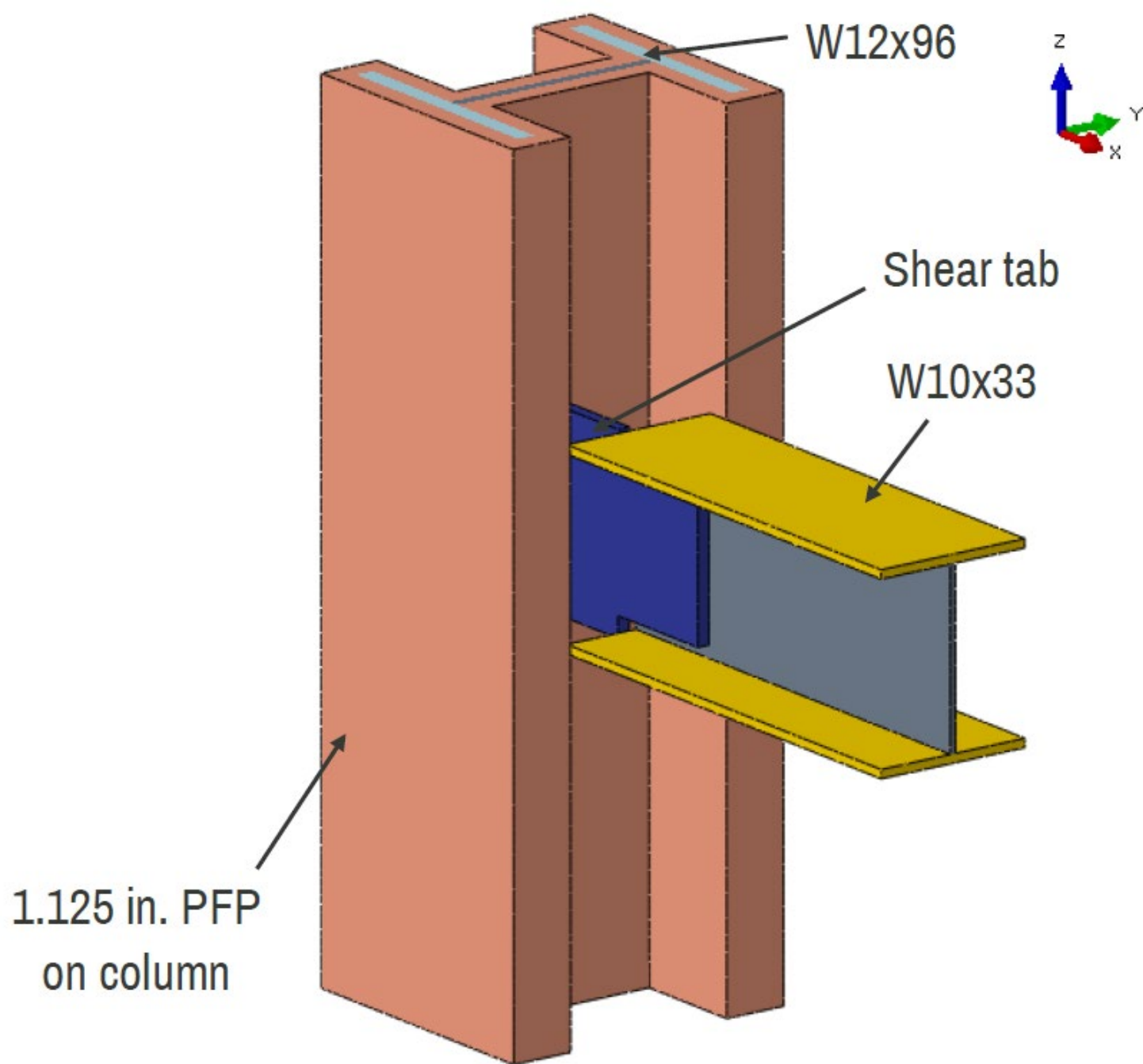
# Joint Industry Projects



- Heat bridging and coatback
  - PFPNet aim to support/contribute to a wider project
- H2 gaseous jet fires
  - JIP launching soon
- Three-sided protection
  - JIP launching soon

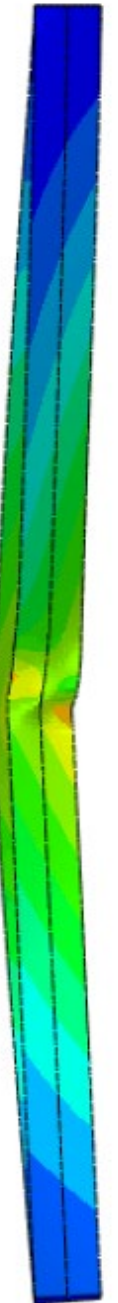
# Heat bridging

- What is heat bridging?  
A path for heat conduction behind PFP
- A scoping study has recently been published, done by SGH.



# Heat bridging

- The study provides a roadmap for a JIP that can give clear guidance to industry on how to address this issue.
- The aim is to give guidance relating to questions such as:
  - How much coatback is really required?
  - When is damage acceptable?
  - What size of attachment is acceptable without further protection?

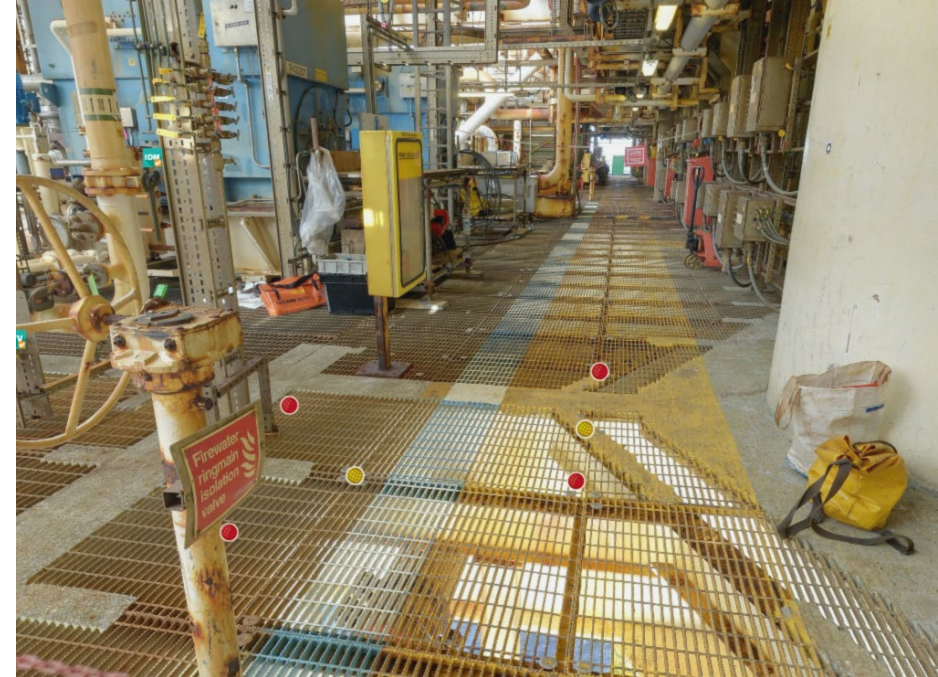




# 3-sided protection

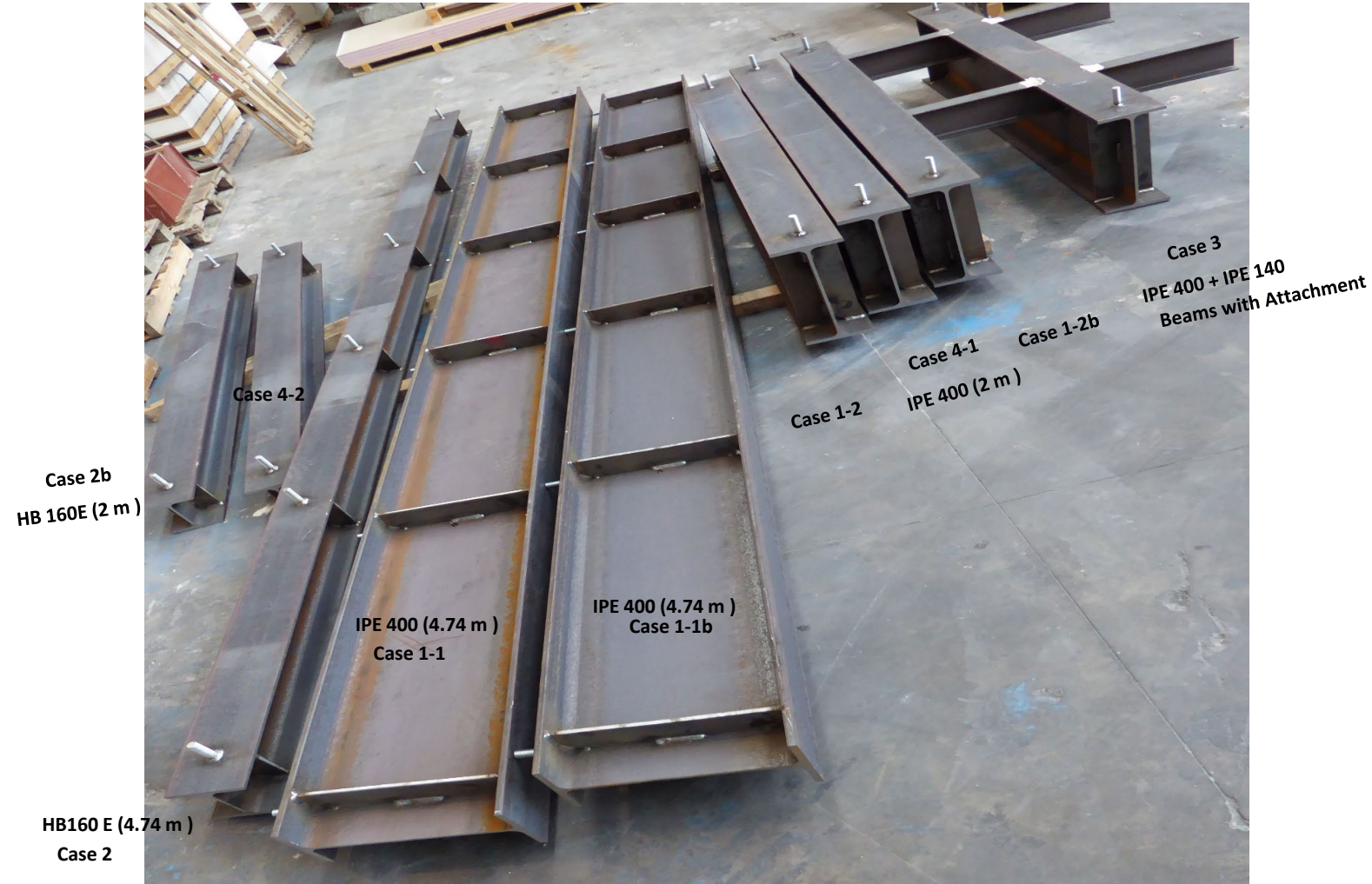


	Beam Depth	Beam Width
Primary	up to 1m	up to 0.5m



	Beam Depth	Beam Width
Primary	1m to ~2.5m	0.33 to ~1.5
Secondary	0.3m to 0.9m	0.2m to 0.5m

# 3-sided protection: Published work by Petronas



UNIVERSITI  
TEKNOLOGI  
PETRONAS

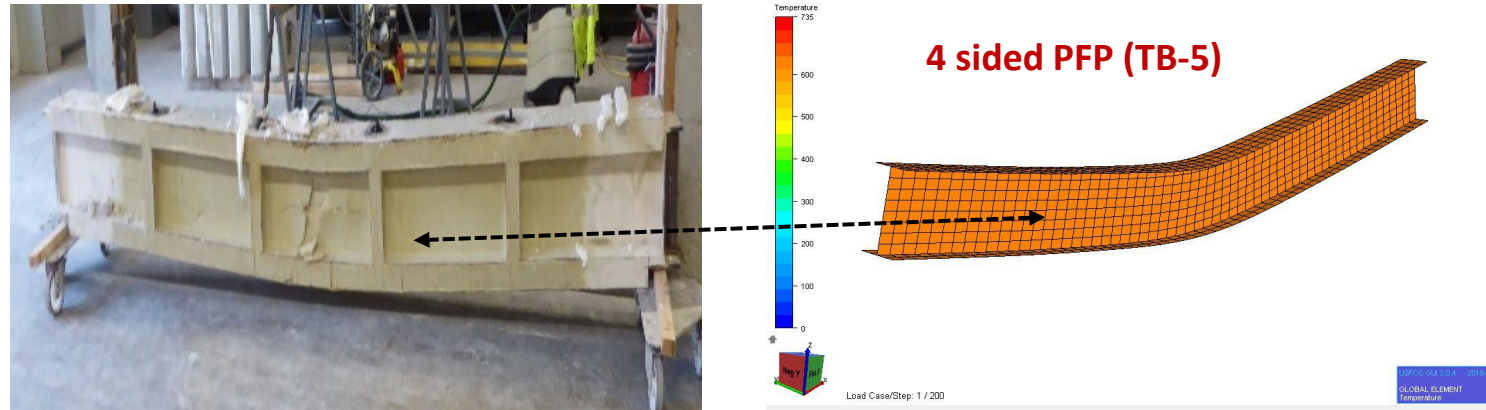


# Mechanical Loading



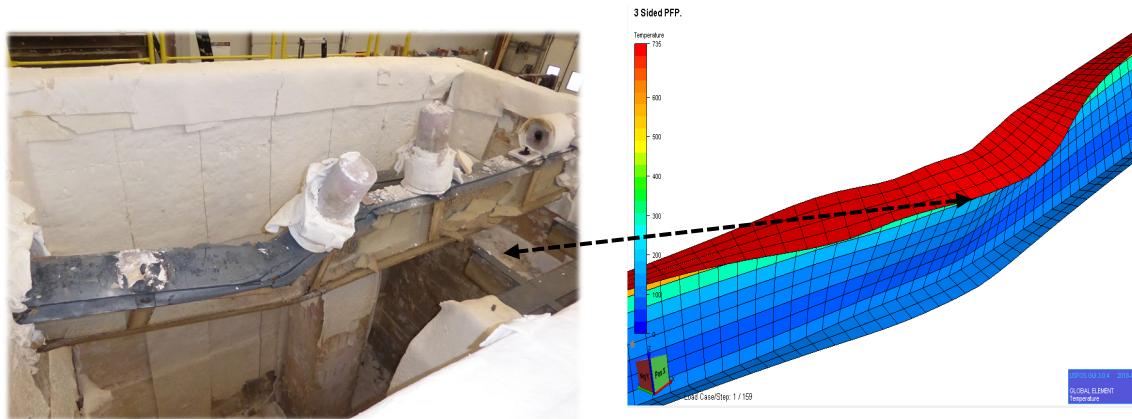


# Mechanical Response



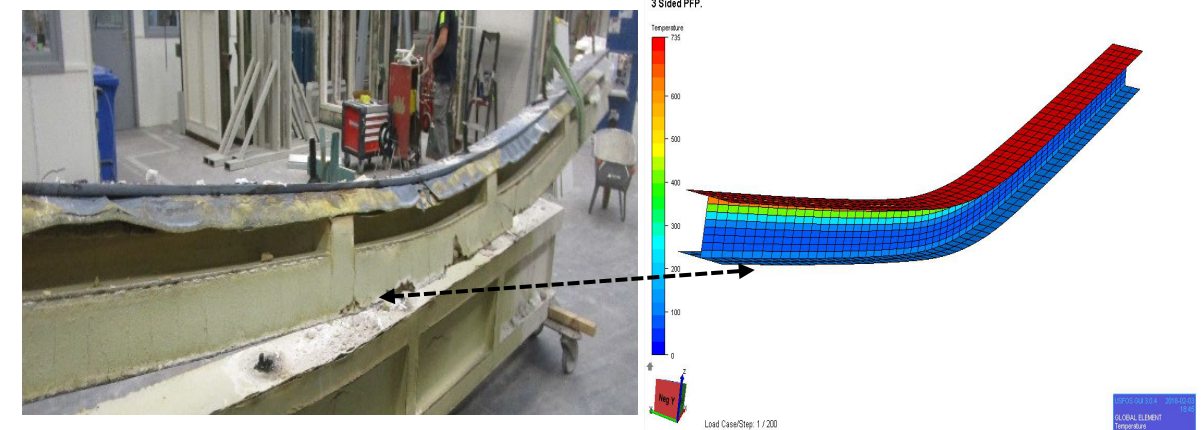
BENDING

3 sided PFP (TB-1)



Deep Beams  
LATERAL TORSIONAL BUCKLING

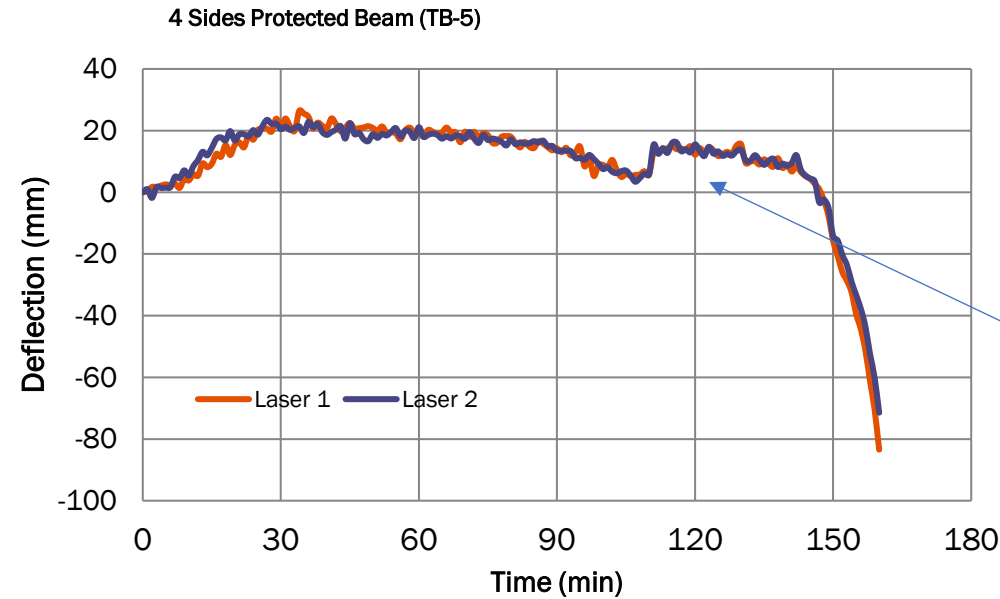
3 sided PFP (TB-7)



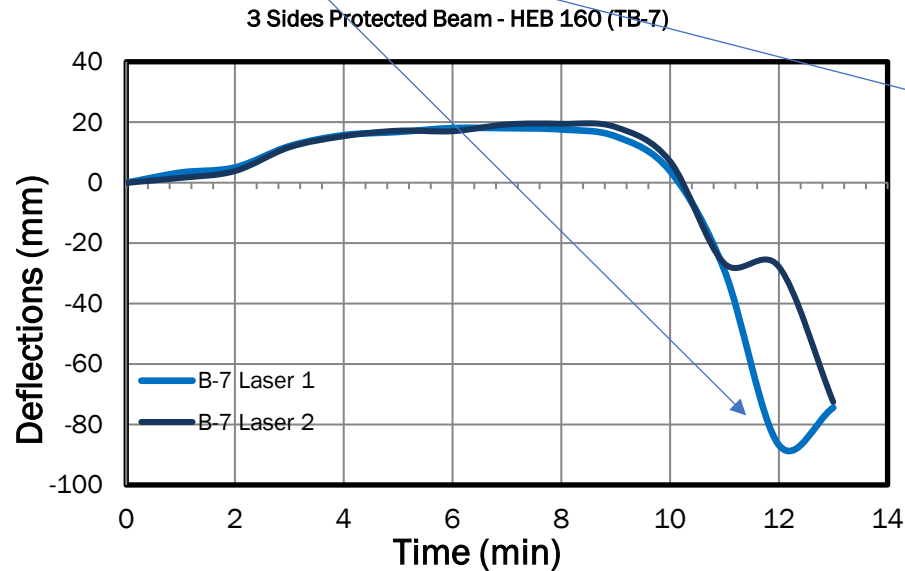
Shallow Beams  
BENDING

# Failure Time

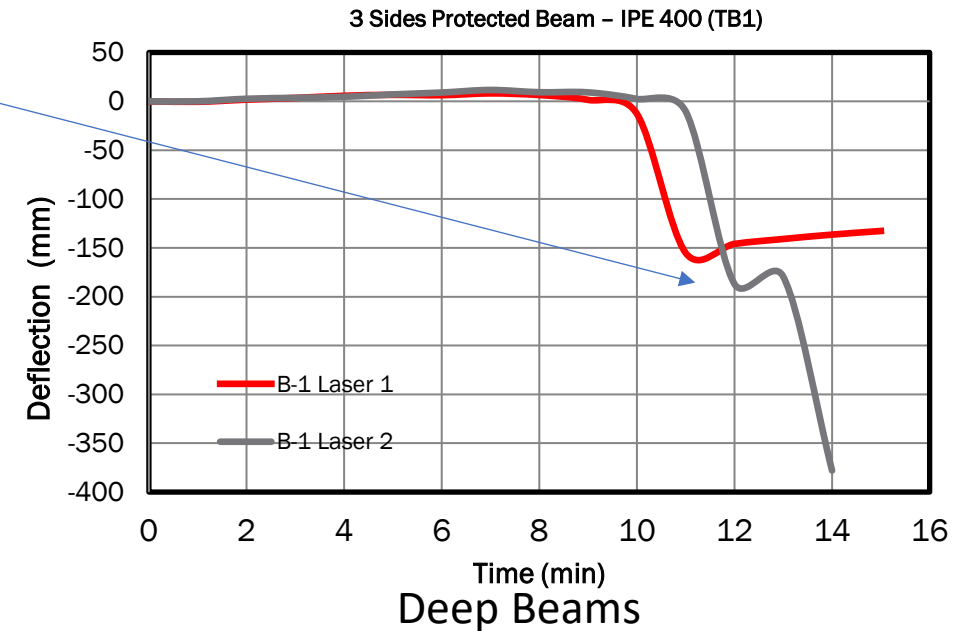
**Failed in 12 minutes!**



**2 hour beam**



Shallow Beams  
BENDING



Deep Beams  
LATERAL TORSIONAL BUCKLING

# The issue is complicated!



- Beams on their own don't perform if the top flange gets hot
- But beams considered as part of a full frame, or beams with top flange lateral restraint may
- Industry needs solutions that work!



# 3-sided JIP objectives

- The JIP will study three areas:
  - **The fires of concern** – which scenarios could cause premature failure and which will be OK
  - **The structural response** – how do the beams respond, and what solutions exist to prevent failure
  - **PFP detailing** – how should PFP be terminated, and what effect does the termination have on performance, longevity, etc.

# Recent publications

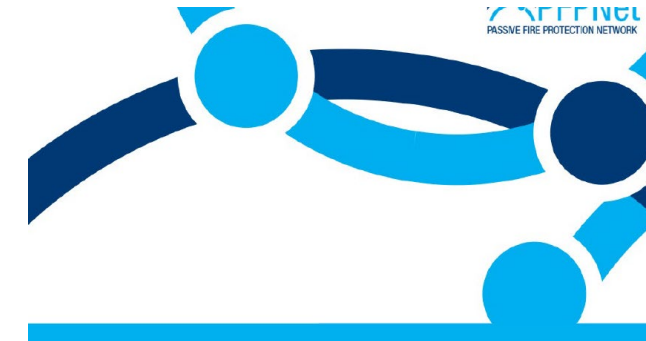
Highlights of key projects

# Critical Process Control Equip.

- Guidance note published on best practice for fire testing, assessing, certifying, specifying, detailing CPCE



*Figure 8 - PFP showing terminations on control panel and handwheel stem*



PFPNet Guidance Book 1:

Testing, Assessment and Certification  
for Passive Fire Protection Systems to  
Protect Critical Process Control  
Equipment (CPCE)



# Jet fires

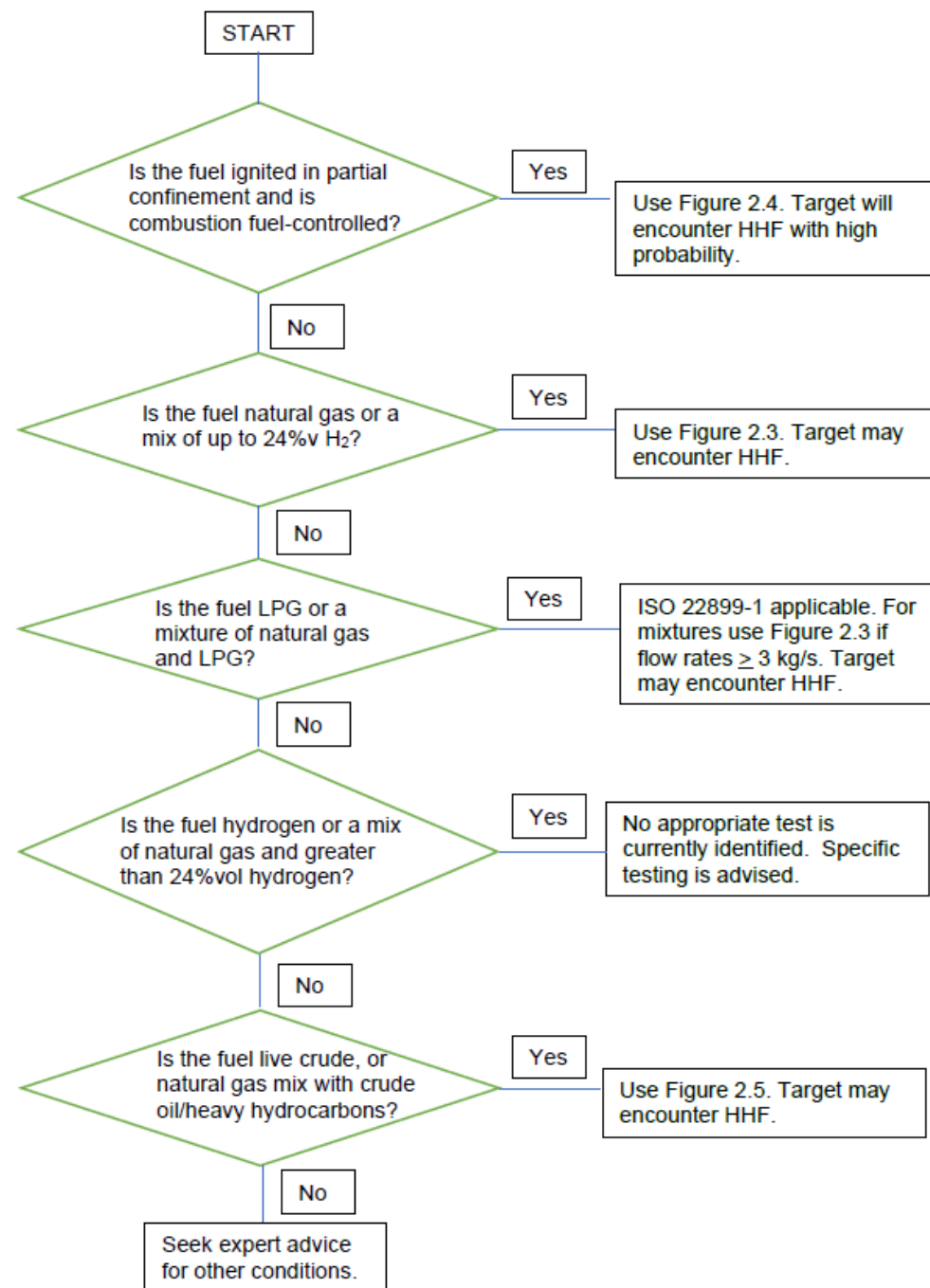
- Common questions include:
  - Do we have a jet fire hazard?
  - How do fire modeling results typically compare to prescriptive guidance?
  - When performing fire modeling, how do you choose heat flux thresholds for PFP?
  - Is it common to use PFP for jet fires? What guidance is available for establishing credible design scenarios?
- PFPNet produced a guidance note on which JF standard may be applicable – linking it to the hazard type



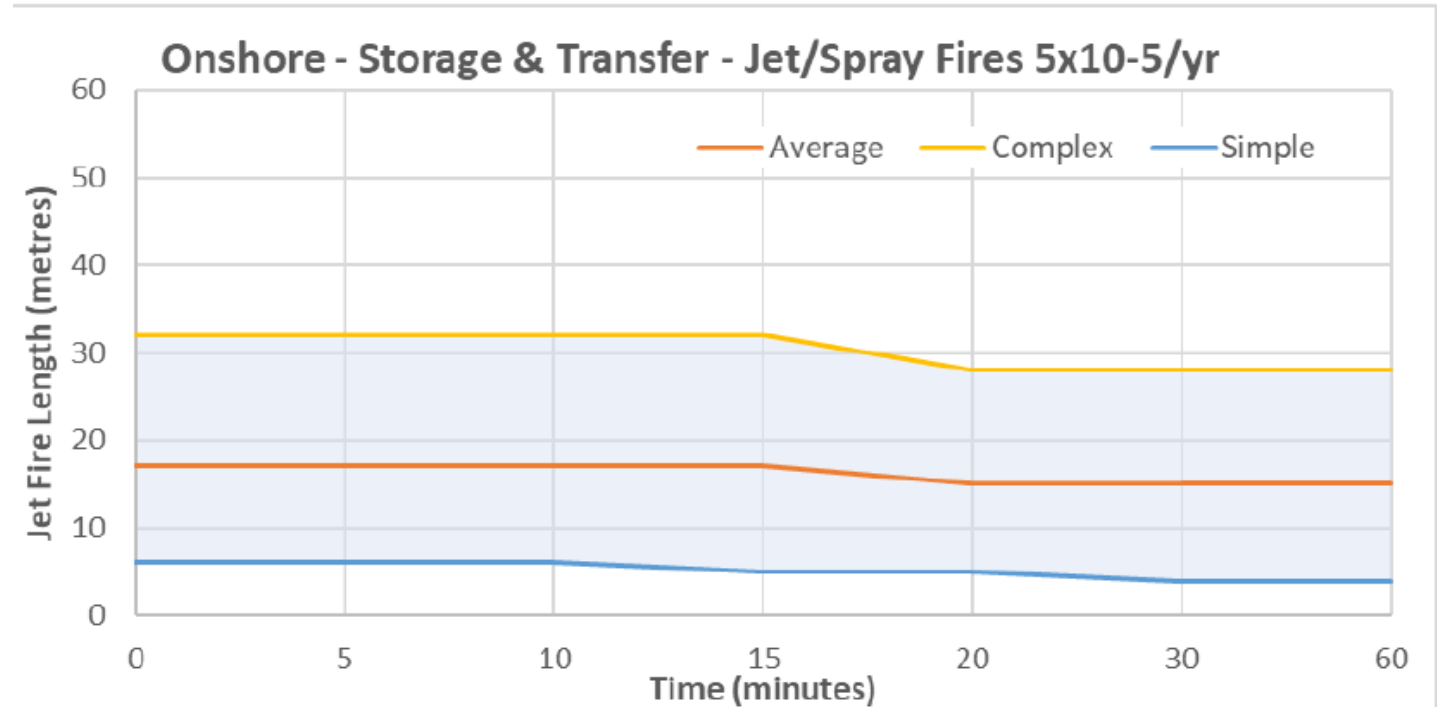
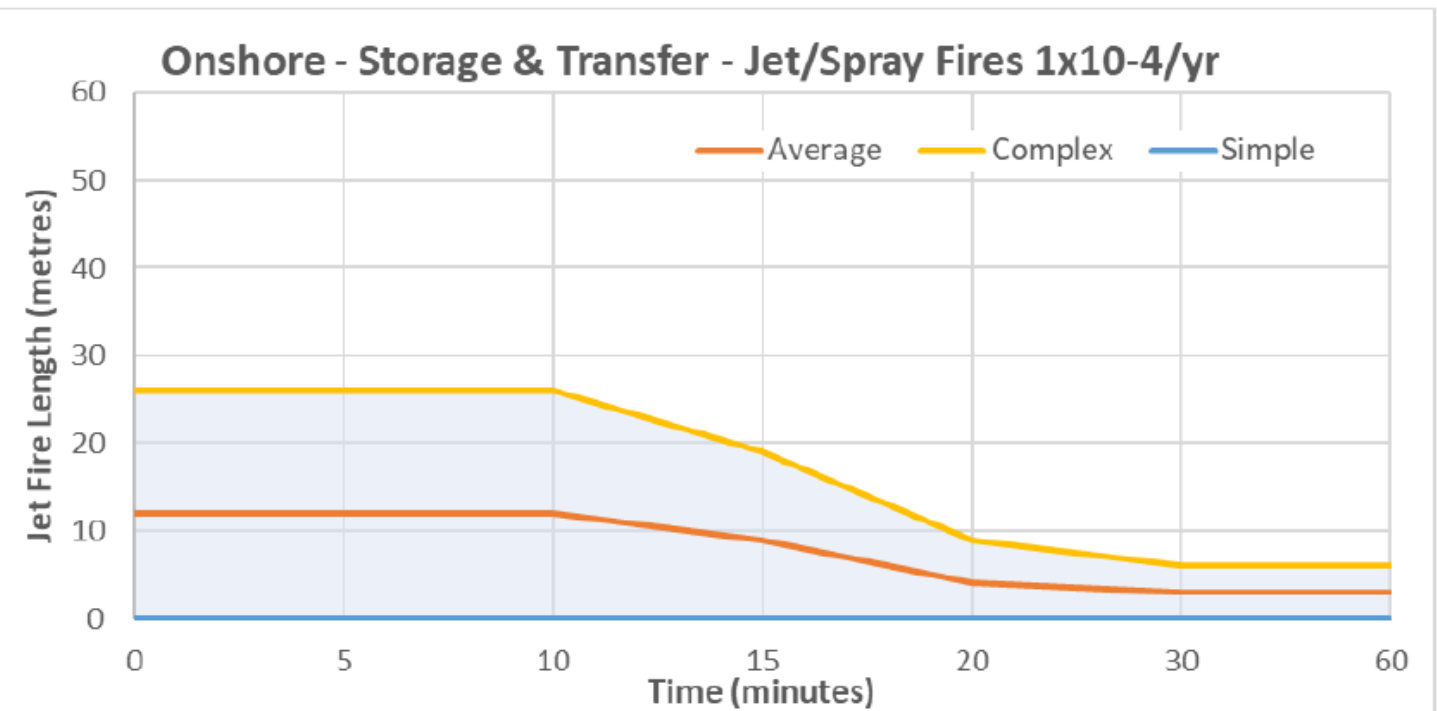
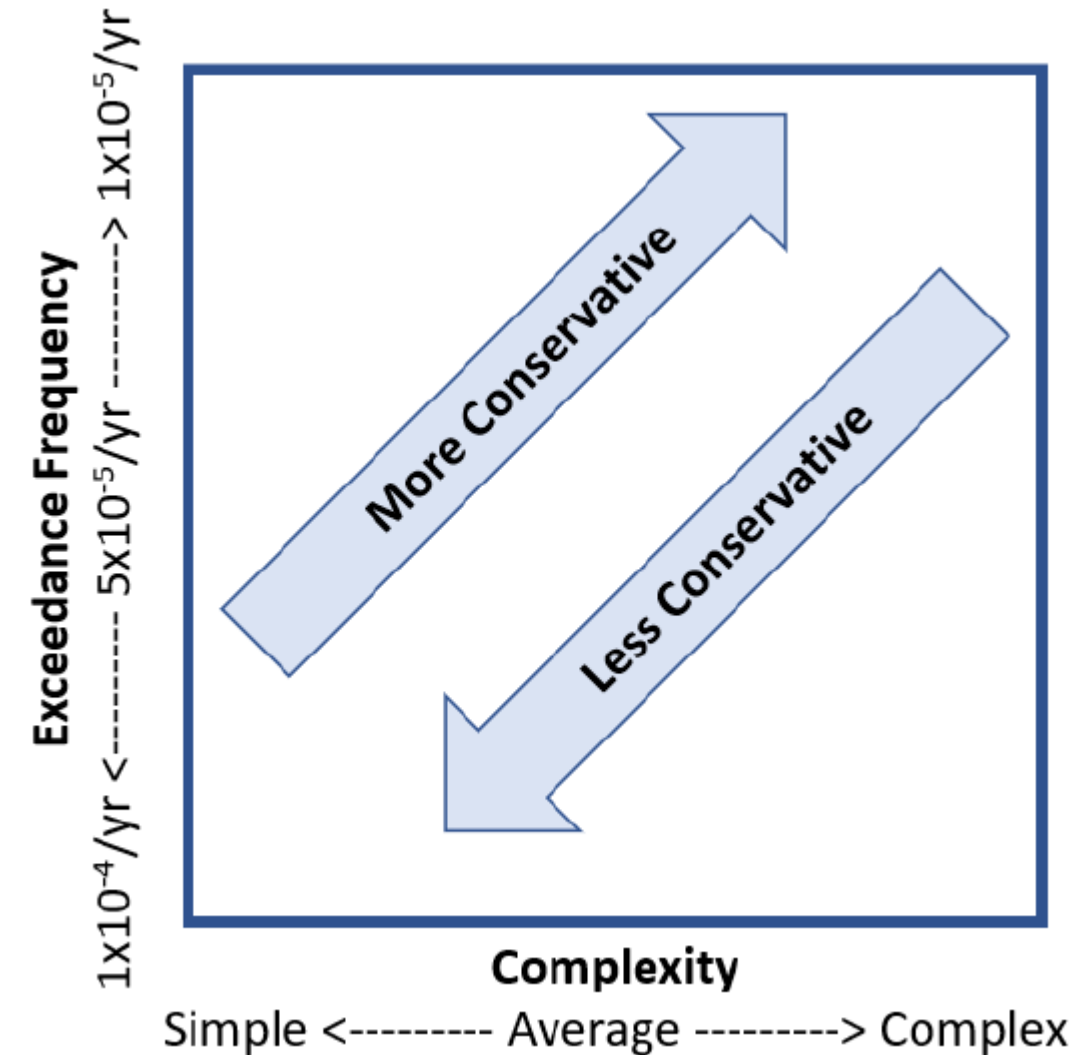
*Figure 3 ISO22899-1 jet fire test*

# Guidance on Selecting the Appropriate Jet Fire Resistance Test for Passive Fire Protection Systems

## Appendix I – Guidance on Test Method Application



# Design Fire Scen





# Current projects

Highlights of key projects

# Structural steelwork

- A further guidance note is under development on the best practice for structural steelwork, covering:
- fire testing, assessing, certifying, specifying, and detailing of PFP

# Other projects



- Aged and damaged PFP Guidance Notes
- Epoxy intumescent DFT measurement study
- CSP Guidance Note



# Training

# Training Programs



Online course:

- Introduction to PFP in the Energy Industries

Tutored course:

- Level 2 & Level 3 SFRM (Cementitious) PFP Inspectors Course
  - Level 2 & Level 3 IFRM (Epoxy) PFP Inspectors Course
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# Online Course Demonstration

# Future Training Programs



## Online courses:

- Aged & Damaged PFP
- Choosing the right PFP system
- Developing a PFP scheme

## Tutored courses:

- PFP hazard awareness course  
(in partnership with DNV in the UK)
  - PFPNet applicator accreditation and training program
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# Thank you

Questions?