



# Shipboard Cable Fire Protection

## Slowing the Rapid Spread of Fire Onboard U.S. Navy Warships

Team: Hepburn and Sons LLC | Fire Security Inc. | Fincantieri Marinette Marine

### Problem

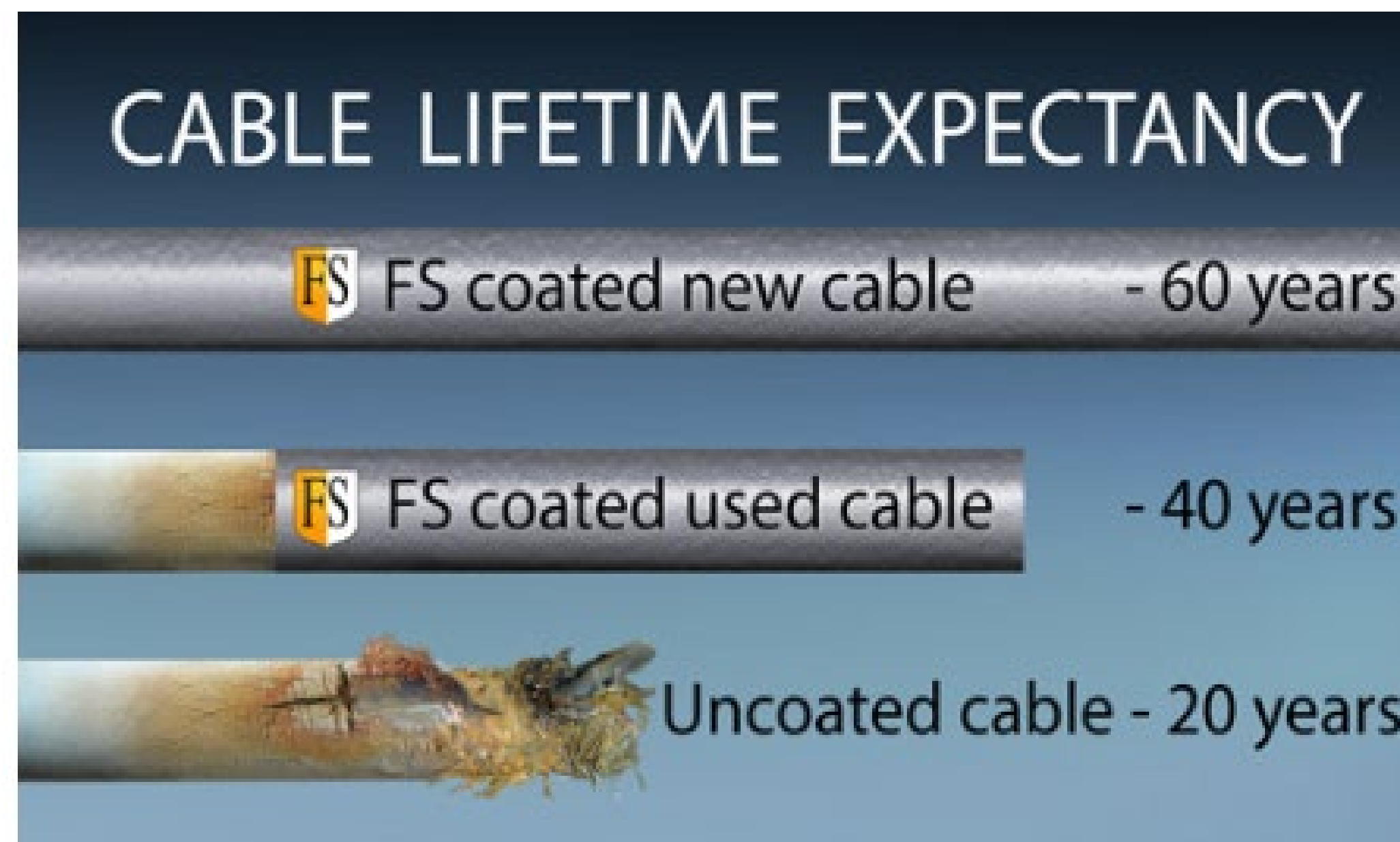
- Cable coatings burn off in first minutes of high temp space fires
- Shipboard cables fuel fire above 1000°C
- Fires propagate in minutes on uncoated cables
- Electrical cables and cableways provide conduit for fire-spread
- Legacy Polyvinyl Chloride (PVC) cabling, still present on older ships, releases hydrogen chloride acid gas when aflame
- Some ship availabilities face supply challenge for Low Smoke Cables to replace PVC cabling on older ships

### Solution

- Mature/High TRL passive fire protection - Ready TODAY
- Intumescent coating system contains hydrates which release water vapor when coating exposed to fire
- >20 years deployed - Offshore and Cruise ships - Proven high ROI
- Significantly reduces release of toxic gases and fire-spread from cabling
- Improves fire survivability and decreases fire-spread of MIL-DTL-24643 compliant cables
- FS1 coated cable life: 60 years vs uncoated cable life: 20 years

### Project Benefits

- Provides SWAP-C savings for increased endurance and design margin
- Supports modular ship construction
- Manufactured into complex shapes that can be placed in tight spaces
- Easily repaired; only damaged section is replaced
- High abrasion resistance and increased survivability



3X LIFE ON NEW CONSTRUCTION



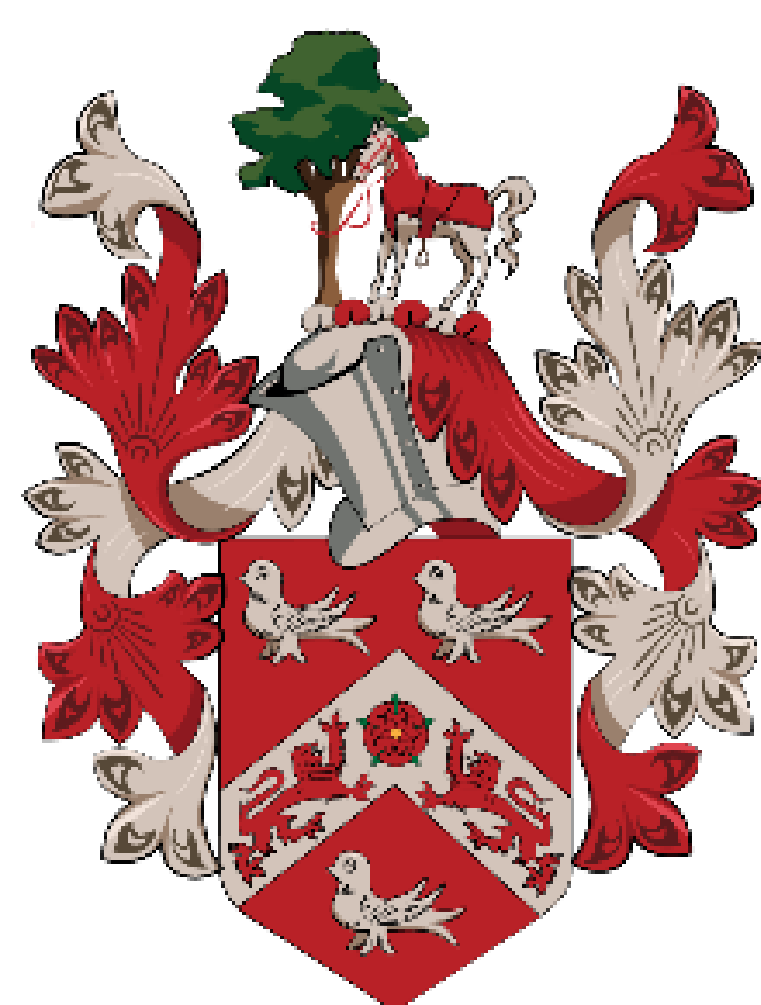
INTUMESCENT COATING EXPANDS UP TO 100X

### Project ROI

- Reduced risk of widespread damage from a fire
- Enhanced cable and system resilience
- Significant contribution to preventing the total loss of a vessel from the U.S. Navy inventory due to fire



Class and Regulatory Approvals



Hepburn and Sons LLC



FIRE SECURITY INC.

**FINCANTIERI**  
MARINETTE MARINE

**100%**  
Passive Cable Fire  
Protection That is  
Always Available

**>20 Years**  
Since First  
Commercial Use

**Used on 31+ Gas &  
Oil Platforms and  
230+ Civilian Cruise  
Liners Worldwide**

**Tested and Evaluated  
by NSWCCD,  
NMCPHC, and  
BUMED**

**NAVSEA Reviewed  
ASTM F-718 &  
Added to  
NAVSEA Standard  
Item 009-32**

**Significant Flame  
Spread Reduction &  
Circuit Integrity  
Maintained for  
Longer Time**

**Cable Protection Fire  
Resistant to  
1100°C/2000°F**

