SAFE YARDS
Safe Arctic Technology
A part of Safe Yards

• Safe Arctic Technology will be the leading test facility for cold climate.
• Safe Arctic Technology will develop world leading solutions for cold climate.
• Head office St Johns NewFoundland
Human safety in cold/harsh environment

How safe is safe enough
Human safety in cold/harsh environment
Icing – Access/Slips and falls
Icing – Access/Slips and falls
Human safety in cold/harsh environment
Icing – Access/Slips and falls
Icing – Access/Slips and falls
Mitigation Measures

- Manual de-ice:
  - Mallets
  - Hot water
  - Steam
  - Shovels
- Salt
- Heat
- Insulate
- Circulate
- Drain
- Cover
- Chemically (e.g. glycol)
Icing – Component malfunction
Escape ways & Mustering station
Escape ways & Mustering station
Drainage
Slips and falls
Fire Fighting
HVAC
Protective Clothing

- *Inner layer* (underwear): moisture absorption and transport
- *Middle layer* (shirt, sweater): insulation and moisture transport
- *Outer layer* (wind breaker, Arctic clothing, rain gear): protection against the external environment and moisture transport.
- Head, face and neck protection
- Hand protection
- Foot protection

Moisture/sweat is to be avoided - hard physical labour will require less clothing.
### Wind chill calculation chart

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**Frostbite guide:**

- Low risk of frostbite for most people
- Increasing risk of frostbite for most people in 10 – 30 minutes of exposure
- High risk for most people in 5 – 10 minutes of exposure
- High risk for most people in 2 – 5 minutes of exposure
- High risk for most people in 2 minutes of exposure or less

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Convection or conduction. Under these conditions evaporation of sweat becomes the only effective way to cool the body.

Air movement increases evaporation but the effect will decrease as the moisture level in air
# Medical issues – hypothermia vs cold burns

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Cold burns can cause serious local damage to tissue
Performance Shaping Factors – Experience and Training

Cold climate operation requires additional experience and training

Reason:
• Environmental factors
• Knowledge of weather and ice conditions
• Understanding of ship construction
• Knowledge of need for additional resources

• Knowledge of working conditions and crew competence levels
• Understanding of challenges in navigation in cold climate