



## DEVELOP A SNOW REMOVAL PLAN:

- All roof drains should be cleared of snow and ice, and clear paths made in the snow and ice such that water can run to the drains and roof eaves. Regular checks of the drains should be done to ensure that they are kept clear.
- If the roof is severely exposed to snow loading, then reinforcement may be necessary.
- Roof structural design engineers should be contacted to ascertain integrity of the roofs.
- Increased exposure exists with the possibility of additional snow accumulation. Snow and ice should be manually removed from susceptible roof areas:
  - + Differences in elevation
  - + Standing and lap seam metal pane
  - + Roofs with poor drainage
  - + Roofs in poor condition
  - + Do it SAFELY (Follow procedures, hire contractors)
- For pitched light gauge metal roofs, ensure meltdown of snow by heating interior spaces. Use safe temporary heating if needed
- Designate a person in charge with authority to monitor conditions
- Pre-inspection of purlin bracing of metal panel buildings (get at changes in building elevations if adequate design is not known)
- Inspect the roof cover to avoid leaks from melting snow
- Allow firefighting access to structural evaluations and ice from roads, fire protection equipment, fire hydrants and doorways
- Pitched roof accumulations should be removed to prevent possible collapse of lower roof sections or canopies by falling ice and snow
- When removing snow and ice, it is necessary to ensure that:
  - + Physical damage is not done to the roof by equipment.
  - + Removed snow and ice are not allowed to accumulate on lower roof sections.
  - + Snow removal personnel / contractor and other persons are not exposed to injury.

## SHUTDOWN PROCEDURES

ONLY TO BE USED IF CONDITIONS **DO NOT** ALLOW TEMPERATURES TO BE MAINTAINED AT **40 DEGREES FAHRENHEIT**

- Follow equipment procedures for the following:
  - + Boilers
  - + Compressors
  - + Other liquid filled equipment
- Follow fire protection procedures, including:
  - + Follow impairment procedures
  - + Shut down systems as needed
  - + Avoid all hot work

## ALTERNATE FUELS

- Where boilers or other equipment can run on alternate fuels keep alternative fuel supply on hand.
- Maintain alternate fuel equipment by:
  - + Re-circulating pumps
  - + Oil pre-heaters
  - + Instrument lines
  - + Test alternate fuel regularly

## WINTERIZING INSPECTIONS

- Develop a checklist of items to inspect both before and after a storm
- Designate people to conduct inspections well in advance of cold weather
- Submit checklist to management for action

## TEMPERATURE MONITORING

- Install thermometers in susceptible areas
- Areas with piping should be maintained at 40 degrees Fahrenheit minimum
- Designate personnel to monitor weather conditions during cold spells
- During cold spells assign personnel to:
  - + Monitor/record temperatures every few hours
  - + Inspect hidden areas with piping, including attics, stairways, crawl spaces, etc.
  - + For remote and/or unattended locations consider an automated temperature monitoring to a central station

## UNATTENDED PROPERTIES

- Maintain building doors, windows, roofing, security, etc.
- Maintain proper heating
- Maintain sprinkler protection
- Inspect properties daily or consider Central Station monitoring for:
  - + Air temperature
  - + Low water fuel trips on boilers
  - + Water temperature on storage tanks
  - + Alarm prior to 40 degrees Fahrenheit

## IF FREEZING OCCURS

- Drain systems and equipment where possible to prevent further damage
- Identify key areas where freezing may have occurred
- Bring in equipment technicians to safely inspect and start equipment
- Assign personnel to key areas throughout facility to monitor for leaks
- Provide two-way communication to personnel at shut-off valve
- Start warming operations

## FLOOD

- Develop a flood emergency response plan that includes pre-flood preparations:
  - + Monitoring of flood levels through media and local authorities
  - + Updates to supervisory personal as needed
  - + Take emergency actions
    - + Sandbagging
    - + Raising equipment
    - + Orderly shutdown
  - + Post flood restoration activities
  - + Develop permanent solutions