ATLAS Safety Bulletins

Near-miss Case Studies

Introduction

The following safety bulletins have been received by the ATLAS Safety & Access Committee and near-miss case studies compiled.

Please note that any advice is given in good faith with the aim of providing general guidance on best practice. ATLAS and the individuals and organisations responsible for the advice do not accept any liability arising in any way from relying on it. If you require advice on a specific issue, you should seek your own independent professional advice.

Contents

1. Industrial Chimney Inspection

Introduction

ATLAS refers all members to the **HSE Work at Height Regulations 2005** when carrying out a risk assessment prior to inspecting industrial chimneys.

Case Study

An ATLAS member company was recently tasked to complete an HSE/ATLAS 8 year survey on a free standing self-supporting single flue industrial chimney. The chimney was externally insulated and clad and its diameter removed the feasibility of inspecting the structural steel walls internally. To facilitate the survey, the external insulation and cladding needed to be removed to gain access to inspect the structural steel walls of the chimney.

The 36.0m tall chimney prior to the inspection - fully clad and insulated

In accordance with HSE Working at Height Hierarchy of Risk, when inspecting industrial chimneys, the inspecting ATLAS member company employed powered access in the form of a truck mounted MEWP to remove the insulation and cladding and undertake the survey.

The chimney in question can be seen in the background with sections of the insulation and cladding removed.

The chimney nearest has been inspected using powered access and deemed to be structurally sound. Steeplejack ladders together with fall arrest systems have been installed to facilitate the undertaking of remedial repairs and painting work to this particular chimney.

Following the removal of the insulation and cladding, extensive loss of the structural steel plate thickness was revealed immediately above the top two bolted flange connections. This loss of steel thickness had completely compromised the structural stability of the chimney. Mobile cranes were brought to site and the top two chimney sections were safely removed.

Advanced corrosion at the top flange – structural walls were found to be paper thin.

Best Working Practice

The potential risk to life and property should not be underestimated, particularly had this chimney been accessed and inspected using traditional steeplejack access methods, i.e. ladders and rope access.

This should serve as a stark reminder to all companies engaged with accessing not only clad and insulated steel chimneys, but all types of industrial steel chimneys for the purpose of inspection.

Furthermore this serves to fully support the HSE's Hierarchy of Risk when selecting the method of access. It is therefore worth reminding all ATLAS members that should an

investigation follow a safety related incident, when inspecting industrial steel chimneys, the HSE's stance will be as follows:

"… in the event of a safety related incident involving companies inspecting chimneys from ladders, the HSE's investigation will focus on the method of access employed by the company carrying out the inspection. Should the investigation highlight and confirm that an alternative means of access could have been employed, such as powered access, as oppose to steeplejack ladders, this will form the basis of the HSE's case against the company involved."

Andrew Rattray, HSE.

ATLAS refers all members to the **HSE Work at Height Regulations 2005** when carrying out a risk assessment prior to inspecting industrial chimneys, in particular **Selection of Work Equipment**.

Summary

There will always be a requirement for steeplejack access methods when inspecting and working on chimneys and tall structures. However when planning industrial chimney inspections, the HSE's Hierarchy of Risk should always be applied, and where it is identified as being feasible and practicable to do so, powered access should always been employed as oppose to laddered and rope access for inspections.

Insulated and clad steel chimneys represent one our industries biggest safety concerns, often corrosion and structural defects are hidden from view. For this reason alone access that is not directly attached to the chimney being inspected should always be the access of choice i.e MEWP or Crane & man riding basket.

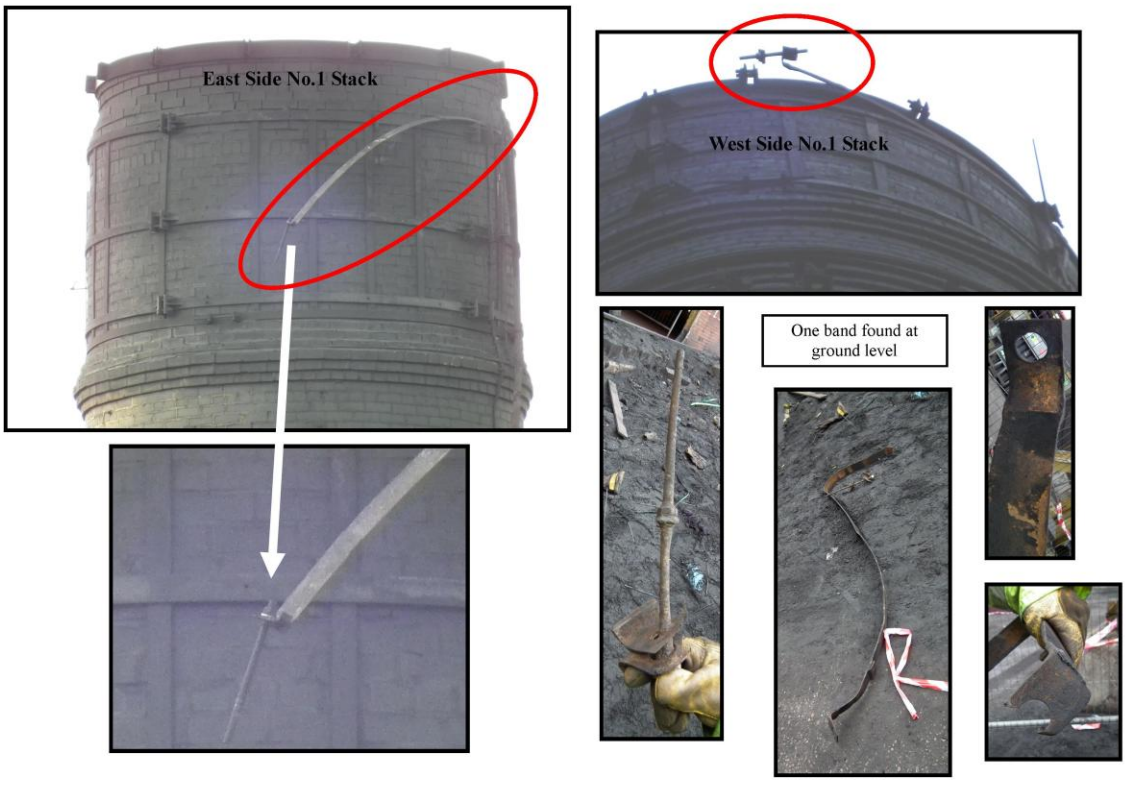
2. Safe Use of Ladders

Introduction

ATLAS refers all members to the **HSE Work at Height Regulations 2005** & **Safe Use of Ladders in the Specialist Access Industry 2014** when carrying out a risk assessment prior to inspecting industrial chimneys.

Case Study

An ATLAS member company was recently contacted by a client reporting that a steel band had had broken free from the summit of a brick chimney. Unfortunately the dangerous state of the structure, combined with poor weather conditions, prevented the steel band from being removed in a controlled manner and sections of the band fell to the ground from a height of 75m.



The failed steel band

Location where the band had failed

Sections of the band lodged behind a lightning conductor air terminal

Section of the band left hanging

Section of the failed band stuck behind other steel work

Best Working Practice

This should serve as a stark reminder to all companies engaged with laddering chimneys that unless a survey has been completed prior to the installation of ladders using powered access, fixing ladders directly to steel bands should never be encouraged.

'Safe Use of Ladders in the Specialist Access Industry' Laddering: All Structures Section 72;-

'On no account should ladders be attached to fittings or components or any other type of equipment that will not support loads from the ladder system and/or has not been specifically designed for the purpose of attaching and supporting ladders'

Summary

The fixing of steeplejack access ladders to steel bands has, in years gone by, been a traditional method that often removed the requirement for the steeplejack to insert his own independent fixings thus saving time and limiting the amount of equipment carried i.e drill, hammer etc.

ATLAS encourages its members to refer to the recently published laddering guide and if a decision to fix ladders directly to steel bands is considered, this decision should only be taken once all steel bands have been thoroughly inspected and deemed to be in a good structural condition and if necessary their suitability confirmed via calculations.

Always remain mindful that the majority of steel bands in place around industrial steel chimneys are under tension and that it is not always the bolts connecting the band segments that fail. Often steel bands fail on a weld therefore early indications for potential failure are not always noticeable to the naked eye.

Finally it's also worth remembering that a large percentage of steel bands currently installed to industrial chimneys have been in place for a considerable amount of time, therefore it's feasible that the potential for failure linked to both fatigue and corrosion increases over time.

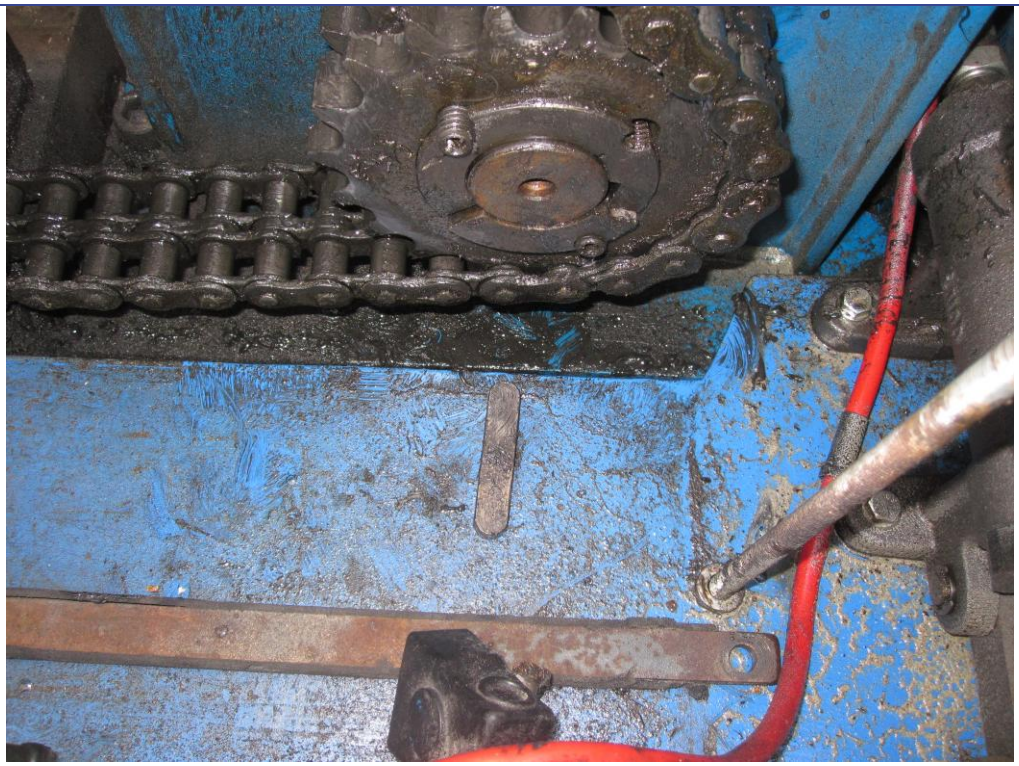
3. Winching Operations (January 2015)

Introduction

ATLAS advises all members to report any near miss incidents so if necessary they can be circulated to all members with corresponding advice.

Case Study

Crew were lowering 6 foot scaffold boards from the protective fan scaffold. The winch being operated was a Thompson 21/60 diesel winch. This was in test, having had its 6 month Lifting Operations and Lifting Equipment Regulations (LOLER) thorough examination and service in October 2014. The boards had been stropped together and the winch operator informed to start lowering. About half way down from the fan to grade the operator heard the drum speed up, then the load went into an uncontrolled descent and landed at grade. The boards remained contained in the strops, with no damage to plant or personnel.



The rear cog detached from the spindle and the woodruff key worked loose. A mechanical failure of the Taper Lock prevented the spindle staying engaged with the cog.

Outcome

As a result, the member company contacted the winch manufacturer who has since inspected all of the company's fleet and also the winches in their own fleet. The winch manufacturer has confirmed that the other winches are suitable for lifting operations.

The failure of the Taper Lock caused the uncontrolled descent. It has highlighted the need for more checks to the arrangements on the winches that could cause a failure. The

member company and the manufacturer are in discussions at present regarding the inspection and servicing schedules of the winches.

The winch has a secondary braking device which is activated by the operator releasing the control lever (dead man's handle) back into the neutral position. Unfortunately this incident happened so quickly that the operative did not have time to react quickly enough, and the lever remained in descent position, resulting in the secondary brake not activating.

Summary

Member companies need to risk assess their winching fleet to determine whether their winches operate a similar mechanism as that shown above.

If any member companies are operating Thompson 21/60 diesel winches, we recommend that you have them checked with the manufacturer for the Taper Lock arrangement and any other item that could cause failure.

Ensure your operators are trained and are aware of the release of the control lever back into neutral.