

2024

Inspection of Automatic Sprinkler System

ASIB



Inspection of Automatic Sprinkler System

C2 Yanfeng Automotive Interiors East
London Industrial Development Zone

Complete

Client/Site Name

C2 Yanfeng Automotive Interiors East London Industrial Development Zone

Billing Address

East London Industrial Development Zone SOC Ltd P O Box 5458 GREENFIELDS 5208

Attention:

Mteteleli Zantsi
Camagwini Ngxokolo-Nomatye

Document No

UNC.6901

Prepared by

Keith van Onselen

Conducted on

09.05.2024 08:00 SAST

Site Location

East London Industrial
Development Zone EC 5201 South
Africa

Disclaimer

We have pleasure in attaching our inspector's report.

Whilst every care is taken in the preparation of the report which describes the conditions as found, such report is not a guarantee carrying responsibility for results and neither this Company nor any of its employees or agents shall be liable for any loss or damage of whatsoever nature and howsoever caused, (whether by actual or alleged negligence or otherwise), in any way arising out of the acts or omissions of the Company and/or its employees or agents aforesaid.

The report is based upon the visual inspection of the external condition of the equipment where accessible without having to provide scaffolding, ladders, staging, lighting and not requiring the removal or displacement of any temporary or permanent structure, fitting or fixture.

If there are any points arising on which you require clarification, kindly communicate with the undersigned. Assuring you of our best attention at all times.

Confidentiality

In order to maintain the integrity and credibility of the inspection processes and to protect the parties involved, it is understood that the inspectors will not divulge to unauthorized persons any information obtained during this inspection unless legally obligated to do so.

Yours faithfully,

THE AUTOMATIC SPRINKLER INSPECTION BUREAU (PTY) LIMITED



Nico van Loggerenberg
Managing Director

1. Report Summary

THE AUTOMATIC SPRINKLER INSPECTION BUREAU (PTY) LIMITED



REGISTRATION NUMBER: 1970/010833/07

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INSPECTION AND
ADVISORY
SERVICE SINCE
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Code

PC - Partial Protection, Clearance
Certificate not Issued

Partial clearance certificate withheld due to the following:

Storage - See Report



Sprinkler System - Excessive Fault



This is mostly in relation to the issues highlighted with the ESFR system and the unprotected areas

Standard

10th Edition

11th Edition

ASIB Contract No

UNC.6901

Client Order No

PO-004203

Was the sprinkler system design in order

Yes

Was the water supplies in order

No

Refer to report UNC.9478 conducted on 08/05/2024

Was the pump room in order

No

Refer to report UNC.9478 conducted on 08/05/2024

Was the installation control valves in order

No

Refer to Installation Control Valves - Section 7.

Was the storage in order

No

- Refer to Occupancy & Storage Guidance - Section 3.
- Refer to Storage - Section 8.

We must know what ESFR solution in terms of Table, K-factor and head pressure are applied to each site to ensure correct alignment of the risk.

2. Hand Fire Appliances

Hose Reels - 30 metres ☒

Number:

34

Hand Fire Appliances - One unit per 100 m² of floor area.

DCP 9 kg ☒

Number:

42

CO² Gas 5 kg ☒

Number:

18

Other ☒

Specify

Hydrant

Number:

10

Hand fire appliances date of the last service:

08/2023

Are the hand fire appliances due for their service. No

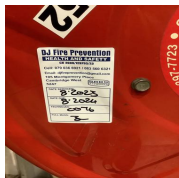


Photo 1

Clear access to the hand fire appliances must be maintained at all times.

3. Occupancy & Storage Guidance

Percentage Hazard.

% Ordinary Hazard

10
From 0 to 100

% High Hazard

90
From 0 to 100

Stack height signs not less than 500 mm by 500 mm in size must be prominently displayed at the maximum level of the allowable storage height in all storage and process risk areas.

Occupancy / Process Risk

Occupancy/Risk

Occupancy/Risk 1

► **Ordinary Hazard / High Hazard**

High Hazard

► **Select Occupancy / Process Risk**

Process Risk

Storage Risk

Specify Process

Manufacture Automotive Components Plastic

Category

CAT II

Design Density (mm/min)

ESFR

Where goods of differing categories are stored within the same area, it is the stack height limitations of the goods with the highest category that will apply.

► **Product Stored**

Automotive Components Plastic

Category

CAT III

Storage

Method

Method 1

Storage Method

Free Standing / Block Storage

Design Density (mm)	ESFR
ESFR K-Factor	
36	
Roof Height (m)	12
Storage Height (m)	
10,6	
Method 2	
Storage Method	Beam Pallet Racking
Design Density (mm)	ESFR
ESFR K-Factor	
36	
Roof Height (m)	12
Storage Height (m)	
10,6	

4. Sprinkler System Design

Building

Building 1

Building Name

C2 Yanfeng Automotive Interiors East London Industrial Development Zone

Date of First Inspection

September 2016

Original Installer

Fire Sprinkler Installations

Extension By

NA

Building Area m²

21000

Height of Building in meters

12

Sprinkler Detail

Area

Area 1

► Area & Type of Sprinklers

Roof Sprinklers

Ceiling Sprinklers

Mezzanine Sprinklers

Canopy Sprinklers

Number of Sprinklers

Approximately 3000

Calculations

Hydraulic Calculations

Area of Operation

Area of Operation 1

► Area of Operation

Pump Duty

Flows & Pressures

7500 l/min @ 960 kPa

Area of Operation 2

► Area of Operation

Roof Most Remote Area of
Operation

Flows & Pressures

V1
7490 l/min @ 450 kPa

Area of Operation 3

► Area of Operation

Roof Most Favourable Area of
Operation

Flows & Pressures

V1
7400 l/min @ 510 kPa

Area of Operation 4

► Area of Operation

Roof Most Remote Area of
Operation

Flows & Pressures

V2
7490 l/min @ 585 kPa

Area of Operation 5

► Area of Operation

Roof Most Favourable Area of
Operation

Flows & Pressures

V2
7400 l/min @ 492 kPa

Area of Operation 6

► Area of Operation

Roof Most Remote Area of
Operation

Flows & Pressures

V3
7490 l/min @ 455 kPa

Area of Operation 7

► Area of Operation

Roof Most Remote Area of Operation

Flows & Pressures

V4
7429 l/min @ 495 kPa

Area of Operation 8

► Area of Operation

Roof Most Favourable Area of Operation

Flows & Pressures

V4
7360 l/min @ 425 kPa

Additional Sprinkler System Designs Required

No

5. Water Supplies

► Water Stored on Site.

Yes

Refer to report UNC.9478 conducted on 08/05/2024

Add Water Storage Tanks

6. Pump Room

Pump Installed on Site

Yes

Refer to report UNC.9478 conducted on 08/05/2024

Add Pump House

7. Installation Control Valve(s)

7.1 Sprinkler control valves accessible

Yes

Valve Cabinet

Valve Cabinet 1

Location:

North west corner of building

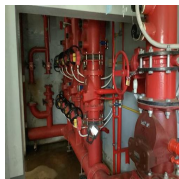


Photo 2



Photo 3

Number of Alarm Valves Installed

4 x 200 mm

7.2 Sprinkler Valve Location Plate Installed

Yes

7.3 Fire Brigade Booster Pressure Limitation Plate

Yes

7.4 Block Plan Installed

Yes

7.4.1 Is the block plan labelled in accordance with the areas fed by the sprinkler control valve assemblies

Yes

7.4.2 Are the correct installation details recorded on the block plan

Yes



Photo 4

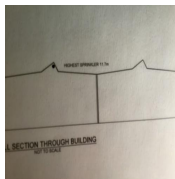


Photo 5

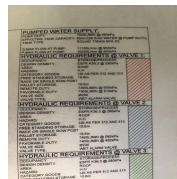


Photo 6

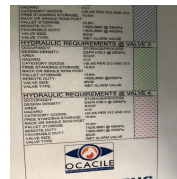


Photo 7

7.5 Sprinkler Valve Instruction Chart

No

A weatherproof valve instruction chart that relates specifically to the control valve assembly installed, (not a generic instruction chart) shall be mounted on a wall within the control valve cabinet or if the valves are internally located, as close to these as possible.

7.6 Is a sprinkler spares box present

Yes

7.6.1 Was the spares box contents accessible

Yes

7.6.2 Are the spares quantities correct	Yes
7.7 By Pass Arrangement Installed	Yes
7.8 Fire Brigade Booster Connections Installed Correctly and Accessible	No

Installations must be fitted with fire brigade booster connections which will enable the fire brigade to pump water into the installation using their own equipment.

It appears that the booster connection piping to the main distribution riser is too long, which may restrict the opening of the booster plunger into the main distribution riser, this will prevent effective boosting of the sprinkler system and must be revised.

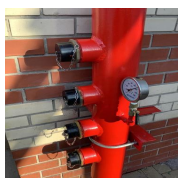


Photo 8

7.9 Are the Installation Control Valves Housed within an Approved Valve Cabinet	Yes
7.10 Flow Switch Installed Correctly	Yes
7.11 Manifold Correctly Supported	No

Not bolted



Photo 9

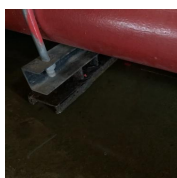


Photo 10

The valve manifold must be adequately supported.

7.12 Riser Mains Correctly Supported	No
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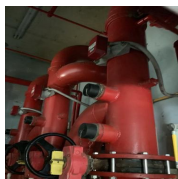


Photo 11

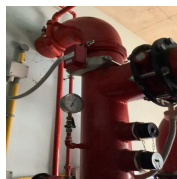


Photo 12

The riser main must be properly supported in accordance with the rules.

7.13 Riser Mains Externally Located	No
7.14 Flow Measuring Device Installed.	Yes
Flow Test Results	Pass
<div>   </div> <div> <div>Photo 13</div> <div>Photo 14</div> </div>	
Recorded Flow and Pressure	8500 l/min @ 1000 l/min
7.15 Correct Pressure Gauges Installed	Yes
7.16 Correct Gauge Cocks Installed	Yes
7.17 Flanges Short Bolted	Yes
<p>The bolts for these flanges must be removed and replaced with the correctly sized bolts so as to ensure that at least two full thread pitches past the chamfer protrude beyond the nut.</p>	
7.18 Loose / Missing Bolts, Nuts & Washers	No
7.19 False Alarm Prevention Pump Installed	N/A
7.20 Drain & Test Pipes Installed Correctly	Yes
<p>7.21 Weekly tests of the installation control valves alarm bell must be carried out with the alarms sounding for at least thirty seconds.</p> <p>All water pressure gauge readings must be checked and recorded.</p> <p>The testing and records should be carried out by a member of staff delegated to do this.</p>	
7.22 Trunk Main Pressure (kPa)	
1020	
7.23 Installation Pressure (kPa)	
1400	
7.24 ASIB Overhaul Date Tag No	Yes
Last Overhaul Date	
2024	

Next Overhaul Date

2027

7.25 Alarm Motor & Gong Test

Passed

7.26 Are All Valves in the Correct Positions

Yes

7.27 Are All Valves Secured

Yes

Non Compliance - Items

Item

Item 1

Non Compliance Items

► **Description**

Other

Maximum 1200 kPa

The system pressure has exceeded the maximum allowable pressure of 1200 kPa, this must be investigated and rectified by your installer.



Photo 15

Recommendation Items

8. Storage

Are the required clearances being maintained.

Yes

Are the storage heights exceeded.

No

At the time of inspection the storage heights were being adhered to and found to be in order.

The longitudinal and/or transverse flue spaces are not being maintained



The minimum longitudinal and transverse flue spaces shall not be less than 150 mm.

Location:

Racks

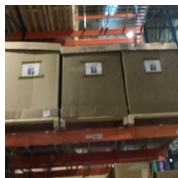


Photo 16



Photo 17

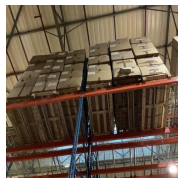


Photo 18

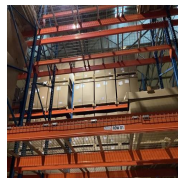


Photo 19



Photo 20

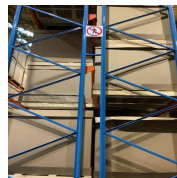


Photo 21

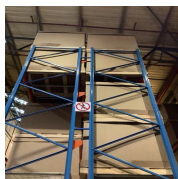


Photo 22

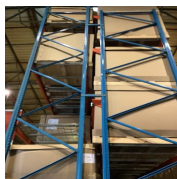


Photo 23

9. Sprinkler System

Sprinkler System

Area

Area 1

Specified Area.

Warehouse

System Issue

Issue

Issue 1

Finding

Other

Specify Other.



ESFR natural open Ventilation

Natural Open ventilation has been installed in conjunction with ESFR sprinkler protection. This is not acceptable. Mechanical vents may be installed

It is imperative that the mechanical vents do not open automatically in a fire situation as the ESFR sprinkler system will be adversely effected which could result in the ESFR system failure.

It is important that the mechanical vents be manually operated and that the Fire Chief in charge of operations during a fire be able to make the decision whether it should be opened or remain closed.

The effect of the ventilators installed in the roof may be considered as open ventilation. Their effect on the operation of the installed ESFR installation would be unknown. In order to have the finding satisfied, the OEM would need to be contacted and asked to define the ventilators in respect of ESFR operation and confirm them as an acceptable roof ventilation service. Any Clearance ASIB awards the site would exclude the potential negative impact the ventilators may have on the protection installed.

Location of Finding.

Roof monitors

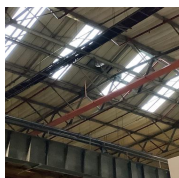


Photo 24

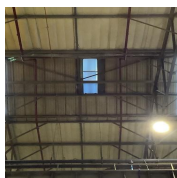


Photo 25

Issue 2

Finding

Other

Specify Other.

☒

Maximum roof angle exceeded.
The maximum roof angle of 9,5 degrees for effective ESFR protection appears to have been exceeded, this must be investigated and addressed by your installer.

Location of Finding.

Roof monitors



Photo 26

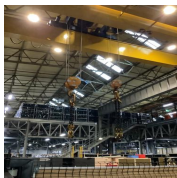


Photo 27

Issue 3

Finding

Other

Specify Other.

☒

Combustible roof sheeting above ESFR protection

ESFR sprinklers can only be located beneath non-combustible surfaces. Combustible translucent sheeting, may in the event of a fire negatively impact the operation of the ESFR installation. Heads or sheets would require to be relocated appropriately in order to satisfy this item.

Location of Finding.

Roof monitors

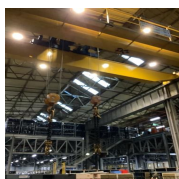


Photo 28

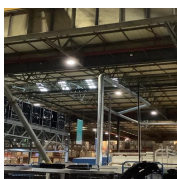


Photo 29

Issue 4

Finding

Partial Protection / Communicating Areas

Enclosed structures not sprinkler protected.

☒

A fire originating within an unprotected area will burn in an uncontrolled manner without alerting the sprinkler system unit until such time as it breaks out of the structure. The subsequent release of heat will operate multiple sprinklers at roof level above the fire area and remote from it causing massive damage.

Location of Finding.

Quality inspection



Photo 30

Issue 5

Finding

Partial Protection /
Communicating Areas

Enclosed structures not sprinkler protected.



A fire originating within an unprotected area will burn in an uncontrolled manner without alerting the sprinkler system unit until such time as it breaks out of the structure. The subsequent release of heat will operate multiple sprinklers at roof level above the fire area and remote from it causing massive damage.

Location of Finding.

Display room



Photo 31

Issue 6

Finding

Partial Protection /
Communicating Areas

Enclosed structures not sprinkler protected.



A fire originating within an unprotected area will burn in an uncontrolled manner without alerting the sprinkler system unit until such time as it breaks out of the structure. The subsequent release of heat will operate multiple sprinklers at roof level above the fire area and remote from it causing massive damage.

Location of Finding.

Knife scoring enclosure

Issue 7

Partial Protection /

Finding

Communicating Areas

Enclosed structures not sprinkler protected.



A fire originating within an unprotected area will burn in an uncontrolled manner without alerting the sprinkler system unit until such time as it breaks out of the structure. The subsequent release of heat will operate multiple sprinklers at roof level above the fire area and remote from it causing massive damage.

Location of Finding.

Chango line enclosure



Photo 32



Photo 33

Issue 8

Finding

Pipe Support

Additional range pipe hangers must be installed to support the range pipe lengths extending between the first sprinkler and the main distribution pipe.



Location of Finding.

Mezzanine

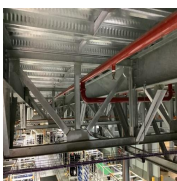


Photo 34

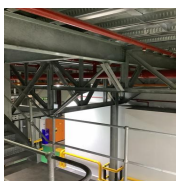


Photo 35

Issue 9

Finding

Partial Protection /
Communicating Areas

Enclosed structures not sprinkler protected.



A fire originating within an unprotected area will burn in an uncontrolled manner without alerting the sprinkler system unit until such time as it breaks out of the structure. The subsequent release of heat will operate multiple sprinklers at roof level above the fire area and remote from it causing massive damage.

Location of Finding.

Laser cutting enclosures

Issue 10

Finding

Other

Surfaces exceeding 1,0 metre in width.



Surfaces which exceed 1,0 metre in width will obstruct the water discharged from the sprinklers above which could result in an ignition beneath these surfaces not being controlled or extinguished.

The general obstruction is classed as 1,000 mm therefore sprinkler protection is required beneath any such obstruction which includes, but is not limited to;



Walkways, solid or open grid, and Work tables.

Location of Finding.

Conveyor

Issue 11

Finding

Exposure Hazards

Storage too close to building.



Drencher heads required which are purpose made sprinklers designed to spray water over a surface to provide protection against fire exposure. It is not acceptable to use standard sprinkler heads with the fusible elements removed for the purpose of providing wall or face wetting. The drencher system must extend along the walls of the protected building to a distance of 15.0 metres beyond each end of the stored goods. The feed for the drenchers must be taken from the underside of the valves and not from the downstream side of the installation. The stop valve controlling the drencher installation shall be located near to the sprinkler control valves, but must be at least 10,0 metres from the goods stored or from the area where they are expected to operate.

Location of Finding.

Generator and diesel tank



Photo 36

Issue 12

Finding

Exposure Hazards

Storage too close to building.



Drencher heads required which are purpose made sprinklers designed to spray water over a surface to provide protection against fire exposure. It is not acceptable to use standard sprinkler heads with the fusible elements removed for the purpose of providing wall or face wetting. The drencher system must extend along the walls of the protected building to a distance of 15.0 metres beyond each end of the stored goods. The feed for the drenchers must be taken from the underside of the valves and not from the downstream side of the installation. The stop valve controlling the drencher installation shall be located near to the sprinkler control valves, but must be at least 10,0 metres from the goods stored or from the area where they are expected to operate.

Location of Finding.

Receiving



Photo 37



Photo 38

Issue 13

Finding

Other

Surfaces exceeding 1,0 metre in width.



Surfaces which exceed 1,0 metre in width will obstruct the water discharged from the sprinklers above which could result in an ignition beneath these surfaces not being controlled or extinguished.

The general obstruction is classed as 1,000 mm therefore sprinkler protection is required beneath any such obstruction which includes, but is not limited to;



Walkways, solid or open grid, and Work tables.

Location of Finding.

Platforms at injection moulding

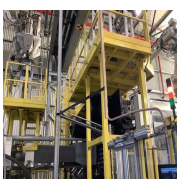


Photo 39

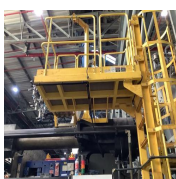


Photo 40

Issue 14

Finding

Pipe Support

Distribution rise/drop pipes shall be secured directly to the building structure or by hangers securing horizontal distribution pipes within 300 mm of the riser.



Location of Finding.

Droppers to canopies

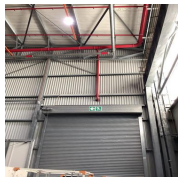


Photo 41

Issue 15

Finding

Partial Protection /
Communicating Areas

Portion of premises sprinkler protected with communicating sections that are not.



Partial protection can lead to a fire originating in the protected area radiating heat into the unprotected portion of the premises and starting secondary fires. The heat from these fires radiates or spreads back into the protected area causing excessive sprinkler operation.

Conversely, a fire originating in the unprotected portion will radiate heat or spread into the protected portion rapidly causing unnecessary sprinkler operation and overwhelming the sprinkler system installed.

Location of Finding.

Spares store

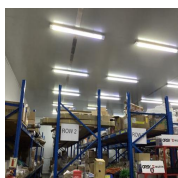


Photo 42



Photo 43

Issue 16

Finding

Partial Protection /
Communicating Areas

Portion of premises sprinkler protected with communicating sections that are not.



Partial protection can lead to a fire originating in the protected area radiating heat into the unprotected portion of the premises and starting secondary fires. The heat from these fires radiates or spreads back into the protected area causing excessive sprinkler operation.

Conversely, a fire originating in the unprotected portion will radiate heat or spread into the protected portion rapidly causing unnecessary sprinkler operation and overwhelming the sprinkler system installed.

Location of Finding.

Electrical DB enclosure



Photo 44

Issue 17

Finding

Pipe Support

1st range hangers are exceeding the maximum distance of 2,0 metres from the distribution pipe.



Location of Finding.

Above sowing machines

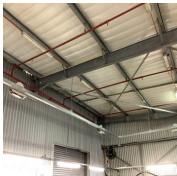


Photo 45

Issue 18

Finding

Other

Specify Other.



Pipe work must be supported independently from the composite panel, and the dry dropper must not be attached to the fabric of the cold room with mastic or insulating material that permanently bonds the dropper to the refrigerated structure.
In the event of collapse of the cold room, the cold room material must drop away from the sprinkler system.

Location of Finding.

Above foaming

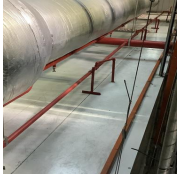


Photo 46



Photo 47

Issue 19

Finding

Pipe Support

The sprinkler pipe work must be correctly supported.



Location of Finding.

Above foaming



Photo 48



Photo 49



Photo 50

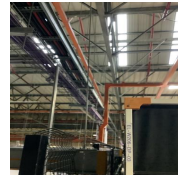


Photo 51

Issue 20

Finding

Other

Specify Other.



In multiple row pushback, post pallet, drive in and flow through racks where pallet loads abut one another, longitudinal flues are required at maximum intervals of 4,8 metres.

Slatted shelves shall have shelf-open areas, uniformly interspaced of at least 50% of the shelf plan area. The distance openings shall not exceed 150 mm.

Location of Finding.

Push through racks. Above to be verified to decide if in rack protection is required

Area 2

Specified Area.

Offices

System Issue

Issue

Issue 1

Finding

Sprinkler Spacing

Sprinkler protection must be extended in order to provide correct coverage.



Sprinklers are out of effective working distance.



Location of Finding.

HR office

General Notes



Photo 52

10. Proof of Inspection

Proof of inspection.

For and on behalf of client:



Camagwini Ngxokolo-Nomatye
10.05.2024 15:36 SAST

Proof of inspection.

ASIB Inspector:



Keith van Onselen
10.05.2024 15:36 SAST

WARNING

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The primary function of the ASIB is to protect the interests of the end user and as a result, we constantly update the list of registered suppliers and installing companies.

These companies have proven that they are capable of installing, extending and servicing fire sprinkler systems to the correct standards.

We have had occasion to remove companies for valid reasons which are not confidential and include, but are not limited to, poor workmanship, design, fabrication, incorrect advice, lack of skilled staff, fraudulent quotations and financial instability.

It is important to note that if a company is not listed with the ASIB and carries out work on a sprinkler system we will not be in a position to issue a Clearance Certificate for the premises which, in turn, may place you at risk.

In selecting your service provider, it is important to appreciate that the ASIB is not seeking to infer that a non-listed service provider is necessarily not capable of offering the required service to an appropriate standard. What the ASIB is saying, is that the ASIB is not in a position to give you the assurance that a non-listed provider concerned has demonstrated that it complies with the ASIB standards. In addition, because the ASIB is unable to fully inspect an installation (which by its nature has many inaccessible components), you will appreciate that the ASIB is also unfortunately not in a position to issue a Clearance Certificate in relation to an installation done by a non-listed company.

We advise you to check the listing status of the service provider you choose especially if there is any uncertainty.

You can access our website at <http://www.asib.co.za> which is current or phone our offices at 011 642 1703 for verification.

Email:

Email: 1

Recipient

Mteteleli@elidz.co.za

Email: 2

Recipient

camagwini@elidz.co.za

Media summary



Photo 1



Photo 2



Photo 3

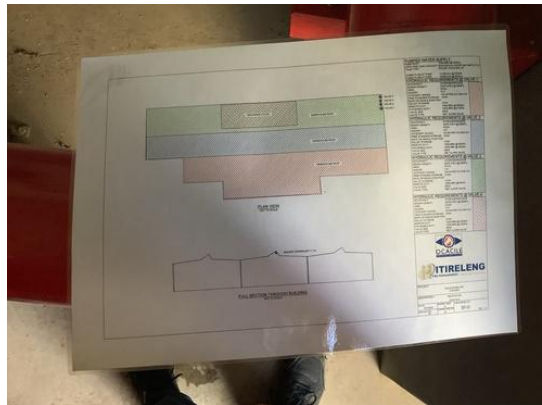


Photo 4

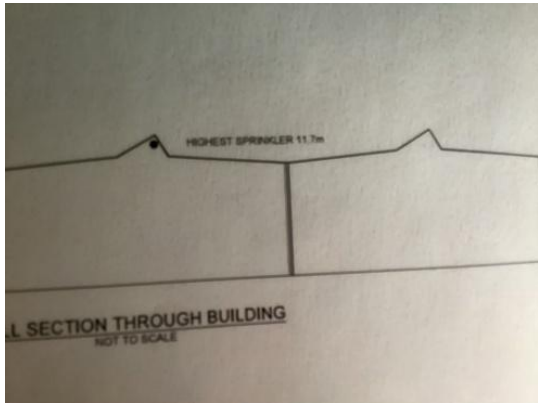


Photo 5

PUMPED WATER SUPPLY:	
PUMP DUTY:	7500L/MIN @ 960kPa
EFFECTIVE TANK CAPACITY:	650m³(86.6min WATER @ PUMP DUTY)
TANK TYPE:	ROUND TANKS 50% X2
Q MAX FLOW AT PUMP:	11105L/min @ 903kPa
P MAX FLOW AT PUMP:	10240L/min @ 903kPa
HYDRAULIC REQUIREMENTS @ VALVE 1:	
OCCUPANCY:	STORAGE/PROCESS
DESIGN DENSITY:	ESFR K36.3 @ 280kPa
AREA:	ROOF
HAZARD:	H.H
CATEGORY GOODS:	I-III AS PER 312 AND 313
FREE STANDING STORAGE:	10.6m
RACK OR SINGLE ROW POST:	10.6m
PALLET STORAGE:	10.6m
REMOTE DUTY:	7490L/MIN @ 605kPa
FAVORABLE DUTY:	7400L/MIN @ 510kPa
VALVE SIZE:	Ø200
VALVE TYPE:	WET ALARM VALVE
HYDRAULIC REQUIREMENTS @ VALVE 2:	
OCCUPANCY:	STORAGE/PROCESS
DESIGN DENSITY:	ESFR K36.3 @ 280kPa
AREA:	ROOF
HAZARD:	H.H
CATEGORY GOODS:	I-III AS PER 312 AND 313
FREE STANDING STORAGE:	10.6m
RACK OR SINGLE ROW POST:	10.6m
PALLET STORAGE:	10.6m
REMOTE DUTY:	7490L/MIN @ 585kPa
FAVORABLE DUTY:	7400L/MIN @ 492kPa
VALVE SIZE:	Ø200
VALVE TYPE:	WET ALARM VALVE
HYDRAULIC REQUIREMENTS @ VALVE 3:	
OCCUPANCY:	STORAGE/PROCESS
DESIGN DENSITY:	ESFR K36.3 @ 280kPa
AREA:	ROOF
HAZARD:	H.H
CATEGORY GOODS:	I-III AS PER 312 AND 313
FREE STANDING STORAGE:	10.6m

Photo 6

HAZARD:	H.H
CATEGORY GOODS:	I-III AS PER 312 AND 313
FREE STANDING STORAGE:	10.6m
RACK OR SINGLE ROW POST:	10.6m
PALLET STORAGE:	10.6m
REMOTE DUTY:	7490L/MIN @ 585kPa
FAVORABLE DUTY:	7400L/MIN @ 492kPa
VALVE SIZE:	Ø200
VALVE TYPE:	WET ALARM VALVE
HYDRAULIC REQUIREMENTS @ VALVE 3:	
OCCUPANCY:	STORAGE/PROCESS
DESIGN DENSITY:	ESFR K36.3 @ 280kPa
AREA:	ROOF
HAZARD:	H.H
CATEGORY GOODS:	I-III AS PER 312 AND 313
FREE STANDING STORAGE:	10.6m
RACK OR SINGLE ROW POST:	10.6m
PALLET STORAGE:	10.6m
REMOTE DUTY:	7490L/MIN @ 455kPa
FAVORABLE DUTY:	7360L/MIN @ 425kPa
VALVE SIZE:	Ø200
VALVE TYPE:	WET ALARM VALVE
HYDRAULIC REQUIREMENTS @ VALVE 4:	
OCCUPANCY:	STORAGE/PROCESS
DESIGN DENSITY:	ESFR K36.3 @ 280kPa
AREA:	ROOF
HAZARD:	H.H
CATEGORY GOODS:	I-III AS PER 312 AND 313
FREE STANDING STORAGE:	10.6m
RACK OR SINGLE ROW POST:	10.6m
PALLET STORAGE:	10.6m
REMOTE DUTY:	7420L/MIN @ 495kPa
FAVORABLE DUTY:	7360L/MIN @ 425kPa
VALVE SIZE:	Ø200
VALVE TYPE:	WET ALARM VALVE

Photo 7



Photo 8



Photo 9

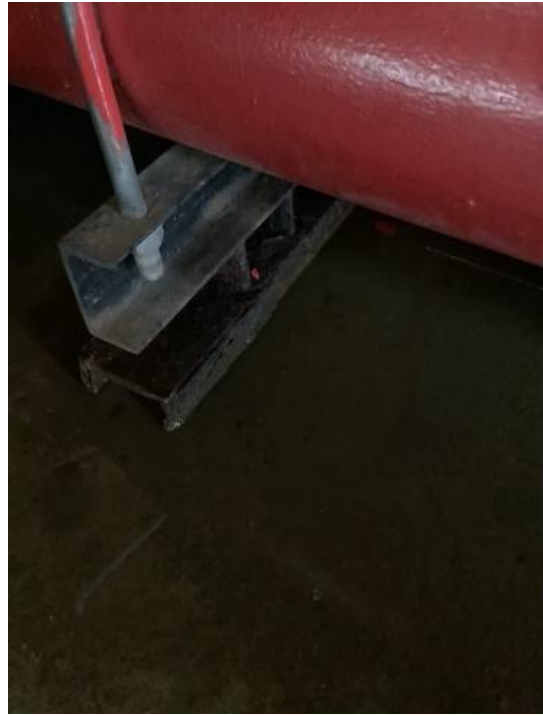


Photo 10



Photo 11



Photo 12



Photo 13



Photo 14



Photo 15



Photo 16



Photo 17



Photo 18

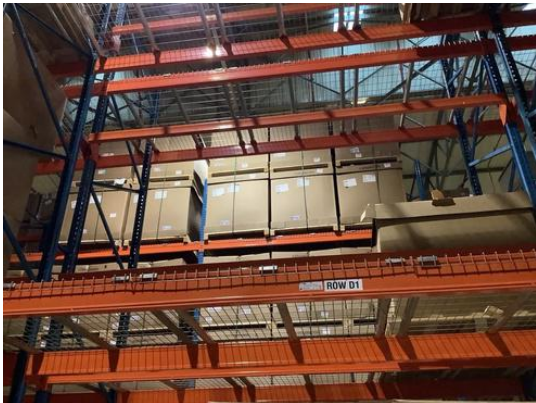


Photo 19



Photo 20



Photo 21



Photo 22



Photo 23



Photo 24



Photo 25



Photo 26

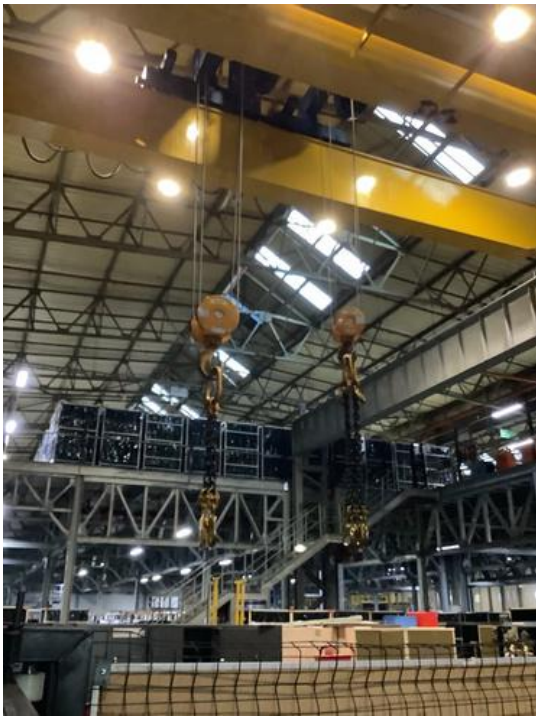


Photo 27



Photo 28



Photo 29



Photo 30



Photo 31



Photo 32



Photo 33



Photo 34



Photo 35



Photo 36



Photo 37



Photo 38



Photo 39



Photo 40



Photo 41



Photo 42



Photo 43



Photo 44



Photo 45



Photo 46



Photo 47



Photo 48

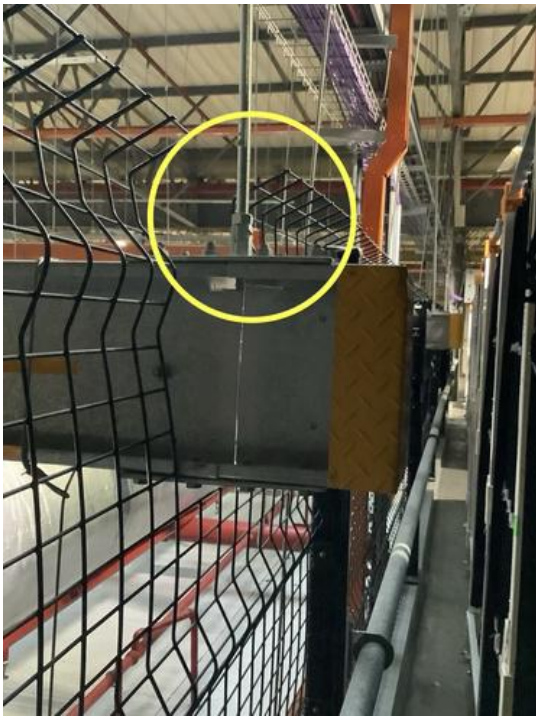


Photo 49



Photo 50

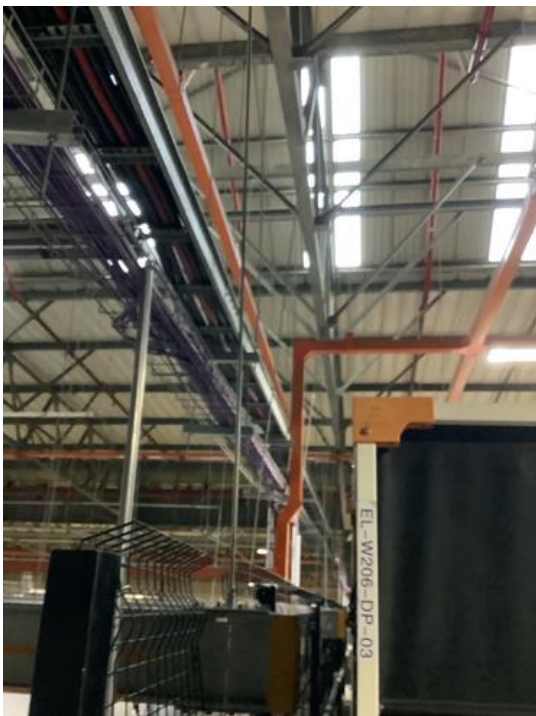


Photo 51



Photo 52