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1. Introduction

1.1 Introduction

Scope of the report

The information in this report is based on a site visit and information provided by University Utrecht (hereafter: UU). A good impression could be gained from the housekeeping, risk awareness, fire protection installations, and fire compartmentation based on the visit. During the visit, the emphasis was on a random review of technical areas, fire-resistant separations, catering and areas for practicums. The survey has been supplemented with information insofar as it is provided by UU. The EML and MPL scenarios at the end of this report are based on these gathered impressions. The survey is held during the COVID epidemic. As a result, the occupancy of the buildings was less than normal.

1.2 Participants

Participants surveys

The survey (15-06-2021) has been accompanied by the following person from the UU organization:

- Jeffrey van Leeuwen - Facility

1.3 General

General information UU organisation

The UU has a broad variety of Education Programs, in all kinds of fields from practical studies to theoretical studies. There are 50 bachelor's programs and 154 master's programs that represent a cross-section of the entire scientific spectrum. The programs are part of organized units. There are several partnerships with international training institutions and collaborations with national and international companies. Research is done by students within several units. These activities are done under the strict supervision of the teaching staff. Every location has its own facility managers.

Utrecht University boasts seven faculties.

Faculties

Each faculty consists of a number of departments. Each department coordinates the research and teaching programmes of a specific field of science. Scientific staff are appointed at department level.

- Faculty of Geosciences
- Faculty of Humanities
- Faculty of Law, Economics and Governance
- Faculty of Medicine
- Faculty of Science
- Faculty of Social and Behavioural Sciences
- Faculty of Veterinary Medicine

There are 30,000+ students. In total the staff is 8035 persons of whom 4,316 persons are teaching staff

General information about UU locations:

Willem C. Schimmelgebouw (Yalelaan 112-114). In this building:

- Faculty of Veterinary Medicine
- Department of Equine Sciences
- Department Clinical Sciences

The Willem C. Schimmel building houses the stables for horses including a few surgery rooms for horses. These rooms are equipped with special hoists to move the anesthetized horses to the surgery room and later to a special room/ stable with soft walls and floor to get awake again). This building also houses a large auditorium and the maintenance department.

Dr. H. Jacobgebouw (Yalelaan 108-110). In this building:

- Faculty of Veterinary Medicine
- Department Clinical Sciences of Companion Animals
- Veterinary Service and Cooperation
- Emergency Clinic for Companion Animals
- Department Clinical Sciences

The Dr. H. Jakobbuilding is in use as medical treatment centre for pats such as small animals up to dogs and cats. There are stables to keep the animals overnight for medical checks, MRI, a CT-scanner, and also radiation therapy.

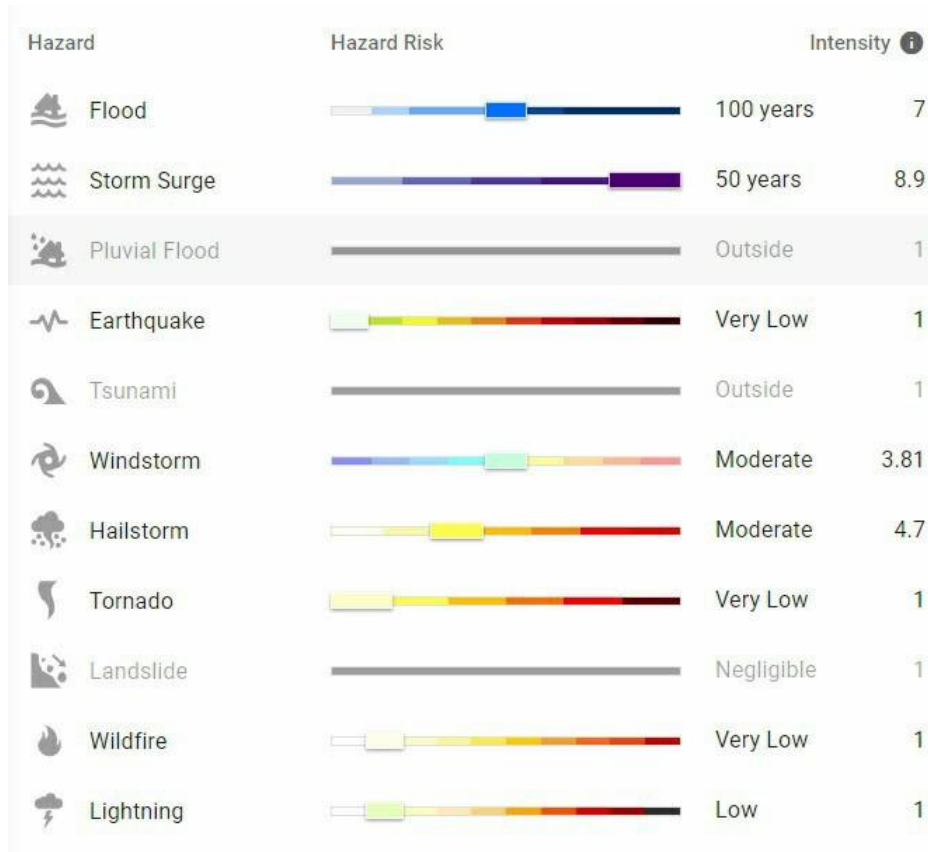
Jeannette Donker-Voet gebouw (Yalelaan 104-106 / Munsterlaan 1). In this building:

- Faculty of Veterinary Medicine
- Department Population Health Sciences and Clinical Sciences
- Veterinary Pharmacy

The Jeannette Donker-Voet building houses offices, some research laboratories and a restaurant with a professional kitchen.

These three buildings, each with three floor levels, represents one single fire area (worst case scenario). Therefore the site is described in one report.

The general housekeeping in the buildings is good. The type of education that is given at this location does in general not introduce specific 'fire' risks.



* Source: CatNed SwissRe

Based on information from the Dutch Directorate-General for Public Works and Water Management, this location is located in an area that has no flood risk.

Special process

Storage of hay, straw and animal food. The storage is in relatively small quantities, and bulk storage is located at sufficient distance from the buildings. At one location, the hay is stored in a non-sprinklered part. It is recommended to install dry or anti-freeze sprinklers under this roof.

1.4 Future plans

A complete roof renovation is planned. White bitumen and reportedly mineral wool will be installed where this is not yet present. There are also plans to extend the PV installation on the roof. UU is already in consultation with Aon about this in order to establish this in a safe and desirable manner.

Furthermore, no significant changes to the building should be expected in short term.

2. Construction

2.1 Construction

The building has a partly steel and partly concrete load bearing construction. Most of the roofs are made of concrete and partly of steel with mineral wool insulation and reportedly partly PIR insulation. The exterior walls are a mixture of masonry provided at the outside with PUR insulation covered with tiles and partly with wood covered. Therefore is the construction rated as combustible (inferior). The building is widely spread and provided with several 30 and some 60 minutes fire retardant partitions. Fire detection is installed to close the fire retardant doors. Automatic sprinklers are installed in most parts, however not in some high value rooms such as the six surgery rooms (for pats) and the MRI-room.



At the left the 'Jeanette Donker Voet' building, in the middle 'Dr. H. Jacob' building and on the right the 'Willem C. Schimmel' building.

3. Utilities

3.1 Utilities

The electrical installation is fed by a transformer that is owned and maintained by Stedin. Detailed information about the transformers was not available. The main distribution box is located in a closed area with a fire resistance of at least 60 minutes. The other distribution boxes in the buildings are located on every floor in the building

The installation is maintained by the installer. A (Dutch) NEN3140 inspection is done every 5 years, thermographic inspections included. Defects that emerge from the inspection will be remedied as soon as possible. Visually, the installation is in a good condition. The use of power strips is minimal. Separate electrical appliances are inspected annually, including private equipment that is allowed by UU.

The building is heated with district heating with a heat pump. The heat is transported through the building by air ducts. This installation is also able to cool.

Other installations are an air compressor installation and refrigerating compressors. These are well set up and are periodically maintained.

4. Protection

4.1 Fire Protection

There is an automatic sprinkler system (estimated >70%). The automatic sprinkler is certified. There are two independent pumps with two independent clear water basins present. The system is certified and audited adequately. The automatic sprinkler minimum design is 5 litres/min/m² over 360 m² or 7.5 litres/min/m² over 260 m².

The two automatic sprinkler pumps have a rated capacity of 192 m³/h (equals 3200 litres/min) at a pressure of 4.5 bars getting the water from two clear water basins of 500 and 700 m³. The sprinkler pump is tested every two weeks by a specialized third party.

Alarms are transmitted to a 24/7 alarm centre. The valves have open position monitoring. The installation is inspected twice a year.



Also, there is a certified automatic fire detection available. Alarms are transmitted to a 24/7 alarm centre.

4.2 Security

The whole building is protected by an alarm system with motion detection and door magnets. The alarms are transmitted to a 24/7 alarm centre. In case of an alarm, a private security service is notified and will respond. In addition, also cameras with recording in and around the building are installed. The building is closed by the private security service at 22.00 p.m.

5. Loss Estimates

5.1 Values

Section/Property	Indemnity period	Value	Source	EML (%)	MPL (%)	Third party
		99,700,000 EUR	Policy	10	70	

5.2 Breakdown of values

Building	Insured value Property
Willem C. Schimmelgebouw	EUR 53,500,000
Dr. H. Jakobgebouw	EUR 30,800,000
Jeannette Donker-Voet gebouw	EUR 15,400,000
Total	EUR 99,700,000

5.3 Loss estimates summary table

Property Damage / Business interruption	FMI (%)	MPI (%)	FMI (value)	MPI (value)
Material Damage	10%	70%	9,970,000 EUR	69,790,000 EUR
Business Interruption	0%	0%	0 EUR	0 EUR
Combined	10%	70%	9,970,000 EUR	69,790,000 EUR

5.4 Loss Scenarios

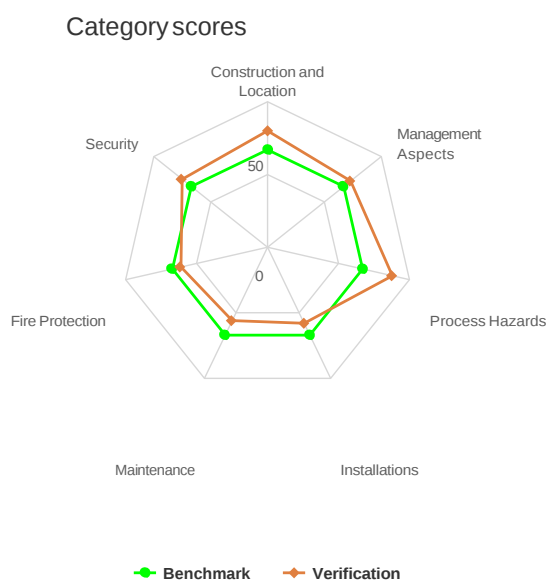
Name	Definition	Scenario
MPL	<i>Maximum Possible Loss scenario(s) according to the CEA 1999 definition. (The Maximum Possible Loss is that which may occur when, the most unfavourable circumstances being more or less exceptionally combined, the fire is only stopped by impassable obstacles or lack of substance).</i>	With the automatic sprinkler system impaired the fire will be discovered after some time especially as a dormitory for hundreds of students is located nearby as well as the permanent open academic hospital. A large fire will be discovered quite fast after breaking out. The building has very large dimensions (very widely spread). A fire in the stables that is not controlled by the automatic sprinkler will cause smoke and soot damage and destroy a part of the building. A loss estimation for MPL is 70 % of the values of these three buildings.
EML	<i>Estimated Maximum Loss scenario(s) according to the CEA 1999 definition. (The Estimated Maximum Loss is that which could reasonably be sustained from the contingencies under consideration, as a result of a single incident considered to be within the realms of probability taking into account all factors likely to increase or lessen the extent of the loss, but excluding such coincidences and catastrophes which may be possible but remain unlikely).</i>	A fire is normally controlled by the automatic sprinklers, however some high value rooms are not sprinkler protected and a fire spread from these low fire load rooms could be expected to slowed down until the fire brigade arrives. Furthermore, the building has a stretch layout. The EML is set at 10 %.

6. Scorecard results

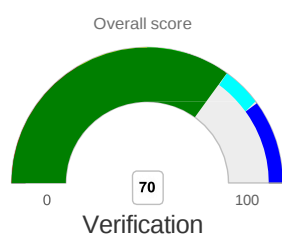
6.1 Category scores (histogram)



6.2 Category scores (spider web)



6.3 Overall scores



6.4 Scorecard results

		Category Weight	Subject Weight	Verification score	Comment
1	Construction and Location	10			
1-01	Building construction		1	2	N
1-02	Roof insulation		1	3	N
1-03	Wall insulation		1	1	N
1-04	Combination solar panels vs. roof structure		1	3	
1-05	adjacent buildings		1	3	N
2	Management Aspects	10			
2-01	Risk Management Policy		1	2	N
2-02	Supervision outside opening hours		1	2	N
2-03	Self-inspection		1	2	Y
2-04	Smoking policy		1	3	N
2-05	Hot work Procedure		1	3	Y
2-06	Waste handling inside		1	2	N
2-07	Waste handling outside		1	2	N
2-08	Housekeeping		1	2	Y
2-09	Housekeeping technical areas		1	2	N
2-10	Management of Change (MOC)		1	2	N
3	Process Hazards	10			
3-01	Practice rooms: gasses		1	N/A	N
3-02	Practice rooms: flammable liquids and aerosols		1	N/A	N
3-03	Practice rooms: wood working		1	N/A	N
3-04	Practice rooms: metal working		1	N/A	N
3-05	Practice rooms: plastic machining		1	N/A	N
3-06	Practice rooms: paint spraying		1	N/A	N
3-07	Practice rooms: experiments and research		1	2	N
3-08	Practice rooms: unmanned processes		1	N/A	N
3-09	Practice rooms: textile processing		1	N/A	N
3-10	Catering / restaurant		1	2	N
3-11	Battery charging (tools, etc.)		1	1	N
3-12	Theaters		1	N/A	N
4	Installations	10			
4-01	Electrical installation		1	2	N
4-02	Local heating		1	2	N
4-03	Installations for cooling		1	2	N
4-04	Lightning and overvoltage protection		1	2	N
4-05	Air compressors		1	2	N
4-06	Solar panels		1	1	Y
4-07	Electric bicycles		1	0	N
4-08	Charging of electric vehicles		1	3	Y
5	Maintenance	10			
5-01	Inspectie elektrische installatie en gereedschappen		1	1	Y
5-02	Inspectie PV installatie		1	2	Y
5-03	Onderhoudsprogramma		1	2	

		Category Weight	Subject Weight	Verification score	Comment
6	Fire Protection	10			
6-01	Fire department		1	1	N
6-02	extinguishing water		1	-	Y
6-03	hand extinguishers		1	2	N
6-04	Fire hoses		1	2	N
6-05	Automatic fire detection		1	2	N
6-06	Fire separations		1	2	N
6-07	Specific object fire protection		1	N/A	N
6-08	Automatic sprinkler system		1	2	N
7	Security	10			
7-01	Access site and buildings		1	2	N
7-02	Burglary system		1	2	N
7-03	Security cameras		1	2	N
	Specific computer equipment		1	N/A	

6.5 Review comments

1-04	Combination solar panels vs. roof structure The roof exist of concrete and mineral wool.	Peter Uri
2-03	Self-inspection Self-inspections are being done on a regular basis. The housekeeping is perfect and the site is well managed. Documented fire safety self-inspection program in use covering hazards and essential fire safety elements.	Peter Uri
2-05	Hot work Procedure There is a formal strict hot work procedure including a fire watch.	Peter Uri
2-08	Housekeeping In general, housekeeping is at a excellent level. - The corridors are free of any storage. - There is hardly any yard storage. - Adequate clearance to sprinkler heads (where installed) - Aisles & passageways kept clear of obstructions - All work and storage areas well controlled and in good state - Combustible materials cleared from hazardous areas - Fire protection equipment easily accessible Idle pallet storage minimised and meets appropriate separation distances No excess storage in process areas	Peter Uri
4-06	Solar panels Part of the Willem Schimmel building has a PV installations. Recently a Scope 12 inspection has been conducted. During the survey the report was not available.	Peter Uri
4-08	Charging of electric verhicles Charging of electric vehicles is not applicable. There are no charging stations available.	Peter Uri
5-1	Electrical equipment of installation Inspection of electrical equipment is done every 5 years according the Dutch NEN3140. Tools are inspected yearly.	Peter Uri

5-2	Solar panel installation A scope 12 inspection is recently conducted. The report was not yet available during the survey.	Peter Uri
6-02	Extinguishing water The public water supply consist of underground hydrants fed by the municipal water supply.	Peter Uri

7. Recommendations

7.1 PV installation - Dutch Scope 12 report

<i>ID</i>	2021001	<i>Issued by</i>	
<i>Status</i>	New	<i>Currency</i>	
<i>Category</i>	Human Element	<i>Estimated costs</i>	
<i>Subcategory</i>	Maintenance and inspection electrical installations	<i>Loss Estimate before</i>	
<i>Priority</i>	Medium	<i>Loss Estimate after</i>	

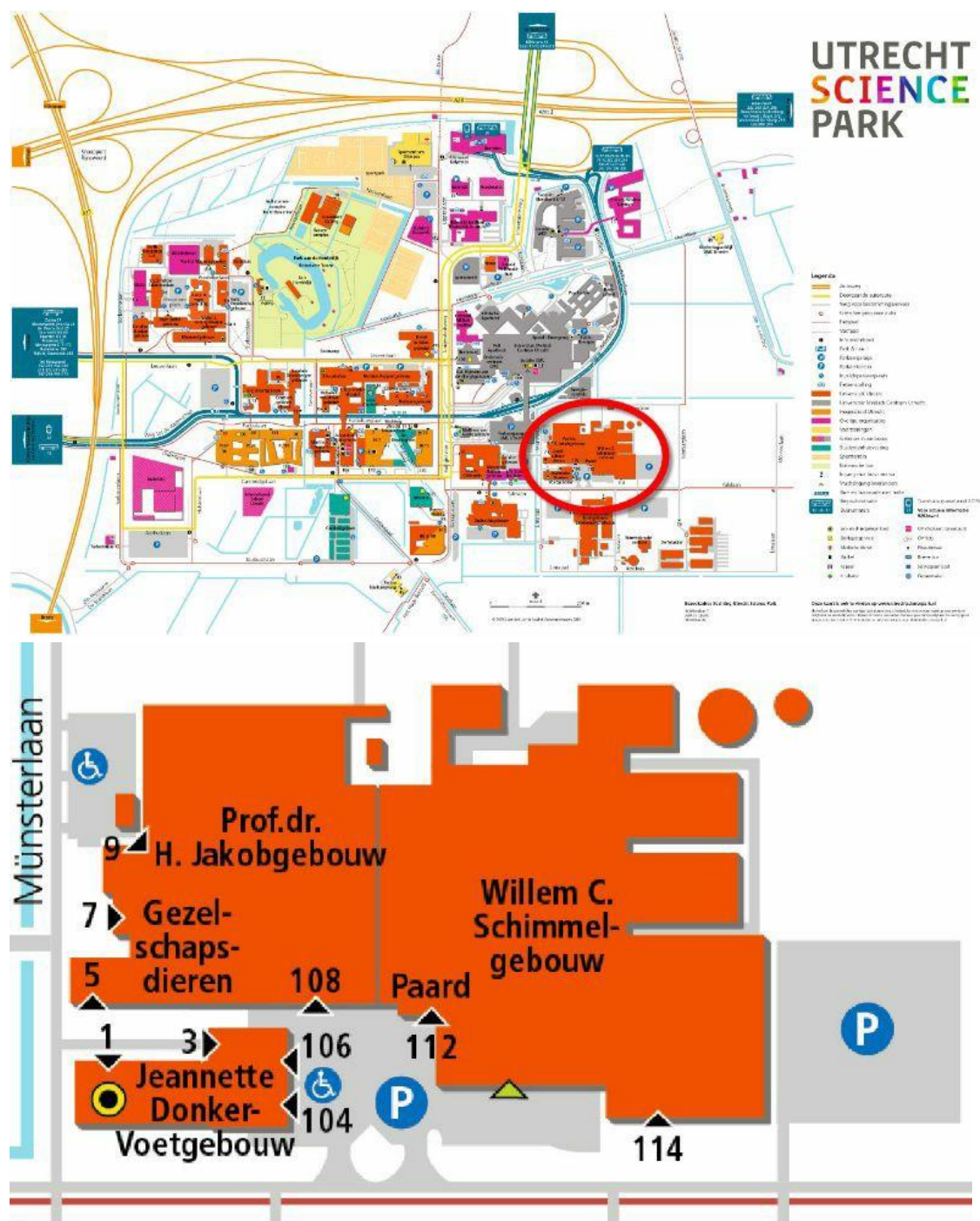
On the roof of the Willem C. Schimmel building, a PV installation is present. Reportedly this installation has had a recent inspection. The Dutch Scope 12 report was not available during the survey. Also, further specs about this installation are not known. Therefore, it is advised to share the Dutch Scope 12 report. If possible deficiencies emerge from the inspection, we recommend that they be resolved as soon as possible but no later than 4 month after the inspection.

7.2 Extend sprinkler system

<i>ID</i>	2021002	<i>Issued by</i>	
<i>Status</i>	New	<i>Currency</i>	
<i>Category</i>	Physical Protection	<i>Estimated costs</i>	
<i>Subcategory</i>	Automatic Sprinkler	<i>Loss Estimate before</i>	
<i>Priority</i>	Medium	<i>Loss Estimate after</i>	

A large part of the building is equipped with automatic sprinklers. However, outside the horse stables is a adjacent canopy in use for the storage of hay, straw and are also located some outside stables. In this area automatic sprinklers are lacking. A fire of this material is not detected and a fire can occur during the evening, night and weekends and burn for a long time before it is noticed and thereby ignite the partially combustible facade. Such a fire will not be controlled by the automatic sprinkler in the building which can still cause (very) large damage. Therefore, it is recommended to provide an automatic sprinklers (dry or antifreeze system to prevent freezing) appearance) in this area.

8.1 Layout - Drawings



8.2 Aerial view

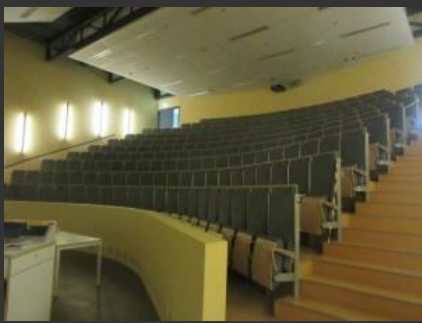


A. Willem C. Schimmelgebouw (Yalelaan 112-114)

B. Dr. H. Jacobgebouw (Yalelaan 108-110)

C. Jeannette Donker-Voet gebouw (Yalelaan 104-106 / Munsterlaan 1)

8.3 Pictures

		
Willem Schimmel building	Hallway	Lecture hall
		
Horse practise hall		One of the fire alarm panels
		
Small oven for forge	Stables area	The surgery department at the Dr H. Jacobgebouw

9. About Aon

Aon plc (NYSE:AON) is a leading global professional services firm providing a broad range of risk, retirement and health solutions. Our 50,000 colleagues in 120 countries empower results for clients by using proprietary data and analytics to deliver insights that reduce volatility and improve performance.

All inspections, reports and recommendations are purely advisory and for the purpose of assisting clients and insureds in risk control and safety procedures. Observations and recommendations are the result of practices and conditions observed and information made available to us at the time of our visit and do not purport to refer to or to guarantee compliance with local, state or federal regulations which may be applicable to such practice and conditions. This report should not be considered a definitive listing of all existing hazards nor an absolute solution to all indicated hazards. No responsibility for the implementation, management and operation of risk control and safety procedures is assumed by Aon Risk Solutions.