



BYCN GUIDELINES

VEHICLES / PEDESTRIANS INTERACTIONS



JULY 2025



Summary



1 Objectives and Scope

2 Lines of Defence

3 Life Saving Rules



1

Objectives and Scope



Objectives

The objective of this document is to describe Bouygues Construction's requirements for **controlling risks of collision between machines or vehicles and pedestrians.**

It applies to all Bouygues Construction sites, irrespective of the party performing the work including:

- Internal employees
- External partners
- Subcontractors.

In the context of JV projects, specific project procedures include at least the provisions described in this document, as well as the non-contradictory provisions of our partners. They are adopted prior to launching production.

Lines of Defence and Life Saving Rules mentioned in these guidelines are to be **part of Unique Operational Manuals** established by each BYCN Entity / Business Unit.

In instances where any part of this document conflicts with or is of a lower standard than local regulations, the more stringent local regulations will take precedence.

Each BYCN Entity / Business Unit **inform and train their personnel** on the content of their Unique Operational Manual to maintain a high standard of safety and operational efficiency.

SCOPE



INCLUDING



Risks of **collision between any type of motorized vehicle** on the project (construction site / road environment in particular)

Risks of **collision between any type of motorized vehicle and a pedestrian** on the project

EXAMPLES

Pedestrian-machines and/or machine/machine interactions are characterized in the following situations:

Entrances-exits to BYCN sites, workshop and installations for the following machines or vehicles:

- Semi-trailers, delivery trucks for equipment or materials, dumps trucks, heavy equipment carriers
- Utility vehicles, cars, etc.
- Concrete mixers, concrete pumps,
- Mobile cranes, telehandler, manuscopic, etc.

Vehicles-pedestrian **coactivity** during:

- Earthworks: large mass, sanitation, road haulage, quarries, mines, etc.
- Travel on construction sites, workshops and stores, project car parks,
- Travel to production areas (voussoirs, concrete, asphalt, etc.)
- Movement of construction equipment such as cherry pickers, telehandler, excavators, tippers, etc.

Interaction with the **public/private domain**:

- Travel in the public domain (example in rehabilitation of an occupied site)
- Travel along or railway lines in circulation.

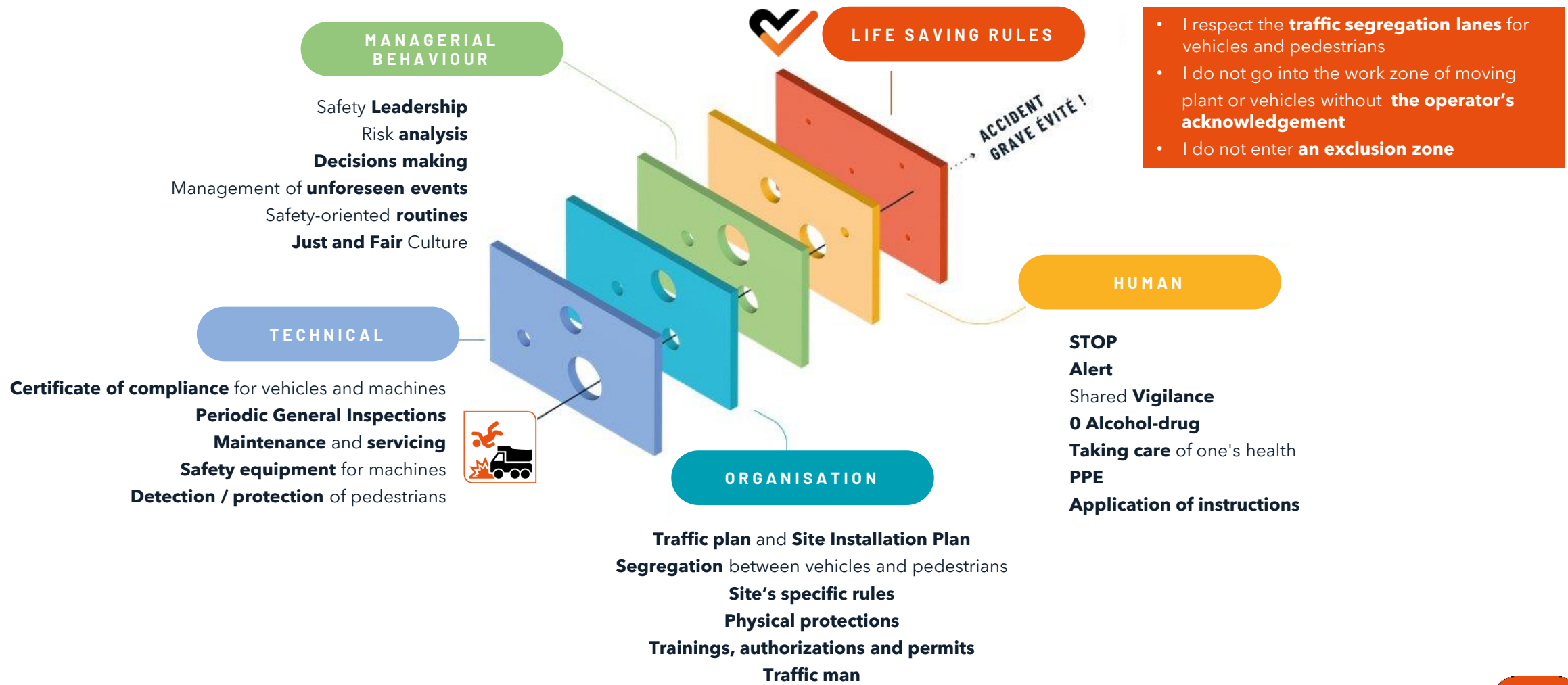


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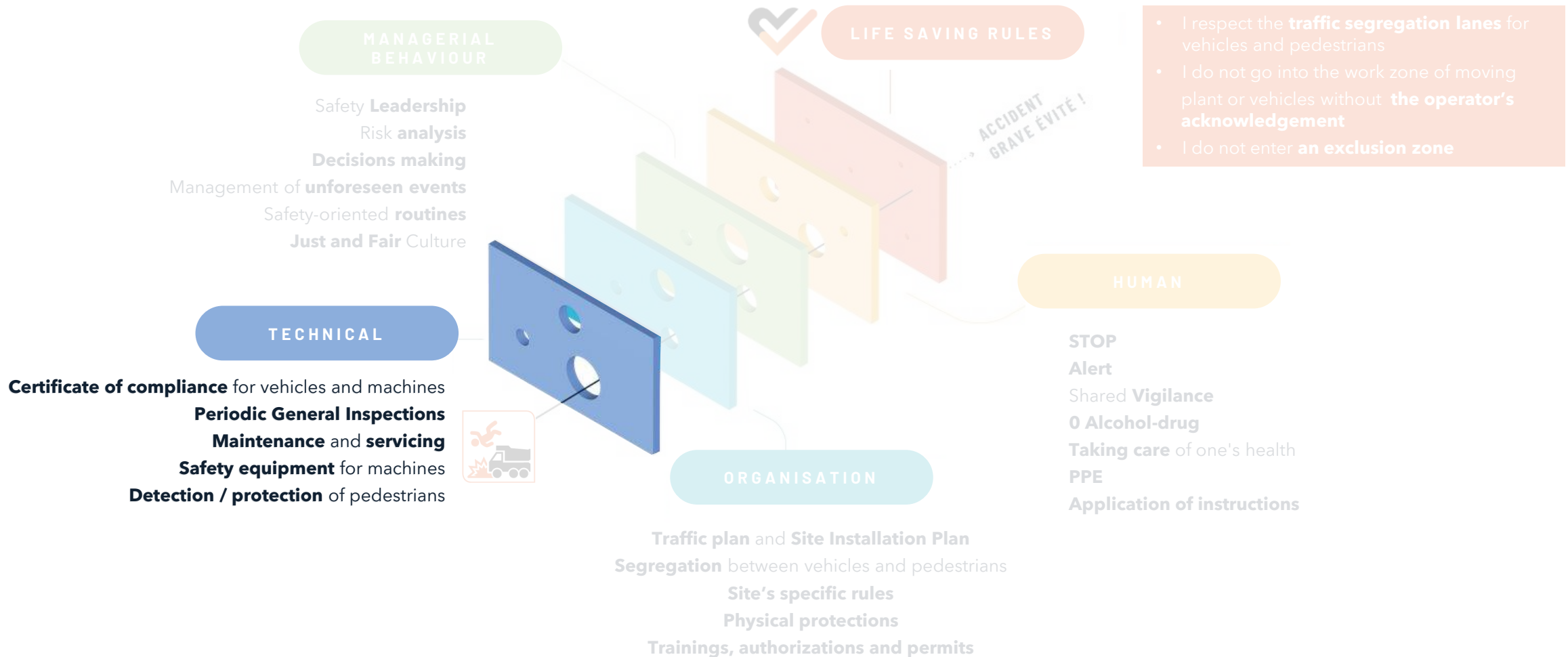
Lines of Defence



LINES OF DEFENCE RISK OF COLLISION VEHICLES / PEDESTRIANS

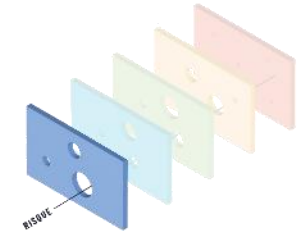


LINES OF DEFENCE RISK OF COLLISION VEHICLES / PEDESTRIANS



LINES OF DEFENCE

RISK OF COLLISION VEHICLES / PEDESTRIANS



TECHNICAL



Certificate of compliance for vehicles and machines

- All vehicles and machines used on the project complies with local regulations. This conformity is characterized by the provision in the operator's cabin of a certificate of compliance issued by the manufacturer and attesting to compliance with all the regulations to which the equipment he has designed may be subject.



Periodic General Inspection

- **All machine used is uniquely identified, registered and subject to Periodic General Inspection at least every 12 months** (excluding lifting equipment) and 6 months for cherrypickers. These Periodic General Inspections are carried out by a competent organization and according to local regulations.
- Observations expressed during Periodic General Inspections are fixed following the requirements specified in the report.
- **Those requiring immediate immobilization of the machine are fixed before any (re)use**, it being immobilized while it is brought back into compliance (visual means of prohibiting use on the machine).

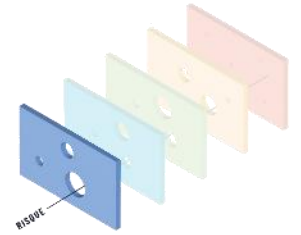


Maintenance and servicing

- **Vehicles and machines are serviced and maintained** in accordance with supplier and regulatory recommendations.
- When service and maintenance is to be carried out on site, dedicated protected arrangements for **intervention areas are defined for these operations, and they figure on the Site Installation Plan.**

LINES OF DEFENCE

RISK OF COLLISION VEHICLES / PEDESTRIANS



TECHNICAL

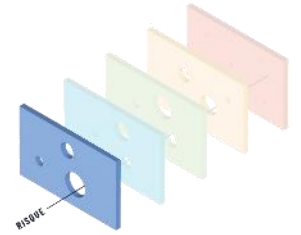


Safety equipment for machines

- **Seat belt systems** are mandatory.
- Each machine is equipped with:
 - A warning device, such as **rotating beacon**,
 - A reversing beep / lynx cry sound device, to alert in case of any **movement in reverse**,
 - A device to signal any **movement of machine when its equipment** (such as tipper, boom, forks, stabilizers, drop sides, auxiliary crane) **are not in a secure position**.

LINES OF DEFENCE

RISK OF COLLISION VEHICLES / PEDESTRIANS



TECHNICAL



Detection / protection of pedestrians

- Machines and vehicles, including construction vans, operating in areas accessible to pedestrians, are equipped with at least **reversing cameras or radars** depending on their type and on the site's risk analysis (coactivity, restricted or constrained spaces).
- **If it is technically impossible to equip a machine or a vehicle even though the risk analysis requires it**, a specific instruction includes the use of a traffic man for all movements in pedestrian/vehicle interactions or maneuvering areas.
- Depending on the risk analysis and considering the specific conditions of the site, the activity to be carried out and the coactivity, **a pedestrian detection system can be implemented** in addition to the reversing cameras and/or radars.



LINES OF DEFENCE RISK OF COLLISION VEHICLES / PEDESTRIANS

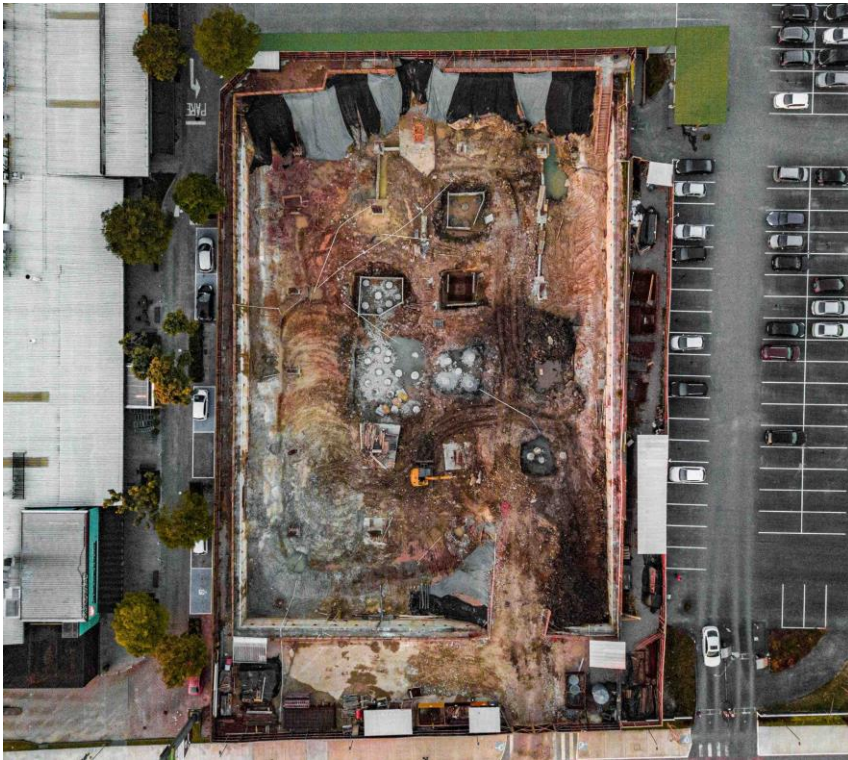


LINES OF DEFENCE

RISK OF COLLISION VEHICLES / PEDESTRIANS



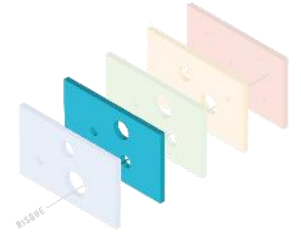
ORGANISATION



Traffic Plan

- An **evolving traffic plan based on the work schedule** is prepared, verified and issued by the competent people. It covers the entrances/exits of machines and vehicles, the movement of machines on the various roads on the site, as well as pedestrian access to the different activity zones and the site premises.
- **When works require the intervention of machines outside the site roads**, the procedures and risk analysis relating to this work illustrate the access of machines to the areas concerned and the means of separation of flows required with respect to pedestrians and other vehicles in the surrounding area.
- **In roaming operations**, or along public roads, road marking protocols defined by local regulations are applied. The circulation plan then defines the accessibility conditions (axle load, wheelbase, size, etc.).

LINES OF DEFENCE RISK OF COLLISION VEHICLES / PEDESTRIANS



ORGANISATION



Site Installation Plan



- **A graphic document (printed, 3D, electronic, etc.) brings together information relating to the layout of the site and gives an overall vision of the progress of the work.** It is drawn up in accordance with the schedule and can include the phasing of the work as well as the various movements of the site installations before the completion of the work. It can also integrate the traffic plan.
- Depending on the importance of the work, **several plans may be necessary to facilitate the reading of information** concerning: site fences and accesses, delivery and storage areas, work areas and roads, location and the movement of site equipment (crane, concrete plant, scaffolding , etc.), site premises (sanitary facilities, offices and rest areas, assembly point), safety devices and all other useful information.

LINES OF DEFENCE

RISK OF COLLISION VEHICLES / PEDESTRIANS



ORGANISATION

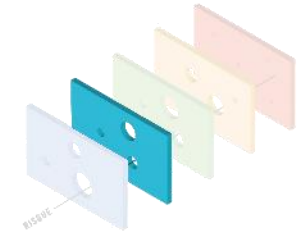


Segregation between vehicles and pedestrians

- **Pedestrian paths and those of vehicles are completely separated** to avoid any risk of collision.
- In the event of proximity, the movement of machinery is separated from that of pedestrians by **physical separations** adapted to the nature of the risk in order to ensure that there is no uncontrolled coactivity between machinery and pedestrians.
These protected areas around machineries are to be considered as **exclusion zones**.
- Construction site paths and tracks are **maintained, cleaned and cleared** at all times.
- **Pedestrian crossing zones are signposted**, secured and equipped, at intersections with vehicle or machine traffic, with restraint devices preventing crossing without stopping (gantry with gate for example).

LINES OF DEFENCE

RISK OF COLLISION VEHICLES / PEDESTRIANS



ORGANISATION



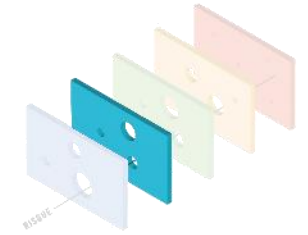
Site's specific rules

- **Direction of traffic**
 - The **vehicles traffic lanes are one-way** when possible.
 - Where necessary **turning zones are marked**, as well as any other zone where the risk of collision between a pedestrian and a machine is to be anticipated.
 - **Reversing is only permitted if the risk analysis has not made it possible to prevent it.** Human resources (traffic man) and/or technical means (camera, reversing radar, control screen, etc.) are then implemented.
- **Speed limit**
 - The **speed limit is defined** according to customer requirements or local regulations, site conditions and the risk analysis associated with each site.
 - These **speed limits are posted on site.**
- **Lighting and visibility**
 - **Sufficient lit is in place** (40 lux minimum) where the machines are used and in particularly sensitive areas (intersection, crossing, workstation, etc.).
 - Wearing a **high visibility vest is mandatory.**



LINES OF DEFENCE

RISK OF COLLISION VEHICLES / PEDESTRIANS



ORGANISATION



Site's specific rules



- **Parking**

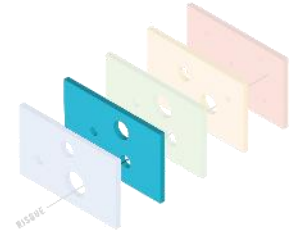
- **All vehicles are parked at the end of use at a specific location, except when they are pre-positioned in their work area for the following shift, under agreed conditions.** A sufficient distance between each vehicle must be respected to allow the movement of drivers and avoid contact between vehicles. In the case it is impossible to do so, a specific instruction defines the parking arrangements for the vehicles.
- **Chocks are positioned under the wheels** to prevent unintentional movement, when the driver leaves the vehicle outside the defined location of its parking or unloading zone, and that the vehicle is located on **sloping ground**.
- **Parking of all vehicles**, including in staff parking areas, **is always done in reverse** in order to maintain good visibility for the driver when leaving his parking lot.

- **Signage**

- **Traffic rules are presented visibly by means of arrows and traffic signs** (such as "STOP", give way, speed limit, parking zones, prohibited access, crossing, pedestrian crossings, vehicle crossings, works road, slopes, etc.) and are at least compliant with the signage applied on public roads in the country.
- **Direction towards various areas of the construction site are indicated**, which allow drivers and pedestrians to easily find their way around the site.

LINES OF DEFENCE

RISK OF COLLISION VEHICLES / PEDESTRIANS



ORGANISATION



Physical protections

- **Protective barriers**

The systematic installation of **protective barriers around workstations** nearby and in interaction with vehicle traffic is mandatory. However, in the context of a short-term or roaming operation, and making materialization difficult, a specific instruction is defined and formalized by the management/operational teams.

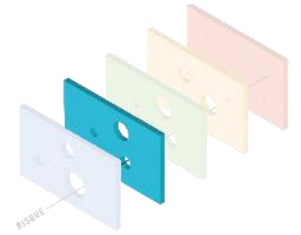


- **Wheel guards**

Danger zones (overhangs, hoppers, etc.) are marked by a **“wheel guard” device** to prevent vehicles from approaching. If implementation is impossible, a minimum safety distance is defined and respected depending on the work to be carried out and the speed of movement of the machines.

LINES OF DEFENCE

RISK OF COLLISION VEHICLES / PEDESTRIANS



ORGANISATION



Training

- Any operator of a construction machinery undergoes **training with certification attesting his ability** to drive and operate the said machinery.
- In the event that driving and operating a construction machinery isn't subject to a local training standard, training is carried out according to a specific reference framework established by a competent person.
- In addition to trainings and related certifications, machine operators are presented **instructions and specifics of the operations** to be carried out and potential co-activities.

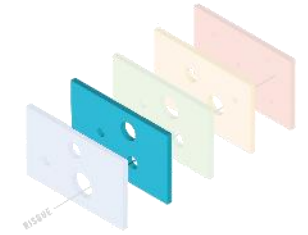


Authorisation and permit

- **Driving license:** It is required for any use of a company vehicle that requires it (car, construction van, flatbed truck, etc.), depending on local regulations..
- **Driving authorization:** It is issued by the Project Manager for any machine driver on a site. This follows the assessment of the theoretical and practical skills of the drivers concerned, as well as medical aptitude linked to driving.
- **When renting a machine "with driver", specific information is provided to the driver** on the conditions of use and the environment of the activity. It completes the driving authorization issued by the rental company.
- **Machine drivers authorized to operate on site are identified.**

LINES OF DEFENCE

RISK OF COLLISION VEHICLES / PEDESTRIANS



ORGANISATION

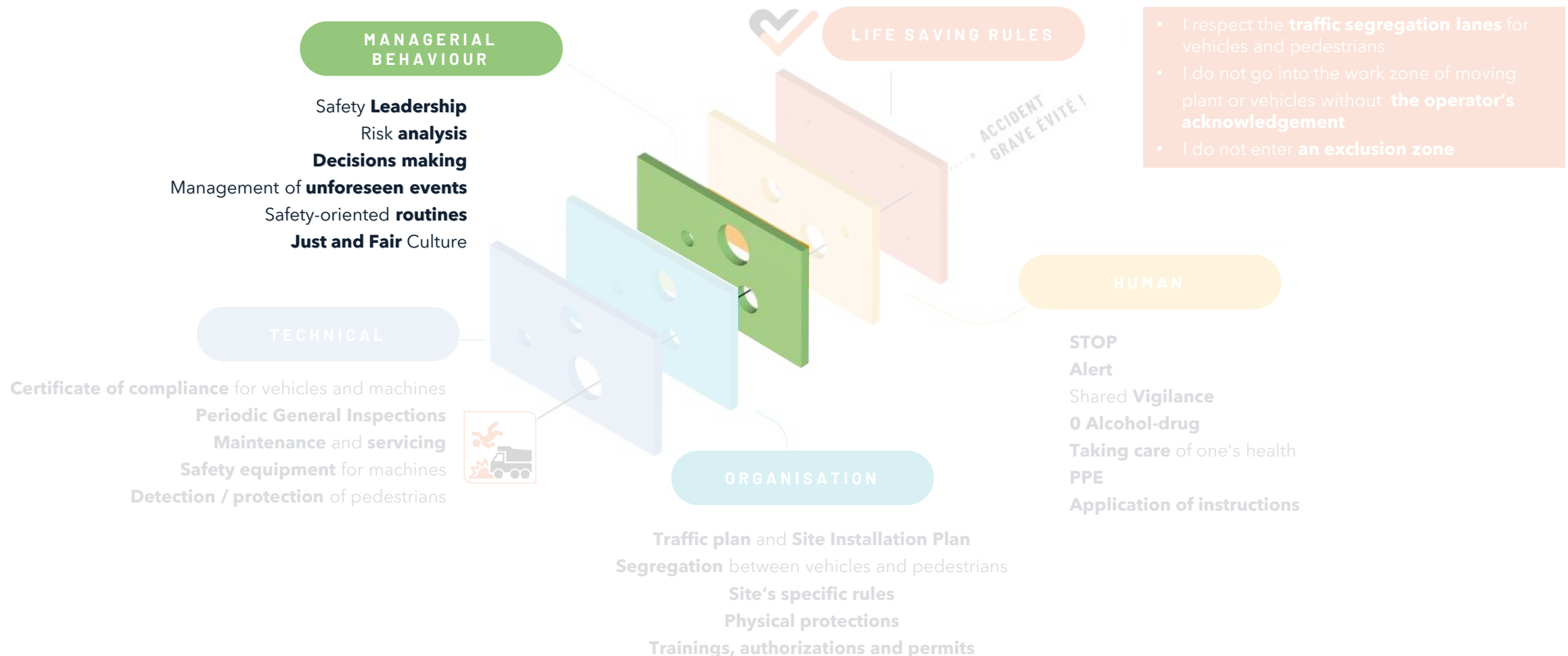


Traffic Man



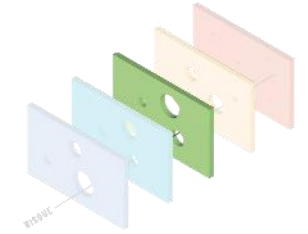
- **The services of a traffic man are required for all machine operations involving:**
 - Reversing maneuvers without visibility or with limited view (blind spot, etc.),
 - Situations where it is impossible to use alternative means (camera type, detection system),
 - Situations where it is impossible to physically separate vehicle-pedestrian flows,
 - If the risk analysis reveals a need for the management of machine-to-machine or machine-to-pedestrian flows.
- **The traffic man is identifiable on site** (colored vest, colored helmet, etc.) and reports to the foreman of the area concerned on the site.
- **Any person assigned to the role of traffic man has attended a training and a skills' assessment addressing:**
 - Access procedures and site circulation plan(s),
 - Methods of communication between drivers and pedestrians, in order to give as clear and accurate instructions as possible,
 - Complex maneuvers, depending on site configurations,
 - The blind spots of machines, in order to be able to position yourself at the right places and to give the appropriate instructions,
 - Traffic management methods, in order to be able to direct and control vehicle and pedestrian traffic and thus ensure safe and efficient flows,
 - Equipment and their use (signs, flags, cones or any other traffic control devices).

LINES OF DEFENCE RISK OF COLLISION VEHICLES / PEDESTRIANS



LINES OF DEFENCE

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MANAGERIAL BEHAVIOUR



Safety Leadership

- Works Managers, Supervisors and Managers **carry out visits as Safety Leaders**
 - Focusing on Major Risks,
 - Engaging with people,
 - Saying STOP in the case of deviations,
 - Applying the Five Stars method.
- All managers and stakeholders on the and visiting the site **respect and apply the organizational rules, both as drivers and as pedestrians.**

ENG

fivestars
safety intervention tool

REINFORCING SAFE BEHAVIOUR

Start intervention

- ★ Intervene **calmly** and **firmly**
- ★ Open conversation

Hello, (Mark) I was on my way to...

Target the act

- ★ Describe what you see

*I notice you are (wearing)...
I see the area is (tidy)...*

Agree approved methods

- ★ Confirm approved methods

(Wearing)...is exactly what is required

Reinforce safe behaviour

- ★ Show why this behaviour is positive

You're setting an excellent example to the new members...

Self-impact

- ★ Ask what are the positive consequences for them personally
- ★ Give an example

*What's the benefit for you...
Yesterday I heard a case of someone who didn't (wear)...and he...*

Every situation is different, Every person is different, Adapt to the situation and the individual.
© LHS Foundation

ENG

fivestars
safety intervention tool

DEALING WITH AN UNSAFE ACT

Start intervention

- ★ Intervene **calmly** and **firmly**
- ★ Open conversation

Hello, (Mark) I was on my way to...

Target the act (not the person)

- ★ Describe what you see avoiding judgement of the person

*I notice you are not (wearing)...
I see the area is (untidy)...*

Agree approved methods

- ★ Ask the person to describe how the task should be done safely
- ★ Inform them of approved methods

*What is the procedure for...?
As you know,...are required...*

Reason behind unsafe behaviour

- ★ Get them to explain why they were acting in this way
- ★ Listen and show you have understood
- ★ Ask them to identify solution

*Why are you (not wearing)...?
I see, if I understand you...
What can be done to (resolve)...?*

Self-impact

- ★ Ask how the negative consequences of this behaviour can impact on them
- ★ Give an example

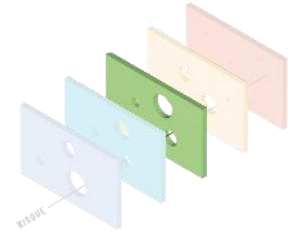
*What could happen if you don't (wear)...?
And how would that impact on (your family)...?
For example, I saw a safety alert that...*

Every situation is different, Every person is different, Adapt to the situation and the individual.



LINES OF DEFENCE

RISK OF COLLISION VEHICLES / PEDESTRIANS



MANAGERIAL BEHAVIOUR



Risk analysis

- Project Managers ensure that:

- Traffic plans
- Site Installation Plans
- Exclusion zones

are designed and updated taking into consideration risks analysis.



Decision making

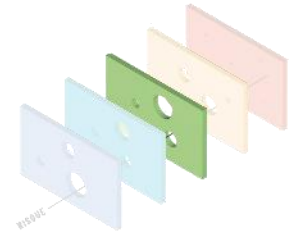
- Project managers make decisions taking into consideration potential impacts on:

- Risks related vehicles traffic on site
- Segregation between vehicles and pedestrians
- Coactivity between operated machines and workers

They put in place mitigation measures accordingly.

LINES OF DEFENCE

RISK OF COLLISION VEHICLES / PEDESTRIANS



MANAGERIAL BEHAVIOUR



Management of unforeseen events

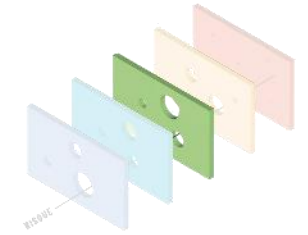
Project managers create favourable conditions for the safe management of unforeseen events, by:

- Identifying these situations and training their teams to identify them,
- Encouraging team members to bring these situations to their attention,
- Stopping activities for the necessary time to define ways to resume work safely,
- Creating an environment that stimulates questioning and collective thinking,
- Collectively analysing the situation safety wise, relying on support services and/or their hierarchy, if necessary,
- Prioritizing safety in decision-making,
- Communicating the chosen solution to their teams and any additional measures put in place,
- Sharing the encountered situations and decisions made to improve the company's processes, if applicable.



LINES OF DEFENCE

RISK OF COLLISION VEHICLES / PEDESTRIANS



MANAGERIAL BEHAVIOUR



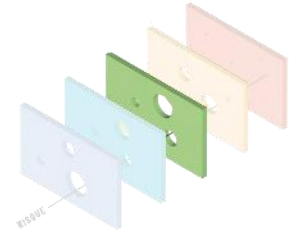
Safety-oriented routines

- Every management meeting starts with a safety focus
- Before starting work, the team leader organizes the daily warm-up
- Briefing/debriefing:
 - Before starting work, the team leader gathers the team (including temporary workers) for a short debriefing/briefing. He questions and reviews the activities of the previous day.
 - They review the tasks to be performed, including potential risks protection measures in place. The leader ensures that everyone understands their role and responsibilities and has the necessary means to work safely.
 - A briefing is also conducted in case of simultaneous activities, including with subcontractors.
- Tool-box meetings are regularly held for Bouygues Construction employees, temporary workers and subcontractors, to share information, encourage feedback, raise awareness about specific risks, and react to situations observed on the site.



LINES OF DEFENCE

RISK OF COLLISION VEHICLES / PEDESTRIANS



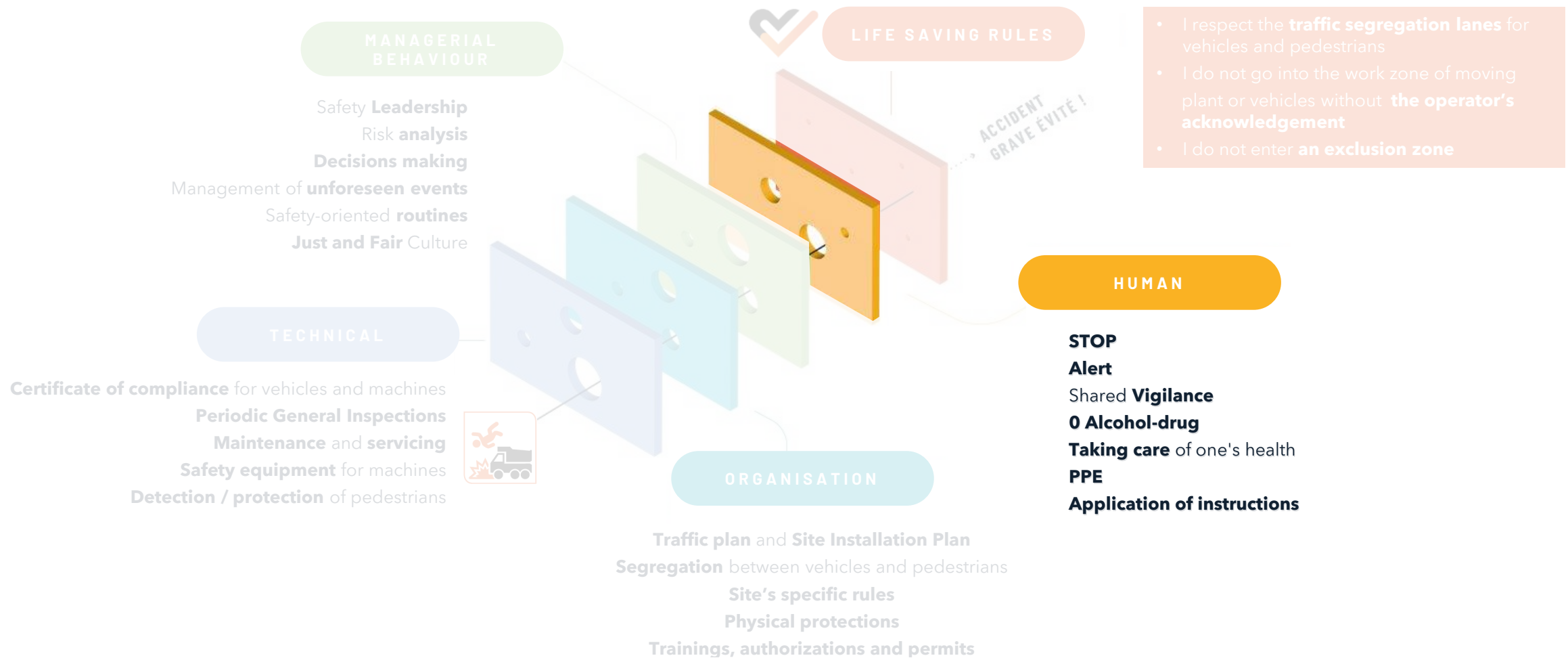
MANAGERIAL BEHAVIOUR



Just and Fair culture

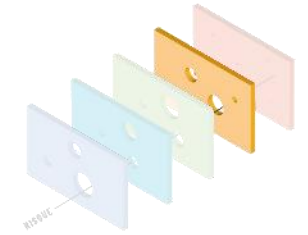
- Project managers apply the Just and Fair referential that has been approved within their perimeter as close as possible to the action (safety visit, incident investigation..):
 - Recognizing expected behaviours
 - Sanctioning unacceptable behaviours
- The reporting of near misses is valued.
- More moderate managerial reactions are issued when investigations following spontaneous near-miss reports highlight unacceptable behaviours, in order to encourage transparency.

LINES OF DEFENCE RISK OF COLLISION VEHICLES / PEDESTRIANS



LINES OF DEFENCE

RISK OF COLLISION VEHICLES / PEDESTRIANS



HUMAN



Stop - Alert

- If the conditions are not in place to work safely, **it is everyone's duty to say "STOP"**
- **Everyone is entitled to stop a situation** that would put themselves or others in danger **and to ALERT their management** to find a solution to resume activity safely.
- **Everyone respond positively to an alert** that is reported to them.

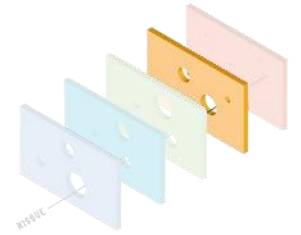


Shared vigilance

- **Each person acts as a protective factor for their colleague or for the person working around them** by staying attentive and vigilant:
 - towards younger employees and temporary workers who are new to our company,
 - towards a colleague who is less alert or distracted,
 - and by intervening with this person or their management in case of risk.
- **360° or Take 5:** before starting or resuming a task everyone carry out a brief analysis of the working conditions around them, a 360° check, to ensure that no risks are present, that the equipment is adequate, and that they are equipped with the proper PPE to work safely.
- Machine and vehicle drivers ensure, before starting a manoeuvre, that there is **no personnel in the area where the machine is operating.**

LINES OF DEFENCE

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HUMAN

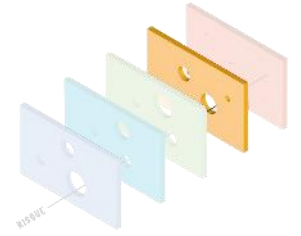


0 alcohol - drug

- **Possession** or **distribution** of drugs or alcohol at work or being under the influence of drugs or alcohol at work is prohibited.
- **Any employee who has any issue with drug or alcohol dependence** is encouraged, at any time, to request support to break the dependence. This support is paid for by the company, without prejudice to the remuneration or career of the employee concerned.
- **Each new temporary worker is tested** on the first day before starting their job.
- **Crane operators and machine drivers are tested** on the first day on site before starting their job, and then quarterly.
- A **random testing campaign** is organized on each project, covering all types of personnel at the workplace.
- **Any employee, subcontractor, temporary worker, on site or in offices can be tested** as part of this campaign, as well as in cases of suspicion or following an incident.
- **Penalties** may be applied to labour agencies and subcontractors whose employees test positive.
- **This constitutes a minimal standard:** the frequency of tests may be increased based on the results of previous tests.

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HUMAN

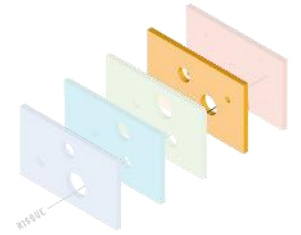


Taking care of one's health

- Adopt **wise principles** with regards to your sleep, diet, and lifestyle.
- **Attend warmup sessions** before starting work.
- **Never lift alone** manually any load weighing more than 25kg.
- Before handling, **make sure that the path is free** from obstacles.
- **Always ensure that proper manual lifting practices** are applied to protect from back injuries.
- **Properly set up your workstation**, seeking advice from ergonomists, doctors, or safety advisors if necessary.
- Operators of construction equipment are subject **to a medical examination** certifying their ability to operate equipment.
- Operators of construction equipment and drivers of vehicles do **not drive under the influence of medications** that could cause them to fall asleep. They alert their superiors if necessary.

LINES OF DEFENCE

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HUMAN

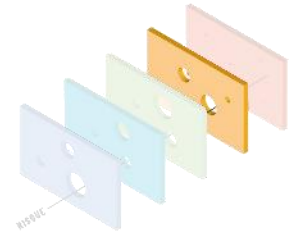


PPE

- **No one access a construction site without wearing the following standard PPE:**
 - Safety helmet with chin strap ,
 - Safety spectacles,
 - Safety gloves,
 - Safety boots,
 - High visibility clothing.
- **Always carry hearing protections.**
- **Wearing hearing protection is mandatory** when noise intensity in the environment exceeds 80 dB(A): at a minimum, but not limited to, during hammering work, concrete vibrating, demolition, pumping, injection, and near construction equipment, machines, or power tools.
- **On operated sites** (e.g. premises operated by customers such as plant, factory, buildings under Facility Management contract, apartments occupied by inhabitants, etc), the PPE requirements are adapted to the site and to the risk assessment.
- **The standard PPE is to be complemented by specific PPE** adapted to the nature of the tasks, depending on the results of the risk assessment.
- **Traffic men are visually identified** by wearing specific HV vest.

LINES OF DEFENCE

RISK OF COLLISION VEHICLES / PEDESTRIANS



HUMAN



Application of instructions

- Each individual respect site's specific rules and road safety applicable requirements.
- Operators of construction machineries respect instructions given as part of the training and certification they have been delivered with.
- **Safety belt** are worn.
- **Ignition keys** are under the responsibility of machines' operators. They keep keys by them when they exit machines.
- **Any handling or use of telephone or radio equipment is prohibited while driving** in and outside the construction site.
- The use of communication systems (bluetooth, hand-free kit, etc.) is subject to **specific instruction**.
- **The use of mobile phones on site by pedestrian** is prohibited while circulating on a site.
- Each machine driver **inspects and controls his machine** before starting his shift.

3

Life Saving Rules



LIFE SAVING RULES

RISK OF COLLISION VEHICLES / PEDESTRIANS



RISK COLLISION

- ✔ I respect the **traffic segregation lanes** for vehicles and pedestrians
- ✔ I do not go into the work zone of moving plant or vehicles without the **operator's acknowledgement**
- ✔ I do not enter an **exclusion zone**

IN CASE IT IS IMPOSSIBLE TO RESPECT ONE OF THESE RULES, I « STOP » AND ALERT MY HIERARCHY

Direction
Santé Sécurité Sûreté
DE BOUYGUES CONSTRUCTION

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