



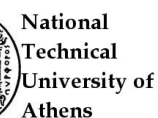
TASK 02/A3

PRODUCTION OF THE SCRIPTS OF THE 3D ANIMATIONS FOR SAFETY TRAINING ENVIRONMENT



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INTRODUCTION

One of the pillars on which the project was based was the creation of an interactive multimedia learning tool available to all workers in the stone sector, with the main objective of generating safe working environments for the use and application of nanomaterials to stone products. There is a wide lack of knowledge about the consequences of their use. The lack of information on the risks arising from the use of nanomaterials is mainly because the research and commercial development of these materials is moving much faster than the study of the health and safety problems they generate.

For this reason, it was necessary to develop a tool to raise awareness of the existing risks derived from the application and use of these nanocomposites, and to make available to the educational and professional community all the necessary training materials, as well as to take advantage of the different possibilities offered by new technologies as a means of dissemination and visualisation of the materials produced.

This report is included in the task *"O2-A3. Production of the scripts of the 3D animations for safety training environment"*, corresponding to Intellectual Output 2 *" Guideline of risks, health and environmental prevention measures in safe production and use of nanomaterials in Stone Sector"* of the NanoSafe project.

For the realisation of this task, he has had the support of all the partners in the production of the scripts (story board).

Each script includes the details: where the situation takes place, characters, full explanation of the background, action to be carried out, etc. The partners have reviewed the scenarios and made contributions and improvements.

The scenarios have been approached from an interactive point of view to make the training tool attractive to workers. In these scenarios, appropriate actions to achieve a safe and environmentally sustainable workplace are shown.

The report and all the information about the project are available in the following url:

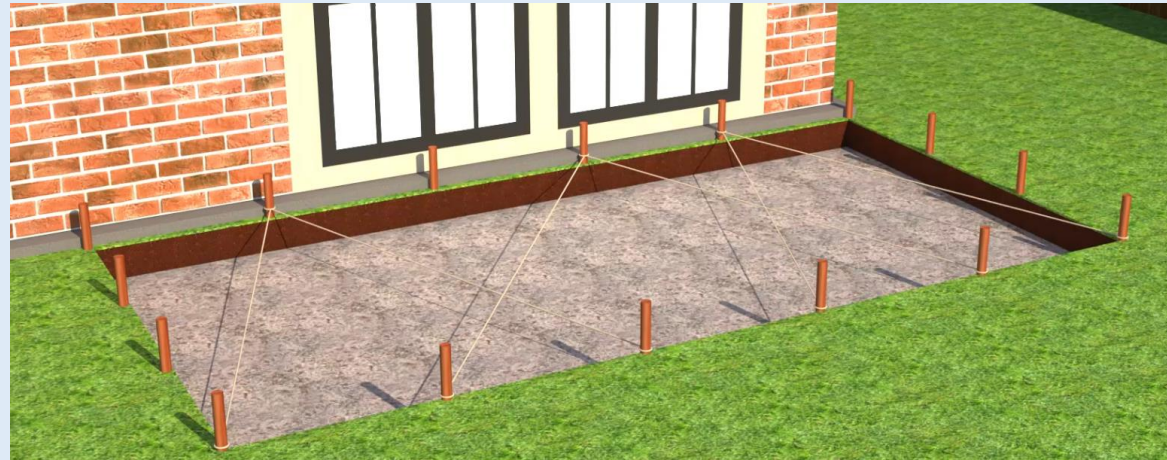
- NanoSafe project web: <https://www.nanosafeproject.eu/>



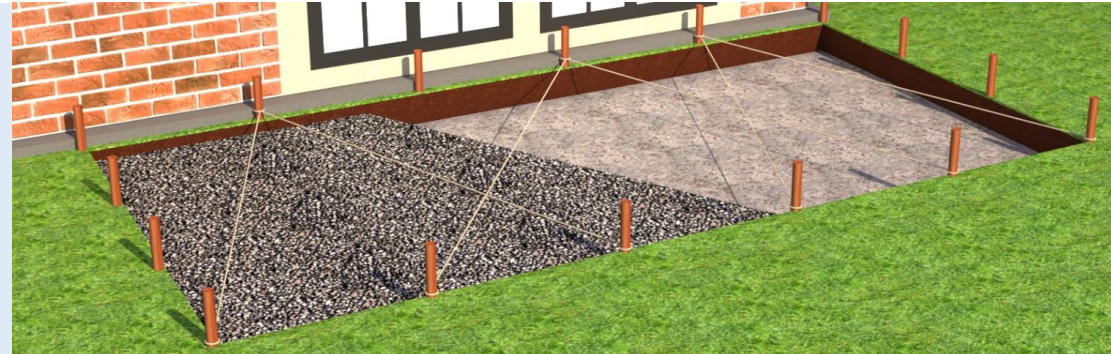
SITUATION 1. CUTTING STONES TO SIZE AT CONSTRUCTION SITE.

SITE: Location pictures

A new terrace area to be paved with natural stone in the outdoor area

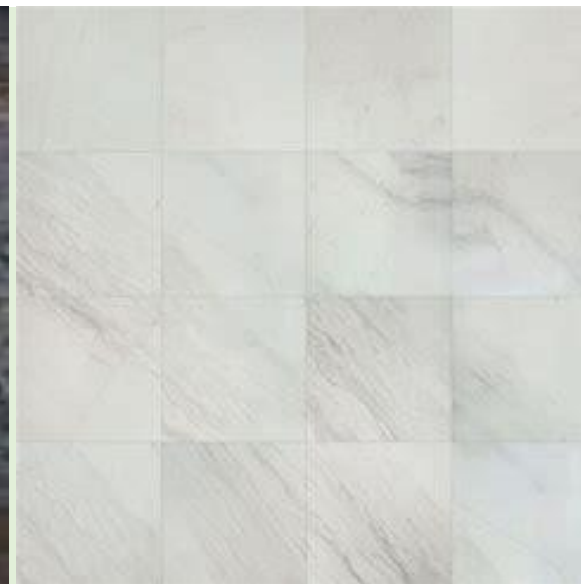


Source: [BIMStone project website](#)



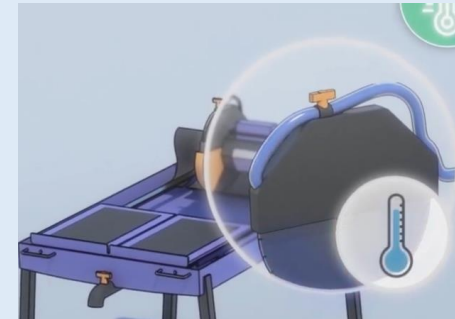
MATERIAL:

Natural Stone



APPLICATION:

Use of mobile sawing machine at construction site



Source: safestoneplace.com (animation 7)

PRODUCT:

Sawing machine with water cooling to reduce dust

ASSOCIATED RISKS:

**Respiratory hazard
Ingestion hazard
Skin and eye contact**

EQUIPMENT:

- Collective:**
- a. Water cooling
 - b. Water hose
- Individual:**
- c. Safety Gloves
 - d. Full face mask or half mask and close-fitting safety glasses
 - e. Hearing protection

MISSION 1



Introduction	<p>The mission takes place at the new terrace area of a residential house, where paving stones have to be cut and laid in a sand bed.</p> <p>This mission shows two new workers who are going to work at the construction. They arrive in a transport vehicle and open the back doors.</p> <p>The workers unload the mobile sawing machine from the transport vehicle and set it up in a safe place. Then they connect the sawing machine to the water supply with a water hose.</p> <p>The image of the mission starts with the transport vehicle and then needs to focus more on the construction area.</p>
Performance	<p>Animated photos of the worker opening the transport vehicle.</p> <p>Zoom on the mobile sawing machine.</p> <p>The worker must find a plain area near to the to the water-tap to place the sawing machine.</p> <p>After this they have to connect the sawing machine to the water-tap with a water hose</p>
Media	<p>Ambient sounds.</p> <p>The animation shows 3 places to set the sawing machine:</p> <ul style="list-style-type: none">a) A flat place with clean surfaceb) A place with pieces of rock on the surfacec) A sloping surface <p>The user has to collect the right place</p> <p>2a. If the user chooses b) or c), an error sound will appear next to this icon.</p>



2b. If the worker chooses a), a sound of approval or applause appears next to the following icon.



Interaction

2a. The worker must connect the water-hose to the water-tap and to the sawing machine. Then he has to open the water-tap at the house and also at the sawing machine.

2b. If the user selects the option to open the water-tap at the house and at the sawing machine, the water run into the sawing machine





MISSION 2

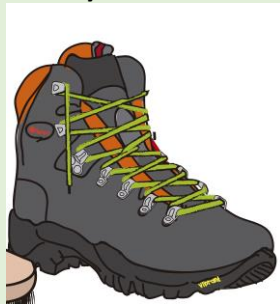
Introduction

Inside of the transport vehicle are the following safety equipment:

- Safety glasses



- Safety footwear



- Safety harness



- Mask



- Rubber gloves





- Safety helmet



- Hearing protection



- Reflective waistcoat



- Electrical protective gloves



- Safety belt





- Waterproof suit



- Safety gloves





<p>Performance</p>	<p>The presentation of the environment can be done through an animation from the eyes of one of the workers looking into the transport vehicle.</p> <p>The task to be performed is the selection of PPE by the user for the workers.</p>
<p>Media</p>	<p>Ambient sounds in the background.</p> <p>One of the new workers (user) chooses the necessaries PPEs for him (Safety Gloves, Full face mask or half mask and close-fitting safety glasses, Hearing protection)</p> <p>1a. If the choice is correct, a sound heard of acceptance and this icon appears:</p>  <p>1b. In case the selection is incorrect either because PPE is missing or because he/she has selected PPE that is not necessary for normal work, the error sound is heard, and the following icon is displayed:</p> 
<p>Interaction</p>	<p>2a. In case the new worker selects the right PPE, he can continue his mission and get ready to go to the sawing machine.</p> <p>2b. The worker has not correctly selected his PPE, so he cannot go. The task has failed.</p>



MISSION 3

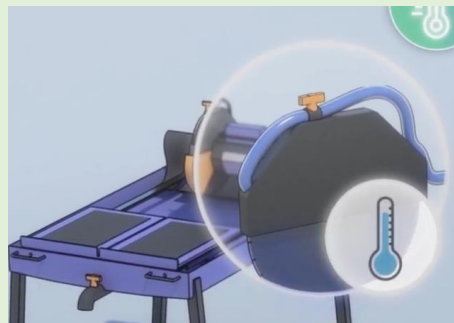
Introduction

This mission shows two new workers who are going to measure the natural stone slabs and to saw them.

Performance

Animated photos of the worker with his uniform and PPE.

Zoom on the sawing machine and the water .



The worker must use enough water to avoid dust exposure.

Media

Ambient sounds.

The user can choose 3 levels of running water:

- a) Low water quantity
- b) Medium water quantity
- c) Large water quantity

2a. If the worker chooses a), an error sound will appear next to this icon.



2b. If the worker chooses b) or c), a sound of approval or applause appears next to the following icon.



Interaction

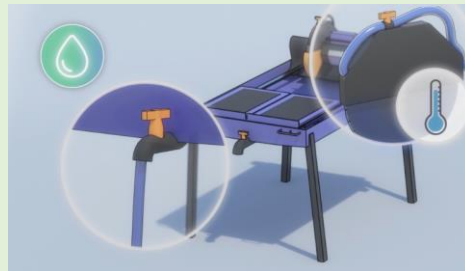
2a. In case the worker selects the option a) mission will fail.

2b. If the user selects the option b) or c). he/she can continue with the mission and saw the stones.

MISSION 4

Introduction



In this mission, the water tank of the sawing machine is full and needs to be emptied. To do this, open the water-tap at the sawing machine and fill the waste container with water.



Performance

View on the place of the sawing machine and zoom in on the full water tank.



	<p>The worker must apply the way to empty the water tank to solve the problem.</p>
<p>Media</p>	<p>Ambient sounds.</p> <p>The pop-up window will appear with two options:</p> <p>3a. The water run into a waste container</p> <p></p> <p>3b. the water run to the floor area at the sawing machine</p> <p></p>
<p>Interaction</p>	<p>If the worker selects option 3a, the mission can continue and an "Extra question" will appear: What do you do with the waste container?</p> <ul style="list-style-type: none"> a. I dump the bucket into the next canal. b. I use it to water the lawn. c. I run it through a filter system and dispose the grinding scrap. <p>After selecting the correct option c, applause will appear and sound.</p>



When an incorrect answer is selected, the error sound will sound and a red cross will appear.






If the worker selects option 3b, the mission will fail.

MISSION 5

Introduction

The workers are ready with sawing and have now to clean the sawing machine



<p>Performance</p>	<p>You can see an animation in which the user applies the product correctly and the other worker calls his attention to engage in a conversation.</p> <p>After selecting the answers below. You can see the two of them applying the product correctly.</p>
<p>Media</p>	<p>Ambient sounds.</p> <p>The pop-up window will appear with three options:</p> <p>3a. The saw machine is cleaned with a vacuum cleaner </p> <p>3b. The saw machine is cleaned with the garden hose </p> <p>3c. The saw machine is cleaned with a broom </p>
<p>Interaction</p>	<p>After selecting the correct option a, applause will appear and sound.</p>



When an incorrect answer is selected, the error sound will sound and a red cross will appear.



If the worker selects option 3b or 3c, the mission will fail.



SITUATION 2. APPLICATION DEPENDING ON THE NANOPRODUCT AT FACTORY

SITE: Location pictures

In a factory







	Photo: http://marmolesarca.com.mx/noticias/tiendademarmolenmexico/
MATERIAL:	Not applicable
APPLICATION:	Different types of application
PRODUCT:	Different types of nanoproducts
ASOCIATED RISKS:	<p>Skin and eye contact</p> <p>Inhalation and genotoxic effects</p> <p>Inflammatory effect in the lung</p> <p>Progressive fibrosis</p>
EQUIPMENT:	<p>Collective:</p> <ul style="list-style-type: none"> a. Extraction systems b. Suction systems c. Application in areas with a good ventilation <p>Individual:</p> <ul style="list-style-type: none"> d. Full face mask or half mask and close-fitting safety glasses e. Gloves <p>Work coverall</p>
MISSION 1	
Introduction	<p>The mission takes place in a stone material processing factory.</p> <p>In this first mission, two workers (one of them the user) are in the chemical warehouse. You can see the mess of the warehouse, all the chemicals are mixed without any kind of order criteria, some of them on the floor and others open.</p>



Performance

The environment can be seen through a 360° image from the user's eyes.

The task to be carried out is to collect and place the different chemical products and place them as appropriate. Separate those that are in poor condition so that they can be removed by the relevant waste manager and place a file with the safety data sheets of each product in the room.

Media

First, the user must select the products he/she wishes to place on the shelves.

Only products that are in good condition can be selected. In case of trying to place those that are leaking, broken, etc. the error sound is heard, and the following icon is displayed:



If the user has selected it properly, an acceptance sound is heard and this icon appears:



Interaction

If the worker places all the products where they belong, the mission can continue and an "Extra question" will appear:

The user will be asked if everything is in order or wants to finish with some of the following options:

- a. Mop the floor and put some air freshener on it to make it smell nice.
- b. Place a dossier with the safety data sheets of the products in order.
- c. Put the products in alphabetical order to make it easier to find them. It is not necessary to take into account their chemical nature.
- d. Throw away products that are in poor condition.
- e. Call the waste manager to remove products that are in bad condition.

If the user selects the correct answers, applause will appear. If they are not, they will not be able to continue to the next mission until they select all the correct options.





MISSION 2

Introduction

This scene will take place in the same scenario as mission 1. The boss appears and wants to check that he has the necessary knowledge about the products he is working with. Suddenly a pop-up window will appear for the user that will make him relate the pictogram to its associated chemical risk.

Performance

A new animation will not be necessary. The one from mission 1 will do.

Media

A warning sound will appear at the same time as the pop-up window with the new task: In the task you will have to link the following pictograms with their meaning.



EXPLOSIVE



FLAMMABLE



HEALTH HAZARD



DANGEROUS FOR THE ENVIRONMENT



TOXIC



CORROSIVE



OXIDIZING



HARMFUL/IRRITANT



COMPRESSED GAS

If the user joins correctly, a green tick will appear.



If it is incorrect, a red cross will appear.



Interaction

When all pictograms are correctly associated with their risks, a pop-up window with Good job will appear and the user will be able to advance to the next mission.



MISSION 3

Introduction

This scenario takes place in the fabrication area. The workers are applying a water repellent to the stone with a brush (they are properly equipped with helmet, mask, work uniform, gloves, etc.). You can clearly see in the HYDROFUGANT tank and the worker has a small container in which he is pouring the product so that he does not have to bend down.

Next, the employees are going to apply an antifungal.



Photo: Orlando Fombellida Claro



Photo: realestatemarket.com.mx



Performance

An animation will be displayed showing the user applying the water repellent to the surface of the stone with the brush.
Then the same animation will be shown, but now instead of "HYDROFOUGANT" it will say "ANTIFUNGAL".

Media

The sound of the crane transporting the marble slabs can be heard in the background.



The conversation can be read in which the worker tells the user that they are going to apply an antifungal product on the new marble slab. The worker will tell the user that he must add the new product on the container to apply it. It is very urgent and we must start now.

The user will have two options.

- Listen to the worker and start immediately with the application of the antifungal.
- Clean the paint container and brush first so as not to mix products.

If the user chooses option a, an error message will sound and the following icon will appear:



	 <p>If the user selects option b an approval sound and the following icon will appear:</p> 
<p>Interaction</p>	<p>If the user selects the wrong option the mission will fail.</p> <p>However, if the user selects the correct option, the mission will continue and the animation with the "antifungal" on the product carafe will play.</p>
<h2>MISSION 4</h2>	
<p>Introduction</p>	<p>This is the same scenario as in mission 3, but in this case, you see “antifungal” spilled on the ground. The colleague painting without a mask and gloves and a sandwich next to the work area.</p> <p>The worker's mission will be to spot the mistakes in the scene.</p>
<p>Performance</p>	<p>An animation of all the above will be shown and could be zoomed in if the situation is not very clear.</p>
<p>Media</p>	<p>The sound of the factory will be heard.</p> <p>The user must click on the objects that he/she considers to be incorrect in order to make the workplace safe.</p> <p>When clicking on an object to be modified to make the scene safe, it will be marked with a circle.</p>
<p>Interaction</p>	<p>Once everything that poses a danger has been selected, applause will sound and the user can continue.</p>



Until all of them have been detected, you will not be able to continue to the next mission.

SITUATION 3. POURING OF NANOMATERIAL POWDER INTO A LIQUID MATRIX TO CREATE A MIXTURE

SITE: Location pictures

Foundations walls being built in a construction site



<https://theconstructor.org/practical-guide/concrete-wall-construction/25959/>
<https://www.thebalancesmb.com/how-to-build-foundation-walls-845114>

MATERIAL:

Mortar



APPLICATION:	Add the SiO₂ powder into a liquid matrix
PRODUCT:	SiO₂ powder to fill mortar microstructure and improve mechanical properties. SiO₂ also promotes pozzolanic reaction
ASSOCIATED RISKS:	Respiratory hazard Skin and eye contact
EQUIPMENT:	Collective: <ul style="list-style-type: none"> f. Suction systems g. Confinement Individual: <ul style="list-style-type: none"> h. Gloves i. Full face mask or half mask and close-fitting safety glasses j. Coverall



MISSION 1

Introduction

The mission takes place at a construction site, where the foundation walls are being built. Before the mixture is prepared, the workers have to choose their PPE.
They arrive with a van at the construction site, and then pick the proper protective equipment.
The image of the mission starts with the transport vehicle and then needs to focus more on the construction area.

Performance

The view of the image is through a passenger sitting to the right of the driver. The back of the van has tools and PPE properly hanged. The view is third-person now, showing the worker choosing PPE. Zoom on the equipment.

Media

Construction site sounds.

The animation shows all PPE components, all being click-on.
PPE components are:



Nitrile gloves,



latex gloves,



Electrical protective gloves



working gloves,



heavy duty gloves



Half face mask





Full face mask



Safety glasses



Safety goggles



Safety harness





Safety footwear

- Safety helmet



- Hearing protection



- Reflective waistcoat



- Safety belt



Work coverall





The appropriate choice is the following:



Nitrile or latex gloves, half mask and goggles OR full face mask, and work coverall

Alert user regarding the proper way to adjust half face mask to the nose, and that the gloves have to be worn last



	<p>If the user incorrectly chooses a PPE configuration, an error sound will appear next to this icon.</p>  <p>If the worker chooses the right one, this icon will be shown along with the sound of approval</p> 
<p>Interaction</p>	<p>The worker gets to decide whether to pick up PPE or proceed with the mixing task</p> <p>If they select to wear PPE, they proceed with the proper choice of equipment as described above</p>
<h2>MISSION 2</h2>	
<p>Introduction</p>	<p>This mission describes the process of weighing the components before the mixing. The components are two, for the sake of the animation: The nanomaterial powder and the liquid matrix (solvent). The worker faces the following decision making steps:</p> <ol style="list-style-type: none"> a) Where the proper place to perform the weighing and the mixing is b) Never leave the containers open c) As close to the application point as possible



Performance	<p>The presentation of the environment can be done through an animation from the eyes of one of the workers looking into the place where closed packed, separate ingredients are placed.</p>
Media	<p>Sounds depending on the weather in the background.</p> <p>The weather is windy, hence the weighing and mixing has to take place at a wind covered area.</p> <p>A. A pop up window asks the worker whether to transfer the two containers and the scale, to a wind covered area. After the transfer wind blowing sound level is decreased.</p> <p>The ingredients are taken from the containers, and the worker closes the containers (this is suggested with a warning sign and a message in a popup window as well). Ingredients are weighed separately.</p> <p>B. The worker has to decide, still first person view, whether to place the powder or the matrix first. The right choice is to place the liquid matrix first, because in this way the powder thrown doesn't create excessive dust in the air close to the worker.</p> <p>1a. If the choices are correct, a sound heard of acceptance and this icon appears:</p> <p></p> <p>1b. In case the selection is incorrect, the error sound is heard, and the following icon is displayed:</p> <p></p>
Interaction	<p>2a. In case the new worker selects the proper place to weigh and do the mixing, he can continue his mission</p>



2b. The worker has not correctly selected to go someplace not windy, (or decided to put the powder first) so the animation shows dust blocking their vision. The task has failed.

MISSION 3

Introduction

This mission showcases some parameters regarding the mixing of the powder into the liquid matrix

Performance

Animation of the worker's view of the mixing place

Media

Ambient sounds.

After placing the ingredients (mission 2), the worker has to decide regarding stirring:

- a) At which speed should the electric stirrer work
- b) How to move the stirring device inside the container

3a. Before the stirring, the user is asked what the proper movement of the stirring machine is.

The available choices are:

- I. Keep the stirrer at a constant spot inside the container
- II. Move the stirrer in circles at a constant height in the container
- III. Move the stirrer at all heights in the container with a circular path, in order to effectively break aggregates

Each choice is illustrated with a moving image of the container and the stirrer from a top position

If III is chosen successfully  appears with a sound of acceptance.

For every other choice  appears with an error sound.



3b. The point of view is first person. On the stirrer, there are three speed levels. The proper way to start the stirring is with level 1, until the mixture is partially homogenized.

When there are aggregates formed, the user is asked what the next speed level should be. The proper choice is level 2.

When the aggregates are broken and the mixture looks more homogenized, the worker must apply level 3 speed.

After each step is implemented successfully,  appears with a sound of acceptance.






For every wrong choice,  appears with an error sound.

Interaction

If the user successfully implements 3a, they can proceed with 3b. For 3b, only when they choose the correct speed level they can proceed.



MISSION 4

Introduction	After the mixing, the stirring device, the scale and the separate containers for the weighing process have to be cleaned.
Performance	View on the dirty equipment mentioned above. The worker must apply the way to empty the water tank to solve the problem.
Media	<p>Construction site sounds, same as mission 3 regarding volume.</p> <p>The pop-up window will appear with two options:</p> <p>Mixing job completed. Leave location?</p> <p>If the user selects YES,  icon appears with an error sound. If the user selects NO,  appears with a sound of approval. A popup window asks the user which objects should be cleaned. If the stirring device, the scale and the weighing containers are chosen,  appears with a sound of approval.</p>
Interaction	After the correct choices are made following the popup questions, a popup window appears, stating that the mission is complete.

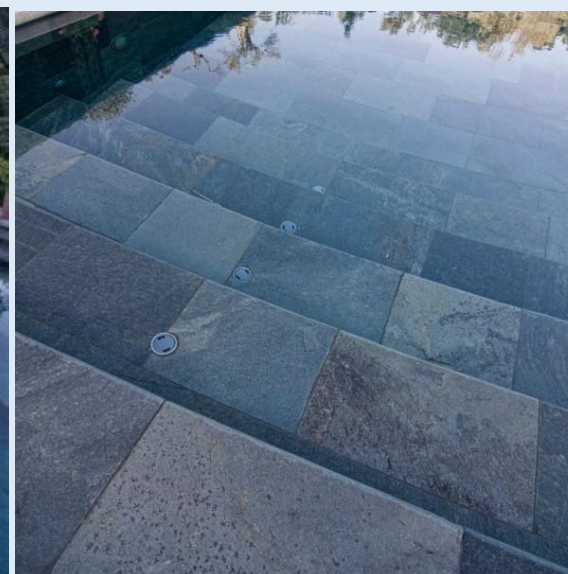




SITUATION 4. NANOMATERIAL APPLIED WITH A SPRAY-GUN ON A STONE MATERIAL SURFACE.

SITE: Location pictures

An empty natural stone swimming pool



Source: http://aubapool.es/codeless_portfolio/piscina-con-revestimiento-de-piedra-natural/







MATERIAL:

Natural Stone





<p>APPLICATION:</p>	<p>With a spray-gun</p> <div style="display: flex; justify-content: space-around;">   </div>
<p>PRODUCT:</p>	<p>Consolidant and water repellent</p>
<p>ASOCIATED RISKS:</p>	<p>Respiratory hazard Ingestion hazard Skin and eye contact</p>
<p>EQUIPMENT:</p>	<p>Collective:</p> <ul style="list-style-type: none"> a. Extraction systems b. Suction systems c. Confinement <p>Individual:</p> <ul style="list-style-type: none"> d. Gloves e. Coverall f. Full face mask or half mask and close-fitting safety glasses



MISSION 1

Introduction

The mission takes place at the swimming pool of a beachfront hotel that is preparing to welcome its summer visitors. "HOTEL" can be seen in the background above the building, but no guests are visible.

It is windy, which can be reflected in the movement of the hotel flags or the waves.

This mission shows two new maintenance workers who are going to apply the product and the hotel manager who is waiting for them with several boxes with "EPIs" written on them. What is inside the boxes is the following:

- Safety glasses



- Safety footwear



- Safety harness



- Mask



- Rubber gloves



- Safety helmet



- Hearing protection



- Reflective waistcoat



- Electrical protective gloves

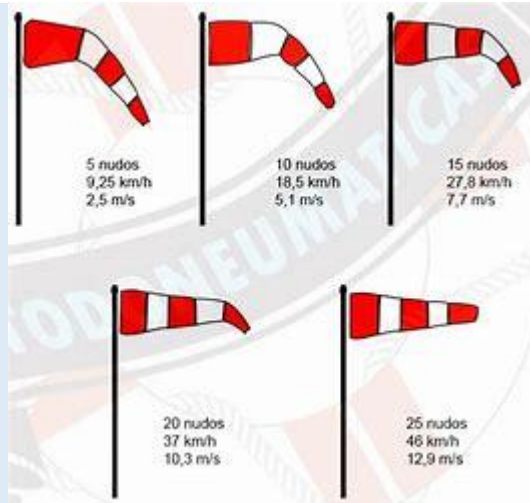


- Safety belt



- Waterproof suit





Performance

The presentation of the environment can be done through a 360° animation from the eyes of one of the workers.

The task to be performed is the selection of PPE by the user for the workers.

The hotel manager will welcome the new maintenance workers and tell them to take all the PPE they think they need for their work.

Media


Ambient sounds of the sea in the background and a bit of wind.

The new worker (user) chooses the necessities PPEs for him.

1a. If the choice is correct, a sound heard of acceptance and this icon appears:





	<p>1b. In case the selection is incorrect either because PPE is missing or because he/she has selected PPE that is not necessary for normal work, the error sound is heard, and the following icon is displayed:</p> 
Interaction	<p>2a. In case the new worker selects the right PPE, he can continue his mission and get ready to enter the site with all his PPE on.</p> <p>2b. The worker has not correctly selected his PPE, so the boss does not allow him to enter the site. The task has failed.</p>
MISSION 2	
Introduction	<p>The workers, already dressed in their PPE, go to the pool to fix it. The natural stone at the crown of the pool is looking a bit deteriorated, with salt accumulation from the sea.</p> <p>The image of the mission now needs to focus more on the pool area.</p>
Performance	<p>Animated photos of the worker with his uniform and PPE.</p> <p>Zoom on the salt accumulation in the pool and on the cracks.</p> <p>The worker must apply the product to solve the problems so that the hotel can reopen to the public.</p>
Media	<p>Ambient sounds of the sea playing in the background and a bit of wind.</p> <p>A pop-up window will appear with a question:</p> <p>Can the consolidant and water repellent be applied on the salt present on the stone?</p> <p>2a. If the worker answers yes, an error sound will appear next to this icon.</p>



2b. If the worker answers no, a sound of approval or applause appears next to the following icon.



Interaction

2a. In case the worker selects the option to apply the consolidant-hydrofugant without first cleaning the mission will fail.

2b. If the user selects the option not to apply if not cleaned. He/she can continue with the mission. The option to clean will appear on a button.





MISSION 3

Introduction

In this mission, the scene will appear clean, otherwise it will be the same as in mission 2, but in this case the hotel manager's car is parked by the pool.



Performance	<p>360° view from the user's point of view.</p> <p>Zoom in on the attendant's car.</p>  <p>The worker must apply the product to solve the problems so that the hotel can reopen to the public.</p>
Media	<p>You should hear and see the air in the palm trees in the background, in the waves of the sea, etc.</p> <p>The pop-up window will appear with two options:</p> <p>3a. Tell the attendant that he must remove the car to apply the product. A button saying "move the car" will appear. If the worker selects this option, a sound of approval or applause will appear next to the following icon.</p> 



3b. Apply the product. Nothing will happen if it falls on the car. A window will appear that says "apply the product". If the worker selects this option, an error sound will appear next to this icon.



Interaction

If the worker selects option 3a, the mission can continue and an "Extra question" will appear: What is the reason for moving the car away from the product application area?

- a. The car is new and we don't want it to get dirty.
- b. Small droplets of product could adhere to the surface of the glass and not be removed later.
- c. If the product comes into contact with the wheels of the car, they could explode due to the overpressure caused.

After selecting the correct option, applause will appear and sound.



When an incorrect answer is selected, the error sound will sound and a red cross will appear.



If the worker selects option 3b, the mission will fail.

MISSION 4

Introduction

The scenario is the same as in the previous mission. Now our co-worker has taken off his safety goggles and put on his sunglasses so that he is not disturbed in his work.



Performance

You can see an animation in which the user applies the product correctly and the other worker calls his attention to engage in a conversation.

After selecting the answers below. You can see the two of them applying the product correctly.



Media

The air should be heard and seen in the palm trees in the background, in the waves of the sea, etc.

The dialogue between the two partners can be read at any time. The user will be able to choose between several options. It will be an interactive dialogue.

W: Hey, did you see what glasses I bought last week?

U: Option 1: How cool are they!

U: Option 2: I don't like them.

W: Why don't you wear yours? Then you won't be bothered by the sun.

U: Option 1: I'll get them right away.

U: Option 2: We should wear the goggles.

If in this question the worker selects option 1, he/she will fail the mission. If the worker selects this option, an error sound will appear next to this icon.



If he/she selects option 2, he/she will be able to continue. If the worker selects this option, a sound of approval or applause will appear next to the next icon.





Interaction

If the worker selects the wrong answer, he/she will not be able to continue with the mission.

If the worker selects the correct answer, he/she will be able to continue with the mission.

MISSION 5



<p>Introduction</p>	<p>The scene is the same as in the previous missions. In this case, in the pool you can see the area where the product has already been applied.</p> <p>Now they sit under a palm tree to have breakfast. The colleague does not take off the gloves with which he has been applying the product and is about to eat the sandwich and a soft drink.</p> <p>The user should alert the partner not to ingest the product indirectly after the gloves come into contact with the sandwich.</p>
<p>Performance</p>	<p>Animation in which the colleague takes off his mask to eat and keeps his gloves on. Zoom on the gloves as he is carrying a soft drink to toast to a job well done.</p>
<p>Media</p>	<p>Sound of opening the can and the beach in the background.</p> <p>Partner pop-up message: Cheers for a job well done!</p> <p>The user can choose between two options:</p> <p>5a. Toast!</p> <p>5b. Tell the partner that it is a health hazard to ingest food with gloves that have come into contact with the product.</p> <p>If the user selects option 5a, the sound of the cans colliding will play and then an error sound will appear next to this icon.</p>  <p>If the user selects option 5b the other worker will be shown without gloves and an audio approval or applause will sound next to the following icon.</p> 



<p>Interaction</p>	<p>If the user selects option 5a they will fail their mission.</p> <p>If the user selects option 5b, he/she can continue.</p> <p>A document may appear stating the different risks of ingesting this type of product or the user can read the technical data sheet.</p> <p>The user will have access to the document that is selected from the two on the following icon.</p> <div data-bbox="1064 555 1480 914" data-label="Image"> </div>
<h2>MISSION 6</h2>	
<p>Introduction</p>	<p>In the scenario of mission 4, the workers are seen returning to their posts correctly equipped except that the other worker is not wearing a mask, he has left it in the place where they ate.</p> <p>The user must warn the colleague to put on the mask.</p>
<p>Performance</p>	<p>360° image from the user's point of view in which you can see both the unmasked partner and the mask in the place where they have eaten.</p> <p>Zoom in on the mask on the ground.</p>



Media

Sound of the beach in the background and the wind. Sound of the unmasked partner whistling to attract more attention.

A pop-up window will appear with a list of options. The question will be: What should we do to get everything in order?

- a. The colleague is whistling and it bothers me, I should tell him to keep quiet.
- b. Tell the colleague that he should wear a mask to protect himself from the products being applied.
- c. Take off our mask. It is very hot and we could suffer from lipotimia.
- d. Tell the colleague to pick up the mask from the floor and put it on.
- e. Warn the partner not to leave it on the floor, as there could be insects or other substances on the floor.
- f. Play music to liven up the working day.

If the worker selects the correct answers, a "Good job" message and the sound of applause will appear.



If the worker selects incorrect answers, an error sound will be played and the following icon will appear.



Interaction

If the worker selects the correct answers, he/she can proceed to the next screen.

If the worker does not select the correct answers, he/she will not be able to complete the mission.



SITUATION 5: NANOMATERIAL FIXED IN A SOLID MATRIX WHICH IS BEING DRILLED

SITE: Location pictures	Construction site, DayLight
MATERIAL:	Stone
APPLICATION:	Drilling coated stone surface for putting electric wiring for outdoor lamps.
PRODUCT:	Water repellent coating (nanosilica based)
ASOCIATED RISKS:	Respiratory hazard Ingestion hazard Skin and eye contact
EQUIPMENT:	EQUIPMENT: Collective: <ul style="list-style-type: none"> - Suction systems - Confinement - Tools with systems for powder elimination/extraction - dry work Individual: <ul style="list-style-type: none"> - Gloves - Full face mask or half mask and close-fitting safety glasses - Coverall

MISSION 1

Introduction

The mission takes place at a building constructionn site. A worker is received by the construction manager and instructed to perform some drilling operations on a facade wall for putting electrical wiring, Besides there are several boxes with the inscription Personal Protective Equipment which include along with other work-related objects:



- **Safety glasses:**



- **Safety footwear:**



- **Mask:**



- **Gloves:**





- **Safety helmet:**



- **Mobile scaffold with a gin wheel for lifting objects:**







- **Reflective waistcoat:**





- **500-gauge polyethylene sheeting and duct tape:**





	<ul style="list-style-type: none"> - Warning tape and notices:  - Hearing protection: 
<p>Performance</p>	<p>The presentation of the environment can be done through a 360° animation from the eyes of one of the workers. The task to be performed is the selection of PPE by the user for the worker. The hotel manager will welcome the new maintenance workers and tell them to take all the PPE and other objects they think they need for their work.</p>
<p>Media</p>	<p>The new worker (user) chooses the necessary PPEs for him.</p> <p>1a. If the choice is correct, a sound heard of acceptance and this icon appears:</p>  <p>1b. In case the selection is incorrect either because PPE is missing or because he/she has selected PPE that is not necessary for normal work, the error sound is heard, and the following icon is displayed:</p> 
<p>Interaction</p>	<p>2a. In case the new worker selects the right PPE, he can continue his mission and get ready to enter the site with all his PPE on. 2b. The worker has not correctly selected his PPE, so the boss does not allow him to enter the site. The task has failed.</p>
<h2>MISSION 2</h2>	






Introduction	The worker, already dressed in their PPE, is approaching the scaffold with construction manager
Performance	The worker has to check scaffold for any faults and verify the existence of the “Safe to Use” scaffold
Media	Notice, which displays information the safe loading of the scaffold i.e. the load of persons, equipment and machinery,
Media	The dialogue between the two partners can be read at any time. The user will be able to choose between several options. It will be an interactive dialogue:
Media	C. M.: - Hey, you should check the scaffold for any faults and that there is a “Safe to Use” notice
Media	U: Option 1: No I don’t think so! It looks fine!
Media	U: Option 2: Yes, you are right! Let’s fdo this!
Media	If the user selects option 1, he/she will fail the mission. If the worker selects this option, an error sound will appear next to this icon.
Media	
Media	1b. If the user selects options 2, he/she will be able to continue. If the worker selects this option, a sound of approval or applause will appear next to the next icon.
Media	
Interaction	If the worker selects the wrong answer, he/she will not be able to continue with the mission.
Interaction	If the worker selects the correct answer, he/she will be able to continue with the mission.

MISSION 3



Introduction	The worker accompanied by the construction manager moves the mobile scaffold and places it close to the facade wall
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<p>Performance</p>	<p>The worker must have all the castors locked on the wheels to prevent movements :</p> 
<p>Media</p>	<p>The worker tries to climb up the internal scaffold ladder to the platform, then a dialogue between the two appears:</p> <p>W: I an going up to the scaffold platform! C.M: No, it is a mobile scaffold. The scaffold must never be accessed until all castors are locked to prevent movements W: Option 1: No, it is ok C. M.: Construction Manager gets mad! And shouts : ‘Leave immediately!’ W: Option 2: Oh, yes! I almost have forgotten it! I will have them locked right away!</p> <p>If in this question the worker selects option 1, he/she will fail the mission. If the worker selects this option, an error sound will appear next to this icon.</p>  <p>If he/she selects option 2, he/she will be able to continue. If the worker selects this option, a sound of approval or applause will appear next to the next icon.</p> 
<p>Interaction</p>	<p>If the worker selects the wrong answer, he/she will not be able to continue with the mission.</p> <p>If the worker selects the correct answer, he/she will be able to continue with the mission</p>




MISSION 4





Introduction	The scene now is the same. Warning tape and notices have been put around the work area. The worker is climbing up to the scaffold platform through the internal ladder. The worker is approaching the scaffold hoist and activates the mechanism for lifting a scaffold lifting cage containing polyethylene sheeting and duct tape
Performance	The worker looks at the basket
Media	<p>The worker says: interactive text apperas with two options) W: Option 1: Really, do I need this! W: Option 2: Ah yes! I have to protect the platfrom from contamination from debris.</p> <p>If the worker selects option 1, he/she will fail the mission. If the worker selects this option, an error sound will appear next to this icon.</p> <p></p> <p>If he/she selects option 2, he/she will be able to continue. If the worker selects this option, a sound of approval or applause will appear next to the next icon.</p> <p></p>
Interaction	<p>If the worker selects the wrong answer, he/she will not be able to continue with the mission.</p> <p>If the worker selects the correct answer, he/she will be able to continue with the mission</p>

MISSION 5



<p>Introduction</p>	<p>The worker is on the platform having applied the polyethylene cover on the platform with duct tape. He operates again the scaffold hoist mechanism to transport the drilling machine with universal dust extractor to be integrated on the drilling machine (no hoses, no cords).</p>
<p>Performance</p>	<p>The worker looks at the basket and has to choose the equipment for the drilling:</p> <p>-Rotary hammer drill:</p>  <p>-Dedicated dust extractor:</p> 
<p>Media</p>	<p>Focus on the basket: (Interactive environment for collecting objects). Text appears: collect the necessary objects for doing the job.</p> <p>Option 1: Pick up drilling machine and continue</p> <p>Option 2: Pick up dust extractor and continue</p> <p>Option 3: Pick up drilling machine and dust extractor, connect them and continue</p> 



	<p>If the worker selects option 1 & 2, he/she will fail the mission. If the worker selects this option, an error sound will appear next to this icon.</p>  <p>If he/she selects option 2, he/she will be able to continue. If the worker selects this option, a sound of approval or applause will appear next to the next icon.</p> 
Interaction	<p>If the worker selects option 1 & 2, he/she will fail the mission.</p> <p>If the worker selects option 3, continues with mission, and animation will show the worker drilling on the Stone Wall..</p>

MISSION 6

Introduction	The worker finishes drilling operation, puts the drilling equipment inside the lifting cage
Performance	<p>The worker says: (Interactive text)</p> <p>‘Another job task is finished’ Option 1: Lets go directly fro lunch</p> <p>Option 2: I have to collect the polythylene sheet inside a waste bag</p>
Media	<p>If the worker selects option 1, he/she will fail the mission. If the worker selects this option, an error sound will appear next to this icon.</p> <p>If he/she selects option 2, he/she will be able to continue. If the worker selects this option, a sound of approval or applause will appear next to the next icon.</p>
Interaction	If the worker selects option 1, he/she will fail the mission.



If the worker selects option 2, completed successfully his task, and animation will show the worker putting the waste bag on the lifting cage, operating the scaffold hoist to put the cage on the ground, climbing down the internal scaffold ladder, taking off his PPE, going to wash his hands and face and finally reaching his personal bag to take his lunch. a "Good job" message and the sound of applause will appear.





SITUATION 6. NANOMATERIAL IN LIQUID MATRIX APPLIED WITH PAINT ROLLER

SITE: Location pictures

Worktops from stone are produced in factory, adding hydrophobicity/anti-stain characteristics.



<https://www.npr.org/sections/health-shots/2019/12/02/782958005/there-s-no-good-dust-what-happens-after-quartz-countertops-leave-the-factory?t=1633005934391>

MATERIAL:

Worktop



APPLICATION:	Apply the nanomaterial coating with paint roller
PRODUCT:	SiO ₂ nanoparticles in liquid matrix to enhance hydrophobicity/ Anti-stain coating
ASSOCIATED RISKS:	Respiratory hazard Ingestion hazard Skin and eye contact
EQUIPMENT:	Collective: <ul style="list-style-type: none"> k. Extraction systems l. Suction systems m. Confinement Individual: <ul style="list-style-type: none"> n. Gloves o. Coverall



Full face mask or half mask and close-fitting safety glasses

MISSION 1

Introduction

The mission takes place at the factory, where natural stone worktops are ready to be coated with SiO₂ antistain coating. The coating (which is in liquid form) will be applied with paint roller.
Before proceeding with the application, the worker has to choose the appropriate personal protective equipment (PPE)

Performance

The view of the site image is through the eyes of the worker. A stack of worktops is visible. The worktop that is about to get coated is in front of the worker, with the paint roller and the liquid coating in a container. The working bench has tools and PPE properly hanged. The view is first person, showing the worker choosing PPE. Zoom on the equipment.

Media

Construction site sounds.

The animation shows all PPE components, all being click-on.
PPE components are:



Nitrile gloves,



latex gloves,



Electrical protective gloves



working gloves,



heavy duty gloves





Half face mask



Full face mask



Safety glasses



Safety goggles



Safety harness



Safety footwear

- Safety helmet



- Hearing protection



- Reflective waistcoat



- Safety belt



Work coverall



The appropriate choice is the following:

Nitrile or latex gloves, half mask and goggles OR full face mask. Work coverall should also be chosen.

Alert user regarding the proper way to adjust half face mask to the nose, and that the gloves have to be worn last PPE is hanged on a wall in front of the worker (and the user in first person view) in a neat way.

If the user incorrectly chooses a PPE configuration, an error sound will appear next to this icon.



If the user forgets to use safety glasses, an animation with droplets from a roller splash in the container should be displayed.

If the worker chooses the right one, this icon will be shown along with the sound of approval



Interaction

The worker gets to decide whether to pick up PPE or proceed with the paint roller application

For every correct choice of PPE, the can proceed with the next one



MISSION 2

Introduction



This mission describes the surface preparation before the application. The worker has to decide:

- d) Whether they perform surface preparation
- e) Whether to use PPE (especially for surface preparation)



Source link: https://www.123rf.com/photo_3915884_apartment-repair-processing-of-a-wall-by-an-sandpaper.html



Performance	<p>The presentation of the environment can be done through an animation from the eyes of one of the workers looking onto the bench where the worktop is placed. The aim is for the worker to perform the surface preparation taking all protective measures needed.</p>
Media	<p>Factory sounds surround the environment.</p> <p>The first shot shows the worker standing by the bench. The next shot is the view through the worker's eyes.</p> <p>The worker gets to choose whether to prepare surface with sanding and decontamination, or apply coating. The proper steps are the following:</p> <ol style="list-style-type: none"> a. Use of FFP2 mask for the dust and nitrile or latex gloves b. Sandpaper the surface (sounds of sandpapering) c. Clear the surface with water or acetone. (relevant sounds) <p>If any of the above steps is not implemented, error sound is heard </p> <p>When they implement a step, acceptance sound is heard. </p>
Interaction	<p>The user, before starting the surface preparation task, is given the choice to wear mask and gloves. If they choose to wear those, they can proceed with the simulation of the surface preparation. Otherwise, the task fails</p>



MISSION 3



Introduction

Since the application is being held in an enclosed workspace, proper ventilation enhancement should be present. The absence of such a system, can result in an increasing concentration of SiO₂ rich aerosols, along with often toxic solvent fumes. The worker has to make sure that a temporary isolated workspace will be set in the area, with ventilation systems and/or hepa filters installed



Source: Dreamstop.com



Performance	<p>The view is through the worker's eyes. They have to make sure they work in a ventilated, isolated area. There are 4-5 workers around.</p>
Media	<p>When the worker has worn the appropriate PPE and prepared the Surface for application, they get the choice to proceed with the spray gun application or make sure they work in a ventilated area. If they choose correctly, the  icon appears with sound of approval. Otherwise,  appears with error sound.</p>
Interaction	<p>When the correct choice is made by the worker, the view focuses on the collective protective equipment (i.e. ventilation system with hepa filters) . The text in the brackets appears in a pop-up window. The spray gun is animated with third person view.</p> <p>When the user chooses incorrectly to proceed without ensuring ventilation is present, their co-workers look uncomfortable with the solvents smell and the aerosol applied. The task fails.</p>



MISSION 4





Introduction

After the spray application, the spray gun must be cleaned with solvent. The mission's concept lies on the worker disposing the liquids in special containers away from heat source rather than in trash.



Source: <https://www.wikihow.com/Clean-an-Automotive-Paint-Gun>



Performance	<p>The worker is supposed to keep the PPE on (gloves and mask, regardless of the pictures above – they are for illustrative purposes) since a solvent with significant fugacity or toxicity might be used. The liquid and the paper used must be disposed at a special container.</p>
Media	<p>Factory sounds. First person view through the worker's eyes. After the completion of mission 3, a pop-up window appears, asking to leave the workspace as it is. If the user agrees,  appears with error sound. If the user disagrees, the  icon appears with sound of approval. Then a popup window suggests cleaning the spray gun and the workspace. This process is animated (with the relevant sounds), and afterwards, the user is asked (again with a popup window) whether to dispose leftovers in the trash bin or in a container for used solvents. If the user picks the last one, the  icon appears with sound of approval, otherwise  appears with error sound.</p>
Interaction	<p>The user must complete all questions correctly in order for them to proceed to the next question. If all questions are correctly answered, the mission is accomplished. In any other case, the mission fails.</p>



SITUATION 7. DUST-AIR MIXTURES IN A FACTORY

SITE: Location pictures

In a stone factory that is commissioned to make natural stone of a certain size to be installed in a church. The image of the church can be seen in photos or on a computer screen.



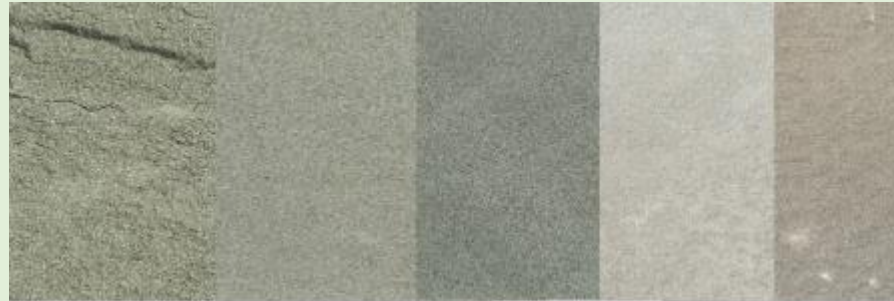
Source: Own photograph





MATERIAL:

Natural Stone



Source: Own photographs/photo composition

The arches and pillars are made of natural sandstone.

APPLICATION:

Use of stationary sawing machine in the factory for the preparation of the material.





Source: <https://www.expondo.ie/>



PRODUCT:	Sawing machine with water cooling to reduce dust
ASOCIATED RISKS:	Respiratory hazard Fire and explosion
EQUIPMENT:	<p>Collective:</p> <ul style="list-style-type: none"> a. Water cooling b. Extraction systems for dusts, including filters c. Extraction units for aerosols d. Barriers to prevent unauthorised entry into the danger zone (if necessary) <p>Individual:</p> <ul style="list-style-type: none"> e. Safety Gloves f. Safety footwear g. Safety goggles h. Helmet i. Full face mask or half mask and close-fitting safety glasses j. Hearing protection k. Fresh air filter mask during coating
MISSION 1	
Introduction	The mission starts in the factory hall of a natural stone company. There, the stones for the arches and pillars of the church are cut and prepared (profile, dimensions, surface design, etc.).



	<p>The executing construction company has drawn up a setting plan for the arches. This shows all the necessary information about dimensions, shaping and required properties. Two employees of the natural stone company work on the sandstone blocks according to this plan.</p> <p>The blocks are already in place on the saw. On the computer you can see the dimensions of the blocks.</p>
<p>Performance</p>	<p>The presentation of the environment can be done through an animation from the eyes of one of the workers looking into the natural stone factory.</p> <p>1) Zoom on the sawing machine: Enter the required data (dimensions) into the control unit; press the start button → Swivel to the saw blade</p>
<p>Media</p>	<p>Factory ambient sounds. A window appears to enter the measurements of the part to be cut (they must be the same data initially provided by the builder: height, width and depth).</p> <p>If the user enters the correct measurements, the icon will appear: </p> <p>If the user does not enter the correct measurements, the icon will appear: </p>
<p>Interaction</p>	<p>If the user enters the correct data, the saw will start cutting (sound of saw).</p>



SITUATION 8. NANO-WASTE MANAGEMENT ENVIRONMENTAL PROTECTION

SITE: Location pictures

In a natural stone factory.



Source: dguv.de; directindustry.de

MATERIAL:

Any Nano waste.

APPLICATION:

Use of extraction and filter systems for air and water pollution control in the factory.



	<p>Source: dguv.de;</p> <p>directindustry.de; umweltbundesamt.de</p>
<p>PRODUCT:</p>	<p>Extraction systems for aerosols, filter systems for dust, retention systems for contaminated water, incinerators for nanowaste, Closed, lockable waste containers</p>
<p>ASOCIATED RISKS:</p>	<p>Respiratory hazard Ingestion hazard Skin and eye contact</p>
<p>EQUIPMENT:</p>	<p>Collective:</p> <ul style="list-style-type: none"> p. Extraction systems for dusts, including filters q. Extraction units for aerosols r. retention systems for contaminated water s. Closed, lockable waste containers t. Barriers to prevent unauthorised entry into the danger zone (if necessary) <p>Individual:</p>



- u. Safety Gloves
- v. Safety footwear
- w. Safety goggles
- x. Helmet
- y. Full face mask or half mask and close-fitting safety glasses
- z. Hearing protection
- aa. Fresh air filter mask

MISSION 1

Introduction

The mission takes place in a nanomaterials factory. The equipment (referred to above in pictures) must be visualised.

-Safety glasses



- Safety footwear



- Mask



- Safety gloves



- Safety helmet



- Hearing protection



- Dustproof coverall



Source: schutzgut.de

- Waterproof suit (necessary for cleaning and maintenance work on waste water systems)



In addition, there should be other (senseless) equipment that is not necessary: Welding umbrella, safety harness, diving goggles, safety net, etc.

Performance



The presentation of the environment can be done through an animation from the eyes of one of the workers looking into the natural stone factory .

The two employees have the task of checking the extraction and filter systems and informing the factory management about any cleaning and maintenance work. In addition, they should also visually inspect the sewage pipes. Thirdly, they have the task of checking the containers for nano-waste for proper condition.

Media

Ambient sounds in the background.



	<p>Interactive animation in which the employees put on their protective equipment (coverall, Safety glasses, safety goggles, safety footwear, helmet, mask)</p> <p>1a. If the choice is correct, a sound heard of acceptance and this icon appears:</p>  <p>1b. In case the selection is incorrect either because PPE is missing or because he/she has selected PPE that is not necessary for this work, the error sound is heard, and the following icon is displayed:</p> 
Interaction	<p>1a. In case the new worker selects the right PPE, he can continue his mission and can start their control tour.</p> <p>1b. Otherwise the task must be repeated.</p>
<h2>MISSION 2</h2>	
Introduction	<p>The employees first check the control unit of the dust extraction system. The operating hours display is particularly important. They notice that there are still several hours left until the next maintenance. However, the dust collection container is almost full. They decide to empty it.</p>



Performance



again.

An alert may simply appear saying check the control unit of the suction system. And the user has to select the steps to follow in the correct order.

Source: [fitzer-industriesauger.de](https://www.fitzer-industriesauger.de)

Employees must switch off the extraction system (cut off the power) and mark or lock it in such a way that no one can start it up again as long as the work continues. The head of the factory is notified of the temporary shutdown.



Source: [jh-profishop](https://www.jh-profishop.com)

At the same time, they ask a forklift driver to pick up the filter bag. They make sure that the filter bag is closed and that the forklift has a pick-up crossbar.

A new filter bag is then installed and the system is switched on




Media

Ambient sounds.



The user must describe the filter change in the correct order:

- d) Inform factory management
- e) De-energise the system
- f) Secure the system against unintentional restart
- g) Order forklift with traverse
- h) Close filter bag
- i) Remove filter bag for final disposal (closed, dust-tight container)
- j) Installation of a new filter bag






	<p>k) Restart the extraction system If the user chooses a wrong order, the following symbol occurs.</p>  <p>This icon occurs when the order is correct.</p> 
<p>Interaction</p>	<p>The user can view a short instruction manual for changing the filter (e.g. pop-up window).</p>
<h2>MISSION 3</h2>	
<p>Introduction</p>	<p>There is too much dust in the air. The employees check the concentration of nanomaterial in the air.</p>  <p style="text-align: right;">Source: DGUV</p>
<p>Performance</p>	<p>The two employees measure the concentration of nanoparticles in the air.</p>
<p>Media</p>	<p>You can hear the suction systems and the natural stone saw. A pop-up window will appear with a question: Is it necessary to measure the concentration of nanoparticles in the air at several locations in the factory? 3a. No, the air and thus the concentration of nanoparticles is distributed homogeneously throughout the factory.</p>



	<p>3b. Yes, it is necessary for the safety of workers and the environment. If the worker answers 3a, an error sound will appear next to this icon.</p>  <p>If the worker answers 3b, a sound of approval or applause appears next to the following icon.</p> 
Interaction	<p>If the worker selects the correct answers, he/she can proceed to the next screen. If the worker does not select the correct answers, he/she will not be able to complete the mission.</p>



SITUATION 9. NANOMATERIAL APPLIED AS AN AEROSOL

<p>SITE: Location pictures</p>	<p>Construction site</p> <div style="display: flex; justify-content: space-around;">   </div>
<p>MATERIAL:</p>	<p>Pool deck stone</p>
<p>APPLICATION:</p>	<p>As an aerosol spray</p> 
<p>PRODUCT:</p>	<p>anti-slip coating</p>
<p>ASSOCIATED RISKS:</p>	<p>Respiratory hazard Ingestion hazard Skin and eye contact</p>
<p>EQUIPMENT:</p>	<p>Collective:</p> <ul style="list-style-type: none"> - Extraction systems - Suction systems



- **Confinement**
- Individual:**
 - **Gloves**
 - **Coverall**
 - **Full face mask or half mask and close-fitting safety glasses**

MISSION 1

Introduction

The mission takes place at the swimming pool deck of an under construction resort house during daylight. This mission shows one maintenance worker who is going to apply the product and the construction manager who is waiting him with a box with "PPE" written along with an aerosol safety storage cage, in a designated ware-house area protected from sunlight:

- **Aerosol safety storage cage:**






- **Safety Glasses:**





- **Nitrile gloves:**





	<ul style="list-style-type: none"> • Protective respiratory mask  <ul style="list-style-type: none"> • Safety Helmet:  <ul style="list-style-type: none"> • Tyvek Jacket 
<p>Performance</p>	<p>Performance The presentation of the environment can be done through a 360° animation from the eyes of one of the workers.</p> <p>The task to be performed is the selection of PPE by the user for the workers.</p> <p>The construction manager will welcome the new maintenance worker and tell him to take all the PPE they think they need for their work.</p>
<p>Media</p>	<p>The new worker (user) chooses the necessities PPEs for him.</p> <p>1a. If the choice is correct, a sound heard of acceptance and this icon appears:</p>



	<p>1b. In case the selection is incorrect either because PPE is missing or because he/she has selected PPE that is not necessary for normal work, the error sound is heard, and the following icon is displayed:</p> 
Interaction	<p>2a. In case the new worker selects the right PPE, he can continue his mission and get ready to enter the site with all his PPE on.</p> <p>2b. The worker has not correctly selected his PPE, so the boss does not allow him to enter the site. The task has failed.</p>
<h2>MISSION 2</h2>	
Introduction	<p>Introduction The worker, already dressed in their PPE, go to the pool to fix it, carrying the aerosol safety cage. The natural stone at the poll deck has dirt accumylation on it.</p> <p>The image of the mission now needs to focus more on the pool area.</p>
Performance	<p>Animated photos of the worker with his uniform and PPE.</p> <p>Zoom on the salt accumulation in the pool and on the cracks.</p> <p>The worker must apply the product to enhance the anti-slip properties of the surface</p>
Media	<p>A pop-up window will appear with a question:</p> <p>Can the anti-slip aerosol product be applied with the dirt present on the stone?</p> <p>2a. If the worker answers yes, an error sound will appear next to this icon.</p>  <p>2b. If the worker answers no, a sound of approval or applause appears next to the following icon.</p>



Interaction

2a. In case the worker selects the option to apply the consolidant-hydrofugant without first cleaning the mission will fail.

2b. If the user selects the option not to apply if not cleaned. He/she can continue with the mission. The option to clean will appear on a button.



MISSION 3

Introduction

In this mission, the scene will appear clean, otherwise it will be the same as in mission 2, but the pool deck will be clean. The worker must apply the product to solve the problem of slippery surface

Performance

The worker must apply the product to solve the problem of slippery surface

Media

The pop-up window will appear with two options:



3a. The application of the product must start from the periphery of the edge of the pool deck and then the application should continue backwards. . If the worker selects this option, a sound of approval or applause will appear next to the following icon.



3b. The application of the product must be done in a random way, ". If the worker selects this option, an error sound will appear next to this icon.





Interaction	<p>If the worker selects option 3a, the mission can continue When an incorrect option 3b is selected, mission will fail.</p>
<h2>MISSION 4</h2>	
Introduction	<p>The scenario is the same as in the previous mission.</p>
Performance	<p>You can see an animation in which the user applies the product correctly. Finish his work, puts down the aerosol; can beside several other used cans, outside the EMPTY aerosol safety cage. The construction manager calls his attention to engage in a conversation.</p>
Media	<p>The dialogue between the two partners can be read at any time. The user will be able to choose between several options. It will be an interactive dialogue.</p> <p>C.M: Your action is not in accordance with good working practices? W: Option 1: No, it is ok, I can leave now. I have finished with the application of the product! W: Option 2: Why, what I have done wrong?</p> <p>If in this question the worker selects option 1, he/she will fail the mission. If the worker selects this option, an error sound will appear next to this icon.</p>  <p>If he/she selects option 2, he/she will be able to continue. If the worker selects this option, a sound of approval or applause will appear next to the next icon.</p> 
Interaction	<p>If the worker selects the wrong answer, he/she will not be able to continue with the mission. If the worker selects the correct answer, he/she will be able to continue with the mission. A textbox will appear with the following text: Construction manager answers: “ The direct sunlight may overheat the cans and they could become missiles with the</p>



possibility to harm you. You must put them in the safety cage and carry it in the warehouse. Then trained personell waearing appropriate personal protective equipemnt will perfrom puncturing in a designated area for this activity and any remaining content will be removed and then can be recycled. “ Animation, then will show, worker carrying the aerosol safety cage in the warehouse. Applause sound will be heard and the following image will appear



Mission is completed



SITUATION 10. WASTE CLEANING OR DISPOSAL AFTER WORKING HOURS

SITE: Location pictures	Factory
MATERIAL:	All the facilities
APPLICATION:	Not applicable
PRODUCT:	Any nanoproduct
ASOCIATED RISKS:	Respiratory hazard Ingestion hazard Skin and eye contact
EQUIPMENT:	Collective: <ul style="list-style-type: none"> bb. Extraction systems cc. Suction systems dd. Confinement Individual: <ul style="list-style-type: none"> ee. Gloves ff. Coverall gg. Full face mask or half mask and close-fitting safety glasses

MISSION 1

Introduction	The mission takes place at a locker room. This mission shows two new workers who are going to work at the production department; they have the task of cleaning the extraction and filter systems.
Performance	The task to be performed is the selection of PPE by the user for the workers.
Media	Ambient sounds in the background.



Interactive animation in which the employees put on their protective equipment (coverall, Safety glasses, safety goggles, safety footwear, helmet, mask)

- Safety glasses



- Safety footwear



- Safety harness



- Mask



- Rubber gloves



- Safety helmet



- Hearing protection



- Reflective waistcoat



- Electrical protective gloves



- Safety belt



- Dustproof coverall



- Waterproof suit



- Safety gloves



1a. If the choice is correct, a sound heard of acceptance and this icon appears:



1b. In case the selection is incorrect either because PPE is missing or because he/she has selected PPE that is not necessary for this work, the error sound is heard, and the following icon is displayed:



Interaction

2a. In case the user selects the right PPE, he can continue his mission and he can get ready to go to the production department.



2b. The user has not correctly selected PPE, so he cannot go. The task has failed.

MISSION 2

Introduction

**The mission takes place at the production department.
This mission shows the new workers who are cleaning the extraction and filter systems.**

Performance

The task to be performed is the selection by the user of the correct way of disposing the dirty HEPA filters and the waste materials produced by the cleaning of the extraction and filter systems.

Media

Ambient sounds.

The user must choose how and where the different waste must be disposed:

hh. In open bag or open box



ii. Closed ordinary waste bag



jj. Hazardous waste bag





kk. Recyclable waste bin



ll. Ordinary waste container



mm. Closed, lockable waste container



1a. If the choice is correct, a sound heard of acceptance and this icon appears:



1b. In case the selection is incorrect, the error sound is heard, and the following icon is displayed:



Interaction

2a. In case the user selects the right way of waste disposing, he can finish his mission and return at the locker room.

2b. The user has not correctly selected choices, so he cannot go. The task has failed.



MISSION 3

Introduction

The mission takes place at the production department.
This mission shows the new workers who are cleaning the water treatment and water purification system.

Performance

The task to be performed is the selection by the user of the correct way of disposing sewage sludges and the other waste materials produced by the cleaning of the water treatment and water purification system.

Media

Ambient sounds.

The user must choose how and where the different material must be disposed:

nn. Sewer drains



oo. Ordinary garbage can



pp. Proper hazardous liquid waste tank



1a. If the choice is correct, a sound heard of acceptance and this icon appears:



1b. In case the selection is incorrect, the error sound is heard, and the following icon is displayed:



Interaction

2a. In case the user selects the right way of waste disposing, he can finish his mission and return at the locker room.

2b. The user has not correctly selected choices, so he cannot go. The task has failed.

MISSION 4

Introduction

The mission takes place at a locker room.

This mission shows two new workers who have finished their workshift; they cleaned the extraction and filter systems or the water treatment and water purification system.

Performance

The task to be performed is the selection of correct treatment of used PPE by the user for the workers.

Media

Ambient sounds in the background.

Interactive animation in which the employees take off their personal protective equipment (coverall, safety glasses, gloves, safety footwear, helmet, mask)

The user must choose what is the correct treatment of each different used PPE:

- A) Disposed off
- B) Cleaned by vacuum system
- C) Washed
- D) Cleaned by a damp cloth

1a. If the choice is correct, a sound heard of acceptance and this icon appears:



1b. In case the selection is incorrect, the error sound is heard, and the following icon is displayed:



Interaction

2a. In case the user selects the correct treatment of each different used PPE, he can finish his workshift and return at home.

2b. The user has not correctly selected choices, so he cannot go. The task has failed.