LOG OF MEETING
DIRECTORATE FOR ENGINEERING SCIENCES

SUBJECT: ASTM Pool Alarm Voluntary Standard

DATE OF MEETING: January 7, 2008

PLACE OF MEETING: CPSC HQ - Bethesda MD

LOG ENTRY SOURCE: Troy Whitfield

COMMISSION ATTENDEES: Troy Whitfield

NON-COMMISSION ATTENDEES: Anthony Ginter

SUMMARY OF MEETING:

The meeting was requested by Anthony Ginter of MG International, a producer of the AquaSensor pool alarm. Mr. Ginter discussed his concerns about the revisions to the ASTM F2208 voluntary standard, developed by the F15.49 subcommittee. He believes the current direction of the performance standard will lead to pool alarms that are too sensitive and will result in consumer dissatisfaction. His concerns are based on his experience with the development of the French AFNOR standard. The French law provides for several options in drowning prevention, including pool alarms. Mr. Ginter expressed his feelings regarding the performance test for detection and its requirements versus the resistance to false alarms and the subsequent requirements. Mr. Ginter believes that there are two considerations that should be weighed in the development of the test protocol; Usage (false alarms and consumer satisfaction) versus product performance (quality of the product).

There is an associated sensitivity for detecting changes to the 'normal' operating environment (while the pool is not in use) and if alarms must sense the small (potential environmental inputs, i.e., wind, rain, etc.) as well as the large, they are likely to false alarm frequently and consumers will not use them. Mr. Ginter provided some drawings regarding the proposed water entrance drop tests and the size of the impact surfaces created.

Forward

This document presents a system for protection against drowning for in-ground private swimming pools for individual or collective use, i.e.
— alarm systems;
These systems can also be used to for protection on above-ground pools.
The purpose of this document is to assist in the design of a product and to set out the safety-related requirements; it is nevertheless understood that for any human activity, the risk factors can never be entirely eliminated. This document is not a substitute for common sense and individual responsibility. Nor is it intended as a substitute for the watchfulness of parents and/or responsible adults, which remains the essential factor for the protection of children under the age of five.

1 Scope

This document defines the minimum safety requirements, the test methods and the consumer information for alarm systems used on in-ground private swimming pools for individual or collective use to detect any fall or immersion, particularly of children.

3 Terms and definitions

For the purposes of this document, the following terms and definition shall apply:

3.1 Private pool for individual use
Private pool reserved for the personal use of a family or facility open to public users.

3.3 Alarm system
System which detects, transmits and signals presence in the protection area.

3.4 Detection system
System which triggers a warning system when an abnormal event is detected.

3.5 Transmission system
System which transmits information
— between the various detectors in the alarm system if there are more than one;
— between the detector(s) and the base unit;
— as a general rule, between all the components making up the alarm system.

3.6 Warning alarm system (siren)
Device which emits a warning signal to announce an intrusion.

3.8 Protection area
The pool and adjoining volume(s) of water.

3.9 Base unit
Electronic component which receives the information transmitted by the detector(s) and activates the warning systems and, if applicable, other alarm systems.

3.10 Electrical control system
Switch, push button or manual control key that transmits an action command via a link.

3.11 Remote control device
Switch, push button or manual control key that transmits an action command without any physical link other than air. A remote control may be fixed or portable. It is equipped with its own main or auxiliary power source and emits a laser, infrared or radio type signal.

3.12 Alarm condition
Cause or circumstance which triggers the warning alarm system.

3.14 Gradual slope
Access to water on an even slope of less than 30%, with no break in the slope.

3.15 Robot diver
Robot that moves into and out of the water, thus creating an event similar or identical to the fall of a child.

4 Requirements common to all alarm systems

4.2 Alarm systems
All alarm systems have to be able to operate 24 hours a day within the limits specified in the articles/paragraphs that correspond to each product type in this document, and except during times when the system is voluntarily deactivated. Compliance with this requirement is checked by the tests described in this document.

4.3 Detection systems
All detection systems must be equipped with:
— either a siren embedded in the detection system;
— or a remote siren connected by wire link.

4.4 Additional sirens
All additional sirens must satisfy the requirements stipulated in this document.

4.5 Activation/deactivation control units

4.5.1 General
All activation/deactivation control units must:
— either be able to be placed out of the reach of children under the age of five;
— or be locked.

4.5.2 Control units placed out of the reach of children under the age of five
These systems are of the following types:
— remote control device;
— key (mechanical or electronic);
— for remote controls, the requirements of paragraph 4.5.3 (Locked systems) apply.

4.5.3 Locked systems
To prevent risk of being deactivated by children under the age of five, or by an unintentional action, unlocking the control units must:
— require at least two consecutive actions to release the lock system, and the second action must be separate from the first which is performed and maintained; or
— require two separate but simultaneous actions which act according to different principles; or
— require a digital code.
NOTE One of the actions or systems may be performed through the use of a tool such as: a token, key, magnet or magnetic card.
Any unlocking system must be easily useable by adults.
These requirements apply in full to remote control systems.

4.6 Power supply

4.6.1 Power
The applicable electrical power voltages must comply with the standards in force in the country in which this standard applies.

4.6.2 Autonomy in standby mode (without trigger of alarm)
Autonomy must be equal to or greater than:
— for batteries recharged by photovoltaic energy: 20 days;
— for batteries recharged by mains energy: 6 hours to operate, and 24 hours to indicate a failure. To ensure proper operating, a simulated trigger test must be performed after six hours.
The maximum time required for batteries to recharge, after 6 hours of energy rundown, must be 48 hours;
— for non-rechargeable batteries: one year of normal use.

4.6.3 Low power supply
When the system is powered by photovoltaic energy or batteries, the alarm system must be equipped with a low power supply indicator with a sound or visual signal that must be maintained until the power level returns to normal, or until no power is left.

4.6.4 Fault or absence of power supply
The presence of mains power must be indicated visually.
If there is a fault or break in mains power, a backup power supply must automatically start working.
When the mains power supply is active, any fault or absence of backup power supply must activate a failure warning system.

4.7 Electrical safety
To ensure electrical safety, compliance with the regulations in force in the country is required.

4.8 Electromagnetic compatibility
To ensure electromagnetic compatibility, compliance with the regulations in force in the country is required.

4.9 Base unit and detector(s)

4.9.1 Installation of the base unit and detector(s)
The base unit and detector(s) must be installed in such a way that prevents them from being moved with bare hands.

4.9.2 Resistance to high and low temperatures

4.9.2.1 *System parts installed outside*
The tests to be used are as follows:
— dry heat test at 70 °C;
— cold test at – 25 °C;
For these tests, the alarm system must remain stable (no trigger of alarm) throughout the trial and pass its operating test (sensor chain check — alarm in response to simulation) at the end of the test.
— cyclical humid heat test at 55 °C and 93% humidity as per the standards in force in the country.
For this test, the alarm system must remain stable throughout the trial.
The tests are performed by replacing the batteries by an external power source (which is not subjected to the temperatures).
At the end of this test, the alarm system must be triggered by simulation.

4.9.2.2 *System parts installed inside*
The tests to be used are as follows:
— dry heat test at 40 °C;
— cold test at -5 °C.

For these tests, the alarm system must remain stable (no trigger of alarm) throughout the trial and pass its operating test (sensor chain check — alarm in response to simulation) at the end of the test.

4.9.3 Protection of enclosures containing electrical equipment

These enclosures must comply with the following requirements:
— IPX7 alarm system components which are immersed to a depth of less than 1 m;
— IPX5 for alarm system components which are installed (anchored or placed) outside on the ground, outside the pool.
At the end of this test, trigger the alarm system by simulation.

4.9.5 Automatic reactivation of the alarm system

After temporary deactivation of the alarm system to allow use of the pool, the alarm system must have an automatic reactivation function in addition to manual reactivation.
The 'monitoring' and/or 'no monitoring' statuses must be signalled at all times. This signal must be different from the warning and alarm failure signal.

4.9.6 System On/Off operation

The operation that turns the system On and shuts it Off completely must only be possible using a system devoted specifically to this command and which cannot be activated involuntarily.
The shutting Off of the alarm system must be clearly indicated.

4.10 Transmission system

4.10.1 Wire transmission systems

When the alarm system is On, any break in the transmission (power outage, short-circuit in all conductors, ground terminal, etc.) must trigger the failure warning system within 2 seconds.

4.10.2 Wireless transmission systems

For electrical radio transmission systems, it is necessary to comply with the regulations in force (R&TTE directive and associated harmonized standards: see article 2 of this document).
For fixed single-frequency systems only:
— the detection of interference (noise) which is liable to produce a break in the radio link of more than 10 seconds in a 20-second period must produce a radio link disturbance warning;
— for any interference lasting less than 5 seconds in a 60-second period, no indication must be given.
Radio remote controls are not subject to this requirement.
Systems with varied or multiple frequencies, or with spectrum spread or LBT (Listen Before Talk) technology should be given preference and must offer the capability of obtaining radioelectrical links with high transmission reliability.
Potential/accidental transmission noise on a channel must not result in a break in the radioelectrical link.

4.11 Alarm system signalling

4.11.2 Alarm signal

4.11.2.1 *Volume*

Each siren must have a volume rating with specifications defined as per the standards in force in the country:
— if there is no regulation (i.e. local regulation), the volume capacity must be greater than 100 dBA, and,
— must not exceed the peak value of 115 dBC.

4.11.2.2 ***Additional warning system(s)*** *(alarm and failure signals)*

The alarm systems must be able to activate one or more additional warning systems.
The alarm system must allow alarm signals to be transferred. Instructions with regard to this transferring must appear in the information provided on purchase and in the installation instructions.

6 Requirements specific to immersion detection systems

6.1 General

Swimming pools with access to the water on a gradual slope of less than 30% with no break in the slope cannot be solely equipped with an immersion type detection system.

6.2 Requirements

6.2.1 General requirements (detection sensitivity, regularity)

The immersion detection system must detect and trigger a warning alarm system in the three following cases:
— immersion of a child weighing at least 8 kg from the edge in the pool in the successive locations specified in paragraphs 8.3.3.2.2 (positioning of the test specimen around the pool) and as per 8.3.3.2.4 (detection of immersion of an infant falling into the water from the edge of the pool);
— immersion of a child weighing at least 8 kg from the stairs and ladders as per 8.3.3.2.5 (detection of immersion of a child falling from a stair or ladder step);
The immersion detector must not be triggered accidentally in the test conditions defined in paragraph 8.3 (immersion detection tests).

6.2.2 Technical requirements

6.2.2.1 ***Immersion detection with no specific constraint***

At the end of the test described in 8.3.3 (immersion test with no specific constraint), regardless of the position of the detector in the pool (installed in accordance with the manufacturer's instructions), the test specimen must be detected within no more than 12 seconds after immersion of the test specimen, and this applies for all the falls performed.

6.2.2.2 ***Immersion detection with specific constraints***

For the tests described in 8.3.3 (immersion test with no specific constraint) performed with the constraints:
— water filter system (8.3.4.1);
— cleaning robot in operation (8.3.4.2) at the bottom of the pool;
— immunity to the indirect effects of wind, detection capability in troubled water (paragraph 8.3.4.3.2.1.2);
— combination of water filter system, cleaning robot in operation and steady wind (8.3.4.4).
The test specimen must be detected within no more than 12 seconds after immersion of the test specimen, and this applies for all the falls performed.

6.2.2.3 ***Immunity to accidental triggering***

For the tests performed in:
— 8.3.4.1 (test with water filter system);
— 8.3.4.2 (test with cleaning robot);
— 8.3.4.3.2.1.1 (stability in disturbances generated: gusts of wind);
— 8.3.4.3.2.2 (immunity to direct effects of wind: wind on the detector);
— 8.3.4.4 (test with water filter system, cleaning robot, and wind);
— 8.3.4.5 (test on the shell).
No accidental trigger must be found.

6.2.2.4 ***Resistance to mechanical constraints***

The immersion detector fixed to the edge of the pool must be protected against any impacts. It is considered that this requirement is met if it complies with protection index IK07 (impact of 2 J).
The immersion detector fixed on the edge of the pool must be able to withstand the weight of an adult weighing 80 kg.

8.3 Immersion detection tests

8.3.1 General

All the tests must be performed without any human intervention or operation on the alarm system throughout the entire duration of the tests.

8.3.2 Reference pool

The tests are conducted in a pool with minimum dimensions of 4 m × 8 m × 1.40 m as shown in Figure 3.

NOTE These dimensions correspond to those of most of the pools manufactured on the French market.

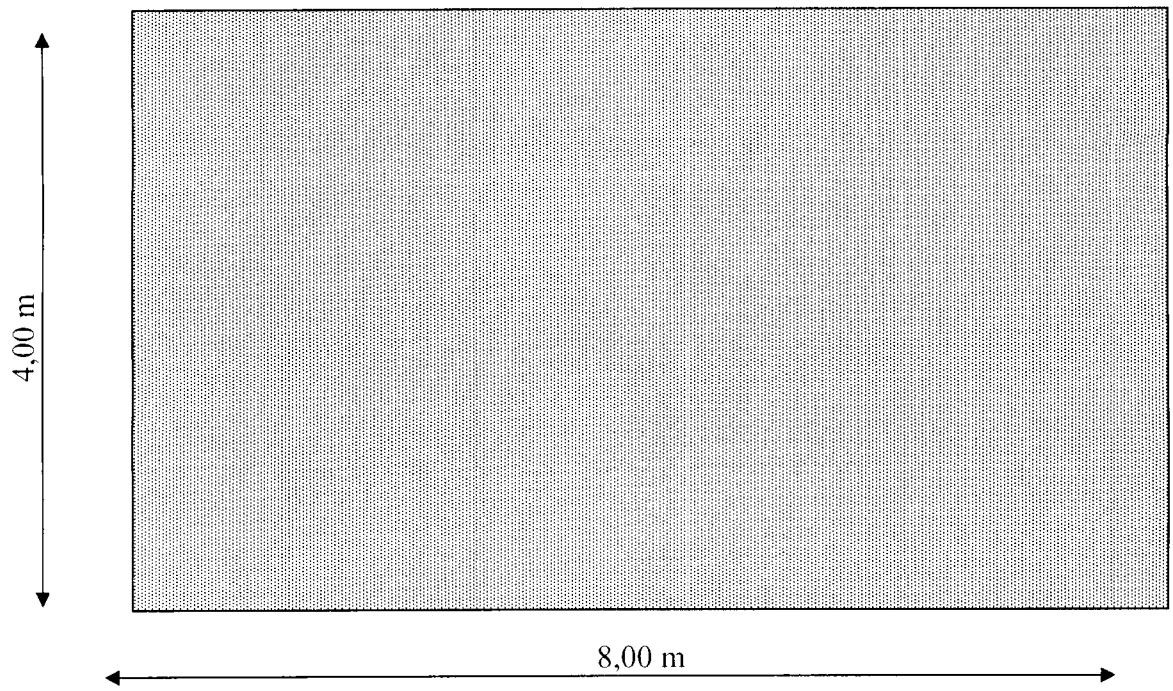


Figure 3 — Reference pool

Access to the pool is gained via stairs (at the shallow end) or a ladder.

The distance between the top of the pool's edge and the water surface is 0.13 m.

In order to eliminate accidental interference due to weather disturbances, the tests are conducted in a covered pool or an outside pool if the wind factor is force 1 or less, without rain, with an ambient temperature of between 5 °C and 30 °C.

8.3.3 Immersion test with no specific constraint

8.3.3.1 *Test specimens*

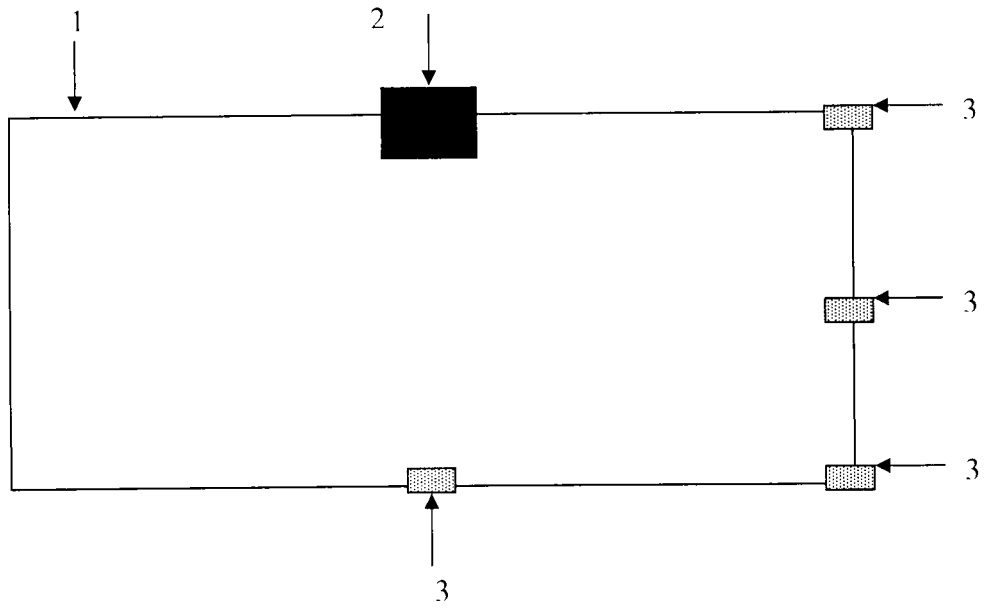
— test specimen A: dummy with two arms and two legs, having density 1, weight 6 kg, height 0.65 m, corresponding to the minimum measurements of a 6- to 9-month-old infant (see Appendix C); discussions are underway at the French Standardisation Association (AFNOR) to allow test specimen B to be solely applicable within the framework of the laws of this standard.

— test specimen B: dummy with two arms and two legs, having density 1, weight 8 kg, height 0.80 m (see Appendix C).

8.3.3.2 ***Test procedure***

8.3.3.2.1 *Placement of the system to be tested*
The system is placed on the edge of the pool at ± 0.50 m from the midpoint of the length.

8.3.3.2.2 *Positioning of the test specimen around the pool*



Legend
1 Reference pool
2 Detection system
3 Test specimen position for the tests

Figure 4 — Positioning of the dummy

The 4 positions are used for the tests described in 8.3.3.2.4 (detection of immersion of an infant falling into the water from the edge of the pool), 8.3.3.2.5 (detection of immersion of a child falling from a stair or ladder step).

8.3.3.2.3 *Wait time between tests*
After each test, it is important to wait 15 min or automatic reactivation of the alarm system before proceeding with the next test.

8.3.3.2.4 *Detection of immersion of an infant falling into the water from the edge of the pool*
— place test specimen A in standing position on the edge of the pool and let it fall into the water;
— place test specimen A in lying down position, parallel to the edge of the pool, and push it gently at a rate of 1 cm/s until it falls into the water;

8.3.3.2.5 *Detection of immersion of a child falling from a stair or ladder step*
— Place test specimen B on the first immersed stair or ladder step providing access to the pool, and release it so that it falls into the water.

8.3.4 Accidental triggering test

8.3.4.1 *Test with water filter system*

8.3.4.1.1 *Equipment*
Filtration system with a flow rate of 15 m^3/h distributed over 2 or 3 discharge bases.
NOTE Justification for this flow rate is specified in Appendix C.

8.3.4.1.2 *Test procedure*
— Run the water filter system for 5 min;
— Shut off the water filter system;
— Re-run the water filter system for 5 min;
Repeat this sequence twice.
Then perform tests 8.3.3.2.4 (detection of immersion of an infant falling into the water from the edge of the pool), 8.3.3.2.5 (detection of immersion of a child falling from a stair or ladder step).

8.3.4.2 *Test with cleaning robot*

8.3.4.2.1 *Equipment*
Roaming type robot having the following characteristics:
— dimensions: 400 mm × 400 mm × 300 mm ± 20%;
— weight: approximately 10 kg;
— vacuuming volume: approximately 18 m^3/h;
— pump speed: approximately 2,700 rev/min ± 20%.
This robot must not climb on the walls or exit the water.

8.3.4.2.2 *Test procedure*

8.3.4.2.2.1 Endurance test with the robot in operation
— Activate the detector;
— Then launch a 1-hour cleaning cycle with the electrical robot.

8.3.4.2.2.2 Detection test with the cleaning robot in operation
— Activate the detector;
— Then launch a cleaning cycle.
Repeat tests 8.3.3.2.4 (detection of immersion of an infant falling into the water from the edge of the pool), 8.3.3.2.5 (detection of immersion of a child falling from a stair or ladder step).

8.3.4.5 *Test on the shell*
Subject the immersion detector fixed to the edge of the pool to protection index IK 07 (impact of 2J) as per standard NF EN 50102.
Apply a weight of 80 kg, distributed over a 0.20 m disc, for 1 min on the shell.

9 Instructions for the consumer

9.1 General principles
The alarm system must be accompanied by installation and set-up instructions, and a user manual, as well as safety recommendations and a maintenance manual.
The user manual, set-up instructions and safety recommendations must bear the following notice: "Read this document carefully and save it for future reference."
All documents must contain:
— the identification information for the alarm system model to which it refers;
— the name and contact information of the person responsible for placement on the market (manufacturer, distributor or importer);

— a telephone number the consumer can call to obtain further explanation during installation of the alarm system, if necessary;
— all instructions must be legible, clear, and comprehensible to the consumer, and drafted in French.
For better comprehension, the use of illustrations is recommended. The explanations must correspond to the illustrations.
When manuals contain more than one page, they must be provided in a single document with numbered pages.
The caution and warning notes must be highly visible.

9.2 Point-of-purchase information

To enable the consumer to make a selection, the point-of-purchase information must be provided prior to purchase and indicate:
— the following statement: "alarm system for non-enclosed in-ground private swimming pools for individual or collective use, which signals a hazard; the rapid intervention of a responsible person is obligatory";
— the alarm type (e.g., system which detects entry into a given perimeter or system which detects immersion of a body in the pool);
— the main characteristics of the alarm system;
— the sound level emitted by the base unit;
— the contractual and prescribed (as per regulations) warranty period(s) for the components;
— the following recommendation: "it is preferable to entrust the installation and maintenance of the alarm system to a professional";
— for optical beam perimeter-type detection systems: indicate the system's limits according to the surface area and condition of the ground.
— For immersion detection systems:
- "The types of pools for which immersion detection systems are not appropriate";
- "Some counter-current swimming systems do not allow the immersion detection system to be reactivated";
- "Some cleaning robots like diving robots are incompatible with immersion detection systems";
Depending on the layout of the residence or living quarters in relation to the swimming pool, it may be necessary to transfer the safety, alarm and failure signals so they can be heard from the dwelling or living quarters. This must be checked during installation".

9.3 Instructions for installation and use

The instructions for installation and use must contain all the information required for proper use.
They must include at least the following information:
— optimal positioning for the components of the alarm system;
— indication of the location and quality of the alarm system placement site (e.g., flat surface with little vegetation);
— for systems with wire transmission, the necessity for the installer to check that the wires or optical fibres are placed in a sleeve;
— the need for the user to regularly perform full functional checks on its protection system, or have them performed by a professional. The instructions indicate the procedure for performing this test;
— the meaning of the various signals and how to resolve them;
— after installation, proceed with a full trigger test, in accordance with the attached procedure;
— some cleaning robots like diving robots are incompatible with immersion detection systems;
— the need for the installer to check that the alarm is audible from the residence or living quarters;
— depending on the layout of the residence or living quarters in relation to the swimming pool, it may be necessary to transfer the safety, alarm and failure signals so they can be heard from the dwelling or living quarters. This must be checked during installation;
— install permanent signs indicating that the pool and the area around it are monitored electronically;
— the manufacturer's instructions enabling the entire protection area to be covered.
For immersion detection systems:
— the operating conditions in the event of light or hard freezes;
— the operating limits that apply when the pool is not completely full.

9.4 Safety recommendations

9.4.1 General safety recommendations

The general safety recommendations must contain at least the following information:

— You alone are responsible for your children's safety! The risk is greatest when children are less than five years old. Accidents don't just happen to other people! Be prepared to respond!

— Monitor and act:

- children must be constantly supervised from nearby;
- designate one adult to be in charge of safety;
- increase monitoring when there are many people using the pool;
- teach your children to swim as early as possible;
- wet back of neck, arms and legs before entering the water;
- learn the steps that save lives, especially those for children;
- prohibit diving and jumping in the presence of small children;
- prohibit running and playing around the pool;
- do not allow a child who does not swim well to enter the pool without a life jacket or vest and unaccompanied;
- do not leave toys near or in the pool when it is not being monitored;
- always maintain clear, healthy water;
- store water treatment products out of reach of children;
- some counter-current swimming systems prevent the immersion detection system from being automatically reactivated;
- some cleaning robots like diving robots are incompatible with immersion detection systems;
- in order to prevent access to the pool by children under the age of five when the failure signal has triggered, take all the required safety measures until the device has been repaired.

— ensure that you have:

- an accessible telephone near the pool so that you do not leave your children unattended while you phone;
- a life ring and rescue pole near the pool;

— it is only authorized to replace the batteries and fuses, and this must be done at the start of the season;

— in the event of an accident:

- remove the child from the water as quickly as possible;
- immediately call the emergency services and follow the instructions they give you;
- replace wet clothing with warm blankets;

— memorize emergency phone numbers and post them near the pool:

— Pictogram reiterating the responsibility of adults to monitor young children. An example pictogram is shown in Figure 8.

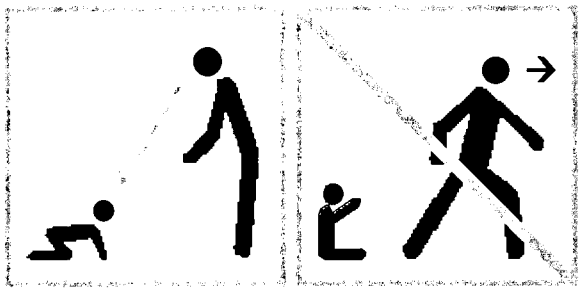


Figure 8 — Example pictogram

9.4.2 Safety recommendations specific to alarms

The general safety recommendations must contain at least the following information:

— "This alarm system is not a replacement for common sense or individual responsibility. Nor is it intended as a substitute for the watchfulness of parents and/or responsible adults, which remains the essential factor for the protection of children under the age of five.";

— the following warning: "Any user who shuts off the system must be aware that surveillance by a person must take over from the system.";
— the following warning: "Reaction when the failure signal sounds is imperative.";
— the following warning: "The greatest vigilance by the parent or responsible adult is necessary between the end of the swim and reactivation of the alarm system.";
— for immersion systems, when there is the option for counter-current swimming: Turn Off the counter-current function at the end of the swim, to allow reactivation of the alarm system.

9.5 Marking

The following information must be legibly and visibly indicated in permanent markings on the alarm systems:
— "This alarm system complies with the standard";
— the name of the manufacturer or importer or their company name;
— the information needed to identify the model;
— the information allowing the product to be traced (batch number, serial number, year of manufacture (for unit output products, etc.)

Appendix C

(For information only)

Justification for certain requirements

C.4.6.2 ***Autonomy in standby mode*** *(without trigger of alarm)*

In the first paragraph, reference is made to the photovoltaic power supply. In this case, autonomy of 20 days is required. This autonomy duration period is based on weather observations recorded over the past 25 years in France. The maximum period recorded without sun lasted 16 days.

C.4.9.2 ***Resistance to high and low temperatures***

An outside power source is used as only the electronic components are to be checked.

C.8.3.4.1.1 Water filtration

The flow rate of 15 m^3/h has been selected in accordance with a source from the FPP (a French federation of swimming pool professionals) for a pool measuring 4 m × 8 m.

C.3.4.3 ***Wind***

A wind of force 5/6 has been selected, thus enabling the prevention of accidental triggering by similar forces.

C.8.3.3.1 *Test specimen for immersion detection*

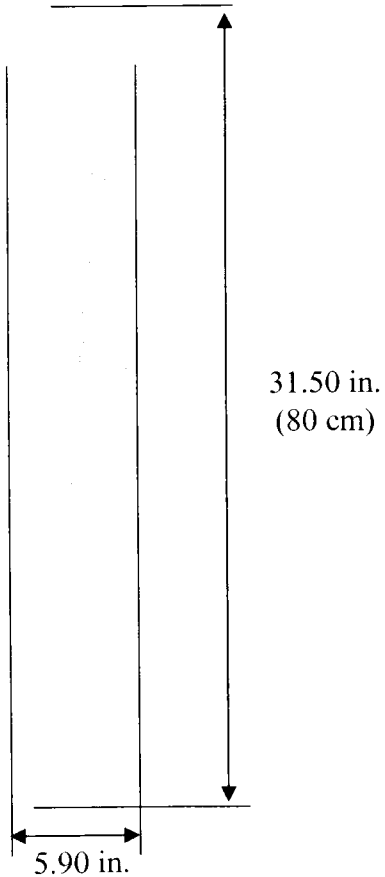
— the weight and height of the smallest and lightest 5% of the 6- to 9-month-old infants in the sample group studied is 6.5 kg and 0.65 m. It was decided to select 6 kg for the test specimen to present highly favourable detection conditions; discussions are underway at the French Standardisation Association (AFNOR) to allow test specimen B to be solely applicable within the framework of the laws of this standard.
— 8 kg is the minimum weight of 9-month-old infants. Some 9-month-old infants can go down stairs.
In this test method, the use of a dummy rather than a cylinder is required. Indeed, detection of the immersion depends on the resistance against the surface when the body enters the water. Using a dummy enables simulation as close to reality as possible.

The disturbance level according to different types of fall

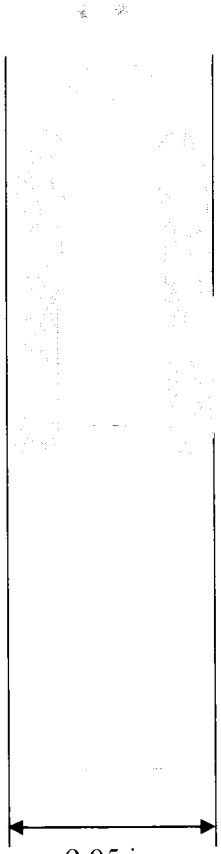
We will observe that in comparison with realistic children falls, the vertical drop test, as described in the current proposition of revision, generates fewer disturbances.

Anthropometric data of Rescue Timmy (CIS):

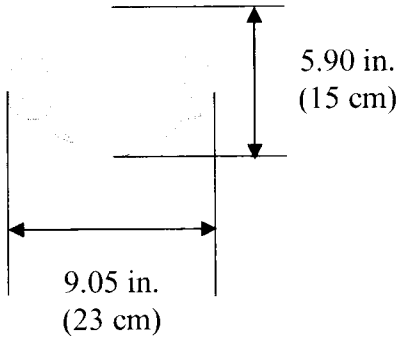
Left view



Front view

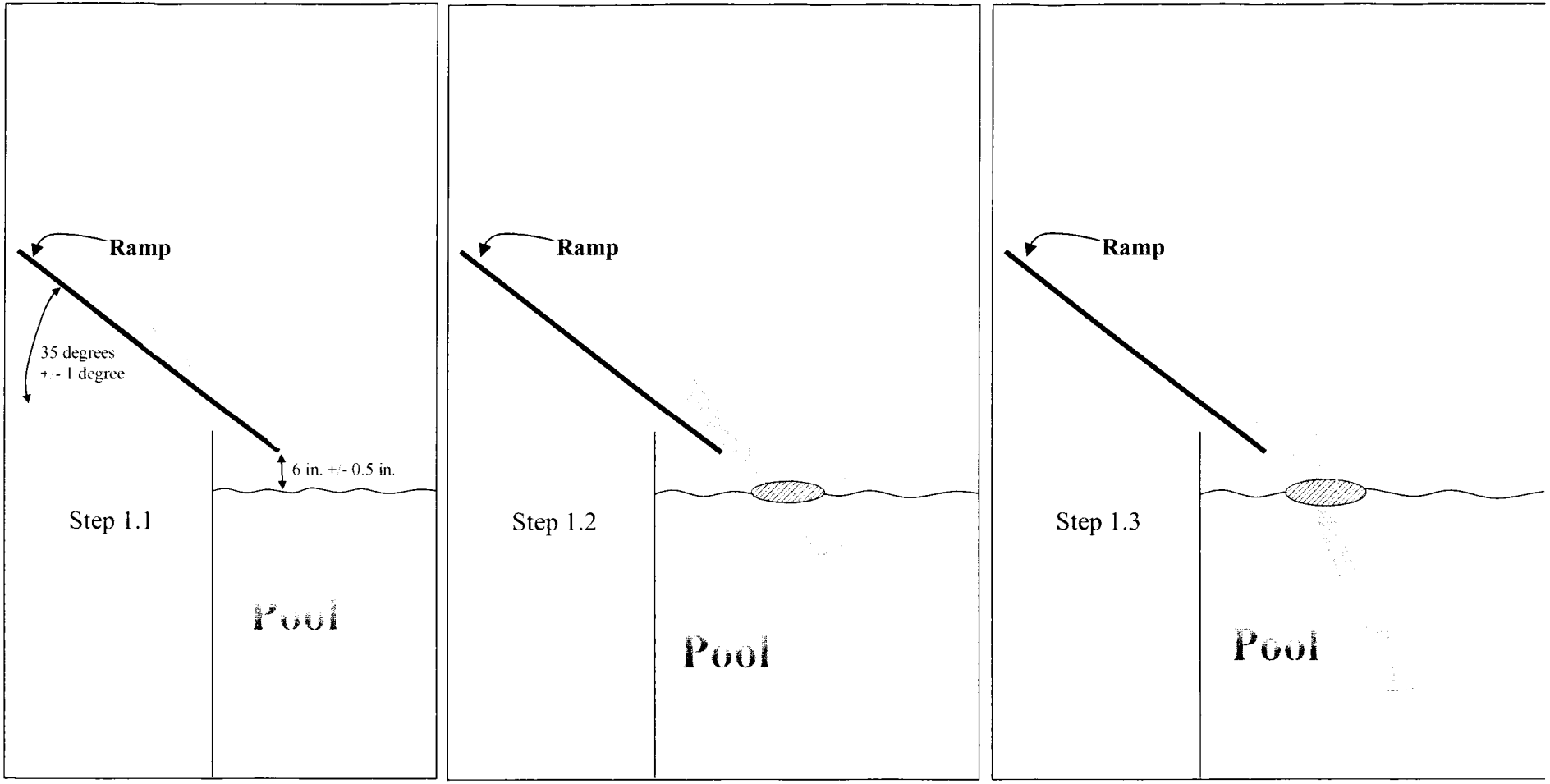


Top view

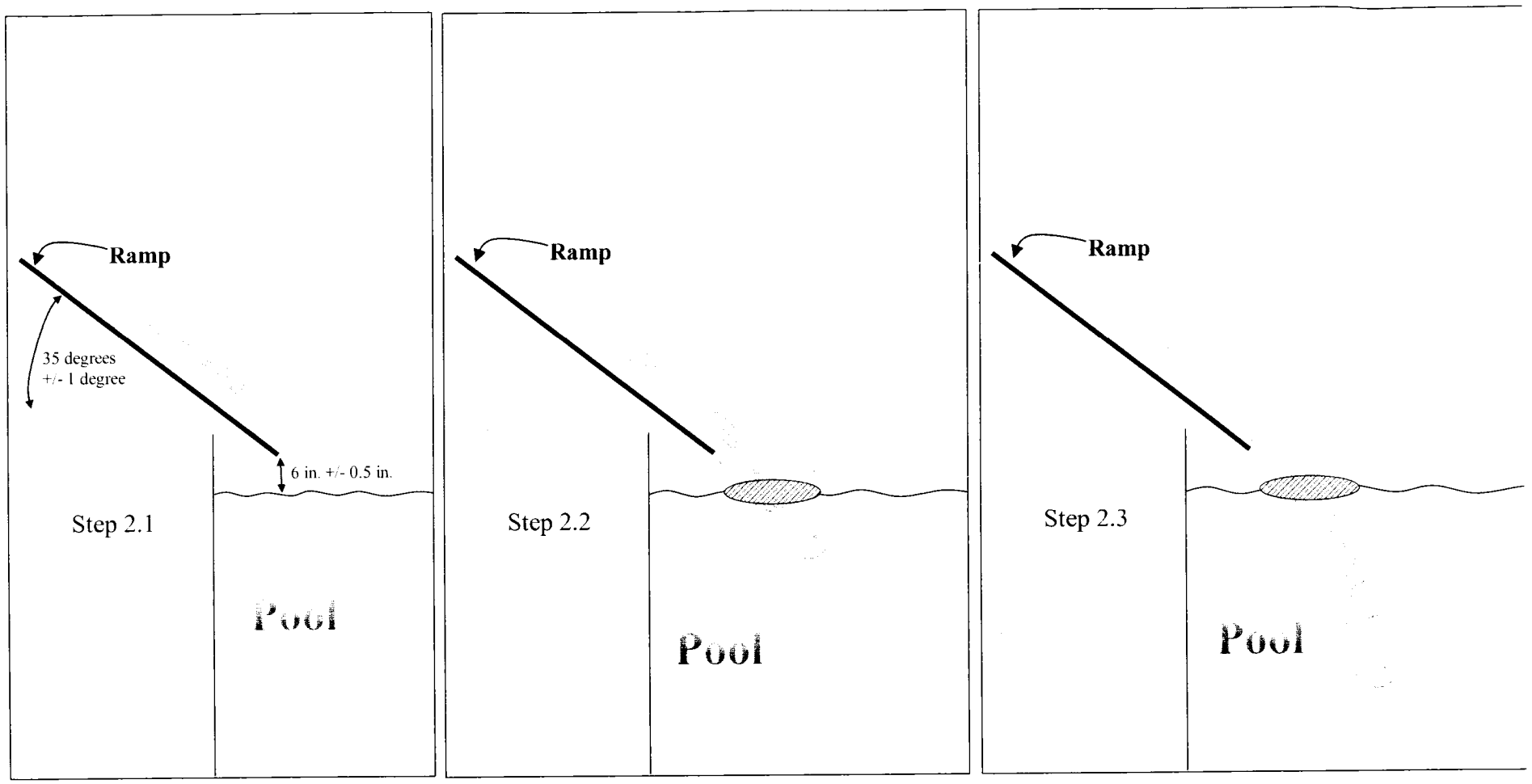


Rescue Timmy's weight (CIS' weight):
20 +/- 0.5lbs (9.07 +/- 0.23 kg)

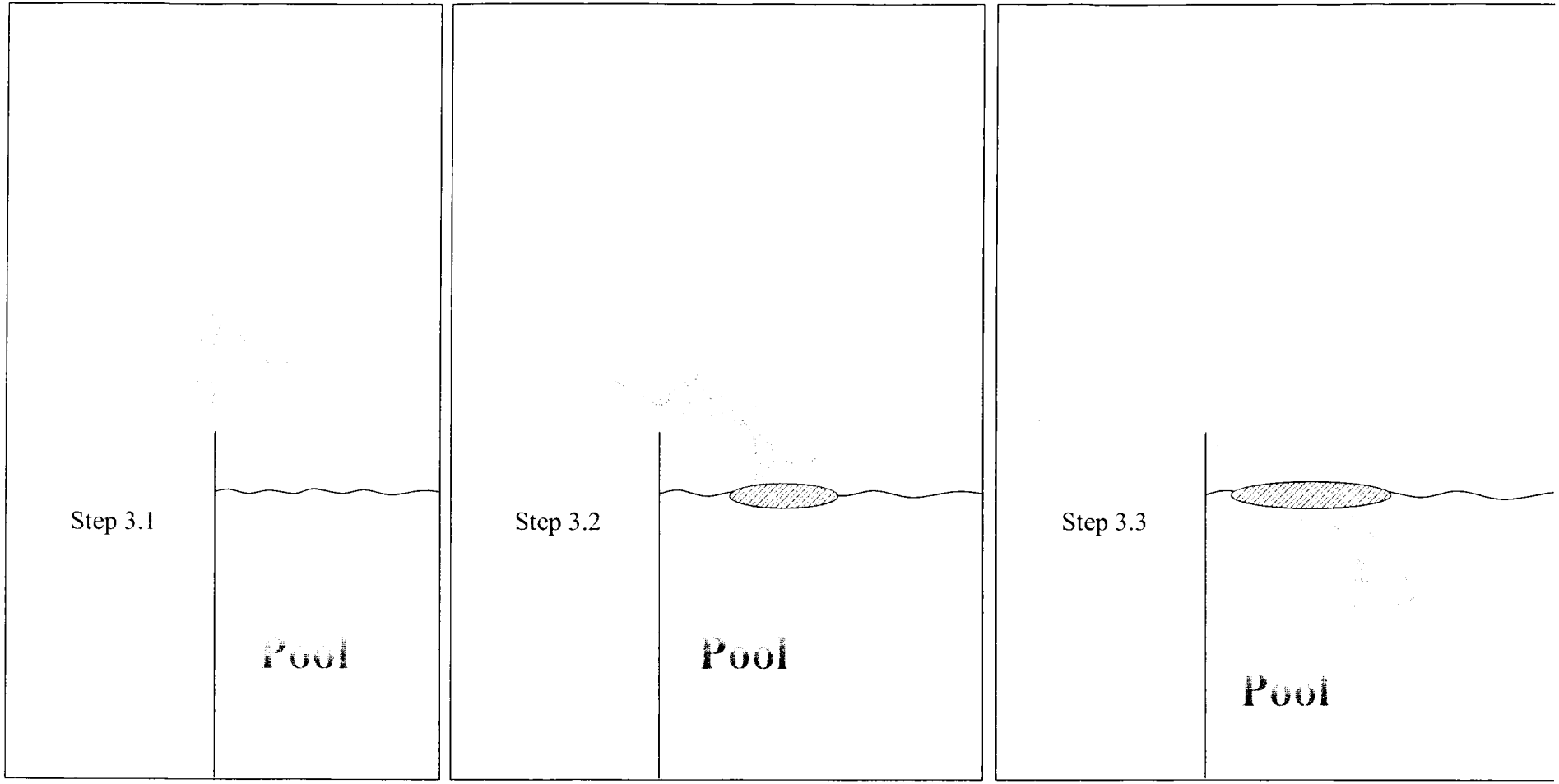
1. First fall : Vertical Drop Test described in the ASTM standard, case 1



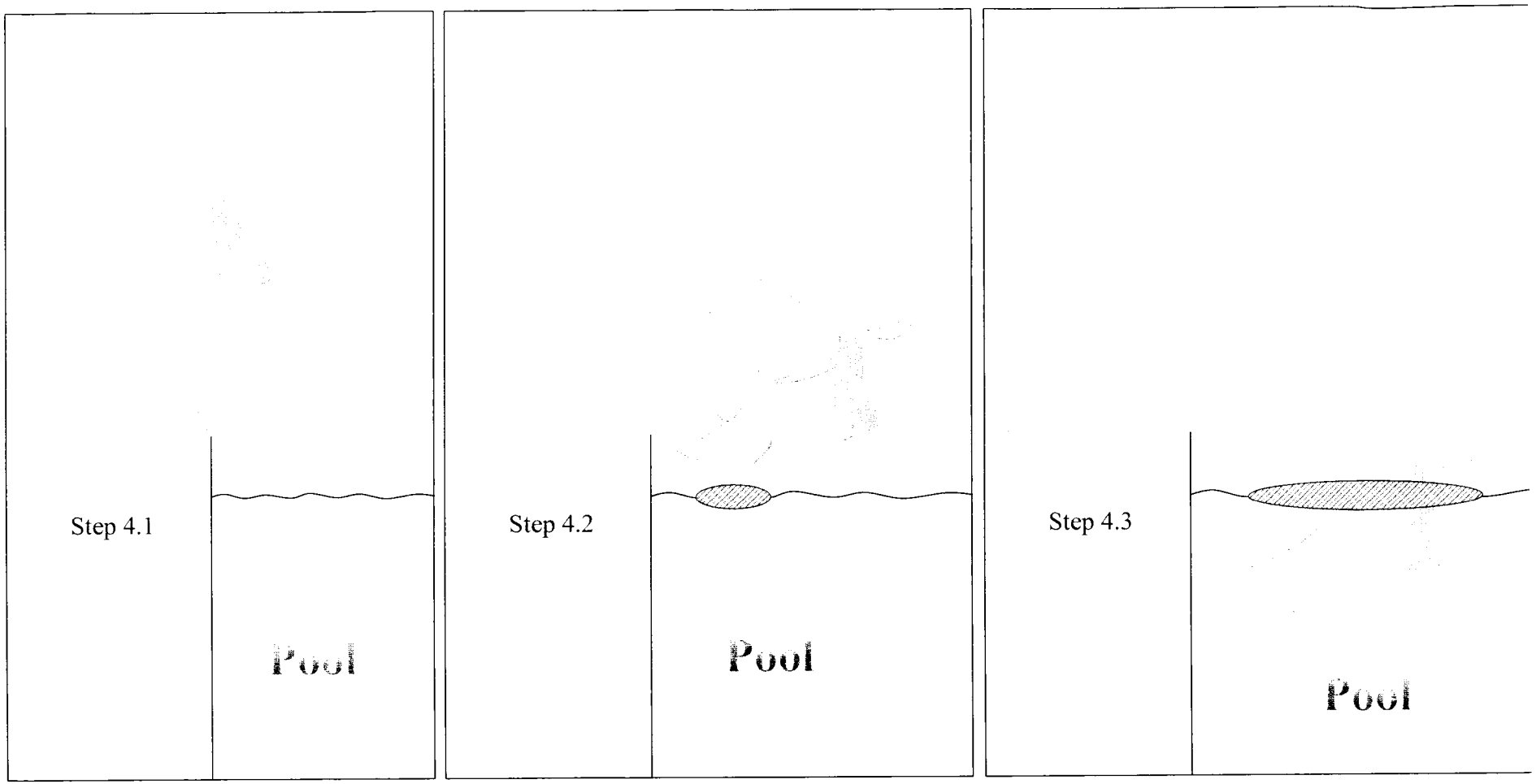
2. Second fall : Vertical Drop Test described in the ASTM standard, case 2


Ramp
35 degrees
+/- 1 degree
6 in. +/- 0.5 in.
Step 2.1
Pool
Ramp
Step 2.2
Pool
Ramp
Step 2.3
Pool

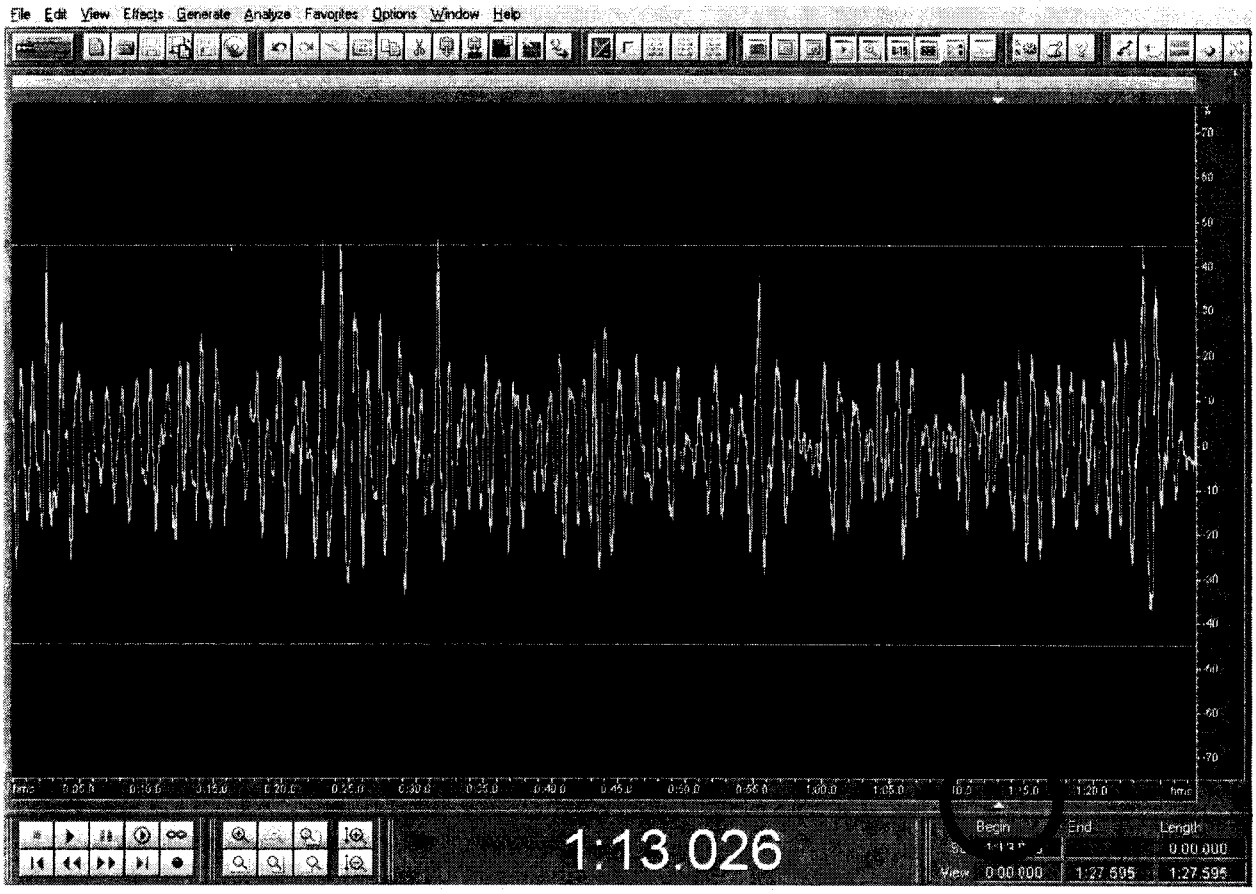
3. Third fall: a baby is crawling (= similar one to the fall described in the AFNOR standard)



4. Fourth fall: a baby is walking straight


Step 4.1
Pool
Step 4.2
Pool
Step 4.3
Pool

ANNEX 1: Recording curve of a vertical drop test performed with natural wind.



This recording highlights the similarity between the disturbances generated by natural wind and those generated by a vertical drop test

We carried out recordings of the disturbances generated by natural moderated wind on a pool of 16 x 32ft pool, water depth 36 in. We observed 4 gusts of wind which we regard as short accelerations of wind. The signal of those wind gusts are circled in red.

First gust at 3 sec
Second gust at 21 sec
Third gust at 31 sec
Fourth gust at 55 sec

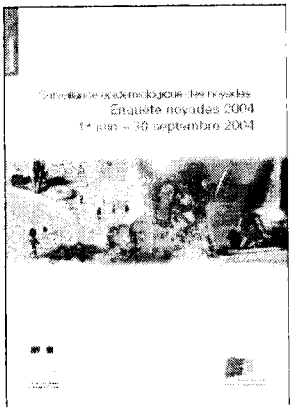
1 min 13 sec after the beginning of the recording, we carried out a vertical drop test (indicated above in the red bold circle). Our sensor of recording recorded the signal of this fall 11 sec after the test. The signal of the drop test is highlighted in a bleu circle.

We observe that the disturbances generated by the fall present strong similarities with the gusts of wind. The drop test signal amplitude is even slightly smaller than signals generated by wind.

To conclude, the vertical drop test generates nearly identical disturbances to those generates by natural moderated wind. Detecting this type of fall raises the problem of high risk of false alarms under natural moderated wind.

ANNEX 2: Drowning figures according to age

INVS* investigation on drowning in residential pools in France



Sources : for years 2001, 2002, 2003, 2004 and 2006, the French Health Institute (InVS) run investigations on drowning cases toward rescue services (firemen, ER, etc..). In 2005 there was no investigation.

Comparison of age categories : 2001 and 2002 investigations have a special category for children under 1 whereas 2003, 2004 investigations gather all children under 5 in 1 single category and in 2006 there was a category of children of 0 to 6 years old.

Results:

	Drowning Under 1	Drowning from 1 to 5 years old
2001	0	8 (from 1 to 4)
2002	0	10
2003	0	21
2004	0	17
2005	*No investigation*	
2006	0	21 (from 0 to 6)

Drowning accidents in residential private swimming pools mainly occur amongst children between 2 and 5

* *French Health Institute*

La Ciotat, November 19th 2007

Dear members of the ASTM, members of the ASTM committee for pool alarms and Mr. Bill Weber, president of the APSP,

I hereby wanted to thank you personally and on behalf of my colleagues for setting up and attending a conference call on Thursday November 8th 2007. It was a great experience for us to be able to talk directly to all of you and we definitely appreciated the time that you allowed us. Before we go any further, let me ensure you that our intention is neither to impose our point of view nor to cause any troubles. We truly respect the Commission's legitimacy as well the quality of works that were accomplished during the past years. We definitely share your desire to get rid of the so called "junk alarms" and to ensure consumer safety. Nevertheless we truly believe that what makes the difference between reliable pool alarms and junk alarms is not their capacity of detecting more unlikely falls but their ability in being resistant enough to most natural situations to remain on and secure the pool as often and as long as possible, day or night.
This is why we are stating that the vertical drop is not efficient to reach this goal. On the contrary, it will with no doubt seriously damage the pool alarm market as well as the whole pool industry. This is what we will explain in this letter, as a summary and complement of what we said during last week call.

The difficulty of detecting a vertical drop under natural conditions:
First of all, let us be honest and agree that this vertical drop is difficult to detect. We know that some pool alarm manufacturers performed tests in indoor testing pools and detected this fall, unlike we have tested it in real natural conditions and we can guarantee you that this not an easy detection.
However, you, we and every single pool alarm manufacturer is already (or will soon be) able to detect any kind of fall in a pool. We experienced that we are able to detect 11-pounds dummies (5-kilo dummies). But as a consequence we also detect much lower disturbances. The detection in itself is not a barrier. The consequences of such detection are what really matters: we will all end up by manufacturing more sensitive products that will lead to a significant increase in the number of false alarms and therefore will lead users to disconnect the product.

The deceiving impression of the vertical drop
We understand that the vertical drop seems reassuring and strengthens the appearing image of product performance. The more difficult a fall looks like to detect, the more impressed authorities are when observing a pool alarm that is detecting it. This is an understandable reaction. Nevertheless, here we are professionals with experience and therefore we know that this is a deceiving impression. Detecting this vertical drop will neither increase product performance nor increase safety. It will only significantly increase the number of false alarms.
False alarms represent today the main and almost only reason why pool alarms are not compulsory in the USA or other countries, as fences or barriers can be, because they give our product an image of nuisance. Authorities do not commit themselves in making pool alarms compulsory because they know, as well as you all do, that people sometimes have to deactivate them because of bad weather conditions, leaving backyard pools unsecured. I suggest you have a look to annex n°1 that technically proves why this particular drop will significantly increase false alarms: the signal caused by this fall is lower than the signal caused by natural wind. You cannot set up your devise to detect a signal A and expect it not to detect a signal B when signal B is as strong as or stronger than signal A.

The statistically unlikely aspect of the vertical drop

As discussed last week, we insist on the fact that this fall is not representative of real drowning situations. As mentionned in Annex 2, drowning mainly affect children over 1 year old. Now take a look to Annex 3: (courbe de chute / déplacements masse dans l'eau)

We would also like to say a few words about our experience without considering the French Standard as the only reference. No standard imposes a vertical drop test. Nonetheless, 4 years after a law was passed and with more than 300 000 pools equipped with our alarms, we can declare that no drowning occurred and we have no record of trial for malfunctioning of our devise that would have led to a drowning accident.

In 2006, to confirm to the whole European market that pool alarms save lives, we had an investigation conducted by an independent poll institute on our alarm performance. The results enabled to estimate to ~700 the number of detected accidental falls that could have possibly lead to the drowning of young children. If those alarms had been deactivated for being a nuisance because of false alarms, it seems obvious that fewer lives would have been saved.

We believe that those facts and figures are relevant enough to be taken into consideration

Dangers for our industry

Voting this new standard with this vertical drop would be very destructive for our own industry. Indeed, and as we have been explaining throughout this letter, here is the consequence scheme of this new standard:

More sensitive products
↓
Higher rate of false alarms
↓
Higher dissatisfaction amongst users
↓
Higher number of hours during which
pool alarms will be deactivated
↓
Higher number of hours during which pools
are not secured any more
↓
LESS SAFETY
↓
Dissatisfaction from CPSC
and child protection associations
↓
Alarms could be taken out of the market

Another consequence, less significant but that still has to be taken into account, is that more sensitive products will become totally inadequate for pools with strong filtration systems, cascade, waterfalls or other water features. This would significantly reduce the number of potential pools that a pool alarm would be able to equip and secure. We do believe that we have a great opportunity to make a good standard. Let's just seize this chance and do not make the mistake of moving away from a realistic standard.

We officially refuse the standard revision as it is now and ask all commission members to re determine this issue before publishing the standard as it is a major safety issue and it threatens the entire industry.

I remain at your disposal to discuss this matter and will be present during the Pool and Spa Expo in Orlando (booth n°3206). I would be happy to meet you and talk about this proposition.

Sincerely yours,

Anthony Ginter
MG International C.E.O