

Live Fire Training at Frankfurt FD

-

An approach to the Logistics and Hygiene involved

Battalion Chief Kim Wassum



Live Fire Training at Frankfurt FD – an approach to the Logistics and Hygiene involved



- Why do we put special emphasis on Logistics and Hygiene?
- What is it good for?
- Isn't it rather that all this extra work and shit bothers the average Firefighter and leading ranks?



In Liebe und Dankbarkeit nehmen wir Abschied von

Alfred Rühl

* 11.4.1961 in Seligenstadt

† 24.6.2017 in Offenbach



Cornelia Rühl

Stefanie Rühl

Annina, Dominik und Emma Rühl

Joachim Rühl und Familie

Martin Tarazi geb. Rühl und Familie

Peter Rühl und Familie

Die Trauerfeier mit anschließender Beerdigung auf dem alten Friedhof Seligenstadt findet am Donnerstag, dem 29. Juni 2017, um 15.00 Uhr in der Einhard-Basilika statt.





To avoid as much untimely deaths of Firefighters as possible



- Short Overview of the City of Frankfurt am Main
- Introduction Frankfurt Fire Department
& FRTC Training Facility
 - Retraining: why, who, what
 - why hygiene is essential for live fire training
- Complete run-through of a CFBT Burn session
 - logistics needed and hygiene involved



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City of Frankfurt

- 248 km² (95 sq mi)
- 760.000 inhabitants
 - 360.000 commuters/ day
- 3rd biggest EU airport
- busiest central train station in Germany
- > 380 highrise buildings
- 3 big chemical manufacturing parks



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Frankfurt FD

- professional and volunteer FF
- City divided into 4 boroughs
- each borough has : 1 main fire station, 2 satellite stations
- → total of 12 fire stations (professionals)
- 28 volunteer stations



Copyright: Kay Horn (Feuerwehr Frankfurt)



Frankfurt Fire Department (professional) consists of

- **680** Class 1 to 4 firefighters (24 hrs-shift work)
- **32** Officers on fire stations (daytime + shift)
- **60** Officers in special divisions (academy, fire prevention, technical maintenance,...) (daytime + shift)
- **34** Class 1 firefighters (daytime + shift)
- **8** Chiefs + Deputy Chiefs (daytime + shift)

Plus roughly 160 administration staff & employees working in offices, maintenance floor, technical floor, quatermasters)



Frankfurt Volunteer Fire Branch consisting of

- roughly **1200** Members
- at 28 volunteer fire stations (equipped with at least 1 Engine)

Are actually **NOT** participating in live fire trainings

→ duty schedules of instructors,
numbers of instructors available



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FRTC :
Feuerwehr- und Rettungs- Trainings Center
(Fire & Rescue Training Center)

currently most modern facility in Germany



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- Annual retraining in FRTC for all professional active duty firefighters obligatory:
 - one week EMT/Paramedic retraining / certification
 - plus 2 days firefighting retraining
 - Theoretical lectures and active drills including mandatory BA course
- around **550 of 680** firefighters retrained (in groups of actual max. 12 FF)



- **Why hygiene is essential for live fire training ?**



- **Why hygiene is essential for live fire training ?**
 - Making FF's understand the impact of contaminated gear (cancer statistics rise, ways of distribution of hazardous contaminants, entering the body, etc.)



- **Why hygiene is essential for live fire training ?**
 - Making FF's understand the impact of contaminated gear (cancer statistics rise, ways of distribution of hazardous contaminants, entering the body, etc.)
 - Meet with legislations: Health and Workplace Safety Standards , other German laws

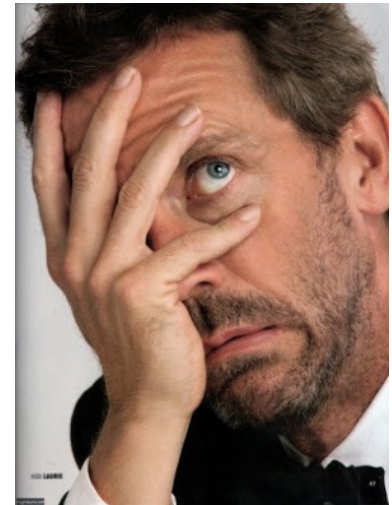


Start to change overcome firehouse cultures

(manly, heroic looking soot covered faces)



**„....Really??
You guys know that
this is so 1970's ?!“**



(source: knowyourmeme.com)

(source: sweetpics.site)



- **Hazardous Materials on burning incident sites:**
 - - Ammonia and nitrous gases
 - - Carbondioxide, - monoxide
 - -Hydrogenated Bromium, Chlorine, HCl
 - -Hydrogen Cyanide
 - - Phosgene
 - - Hydrogen Sulfide, sulfur dioxide
 - -Asbestos, Dioxines, Furans



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- Getting firefighters to realize the difference between dirty / contaminated gear → act accordingly

→ **Don't take the bad stuff home !!!**

Incorporation is to be excluded by all means

Contamination is to be avoided

External impacts are to be avoided or at least minimized, if not avoidable



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- Sidenote: > 50 studies from Canada and the US show raised and higher risks of Cancer for firefighters like

- 1,5 x for Multiple Myeloma
- 1,5 x for Non-Hodgkins-Lymphoma
- 1,3 x for Prostate Carcinoma
- 2,0 x for Testicular Cancer
- and a lot more different kinds of Cancers

than the already existing prevalent rates among population



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1. Classroom & gear issuing
2. BA prepping, PPE donning, changing area
3. Live Fire Hall
4. Debriefing room (dirty classroom)
5. BA aintenance facility
6. PPE faundry



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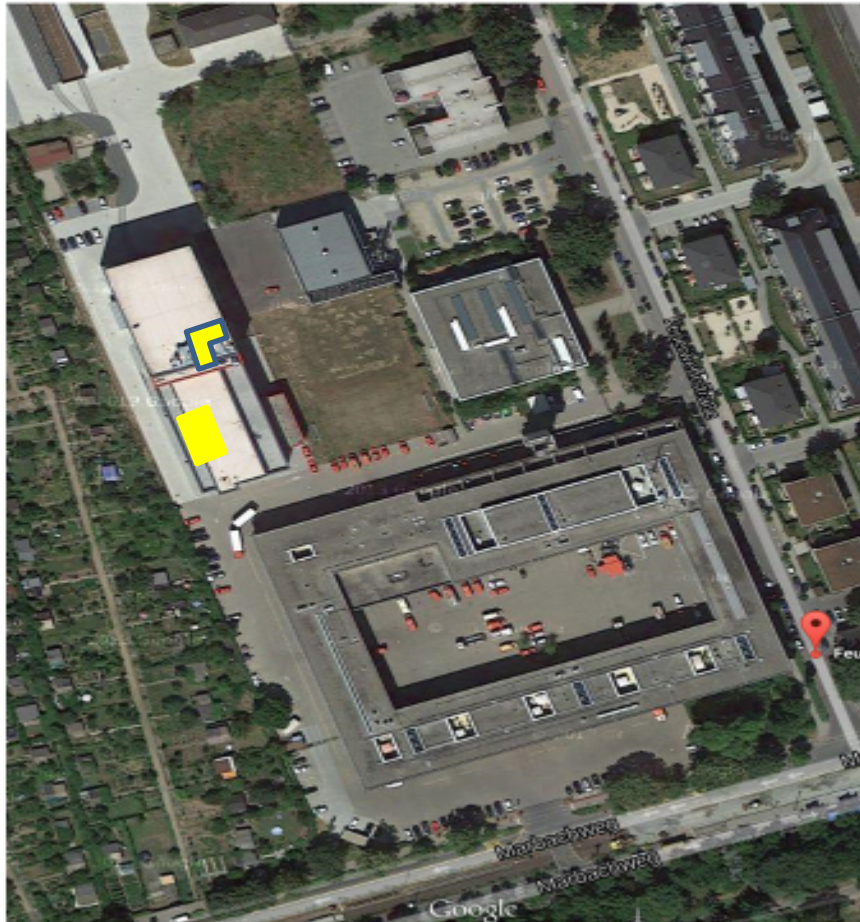


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Rundown of a typical Live Fire Training day:

- 1) Classroom session, PPE issued (approx. 45 min)
 - pre session experiences and expectations of students
 - set up and sketch of facility, emergency exits container / hall safety instructions, orders, circling clockwise
 - defining objectives (this year: fire development, curve, smoke phenomena, flowpaths, temperature check, gas cooling)



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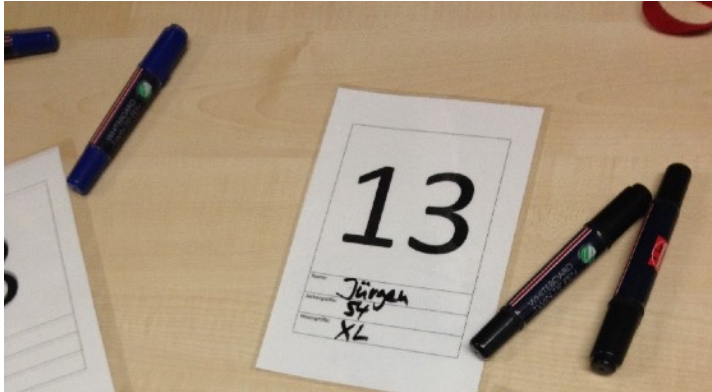
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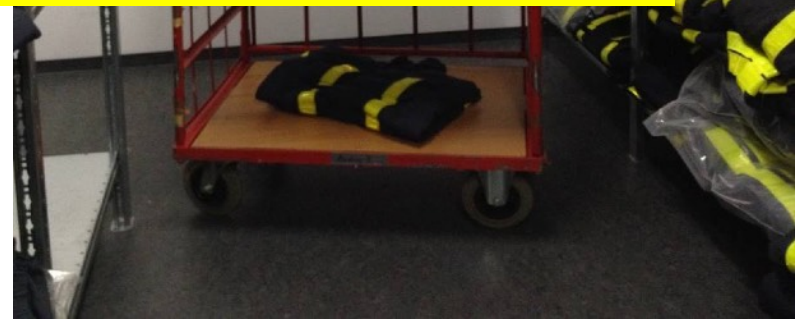
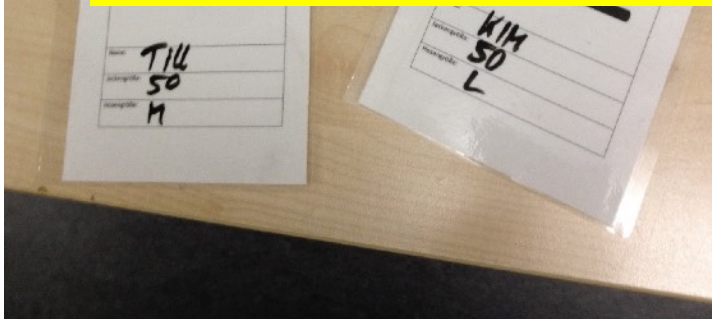
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Staff and time needed: 1 person, approx.. 20 min
Parallel: starting smoke & gas purification device,
1 person, approx. 10 min



2) Introduction: changing area / material issuing / BA assembly (approx. 15 min)

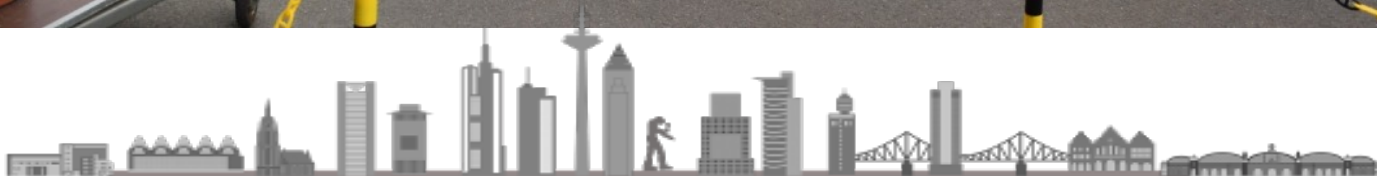
- define changing area as „warm“ zone → behavioural aspects
- Students get their personal changing area, already equipped with BA, facepiece, regulator, Nitril (rubber) gloves, dust mask
- assemble bottles delivered by BA Maintenance staff on BA
- change station wear for turn-out gear / donning of dust masks & turnout gloves



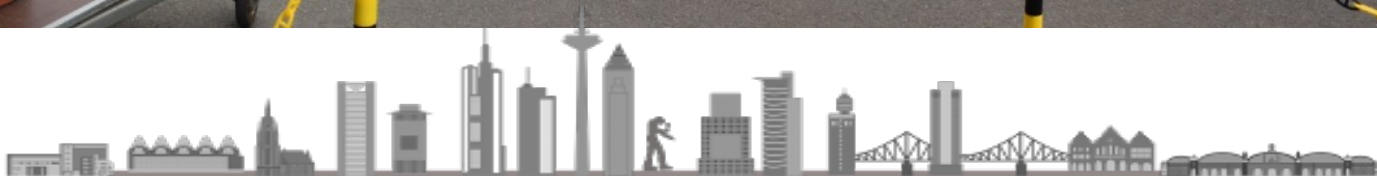
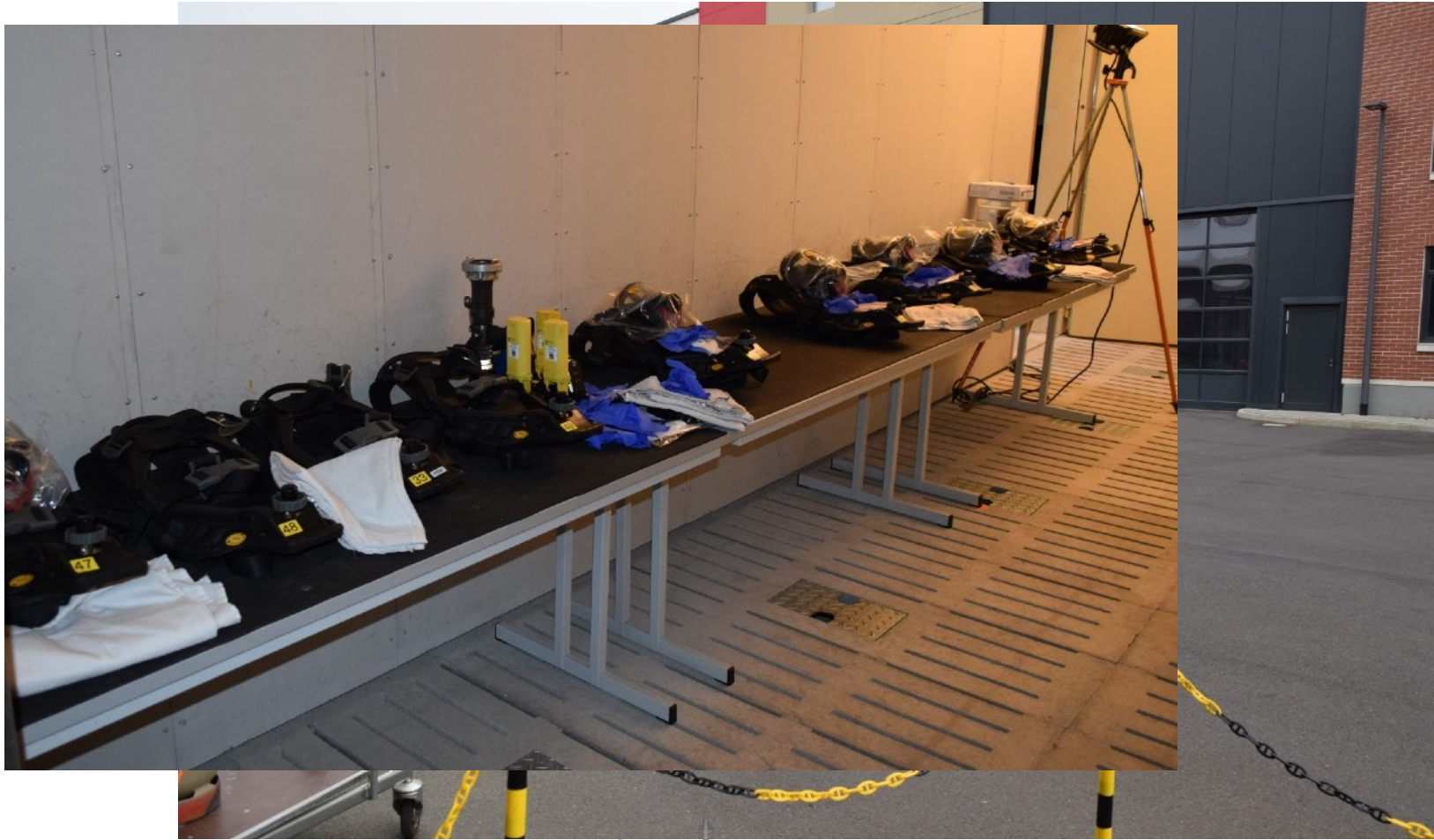
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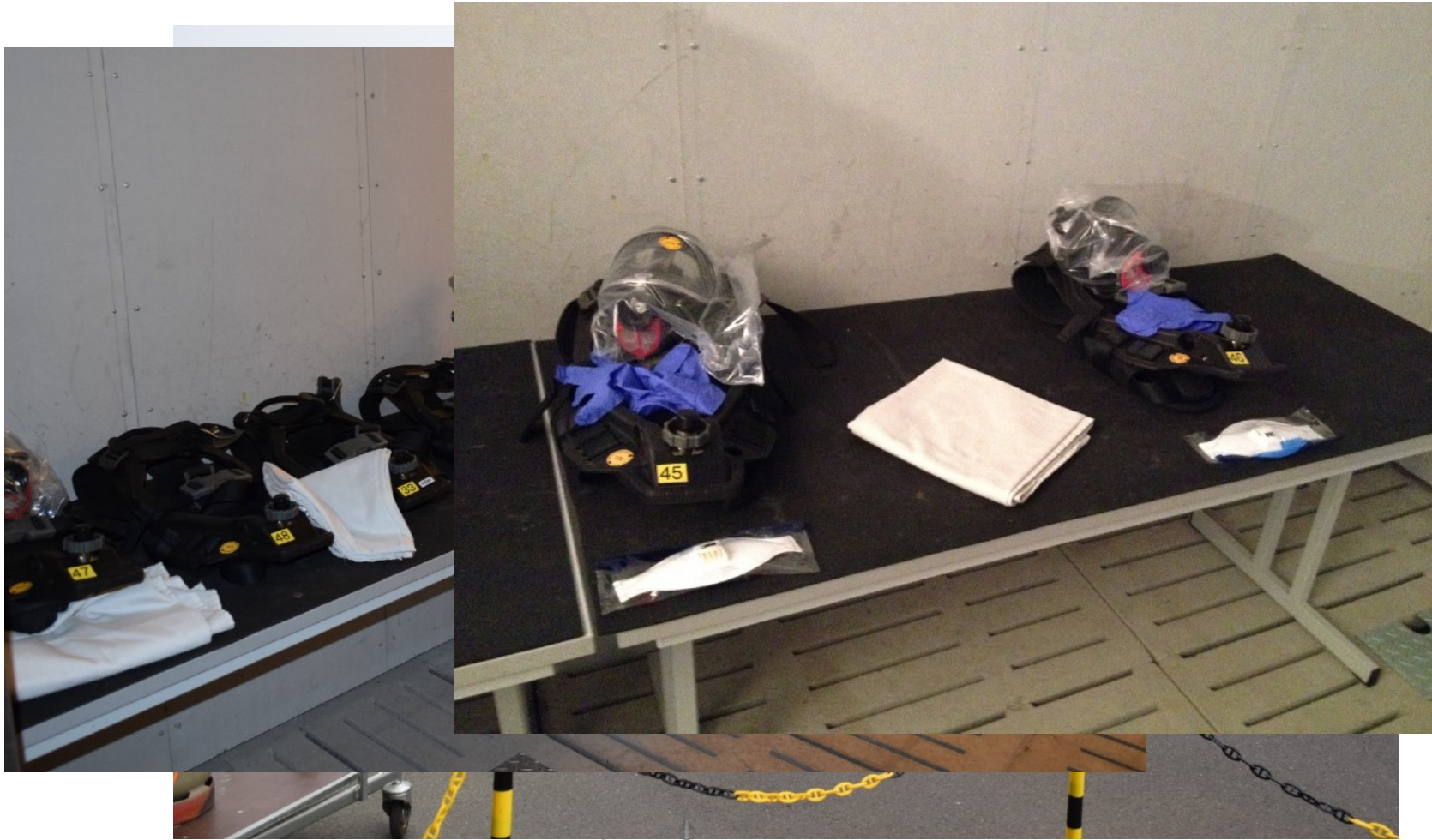
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Staff and time needed: 1 person, approx. 30 min



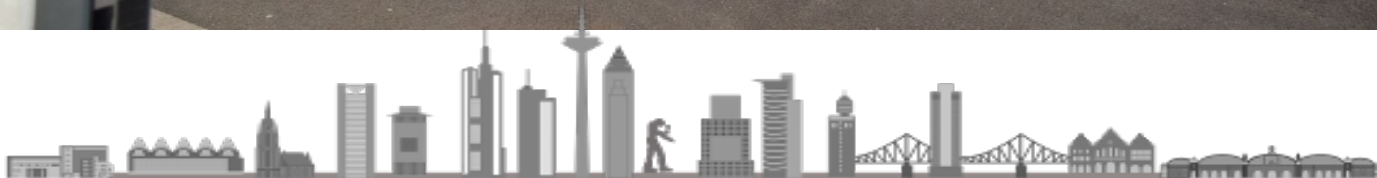
3) Introduction of Live Fire Hall & loading of container

(approx. 25 min)

- show students around on location, explain Demo-Cell container
- review safety rules, emergency exits, trip hazards
- short outline of run, learning objectives, commands, behaviour
- loading the Demo-Cell container together
- return to change area and donning of BA and full gear (Instructors additionally with nozzle, handlights, TIC, voice amp)



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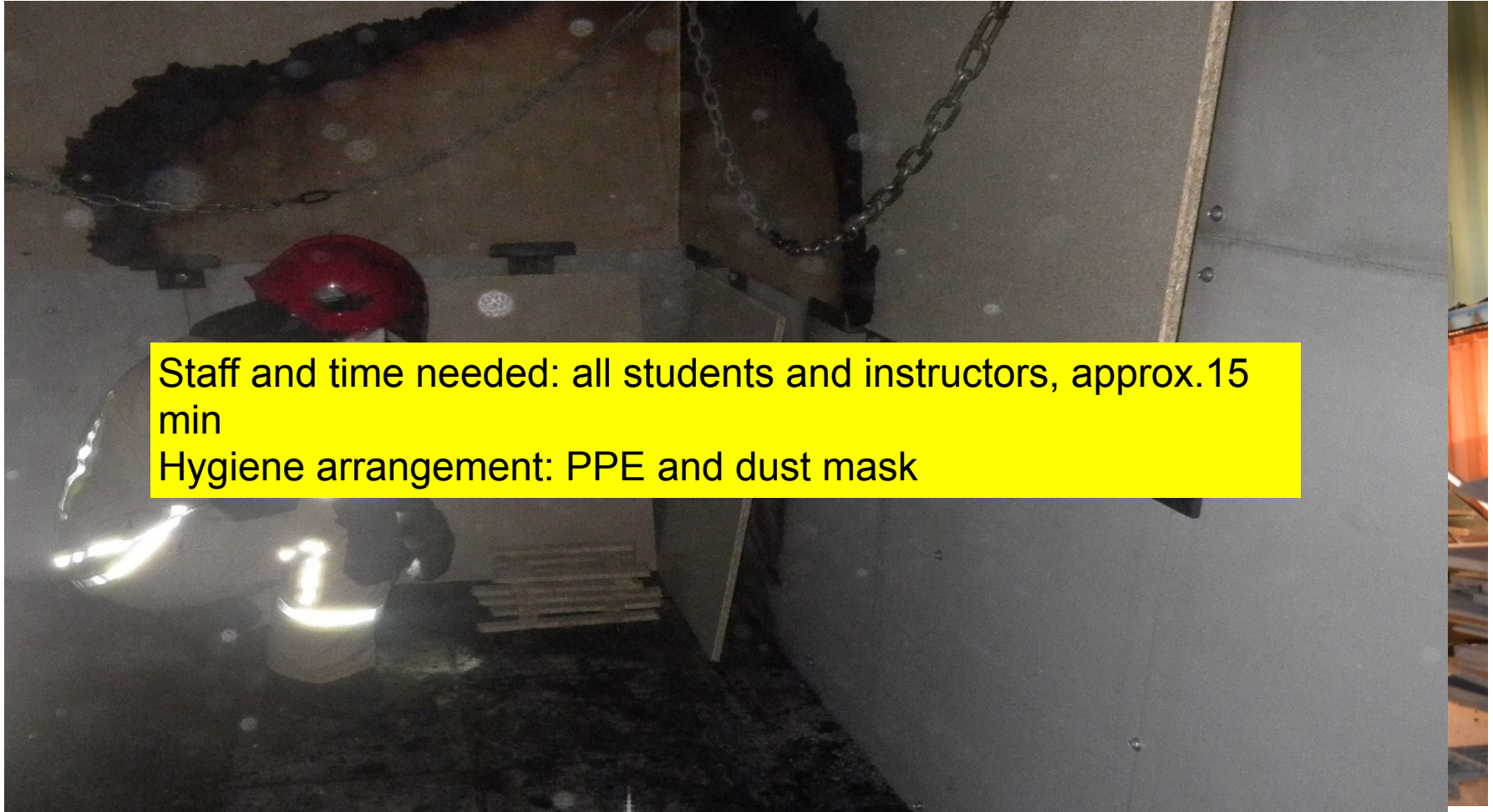
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- Outside Live Fire Hall: connecting regulators to facepiece and buddy check before entering „hot zone“ (chained area)
- Last check by instructors before entering Live Fire Hall
- Setting fire to crib and fuel load by instructors

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one“

Fire Hall

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“acepiece

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e Hall

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4) Live Fire Burn Demo-Cell (approx. 45 min.)

- Explaining fire development / smoke phenomena
- Group turns clockwise on commands while instructors supervise them
- Students train on door procedure and advancing in burning room, nozzle techniques and gas cooling / temperature check

5) End of course and necessary hygiene operations

(approx. 45 min)

- return together to changing area with facepiece and regulator still on
- Change protective gloves for rubber gloves
(PG's together with flashhoods in laundry bag)
- Take off helmet, facepiece, regulator (under pressure!),
put on dust mask

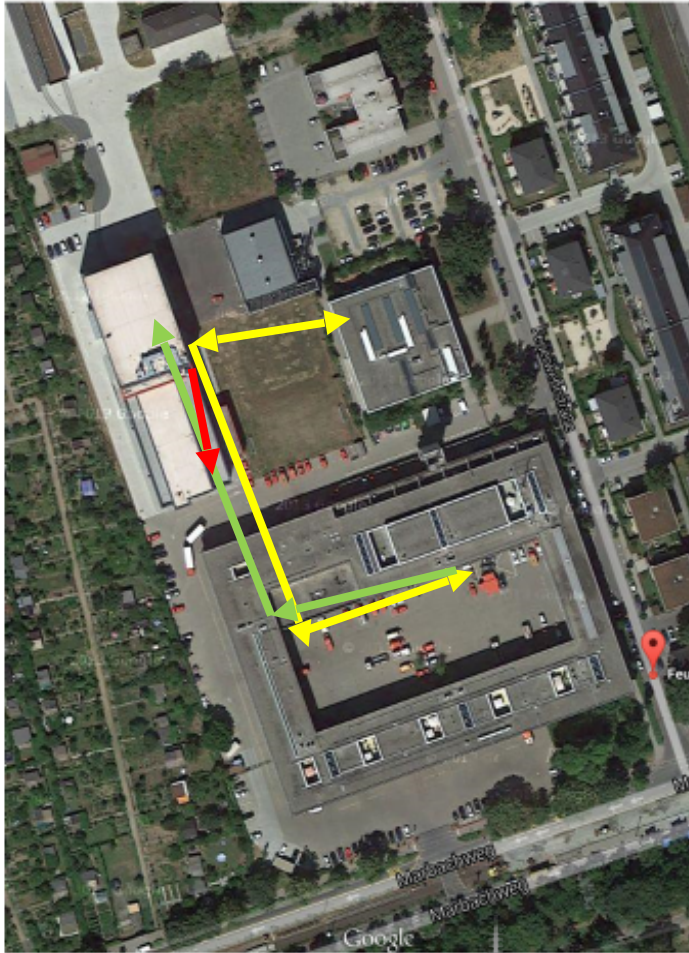


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- taking pressurized BA, Facepieces to BA Maintenance
- four BA's per each cleaning rack
- facepieces go into plastic box for further treatment
- students return to changing area, doff PPE into laundry bags, put on station wear, put off dust mask and rubber gloves
- washing hands, rehydration, debriefing at dirty classroom
- remaining laundry bags (2 pants & coats per bag) into PPE Laundry Box („gas proof“ storage until they get cleaned)



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Walkways to LiveFire Hall

From Changing Area

To BA Maintenance

Back to Changing Area /
Dirty Classroom

To PPE Laundry



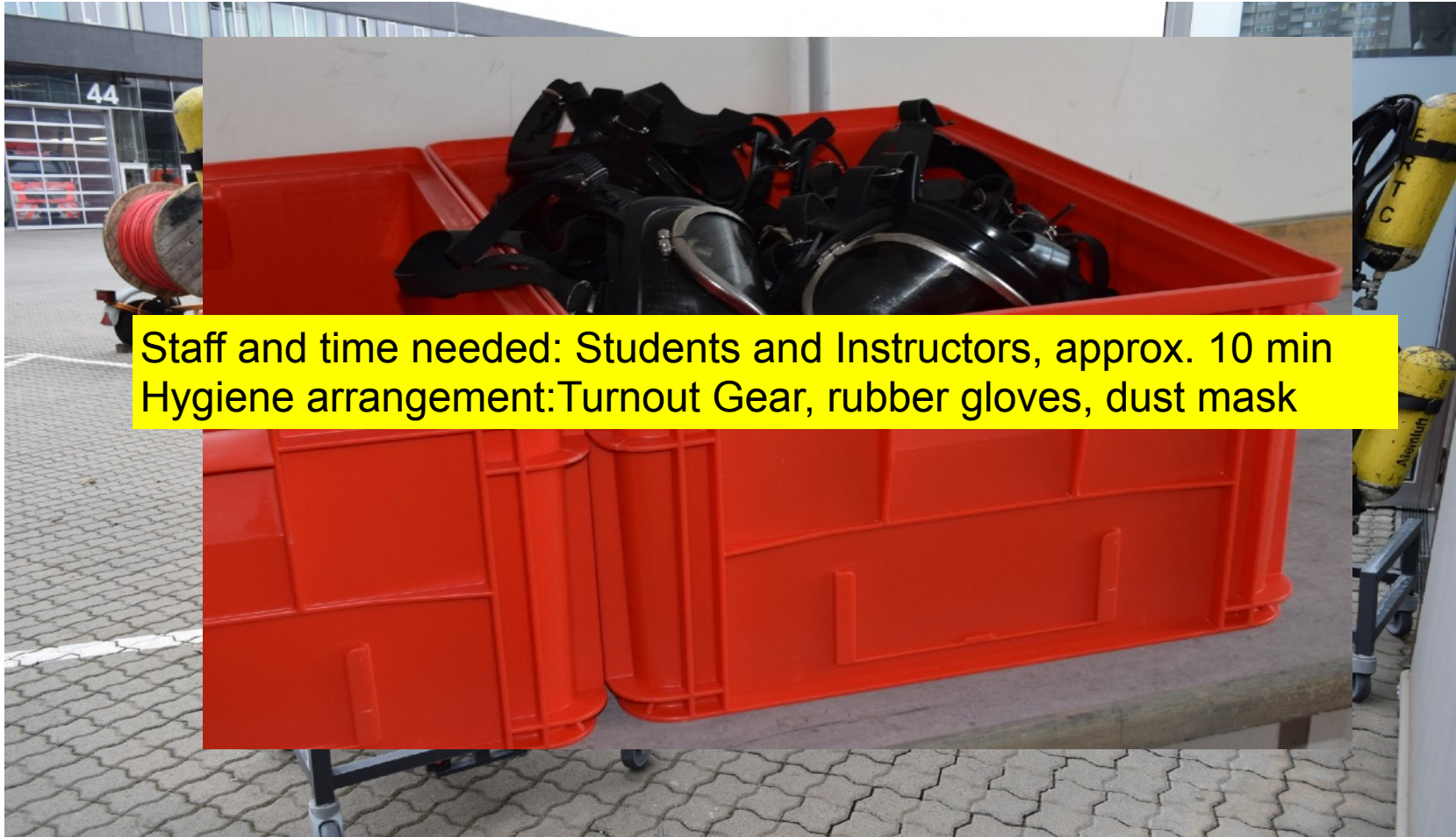
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Staff and time needed: Students and Instructors, approx. 10 min
Hygiene arrangement: Turnout Gear, rubber gloves, dust mask



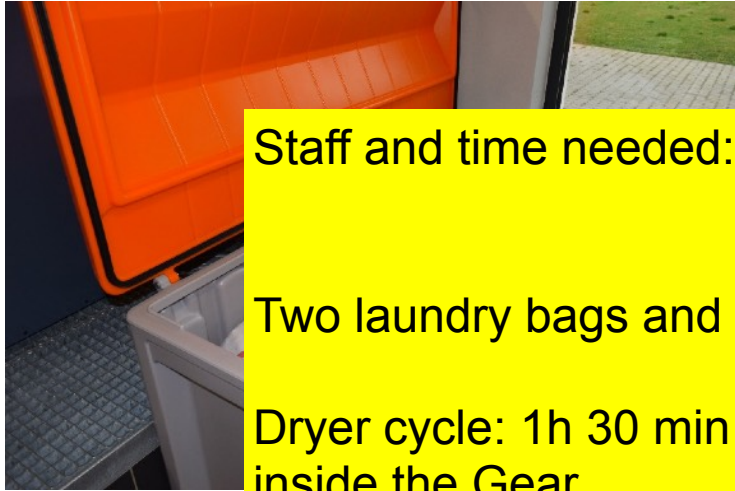
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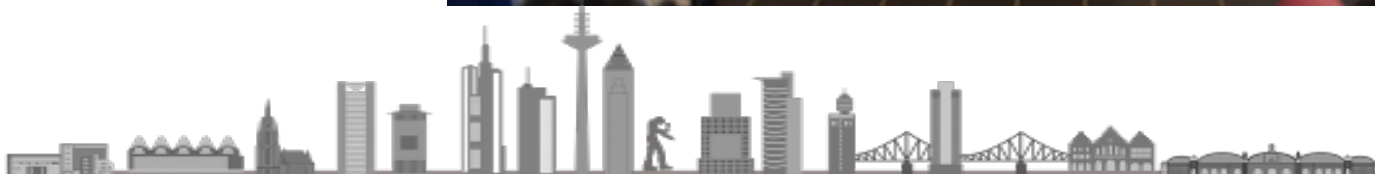
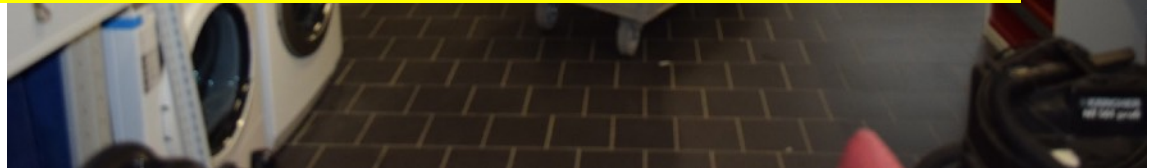


Staff and time needed: 1 person, time depending on amount of laundry bags

Two laundry bags and all per laundry cycle, 1h 30min per cycle

Dryer cycle: 1h 30 min per cycle, marking each cleaning cycle inside the Gear

No special hygiene arrangement needed



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- after debriefing: immediately off to Shower Rooms
 - Changing T-Shirts
- if possible: change underwear
- → getting rid off contaminants, nanoparticles and avoiding passage of hazardous particles through skin
- further rehydration at individual regime



6) BA Maintenance Work / Equipment Cleaning

- visual control of BA's at entrance (Pressure!) / rough cleansing
- disassembly of facepieces / submerging in precleaning solution
- two racks (8 BA's) per cleaning chamber → 60 min/ 40°C
- Facepieces (in washing bags) cleaning in special laundry machine →
1h 30 min /65°C, then assembling and checking
- BA's get checked, Bottles refilled & returned to storage in FRTC



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Visual inspection of BA's for damage and being under pressure
Hygiene arrangement: Dust mask and rubber gloves



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Cleaning of disassembled facepieces



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Cleaning of disassembled facepieces



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BA Cleaning Chambers at work (max. 16 BA's)



7) Protection / detergents used in maintenance and logistics:

- Rubber (Nitril) gloves / Acid protection gloves (HazMat equipment)
- Dust Mask Class FFP3 (EN 149-2001)
- NEUTEC wipex cloths for basic / alkaline materials
- ALTEC Easy clean detergent for surfaces
- ELTRA disinfecting detergent
- Triplex energy plus surfactant booster (laundry)
- Saprit protect plus (laundry)
- Turbo usona liquid based detergent for wet cleaning



MOST POWERFUL PROTECTIVE WEAPON

An **educated mind**
combined with
healthy self assessment
together with
instructors acting accordingly
as
role models
using **state of the art** training



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Sources

a) Mortality and cancer incidence in a pooled cohort of US firefighters from San Francisco, Chicago and Philadelphia (1950– 2009)

Robert D Daniels, Travis L Kubale, James H Yiin, et al.

Occup Environ Med published online October 14, 2013

b) Lecture Materials FRTC Retraining 2015-17

c) New research: How clean is firefighter gear?

firerescue1 online

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Sources

d) 8 ways to protect against cancer with PPE

2014/01/28 firerescue1 online

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e) Ottawa Fire Services (Canada) Postincident Decontamination Process revised

2014/04/28

f) Pictures as stated, otherwise courtesy of Frankfurt FD / Kim Wassum

