

Installation of floor drains for casting into floor slabs

Usual question - Can we achieve the specified fall in the tube?

Pre-conditions

Preparation

Self-inspection

Execution



This **work instruction** is designed for use in detailed planning and preparation of work on construction projects. With thorough planning high levels of personal safety and optimal work apportionment can be achieved at the same time as the work can be organized efficiently and cost effectively.

Pipes for water and heating in culvert

This work instruction is intended to show the interaction between the installer and contractor in connection with the structural floor prior to concreting. For the result to be as planned it is necessary that all parties have an understanding of the other participants' work and takes this it into account.

The builders,

pour concrete using heavy equipment, often in difficult weather conditions, and have experienced difficulty in avoiding treading on delicate parts of the structure and vibrating the concrete for it to flow out.

The installers,

attach their details to effectively prevent them from floating up or becoming depressed. They shoot them into position sometimes using more powerful ammunition than is necessary causing 'concrete chipping' on the structural floor's underside as a result. See the photo to the right. It is not uncommon for the structural floor to experience recesses and penetrations in the wrong places or, in some cases, some are missing.



Planning and collaboration

is a good start to avoid misunderstandings. Our hope is that the work preparation is carried out with participants from the building and installation trades. In order to be able to plan the work situation in front of them it is necessary for builders and installers to discuss common activities. We hope and believe that such collaboration will contribute to a constructive work preparation. It is a good start if everything is done in the right order.

Flat slabs

Thin shell is a formwork system consisting of a 45 mm thick concrete slab with in-cast reinforcement. The top surface is rough for good adhesion with topping.

The underside is smooth and non-porous, making it ready for painting.

Topping, within which drains requiring fall shall find adequate space, is normally between 140 - 180 mm thick and this places demands on setting out and fixing.

Safety — Risk assessment

Work activity & Problem	P	C	Risk= P*C	Action
Cluttered workplace =Twisting or fall injuries	3	150	450	Regular tidying
Fallout materials/crushing injuries	10	15	150	Helmet compulsory

Probability = P
Consequence = C
Risk = P * C

Assessment of probability

P = 0,1	Very unlikely	(<1 times/10 years)
P = 1	Unlikely	(1 times/10 years)
P = 3	Low probability	(1 times/3 years)
P = 10	Relative probability	(1 times/year)
P = 30	Probable	(1 times/month)

Assessment of consequences

C=0,5	Trifle	
C=1	Tiny	(1 - 2 days sick leave)
C=5	Small	(3 - 7 days sick leave)
C=15	Tactile	(8 - 29 - " -)
C=70	Severe	(30-299 - " -)
C=500	Very severe	(>300 - " -)



Text from the Working Environment Authority's brochure Safer Construction Work

Personal Protective Equipment § 71

Safety helmet and safety shoes shall be used unless it is clearly unnecessary. Other personal protective equipment such as eye protection, hearing protection and gloves should be worn when necessary.

First Aid § 31

First aid should be provided. Staff who are trained to provide first aid should always be made available.

Facilities and first-aid equipment should be marked with signs.

There will also be signs indicating telephone numbers for ambulance and police, address and, if necessary, a route description.

Provisions for First Aid is also available in AFS 1999:7 "First aid and emergency support".

Watch out for falling objects § 67

Areas where there is a risk of falling objects should be cordoned off and marked in an appropriate way.

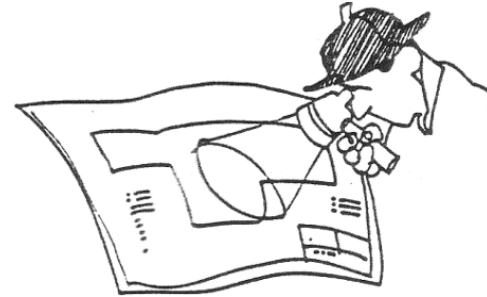
If such areas must be entered covered walkways or similar should be organized.

Self-inspection ¹⁽²⁾ Template & instructions

No	Check	Method or equipment	Frequency	Result	Date Signature	Deviation/Remedy Approval/Non-A
1	Assembly					
2	Seal against structural floor					
3	Mounts					
4	Fall in pipes					
5						
6						
7						
8						
9						
10						
11						

Quality criteria for the project and the product

- Study Drawings, Specifications and Inspection planning
- Think through the alternative **methods of production** and handling of materials, tools etc. that can meet the requirements



Pay particular attention to

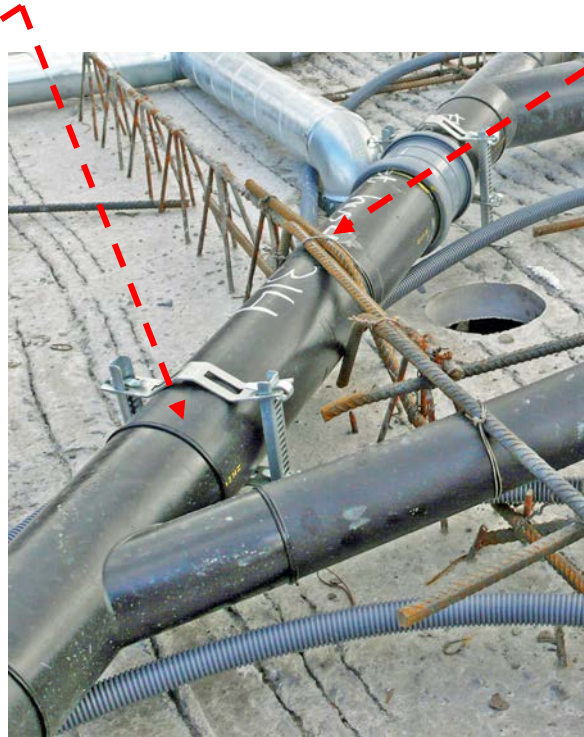
- Secure the floor drain position and height
- Install the floor drain at least 200 mm from the wall in line with good connections to surrounding floors
- Fasteners can damage the underside of the joist (ceiling on the floor below)

Fixing of grids and pipes

There are various advanced solutions for fixing the sewer pipe fixtures at the correct height and position in the structural floor slab. The builder to the right decided to lay concrete below the pipe to be sure. It is expensive and time-consuming when the pipes are incorrectly.



A conflict usually emerges as a result of many overlying reinforcing bars being cut off in order to create adequate space for the pre-constructed drainage pipe fixtures.



Secure more to the reinforcement!



Shower Cabinet

The picture shows a further variant of the plastic anchor as well as a closing formwork in the shower cabinet area. Later, the floor is cast and then trowelled to create a fall towards the floor grids.

Concrete is cast under the floor grids.



Distance from wall

Floor drains shall be in accordance with AMA and, for several reasons, placed at least 200 mm from the wall. Furthermore, there is a risk of injury when mounting the wall element or during the raising of formwork.



On the right is shown a floor grid on the patio. The is installed in such a way as to create space for the insulation and waterproof membrane. There is a lot of work associated with this “box”.

When the floor drains and pipes are installed no organic material shall be used.

The concrete filling under the floor grids can affect the entire bearing capacity of the floor slab if the concrete layer is not continuous and achieves good adhesion. Check with engineer if in doubt!



There is a clear need for adjustable and stable support for the sewage wells, and the provision of this support is common practice. What do those who cannot get hold of a “stone” ?

