

Safety of reinforcing bar placement work



Summary of work | 작업개요

- Work to arrange reinforcing bars according to the design in order to create a reinforced concrete structure

철근콘크리트 구조물을 만들기 위하여 설계에 따라 철근을 배열하는 작업

- Occurrence of a disaster such as the falling of a reinforcing bar or a worker while lifting or placing a reinforcing bar

철근 인양 중 낙하, 철근 배근 중 추락 등 재해발생



Reinforcing bar placement work procedure | 철근배근 작업절차



Rules on the occupational safety and health standards | 산업안전보건기준에 관한 규칙

- Article 336 (Matters to be observed at the time of work such as assembling) - When transporting a reinforcing bar using a crane, the reinforcing bar shall be tied at two or more places and transported horizontally.

제336조(조립 등의 작업시 준수사항) - 양중기로 철근을 운반할 경우 두 군데 이상 묶어서 수평으로 운반하여야 한다.

- If the height of work position is over 2 meters, measures for preventing dangers such as the installation of a walk plate or wearing of safety belt shall be taken.

작업위치의 높이가 2미터 이상일 경우에는 작업발판을 설치하거나 안전대를 착용하게 하는 등 위험방지 조치를 하여야 한다.

Major risk factors | 주요 위험요인

1. Danger of falling during assembling the reinforcing bar due to no installation of safety rail or work scaffolding
안전난간, 작업발판 미설치로 인해 철근조립작업 중 추락 위험
2. Danger of a reinforcing bar falling due to the breakage of binding rope while lifting the reinforcing bar
철근 인양 중 결속로프 파단에 의한 철근 낙하 위험
3. Danger of a worker being caught in the reinforcing bar while carrying in reinforcing bars with a forklift due to no placement of guiding personnel
지게차로 철근 반입 중 유도자 미배치로 인한 근로자 협착 위험
4. Danger of electric shock while processing a reinforcing bar with a reinforcing bar bender
철근 절곡기로 철근 가공 중 감전 위험
5. Jamming of a finger while bending a reinforcing bar with a reinforcing bar bender
철근 절곡기로 철근을 구부리던 중 손가락 끼임

Safety measures and regulations for each reinforcing bar placement work procedure

철근배근 작업 절차별 안전대책 및 수칙

① Carry in the reinforcing bar | 철근 반입

- Check if the place to load reinforcing bars is flat and the ground is firm

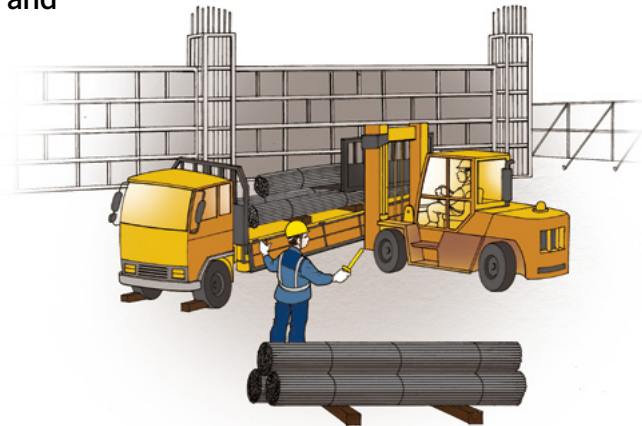
철근 적재장이 평탄하고 견고한 지반인지 점검

- Identify any article that poses a danger of collision on the periphery when unloading reinforcing bars

철근 하역시 주변에 충돌 위험물 파악

- Place guiding personnel and control forklifts and transporting vehicles

유도자를 배치하여 지게차와 운반차량을 통제



② Process the reinforcing bar | 철근 가공

- Check if materials including reinforcing bars are well organized and the passage for workers is secured

철근 등 자재가 정리되어 있고 근로자 통로가 확보되어 있는지 점검

- Ground the enclosure of reinforcing bar bender and processing machines

철근 절곡기 및 가공 기계 외함에 접지 조치

- Identify the danger of loaded reinforcing bars falling

적재된 철근의 넘어짐 위험성 파악



Safety measures and regulations for each reinforcing bar placement work procedure

철근배근 작업 절차별 안전대책 및 수칙

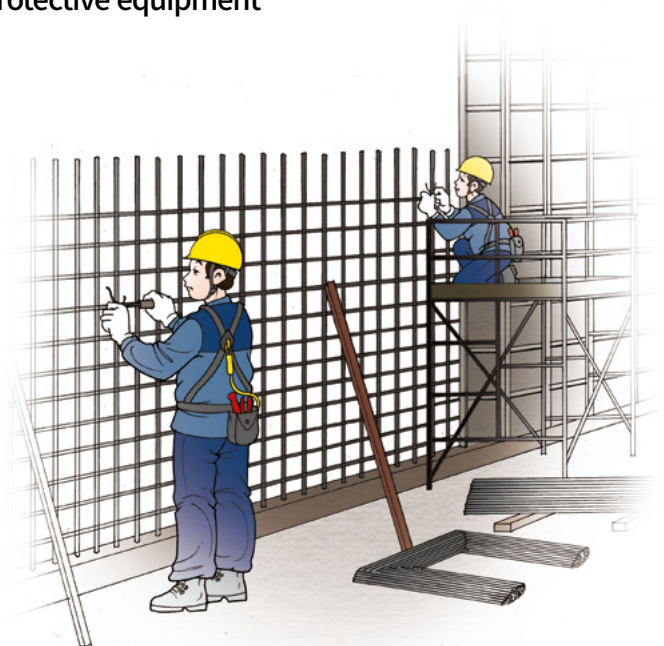
③ Lift the reinforcing bar | 철근 인양

- Tie the reinforcing bar with 2 wires and lift it horizontally
2줄걸이로 결속하여 수평으로 인양
- Check for the installation of release device on the crane hook
양중기 후크에 해지장치 설치 확인
- Observe the maximum lifting load
인양하중 준수
- Check the binding rope for damage and wear and tear
결속 로프의 손상, 마모 상태 확인
- Lift small reinforcing bars by loading such bars on the lifting cage
소형 철근자재는 인양함에 적재하여 인양



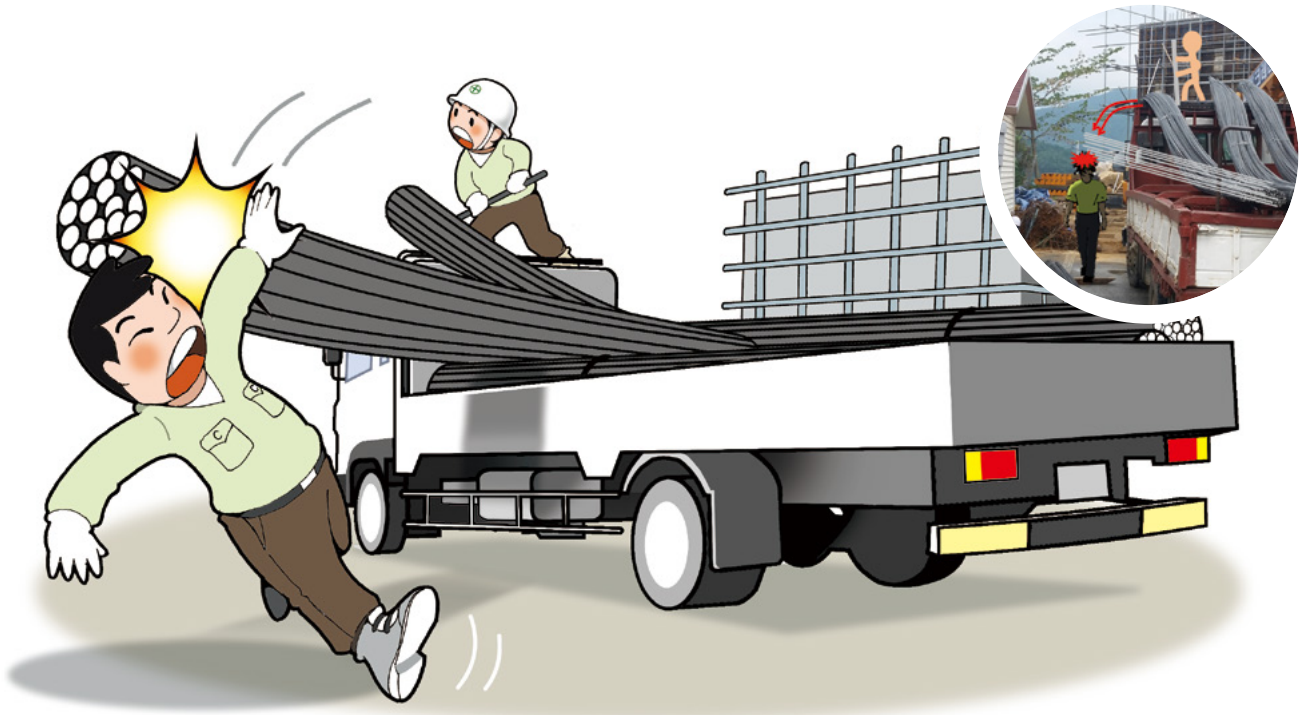
④ Assemble the reinforcing bar | 철근 조립

- Check for the proper wearing of personal protective equipment such as safety helmet and safety belt
안전모, 안전대 등 개인보호구 착용
- Use safe work scaffolding
안전한 작업발판 사용
- Do not step up on the reinforcing bar and work in a forceful manner
철근에 무리하게 올라서서 작업 금지



Falling of reinforcing bars while lifting a bundle of reinforcing bars (March 2017, one worker killed)

철근 다발 인양 중 낙하 (2017. 3, 사망 1명)



Summary of disaster

| 재해개요

Reinforcing bars that were being lifted fell to the ground, hitting a worker under the reinforcing bars while the wooden support below a bundle of reinforcing bars was being installed at a new apartment building construction site.

공동주택 신축공사 현장에서 철근다발 하부 고임목 설치 중 인양되어있던 철근이 낙하하며 하부 근로자 맞음.

Cause of disaster

currency | 재해발생원인

No preparation of heavy material handling and work plan

중량물 취급 작업계획서 미작성

Disaster prevention

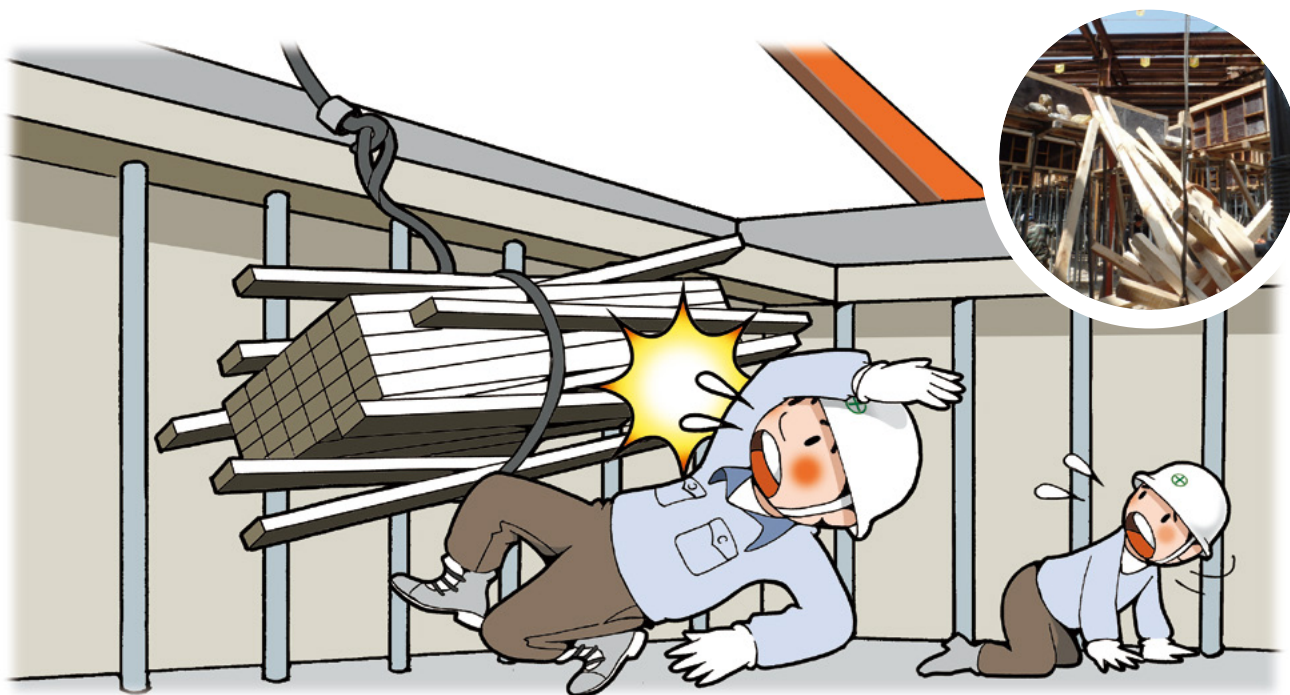
measures | 재해예방대책

Prepare and comply with the heavy material handling and work plan for construction

중량물 취급 작업계획서 작성 및 준수 시공

A worker was hit by a reinforcing bar which fell while being transported. (February 2016, one worker killed)

운반 중 떨어진 철근에 맞음 (2016. 2, 사망1명)



Summary of disaster

| 재해개요

The sling belt for the bundle of reinforcing bars being transported with the tower crane at a new officetel building construction site fell to the ground, hitting a worker who was signaling below.

오피스텔 신축공사 현장에서 타워크레인으로 운반중이던 철근다발 슬링벨트가 탈락되며, 하부에서 신호중이던 근로자를 강타함

Cause of disaster

currency | 재해발생원인

No access control of workers during lifting work

인양 작업 시 하부 근로자 출입 미통제

Disaster prevention

measures | 재해예방대책

Control, supervise and administrate the access of workers below the material being lifted while carrying out lifting work

인양 작업 시 인양물 하부 근로자 출입 통제 및 관리감독 철저