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| **1.** | **Construction Site / Building** | | | | | | |
| **Topics to include into Designer H&S Information and Design Risk Assesment** | | | | **Included** | | | **Comment / Explanation** |
| * 1. Overhead powerlines above construction site in close vicinity which may affecting the safety during works? | | | | **Yes  No**  **N/D** | | |  |
| * 1. Underground services may affected the safety on site? | | | | **Yes  No  N/D** | | | Consider under ground networks and existing construction facility, in city centers tak into account high possibility of misfires occuring |
| * 1. Exposure to asbestos, lead or other hazardous substances. | | | | **Yes  No  N/D** | | | Particularly at demolition works of existing bulidings, incl. e.g. heating ducts, asbestos roofing, asbestos precasts, etc. |
| * 1. The possibility of safe storage of materials and equipment. | | | | **Yes  No  N/D** | | | Including storage of extremely flammable / combustible / hazardous / oxidizing substances. |
| * 1. Trucks and pedestrian traffic on site – separation of pedestrian aisles and roads for vehicles. | | | | **Yes  No  N/D** | | | Geeting hits by car is a one of most common causes of fatal accidents. It;s necessary to avoid reversing maneuvers as much as possible. Unloading and loading zones should be located in separated areas from pedestrian aisles. Main pedestrian aisles should be saparated from truck roads. |
| * 1. Noise emission with significant intensity to the environment. | | | | **Yes  No  N/D** | | | To be consider – close vicinity of residentials, hospitals, schools, etc. and therefore some additional measures to the risk control. |
| * 1. Lighting during work performed at night shifts. | | | | **Yes  No  N/D** | | |  |
| * 1. Ecacuation and emergency procedures with sufficinet resources | | | | **Yes  No  N/D** | | | Providing of temporary solutions (resources) for fire alarms (ie. portable fire detection, megaphones, etc.) |
| * 1. Threats from the flora and fauna. | | | | **Yes  No  N/D** | | | In city centers, on of the example of the risk may be the increased presence of rats |
| 1.10. Neccesity to work carrying under traffic on public roads. | | | | **Yes  No  N/D** | | |  |
| 1.11. Risk of site flood or site inundation of water | | | | **Yes  No  N/D** | | |  |
| 1.12. Separation of hazardous areas. | | | | **Yes  No  N/D** | | |  |
| 1.13. Structural strength and stability (ceilings, balconies) – to hold permanent and temporary loads | | | | **Yes  No  N/D** | | |  |
| 1.14. Other | | | | **Yes  No  N/D** | | |  |
| **2.** | | | **Hazardous Works** | | | | |
| **Topics to include into Designer H&S Information and Design Risk Assesment** | | | | | **Inculded** | **Comment / Explanation** | |
| 2.1. Construction, demoltion, renovation and assembly works carried out without plant or installation activity suspension | | | | | **Yes  No  N/D** |  | |
| 2.2. Works in tanks, ducts, interiors of technical equpment and inside others confined spaces. | | | | | **Yes  No  N/D** | A confined space is a place which is substantially enclosed (though not always entirely), and where serious injury can occur from hazardous substances or conditions within the space or nearby (e.g. lack of oxygen) ie. separators, wells, channels. | |
| 2.3. Works with using of hazardous and exploxives materials | | | | | **Yes  No  N/D** |  | |
| 2.4. Works at height | | | | | **Yes  No  N/D** | The use of design solutions that minimize the risk of falling from heights is applicable.  According with ECHO’s ECH requirements, contractor have to be provide system edge protection (ready-made complete elements) when performing W@H in most possible places, edge protection (ie. lost sleeves, fixing to shuttering beams, etc.).  For balcony slabs, a solution should be designed that allows the installation of temporary system edge guardrails (e.g. lost sleeve allowing the installation of a system post).  The safety nets, for example of a perimeter building in city centers, should be considered.  Facades, windows, atriums, skylights and lighting fixtures - cleaning and maintaining can be implemented with using "climbing equipment" services carried out with usage of permanent vertical fall protection systems and anchor points which are part of the permanent structure of the building. Where possible, it is preferable to use lifts, mobile platforms and cages. | |
| 2.5. Earthworks and foundations works | | | | | **Yes  No  N/D** | Consider that soil stability is safe for planned works with and in excavations with providing of excavation wall support means.  Consideration of ensuring adequately long sheet piles, berliner walls, etc. – enabling simultaneous edge protection ie. extending with 110cm above the surface. | |
| 2.6. Concrete compressing | | | | | **Yes  No  N/D** |  | |
| 2.7. Works at cutting down trees | | | | | **Yes  No  N/D** |  | |
| 2.8. Works in closes vicinity of energized systems | | | | | **Yes  No  N/D** | Eg. Works in trafo stations. | |
| 2.9. Assembly of steel strucute, prefabricasts and with weight over 1T | | | | | **Yes  No  N/D** |  | |
| 2.10. Elements assembling requiring tandem lifting operation (usage more than 1 crane simultaneously). | | | | | **Yes  No  N/D** |  | |
| 2.11. Construction works close to High Voltage power lines and other communication cables | | | | | **Yes  No  N/D** |  | |
| 2.12. Works threatened by ionizing radiation | | | | | **Yes  No  N/D** | Eg. non-destructive examination with RTG radiation sources (examination of welding joints at steel structure). | |
| 2.13. Constructrion works posing risk of drowning | | | | | **Yes  No  N/D** |  | |
| 2.14. Reinforced-concrete works | | | | | **Yes  No  N/D** | Consider usage of system platforms assembled to shuttering walls was considered – during reinforcements and concreting of pillars  Ie. system solutions provided by ULMA or PERI.  When the usage of collective system edge protection will be imposible. If not to use Skyreach / Alsipercha system, other solutions have to be implemented (ie. life lines attached to appriopiate belay points). | |
| 2.15. Other | | | | | **Yes  No  N/D** |  | |
| **3.** | | **Good practices, hierarchy of hazard control, opportunities (to be considered)** | | | | | |
| **Topics to include into Designer H&S Information and Design Risk Assesment** | | | | **Inculded** | | | **Comment / Explanation** |
| 3.1. Elevated attics at roofs (as collective protection against falling) | | | | **Yes  No  N/D** | | | The raised attic improves the safety of people on the roof during construction works, eg laying insulation, roofing membrane, etc., and later during the operation of the building. |
| 3.2. Safe sequence of balconies balustrades assemlbing (collective protection against falling). | | | | **Yes  No  N/D** | | | It is recommended to assemble the balustrades of the balconies as soon as possible to ensure safe conducting of finishing works at balconies. |
| 3.3. Safety of work in shafts (lifts, installation, etc.) | | | | **Yes  No  N/D** | | | Eg. system anchor points in walls, disign calculations for temporary wooden platfroms (load capacity kN/m2) |
| 3.4. Assembling of skylights and flat roofs at trusses. | | | | **Yes  No  N/D** | | | These works involve the risk of falling from a height, it is worth considering the use of collective safeguards, eg health and safety nets. |
| 3.5. Safe masonry works (bricklaying) at walls and appropriate measures to protect against wall rollover during bricklaying. | | | | **Yes  No  N/D** | | | A frequent cause of accidents, including fatal accidents, is the crushing of the falling wall due to wind pressure or impact caused by moving equipment nearby. |
| 3.6. The use of safer allternatives on construction chemicals. | | | | **Yes  No  N/D** | | | Eg. resins, sealants, building chemicals used for finishing works. Water-based paints instead of solvents, etc. |
| 3.7. The use of precast prefabricated elements instead standard solutions (precast stairs, precast ceiling slabs, etc.) | | | | **Yes  No  N/D** | | | In accordance with Echo requirements, construction systems are preferred (from prefabricated elements) in which safe construction methods are possible. Prefabrication, reduces the number of threats and time of exposure to hazards in relation to monolithic structures. Consider switching options for monolithic ceilings to prefabricated, e.g. filigran type. |
| 3.8. Work ergonomy and manual handling standards during builiding process | | | | **Yes  No  N/D** | | | The design solutions are applied, in which the necessity of manually transport of loads and avoiding slippery surfaces, working in zones with low ceilings, in rooms / enclosed areas etc. is limited to a minimum. It is necessary to choose materials so that their weight does not exceed the permissible manually lifting standards or consider support with for example, usage of construction cranes. |
| 3.9. Safe access to fittings (valves, control panels, service work) including access equipment (temporary or permanent). | | | | **Yes  No  N/D** | | |  |
| **4.** | | **Other, additionally identified hazarads during the design stage** | | | | | |
| **Topics to include into Designer H&S Information and Design Risk Assesment** | | | | **Inculded** | | | **Comment / Explanation** |
| 4.1. Shafts/Technological opening | | | | **Yes  No  N/D** | | | Considering the use of monolith structure walls instead of bricklaying method at the shaft/opening casing, during further work.  Consideration before pouring of concrete at ceiling to install the reinforcement/steel mesh within the opening/shaft clearance, enabling safer execution of later stages of work (bricklaying works close to the shafts – falling hazard mitigation). Considering installing lost tape fasteners (anchor points) in a reinforced concrete structure to provide a combination of safety harness and fall protection systems during construction works . |
| 4.2. Suspended ceilings and service systems | | | | **Yes  No  N/D** | | | Consider the safer planning of work including tasks sequences: assembling of service systems/installation 🡪 ceiling suspension. In the case of the designed ceiling space for service system installation, consideration should be given to the use of anchor points (EN 795), as points for the use of personal belaying against falling from a height (exploitation phase of the building). |
| 4.3. Roof skylights, cladding (lens effect) | | | | **Yes  No  N/D** | | | The risk associated with the effect of the lens on, among others, on skylights, glass claddings. Accumulated sunlight through the lens, can cause heating of the surface / structure - and cause and ignite and fire. |
| 4.4. Construction Site neighbour, which can be a hazard source | | | | **Yes  No  N/D** | | | Project surroundings and existing buildings / infrastructure such as petrol stations, railway infrastructure can be a source of hazards during construction works. Identify such risks in relevant time - and, if present, analyze possible measures (e.g. regarding the designation of evacuation points). |