

	The Board of Audit and Inspection of Korea	
	Fair Audit Fair Society	

Audit on the Implementation Status of Projects for Improving the Environment for Elementary, Middle and High Schools

Disclosed on November 2, 2018

Inappropriate measures to improve poor investigation practices on the use of asbestos in schools

In June 2012, the Ministry of Education (MOE) guided, through the offices of education in metropolitan cities and provinces, kindergartens, elementary, middle and high schools to arrange for specialized investigation service providers to conduct an asbestos* investigation.**

* Asbestos: Asbestos is a Group 1 carcinogen. When it enters the body through the respiratory tract, it can cause diseases such as asbestosis, lung cancer, or malignant mesothelioma (cancer of the pleura or peritoneum) through a latency period of 10 to 40 years.

** Asbestos investigation: Asbestos investigation consists of a risk assessment which evaluates the damage status of an asbestos-containing building and the possibility of scattering of asbestos by creating an asbestos map indicating the locations and areas of asbestos-containing building materials in the building.

In June 2015, the MOE conducted a project to verify the validity of the above-mentioned asbestos investigations through the Gyeonggi Provincial Office of Education. As a result, it was found that

- of the 152 schools of the sample schools, 24 schools (15.8%) had asbestos areas that were not reflected in the asbestos map, and the same problem was likely to occur in the schools (17,988 schools) not included in the sample (the final asbestos investigation service report of December 2015).

The **MOE**, however, failed to recheck to see if there were omitted asbestos areas in the asbestos map with regard to the schools not included in the sample.

- In addition, the Ministry asked the service providers to remove the investigation results of the

sample that revealed the failure of the asbestos map several times in January 2016, after the completion (December 2015) of the acceptance inspection of the service product.

- Further, the Ministry arbitrarily modified the service product by making an order to add to the report of investigation service a statement stating that “the sample survey findings are not likely to be correlated with the entire schools that were built using asbestos.”

* The Ministry distributed the arbitrary report to the offices of education of metropolitan cities and provinces, and to the National Assembly as well, in September 2016.

In this context, 142 of the 1,076 elementary schools that completed the asbestos dismantling and removal work were selected to re-verify the accuracy of the asbestos map during the audit.

- As a result of analyzing the samples collected from non-asbestos areas on the asbestos map, the Korea Environment Corporation (KECO) announced that the analysis findings detected asbestos in the classrooms, corridors, and reference libraries of 29 schools (20.4%).

* In the case of OO Elementary School, the KECO was asked to conduct a new asbestos investigation. As a result, 46 asbestos areas were missing on the asbestos map, and 29 of them required repair measures for asbestos damage.

As shown above, the follow-up measures, such as re-investigation work, have not been taken although it was confirmed that the asbestos map had omissions and errors, leaving condition of asbestos safety management in schools poor.

➔ **The Minister of Education** ① was asked to take necessary measures to delete or correct the inappropriate findings in the analysis of the samples collected from the offices of education, which knowingly included certain findings that were not well-founded in the asbestos investigation report and the insufficient asbestos map; the Minister was also recommended to impose **severe disciplinary action (suspension)** on the relevant persons who were responsible for the negligence in preventing students from harmful asbestos exposure by failing to conduct a recheck after the suspicious sampling survey; ② was informed to take necessary measures for the superintendents of education of metropolitan cities and provinces to correct and more meticulously manage the asbestos map with regard to the 25 schools of the sample investigation which confirmed omissions and errors, and for which follow-up action had not been taken; and with regard to 17,988 schools, which were not included in the sample, the Minister **was informed** to make necessary arrangements to re-verify the asbestos map and to come up with appropriate safety measures in response to the re-verification results.

* The MOE stated that necessary measures had been taken, based on the results of the audit, to manage even the asbestos-free schools (or non-asbestos areas in asbestos schools) in accordance with the management guidelines for asbestos buildings, and that the superintendents of education of metropolitan cities and provinces had been directed to correct the asbestos map by conducting re-investigations in the cases where errors were discovered.

Inappropriate planning for dismantling and removing asbestos from schools

The MOE will complete the removal of asbestos materials from kindergartens, elementary, middle, and high schools by 2027 by investing 282.7 billion KRW every year from 2017.

In accordance with Articles 3 and 6 of the Asbestos Safety Management Act, the MOE shall establish and implement programs and detailed plans necessary for the safety management of asbestos.

In addition, according to the School Asbestos Management Manual, it is recommended that spray asbestos,* among all asbestos construction materials, should be removed first, as spray asbestos is easily scattered in vibration and air flow and the concentration of asbestos is high.**

* Spray asbestos: Fog-like construction material which is sprayed (used for fireproofing and waterproofing of steel frame)

** Asbestos content by building material: Ceiling materials 2-6 %, roofing materials 8-14 %, flooring materials 7-10 %, interior and exterior materials 6-14 %, spray materials 40-90%

- In Japan, spray material (non-acidic grade 1), which has a significantly higher friability than other asbestos materials, is classified as a top priority for removal.

The MOE, however, failed to make a plan for the school buildings having spray asbestos to be placed on top of the list of asbestos dismantling and removal projects.

- As such, the offices of education of metropolitan cities and provinces have decided to autonomously select schools to provide with the support of dismantling and removing asbestos by taking into consideration factors, such as the agedness of the buildings.

- After checking during the field audit, it was found that the spray material (area: 25,396m²) in 15 schools under the control of four education offices, out of the spray material (area 32,022m²) used in classrooms, corridors and administrative offices, still remained as of December 2017.

➡ The BAI (Board of Audit and Inspection) informed the Minister of Education that the Minister should make a detailed plan as early as possible to remove asbestos containing spray material by, for example, getting the superintendents of education of metropolitan cities and provinces to select priority schools for dismantling and removing asbestos where the asbestos-containing spray material still remained.

Inappropriate safety measures for asbestos dismantling and removal work in school facilities

In accordance with the Asbestos Safety Management Act, the owners of asbestos buildings are required to take necessary measures to prevent asbestos from spreading in the air when repairing the buildings.

- According to the Occupational Safety and Health Act, the owners of asbestos buildings are required to dismantle and remove asbestos material by employing registered companies if the area covered with asbestos material is over 50m². In addition, asbestos dismantlers are required to observe the work standards, such as wearing protective devices.

- The Ministry of Education further asks in its School Asbestos Management Manual, that the asbestos dismantling workspace be separated from the spaces where students and teaching and administrative staff stay.

The Ministry of Education, however, failed* to take measures in prioritizing the dismantling and removing asbestos before replacing the air conditioners to prevent asbestos from spreading in the air.

* 1,538 (65.7%) of the 2,342 schools that have replaced air conditioners for the last three years (2015 to 2017) replaced the air conditioners before asbestos dismantlement and removal.

- In addition, in the case of 23 out of the 2,342 schools that have replaced old air conditioners with new ones from 2015 to 2017, it was found that unregistered companies dismantled the asbestos of more than 50m² and reattached* the air conditioners.

* In addition, the workers failed to observe the work standards as they did not wear protective gear when working.

- 2,222 elementary schools operated daycare classrooms during the work of dismantling and removing asbestos during the recent three years (2015-2017). The operational status of the schools was analyzed, and it was found that 462 schools operated daycare and other classrooms* in the buildings where asbestos dismantlement and removal work were conducted.

* Operation of daycare classrooms at 200 schools, after-school programs at 130 schools, 132 kindergartens annexed to elementary schools

➡ **The BAI** informed that the **Minister of Education** should strengthen the safety education for the heads of schools of all levels for stricter compliance with the relevant laws and regulations during asbestos dismantling work. The BAI further informed that:

The Minister should ask the superintendents of education of metropolitan cities and provinces
① to take measures to ensure that asbestos dismantling and removal work be carried out first or at the same time with the other works when facilities and equipment, such as cooling and heating systems are replaced; ② to take necessary action for 23 schools, where asbestos

dismantlement and removal were done by unregistered companies in violation of the Occupational Safety and Health Act by identifying and bringing charges to those at fault; and ③ to take necessary action to ensure spatial separation for daycare classrooms from the place where asbestos dismantling and removal are conducted.

Inappropriate criteria for selection of air purification devices

The MOE conducted a Demonstration Project for Air Purification Device Installation for Elementary Schools (hereinafter referred to as the “demonstration project”) to prevent the deterioration of indoor air quality due to high concentrations of fine dust. As the result of the demonstration project that lasted from August to December 2017, air purifiers were installed in 662 out of a total of 6,203 elementary schools.

With regard to the performance of air purifiers, the Korean Agency for Technology and Standards and the Korea Air Cleaning Association set up the Korean industrial standards and the standards of private sectors, respectively.

- The MOE needs to make necessary arrangements for schools to be supplied with performance-verified products that have been certified by the Korean Industry Standards or Standards of Private Sectors.

However, the MOE did not set specific performance standards for air purifiers in the demonstration project plan, nor set any standards for the types and functions of other air purifying devices.

During the field audit, 13,499 air purifiers installed for the demonstration project were checked to see if they are certified with the Korean Industrial Standards or Standards of Private Sectors. As a result, it was found that four offices of education of metropolitan cities and provinces purchased 168 products (around 180 million KRW) from companies that had not been certified.

- Other air purifying devices that were purchased were also checked, and it was found that six offices of education purchased a total of 237 humidifiers and air sterilizers though their performance of removing fine dust particles had not been proven (around 420 million KRW).

⇒ The BAI informed the Minister of Education that when the demonstration project for the installation of air purification devices was carried out, it was found that some schools were supplied with those products which had not received the certification of the Korean Industrial Standards or the Standards of Private Sectors, or which had not been verified in their performance of removing fine dust particles. As such, the Minister was asked to make arrangements for better project planning to prevent the above-mentioned problem from reoccurring. The Minister was also asked to devise plans to supplement the criteria for the selection of air purification devices, which can be applied to a future project to expand the distribution of air purification devices.

* This summary is for reference purposes only to promote understanding of press reporters. Please refer to the whole text of the released report for details.