

Indoor Environmental Quality Facilitator's Notes

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Tasks for the session

After this workshop, participants will:

- Know the difference between sick building syndrome and building-related illness.
- Identify building conditions as well as contaminants associated with symptoms or illnesses
- Learn some of the preliminary steps to an effective IAQ investigation
- Be familiar with a few model IAQ policies and practices

This is a 90 minute workshop. Try to stay within the times set for each section so that you can cover all the material.	
3-5 minutes	Introductions, Objectives, Logistics, Ground Rules and Review of Agenda
5-7 minutes	How Would you Rate Your Work Environment?
8 - 10 minutes	IEQ Symptom Survey; Health Symptoms
8 - 10 minutes	Identifying symptoms and locations – Part 1
20 minutes	Identifying hazards - Part 2
20 minutes	Finding Solutions – Part 3
5 minutes	Legal Options –NJ IAQ standard
10 – 12 minutes	Union Action
2 minutes	Wrap Up: Final Questions/Answers; Evaluations

Materials needed

Participants' materials (one each)	Provided	Have
Work Environment Survey Health Symptom Survey Activity Worksheet NJ IAQ Standard Factsheet Healthy Workspaces: Improving Indoor Environmental Quality Mold Health Assessment Power point handouts		

Supplies	Number	Provided	Have
Sign-up sheet and evaluations for participants	1		
Flipcharts	1 - 2		
Markers	Several colors		
LCD Projector/screen			
Power point slides			

Preparation and Set-Up:

- If possible, have room set up with small tables for groups of 4 or 5.
- Prior to the session try to get information on any health and safety contract language and any injury and illness reporting procedures that the workshop participants are covered under.
- The workshop will run much smoother if you and your training partner determine who will present which section. Once that's agreed upon the other team member not presenting at the time can assist with recording on the flipchart and any handouts, etc.
- Before starting the session, post either the objectives power point slide or write the learning objectives on flipchart paper to review with the group.
- Also prior to the beginning of the session, hang a blank piece of flip chart paper on the wall and let the group know that this will serve as a "parking lot". The parking lot can be used for the group to post any questions or topic that they wanted to address that you didn't have time to get to. Be sure that they have post its available at their tables or rows. Ask them to write questions on the post its and post them on the parking lot and that you will try to get to the questions if there is time. Ask them to include their e-mail address in case you need to follow up with them after the session. Hopefully, this will help expedite the session and limit the amount of drawn out discussion.

~~1. Welcome and Introductions~~

TIME: 3 to 5 minutes

- **Introductions:**
 - Be sure to begin on time and welcome participants. Introduce yourself and your co-facilitator, and identify your local and what you do at your school or workplace.
- **Logistics and Ground Rules:**
 - Go over location of bathrooms, length of workshop, how you want to handle questions, refreshments, if any, etc.
 - Ground rules could include respecting each other's comments, turning cell phones to vibrate and any others you think are important. The group may want to add a couple also.
 - There is a lot of material to cover in a limited amount of time. To help expedite discussions and activities you may want to let the group know that there is a signal that you will use to quiet them down and get their attention when you need to move on. So, whenever you show this signal you will need their attention.
- **Agenda and Learning Objectives: (powerpoint slide)**
- **By the end of this workshop, you will:**
 - Know the difference between sick building syndrome and building-related illness.
 - Identify building conditions as well as contaminants associated with symptoms or illnesses
 - Learn some of the preliminary steps to an effective IAQ investigation
 - Be familiar with a few model IAQ policies and practices
- Explain the "parking lot":
 - The parking lot can be used for the group to post any questions or topic that they wanted to address that you didn't have time to get to.
 - Ask them to write questions on the post its and post them on the parking lot and that you will try to get to the questions if there is time.
 - Ask them to include their e-mail address in case you need to follow up with them after the session.

- Tell them if you don't get to their post it before the end of the session, you'll contact them by e-mail.

INTENT:

This section is to allow participants to have some fun by having them rank their work environment's indoor environmental quality. They will do this by filling out a quick survey which they will discuss in their group and then briefly report on two or three conditions or concerns they have in common with each other.

2. How Would you Rate Your Work Environment?

TIME: 5 – 7 minutes

How many of you work in a “problem” building or have experienced indoor air quality problems in your building?

- The air quality in our environments can change from hour to hour, day to day, week to week or season to season –depending on what's going on in our workplace or around us - it isn't always the same.
- Today we'll take a look at some of the more troubling conditions in buildings and symptoms caused by these conditions, as well as ways to investigate the problems.

In a smaller workshop, break everyone into a small group of four or five participants each (they can count off). In a large auditorium or classroom setting, ask people to partner up with a person sitting next to them. Have checklist ready to hand out.

INSTRUCTIONS:

- Ask people to take a few minutes to rank their work environment by completing the check list and discuss with their colleagues the conditions and concerns they have related to indoor air quality in their workplace. Ask them to identify one or two unacceptable building conditions that they have in common.
- Allow approximately 5 minutes for this exercise then call the group together and ask if anyone has conditions that are “just right”.
- If someone answers in the affirmative, ask them to describe one or two things about the air quality that makes it “just right” and record on the flip chart under the heading of ideal. Tell the group that perhaps this is the goal for the air quality in all buildings.
- Have the groups report back one common unacceptable condition– round robin style. Record these on the flipchart and keep posted for the entire workshop.

POINTS TO COVER:

- Even though the problem is so huge, there are no federal laws or regulations that cover IAQ inside buildings. But, that doesn't mean we can't try to improve things.
 - You've just identified some of the IAQ unacceptable conditions/IEQ concerns/issues that you have with your workplace.
 - Now let's look at how these things might be causing you physical symptoms.
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3. IEQ Symptom Survey

TIME: 8 – 10 minutes

Hand out the symptom survey. Prepare to view power point slides – Sick Building Syndrome, Building-Related Illness and Asthma.

INSTRUCTIONS:

- Ask the participants to take 3 minutes to fill out the IEQ symptom survey. Ask them to share their results with the others in their group or with their neighbor if in a big auditorium setting.
- They should keep in mind the following question: Any common symptoms or surprises?
- Ask each group to report one or two symptoms or in a large group, ask for five or six symptoms. Write them on a flip chart and post.

POINTS TO COVER:

SHOW SLIDE – Sick Building Syndrome

- The US EPA long ago made two categories of health effects associated with indoor air quality. The first, known as Sick building syndrome (SBS), is a term for symptoms which may be triggered by poor indoor air quality.
- These include some symptoms you mentioned, such as: headaches, fatigue, nausea, difficulty in concentrating and irritation of the eyes, nose, throat and skin.
- They don't fit the pattern of any particular illness and usually can't be traced to any specific exposure source.
- In a problem building, the majority of workers will experience some of these symptoms, but will most likely feel better after they leave the building.

SHOW SLIDE – Building Related Illness

INTENT:

The purpose of this section is for participants to start to recognize some health symptoms that might be related to the air quality in their workplace. This will be accomplished by filling out a symptom survey and reporting out their symptoms to the larger group. The discussion will then turn to defining sick building syndrome and building related illness.

- But sometimes people don't get better, they get sick and EPA put these illnesses in a second category called building-related illness (BRI).
- BRI is a diagnosed illness which can be linked directly to exposure to contaminants in a building's air.
- These illnesses can be severe and are flu-like in nature. Symptoms include coughing, chest tightness, fever, chills and muscle aches, and they don't clear up after you leave the building. Examples include Legionnaire's Disease and Restrictive Airways Disease.
- ASTHMA is one of the most common building-related illnesses.
- **How many of you have developed asthma or know of a co-worker who has since working in your building?**
- **Why is asthma a big problem in buildings/workplaces? (Ask the group to speculate – take two-three answers)**

SHOW SLIDE -Asthma

- Asthma rates go up in damp buildings (high humidity and leaks) – conditions that are ripe for mold, bacteria and viruses
- Newly-Acquired cases of asthma are on the rise in these damp buildings – i.e. asthma contracted as an adult in the bad building
- Asthma rates appear to be going up for cleaners and others who are over exposed to common disinfectants such as bleach and Lysol spray
- In education, school employees have high rates of work-related asthma
- **End the discussion with this question to everyone: How do these IAQ-related symptoms affect your everyday life? (Limited Discussion)**

**4. Identifying Symptoms and Locations – PART 1 –
Where Symptoms Occur In The Building**

TIME: 8 – 10 minutes

Hand out activity sheet.

INSTRUCTIONS :

- Explain that the purpose of the next activity is to make some connections between their symptoms and the hazardous exposures that may be causing them.
- Ask participants to think about all the different areas in their building that they spend some time in during a typical work day.
- In each of the boxes in the first column on the activity sheet, ask them to name a separate area of the building/campus where they spend more than just a few minutes each day and then think about the symptoms they just identified in the previous activity. Do they experience any of those symptoms in certain areas of the building more than others? Ask them to list those symptoms in the second column for each area.
- Spend about five minutes completing this activity in your groups. After about five minutes, ask for a few volunteers to share any observations they think are interesting or telling before moving on to Part Two.

INTENT:

This is part 1 of a three part activity. Participants will make the connection between their symptoms and the exposures that may be causing them through discussion about the places where they spend time in the building and the symptoms they experience in each of those locations. In Part 2 and 3 they will identify potential sources for their health symptoms and then possible solutions/ fixes to control/eliminate those sources.

5. **Identifying Sources of Hazards - PART 2 –
What’s Happening In Your Work Area To
Cause Your Symptoms**

TIME: 20 minutes

Prepare to show power point slides: Outside Sources;
Temperature and Humidity; Building Ventilation;
Mold; Renovations; Fiscal Problems

INSTRUCTIONS :

- Ask participants to continue onto column #3 – identifying sources!
- Ask them to identify as specifically as possible:
 - **OUTSIDE SOURCES** – Things going on around the building that might have an impact on air quality within the building i.e.:
 - Idling buses
 - Industrial pollution
 - **BUILDING SOURCES** – Problems with the building itself i.e.:
 - Systems (heating, ventilation, air conditioning, plumbing)
 - Building features such as a leaking roof or walls
 - **ACTIVITIES or CHEMICAL EXPOSURES** within the building that might be causing symptoms i.e.:
 - Cleaning supplies
 - Vocational classrooms
 - Clutter and dust
- Allow 10 minutes for this activity. Then refer to the power point slides for review with the group as a whole.

POINTS TO COVER:

INTENT:

Part 2 entails the groups using the chart to link the symptoms they are experiencing to specific sources. They will be asked to think about outside contaminant sources, inside (building) sources – i.e.: the ventilation system and the condition of the building itself, and from any activities taking place inside the building.

- You've identified a number of sources and contaminants that can cause indoor air quality problems. Let's spend a few minutes looking at what you found.
- Let's start with outside the building. **Did anyone identify outside sources? (Allow a few responses and then show the power point to summarize.)**

SHOW SLIDE – Outside Sources

- When we're thinking about pollution sources, we also have to think about where the building is sited. That can determine what is being brought into the building from the outside.
- This may include nasty contaminants, such as pollen, dust, industrial pollution, vehicle exhaust and even dumpster odors which add to the mix already in the building!
- Let's go inside, **Any body identify temperature and/or humidity as a problem? (Take one or two answers and show the next power point slide.)**

SHOW SLIDE – Temperature and humidity

- Temperature and humidity are more than comfort issues, they can cause symptoms.
- When temperatures are high and the relative humidity goes above 60%, people will feel very uncomfortable and sweaty, and will be less productive.
- On the other hand, if room temperature is high in winter and the relative humidity goes below 40%, then workers will start to complain of dry skin, eyes, nose and throat. This drying effect on the throat and nose puts people at risk for more colds and infections.
- So, it's about more than comfort, it's about health.

What sources of contaminants did you associate with the building itself? (Take two or more answers from groups or individuals then show next power point slide.)

SHOW SLIDE – Building ventilation systems

- As you know, our workplaces are filled to the brim with a variety of contaminants. If the ventilation system is not doing its job and not flushing them out, or isn't being maintained in good working order, we have an indoor air quality problem.

SHOW SLIDE: Building Sources: That mold you're smelling

- In the building itself the roof, walls and poorly fitted windows and doors and poor drainage can contribute to the problems. Anytime you have the potential for water intrusion you've set yourself up for damp, wet conditions and possible mold growth
- Mold can be found anywhere there is moisture – it thrives on moist, organic matter. It can grow on ceiling tiles, on and behind walls, on floors, books and paper and even inside air ducts.
- Let's turn to other contaminants. **What contaminants from any activities in the building did you identify? (Take a few answers and add any below that aren't brought up)**
 - Photocopiers and computer printers emit contaminants.
 - Carpets may release hidden particles (micro-organisms, dust mites etc.) when walked upon.
 - Daily cleaning activities may release chemicals into the air.
 - Pesticides and specialty maintenance chemicals such as graffiti removers can expose occupants to unhealthy vapors.

SHOW SLIDE – Renovations

- You've just identified some of the most common sources of contaminants but **how many of you have worked in a building while it was being renovated?** Renovations are one of the most troubling sources of contaminants, and a major concern among our members.
- Renovations occurring at the same time as people are in place at work can lead to exposures to the by-products of construction such as paint fumes, glues and dust.
- If renovations are not properly conducted, it can lead to additional health complaints of occupants.

SHOW SLIDE – Chronic Fiscal Problems = Neglected Buildings

- Another big problem is deferred maintenance.
- Hard –pressed schools, colleges, universities and public agencies often defer maintenance out of necessity due to chronic fiscal problems and underfunding of public services.

INTENT:

In part 3, we focus on finding solutions by becoming building detectives and not relying on “experts” to solve our indoor air quality problems. This will be done by reviewing investigation tips and understanding what tests are important in an IAQ investigation. Participants will then return to the activity sheets and brainstorm about potential “fixes” to the problems they identified.

6. Finding Solutions – PART THREE

TIME: 20 minutes

Prepare to show power point slides: Helpful Tests; Union Action; Detective Work

When we’re not sure what’s causing the problem, what’s our first impulse? What do we ask for? (Stop the discussion when someone says “testing or test the air”)

- Rushing to test the air won’t always give us an accurate picture of the causes of poor indoor air quality. The air testing equipment looks sophisticated but the results aren’t always clear and besides it can be very expensive.

SHOW SLIDE: Helpful Tests

- There are two tests that can be helpful:
 - **Carbon dioxide levels** – Carbon dioxide is a non-hazardous gas given off when we exhale. However, it’s a good measure of what’s going on within a building. Normal outside air has anywhere from 350 to 450 parts per million (ppm) of CO₂. When CO₂ levels increase in a building to over 1000 ppm, it means either air supply vents are not bringing in enough outside air to dilute the contaminants or the system is shut down completely. High levels of CO₂ isn’t necessarily dangerous, it just tells us that the concentration of all other contaminants are also going up as well. As a result, symptoms and complaints go up. It’s no wonder that by the end of the day everyone is drooping.

- **Temperature and humidity** - Take regular temperature and humidity readings. The equipment for all these tests is inexpensive and samples don't have to be taken to a lab. Workers can learn to use this equipment and interpret the readings. Your local may want to purchase some of this equipment.

SHOW SLIDE: So, how does the local union address an IEQ issue?

So, how do we find solutions to the problems identified if we don't call in "experts?"

- It's all about getting down to the basics: Answers to who, what, when, where and why?

SHOW SLIDE: Detective work is key.

- No matter who's doing the investigation, the Union or a consultant, these questions need to be answered.
 - **What's the complaint?:** Temperature? Odors? Moisture/humidity? Stale Air? Do people have different complaints? Is a pattern developing?
 - **Who is affected?:** Are symptoms showing in some people and not others? Do symptoms clear up soon after leaving the building?
 - **Where's the problem?:** Are people experiencing symptoms all over the building or in just a certain area?
 - **When does it occur?:** Every day? In the late afternoon? After a rainstorm? Seasonally? With certain building activities? Has anything happened recently at the workplace that could affect the air quality?
 - **Why is it happening?** Is there a roof leak? Are pesticides being sprayed? Does the building have vocational classes? Do school buses idle near the building?

If you think about it, that's just what you've just done. You know the complaint, you're the one affected, you've identified potential problems or sources and thought about when and why the problem is happening! So let's finish the process and see what "fixes" you can come up with to finish your detective work.

INSTRUCTIONS:

- **Ask participants to return to their groups to finish their charts by strategizing and coming up with "fixes" for the specific sources/hazards they identified.**
- **Ask them to think about what they would do to address their problem and what recommendations they would make to resolve their issue. Ask them to work on as many as they have time for before time runs out. These "fixes" should go in the last column on their chart.**

- Give them about 10 minutes to brainstorm and then have each group report on one thing they came up with for one of their problems. Record these on a flipchart.

8. Legal Remedies:

TIME: 5 minutes

Prepare to show power point slides: NJ PEOSH IAQ Standard; Laws and Regulations; hand out PEOSH Factsheet

Is there any legal requirement for school districts or employers to address indoor air quality in buildings? (Take an answer or two. And tell the group the answer is no)

SHOW SLIDE – NJ PEOSHA IAQ standard

- There is one good model available in New Jersey which has a public employee OSHA state plan. There is a standard for Indoor air quality. Employers are required to, among other things:
 - Identify a designated person to is responsible for complying with standard
 - Develop a written plan describing how they will achieve compliance with standard
 - Establish and follow a preventative maintenance schedule as per manufacturer’s recommendations
 - Promptly investigate employee complaints
- We hope more states and ultimately OSHA adopts a comprehensive standard on IAQ.

SHOW SLIDE – LAWS AND REGULATIONS THAT MAY HELP REDUCE IAQ EXPOSURES

INTENT:

This section is to review a good standard on indoor air quality. The goal is to use NJ’s standard which covers public employees as a model for other states and for OSHA. You will also review another OSHA standard (Hazard Communication) and state laws on pest applications that might be helpful in an IAQ investigation.

- There may be some indirect things we can do to reduce exposures to contaminants such as:
 - Request a material safety data sheet (MSDS) for products used in the building or during renovation that are causing symptoms. **Has anyone ever seen an MSDS?**
 - Employers are required to have copies of MSDS for products in use in the building under the Hazard Communication Standard.
 - Many states now have pest application laws in schools **(facilitator, check with AFT health and safety or your district to see if your state has one)**
 - **Note: For those in a state where public employees are covered by OSHA, remind participants to report any illnesses that they associate with poor IAQ so that they are recorded on the OSHA log of illnesses and injuries.**

INTENT:

This section will hopefully focus participants to think about ways the union could solve IAQ problems in their buildings. They'll be doing this by brainstorming on what suggestions they'd make to their local leaders and to think about what they'll personally do when they go back to work to improve IAQ for themselves and their co-workers.

9. **Union Action**

TIME: 10 minutes

Prepare to show power point slide: Union structure

- Generally, it takes a concerted effort to get solutions for many health and safety concerns. That's why, in an environment with very few regulations and standards, union action can be a very important vehicle for change.
- As good trade unionists, we know that collective solutions work better than individual ones and we need to work together to build a case for the solutions we want.
- Using the union process to address your health and safety concerns lets you and your co-workers know that you are not alone and that you are not expected to solve these problems on your own. Your union can help in a number of ways!
- **What are some things you might suggest to your local leaders to address the issues you've raised today? (Ask for suggestions and post them on a flipchart.)**

SHOW SLIDE – Use your union structure

If not suggested, make sure to cover the following:

- Surveys – both of the members and of the workplace – to find out more information about what issues are a concern and current conditions within the building.

- Organize a H&S Committee – if not already established, recommend and/or volunteer to participate in a union H&S committee.
- Reporting – is there a reporting process for recording accidents, injuries and illnesses? If yes, is it used by the membership? If not, why not? How can having a reporting system help improve health and safety in the workplace?
- Policy – what policies currently exist regarding the safety and health of the employees? What policies are needed? How can the union push the administration to adopt necessary policies?
- Contract – What language does the contract have on health and safety issues? What might be suggested for next round of negotiations? Emphasize how getting language like health and safety might be achievable in tough economic times when monetary improvements are unlikely.

INSTRUCTIONS:

- **Ask participants to either work in groups or individually to think about just one thing they will work on when they go back to their jobs to improve the air quality for themselves and/or their co-workers.**
- **Allow a few minutes for discussion and then ask for volunteers to see what plans they have. Encourage as many as possible to say what they hope to accomplish when they go back to work.**
- **Encourage them to get involved with the union to get this issue addressed at their school.**

10. Final Questions/Answers and Evaluations

Hand out evaluations!

Wrap up the workshop and, if time permits, ask for any final thoughts or questions and address any parking lot issues if they weren't addressed.

Thank participants for attending make sure to collect evaluations from each participant.