Learning Estate CO2 Monitoring Questionnaire

Feedback Return 1 – Four week reporting period from Monday 3rd January to Friday 28th January

Please provide information only where this is available retrospectively. If no information can be provided please mark here as 'nil return' **Nil return:** N

Please complete and return to **CO2@scottishfuturestrust.org.uk** by close of business on **Tuesday 1st March**
NB: Text in BLUE requires local authority input

Part A: Contact Details

Local Authority:	Moray
Contact Person:	Andy Hall
Contact Details:	07976 494895 andy.hall@moray.gov.uk
Completion Date:	02-Feb-22

Part B: CO2 Monitors and Digital Modelling

1. **Devices:** How many CO2 monitoring devices are being utilised in LA settings and how many are on order?

Response:

Fixed Devices - In Use:	57
Fixed Devices - On Order:	0
Mobile Devices - In Use:	160
Mobile Devices - On Order:	205

2. **Procurement:** Are there any issues with the procurement of CO2 monitors?

Specification:	FlameFast (Vision) CO2 Monitors
Delivery time:	up to 8 weeks
Cost:	101.25 per unit

3. **Digital modelling:** Has digital modelling been used to assess spaces where CO2 monitoring may not be appropriate e.g. large volume spaces such as dining/PE halls?

Response: Digitally modelled 5 schools

Part C: Registered day care of children services in the private and third sector

4. Have you made CO2 monitors available to registered day care of children services in the private and third sector?

Response: YES - most only require a single monitor, a small number have two

5. Please summarise any challenges in making CO2 monitors available to registered day care of children services in the private and third sector.

Response: No issues

Part D: Building Assessment and Mitigating Actions

6. **Assessment**: How many learning, teaching and play spaces have been assessed using CO2 monitors? Please also provide the total number of spaces in your response.
Example: 150/200 spaces would mean that 150 from a total of 200 spaces have been assessed during the week.
Please note total number of spaces (Z) will pre-populate from week commencing 3rd January - any changes should be overwritten in the relevant week.

Please note that ALL spaces were assessed between Aug-Nov 21 - the numbers below represent continued monitoring since new term start on 10 Jan 22

Type of space	W/C 3rd Jan (if available)				W/C 10th Jan (if available)				W/C 17th Jan (if available)				W/C 24th Jan (if available)			
LA ELC (inc. nursery classes)	0	of	185	spaces	15	of	185	spaces	15	of	185	spaces	15	of	185	spaces
Primary (exc. nursery classes)	0	of	541	spaces	95	of	541	spaces	95	of	541	spaces	95	of	541	spaces
Secondary	0	of	512	spaces	154	of	512	spaces	154	of	512	spaces	154	of	512	spaces
Special	0	of	0	spaces	0	of	0	spaces	0	of	0	spaces	0	of	0	spaces

7. **Remedial works:** What remedial work has been undertaken to improve ventilation generally across the LA estate?

Response: 8 high level window mechanisms to be replaced in Victorian primary.

8. **Operational mitigations:** Have users adopted operational strategies to generally improve ventilation? e.g. opening windows, purging at intervals, reducing occupancy

Response: Guidance to purge classrooms for 30 mins prior to use each day and windows should be opened at break and lunchtimes.
Number of schools needed to adjust number of people in classrooms

Part E: Poorly ventilated spaces and Forward Planning

9. **Problem spaces:** Of those spaces assessed, how many have reported CO2 consistently above 1,500 ppm after initial mitigating actions have been taken?
Example: 5/150 spaces would mean that 5 from the total of 150 assessed spaces have been found to be poorly ventilated.
Please note total number of assessed spaces (Y) will pre-populate each week from Q6 above.

Type of space	W/C 3rd Jan (if available)				W/C 10th Jan (if available)				W/C 17th Jan (if available)				W/C 24th Jan (if available)			
LA ELC (inc. nursery classes)	0	of	144	spaces	0	of	144	spaces	0	of	144	spaces	0	of	144	spaces
Primary (exc. nursery classes)	0	of	494	spaces	12	of	494	spaces	12	of	494	spaces	12	of	494	spaces
Secondary	0	of	439	spaces	40	of	439	spaces	40	of	439	spaces	40	of	439	spaces
Special	0	of	9	spaces	0	of	9	spaces	0	of	9	spaces	0	of	9	spaces

10. **Planned operational mitigations:** What specific operational mitigations are planned to improve ventilation in spaces identified as being poorly ventilated? Please provide associated timescales.

Response: No specific mitigations other than those described at Para 8.

11. **Planned remedial works:** What remedial work is planned to improve ventilation in spaces identified as being poorly ventilated? Please provide associated timescales.

Response: 1x Primary school awaiting specialist report on options to improve ventilation (estimate work will be complete during summer holidays).
Further 8 primary schools with classroom CO2 levels under more detailed investigation.

Part F: Costs associated with implementing guidance

NB: Responses to this section will be used to justify draw down against the additional £5m funding announced in January 2022. Please therefore ensure this information is completed as fully and accurately as possible for audit purposes.

12. **Revenue and Capital Costs:** What costs have been incurred/are planned to carry out CO2 monitoring assessments and subsequent mitigations?
Where specific items listed below have been purchased to support remedial works, please provide figures for the numbers purchased and the unit costs.

Item	£3m revenue fund (for purposes set out in Oct 2021)	£7m capital fund (for purposes set out in Oct 2021) see note 2			up to £5m capital fund (for purposes set out in Jan 2022)		
	Total Spend	Number	Unit Cost	Total Spend	Number	Unit Cost	Total Spend
CO2 monitors		360	100	36,090	X	X	see note 3
Remedial works – building works				1,000			X
Remedial works – localised mechanical ventilation		-	-		X	X	X
Remedial work – air cleaning devices		-	-		X	X	X
Resource costs	See Note 1						
Other (please specify)							X
Total	**-**	**Total**		**37,090**	**Total**		**-**

Part G: Any Other Comments

Response: Note 1: Anticipated further modelling activity - focus predominantly on larger spaces where monitors are less effective on provide true guide to any ventilation issues (with provide detail in next report)
Note 2: Moray are exploring implementing a 1:1 CO2 permanent monitoring regime across ALL schools and nurseries. This will equate to an additional spend of @£111K. This will be a phased deployment (permanent in high aerosol risk areas) and expecting additional numbers to be funded from both £7M Oct 21 capital fund and remaining number from Jan 22 £5M capital fund after remediation works
Note 3: Packages of works to be determined over the next two months as a consequency of the outcomes of future modelling, greater % of monitoring time each week and expected issues with 800ppm levels for high aerosol risk areas

FOI CO2 Monitors & HEPA Filters 101003246836

Learning Estate CO2 Monitoring Questionnaire

Feedback Return 2 – Four week reporting period from Monday 31st January to Friday 25th February

Please provide information only where this is available retrospectively. If no information can be provided please mark here as 'nil return' **Nil return:** N

Please complete and return to **CO2@scottishfuturestrust.org.uk** by close of business on **Tuesday 1st March**
NB: Text in BLUE requires local authority input

Part A: Contact Details

Local Authority: Moray
Contact Person:
Contact Details:
Completion Date: 01-Mar-22

Part B: CO2 Monitors and Digital Modelling

1. **Devices:** How many CO2 monitoring devices are being utilised in LA settings and how many are on order?

Response:
Fixed Devices - In Use: 57
Fixed Devices - On Order: 0
Mobile Devices - In Use: 210
Mobile Devices - On Order: 845

2. **Procurement:** Are there any issues with the procurement of CO2 monitors?

Specification: FlameFast (Vision) CO2 Monitors
Delivery time: Unit lead time now reduced to 2-4 weeks
Cost: 101.25 per unit

3. **Digital modelling:** Has digital modelling been used to assess spaces where CO2 monitoring may not be appropriate e.g. large volume spaces such as dining/PE halls?

Response: Digitally modelled 5 schools - a further 4 schools planned for next couple of months.

Part C: Registered day care of children services in the private and third sector

4. Have you made CO2 monitors available to registered day care of children services in the private and third sector?

Response: YES - most only require a single monitor, a small number have two

5. Please summarise any challenges in making CO2 monitors available to registered day care of children services in the private and third sector.

Response: No issues with making CO2 monitors available. Issue is to get the facilities to provide weekly reports - still only getting 70% weekly response.

Part D: Building Assessment and Mitigating Actions

6. **Assessment**: How many learning, teaching and play spaces have been assessed using CO2 monitors? Please also provide the total number of spaces in your response.
Example: 150/200 spaces would mean that 150 from a total of 200 spaces have been assessed during the week.
Please note total number of spaces (Z) will pre-populate from week commencing 3rd January - any changes should be overwritten in the relevant week.

Type of space	W/C 31st Jan				W/C 7th Feb				W/C 14th Feb				W/C 21st Feb			
LA ELC (inc. nursery classes)	15	of	185	spaces	140	of	185	spaces	140	of	185	spaces	185	of	185	spaces
Primary (exc. nursery classes)	95	of	541	spaces	450	of	541	spaces	450	of	541	spaces	541	of	541	spaces
Secondary	154	of	512	spaces	420	of	512	spaces	420	of	512	spaces	512	of	512	spaces
Special	0	of	0	spaces	0	of	0	spaces	0	of	0	spaces	0	of	0	spaces

n.b. Lower number for w/c 7 Feb and w/c 14 Feb due to half term closures

7. **Remedial works:** What remedial work has been undertaken to improve ventilation generally across the LA estate?

Response: 8 high level window mechanisms to be replaced in Victorian primary.

8. **Operational mitigations:** Have users adopted operational strategies to generally improve ventilation? e.g. opening windows, purging at intervals, reducing occupancy

Response: Guidance to purge classrooms for 30 mins prior to use each day and windows should be opened at break and lunchtimes.
Number of schools needed to adjust number of people in classrooms

Part E: Poorly ventilated spaces and Forward Planning

9. **Problem spaces:** Of those spaces assessed, how many have reported CO2 consistently above 1,500 ppm after initial mitigating actions have been taken?
Example: 5/150 spaces would mean that 5 from the total of 150 assessed spaces have been found to be poorly ventilated.
Please note total number of assessed spaces (Y) will pre-populate each week from Q6 above.

Type of space	W/C 31st Jan				W/C 7th Feb				W/C 14th Feb				W/C 21st Feb			
LA ELC (inc. nursery classes)	0	of	144	spaces	0	of	144	spaces	1	of	144	spaces	1	of	144	spaces
Primary (exc. nursery classes)	12	of	494	spaces	12	of	494	spaces	12	of	494	spaces	12	of	494	spaces
Secondary	52	of	439	spaces	52	of	439	spaces	52	of	439	spaces	52	of	439	spaces
Special	0	of	9	spaces	0	of	9	spaces	0	of	9	spaces	0	of	9	spaces

10. **Planned operational mitigations:** What specific operational mitigations are planned to improve ventilation in spaces identified as being poorly ventilated? Please provide associated timescales.

Response: A number of the issues of consistently high levels of CO2 in secondary school are within a new building with mechanical ventilation (HVAC) and BMS monitoring so would not expect this to occur. Further investigation with contactor under system warranty arrangements
Additional issues with a number of PE spaces exceeding the recommended level (800ppm) - in one rural school the level exceeded 3000ppm - without options to easily ventilate. Considering completing additional ventilation modelling in these schools and reviewing options for additional natural ventilation or mechanical ventilation options. Modelling to be completed in Mar (where contractor availability) and assessing if remedial building works can be completed in term time or needs to delay until Easter or summer holiday.

11. **Planned remedial works:** What remedial work is planned to improve ventilation in spaces identified as being poorly ventilated? Please provide associated timescales.

Response: 1x Primary school awaiting specialist report on options to improve ventilation (estimate work will be complete during summer holidays).
Further 8 primary schools with classroom with CO2 levels under more further investigation. Determining requirement to undertake detailed modelling during March

Part F: Costs associated with implementing guidance

NB: Responses to this section will be used to justify draw down against the additional £5m funding announced in January 2022. Please therefore ensure this information is completed as fully and accurately as possible for audit purposes.

Learning Estate CO2 Monitoring Questionnaire

Feedback Return 3 – Four week reporting period from Monday 28th February to Friday 25th March

Please complete and return to **CO2@scottishfuturestrust.org.uk** by close of business on **Tuesday 29th March**
NB: Text in BLUE requires local authority input

Part A: Contact Details

Local Authority: Moray
Contact Person:
Contact Details:
Completion Date: 31-Mar-22

Part B: CO2 Monitors and Digital Modelling

1. **Devices:** How many CO2 monitoring devices are being utilised in LA settings and how many are on order?

Response:
Fixed Devices - In Use: 57
Fixed Devices - On Order: 0
Mobile Devices - In Use: 1029
Mobile Devices - On Order: 0

2. **Procurement:** Are there any issues with the procurement of CO2 monitors? **There are no issues with procurement. All devices ordered in Feb have been delivery and distributed**

Specification:
Delivery time:
Cost:

3. **Digital modelling:** Has digital modelling been used to assess spaces where CO2 monitoring may not be appropriate e.g. large volume spaces such as dining/PE halls?

Response: Digitally modelled 5 schools in 2020 - used to support development of intervention guidance across school estate. A further 3 schools are to be modelled in Apr - one school PE area persistently exceeding the CO2 threshold and 2 open plan schools to model ventilation and optimum areas for monitoring in the future. Reviewing option for further 6 schools which are reporting persistently high C02 levels - will have clarification for next report.

Part C: Registered day care of children services in the private and third sector

4. Have you made CO2 monitors available to registered day care of children services in the private and third sector?

Response: YES - most only require a single monitor, a small number have two

5. Please summarise any challenges in making CO2 monitors available to registered day care of children services in the private and third sector.

Response: No issues with making CO2 monitors available.

Part D: Building Assessment and Mitigating Actions

6. **Assessment**: How many learning, teaching and play spaces have been assessed using CO2 monitors? Please also provide the total number of spaces in your response.
Example: 150/200 spaces would mean that 150 from a total of 200 spaces have been assessed during the week.
Please note total number of spaces (Z) will pre-populate from week commencing 3rd January - any changes should be overwritten in the relevant week.

Type of space	W/C 28th Feb				W/C 7th Mar				W/C 14th Mar				W/C 21st Mar			
LA ELC (inc. nursery classes)	95	of	144	spaces	95	of	144	spaces	105	of	144	spaces	65	of	144	spaces
Primary (exc. nursery classes)	375	of	494	spaces	385	of	494	spaces	355	of	494	spaces	305	of	494	spaces
Secondary	370	of	439	spaces	439	of	439	spaces	439	of	439	spaces	366	of	439	spaces
Special	0	of	9	spaces	0	of	9	spaces	9	of	9	spaces	9	of	9	spaces

7. **Remedial works:** What remedial work has been undertaken to improve ventilation generally across the LA estate?

Response: No further remedial works complete this month - awaiting planned modeling and surveys

8. **Operational mitigations:** Have users adopted operational strategies to generally improve ventilation? e.g. opening windows, purging at intervals, reducing occupancy

Response: Guidance to purge classrooms for 30 mins prior to use each day and windows should be opened at break and lunchtimes - reinforcement of this message to coincide with the 1:1 deployment of additional monitors this month
Number of schools needed to adjust number of people in classrooms and teaching spaces.

Part E: Poorly ventilated spaces and Forward Planning

9. **Problem spaces:** Of those spaces assessed, how many have reported CO2 consistently above 1,500 ppm after initial mitigating actions have been taken?
Example: 5/150 spaces would mean that 5 from the total of 150 assessed spaces have been found to be poorly ventilated.
Please note total number of assessed spaces (Y) will pre-populate each week from Q6 above.

Type of space	W/C 28th Feb				W/C 7th Mar				W/C 14th Mar				W/C 21st Mar			
LA ELC (inc. nursery classes)	1	of	95	spaces	1	of	95	spaces	1	of	105	spaces	1	of	65	spaces
Primary (exc. nursery classes)	10	of	375	spaces	11	of	385	spaces	9	of	355	spaces	11	of	305	spaces
Secondary	4	of	370	spaces	4	of	439	spaces	4	of	439	spaces	4	of	366	spaces
Special	0	of	0	spaces	0	of	0	spaces	0	of	9	spaces	0	of	9	spaces

10. **Planned operational mitigations:** What specific operational mitigations are planned to improve ventilation in spaces identified as being poorly ventilated? Please provide associated timescales.

Response: Further issues with a number of PE spaces exceeding the recommended level (800ppm). As reported last month one rural school the level exceeded 3000ppm - without options to easily ventilate. Modelling of this school delayed until April due to services procurement process. Will review options for additional natural ventilation or mechanical ventilation options. In the interim guidance to school to reduce PE class sizes - warm weather this month has allowed more outdoor PE sessions.
A couple of primary schools are open plan design and some anxiety that ventilation in large space is not fully understood and unclear how many CO2 monitors to use in the area and where to position - considering further modelling to better inform on ventilation performance and advise installation.
A number of schools have windows with restrictors fitted (for Health and Safety purposes) that may be compromising ventilation efficiency and leading to high CO2 levels in some spaces. Further modelling may be required to fully understand issue and mitigation strategies.
All modelling to be completed Apr/May (dependent on contractor availability and access). Dependent on the scale and scope of mitigation works this will be planned before or during summer break.

11. **Planned remedial works:** What remedial work is planned to improve ventilation in spaces identified as being poorly ventilated? Please provide associated timescales.

Response: 1x Primary school awaiting specialist report on options to improve ventilation (estimate work will be complete during summer holidays). 2 x Primary Schools awaiting specialist report into ventilation efficiency and CO2 monitor installation
Further 6 primary schools with classroom with reported CO2 threshold levels exceeded in during Mar 22 are under more further investigation.
Following up with 1 x Privately operated nursery to determine action there intend to take and any support we can provide

Part F: Costs associated with implementing guidance

NB: Responses to this section will be used to justify draw down against the additional £5m funding announced in January 2022. Please therefore ensure this information is completed as fully and accurately as possible for audit purposes.

12. **Revenue and Capital Costs:** What costs have been incurred/are planned to carry out CO2 monitoring assessments and subsequent mitigations?
Where specific items listed below have been purchased to support remedial works, please provide figures for the numbers purchased and the unit costs.

Learning Estate CO2 Monitoring Questionnaire

Feedback Return 4 – Four week reporting period from Monday 28th March to Friday 22nd April

Please complete and return to **CO2@scottishfuturestrust.org.uk** by close of business on **Tuesday 26th April**
NB: Text in BLUE requires local authority input

Part A: Contact Details

Local Authority: Moray
Contact Person:
Contact Details:
Completion Date: 30-May-22

Part B: CO2 Monitors and Digital Modelling

1. **Devices:** How many CO2 monitoring devices are being utilised in LA settings and how many are on order?

Response:
Fixed Devices - In Use: 57
Fixed Devices - On Order: 0
Mobile Devices - In Use: 1029
Mobile Devices - On Order: 0

2. **Procurement:** Are there any issues with the procurement of CO2 monitors? There are no issues with procurement. All devices ordered in Feb have been delivery and distributed

Specification:
Delivery time:
Cost:

3. **Digital modelling:** Has digital modelling been used to assess spaces where CO2 monitoring may not be appropriate e.g. large volume spaces such as dining/PE halls?

Response: Digitally modelled 5 schools in 2020 - used to support development of intervention guidance across school estate. A further 3 schools are to be modelled in Apr - one school PE area persistently exceeding the CO2 threshold and 2 open plan schools to model ventilation and optimum areas for monitoring in the future. Reviewing option for further 6 schools which are reporting persistently high C02 levels.

Part C: Registered day care of children services in the private and third sector

4. Have you made CO2 monitors available to registered day care of children services in the private and third sector?

Response: YES - most only require a single monitor, a small number have two

5. Please summarise any challenges in making CO2 monitors available to registered day care of children services in the private and third sector.

Response: No issues with making CO2 monitors available.

Part D: Building Assessment and Mitigating Actions

6. **Assessment**: How many learning, teaching and play spaces have been assessed using CO2 monitors? Please also provide the total number of spaces in your response.
Example: 150/200 spaces would mean that 150 from a total of 200 spaces have been assessed during the week.
Please note total number of spaces (Z) will pre-populate from week commencing 3rd January - any changes should be overwritten in the relevant week.

Type of space	W/C 28th Mar				W/C 4th Apr				W/C 11th Apr				W/C 18th Apr			
LA ELC (inc. nursery classes)	76	of	144	spaces	0	of	144	spaces	0	of	144	spaces	149	of	144	spaces
Primary (exc. nursery classes)	477	of	494	spaces	0	of	494	spaces	0	of	494	spaces	519	of	494	spaces
Secondary	512	of	439	spaces	0	of	439	spaces	0	of	439	spaces	512	of	439	spaces
Special	0	of	9	spaces	0	of	9	spaces	0	of	9	spaces	5	of	9	spaces

7. **Remedial works:** What remedial work has been undertaken to improve ventilation generally across the LA estate?

Response: No further remedial works complete this month - awaiting planned modeling and surveys

8. **Operational mitigations:** Have users adopted operational strategies to generally improve ventilation? e.g. opening windows, purging at intervals, reducing occupancy

Response: Guidance to purge classrooms for 30 mins prior to use each day and windows should be opened at break and lunchtimes - reinforcement of this message to coincide with the 1:1 deployment of additional monitors this month
Number of schools needed to adjust number of people in classrooms and teaching spaces.

Part E: Poorly ventilated spaces and Forward Planning

9. **Problem spaces:** Of those spaces assessed, how many have reported CO2 consistently above 1,500 ppm after initial mitigating actions have been taken?
Example: 5/150 spaces would mean that 5 from the total of 150 assessed spaces have been found to be poorly ventilated.
Please note total number of assesed spaces (Y) will pre-populate each week from Q6 above.

Type of space	W/C 28th Mar				W/C 4th Apr				W/C 11th Apr				W/C 18th Apr			
LA ELC (inc. nursery classes)	0	of	76	spaces	0	of	0	spaces	0	of	0	spaces	9	of	149	spaces
Primary (exc. nursery classes)	25	of	477	spaces	0	of	0	spaces	0	of	0	spaces	11	of	519	spaces
Secondary	5	of	512	spaces	0	of	0	spaces	0	of	0	spaces	10	of	512	spaces
Special	0	of	0	spaces	0	of	0	spaces	0	of	0	spaces	0	of	5	spaces

10. **Planned operational mitigations:** What specific operational mitigations are planned to improve ventilation in spaces identified as being poorly ventilated? Please provide associated timescales.

Response: As reported previously one rural school PE hall regularly exceeds 3000ppm - without options to easily ventilate (asbestos issue with construction). Modelling of this school now planned and awaiting availability of contractor to support. Options remain for additional natural ventilation or mechanical ventilation options within the constraints of the other building. In the interim guidance remains for the school to reduce PE class sizes - the warmer summer weather has allowed more outdoor PE sessions.
A review of our open plan design schools has now identified areas for CO2 monitor positioning - and based on monitoring feedback will we consider further mitigation as required.
Previously reported 6 xprimary schools with classroom with reported CO2 threshold levels have been investigated and addtional gudiance on ventilation provided.

11. **Planned remedial works:** What remedial work is planned to improve ventilation in spaces identified as being poorly ventilated? Please provide associated timescales.

Response: Still awaiting specialist report 1x Primary School on options to improve ventilation (estimate work will be complete during summer holidays).
Still seeing weekly reports from schools with high levels requiring follow up but no remedial works as yet required. 2xPS and 1xSS may require ventilation windows to be replaced or some level of mechanical ventilation requirement (under more detailed investigation)
Planning in place to make deployed CO2 monitors more permenant - this includes wall mounting, fixed power connection rather than USB and monitor and cable protection. Expect this work to take up to 6 months to complete across the school estate.

Part F: Not used

Part G: Any Other Comments

Response: No reporting during the Easter holiday - Mon 4 Apr to Fri 15 Apr

Learning Estate CO2 Monitoring Questionnaire

Feedback Return 5 – Four week reporting period from Monday 25th April to Friday 20th May

Please complete and return to **CO2@scottishfuturestrust.org.uk** by close of business on **Tuesday 24th May**
NB: Text in BLUE requires local authority input

Part A: Contact Details

Local Authority: Moray
Contact Person:
Contact Details:
Completion Date: 30-May-22

Part B: CO2 Monitors and Digital Modelling

1. **Devices:** How many CO2 monitoring devices are being utilised in LA settings and how many are on order?

Response:
Fixed Devices - In Use: 57
Fixed Devices - On Order: 0
Mobile Devices - In Use: 1029
Mobile Devices - On Order: 0

2. **Procurement:** Are there any issues with the procurement of CO2 monitors? There are no issues with procurement. All devices ordered in Feb have been delivery and distributed

Specification:
Delivery time:
Cost:

3. **Digital modelling:** Has digital modelling been used to assess spaces where CO2 monitoring may not be appropriate e.g. large volume spaces such as dining/PE halls?

Response: Digitally modelled 5 schools in 2020 - used to support development of intervention guidance across school estate. A further 3 schools surveys in May - one school PE area persistently exceeding the CO2 threshold and 2 open plan schools to model ventilation and optimum areas for monitoring in the future. Further guidance issued on CO2 monitor placement. Review option for further 6 schools which are reporting persistently high C02 levels - will have clarification for next report.

Part C: Registered day care of children services in the private and third sector

4. Have you made CO2 monitors available to registered day care of children services in the private and third sector?

Response: YES - most only require a single monitor, a small number have two

5. Please summarise any challenges in making CO2 monitors available to registered day care of children services in the private and third sector.

Response: No issues with making CO2 monitors available.

Part D: Building Assessment and Mitigating Actions

6. **Assessment**: How many learning, teaching and play spaces have been assessed using CO2 monitors? Please also provide the total number of spaces in your response.
Example: 150/200 spaces would mean that 150 from a total of 200 spaces have been assessed during the week.
Please note total number of spaces (Z) will pre-populate from week commencing 3rd January - any changes should be overwritten in the relevant week.

Type of space	W/C 25th Apr				W/C 2nd May				W/C 9th May				W/C 16th May			
LA ELC (inc. nursery classes)	140	of	144	spaces	129	of	144	spaces	122	of	144	spaces	127	of	144	spaces
Primary (exc. nursery classes)	379	of	494	spaces	471	of	494	spaces	450	of	494	spaces	475	of	494	spaces
Secondary	196	of	439	spaces	541	of	439	spaces	384	of	439	spaces	541	of	439	spaces
Special	9	of	9	spaces	9	of	9	spaces	9	of	9	spaces	9	of	9	spaces

7. **Remedial works:** What remedial work has been undertaken to improve ventilation generally across the LA estate?

Response: No further remedial works complete this month - awaiting planned modelling and surveys

8. **Operational mitigations:** Have users adopted operational strategies to generally improve ventilation? e.g. opening windows, purging at intervals, reducing occupancy

Response: Guidance to purge classrooms for 30 mins prior to use each day and windows should be opened at break and lunchtimes - reinforcement of this message to coincide with the 1:1 deployment of additional monitors this month
Number of schools needed to adjust number of people in classrooms and teaching spaces.

Part E: Poorly ventilated spaces and Forward Planning

9. **Problem spaces:** Of those spaces assessed, how many have reported CO2 consistently above 1,500 ppm after initial mitigating actions have been taken?
Example: 5/150 spaces would mean that 5 from the total of 150 assessed spaces have been found to be poorly ventilated.
Please note total number of assessed spaces (Y) will pre-populate each week from Q6 above.

Type of space	W/C 25th Apr				W/C 2nd May				W/C 9th May				W/C 16th May			
LA ELC (inc. nursery classes)	1	of	140	spaces	0	of	129	spaces	0	of	122	spaces	1	of	127	spaces
Primary (exc. nursery classes)	11	of	379	spaces	6	of	471	spaces	12	of	450	spaces	13	of	475	spaces
Secondary	1	of	196	spaces	4	of	541	spaces	3	of	384	spaces	3	of	541	spaces
Special	0	of	9	spaces	0	of	9	spaces	0	of	9	spaces	0	of	9	spaces

10. **Planned operational mitigations:** What specific operational mitigations are planned to improve ventilation in spaces identified as being poorly ventilated? Please provide associated timescales.

Response: As reported previously one rural school PE hall regularly exceeds 3000ppm - without options to easily ventilate (asbestos issue with construction). Modelling of this school now planned and awaiting availability of contractor to support - 8-12 week lead-time reported. Expect any works to take place during summer holiday. Options remain for additional natural ventilation or mechanical ventilation options within the constraints of the other building. In the interim guidance remains for the school to reduce PE class sizes - the warmer summer weather has allowed more outdoor PE sessions.
Investigations continue for schools reporting issues - to date no significant issues identified and further guidance on ventilation issued. Main issues is around halls and lower 800ppm threshold for activities in these areas.

11. **Planned remedial works:** What remedial work is planned to improve ventilation in spaces identified as being poorly ventilated? Please provide associated timescales.

Response: Still awaiting specialist report 1x Primary School on options to improve ventilation (estimate work will be complete during summer holidays).
Still seeing weekly reports from schools with high levels requiring follow up but no remedial works as yet required. 2xPS and 1xSS may require ventilation windows to be replaced or some level of mechanical ventilation requirement (under more detailed investigation)
Work underway to make deployed CO2 monitors more permeant - this includes wall mounting, fixed power connection rather than USB and monitor and cable protection. Expect this work to take up to 6 months to complete across the school estate.

Part F: Not used

Part G: Any Other Comments

Response: N/A

Learning Estate CO2 Monitoring Questionnaire

Feedback Return 6 – Four week reporting period from Monday 23rd May to Friday 17th June

Please complete and return to **CO2@scottishfuturestrust.org.uk** by close of business on **Tuesday 21st June**
NB: Text in BLUE requires local authority input

Part A: Contact Details

Local Authority: Moray
Contact Person:
Contact Details:
Completion Date: 28-Jun-22

Part B: CO2 Monitors and Digital Modelling

1. **Devices:** How many CO2 monitoring devices are being utilised in LA settings and how many are on order?

Response:
Fixed Devices - In Use: 57
Fixed Devices - On Order: 0
Mobile Devices - In Use: 1029
Mobile Devices - On Order: 0

2. **Procurement:** Are there any issues with the procurement of CO2 monitors? There are no issues with procurement. All devices ordered in Feb have been delivery and distributed

Specification: 57
Delivery time: 0
Cost: 1031
0

3. **Digital modelling:** Has digital modelling been used to assess spaces where CO2 monitoring may not be appropriate e.g. large volume spaces such as dining/PE halls?

Response: Digitally modelled 5 schools in 2020 - used to support development of intervention guidance across school estate. A further 3 schools surveyed in May - one school PE area persistently exceeding the CO2 threshold and 2 open plan schools to model ventilation and optimum areas for monitoring in the future. Reviewed option for further 6 schools which were reporting persistently high C02 levels - assessed as not required.

Part C: Registered day care of children services in the private and third sector

4. Have you made CO2 monitors available to registered day care of children services in the private and third sector?

Response: YES - most only require a single monitor, a small number have two

5. Please summarise any challenges in making CO2 monitors available to registered day care of children services in the private and third sector.

Response: No issues with making CO2 monitors available.

Part D: Building Assessment and Mitigating Actions

6. **Assessment**: How many learning, teaching and play spaces have been assessed using CO2 monitors? Please also provide the total number of spaces in your response.
Example: 150/200 spaces would mean that 150 from a total of 200 spaces have been assessed during the week.
Please note total number of spaces (Z) will pre-populate from week commencing 3rd January - any changes should be overwritten in the relevant week.

Type of space	W/C 23rd May				W/C 30th May				W/C 6th June				W/C 13th June			
LA ELC (inc. nursery classes)	99	of	144	spaces	123	of	144	spaces	112	of	144	spaces	115	of	144	spaces
Primary (exc. nursery classes)	392	of	494	spaces	394	of	494	spaces	483	of	494	spaces	494	of	494	spaces
Secondary	439	of	439	spaces	439	of	439	spaces	439	of	439	spaces	439	of	439	spaces
Special	9	of	9	spaces	9	of	9	spaces	9	of	9	spaces	9	of	9	spaces

7. **Remedial works:** What remedial work has been undertaken to improve ventilation generally across the LA estate?

Response: No further remedial works complete this month. Minor works planned during school holidays at a least one school - primary school with standalone 1940s gym hall will consistently high CO2 readings - additional ventilation options to be implemented

8. **Operational mitigations:** Have users adopted operational strategies to generally improve ventilation? e.g. opening windows, purging at intervals, reducing occupancy

Response: Guidance remains to purge classrooms for 30 mins prior to use each day and windows should be opened at break and lunchtimes.

Part E: Poorly ventilated spaces and Forward Planning

9. **Problem spaces:** Of those spaces assessed, how many have reported CO2 consistently above 1,500 ppm after initial mitigating actions have been taken?
Example: 5/150 spaces would mean that 5 from the total of 150 assessed spaces have been found to be poorly ventilated.
Please note total number of assesed spaces (Y) will pre-populate each week from Q6 above.

Type of space	W/C 23rd May				W/C 30th May				W/C 6th June				W/C 13th June			
LA ELC (inc. nursery classes)	0	of	99	spaces	0	of	123	spaces	0	of	112	spaces	1	of	115	spaces
Primary (exc. nursery classes)	11	of	392	spaces	6	of	394	spaces	8	of	483	spaces	10	of	494	spaces
Secondary	3	of	439	spaces	1	of	439	spaces	1	of	439	spaces	0	of	439	spaces
Special	0	of	9	spaces	0	of	9	spaces	0	of	9	spaces	0	of	9	spaces

10. **Planned operational mitigations:** What specific operational mitigations are planned to improve ventilation in spaces identified as being poorly ventilated? Please provide associated timescales.

Response: Advice to be issued after summer holidays to schools with windows fitted with opening restrictors (normally for H&S reasons) to facilitate these devices to be safely circumvented in circumstances of high CO2 readings (known impact at 7 schools)

11. **Planned remedial works:** What remedial work is planned to improve ventilation in spaces identified as being poorly ventilated? Please provide associated timescales.

Response: As reported previously one rural school PE hall regularly exceeds 3000ppm - without options to easily ventilate (asbestos issue with construction). Survey of school now completed and contractor planned on site during summer holiday. Additional natural ventilation rather than mechanical ventilation options are planned within the constraints of the other building. Interim guidance remains for the school to reduce PE class sizes - the warmer summer weather has allowed more outdoor PE sessions.
Investigations continue for schools reporting issues - to date no significant issues identified and further guidance on ventilation issued. Main issues is around halls and lower 800ppm threshold for activities in these areas.
Still seeing weekly reports from schools with high levels requiring follow up but no remedial works as yet required. 2xPS and 1xSS may require ventilation windows to be replaced or some level of mechanical ventilation requirement (under more detailed investigation)

Part F: Not used

Part G: Any Other Comments

Response: None