

ADVANCED ENERGY CODES PROGRAM: PROCESS EVALUATION PHASE II APPENDICES

Final

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Appendix A: Survey Instruments

NYSERDA Codes - Design Professionals - Trainees

Welcome

The New York State Energy Research and Development Authority (NYSERDA) is conducting a study of practices related to implementation of the October 2016 updates to the Energy Conservation Construction Code of New York State and the role of design professionals. Throughout the survey, we will refer to the October 2016 updates to the Energy Conservation Construction Code of New York State as the “2016 Energy Code.”

The purpose of this survey is to inform NYSERDA’s energy codes trainings and related programs. The survey will not be used for code enforcement purposes. Industrial Economics, as an independent research firm, in conjunction with NYSERDA’s Performance Management staff, will keep the information you provide, including your name and contact information, confidential to the extent permitted by law. NYSERDA’s analysis will use summary level data, and will not identify individual respondents or firms without obtaining written approval from quoted sources.

This survey should take about 10 minutes to complete. You do not need to conduct any research to respond to this survey.

NYSERDA’s records indicate that you attended training on the 2016 Energy Code between April 2015 and June 2016. The questions in this survey ask you to describe what, if any, changes you have made in your work as a design professional due to the information learned through training.

Please answer the following questions to the best of your ability, and choose one response for each multiple choice question unless otherwise noted.

Part I. Background

1. Does your work involve residential buildings?

Yes

No

2. Does your work involve commercial buildings?

Yes

No

NYSERDA Codes - Design Professionals - Trainees

Part II. General Familiarity with the 2016 Energy Code

Please select “N/A” for any questions not relevant to your work. For example, if you do not work on residential buildings, select “N/A” for the questions related to the residential energy code.

3. Please rate your understanding of the following on a scale of one to five, where one is poor, and five is excellent.

	1 - Poor	2 - Fair	3 - Good	4 - Very Good	5 - Excellent	N/A
Energy Code overall	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2016 Residential Energy Code updates	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2016 Commercial Energy Code updates	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

4. Please rate your level of confidence in applying the following to your designs on a scale of one to five, where one is not at all confident, and five is extremely confident.

	1 - Not at all confident	2 - Slightly confident	3 - Somewhat confident	4 - Moderately confident	5 - Extremely confident	N/A
2016 Residential Energy Code	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2016 Commercial Energy Code	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

5. Would you feel comfortable describing how to comply with the 2016 **Residential** Energy Code to one of your colleagues or business partners?

- Yes
- No
- N/A

Why or why not?

6. Would you feel comfortable describing how to comply with the 2016 **Commercial** Energy Code to one of your colleagues or business partners?

- Yes
- No
- N/A

Why or why not?

7. On a typical project, how do you use the Energy Code to set design objectives? Please respond separately for residential and commercial projects.

	Set design objectives early	Reference for compliance later	Both - set design objectives early and reference for compliance later	Depends on the project	N/A
Residential project	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Commercial project	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

8. Please rate how important a role the tradeoffs between different building systems play in your designs on a scale from one to five, where one is not at all important, and five is extremely important. For example, in many buildings, increasing the insulation levels and overall tightness of the envelope, which may increase construction costs, can reduce the HVAC system size, which may decrease construction costs. Please respond separately for residential and commercial designs.

	1 - Not at all important	2 - Slightly important	3 - Somewhat important	4 - Moderately important	5 - Extremely important	N/A
Residential designs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Commercial designs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

9. Please rate your agreement with the following statements about the NYSERDA training you received on a scale of one to five, where one is strongly disagree, and five is strongly agree.

	1 - Strongly disagree	2 - Disagree	3 - Neither agree nor disagree	4 - Agree	5 - Strongly agree
I have applied much of the training content to my job.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The training has helped me do my job better.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have changed some aspects of my work to apply the training.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

NYSERDA Codes - Design Professionals - Trainees

Part III. Use of Design Tools and Services

10. In general, **before** you attended the NYSERDA training, did you use plan review services when designing buildings? Please respond separately for residential and commercial buildings.

	Yes	No	N/A	Don't Know
Residential buildings	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Commercial buildings	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

11. In general, **after** you attended the NYSERDA training, do you use plan review services when designing buildings? Please respond separately for residential and commercial buildings.

	Yes	No	N/A	Don't Know
Residential buildings	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Commercial buildings	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

12. On a scale of one to five, where one is never and five is always, how often did you receive Energy Code objections during plan review (if used) or inspection, before and after you attended the NYSERDA training?

	1 - Never	2 - Rarely	3 - Sometimes	4 - Often	5 - Always	Don't Know
Received energy code objections before NYSERDA training	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Received energy code objections after NYSERDA training	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

13. **Before** you attended the NYSERDA training, did you use compliance software tools, such as RESCheck or COMCheck, to show compliance with the Energy Code?

- Yes - RESCheck
- Yes - COMCheck
- No
- Don't Know
- Yes - other (please specify)

14. **After** you attended the NYSERDA training, do you use compliance software tools, such as RESCheck or COMCheck, to show compliance with the Energy Code?

- Yes - RESCheck
- Yes - COMCheck
- No
- Don't Know
- Yes - other (please specify)

15. If you use compliance software tools, what percentage above code minimums did your projects typically show **before** you attended the NYSERDA training? You can estimate using a range or average.

- Don't know
- N/A
- Percentage (fill in)

16. If you use compliance software tools, what percentage above code minimums did your projects typically show **after** you attended the NYSERDA training? You can estimate using a range or average.

- Don't know
- N/A
- Percentage (fill in)

17. **Before** you attended the NYSERDA training, did you or your firm use performance-based energy modeling, such as REMRate or EnergyGauge?

- Yes - REMRate
- Yes - EnergyGauge
- No
- Don't know
- Yes - other (please specify)

18. **After** you attended the NYSERDA training, do you or your firm use performance-based energy modeling, such as REMRate or EnergyGauge?

- Yes - REMRate
- Yes - EnergyGauge
- No
- Don't know
- Yes - other (please specify)

19. If you or your firm use performance-based energy modeling, what percentage below the baseline did your projects typically show **before** you attended the NYSERDA training? You can estimate using a range or average.

- Don't know
- N/A
- Percentage (fill in)

20. If you or your firm use performance-based energy modeling, what percentage below the baseline did your projects typically show **after** you attended the NYSERDA training? You can estimate using a range or average.

- Don't know
- N/A
- Percentage (fill in)

NYSERDA Codes - Design Professionals - Trainees

Part IV. Design Team Communication

21. In general, on a scale of one to five, where one is never and five is always, how often do you communicate with building contractors and HVAC and lighting designers about energy use on your projects?

	1 - Never	2 - Rarely	3 - Sometimes	4 - Often	5 - Always
Building contractors	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
HVAC and lighting designers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

22. Have your communications with contractors about energy use changed since the NYSERDA training?

- Yes
 No

If yes, how?

23. In general, **before** you attended the NYSERDA training, on a scale of one to five, where one is never and five is always, how often did you communicate with contractors to ensure that vapor retarders, continuous air barriers, and envelope insulation were installed properly when you were working on **residential** buildings?

	1 - Never	2 - Rarely	3 - Sometimes	4 - Often	5 - Always	Don't Know	N/A
Vapor retarders	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Continuous air barriers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Envelope insulation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

24. In general, **after** you attended the NYSERDA training, on a scale of one to five, where one is never and five is always, how often do you communicate with contractors to ensure that vapor retarders, continuous air barriers, and envelope insulation are installed properly when you are working on **residential** buildings?

	1 - Never	2 - Rarely	3 - Sometimes	4 - Often	5 - Always	Don't Know	N/A
Vapor retarders	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Continuous air barriers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Envelope insulation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

25. In general, **before** you attended the NYSERDA training, on a scale of one to five, where one is never and five is always, how often did you communicate with contractors to ensure that continuous air barriers and envelope insulation were installed properly when you were working on **commercial** buildings?

	1 - Never	2 - Rarely	3 - Sometimes	4 - Often	5 - Always	Don't Know	N/A
Continuous air barriers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Envelope insulation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

26. In general, **after** you attended the NYSERDA training, on a scale of one to five, where one is never and five is always, how often do you communicate with contractors to ensure that continuous air barriers and envelope insulation are installed properly when you are working on **commercial** buildings?

	1 - Never	2 - Rarely	3 - Sometimes	4 - Often	5 - Always	Don't Know	N/A
Continuous air barriers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Envelope insulation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Part V. Process Changes

27. Have you added any new information to, or changed the formatting of your drawings or supporting documentation for **residential** buildings due to the requirements of the 2016 Energy Code?

	Yes	No	N/A
Added new information	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Changed the formatting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

28. Have you added any new information to, or changed the formatting of your drawings or supporting documentation for **commercial** buildings due to the requirements of the 2016 Energy Code?

	Yes	No	N/A
Added new information	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Changed the formatting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

29. Since implementation of the 2016 Energy Code, have you started using different compliance paths from the path(s) you used to use?

- Yes
- No

If yes, please explain.

Part VI. Implementation of Specific Provisions

This section is designed to understand your implementation of specific Energy Code provisions. For each provision, please indicate if you incorporate the provision into your building designs, if you do not incorporate the provision, or if incorporating the provision is the responsibility of a separate entity.

For provisions that you implement, please indicate whether you began incorporating them before or after the NYSERDA training you received.

As a reminder, the purpose of this survey is to inform NYSERDA's energy codes trainings and related programs. The survey will not be used for code enforcement purposes.

30. Do you incorporate the following provisions into your **residential** building designs?

	Yes - incorporated before training	Yes - began incorporating after training	No - do not incorporate	No - provision is the responsibility of a separate entity	Don't know	N/A
A continuous air barrier shall be provided throughout the building thermal envelope. Breaks or joints in the air barrier shall be sealed.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2016 Energy Code-required levels of ductwork and piping insulation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
All recessed luminaires installed in the building thermal envelope shall be IC-rated and labeled as having an air leakage rate not more than 2.0 cfm (0.944 L/s). All recessed luminaires shall be sealed with a gasket or caulk.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Proper class of vapor retarders provided in interior side of frame walls (except zone 4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Not using building cavities as ducts or plenums, including as returns	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Heating and cooling equipment shall be sized in accordance with ACCA Manual S based on building loads calculated in accordance with ACCA Manual J or other approved heating and cooling calculation methodologies.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ventilation shall be provided that meets the International Residential Code or International Mechanical Code, or other approved means of ventilation. Outdoor air intakes and exhausts shall have dampers that close when the system is not operating.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

31. Do you incorporate the following provisions into your **commercial** building designs?

	Yes - incorporated before training	Yes - began incorporating after training	No - do not incorporate	No - provision is the responsibility of a separate entity	Don't know	N/A
A continuous air barrier shall be provided throughout the building thermal envelope. Breaks or joints in the air barrier shall be sealed.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2016 Energy Code-required levels of ductwork and piping insulation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
All recessed luminaires installed in the building thermal envelope shall be IC-rated and labeled as having an air leakage rate not more than 2.0 cfm (0.944 L/s). All recessed luminaires shall be sealed with a gasket or caulk.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Day-lit spaces (where vertical fenestration area is 30-40% of the gross above-grade wall area or skylight area is 3-5% of the gross roof area) have separate controls from general lighting controls or are automatically controlled with daylight sensors	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Each cooling system shall include either an air or water economizer.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ventilation, either natural or mechanical, shall be provided in accordance with Ch.4 of the International Mechanical Code. Mechanical ventilation shall provide the capability to reduce the outdoor air supply to the minimum required by Ch.4 of the IMC	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Part VII. Open-Ended Questions

32. What are the most significant changes you have made to your designs related to the 2016 Energy Code? Please provide up to three examples.

Example 1

Example 2

Example 3

33. Have you faced any barriers to implementing changes related to the 2016 Energy Code?

Yes

No

34. If you have faced barriers to implementing changes related to the 2016 Energy Code, what barriers have you faced? (Select all that apply)

Cost

Client preferences

Interaction with contractors

N/A

Other (please specify)

35. If you have faced barriers to implementing changes related to the 2016 Energy Code, have you attempted to address these barriers?

Yes

No

N/A

If yes, how?

If no, why not?

36. Is there anything you have tried to implement to comply with the 2016 Energy Code that is not working?

37. What would you say was the most useful aspect of the NYSERDA training in practice?

38. Are there other changes you have made since implementation of the 2016 Energy Code that were not addressed in this survey? If yes, please explain.

NYSERDA Codes - Design Professionals - Non-Trainees

Welcome

The New York State Energy Research and Development Authority (NYSERDA) is conducting a study of practices related to implementation of the October 2016 updates to the Energy Conservation Construction Code of New York State and the role of design professionals. Throughout the survey, we will refer to the October 2016 updates to the Energy Conservation Construction Code of New York State as the “2016 Energy Code.”

The purpose of this survey is to inform NYSERDA’s energy codes trainings and related programs. The survey will not be used for code enforcement purposes. Industrial Economics, as an independent research firm, in conjunction with NYSERDA’s Performance Management staff, will keep the information you provide, including your name and contact information, confidential to the extent permitted by law. NYSERDA’s analysis will use summary level data, and will not identify individual respondents or firms without obtaining written approval from quoted sources.

This survey should take about 10 minutes to complete. You do not need to conduct any research to respond to this survey.

Please answer the following questions to the best of your ability, and choose one response for each multiple choice question unless otherwise noted.

NYSERDA Codes - Design Professionals - Non-Trainees

Part I. Background

1. Did you attend any formal training on the 2016 Energy Code?

Yes

No

2. If you attended formal training, what type of training (e.g. online versus in person), and which organization provided the training?

Training type

Organization

3. In the past year, have you worked professionally on at least one project in New York State?

Yes

No

4. Does your work involve residential buildings?

Yes

No

5. Does your work involve commercial buildings?

Yes

No

NYSERDA Codes - Design Professionals - Non-Trainees

Part II. General Familiarity with the 2016 Energy Code

Please select “N/A” for any questions not relevant to your work. For example, if you do not work on residential buildings, select “N/A” for the questions related to the residential energy code.

6. Please rate your understanding of the following on a scale of one to five, where one is poor, and five is excellent.

	1 - Poor	2 - Fair	3 - Good	4 - Very Good	5 - Excellent	N/A
Energy Code overall	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2016 Residential Energy Code updates	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2016 Commercial Energy Code updates	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

7. Please rate your level of confidence in applying the following to your designs on a scale of one to five, where one is not at all confident, and five is extremely confident.

	1 - Not at all confident	2 - Slightly confident	3 - Somewhat confident	4 - Moderately confident	5 - Extremely confident	N/A
2016 Residential Energy Code	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2016 Commercial Energy Code	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

8. Would you feel comfortable describing how to comply with the 2016 **Residential** Energy Code to one of your colleagues or business partners?

- Yes
- No
- N/A

Why or why not?

9. Would you feel comfortable describing how to comply with the 2016 **Commercial** Energy Code to one of your colleagues or business partners?

- Yes
- No
- N/A

Why or why not?

10. On a typical project, how do you use the Energy Code to set design objectives? Please respond separately for residential and commercial projects.

	Set design objectives early	Reference for compliance later	Both - set design objectives early and reference for compliance later	Depends on the project	N/A
Residential project	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Commercial project	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

11. Please rate how important a role the tradeoffs between different building systems play in your designs on a scale from one to five, where one is not at all important, and five is extremely important. For example, in many buildings, increasing the insulation levels and overall tightness of the envelope, which may increase construction costs, can reduce the HVAC system size, which may decrease construction costs. Please respond separately for residential and commercial designs.

	1 - Not at all important	2 - Slightly important	3 - Somewhat important	4 - Moderately important	5 - Extremely important	N/A
Residential designs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Commercial designs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Part III. Use of Design Tools and Services

12. In general, do you use plan review services when designing buildings? Please respond separately for residential and commercial buildings.

	Yes	No	N/A
Residential buildings	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Commercial buildings	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

13. In the past year, on a scale of one to five, where one is never and five is always, how often have you received Energy Code objections during plan review (if used) or inspection?

	1 - Never	2 - Rarely	3 - Sometimes	4 - Often	5 - Always
Received energy code objections in the past year	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

14. Do you use compliance software tools, such as RESCheck or COMCheck, to show compliance with the Energy Code?

- Yes - RESCheck
- Yes - COMCheck
- No
- Yes - other (please specify)

15. If you use compliance software tools, what percentage above code minimums do your projects typically show? You can estimate using a range or average.

- Don't know
- N/A
- Percentage (fill in)

16. Do you or your firm use performance-based energy modeling, such as REMRate or EnergyGauge?

- Yes - REMRate
- Yes - EnergyGauge
- No
- Don't know
- Yes - other (please specify)

17. If you or your firm use performance-based energy modeling, what percentage below the baseline do your designs typically show? You can estimate using a range or average.

- Don't know
- N/A
- Percentage (fill in)

NYSERDA Codes - Design Professionals - Non-Trainees

Part IV. Design Team Communication

18. In general, on a scale of one to five, where one is never and five is always, how often do you communicate with building contractors and HVAC and lighting designers about energy use on your projects?

	1 - Never	2 - Rarely	3 - Sometimes	4 - Often	5 - Always
Building contractors	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
HVAC and lighting designers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

19. In general, on a scale of one to five, where one is never and five is always, how often do you communicate with contractors to ensure that vapor retarders, continuous air barriers, and envelope insulation are installed properly when you are working on **residential** buildings?

	1 - Never	2 - Rarely	3 - Sometimes	4 - Often	5 - Always	N/A
Vapor retarders	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Continuous air barriers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Envelope insulation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

20. In general, on a scale of one to five, where one is never and five is always, how often do you communicate with contractors to ensure that continuous air barriers and envelope insulation are installed properly when you are working on **commercial** buildings?

	1 - Never	2 - Rarely	3 - Sometimes	4 - Often	5 - Always	N/A
Continuous air barriers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Envelope insulation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Part V. Process Changes

21. Have you added any new information to, or changed the formatting of your drawings or supporting documentation for **residential** buildings due to the requirements of the 2016 Energy Code?

	Yes	No	N/A
Added new information	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Changed the formatting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

22. Have you added any new information to, or changed the formatting of your drawings or supporting documentation for **commercial** buildings due to the requirements of the 2016 Energy Code?

	Yes	No	N/A
Added new information	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Changed the formatting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

23. Since implementation of the 2016 Energy Code, have you started using different compliance paths from the path(s) you used to use?

- Yes
- No

If yes, please explain.

NYSERDA Codes - Design Professionals - Non-Trainees

Part VI. Implementation of Specific Provisions

This section is designed to understand your implementation of specific Energy Code provisions. For each provision, please indicate if you incorporate the provision into your building designs, if you do not incorporate the provision, or if incorporating the provision is the responsibility of a separate entity.

As a reminder, the purpose of this survey is to inform NYSERDA's energy codes trainings and related programs. The survey will not be used for code enforcement purposes.

24. Do you incorporate the following provisions into your **residential** building designs?

	Yes - incorporate	No - do not incorporate	No - provision is the responsibility of a separate entity	Don't know	N/A
A continuous air barrier shall be provided throughout the building thermal envelope. Breaks or joints in the air barrier shall be sealed.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2016 Energy Code-required levels of ductwork and piping insulation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
All recessed luminaires installed in the building thermal envelope shall be IC-rated and labeled as having an air leakage rate not more than 2.0 cfm (0.944 L/s). All recessed luminaires shall be sealed with a gasket or caulk.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Proper class of vapor retarders provided in interior side of frame walls (except zone 4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Not using building cavities as ducts or plenums, including as returns	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Heating and cooling equipment shall be sized in accordance with ACCA Manual S based on building loads calculated in accordance with ACCA Manual J or other approved heating and cooling calculation methodologies.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ventilation shall be provided that meets the International Residential Code or International Mechanical Code, or other approved means of ventilation. Outdoor air intakes and exhausts shall have dampers that close when the system is not operating.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

25. Do you incorporate the following provisions into your **commercial** building designs?

	Yes - incorporate	No - do not incorporate	No - provision is the responsibility of a separate entity	Don't know	N/A
A continuous air barrier shall be provided throughout the building thermal envelope. Breaks or joints in the air barrier shall be sealed.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2016 Energy Code-required levels of ductwork and piping insulation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
All recessed luminaires installed in the building thermal envelope shall be IC-rated and labeled as having an air leakage rate not more than 2.0 cfm (0.944 L/s). All recessed luminaires shall be sealed with a gasket or caulk.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Day-lit spaces (where vertical fenestration area is 30-40% of the gross above-grade wall area or skylight area is 3-5% of the gross roof area) have separate controls from general lighting controls or are automatically controlled with daylight sensors	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Each cooling system shall include either an air or water economizer.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ventilation, either natural or mechanical, shall be provided in accordance with Ch.4 of the International Mechanical Code. Mechanical ventilation shall provide the capability to reduce the outdoor air supply to the minimum required by Ch.4 of the IMC	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Part VII. Open-Ended Questions

26. What are the most significant changes you have made to your designs related to the 2016 Energy Code? Please provide up to three examples.

Example 1

Example 2

Example 3

27. Have you faced any barriers to implementing changes related to the 2016 Energy Code?

Yes

No

28. If you have faced barriers to implementing changes related to the 2016 Energy Code, what barriers have you faced? (Select all that apply)

Cost

Client preferences

Interaction with contractors

N/A

Other (please specify)

29. If you have faced barriers to implementing changes related to the 2016 Energy Code, have you attempted to address these barriers?

Yes

No

N/A

If yes, how?

If no, why not?

30. Is there anything you have tried to implement to comply with the 2016 Energy Code that is not working?

31. Are there other changes you have made since implementation of the 2016 Energy Code that were not addressed in this survey? If yes, please explain.

Welcome

The New York State Energy Research and Development Authority (NYSERDA) is conducting a study of practices related to implementation of the October 2016 updates to the Energy Conservation Construction Code of New York State and the role of code enforcement officials. Throughout the survey, we will refer to the October 2016 updates to the Energy Conservation Construction Code of New York State as the “2016 Energy Code.” This survey focuses on updates to the commercial building code.

The purpose of this survey is to inform NYSERDA’s energy codes trainings and related programs. The survey will not be used for code enforcement purposes. Industrial Economics, as an independent research firm, in conjunction with NYSERDA’s Performance Management staff, will keep the information you provide, including your name and contact information, confidential to the extent permitted by law. NYSERDA’s analysis will use summary level data, and will not identify individual respondents or firms without obtaining written approval from quoted sources.

This survey should take no more than 10 minutes to complete. You do not need to conduct any research to respond to this survey.

NYSERDA’s records indicate that you attended training on the 2016 Energy Code between April 2015 and June 2016. The questions in this survey ask you to describe what, if any, changes you have made in your work as a code official due to the information learned through training.

Please answer the following questions to the best of your ability, and choose one response for each multiple choice question unless otherwise noted.

Part I. Background

1. Does your work involve commercial buildings?

Yes

No

2. Do you conduct plan reviews? If you do not personally conduct plan reviews but instead use a third-party, please select "No."

Yes

No

3. Do you conduct building inspections? If you do not personally conduct building inspections but instead use a third-party, please select "No."

Yes

No

4. In which municipalities do you work?

NYSERDA Codes - Code Officials - Trainees

Part II. General Familiarity with the 2016 Energy Code

5. Please rate your understanding of the following on a scale of one to five, where one is poor and five is excellent.

	1 - Poor	2 - Fair	3 - Good	4 - Very Good	5 - Excellent
Energy Code overall	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2016 Commercial Energy Code updates	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

6. How would you rate your level of confidence in enforcing the 2016 Commercial Energy Code, on a scale of one to five, where one is not at all confident, and five is extremely confident?

1 - Not at all confident 2 - Slightly confident 3 - Somewhat confident 4 - Moderately confident
 5 - Extremely confident

7. Would you feel comfortable describing how to comply with the 2016 Commercial Energy Code to one of your colleagues or others in the design and construction communities?

Yes
 No

Why or why not?

8. Please rate your agreement with the following statements about the NYSERDA training you received on a scale of one to five, where one is strongly disagree, and five is strongly agree.

	1 - Strongly disagree	2 - Disagree	3 - Neither agree nor disagree	4 - Agree	5 - Strongly agree
I have applied much of the training content to my job.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The training has helped me do my job better.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have changed some aspects of my work to apply the training.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Part III. Compliance Paths

9. Please rate your comfort level assessing compliance via the following commercial compliance paths on a scale of one to five, where one is very uncomfortable, and five is very comfortable.

	1 - Very uncomfortable	2 - Uncomfortable	3 - Neutral	4 - Comfortable	5 - Very comfortable
ASHRAE 90.1	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Prescriptive	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Total building performance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Part IV. Inspection Practices

This section is designed to understand whether and how often you check to ensure that specific measures have been installed properly during your inspections. As a reminder, the purpose of this survey is to inform NYSERDA's energy codes trainings and related programs. The survey will not be used to evaluate individual code enforcement programs or officials.

Please select "N/A" if you do not conduct inspections.

10. In general, during inspections for commercial buildings, how often did you do the following **before** you attended the NYSERDA training, on a scale of one to five, where one is never and five is always?

	1 - Never	2 - Rarely	3 - Sometimes	4 - Often	5 - Always	Don't Know	N/A
Check to ensure that continuous air barriers are installed properly	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Check to ensure envelope insulation is installed properly	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Require blower door testing (for buildings less than 50,000 square feet)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

11. In general, during inspections for commercial buildings, how often do you do the following **after** you attended the NYSERDA training, on a scale of one to five, where one is never and five is always?

	1 - Never	2 - Rarely	3 - Sometimes	4 - Often	5 - Always	Don't Know	N/A
Check to ensure that continuous air barriers are installed properly	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Check to ensure envelope insulation is installed properly	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Require blower door testing (for buildings less than 50,000 square feet)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Part V. Review and Inspection of Specific Provisions

This section is designed to understand your review of specific Energy Code provisions for commercial buildings. For each provision, please indicate if you check the provision in commercial building plan reviews and inspections, if you do not check the provision, or if checking the provision is the responsibility of a separate entity.

For each provision that you check for, please indicate whether you began checking them before or after the NYSERDA training you received.

As a reminder, the purpose of this survey is to inform NYSERDA's energy codes trainings and related programs. The survey will not be used to evaluate individual code enforcement programs or officials.

Please select "N/A" for any questions not relevant to your work. For example, if you do not conduct inspections, select "N/A" for the questions related to inspections.

12. Do you check for the following provisions in commercial building plan reviews?

	Yes – checked for provision before training	Yes – began checking for provision after training	No – do not check for provision	No - provision is the responsibility of a separate entity	Don't know	N/A
A continuous air barrier shall be provided throughout the building thermal envelope. Breaks or joints in the air barrier shall be sealed.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2016 Energy Code-required levels of ductwork and piping insulation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
All recessed luminaires installed in the building thermal envelope shall be IC-rated and labeled as having an air leakage rate not more than 2.0 cfm (0.944 L/s). All recessed luminaires shall be sealed with a gasket or caulk.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Day-lit spaces (where vertical fenestration area is 30-40% of the gross above-grade wall area or skylight area is 3-5% of the gross roof area) have separate controls from general lighting controls or are automatically controlled with daylight sensors	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2016 Energy Code-required space-specific lighting power density (LPD)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Each cooling system shall include either an air or water economizer.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ventilation, either natural or mechanical, shall be provided in accordance with Ch.4 of the International Mechanical Code. Mechanical ventilation shall provide the capability to reduce the outdoor air supply to the minimum required by Ch.4 of the IMC	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

13. Do you check for the following provisions in commercial building inspections?

	Yes – checked for provision before training	Yes – began checking for provision after training	No – do not check for provision	No - provision is the responsibility of a separate entity	Don't know	N/A
A continuous air barrier shall be provided throughout the building thermal envelope. Breaks or joints in the air barrier shall be sealed.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2016 Energy Code-required levels of ductwork and piping insulation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
All recessed luminaires installed in the building thermal envelope shall be IC-rated and labeled as having an air leakage rate not more than 2.0 cfm (0.944 L/s). All recessed luminaires shall be sealed with a gasket or caulk.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Day-lit spaces (where vertical fenestration area is 30-40% of the gross above-grade wall area or skylight area is 3-5% of the gross roof area) have separate controls from general lighting controls or are automatically controlled with daylight sensors	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2016 Energy Code-required space-specific lighting power density (LPD)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Each cooling system shall include either an air or water economizer.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ventilation, either natural or mechanical, shall be provided in accordance with Ch.4 of the International Mechanical Code. Mechanical ventilation shall provide the capability to reduce the outdoor air supply to the minimum required by Ch.4 of the IMC	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Part VI. Open-Ended Questions

14. What are the most significant changes you have made to your **plan reviews** related to the 2016 Energy Code? Please provide up to three examples. (If you do not conduct plan reviews, please fill in the first text box with "Not Applicable.")

Example 1

Example 2

Example 3

15. What are the most significant changes you have made to your **building inspections** related to the 2016 Energy Code? Please provide up to three examples. (If you do not conduct inspections, please fill in the first text box with "Not Applicable.")

Example 1

Example 2

Example 3

16. Have you faced any barriers to implementing changes related to the 2016 Energy Code?

Yes

No

17. If you have faced barriers to implementing changes related to the 2016 Energy Code, what barriers have you faced? (Select all that apply)

Time

Economic considerations

Political pressure

Technical feasibility

N/A

Other (please specify)

18. If you have faced barriers to implementing changes related to the 2016 Energy Code, have you attempted to address these barriers?

- Yes
- No
- N/A

If yes, how?

If no, why not?

19. Is there anything you have tried to implement **inplan reviews** to ensure compliance with the 2016 Energy Code that is not working? (If you do not conduct plan reviews, please fill in the text box with "Not Applicable.")

20. Is there anything you have tried to implement **inbuilding inspections** to ensure compliance with the 2016 Energy Code that is not working? (If you do not conduct inspections, please fill in the text box with "Not Applicable.")

21. What would you say was the most useful aspect of the NYSERDA training in practice?

22. Are there other changes you have made since implementation of the 2016 Energy Code that were not addressed in this survey? If yes, please explain.

Welcome

The New York State Energy Research and Development Authority (NYSERDA) is conducting a study of practices related to implementation of the October 2016 updates to the Energy Conservation Construction Code of New York State and the role of code enforcement officials. Throughout the survey, we will refer to the October 2016 updates to the Energy Conservation Construction Code of New York State as the “2016 Energy Code.” This survey focuses on updates to the commercial building code.

The purpose of this survey is to inform NYSERDA’s energy codes trainings and related programs. The survey will not be used for code enforcement purposes. Industrial Economics, as an independent research firm, in conjunction with NYSERDA’s Performance Management staff, will keep the information you provide, including your name and contact information, confidential to the extent permitted by law. NYSERDA’s analysis will use summary level data, and will not identify individual respondents or firms without obtaining written approval from quoted sources.

This survey should take no more than 10 minutes to complete. You do not need to conduct any research to respond to this survey.

Please answer the following questions to the best of your ability, and choose one response for each multiple choice question unless otherwise noted.

NYSERDA Codes - Code Officials - Non-Trainees

Part I. Background

1. Did you attend any formal training on the 2016 Energy Code?

Yes

No

2. If you attended formal training, what type of training (e.g. online versus in person), and which organization provided the training?

Training type

Organization

3. Does your work involve commercial buildings?

Yes

No

4. Do you conduct plan reviews? If you do not personally conduct plan reviews but instead use a third-party, please select "No."

Yes

No

5. Do you conduct building inspections? If you do not personally conduct building inspections but instead use a third-party, please select "No."

Yes

No

6. In which municipalities do you work?

NYSERDA Codes - Code Officials - Non-Trainees

Part II. General Familiarity with the 2016 Energy Code

7. Please rate your understanding of the following on a scale of one to five, where one is poor and five is excellent.

	1 - Poor	2 - Fair	3 - Good	4 - Very Good	5 - Excellent
Energy Code overall	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2016 Commercial Energy Code updates	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

8. How would you rate your level of confidence in enforcing the 2016 Commercial Energy Code, on a scale of one to five, where one is not at all confident, and five is extremely confident?

- 1 - Not at all confident 2 - Slightly confident 3 - Somewhat confident 4 - Moderately confident
 5 - Extremely confident

9. Would you feel comfortable describing how to comply with the 2016 Commercial Energy Code to one of your colleagues or others in the design and construction communities?

- Yes
 No

Why or why not?

NYSERDA Codes - Code Officials - Non-Trainees

Part III. Compliance Paths

10. Please rate your comfort level assessing compliance via the following commercial compliance paths on a scale of one to five, where one is very uncomfortable, and five is very comfortable.

	1 - Very uncomfortable	2 - Uncomfortable	3 - Neutral	4 - Comfortable	5 - Very comfortable
ASHRAE 90.1	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Prescriptive	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Total building performance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Part IV. Inspection Practices

This section is designed to understand whether and how often you check to ensure that specific measures have been installed properly during your inspections. As a reminder, the purpose of this survey is to inform NYSERDA's energy codes trainings and related programs. The survey will not be used to evaluate individual code enforcement programs or officials.

Please select "N/A" if you do not conduct inspections.

11. In general, during inspections for commercial buildings, how often do you do the following, on a scale of one to five, where one is never and five is always?

	1 - Never	2 - Rarely	3 - Sometimes	4 - Often	5 - Always	N/A
Check to ensure that continuous air barriers are installed properly	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Check to ensure envelope insulation is installed properly	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Require blower door testing (for buildings less than 50,000 square feet)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Part V. Review and Inspection of Specific Provisions

This section is designed to understand your review of specific Energy Code provisions for commercial buildings. For each provision, please indicate if you check the provision in commercial building plan reviews and inspections, if you do not check the provision, or if checking the provision is the responsibility of a separate entity.

As a reminder, the purpose of this survey is to inform NYSERDA's energy codes trainings and related programs. The survey will not be used to evaluate individual code enforcement programs or officials.

Please select "N/A" for any questions not relevant to your work. For example, if you do not conduct inspections, select "N/A" for the questions related to inspections.

12. Do you check for the following provisions in commercial building plan reviews?

	Yes - check for provision	No – do not check for provision	No - provision is the responsibility of a separate entity	Don't know	N/A
A continuous air barrier shall be provided throughout the building thermal envelope. Breaks or joints in the air barrier shall be sealed.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2016 Energy Code-required levels of ductwork and piping insulation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
All recessed luminaires installed in the building thermal envelope shall be IC-rated and labeled as having an air leakage rate not more than 2.0 cfm (0.944 L/s). All recessed luminaires shall be sealed with a gasket or caulk.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Day-lit spaces (where vertical fenestration area is 30-40% of the gross above-grade wall area or skylight area is 3-5% of the gross roof area) have separate controls from general lighting controls or are automatically controlled with daylight sensors	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2016 Energy Code-required space-specific lighting power density (LPD)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Each cooling system shall include either an air or water economizer.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ventilation, either natural or mechanical, shall be provided in accordance with Ch.4 of the International Mechanical Code. Mechanical ventilation shall provide the capability to reduce the outdoor air supply to the minimum required by Ch.4 of the IMC	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

13. Do you check for the following provisions in commercial **building inspections**?

	Yes - check for provision	No – do not check for provision	No - provision is the responsibility of a separate entity	Don't know	N/A
A continuous air barrier shall be provided throughout the building thermal envelope. Breaks or joints in the air barrier shall be sealed.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2016 Energy Code-required levels of ductwork and piping insulation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
All recessed luminaires installed in the building thermal envelope shall be IC-rated and labeled as having an air leakage rate not more than 2.0 cfm (0.944 L/s). All recessed luminaires shall be sealed with a gasket or caulk.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Day-lit spaces (where vertical fenestration area is 30-40% of the gross above-grade wall area or skylight area is 3-5% of the gross roof area) have separate controls from general lighting controls or are automatically controlled with daylight sensors	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2016 Energy Code-required space-specific lighting power density (LPD)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Each cooling system shall include either an air or water economizer.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ventilation, either natural or mechanical, shall be provided in accordance with Ch.4 of the International Mechanical Code. Mechanical ventilation shall provide the capability to reduce the outdoor air supply to the minimum required by Ch.4 of the IMC	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Part VI. Open-Ended Questions

14. What are the most significant changes you have made to your **plan reviews** related to the 2016 Energy Code? Please provide up to three examples. (If you do not conduct plan reviews, please fill in the first text box with "Not Applicable.")

Example 1

Example 2

Example 3

15. What are the most significant changes you have made to your **building inspections** related to the 2016 Energy Code? Please provide up to three examples. (If you do not conduct inspections, please fill in the first text box with "Not Applicable.")

Example 1

Example 2

Example 3

16. Have you faced any barriers to implementing changes related to the 2016 Energy Code?

Yes

No

17. If you have faced barriers to implementing changes related to the 2016 Energy Code, what barriers have you faced? (Select all that apply)

Time

Economic considerations

Political pressure

Technical feasibility

N/A

Other (please specify)

18. If you have faced barriers to implementing changes related to the 2016 Energy Code, have you attempted to address these barriers?

Yes

No

N/A

If yes, how?

If no, why not?

19. Is there anything you have tried to implement **inplan reviews** to ensure compliance with the 2016 Energy Code that is not working? (If you do not conduct plan reviews, please fill in the text box with "Not Applicable.")

20. Is there anything you have tried to implement **inbuilding inspections** to ensure compliance with the 2016 Energy Code that is not working? (If you do not conduct inspections, please fill in the text box with "Not Applicable.")

21. Are there other changes you have made since implementation of the 2016 Energy Code that were not addressed in this survey? If yes, please explain.

Appendix B. Survey Results

This appendix presents detailed results for the survey. The results are organized into the following categories:

- Design Professionals
- Code Enforcement Officials

For each survey question, raw values are presented in a summary data table. The results of many questions are also presented graphically.

The results of open-ended survey questions are included in Appendix C.

For each of the tables in Appendix B, the following conventions are used:

- * - Value is statistically significant at the 10 percent level ($p\text{-value} \leq 0.1$)
- ** - Value is statistically significant at the 5 percent level ($p\text{-value} \leq 0.05$)
- *** - Value is statistically significant at the 1 percent level ($p\text{-value} \leq 0.01$)
- *Trainee Before/After Difference* indicates the difference in means within the Trainee group, before attending NYSERDA training and after. *Trainee/Non-trainee Difference* indicates the difference in means between the Trainee and Non-trainee groups, those who have attended NYSERDA training and those who have not.

Also, note that some differences may not sum due to rounding.

Design Professionals

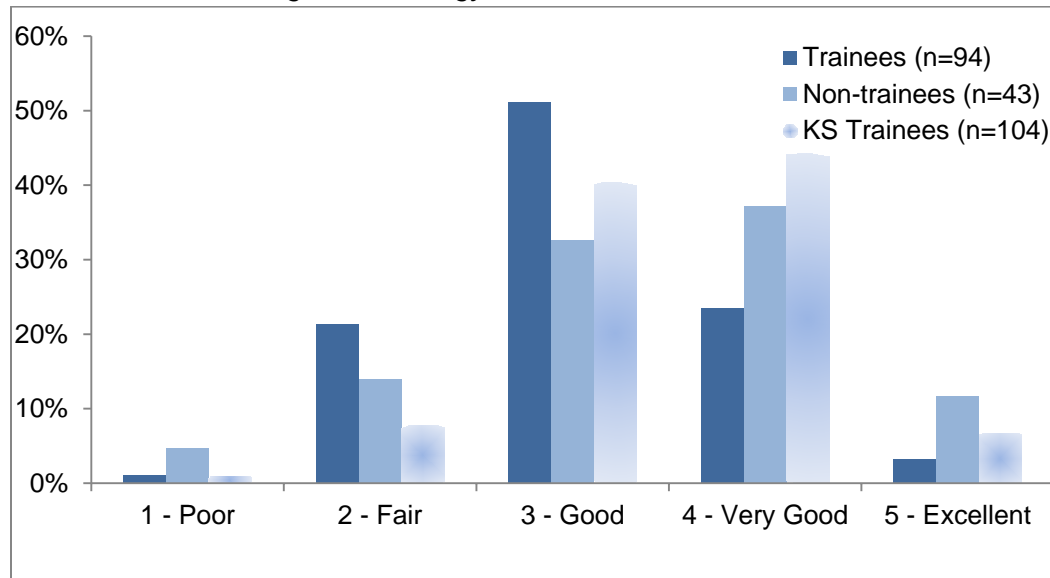
Evaluation Question 1

1. Reported Level of Understanding

Please rate your understanding of the [Energy Code overall/2016 Residential updates/2016 Commercial updates] [before/after] training [Knowledge Survey/Behavioral Survey].

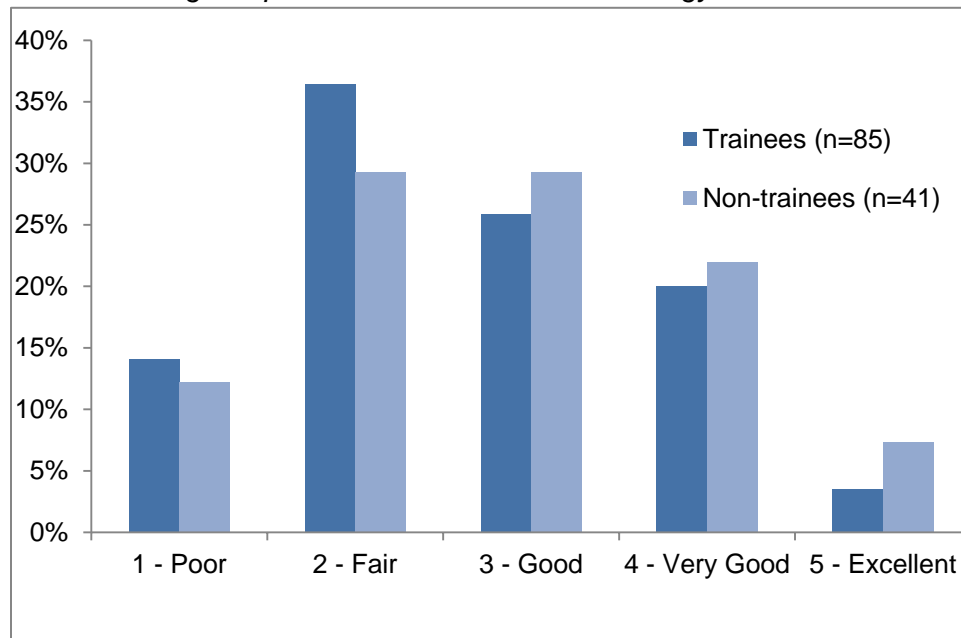
	Trainee Before (KS)	Trainee After (KS)	Trainee After (BS)	Trainee After (KS)/After (BS) Difference	Trainee	Non-trainee	Trainee/ Non-trainee Difference
Energy Code overall	2.6 (n=94)	3.5 ¹ (n=89)	3.1 (n=94)	-0.4***	3.1 (n=94)	3.4 (n=43)	-0.3*
2016 Residential Energy Code updates	N/A	N/A	2.6 (n=85)	N/A	2.6 (n=85)	2.8 (n=41)	-0.2
2016 Commercial Energy Code updates	N/A	N/A	2.7 (n=93)	N/A	2.7 (n=93)	2.9 (n=39)	-0.2

Overall Understanding of the Energy Code:

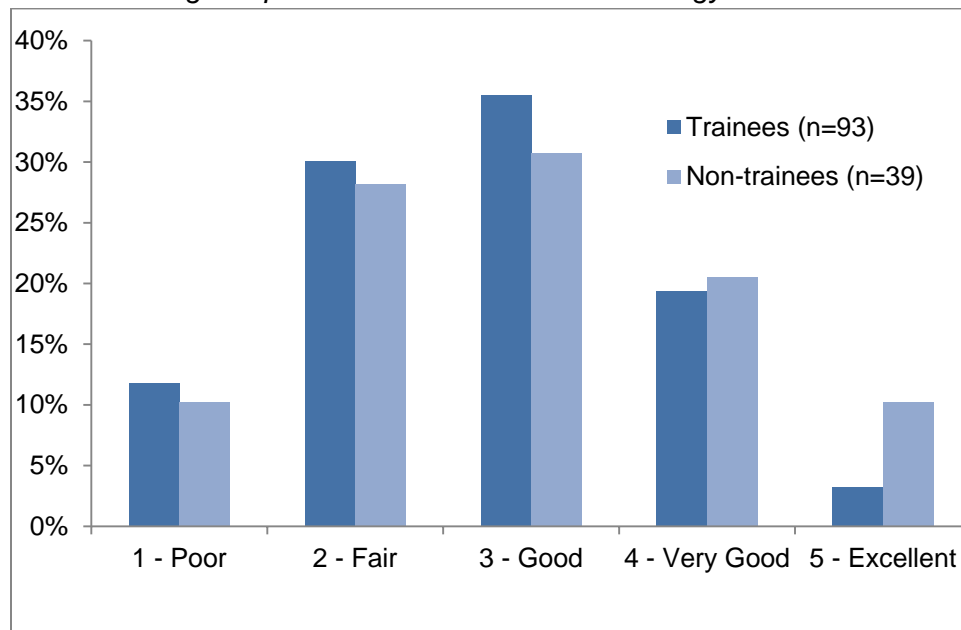


¹ The difference between “Trainee After (KS)” and “Trainee Before (KS)” is 0.9***.

Understanding of Updates to 2016 Residential Energy Code:



Understanding of Updates to 2016 Commercial Energy Code:

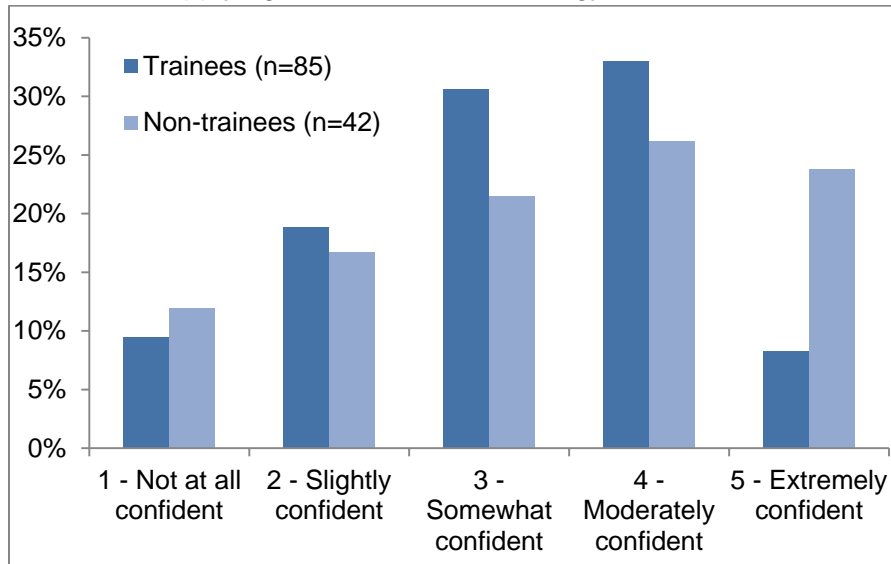


2. Confidence Level

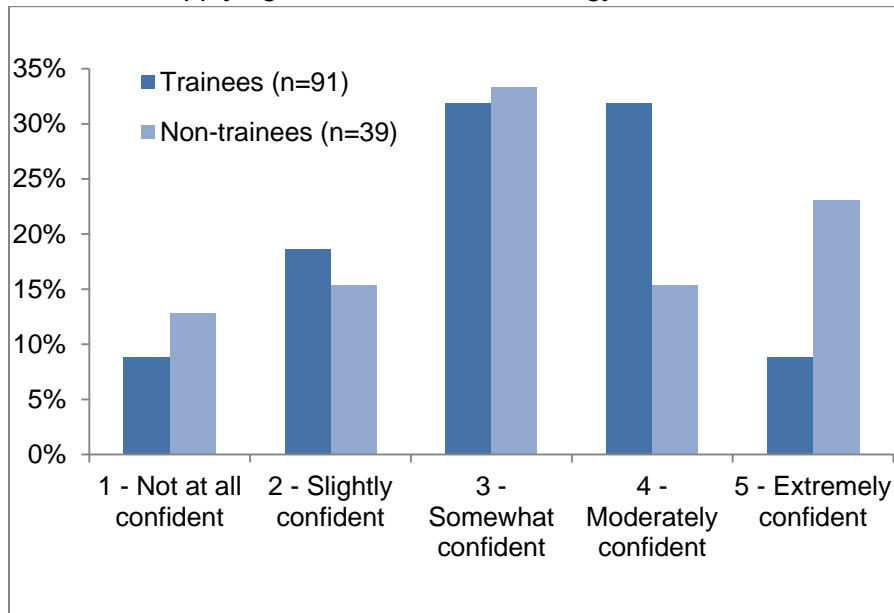
Please rate your level of confidence in applying the [2016 Residential Energy Code/2016 Commercial Energy Code].

	Trainee	Non-trainee	Trainee/Non-trainee Difference
2016 Residential Energy Code	3.1 (n=85)	3.3 (n=42)	-0.2
2016 Commercial Energy Code	3.1 (n=91)	3.2 (n=39)	-0.1

Confidence Applying 2016 Residential Energy Code:



Confidence Applying 2016 Commercial Energy Code:



3. Comfort

Would you feel comfortable describing how to comply with the [2016 Residential Energy Code/2016 Commercial Energy Code] to a colleague or business partner?

	Trainee	Non-trainee	Trainee/Non-trainee Difference
Comfort describing 2016 Residential Energy Code	48% (n=77)	64% (n=36)	-16%
Comfort describing 2016 Commercial Energy Code	53% (n=88)	54% (n=37)	-1%

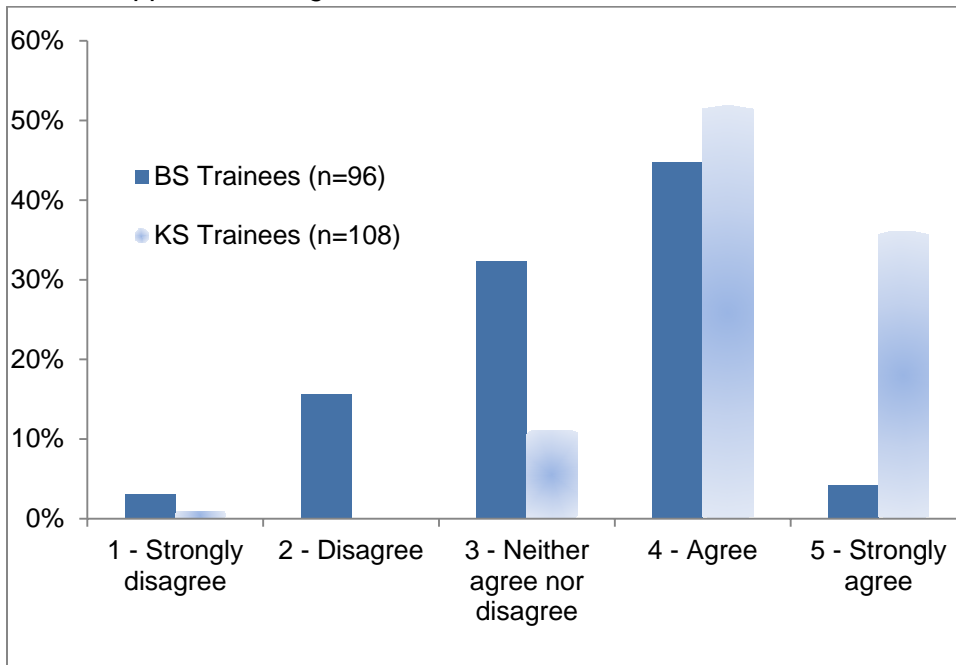
Evaluation Question 2

4. BS vs KS training

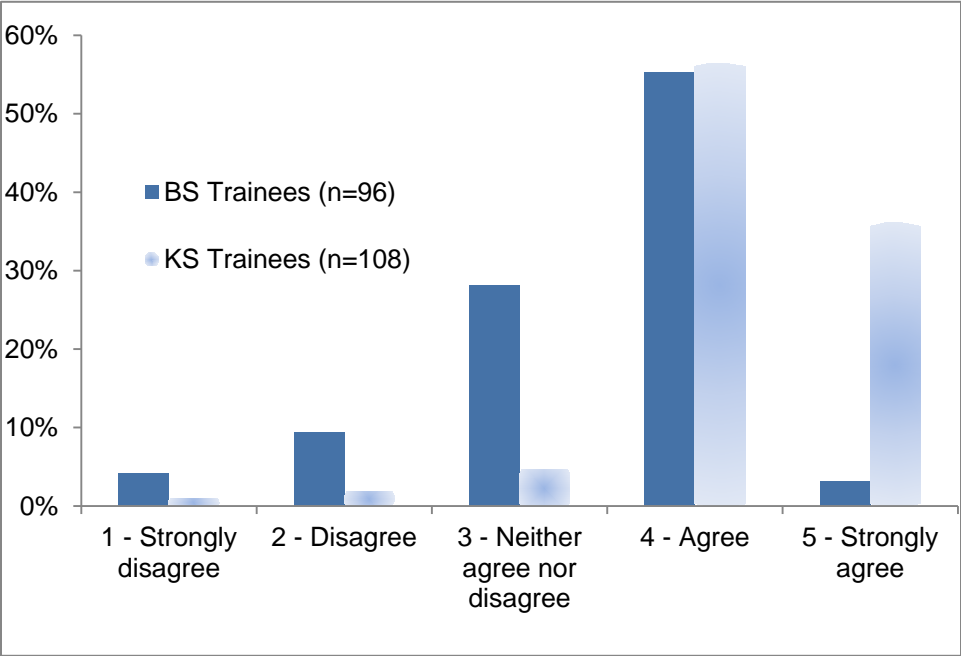
Please rate your agreement with the following statements about the NYSERDA training you received [Knowledge Survey/Behavioral Survey].

	Trainee (KS)	Trainee (BS)	Trainee KS/BS Difference
Apply training content to job	4.3 (n=94)	3.3 (n=94)	-1.0***
Training helped do job better	4.3 (n=95)	3.4 (n=95)	-0.8***
Changed aspects of work to apply training	4.0 (n=94)	3.2 (n=94)	-0.8***

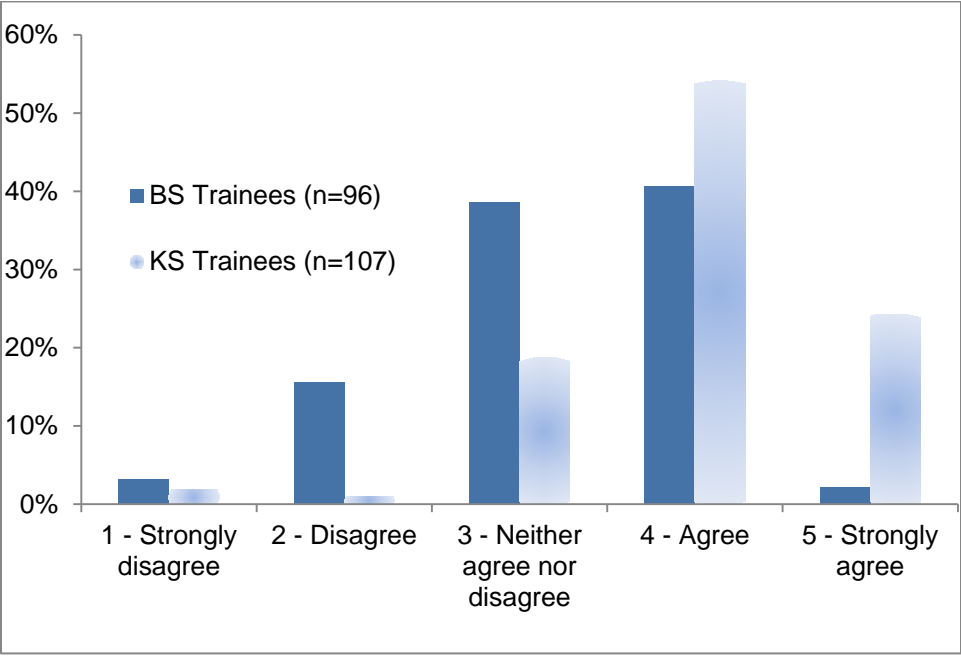
Trainee Applies Training to Job:



Training has Helped Trainee do Job Better:



Trainee has Changed Aspects of Work to Apply Training:



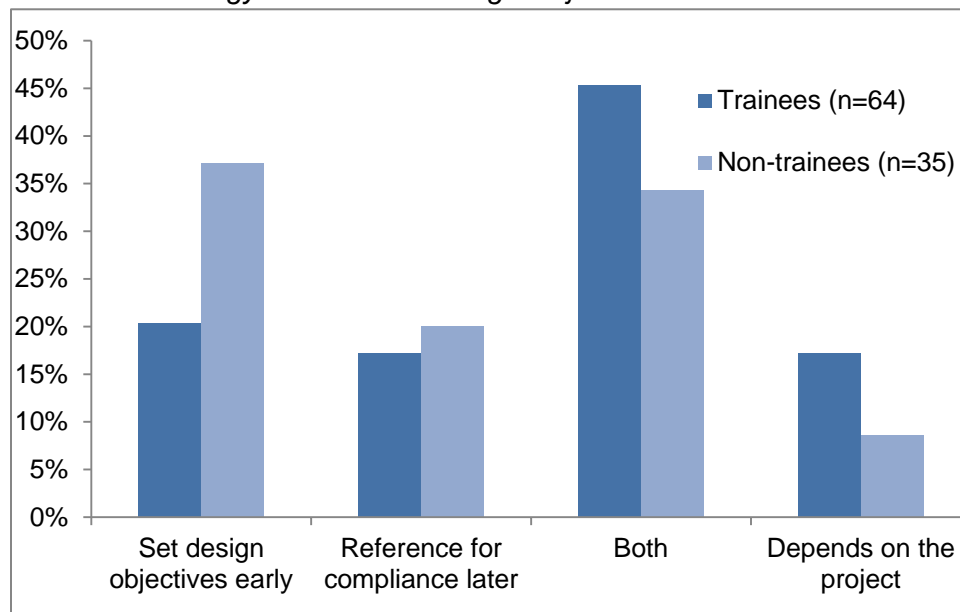
Evaluation Question 3

5. Design objectives

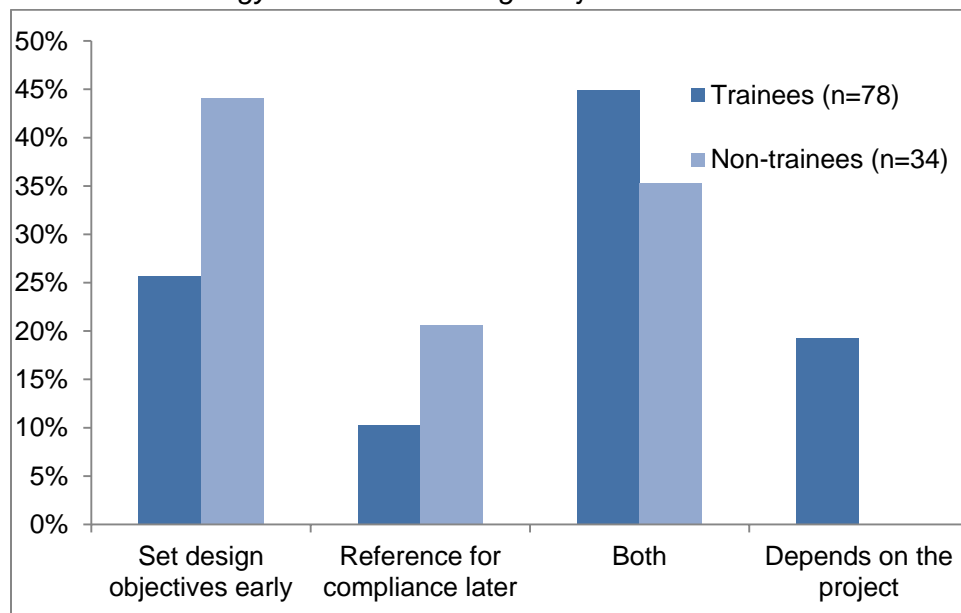
On a typical [Residential/Commercial] project, how do you use the Energy code to set design objectives?

	Trainee	Non-trainee	Trainee/Non-trainee Difference
Residential – Set design objectives early	20% (n=64)	37% (n=35)	-17%
Residential – Reference for compliance later	17% (n=64)	20% (n=35)	-3%
Residential – Both set design objectives early, and reference for compliance later	45% (n=64)	34% (n=35)	+11%
Residential – Depends on the project	17% (n=64)	9% (n=35)	+12%
Commercial – Set design objectives early	26% (n=78)	44% (n=34)	-18%
Commercial – Reference for compliance later	10% (n=78)	21% (n=34)	-11%
Commercial – Both set design objectives early, and reference for compliance later	45% (n=78)	35% (n=34)	+10%
Commercial – Depends on the project	19% (n=78)	0% (n=34)	+19%

Residential Energy Code to Set Design Objectives:



Commercial Energy Code to Set Design Objectives:

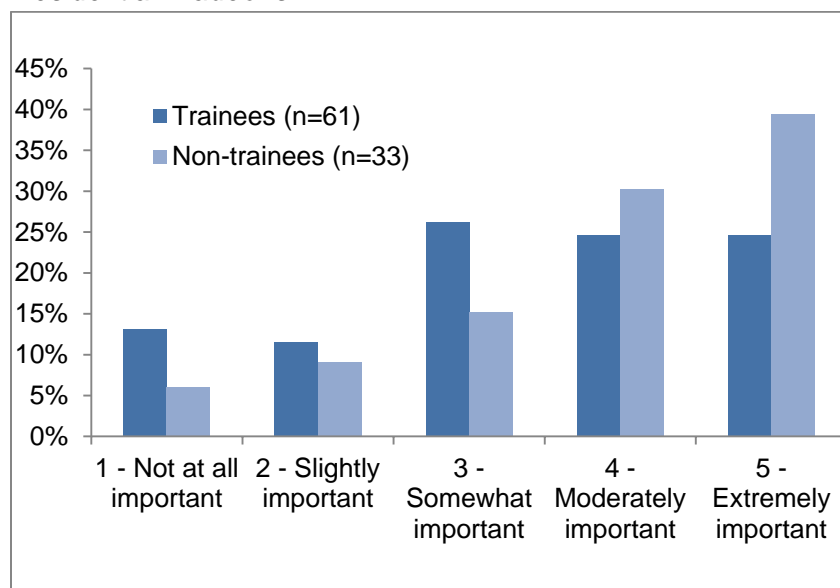


6. Tradeoffs

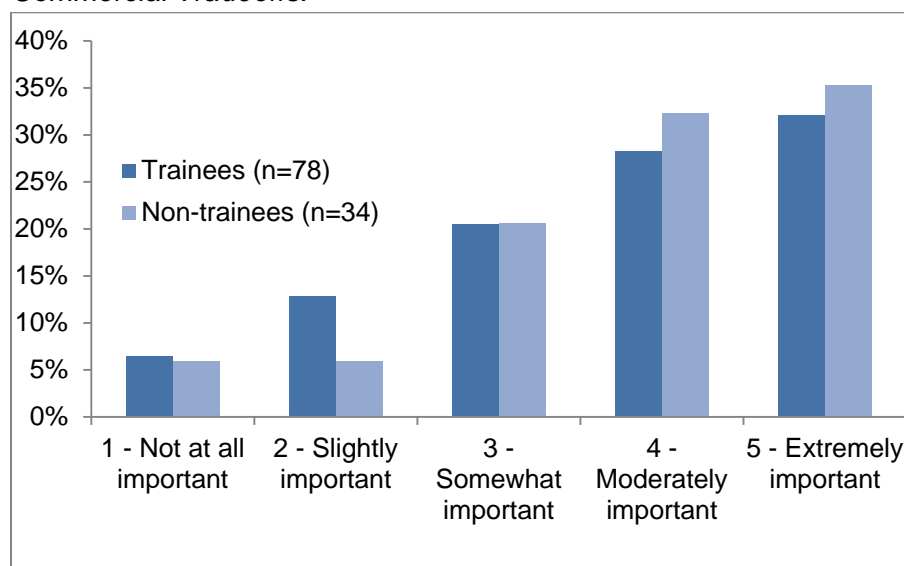
Please rate how important a role the tradeoffs between different building systems play in your [Residential/Commercial] designs.

	Trainee	Non-trainee	Trainee/Non-trainee Difference
Residential Design Tradeoffs	3.4 (n=61)	3.9 (n=33)	-0.5*
Commercial Design Tradeoffs	3.7 (n=78)	3.9 (n=34)	-0.2

Residential Tradeoffs:



Commercial Tradeoffs:



7. Plan review services

What plan review services do you use for your [residential/commercial] designs [before/after] training?

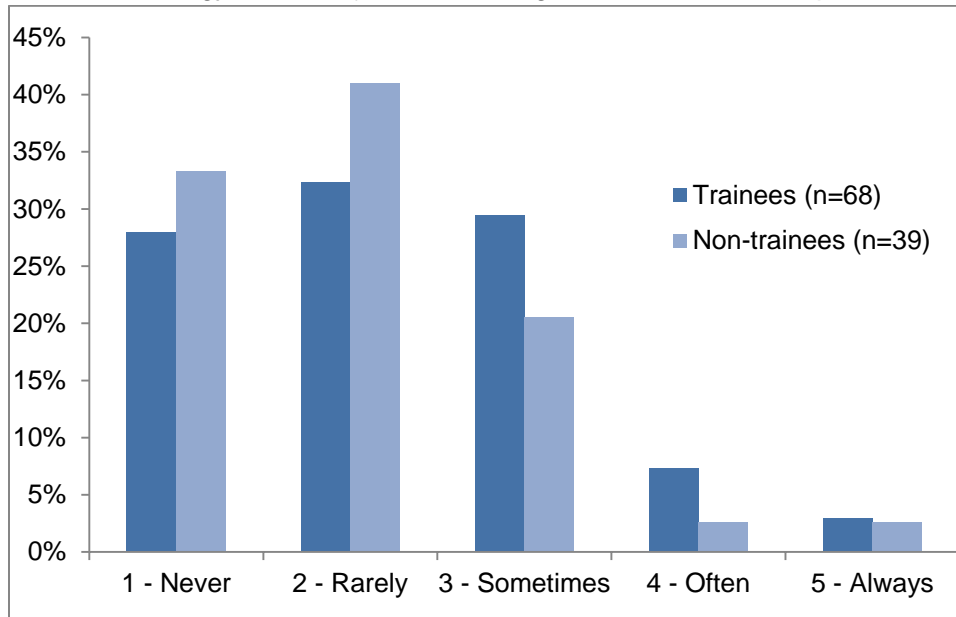
	Trainee Before	Trainee After	Trainee Before/After Difference	Trainee	Non-trainee	Trainee/ Non-trainee Difference
Plan review services – Residential	16% (n=58)	22% (n=74)	+6%	22% (n=74)	18% (n=33)	+3%
Plan review services – Commercial	16% (n=58)	22% (n=69)	+6%	22% (n=69)	23% (n=31)	-1%

8. Objections

How often do you receive Energy Code objections during plan reviews or inspections [before/after] training?

	Trainee Before	Trainee After	Trainee Before/After Difference	Trainee	Non-trainee	Trainee/ Non-trainee Difference
Receive energy code objections	2.3 (n=67)	2.2 (n=67)	-0.1	2.3 (n=68)	2.0 (n=39)	+0.3

Receives Energy Code Objections During Plan Reviews or Inspections:



9. Software tools

Do you use [compliance software tools/performance-based energy modeling] [before/after] training?

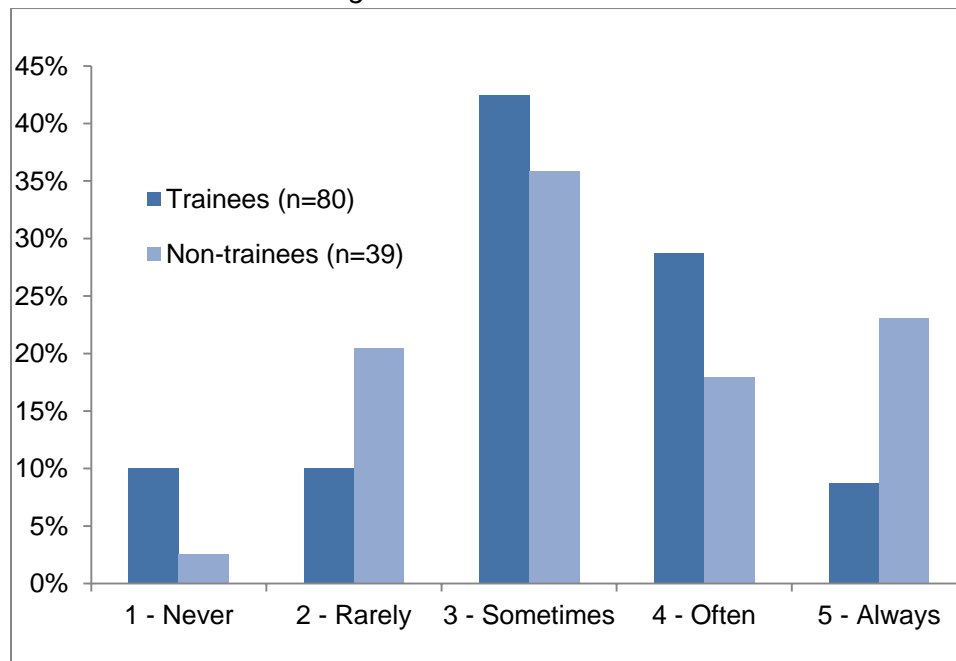
	Trainee Before	Trainee After	Trainee Before/After Difference	Trainee	Non-trainee	Trainee/ Non-trainee Difference
Compliance software tools	74% (n=87)	71% (n=87)	-2%	71% (n=87)	80% (n=41)	-9%
Percentage above code minimums that projects showed using compliance software	8.2% (n=12)	9.4% (n=12)	+1.3%*	9.3% (n=14)	9.0% (n=20)	+0.3%
Performance-based modeling	6% (n=86)	7% (n=86)	+1%	7% (n=86)	12% (n=41)	-5%
Percentage below baseline that projects showed using performance-based energy modeling	30% (n=1)	30% (n=1)	0%	30% (n=1)	34% (n=2)	-3.8

10. Communicate with contractors

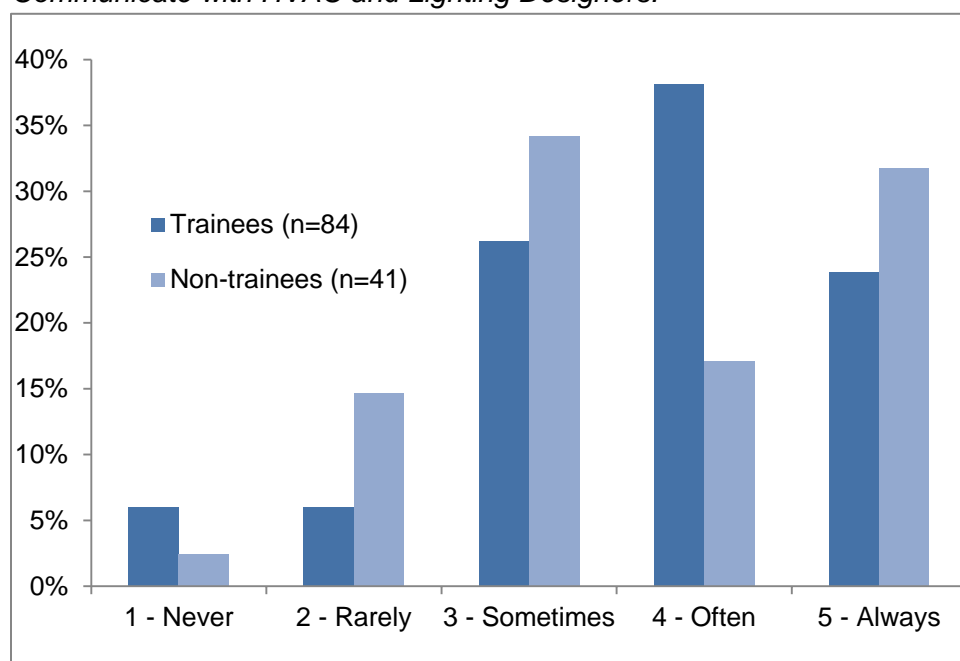
How often do you communicate with [building contractors/HVAC and lighting designers] about energy use on your projects?

	Trainee	Non-trainee	Trainee/ Non-trainee Difference
Building contractors – Energy Use	3.2 (n=80)	3.4 (n=39)	-0.2
HVAC/lighting designers – Energy Use	3.7 (n=84)	3.6 (n=41)	+0.1
Has changed communications since training	27% (n=83)	N/A	N/A

Communicate with Building Contractors:



Communicate with HVAC and Lighting Designers:

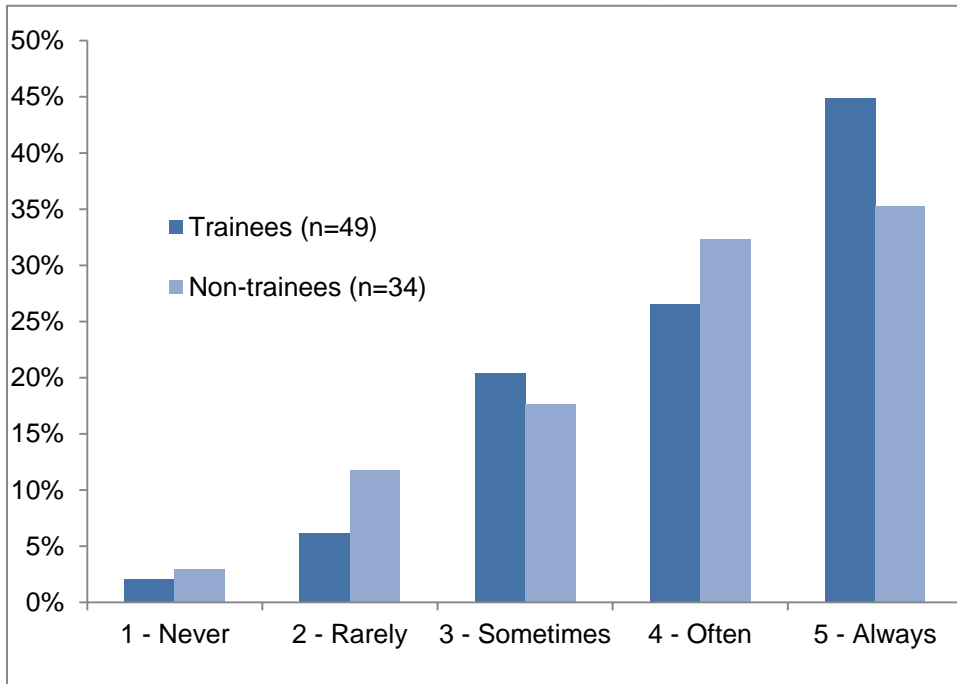


11. Communicate with contractors re: residential

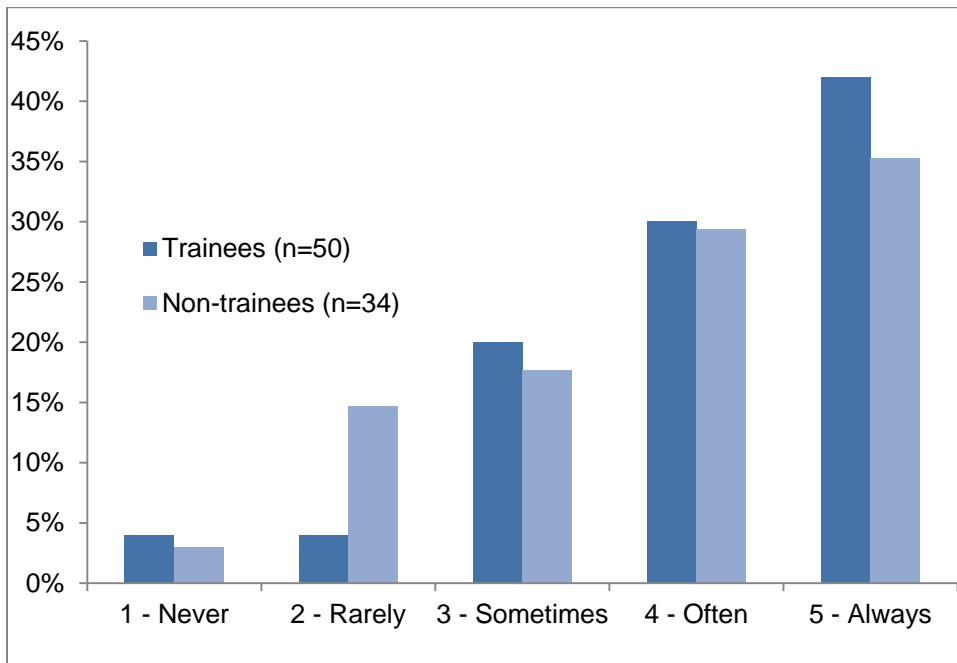
How often do you communicate with contractors to ensure that [vapor retarders/continuous air barriers/envelope insulation] were installed properly when working on residential buildings [before/after] training?

	Trainee Before	Trainee After	Trainee Before/After Difference	Trainee	Non-trainee	Trainee/ Non-trainee Difference
Vapor retarders	3.8	4.1	+0.2***	4.1 (n=49)	3.9 (n=34)	+0.2
Continuous air barriers	3.7	4.1	+0.4***	4.0 (n=50)	3.8 (n=34)	+0.2
Envelope insulation	4.0	4.2	+0.2**	4.2 (n=51)	4.0 (n=34)	+0.2

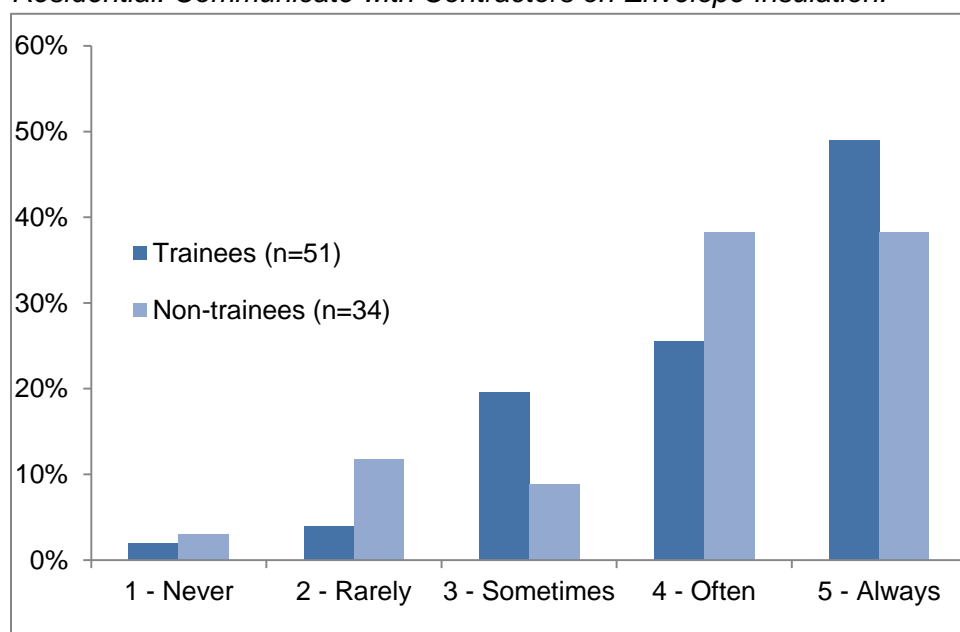
Residential: Communicate with Contractors on Vapor Retarders:



Residential: Communicate with Contractors on Continuous Air Barriers:



Residential: Communicate with Contractors on Envelope Insulation:

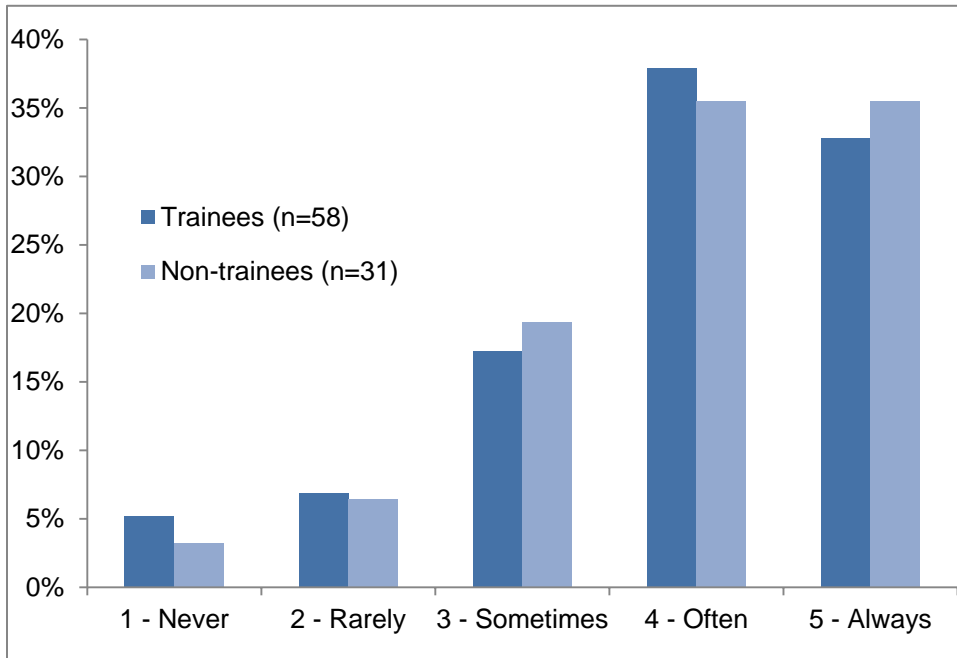


12. Communicate with contractors re: commercial

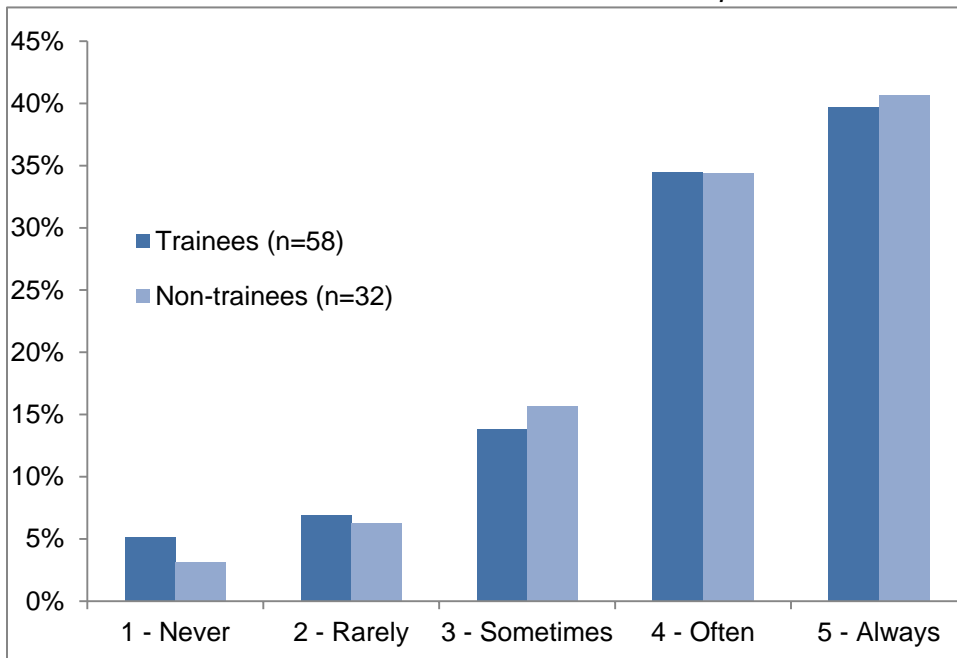
How often do you communicate with contractors to ensure that [continuous air barriers/envelope insulation] were installed properly when working on commercial buildings [before/after] training?

	Trainee Before	Trainee After	Trainee Before/After Difference	Trainee	Non-trainee	Trainee/ Non-trainee Difference
Continuous air barriers	3.5	3.9	+0.4***	3.9 (n=58)	3.9 (n=31)	-0.1
Envelope insulation	3.7	4.0	+0.2**	4.0 (n=58)	4.0 (n=32)	-0.1

Commercial: Communicate with Contractors on Continuous Air Barriers:



Commercial: Communicate with Contractors on Envelope Insulation:



13. Added information

Have you added any new information to, or changed the formatting of your drawings or supporting documentation for [Residential/Commercial] buildings due to the requirements of the 2016 Energy Code?

	Trainee	Non-trainee	Trainee/Non-trainee Difference
Added new information – Residential	70% (n=47)	61% (n=43)	+10%
Changed the formatting – Residential	56% (n=45)	29% (n=31)	+27%**
Added new information – Commercial	67% (n=61)	69% (n=29)	-2%
Changed the formatting – Commercial	46% (n=59)	23% (n=26)	+23%**

14. Different compliance paths

Since implementation of the 2016 Energy Code, have you started using different compliance paths from the path(s) you used to use?

	Trainee	Non-trainee	Trainee/Non-trainee Difference
Different compliance paths	17% (n=83)	2% (n=41)	+15%**

15. Residential Provisions

Do you incorporate the following provisions into your residential building designs [before/after] training?

Measure	Trainee Before	Trainee After	Trainee Before/After Difference	Trainee	Non-trainee	Trainee/ Non-trainee Difference
A continuous air barrier shall be provided throughout the building thermal envelope. Breaks or joints in the air barrier shall be sealed.	56% (n=43)	93% (n=43)	+37%***	93% (n=43)	85% (n=33)	+8%
2016 Energy Code-required levels of ductwork and piping insulation	38% (n=42)	71% (n=42)	+33%***	71% (n=42)	59% (n=32)	+12%
All recessed luminaires installed in the building thermal envelope shall be IC-rated and labeled as having an air leakage rate not more than 2.0 cfm (0.944 L/s) when tested in accordance with ASTM E 283 at a 1.57 psf (75 Pa) pressure differential. All recessed luminaires shall be sealed with a gasket or caulk between the housing and the interior wall or ceiling covering.	38% (n=45)	76% (n=45)	+38%***	76% (n=45)	71% (n=31)	+5%
Proper class of vapor retarders provided in interior side of frame walls (except zone 4)	53% (n=40)	83% (n=40)	+30%***	83% (n=40)	77% (n=30)	+6%
Not using building cavities as ducts or plenums, including as returns	56% (n=43)	77% (n=43)	+21%**	77% (n=43)	55% (n=29)	+22%*
Heating and cooling equipment shall be sized in accordance with ACCA Manual S based on building loads calculated in accordance with ACCA Manual J or other approved heating and cooling calculation methodologies.	36% (n=44)	64% (n=44)	+27%**	64% (n=44)	28% (n=29)	+36%***
The building shall be provided with ventilation that meets the requirements of the International Residential Code or International Mechanical Code, as applicable, or with other approved means of ventilation. Outdoor air intakes and exhausts shall have automatic or gravity dampers that close when the ventilation system is not operating.	35% (n=43)	67% (n=43)	+33%***	67% (n=43)	73% (n=30)	-6%
<p>For the each of the above residential provisions, Trainee respondents were asked to choose one of the following options: “Yes – incorporated before training”, “Yes – began incorporating after training”, “No – do not incorporate”, “No – provision is the responsibility of a separate entity”, “Don’t know”, and “N/A”. The Trainee Before measure was calculated from the number of respondents who selected “Yes – incorporated before training”, divided by the total number of respondents of that question who neither selected “Don’t know”, “N/A”, or skipped the question.</p> <p>The Trainee After measure was calculated from the combined number of respondents who selected “Yes – incorporated before training”, and “Yes – began incorporating after training”, divided by the total number of respondents of that question who neither selected “Don’t know”, “N/A”, or skipped the question.</p>						

16. Commercial Provisions

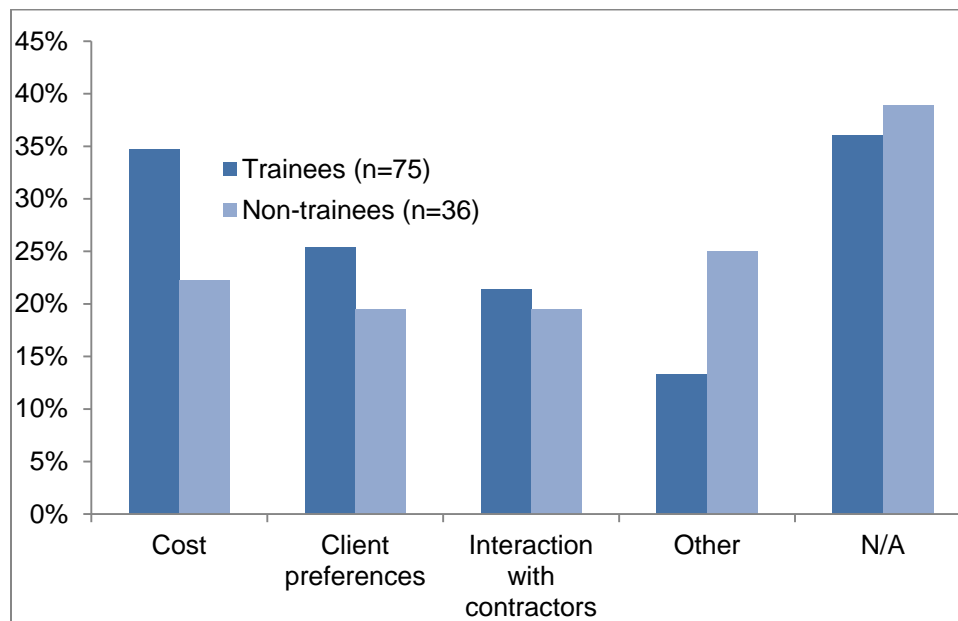
Do you incorporate the following provisions into your commercial building designs [before/after] training?

Measure	Trainee Before	Trainee After	Trainee Before/After Difference	Trainee	Non-trainee	Trainee/ Non-trainee Difference
A continuous air barrier shall be provided throughout the building thermal envelope. Breaks or joints in the air barrier shall be sealed.	58% (n=57)	89% (n=57)	+32%***	89% (n=57)	80% (n=30)	+9%
2016 Energy Code-required levels of ductwork and piping insulation	31% (n=59)	66% (n=59)	+36%***	66% (n=59)	57% (n=28)	+9%
All recessed luminaires installed in the building thermal envelope shall be IC-rated and labeled as having an air leakage rate not more than 2.0 cfm (0.944 L/s) when tested in accordance with ASTM E 283 at a 1.57 psf (75 Pa) pressure differential. All recessed luminaires shall be sealed with a gasket or caulk between the housing and the interior wall or ceiling covering.	28% (n=54)	65% (n=54)	+37%***	65% (n=54)	64% (n=28)	+1%
Day-lit spaces (where vertical fenestration area is 30 to 40 percent of the gross above-grade wall area or where skylight area is 3 to 5 percent of the gross roof area) have separate controls from general lighting controls or are automatically controlled with daylight sensors	24% (n=51)	62% (n=51)	+39%***	63% (n=51)	63% (n=30)	-1%
Each cooling system shall include either an air or water economizer.	24% (n=54)	56% (n=54)	+31%***	56% (n=54)	36% (n=28)	+20%*
Ventilation, either natural or mechanical, shall be provided in accordance with Chapter 4 of the International Mechanical Code. Where mechanical ventilation is provided, the system shall provide the capability to reduce the outdoor air supply to the minimum required by Chapter 4 of the International Mechanical Code.	24% (n=58)	59% (n=58)	+34%***	59% (n=58)	62% (n=29)	-3%
<p><i>For the each of the above commercial provisions, Trainee respondents were asked to choose one of the following options: "Yes – incorporated before training", "Yes – began incorporating after training", "No – do not incorporate", "No – provision is the responsibility of a separate entity", "Don't know", and "N/A". The Trainee Before measure was calculated from the number of respondents who selected "Yes – incorporated before training", divided by the total number of respondents of that question who neither selected "Don't know", "N/A", or skipped the question.</i></p> <p><i>The Trainee After measure was calculated from the combined number of respondents who selected "Yes – incorporated before training", and "Yes – began incorporating after training", divided by the total number of respondents of that question who neither selected "Don't know", "N/A", or skipped the question.</i></p>						

17. Barriers

If you have faced barriers to implementing changes related to the 2016 Energy Code, what barriers have you faced?

	Trainee	Non-trainee	Trainee/ Non-trainee Difference
Cost	35% (n=75)	22% (n=36)	+13%
Client preferences	25% (n=75)	19% (n=36)	+6%
Interaction with contractors	21% (n=75)	19% (n=36)	+2%
Other	13% (n=75)	25% (n=36)	-12%
N/A	36% (n=75)	39% (n=36)	-3%
Respondent has attempted to address these barriers	82% (n=33)	76% (n=17)	+6%



Code Enforcement Officials

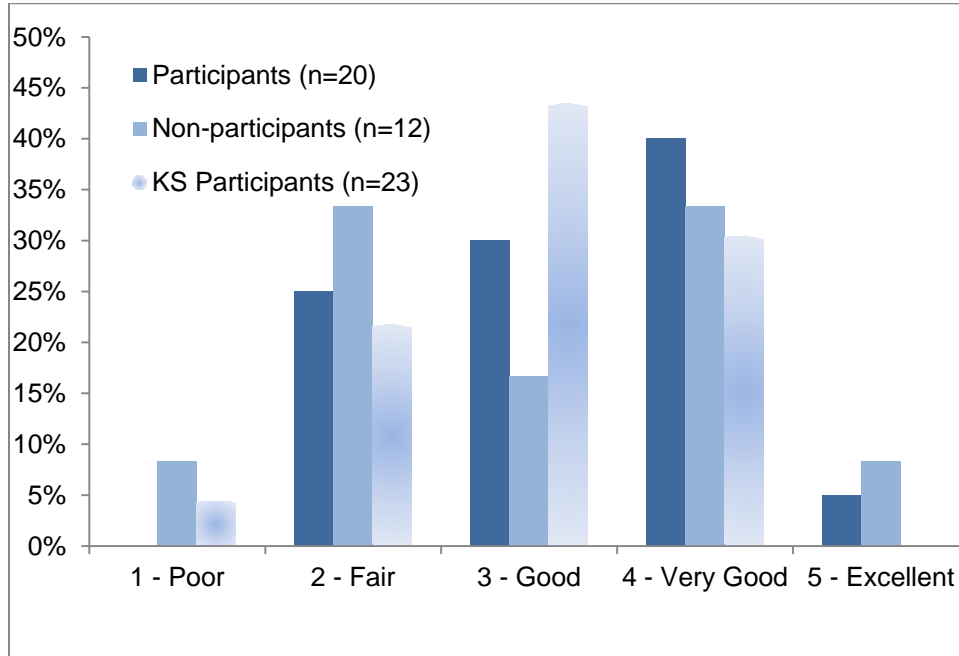
Evaluation Question 1

18. Understanding

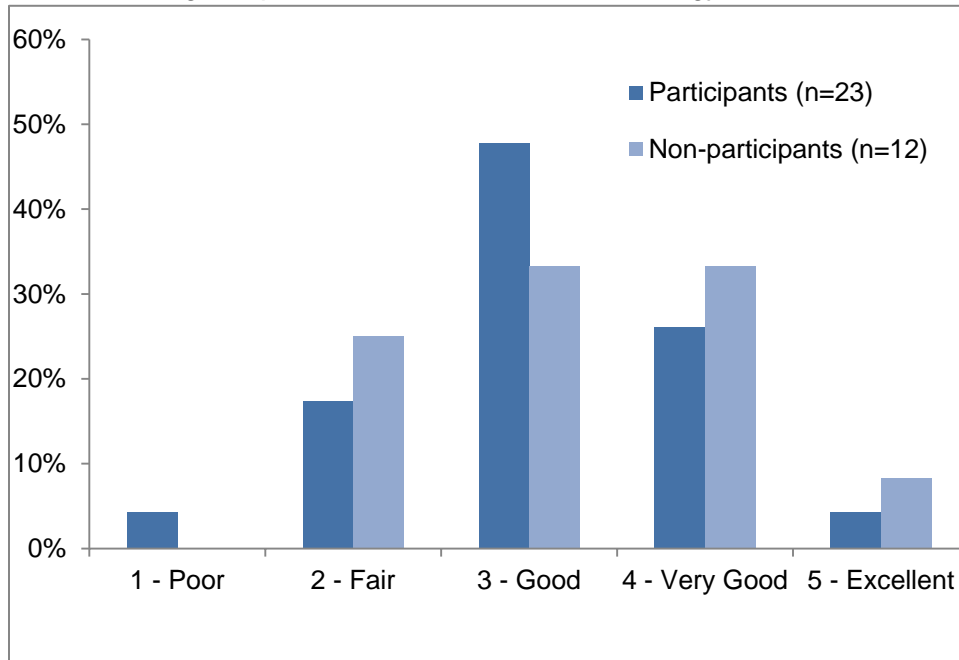
Please rate your understanding of the [Energy Code overall/2016 Commercial updates] [before/after] training [Knowledge Survey/Behavioral Survey].

	Participant Before (KS)	Participant After (KS)	Participant After (BS)	Participant After (KS)/After (BS) Difference	Participant	Non-participant	Participant/ Non-participant Difference
Energy Code overall	2.5 (n=20)	3.0 (n=20)	3.3 (n=20)	+0.3	3.3 (n=20)	3.0 (n=12)	+0.3
2016 Commercial Energy Code update	N/A	N/A	3.1 (n=23)	N/A	3.1 (n=23)	2.7 (n=12)	+0.4

Overall Understanding of the Energy Code



Understanding of Updates to 2016 Commercial Energy Code:

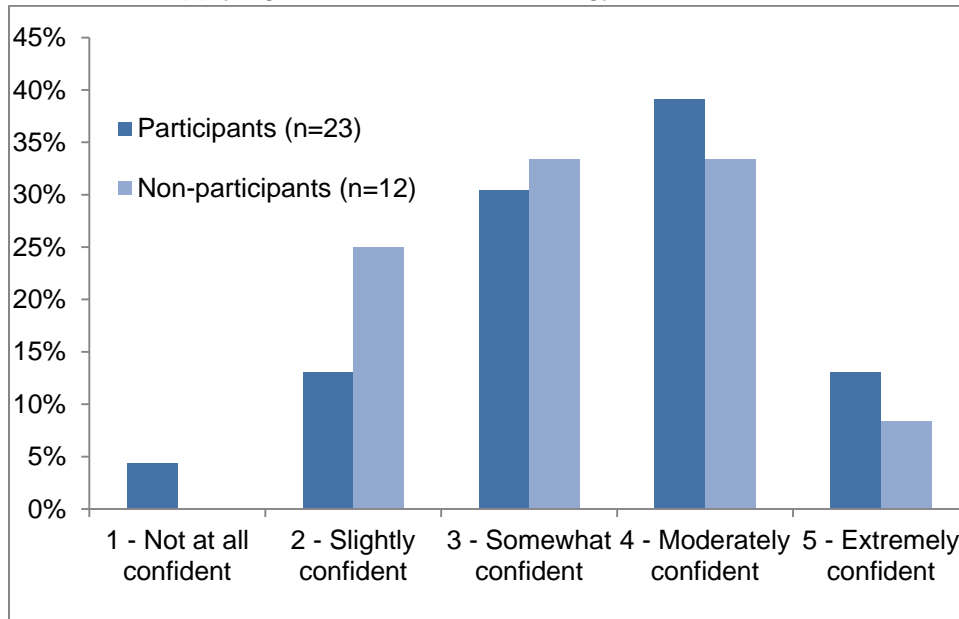


19. Confidence

How would you rate your level of confidence in enforcing the 2016 Commercial Energy Code?

	Participant	Non-participant	Participant/ Non-participant Difference
Confidence enforcing 2016 Commercial Energy Code	3.4 (n=23)	3.3 (n=12)	+0.1

Confidence Applying 2016 Commercial Energy Code:



20. Comfort

Would you feel comfortable describing how to comply with the 2016 Commercial Energy Code to a colleague or others in the design and construction communities?

	Participant	Non-participant	Participant/ Non-participant Difference
Comfortable describing how to comply with 2016 Commercial Energy Code	65% (n=23)	42% (n=12)	+23%

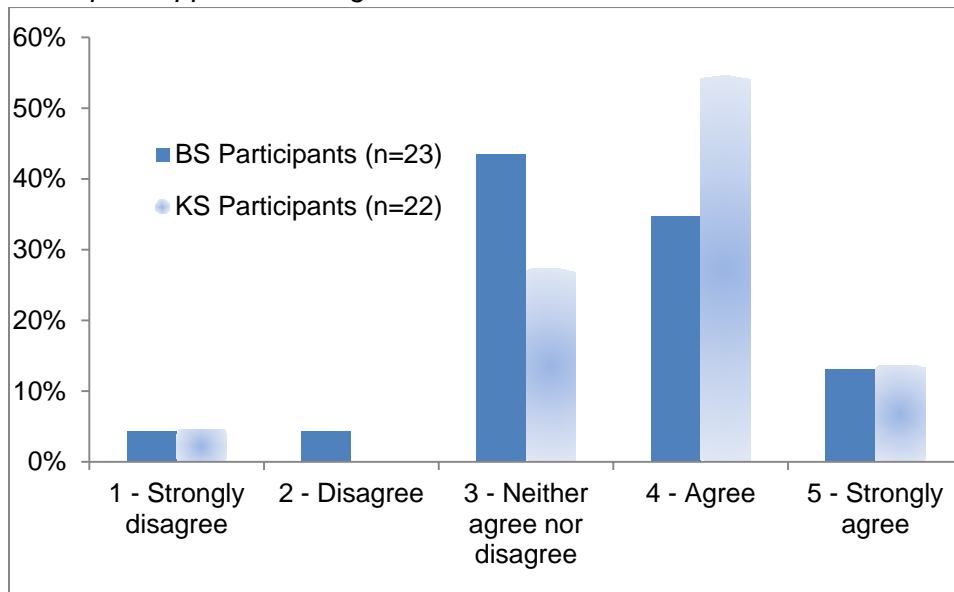
Evaluation Question 2

21. BS vs KS training

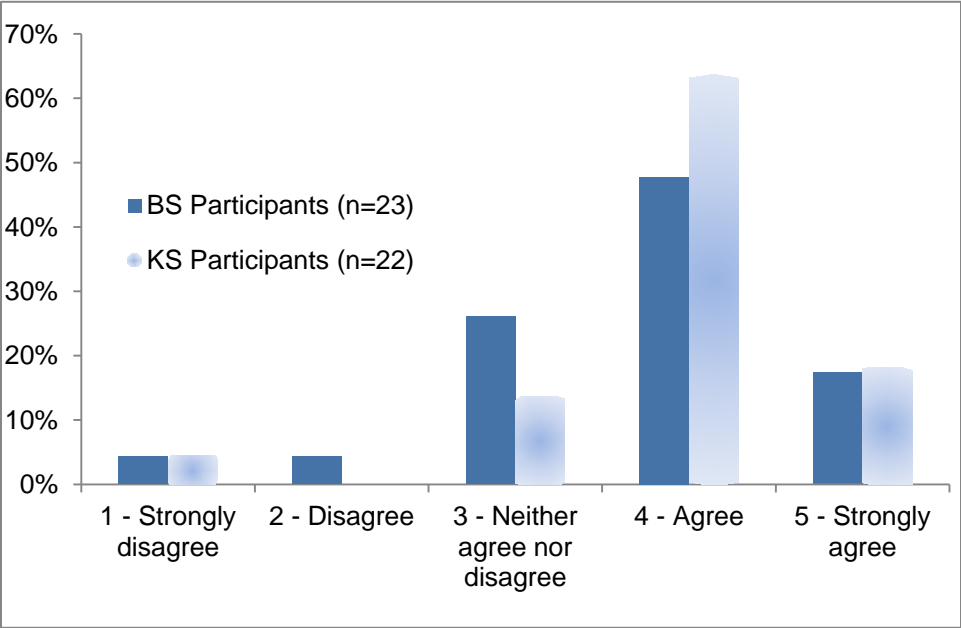
Please rate your agreement with the following statements about the NYSERDA training you received [Knowledge Survey/Behavioral Survey].

	Participant (KS)	Participant (BS)	Participant KS/BS Difference
Apply training content to job	3.7	3.5	-0.2
Training helped do job better	3.9	3.7	-0.2
Changed aspects of work to apply training	3.8	3.4	-0.4

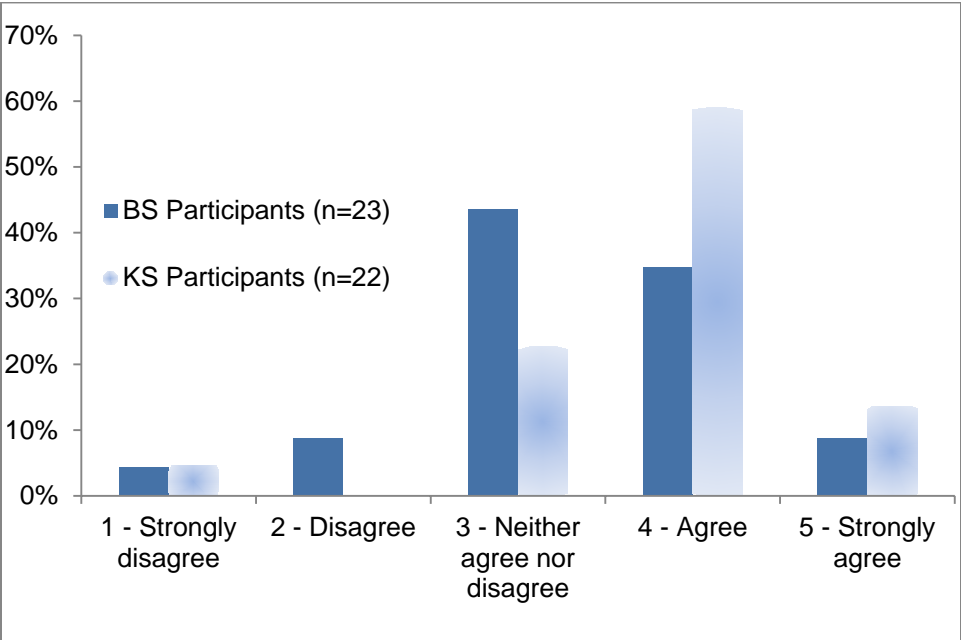
Participant Applies Training to Job:



Training has Helped Participant do Job Better



Participant has Changed Aspects of Work to Apply Training:



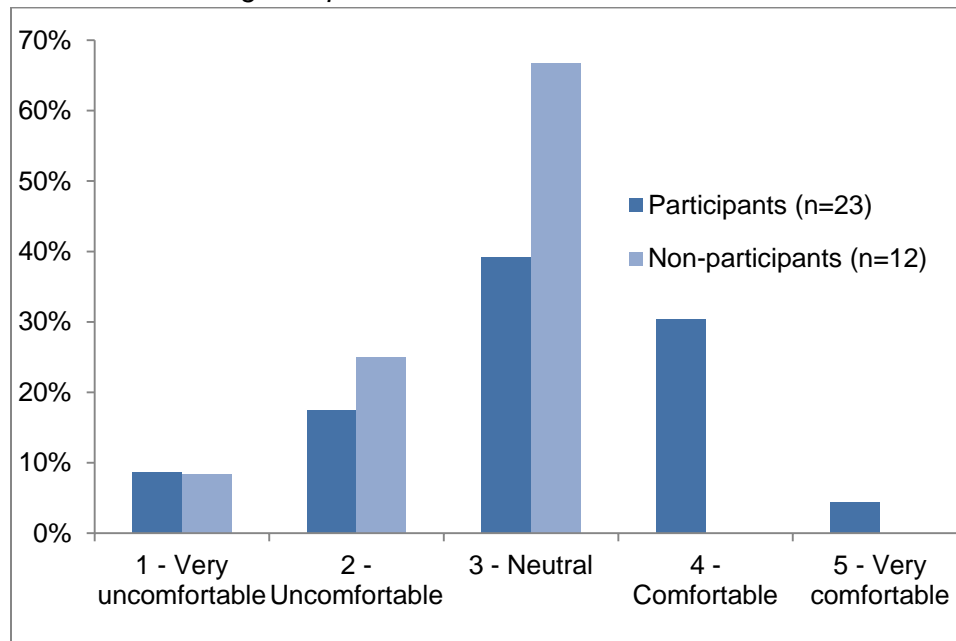
Evaluation Question 3

22. Compliance Paths

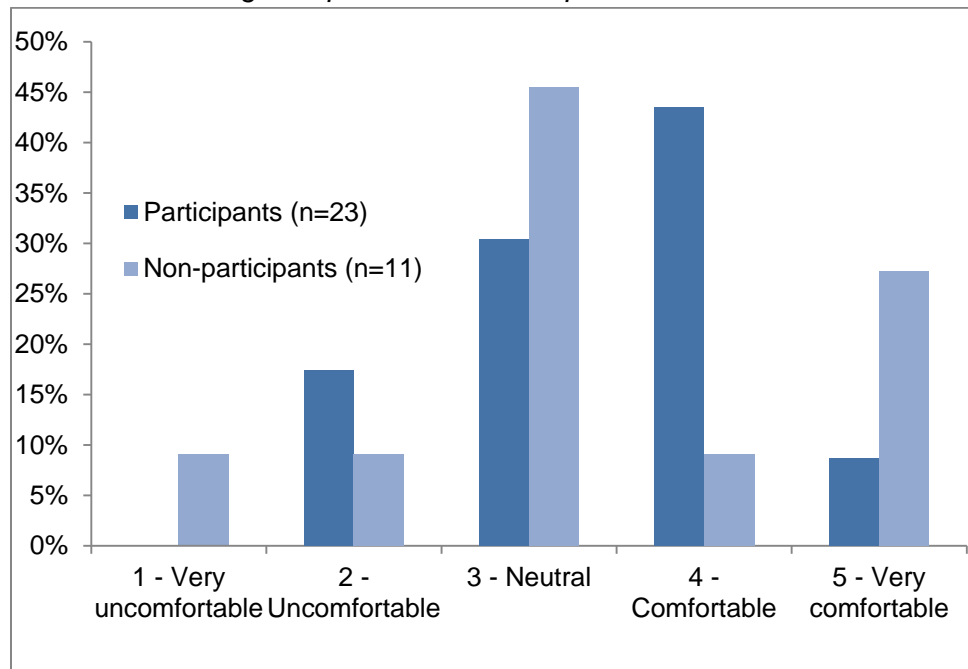
Please rate your comfort level assessing compliance via [ASHRAE 90.1/Prescriptive/Total building performance].

	Participant	Non-participant	Participant/ Non-participant Difference
ASHRAE 90.1	3.0 (n=23)	2.6 (n=12)	+0.4
Prescriptive	3.4 (n=23)	3.4 (n=11)	+0.1
Total building performance	3.1 (n=23)	3.0 (n=12)	+0.1

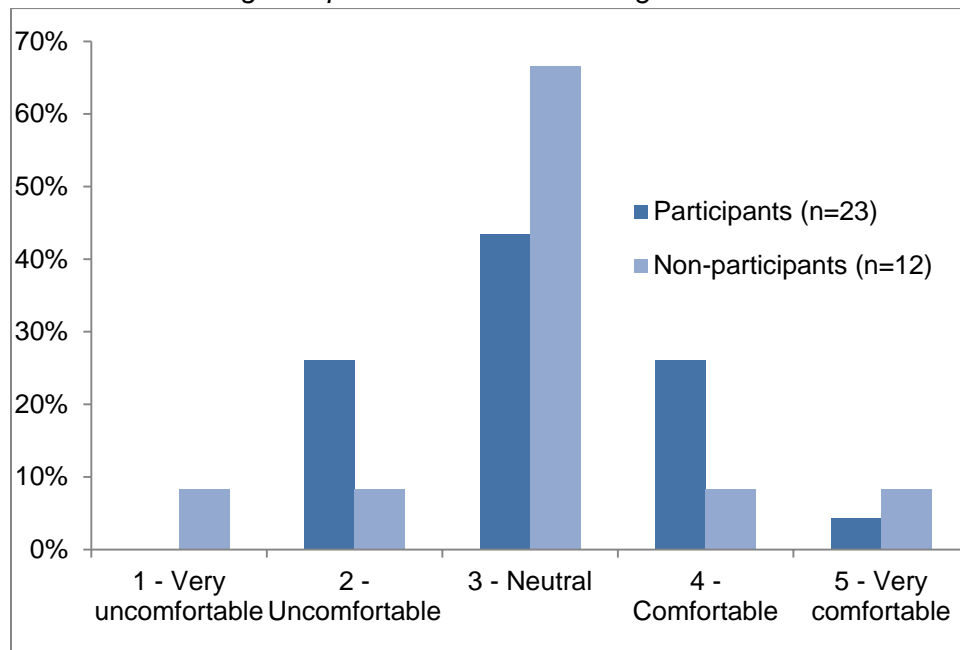
Comfort Assessing Compliance via ASHRAE 90.1:



Comfort Assessing Compliance via Prescriptive:



Comfort Assessing Compliance via Total Building Performance:

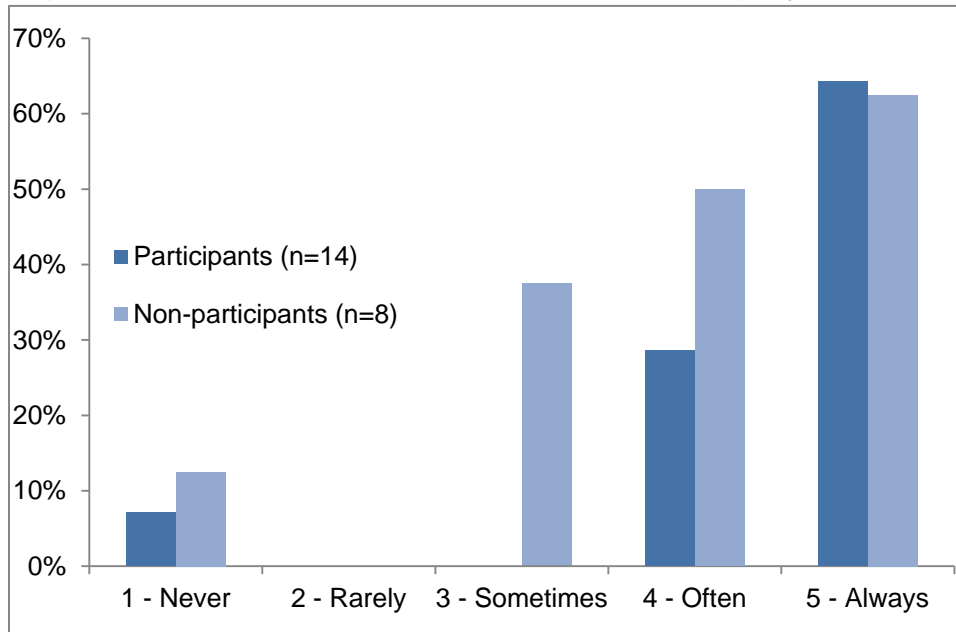


23. Commercial inspection practices

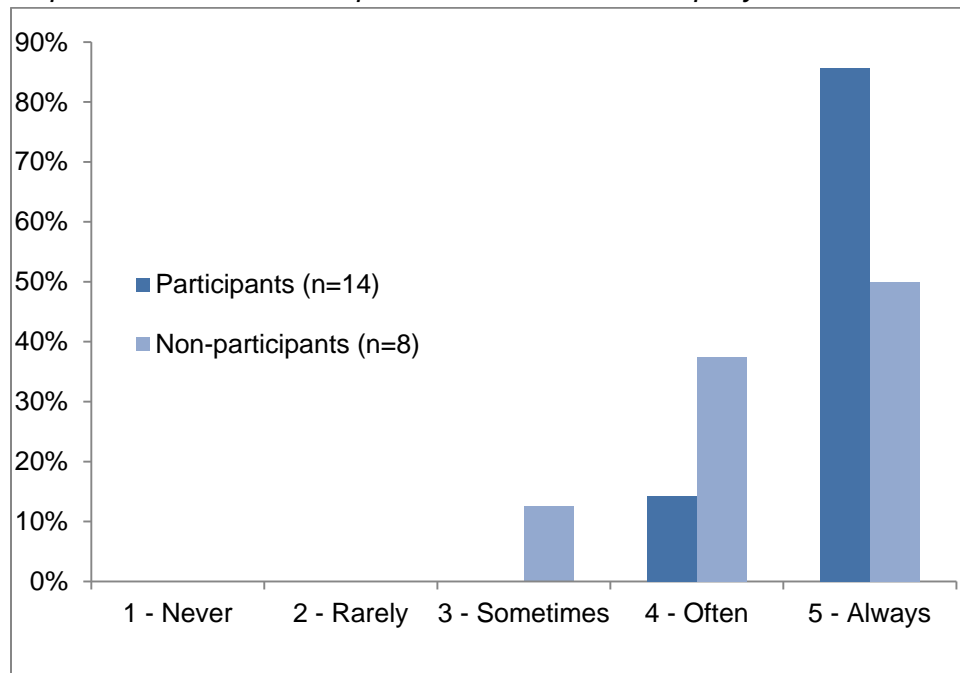
During inspections for commercial buildings, how often do you [ensure that continuous air barriers are installed properly/ensure envelope insulation is installed properly/require blower door testing] [before/after] training?

	Participant Before	Participant After	Participant Before/After Difference	Participant	Non-participant	Participant/ Non-participant Difference
Air barriers	3.7 (n=19)	4.3 (n=19)	+0.6	4.4 (n=19)	3.6 (n=10)	+0.8
Envelope insulation	4.3 (n=19)	4.9 (n=19)	+0.6	4.9 (n=19)	4.4 (n=10)	+0.5
Blower door testing (for buildings less than 50,000 square feet)	2.0 (n=19)	2.7 (n=19)	+0.7	2.7 (n=19)	4.7 (n=10)	-2.0

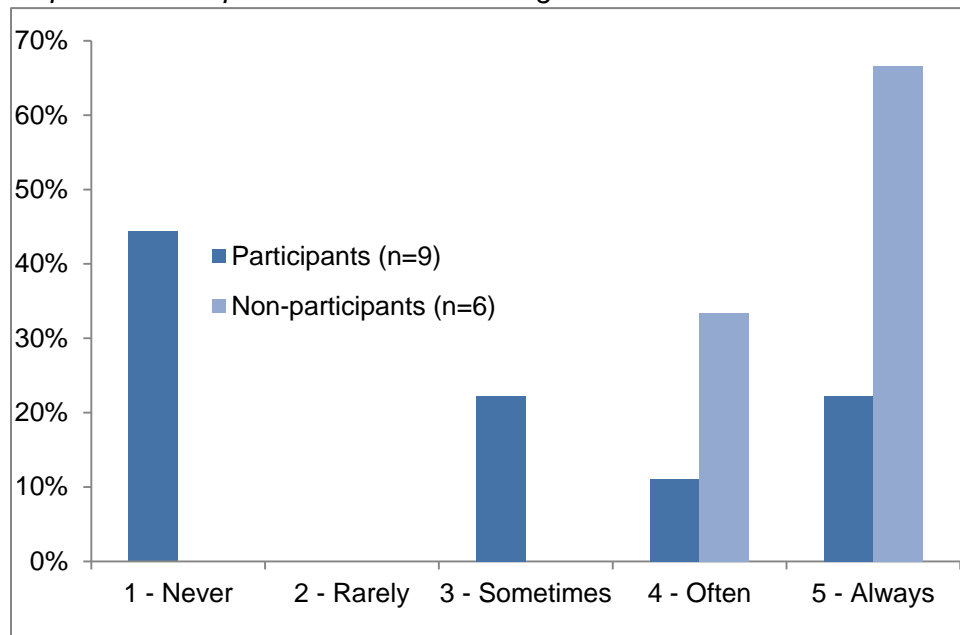
Inspections: Check Continuous Air Barriers Installed Properly:



Inspections: Check Envelope Insulation Installed Properly:



Inspections: Require Blower Door Testing:



24. Plan reviews provisions. Do you check for the following provisions in commercial building plan reviews [before/after] training?

Measure	Participant Before	Participant After	Participant Before/ After Difference	Participant	Non-participant	Participant/ Non-participant Difference
A continuous air barrier shall be provided throughout the building thermal envelope. Breaks or joints in the air barrier shall be sealed.	44% (n=16)	94% (n=16)	+50%	94% (n=16)	63% (n=8)	+31%
2016 Energy Code-required levels of ductwork and piping insulation	67% (n=15)	87% (n=15)	+20%	87% (n=15)	75% (n=8)	+12%
All recessed luminaires installed in the building thermal envelope shall be IC-rated and labeled as having an air leakage rate not more than 2.0 cfm (0.944 L/s) when tested in accordance with ASTM E 283 at a 1.57 psf (75 Pa) pressure differential. All recessed luminaires shall be sealed with a gasket or caulk between the housing and the interior wall or ceiling covering.	36% (n=14)	79% (n=14)	+43%	79% (n=14)	50% (n=8)	+29%
Day-lit spaces (where vertical fenestration area is 30 to 40 percent of the gross above-grade wall area or where skylight area is 3 to 5 percent of the gross roof area) have separate controls from general lighting controls or are automatically controlled with daylight sensors	17% (n=12)	67% (n=12)	+50%	67% (n=12)	63% (n=8)	+4%
2016 Energy Code-required space-specific lighting power density (LPD)	14% (n=14)	71% (n=14)	+57%	71% (n=14)	43% (n=7)	+28%
Each cooling system shall include either an air or water economizer.	21% (n=14)	57% (n=14)	+36%	57% (n=14)	71% (n=7)	-14%
Ventilation, either natural or mechanical, shall be provided in accordance with Chapter 4 of the International Mechanical Code. Where mechanical ventilation is provided, the system shall provide the capability to reduce the outdoor air supply to the minimum required by Chapter 4 of the International Mechanical Code.	33% (n=15)	73% (n=15)	+40%	73% (n=15)	75% (n=8)	-2%

For the each of the above plan review provisions, Participant respondents were asked to choose one of the following options: “Yes – incorporated before training”, “Yes – began incorporating after training”, “No – do not incorporate”, “No – provision is the responsibility of a separate entity”, “Don’t know”, and “N/A”. The Participant Before measure was calculated from the number of respondents who selected “Yes – incorporated before training”, divided by the total number of respondents of that question who neither selected “Don’t know”, “N/A”, or skipped the question.

The Participant After measure was calculated from the combined number of respondents who selected “Yes – incorporated before training”, and “Yes – began incorporating after training”, divided by the total number of respondents of that question who neither selected “Don’t know”, “N/A”, or skipped the question.

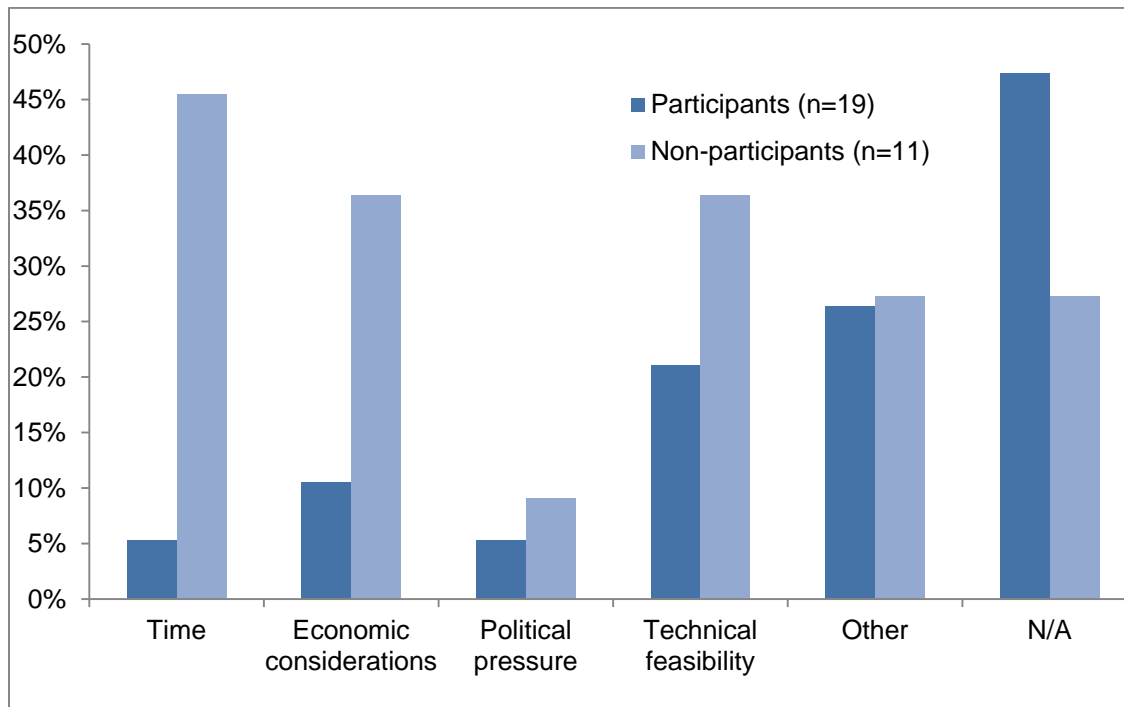
25. Inspection provisions. Do you check for the following provisions in commercial building inspections [before/after] training?

Measure	Participant Before	Participant After	Participant Before/After Difference	Participant	Non-participant	Participant/ Non-participant Difference
A continuous air barrier shall be provided throughout the building thermal envelope. Breaks or joints in the air barrier shall be sealed.	44% (n=16)	88% (n=16)	+44%	88% (n=16)	63% (n=8)	+25%
2016 Energy Code-required levels of ductwork and piping insulation	50% (n=16)	88% (n=16)	+38%	88% (n=16)	75% (n=8)	+13%
All recessed luminaires installed in the building thermal envelope shall be IC-rated and labeled as having an air leakage rate not more than 2.0 cfm (0.944 L/s) when tested in accordance with ASTM E 283 at a 1.57 psf (75 Pa) pressure differential. All recessed luminaires shall be sealed with a gasket or caulk between the housing and the interior wall or ceiling covering.	27% (n=15)	80% (n=15)	+53%	80% (n=15)	57% (n=7)	+23%
Day-lit spaces (where vertical fenestration area is 30 to 40 percent of the gross above-grade wall area or where skylight area is 3 to 5 percent of the gross roof area) have separate controls from general lighting controls or are automatically controlled with daylight sensors	7% (n=14)	64% (n=14)	+57%	64% (n=14)	63% (n=8)	+1%
2016 Energy Code-required space-specific lighting power density (LPD)	7% (n=14)	64% (n=14)	+57%	64% (n=14)	57% (n=7)	+7%
Each cooling system shall include either an air or water economizer.	13% (n=15)	53% (n=15)	+40%	53% (n=15)	71% (n=7)	-18%
Ventilation, either natural or mechanical, shall be provided in accordance with Chapter 4 of the International Mechanical Code. Where mechanical ventilation is provided, the system shall provide the capability to reduce the outdoor air supply to the minimum required by Chapter 4 of the International Mechanical Code.	25% (n=16)	63% (n=16)	+38%	63% (n=16)	75% (n=8)	-12%
<p><i>For the each of the above inspection provisions, Participant respondents were asked to choose one of the following options: “Yes – incorporated before training”, “Yes – began incorporating after training”, “No – do not incorporate”, “No – provision is the responsibility of a separate entity”, “Don’t know”, and “N/A”. The Participant Before measure was calculated from the number of respondents who selected “Yes – incorporated before training”, divided by the total number of respondents of that question who neither selected “Don’t know”, “N/A”, or skipped the question.</i></p> <p><i>The Participant After measure was calculated from the combined number of respondents who selected “Yes – incorporated before training”, and “Yes – began incorporating after training”, divided by the total number of respondents of that question who neither selected “Don’t know”, “N/A”, or skipped the question.</i></p>						

26. Barriers

If you have faced barriers to implementing changes related to the 2016 Energy Code, what barriers have you faced?

	Participant	Non-participant	Participant/ Non-participant Difference
Time	5% (n=19)	45% (n=11)	-40%
Economic considerations	11% (n=19)	36% (n=11)	-25%
Political pressure	5% (n=19)	9% (n=11)	-4%
Technical feasibility	21% (n=19)	36% (n=11)	-15%
Other	26% (n=19)	27% (n=11)	-1%
N/A	47% (n=19)	27% (n=11)	+20%
Respondent has attempted to address these barriers	100% (n=8)	75% (n=4)	+25%



Appendix C. Survey Responses to Open-Ended Questions

This appendix presents detailed results of the open-ended survey questions for which IEC conducted a formal coding analysis. There were a number of open-ended questions with few responses that IEC qualitatively summarized without coding; these questions were mostly follow-on questions such as “if yes, how?” or “why or why not?” Results are organized by survey question and audience group.

What are the most significant changes you have made to your [designs, plan reviews, or building inspections] related to the 2016 Energy Code? Please provide up to three examples.

Design Professionals

Response Category	Trainee	Non-trainee
Insulation	21	13
Documentation	5	7
Air barrier	5	0
Vapor barrier	4	0
Blower door testing	3	0
HVAC	3	3
Software	2	1
Windows/glazing	5	1
Lighting	2	9
Other	27	13

Code Officials: Plan Reviews

Response Category	Participant	Non-participant
Insulation	0	2
Documentation	1	1
Air barrier	0	1
Vapor barrier	0	0
Blower door testing	2	1
HVAC	1	0
Software	1	0
Windows/glazing	0	0
Lighting	3	1
Other	9	5

Code Officials: Inspections

Response Category	Participant	Non-participant
Insulation	4	2
Documentation	1	0
Air barrier	1	1
Vapor barrier	0	0
Blower door testing	0	2
HVAC	2	0
Software	0	0
Windows/glazing	1	1
Lighting	3	2
Other	4	3

Is there anything you have tried to implement to comply with the 2016 Energy Code that is not working?

Design Professionals

Response	Trainee	Non-trainee
Yes	8	4
No	19	7
N/A	4	1

Code Officials: Plan Reviews

Response	Participant	Non-participant
Yes	3	2
No	3	4
N/A	13	3

Code Officials: Inspections

Response	Participant	Non-participant
Yes	2	2
No	5	4
N/A	11	2

What would you say was the most useful aspect of the NYSERDA training in practice?

Response Category	Design Professional: Trainee	Code Official: Participant
General understanding of the code	14	3
2016 changes	9	5
Compliance paths	3	0
None - negative	2	0
Other	7	7

Appendix D. Interview Guide: Assessing Municipal Support Services

Industrial Economics, Inc. (IEc), in coordination with evaluation staff at NYSERDA, is conducting a process evaluation of their Advanced Energy Codes program. One of the goals of this evaluation is to assess the support services they offer through T.Y. Lin to municipalities to help code officials better implement and comply with the Energy Code, including plan reviews and on-site inspections. We understand that you have received these support services, and we would like to discuss your level of satisfaction with these services and resulting changes in knowledge or behavior.

IEc, as an independent research firm, in conjunction with NYSERDA's Performance Management staff, will keep the information you provide, including your name and contact information, confidential to the extent permitted by law. NYSERDA's analysis will use summary level data, and will not identify individual respondents or firms without obtaining written approval from quoted sources.

Background

1. We understand that you received plan review services from NYSERDA/T.Y. Lin.
 - a. How many times did you receive these services?
 - b. When did you receive these services?
2. *[If we have them recorded as receiving inspection services]* We understand that you received inspection services from NYSERDA/T.Y. Lin.
 - a. How many times did you receive these services?
 - b. When did you receive these services?
3. *[If we don't have them recorded as receiving inspection services]* Have you also received on-site inspection services from NYSERDA/T.Y. Lin?
 - a. *[If yes]* How many times did you receive these services?
 - b. *[If yes]* When did you receive these services?
4. Have you received training on the Energy Code?
 - a. *[If yes]* What type of training have you received (e.g. online versus in-person)?
 - b. *[If yes]* Which organization provided the training?
5. Does your work involve residential or commercial buildings, or both?
6. In which municipalities do you work?

Familiarity with the Energy Code

7. Do you think your level of understanding of the Energy Code changed due to the support services you received? Please explain.
8. How would you rate your level of confidence in enforcing the Energy Code on a scale of one to five, where one is not at all confident and five is extremely confident?
 - 1 – Not at all confident
 - 2 – Slightly confident
 - 3 – Somewhat confident
 - 4 – Moderately confident
 - 5 – Extremely confident
 - a. Do you think your level of confidence changed due to the support services you received? Please explain.
9. Would you feel comfortable describing how to comply with the Energy Code to one of your colleagues or others in the design and construction communities?
 - a. Why or why not?
 - b. Do you think your level of comfort changed due to the support services you received? Please explain.

Participation Effects

10. Why did you pursue plan review support services?
 - a. Did the services meet this need?
11. What, if anything, did you learn anything from the plan review support services?
 - a. Please elaborate.
 - b. Have you applied this learning to your plan reviews since you received the services?
12. Is there anything else you have changed in your plan reviews since you received the services?
13. [*If received inspection services*] Why did you pursue inspection support services?
 - a. Did the services meet this need?
14. [*If received inspection services*] What, if anything, did you learn from the inspection support services?
 - a. Please elaborate.
 - b. Have you applied this learning to your inspections since you received the services?
15. [*If received inspection services*] Is there anything else you have changed in your inspections since you received the services?

Satisfaction

16. On a scale of 1 (one) to 5 (five) with ‘1’ being Very Dissatisfied, ‘2’ being Somewhat Dissatisfied, ‘3’ being Neither Satisfied nor Dissatisfied, ‘4’ being Somewhat Satisfied and ‘5’ being Very Satisfied, please indicate your level of satisfaction with the following elements of the services you received from TY Lin:

	1 - Very Dissatisfied	2 - Somewhat Dissatisfied	3 - Neither Satisfied nor Dissatisfied	4 - Somewhat Satisfied	5 - Very Satisfied	Don't know	N/A
Ease of enrollment							
Quality of T.Y. Lin's performance							
Timeliness of service							
Clarity of communication from T.Y. Lin							
Comprehensiveness of T.Y. Lin staff knowledge							
Sufficiency of the resolution of any issues							
Overall satisfaction with the services							

17. Please further explain or elaborate on any Dissatisfaction ratings (indicated by a ‘1’ or a ‘2’) noted above.

18. How useful did you find the plan review checklist that T.Y. Lin provided, on a scale of one to five, where one is not at all useful, two is slightly useful, three is somewhat useful, four is moderately useful, and five is extremely useful?

- 1 – Not at all useful
- 2 – Slightly useful
- 3 – Somewhat useful
- 4 – Moderately useful
- 5 – Extremely useful

- a. Have you used the checklist since you received services from NYSERDA/T.Y. Lin?
 - i. [If yes] How often have you used them?

19. How useful did you find the inspection checklist that T.Y. Lin provided, on a scale of one to five, where one is not at all useful, two is slightly useful, three is somewhat useful, four is moderately useful, and five is extremely useful?
- 1 – Not at all useful
 - 2 – Slightly useful
 - 3 – Somewhat useful
 - 4 – Moderately useful
 - 5 – Extremely useful
- a. Have you used the checklist since you received services from NYSERDA/T.Y. Lin?
- i. *[If yes]* How often have you used them?
20. Are you likely to take advantage of the plan review or inspection services again in the future?
- a. *[If yes]* Which of the services (plan review or inspection, or both)?
 - b. Why or why not?
21. Would you recommend these services to a colleague?
- a. Why or why not?
22. Do you have any other feedback on NYSERDA's plan review *[and inspection, as applicable]* services?