

Building Envelope Programs - Exam Summary Report

Certified Building Envelope Technician (CBET)

The Certified Building Envelope Technician (CBET) written exam contains a total of 120 items (100 scored and 20 non-scored) and is divided into four major knowledge dimensions. Candidates are allotted 3 hours to complete the exam. Table 1 outlines the number of items in each dimension.

Table 1. CBET Examination Plan Summary

| Dimension | # of Scored Questions | # of Non-Scored Questions | # of Questions |
|------------------|-----------------------|---------------------------|----------------|
| Building Science | 40 | 8 | 48 |
| Air | 20 | 5 | 25 |
| Moisture | 20 | 3 | 23 |
| Thermal | 20 | 2 | 24 |
| Total | 100 | 20 | 120 |

To date, CBET Forms 030101, 030201, and 030202 have been administered to a total of 309 candidates, 211 (68%) of which have passed and received their CBET designation (Table 2). Exam 030101 was retired in 2018, and Exam 030201 in 2019. Exam 030202 is the only one currently in use. Accordingly, the exam statistics for 030202 are summarized in Table 3.

Table 2. Pass/Fail Rates for CBET Exam Form 030101,030201, and 030202

| | Fail | Pass | Total | Fail% | Pass % |
|------------------|------|------|-------|-------|--------|
| CBET Exam | 98 | 211 | 309 | 32% | 68% |

Table 3. Written Exam 030202 Exam Summary Statistics

| Overall Exam Performance | |
|--------------------------------------|-------|
| Number of Exams Administered: | 67 |
| Number of Scored Questions: | 100 |
| Number of non-Scored Questions: | 20 |
| Exam Mean: | 60.90 |
| Exam Minimum: | 19 |
| Exam Maximum: | 93 |
| Average Raw Percent Correct: | 0.61 |
| Standard Deviation: | 15.89 |
| Standard Error of Measurement (SEM): | 4.16 |
| Reliability (KR-20): | 0.93 |
| Average Question Difficulty: | 0.61 |

Certified Building Envelope Specialist – Air & Moisture Barrier (CBES – AMB)

The Certified Building Envelope Specialist – Air & Moisture Barrier (CBES – AMB) written exam contains a total of 84 items (70 scored, 14 non-scored) and is divided into three major knowledge dimensions. Candidates are allotted 2.5 hours to complete the exam. Table 4 outlines the number of items in each dimension, including the number of scored and non-scored items.

Table 4. CBES – AMB Examination Plan Summary

| Dimension | # of Scored Questions | # of Non-Scored Questions | # of Questions |
|---|-----------------------|---------------------------|----------------|
| Air Management | 24 | 5 | 29 |
| Water and Moisture Management | 25 | 6 | 31 |
| Penetrations, Terminations, and Transitions | 21 | 3 | 24 |
| Total | 70 | 14 | 84 |

To date, CBES – AMB Forms 040101 and 040201 have been administered to 88 candidates of which 72 (82%) have passed and received their CBES – AMB designation. Exam 040201 is the only one currently in use. Accordingly, the exam statistics for 040201 are summarized in Table 6.

Table 5. Pass/Fail Rates for CBES – AMB Exam Form 040101 and 040201

| | Fail | Pass | Total | Fail % | Pass % |
|------------------------|------|------|-------|--------|--------|
| CBES – AMB Exam | 16 | 72 | 88 | 18% | 82% |

Table 6. Written Exam 040201 Exam Summary Statistics

| Overall Exam Performance | |
|--------------------------------------|-------|
| Number of Exams Administered: | 24 |
| Number of Scored Questions: | 70 |
| Number of non-Scored Questions: | 14 |
| Exam Mean: | 47.00 |
| Exam Minimum: | 28 |
| Exam Maximum: | 56 |
| Standard Deviation: | 6.60 |
| Average Raw Percent Correct: | 67.14 |
| Standard Error of Measurement (SEM): | 3.16 |
| Reliability (KR-20): | 0.77 |
| Average Question Difficulty: | 0.67 |

Certified Building Envelope Specialist – Thermal Barrier (CBES – TB)

The Certified Building Envelope Specialist – Thermal Barrier (CBES – TB) written exam contains a total of 60 items (50 scored, 10 non-scored) and is divided into two major knowledge dimensions. Candidates are allotted 2 hours to complete the exam. Table 7 outlines the number of items in each dimension, including the number of scored and non-scored items.

Table 7. CBES - TB Examination Plan Summary

| Dimension | # of Scored Questions | # of Non-Scored Questions | # of Questions |
|--|-----------------------|---------------------------|----------------|
| Thermal Principles & Insulation | 27 | 5 | 32 |
| Thermal Defects, Fenestrations, Testing & Measurements | 23 | 5 | 28 |
| Total | 50 | 10 | 60 |

To date, CBES – TB Forms 050101 and 050201 have been administered to 57 candidates of which 47 (82%) have passed and received their CBES – TB designation. Exam 050201 is the only one currently in use. Accordingly, the exam statistics for 050201 are summarized in Table 9.

Table 8. Pass/Fail Rates for CBES – TB Exam Form 050101 and 050201

| | Fail | Pass | Total | Fail % | Pass % |
|-----------------------|------|------|-------|--------|--------|
| CBES – TB Exam | 10 | 47 | 57 | 18% | 82% |

Table 9. Written Exam 050201 Exam Summary Statistics

| Overall Exam Performance | |
|--------------------------------------|-------|
| Number of Exams Administered: | 19 |
| Number of Scored Questions: | 50 |
| Number of non-Scored Questions: | 10 |
| Exam Mean: | 39.26 |
| Exam Minimum: | 30 |
| Exam Maximum: | 45 |
| Standard Deviation: | 4.03 |
| Average Raw Percent Correct: | 78.52 |
| Standard Error of Measurement (SEM): | 2.44 |
| Reliability (KR-20): | 0.63 |
| Average Question Difficulty: | 0.79 |

Certified Building Envelope Specialist – Spray Foam Barrier (CBES – SFB)

The Certified Building Envelope Specialist – Spray Foam Barrier (CBES – SFB) written exam is divided into three major knowledge dimensions. There are two forms of the CBES – SFB exam: 0601 and 0602. Exam 0601 was retired in March 2019 and Exam 0602 was rolled out in April 2019.

The retired exam 0601 contained a total of 48 items (40 scored, 8 non-scored). Table 10 outlines the number of items in each dimension, including the number of scored and non-scored items. CBES – SFB 0601, versions 1-3 exam was administered to 26 candidates, all of which received their CBES – SFB designation (Table 11).

Table 10. CBES – SFB Examination Plan Summary for 0601

| Dimension | # of Scored Questions | # of Non-Scored Questions | # of Questions |
|-------------------------------|-----------------------|---------------------------|----------------|
| Spray Polyurethane Foam (SPF) | 8 | 2 | 10 |
| Health and Safety | 12 | 2 | 14 |
| Applications/ Installations | 20 | 4 | 24 |
| Total | 40 | 8 | 48 |

Table 11. Pass/Fail Rates for CBES – SFB Exam Form 0601

| | Fail | Pass | Total | Fail % | Pass % |
|------------------------|------|------|-------|--------|--------|
| CBES – SFB Exam | 0 | 26 | 26 | 0% | 100% |

Exam 060201 contain a total of 96 items (80 scored, 16 non-scored). Candidates are allotted 3 hours to complete the exam. Table 12 outlines the number of items in each dimension, including the number of scored and non-scored items. Exam 060201 exam has been administered to 22 candidates, 21 (95%) of which received their CBES – SFB designation (Table 13). Table 14 presents the summary statistics for the most current version of the CBES – SFB exam.

Table 12. CBES – SFB Examination Plan Summary for 060201

| Dimension | # of Scored Questions | # of Non-Scored Questions | # of Questions |
|-------------------------------|-----------------------|---------------------------|----------------|
| Spray Polyurethane Foam (SPF) | 16 | 4 | 20 |
| Health and Safety | 24 | 4 | 28 |
| Applications/ Installations | 40 | 8 | 48 |
| Total | 80 | 16 | 96 |

Table 13. Pass/Fail Rates for CBES – SFB Exam Form 060201

| | Fail | Pass | Total | Fail % | Pass % |
|------------------------|------|------|-------|--------|--------|
| CBES – SFB Exam | 1 | 21 | 22 | 5% | 95% |

Table 14. Written Exam 060201 Exam Summary Statistics

| Overall Exam Performance | |
|--------------------------------------|-------|
| Number of Exams Administered: | 13 |
| Number of Scored Questions: | 80 |
| Number of non-Scored Questions: | 16 |
| Exam Mean: | 66.15 |
| Exam Minimum: | 58 |
| Exam Maximum: | 73 |
| Standard Deviation: | 4.90 |
| Average Raw Percent Correct: | 82.70 |
| Standard Error of Measurement (SEM): | 2.83 |
| Reliability (KR-20): | 0.67 |
| Average Question Difficulty: | 0.83 |

Certified Master Building Envelope Specialist (CMBES)

The Certified Master Building Envelope Specialist (CMBES) written exam is divided into three major knowledge dimensions. The CMBES exam contains a total of 120 items (100 scored, 20 non-scored). Candidates are allotted 3 hours to complete the exam. Table 15 outlines the number of items in each dimension, including the number of scored and non-scored items.

Table 15. CMBES Examination Plan Summary

| Dimension | # of Scored Questions | # of Non-Scored Questions | # of Questions |
|------------------------------|-----------------------|---------------------------|----------------|
| Quality Control | 30 | 6 | 36 |
| Envelope Testing/Corrections | 25 | 5 | 30 |
| Building Science | 20 | 4 | 24 |
| Installation | 25 | 5 | 30 |
| Total | 100 | 20 | 120 |

To date, there have been two versions of the CMBES exam: 070101 and 070102. Exam 070102 is the only one currently in use. Form CMBES 070101 has been administered to 21 candidates, 9 (43% pass rate) of which have received their CMBES designation (Table 16). Table 17 presents the summary statistics for the CMBES Form 070102 exam.

Table 16. Pass/Fail Rates for CMBES Exam Form 070101

| | Fail | Pass | Total | Fail % | Pass % |
|-------------------|------|------|-------|--------|--------|
| CMBES Exam | 12 | 9 | 21 | 57% | 43% |

Table 17. Written Exam 070102 Exam Summary Statistics

| Overall Exam Performance | |
|--------------------------------------|-------|
| Number of Exams Administered: | 16 |
| Number of Scored Questions: | 100 |
| Number of non-Scored Questions: | 20 |
| Exam Mean: | 70.31 |
| Exam Minimum: | 61 |
| Exam Maximum: | 82 |
| Standard Deviation: | 6.21 |
| Average Raw Percent Correct: | 70.31 |
| Standard Error of Measurement (SEM): | 3.88 |
| Reliability (KR-20): | 0.61 |
| Average Question Difficulty: | 0.70 |