

FORMALDEHYDE EMISSIONS
GRADEMARK PROGRAM
QUALITY ASSURANCE MANUAL
CPA-HCHO-QAM-2012



COMPOSITE PANEL ASSOCIATION

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FOREWORD

The CPA Formaldehyde Emissions Certification Grademark Program Manual introduced on January 1, 2012 will supersede the manual last revised on June 16, 2008.

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**COMPOSITE PANEL ASSOCIATION
GRADEMARK CERTIFICATION PROGRAM
FORMALDEHYDE EMISSION**

The CPA Formaldehyde Emission Grademark Program (the "Program") has been developed to provide independent third-party certification of formaldehyde emission levels from wood and agri-fiber panel products. The Program includes requirements for initial qualification for product certification, plant quality control procedures and periodic audits by CPA all designed to reasonably assure that certified unfinished (including sanded) composite panel products meet the emission limits specified in applicable standards, specifications, and regulations (See Appendix A).

Although the Program was originally developed in response to, and designed to meet, the certification requirements of the Department of Housing and Urban Development's Manufactured Home Construction and Safety Standards, 24 C.F.R. Part 3280, it can be used to certify conformance of different types of panel products to different governmental or voluntary industry standards which CPA decides to include in such Program. This includes California Air Resources Board ATCM 93120. The specific details of emission limits, loading, air exchanges, variations in testing and distinctive marking applicable to any given standard will be set forth in appendices to this Program. For example, Appendix M outlines recertification procedures for a product to which a finish or laminate containing formaldehyde has been added to a certified substrate.

There are both "informative" and "normative" appendices to the Program. Informative appendices are not part of the Program, whereas normative appendices are part of the Program and are therefore binding. For a Glossary of Terms, see Appendix B. The provisions of this Program defined in the CPA Formaldehyde Emission Grademark Program Quality Assurance Manual ("CPA Manual") are minimum requirements.

1. APPLICATION

Any person or company (the "Licensee") wishing to have its products certified pursuant to the Program may apply in writing to the President of CPA on the form attached hereto as Appendix C. A properly executed Grademark License Agreement, a copy of which is attached as Appendix D, shall accompany the application.

2. RESPONSIBILITY FOR PRODUCT PERFORMANCE

The manufacturer is solely responsible for the performance of all products certified under this Program, at the time of shipment from the manufacturer, including meeting the applicable standard(s) against which its products are certified. Product represented as conforming to the formaldehyde emission requirements of a standard which, after shipment from the manufacturer, has been subjected to varying conditions of environmental, storage, handling, or manufacture, may not continue to conform to the standard when subsequently tested.

3. INITIAL PLANT QUALIFICATION

Upon receipt of a completed application and license agreement, CPA shall conduct one or more audits of each of the Licensee's plants participating in the Program. The cost of such audit(s) shall be borne by the applicant. The purpose of the audit shall be to determine that the procedures and processes of each plant conform or can be made to conform to the

requirements of this Program. The plant will determine how many product types (for product type examples see Appendix F) it will certify. In general, these requirements include:

- (a) CPA approved written quality control manual;
- (b) CPA approved quality control facilities and personnel;
- (c) Passage of a qualifying compliance test(s);
- (d) CPA approved small scale quality control test(s);
- (e) CPA approved procedure for selecting samples; and
- (f) CPA approved correlation values between the small-scale quality control test(s) and the Compliance Test(s) if applicable

4. QUALITY CONTROL MANUAL

Each plant must have a written quality control manual, which shall contain at least the following:

- (a) The organizational structure of the quality control department;
- (b) Detailed sampling procedures;
- (c) Method of handling samples;
- (d) Frequency of quality control small scale testing;
- (e) Procedures to identify changes in formaldehyde emissions resulting from production changes (e.g. increase in percentage of resin, increase in formaldehyde/urea molar ratio in the resin, or decrease in press time);
- (f) Provisions for additional testing;
- (g) Recordkeeping requirements;
- (h) Average percentage of resin and press time for each product type and thickness;
- (i) Procedures for recording complaints from customers about the formaldehyde emissions and proper corrective actions;
- (j) An equipment calibration or verification program;
- (k) Quality control correlation and update schedules;
- (l) Back-up plan for quality control testing; and
- (m) Quality control sampling variation and how it is addressed

A sample quality control manual is included as Appendix E.

5. QUALITY CONTROL FACILITIES

Laboratory facilities and equipment shall be provided and properly maintained for each plant which will permit the conduct of such tests and audits as may be required from time to time by the applicable standard and this Program. As an alternative to on site testing, plants may contract with a quality lab approved by CPA including the CPA's International Testing and Certification (ITCC) laboratory facility. Equipment shall be calibrated in accordance with the equipment manufacturer's instructions. Original and any subsequent equipment calibration records shall be maintained.

6. QUALITY CONTROL PERSONNEL

6.1 QUALITY CONTROL MANAGER

Each plant shall have a fully qualified person primarily responsible for formaldehyde emission quality control who reports to the plant manager. This person shall be identified in the application and CPA shall be informed in writing within 10 days of any change in his or her identity. The Quality Control Manager shall review and initial all reports of testing conducted on the plant's production, and shall immediately inform CPA by telephone, fax

and by e-mail or letter of any changes in production requiring new compliance test or any conditions requiring reaudits as set forth in Section 10.

6.2 QUALITY CONTROL EMPLOYEE

Appropriate quality control employees shall be fully qualified to conduct accurate chemical quantitative analytical tests. The Quality Control Manager shall identify each person conducting quality control tests to the CPA. All appropriate quality control employees need to be certified annually by a representative of the Program following Section 6.3.

6.3 CHEMICAL ANALYSIS TESTS

6.3.1 Duplicate Analysis

A CPA representative or plant Quality Control Manager shall test one portion of a formaldehyde solution; the employee to be certified shall test another portion of the same solution. The results of each test must be within 10% of each other. A CPA representative must also, within three months, certify any quality control employee certified by the Quality Control Manager.

6.3.2 Proficiency Samples

The employee to be certified must correctly determine within 10% the formaldehyde content of four sample solutions submitted to them by the CPA representative or plant Quality Control Manager.

7. COMPLIANCE TESTS

7.1 INITIAL (QUALIFYING) COMPLIANCE TEST

To qualify for certification, each product type (for examples see Appendix F), from each production line must be tested in an approved Compliance Test using ASTM E1333 Standard Method for Determining Formaldehyde Concentrations in Air and Emission Rates from Wood Products Using a Compliance Test ("ASTM E1333"). Alternatively, CPA may conduct Compliance Tests using ASTM D6007 Standard Test Method for Determining Formaldehyde Concentrations in Air from Wood Products Using a Small Scale Chamber (ASTM D6007).

For the purpose of a qualifying Compliance Test and with CPA approval, a Licensee may group two or more product types together if they have statistically equivalent emission characteristics. If a plant elects to have all or multiple product types represented by a single product type, an initial compliance qualification test failure by that representative product will cause certification to lapse on all other product types represented. The emissions from each product type must not exceed the maximum limit set forth in the applicable standard.

7.2 COMPLIANCE TEST LOCATIONS

At CPA's discretion compliance testing may be conducted either at CPA's laboratory, a CPA approved third party facility.

7.3 CORRELATION OF COMPLIANCE TEST AND SMALL SCALE TEST VALUES

In order to qualify for certification, the Licensee must also establish a reliable correlation between the Compliance Test values and the values from the small scale tests to be used in the quality control program for each product type and production line (See Appendix H). For purposes of establishing this correlation, only data for products from the Licensee's plant, data obtained by CPA from its own tests or data obtained from others whose accuracy has been verified by CPA, may be used (See Section 8.3).

When applicable and with CPA approval, a plant may forgo quality control correlations if the plant's or test laboratory's small scale test methods are performed in accordance with ASTM D6007. Quality Control tests performed in this manner must be performed within all the parameters required by the certification standard being referenced including, but not limited to, air change rates, environmental parameters and sample conditioning.

7.4 SUBSEQUENT (VERIFYING) COMPLIANCE TESTS

7.4.1 Quarterly Chamber Tests

Quarterly at least one Compliance Test using ASTM E1333 or applicable ASTM D6007 shall be conducted by CPA on a randomly selected sample of each type of certified product and from each production line (See Appendix F).

For the purpose of a verifying Compliance Test and with CPA approval, a Licensee may group two or more product types together if they have statistically equivalent emission characteristics. If a plant elects to have all or multiple product types represented by a single product type, a quarterly Compliance test qualification test failure by that representative product will cause certification to lapse on all other product types represented. The emissions from each product type tested must not exceed the maximum limit set forth in the applicable standard.

7.4.2 Additional (Verifying) Chamber Tests

Additional Compliance Tests shall be conducted at CPA's earliest convenience if any of the following events occur:

- (a) The resin formulation is changed so that the formaldehyde-to-urea ratio is increased;
- (b) The finishing or topcoat is changed and the new finishing or topcoat contains formaldehyde; and/or
- (c) CPA, in its sole discretion, determines that a Compliance Test is necessary to assure compliance with the relevant standard.

7.4.3 Failure of a Compliance Test

7.4.3.1 Lapse of Certification

If the emission value obtained during a subsequent (verifying) Compliance Test exceeds the maximum value permitted by the applicable standard, the tested product's certification automatically lapses as of the date of production of the tested panels (See Appendix G). Should Compliance Test and small scale test results on the same product differ, the Compliance Test result shall control.

7.4.3.2 Requalification

Should certification lapse, it may be reinstated only upon successful completion of another Compliance Test. The requalification Compliance Test must be conducted on the same product type and production line as that which failed the verifying test.

7.4.3.3 Enhanced Quality Assurance Requirements

Should a plant have two or more losses of certification occurrences in a product category in a 12 month period the following requirements will be initiated. Loss of certification is defined as (1) compliance test result exceeds the maximum value permitted by the standard, (2) 6 consecutive lots in a product type above the QCL and, (3) produces 11 or more lots above the plant QCL for the product type out of the previous 100 consecutive lots, or (4) failure of a quarterly compliance test by the TPC.

If a plant experiences two or more losses of certification within a twelve-month period, and does NOT agree to work through the enhanced requirements delineated below, the plant will no longer be permitted to participate in CPA's Formaldehyde Certification Program.

For plants experiencing a lower incident rate, the current CPA Formaldehyde Grademark Program and CARB requirements are appropriate and satisfactory, and these enhanced requirements do not apply.

The requirements below will be implemented in a stepped and sequential progression by CPA. The requirements apply only to the product category that lost certification, unless at the CPA's discretion, additional product categories are deemed in need of improvement. As applicable, CPA will require a plant to implement #1 first then reassess the plant's performance after a quarter. The TPC will continue with requiring #2 through #6 as may be needed, with a quarterly assessment between each one until the TPC is satisfied with the plant's quality control program and performance. The TPC will not impose the enhanced requirements concurrently.

The progressive requirements are as follows:

1. Plants shall use matching material (on the product category that loss certification) to test quarterly compliance material, using the regular plant small-chamber test method, and predict the CPA's test result, using the plant's "shipping quality control limit (SQCL)" to within ± 0.03 ppm and report the predicted result to their CPA representative, not the compliance laboratory, prior to the laboratory communicating the result. Failure to predict a compliance test, using the SQCL, within the allowed range shall result in the plant arranging with the CPA for matched compliance test material to be collected. The plant and CPA auditor shall work together to sample "hot" boards for quarterly compliance testing, thus allowing a plant to use their "hot" Quality Control Limit (QCL) to predict the ITCC test result. If the plant fails to predict more than two compliance tests per calendar year, using hot and or shipping QCL correlations, then the TPC shall increase the level of enhanced quality assurance practices to #2 of this enhanced quality assurance document.
2. For plants that rely on daily hot QCL values, work shall be initiated to develop decay curve knowledge of each product category over the first seven days after pressing (production date). This knowledge can be used to develop "like" product type categories to minimize the occurrence of non-complying product reaching the

marketplace. Using the decay curve knowledge, each of the following items shall be reviewed and substantiated.

- (a) Lengthen the conditioning time for quality control samples to improve correlations;
- (b) Sample QC samples that is older in time after pressing to improve correlations;
- (c) Plant may choose random QC samples more frequently than required. Possibilities include early, in the middle and/or late in a lot production; and
- (d) Quarantine production and re-test all sample results that are above the QCL

Decay curve analysis should take into account seasonal changes (winter/spring/summer/fall).

3. Increase the minimum of matched samples from five (5) to 10 (plant small-scale chamber versus CPA compliance chamber) to develop hot and shipping quality control correlations.
4. If a plant's quality control program is based on "hot" testing, the plant shall also collect QC data on cold, sanded, ready to ship product and judge the test result against the "shipping quality control limit" (SQCL). This will give the plant both "Hot" QC values and "Shipping" QC values to determine if the lot should be labeled as certified.
5. The plant will increase the confidence interval above the 95% threshold level to a level agreed upon by the CPA based on the plant's incident rate of complying events.
6. At CPA's discretion, additional items from the CPA's voluntary best practices checklist will be required for plants that have experienced a higher level of non-complying events over the previous 24 months. (See Appendix P)

7.4.3.4 Certification of Failed Lot

Certification of a lots* that has failed the Compliance Test may be obtained if the Licensee can demonstrate to the satisfaction of CPA that (1) each panel is treated with a scavenger, sealant or other means of reducing formaldehyde emissions (such as aging) which does not affect the structural properties of the product; and (2) panels randomly selected from the treated panels are tested under and pass the Compliance Test.

* A lot is defined as the volume of a product type produced either: from the beginning of a product category run until the first quality control test; or between one quality control test and the next one; or from the last quality control test to the end of a product category run.

If choosing to recertify the material, certification privileges are reinstated at the press shift and day of the requalification compliance test. Non-certified lots are defined as the lot that contained the compliance failure and all lots up to the requalification. These lots may be recertified by compliance test selected by the CPA Technical Representative or self-selected at the discretion of the CPA. All recertification tests must be completed within six (6) weeks of the initial determination of the failed lot. If the quantity of lots to be recertified is very large, the CPA at its discretion, may permit a plant to redefine a lot to be a period of 24 hours if a sampling of the lots demonstrates consistent compliance. A plant can only use this alternative sampling protocol if written authorization is received from CPA in advance. If material is to be recertified with a press date after the 6-week window, the CARB "Non-

complying Lot" Advisory (08-01) procedure can be implemented to certify that production. Documents and test results should be kept in a separate database from the daily results and be made readily available during the next CPA audit.

7.5 SAMPLE SELECTION, HANDLING AND SHIPPING

Compliance Test samples shall be product ready for shipment randomly chosen from a single lot. Neither the top or bottom panels of a bundle shall be selected. The panels must be dead-stacked or air tight wrapped between the time of sample selection and the start of test conditioning. Quarterly samples shall be promptly labeled, signed by the CPA auditor, bundled air tight, wrapped in polyethylene, protected by cover sheets, and promptly shipped to the Compliance testing facility. At CPA's discretion, qualification and requalification samples may be selected by plant personnel. Conditioning shall begin as soon as possible but not in excess of 30 days after production. At the plant's option, a second sample set (a reserve set) may be selected, handled and shipped in the same manner as the original.

8. SMALL SCALE QUALITY CONTROL TESTS

Each plant shall conduct small-scale quality control tests for each product type and production line to ascertain that its certified board does not exceed the maximum emissions set forth in the applicable standard. Unless prior notice is given (See Appendix N), all lots of each product type being certified at each plant will be tested for certification, with each lot's small scale quality control test results reported to CPA.

8.1 CPA APPROVED TEST METHODS

The following small-scale tests may be used as quality control test methods providing they meet the requirements set forth in Section 8.3:

- (a) ASTM D5582, Standard Test Method For Determining Formaldehyde Emissions From Wood Products Using a Desiccator
- (b) Modified ASTM D5582 in which samples are conditioned for a consistent amount of time less than seven (7) days after edge coating
- (c) ASTM D6007 for small dynamic chambers of 0.02 – 1.0m³ displacement. This includes dynamic electro-mechanical formaldehyde sensor equipped apparatuses
- (d) EN 120 perforator method
- (e) Other small scale tests if CPA approves them, in writing prior to use

8.2 CORRELATION OF QUALITY CONTROL TESTS WITH COMPLIANCE TEST

Each plant's quality control test methods must be shown to correlate in a statistically significant way the Compliance Test (ASTM E1333 or approved ASTM D6007). Such correlation generally requires a sample size of between five (5) and twenty (20) data points with five (5) being the minimum. At minimum, a new matching data point will be added to the correlation data annually for each production category. Appendix H contains guidelines for statistically significant correlation values. CPA shall maintain current records of the correlation values for each Licensee's plant and each product category. If data shows variation from previously used correlation, the CPA, in its sole discretion, may evaluate the data to determine if a statistically significant change has occurred. If a change is noted a new correlation curve will be established for the Licensee.

8.3 QUALITY CONTROL LIMIT (QCL)

CPA shall establish a "Quality Control Limit" for each product type and production category. The Quality Control Limit is the value for any approved small scale quality control test which is the correlative equivalent to the maximum value in the Compliance Test permitted by the applicable standard (for more information on developing a QCL, see Appendix H).

Also for each plant and product type, CPA shall establish a "Shipping" QCL pursuant to Section 8.6 to be used for certification retesting of lots deemed to be Non-complying as defined in Section 8.7. Plant personnel shall compare small scale test data to Quarterly Compliance Test results. CPA may review a plant's QCL at any time and shall review a plant's QCL upon a failure of a Quarterly Compliance Test.

8.3.1 Extend or Reduce Product Categories

The licensee shall contact CPA of the intent to make a product category change and then follow the procedure of Appendix O of this manual.

8.4 BASIC TESTING FREQUENCY

Basic test frequency of products to be certified shall be at least one test per eight (8) hours \pm one hour of production per production line for each product category for particleboard and medium density fiberboard (MDF) and similar composite panel products. In addition, quality control tests must be performed for particleboard or MDF whenever a product type production run ends without reaching eight hours of production.

Basic test frequency for hardwood plywood (HWPW) products will be as follows. When weekly HWPW production is (a) less than 200,000 ft², one (1) routine test per product category at minimum; (b) if weekly production is between 200,000 ft² and 400,000 ft², two (2) routine tests per product category at minimum; and (C) greater than 400,000 ft², four (4) routine test per product category at minimum.

In addition, whenever one of the following occurs additional quality control tests shall be performed:

- (a) The resin formulation is changed so that the formaldehyde to urea ratio is increased; or
- (b) An increase by more than ten percent in the amount of urea-formaldehyde resin used; or
- (c) A decrease in the designated press time by more than 20 percent; or
- (d) When the Quality Control Manager or Qualified Quality Control Employee has reason to believe that the board being produced may not meet the requirements of the applicable standards.

8.5 REDUCTION IN BASIC TESTING FREQUENCY

Testing frequency may be reduced when the plant or production line demonstrates consistent operations and low variability of test values as described in the following section. To meet the requirements, a 30 panel running average shall be maintained. If the 30 panel running average remains two standard deviations below the designated Quality Control Limit for the previous 60 consecutive calendar days or more, the testing frequency may be reduced to one test per 24 hour production period. When the 30 panel running average remains three standard deviations below the QCL for the previous 60 days or more, the testing frequency may be reduced to once every 48 hour production period. Licensees who

meet these requirements and who desire to reduce testing frequency must obtain CPA's advance written approval. Once such approval is obtained, Licensees must calculate the standard deviation during each CPA audit in accordance with Appendix I, base Target Operating Level calculations (Appendix K) on this calculation and include this data with the product data sheet sent to the CPA.

Alternatively, products with approval under the California Air Resources Board (CARB) Composite Wood Air Toxic Control Measure (ATCM) may follow the reduced frequency testing procedures described in the regulation

8.6 PRODUCT REQUIREMENTS

CPA shall establish a QCL for each plant, or product category as defined in Section 8.3 and Appendix H. In addition, an "Excursion Limit" shall be established at 1.35 standard deviations (SD) of the quality control test values above the QCL in accordance with Appendix I. Ninety five of the last one hundred (95%) test values must be equal to or less than the Quality Control Limit and all products must be equal to or less than the Excursion Limits to qualify for certification. After 20 tests an excursion limit will be calculated. From that point forward no test may exceed this excursion limit. On occasions when less than 100 consecutive data points are available, products below the excursion limit are eligible for certification if the following criteria are met.

1. When the number of total tests is:

- (a) Between 1 and 20, one or fewer tests exceed the QCL,
- (b) Between 21 and 40, two or fewer tests exceed the QCL,
- (c) Between 41 and 60, three or fewer tests exceed the QCL,
- (d) Between 61 and 80, four or fewer tests exceed the QCL,
- (e) Between 81 and 100, five or fewer tests exceed the QCL.

2. When two or fewer tests exceed the QCL out of any five consecutive tests.

Products not conforming to these requirements are deemed "Non-complying Lots" as defined in Section 8.7 and lots shall not be certified unless treated and retested pursuant to Sections 8.7.2 and 8.8.

Standard deviations and Excursion Limits based upon the most recent 100 test values shall be calculated by the Licensee for each plant and for each certified product type. Results shall be reported in writing to the CPA at least every six months but no more frequently than every month.

8.7 NON-COMPLYING LOTS

When evaluating the last 100 test values, a "Non-complying Lot" is any lot that:

- (a) has a test value in excess of the Excursion Limit; or
- (b) has a 3rd, 4th or 5th test value that exceeds the QCL out of any 5 consecutive tests; (three tests in a row) or
- (c) has a 6th or subsequent test value that exceeds the QCL out of the last 100 tests.

When based on fewer than 100 test values, any of the following constitute a Non-complying Lot:

1. When the number of total tests is:

- (a) Between 1 and 20 test values, the second and subsequent lots exceed the QCL; or
- (b) Between 21 and 40 test values, the third or subsequent lots exceed the QCL; or
- (c) Between 41 and 60 test values, the fourth or subsequent lots exceed the QCL; or
- (d) Between 61 and 80 test values, the fifth or subsequent lots exceed the QCL; or
- (e) Between 81 and 100 test values, the sixth or subsequent lots exceed the QCL.

2. When the 3rd, 4th or 5th test value exceeds the QCL out of any five consecutive lots.

3. After 20 tests an excursion limit will be calculated. From that point forward no test may exceed this excursion limit.

Test results from all Non-complying Lots shall be maintained in the 100 test series. For a Non-complying Lot to be certified it must meet the requirements of Section 8.7.2 and 8.8.

8.7.1 Disposition of Non-complying Lots

A Non-complying Lot, as defined in Section 8.7, must be isolated from certified lots. The Non-complying Lot cannot be certified unless it is determined to be in compliance by methods described below. If the Licensee chooses not to certify, or is not able to certify, all CPA authorized formaldehyde emission certification marks on the non-complying lot must be removed or obliterated. However, the original test value of that lot shall be maintained in the certification calculations for standard deviation and consecutive lots (Section 8.7). Such lots shall be identified in the quality control chart. The CPA will conduct an additional audit or questioning to report on all pertinent information for any non-complying lot or loss of certification.

8.7.2 Treatment of Non-complying and Retroactive Product

Production which has failed the small scale test or was produced before the licensee was Grademark certified or certified to the CARB standard may be retested for certification under the provisions of Section 8.8 if each panel is treated with a scavenger, or other means of reducing formaldehyde emissions (such as aging) which does not adversely affect the structural integrity of the product.

8.8 SMALL SCALE RETESTING

The Licensee may choose to retest a Non-complying Lot. When retesting a Non-complying Lot the following criteria apply:

- (a) At least 3 test panels shall be selected from three (3) separate bundles. They should be selected in such a manner that is representative of the entire lot. Each panel shall be tested by the plant's small scale quality control test.
- (b) Test samples shall not be selected from the top or bottom panels of a bundle.
- (c) The average of the three representative samples must pass the Shipping QCL as defined in Section 8.9.
- (d) CPA shall be informed promptly in writing of any certification pursuant to this section (See Appendix N-2).

The Non-complying Lot's original quality control test value shall be used for calculating QCL excursion frequency and standard deviation (Sections 8.6, 8.7 and 10). The average retest

value for products certified pursuant to this Section shall be noted in the test reports but not used in the calculation of QCL excursion frequency or standard deviation.

8.9 SHIPPING QUALITY CONTROL LIMIT FOR RETESTING

A Shipping QCL shall be used for determining certification eligibility after retesting of a Non-complying Lot pursuant to Section 8.8. CPA shall establish the Shipping QCL for each plant, production line and product category. This Shipping QCL value is the correlative equivalent to the maximum value in the Compliance Test permitted by the applicable standard and is based upon finished products ready for shipment (see Appendix H).

If the Shipment QCL is identical to the standard QCL or, in CPA's determination, significantly equivalent, the standard QCL value may be used for certification pursuant to the retesting provisions of Section 8.8. Or at CPA's discretion, a Compliance Test on the lot(s) in question may be performed at the CPA's ITCC laboratory facility.

8.10 BEGINNING A NEW 100 TEST SERIES

A new 100 test series shall be required for new Licensees, after a quality control limit is assigned, or when CPA, in its sole discretion, deems it appropriate. Section 8.6 defines certification criteria for test series of less than 100 values.

8.11 PLANT REPORTING

Each Licensee shall maintain product data reports for each plant, production line and product type utilizing the CPA Grademark and shall send copies to CPA Technical Representative weekly. The reports shall include a data sheet for each specific product with test and production information, and a quality control graph of the 100 test series. Examples of the data sheet and quality control graph are provided in Appendix J. The quality control graph shall contain at a minimum, the following:

- (a) Quality Control Limit;
- (b) Excursion Limit;
- (c) Shipping Quality Control Limit;
- (d) Last 100 test values; and
- (e) Retest values

Also recommended for inclusion in the quality control graph are a target operating level as defined in Appendix K and a running 30 panel average.

9. PERIODIC CPA AUDITS

9.1 PURPOSE

After a Licensee has qualified to use the CPA Formaldehyde Emission Grademark on any product type, CPA will conduct periodic on-site audits of the plant where the qualified product type is produced to ensure full compliance with the provisions of this Program, the Licensee agreement and the plant's quality control manual and practices.

9.2 FREQUENCY

Audits will occur at least once a month; although the audit frequency may be reduced. For example, if the running average of the last 30 product quality control tests is two standard

deviations below the QCL for the previous 60 or more days, then CPA audits may occur once every six weeks. If the average is three standard deviations below the limit for the previous 60 days or more, then CPA audits may occur only once per quarter. Audit frequency is solely within the discretion of CPA.

The CPA utilizes on-site and desk audits as follows:

- (a) For one (1) or two (2) product categories per plant,
 - a. One (1) on-site and two (2) desk audits per quarter, annually;
- (b) For three (3) or four (4) product categories,
 - a. Two (2) on-site and one (1) desk audit per quarter, annually;
- (c) For five (5) or more product categories,
 - a. Three (3) on-site audits per quarter.

This schedule is completely at the discretion of the CPA and may be modified due to physical property audits or plant parameters.

9.3 AUDIT PROCEDURES

The CPA representative shall be given full cooperation in all aspects of the audit, including:

- (a) Reviewing formaldehyde emission quality control records;
- (b) Reviewing production records for press times and urea-formaldehyde resin usage;
- (c) Examining in-process formaldehyde emission quality control procedures;
- (d) Selection of sample panels for emission testing;
- (e) Evaluating labeling of products;
- (f) Interviewing and testing of qualified quality control employees (see sections 6.2 and 6.3); and
- (g) Having full access to the Quality Control Manager and any quality control employee involved with formaldehyde certification.

The CPA representative may be excluded from plant areas considered confidential (See Section 14) providing such exclusion does not prevent or hinder CPA from performing the duties required by this Grademark Program.

9.4 SAMPLE SELECTION AND TESTING PROCEDURES

The CPA representative may conduct a small scale test during his/her visit. One panel of a product to be certified shall be selected for a single test. The result of this test shall be entered into the record of test values maintained by the Licensee. If the addition of this test value to the record causes the tested lot to be a Non-complying Lot as defined in Section 8.7, the lot shall be isolated and cannot be certified until it is determined to be in compliance by treatment and retesting pursuant to Sections 8.7.2 and 8.8.

9.5 REPORT OF FINDINGS

Upon completion of the audit, the CPA representative shall prepare his findings in writing and review them with the Quality Control Manager or plant manager, if available. As soon as complete test data is available, CPA shall provide a written report to the plant stating the test results and advising the plant of any deficiencies that must be corrected to maintain qualification.

10. CPA REQUALIFICATION AUDITS

In the event that a Licensee produces six (6) consecutive lots of a product type in excess of its QCL, or produces eleven (11) or more lots in excess of its QCL out of the previous 100 consecutive lots, authority to certify that product category automatically lapses. The CPA shall be notified promptly, and the Licensee may use the procedures of Section 8.8 to attempt to requalify the product type for certification. CPA, at its discretion, may conduct a Section 9 audit and may also require the Licensee to demonstrate conformance to the requirements of Section 3.

11. RECORDKEEPING

Licensees shall maintain complete records documenting the following:

- (a) Tracking information – production sequence;
- (b) Product information – description, date of manufacture, lot/batch number;
- (c) Purchaser information – purchaser's name, contact person, address, phone number, purchase order or invoice order, and amount purchased;
- (d) Product transporter information – delivery companies name, contact person, address, phone number, and shipping invoice number;
- (e) Small scale test results;
- (f) Changes in the resin percentage for any product type, from levels set by the quality control manual, by more than ten percent (calculated on the basis of resin solids and oven dry wood weight of the face and core furnish, adjusted proportionately);
- (g) Increases in the formaldehyde/urea mole ratio of the resin;
- (h) Changes in press time by more than 20 percent for any product from the levels set in the plant quality control manual (See Section 4);
- (i) Testing of Qualified Quality Control Employees;
- (j) Disposition of non-conforming products; and
- (k) Other records requested at the discretion of CPA relating to CPA's conduct of the Program

These records shall be made readily available to authorized representatives of the CPA. Records shall be retained for a minimum of two (2) years.

12. COMPLAINTS, APPEALS AND DISPUTES

12.1 PROCEDURE

The handling of complaints, appeals and disputes of the Grademark Program are taken seriously by CPA. The issues are handled by the President of CPA. All complaints, appeals and disputes are recorded and filed in accordance with CPA records retention policy. The procedures for complaints, appeals and disputes are as follows:

12.1.1 DISPUTES BETWEEN CPA AND LICENSEE

In the event a dispute arises between Licensee and CPA concerning Licensee's product types' conformance or nonconformance with the applicable standards or Licensee's conformance with the CPA Grademark Program, the Licensee may obtain a review of the dispute by the President of CPA. The Licensee shall present a statement of its position in writing to the President of CPA, who shall review the statement, consult with CPA personnel

as needed, and render corrective action. The Licensee shall be notified of the corrective action in writing within 14 days.

12.1.2 COMPLAINTS RECEIVED BY CPA

When a complaint is received by CPA from a client, the complaint will be put in writing. The complaints are discussed with other CPA employees for technical and service needs. An action plan to resolve the complaint(s) are communicated to the client for resolution. The action plan is documented for future reference and a follow up should take place at a reasonable time after implementation. The Vice President, Product Acceptance is the lead on all complaints.

12.1.2.1 COMPLAINTS RECEIVED BY LICENSEE

If a complaint specifically about CPA Formaldehyde certification has been received by the Licensee of the product from the consumer, tracking of the complaint and an action plan will be initiated. The CPA will be notified of the complaint and the records will be available for review at CPA's discretion.

12.1.3 APPEALS BETWEEN CPA AND LICENSEE

12.1.3.1 PROCEDURE

In the event a dispute arises between Licensee and CPA concerning Licensee's product types' conformance or nonconformance with the applicable standards or Licensee's conformance with the CPA Grademark Program, the Licensee may obtain a review of the dispute by the Certification Oversight Board and the President of CPA. The Licensee shall present a statement of its position in writing to the President of CPA and the President shall refer the matter to the Certification Oversight Board. The Licensee shall be afforded a full opportunity, in person and by counsel if desired, to be heard by and to present any relevant evidence to the Certification Oversight Board. Unless otherwise agreed to by the parties, within fourteen days, the Board will make written recommendations on the matter to the President of CPA, who shall then review the matter and make a final and binding determination.

12.1.3.2 CERTIFICATION OVERSIGHT BOARD

The Certification Oversight Board shall consist of members as outlined in the Certification Oversight Board by-laws. The Board shall consist of members not having any personal interest in the outcome of the resolution.

13. CPA GRADEMARKS AND CERTIFICATES

13.1 OWNERSHIP OF GRADEMARKS AND CERTIFICATES

CPA has and at all times retains full and exclusive ownership and property rights in and to the Grademark and in and to all replicas, certificates and symbols that it furnished Licensee. CPA shall make available to Licensee the appropriate replicas, certificates and symbols embodying the CPA Grademark described herein and may charge such fee therefore as it deems appropriate. Licensee shall obtain such replicas, symbols and certificates exclusively from CPA or authorized CPA source. In the event such replicas, certificates and symbols become unusable for any reason whatsoever, any and all replacements shall be obtained exclusively from CPA or CPA authorized source and the unusable material shall either be

returned to CPA or disposed of as directed by CPA. Brands, stamps and other devices or means used to imprint such replicas, certificates and symbols which are made available to Licensee by CPA shall not be altered or defaced and shall not be removed from Licensee's plant except as directed by an authorized representative of CPA. They shall be maintained and used in a clean condition. All such brands, stamps and other devices or means will be available at all times for CPA audit. Additional requirements with regard to Licensee's rights and obligations are set forth in the License Agreement to be executed by Licensee prior to such use of the Grademark.

13.2 PANEL IDENTIFICATION

All panels for which a Licensee uses the CPA Grademark shall be identified by product manufacturer, date and shift of production and/or lot number, and CPA as the agency certifying compliance by using at least one of the following methods:

- (a) Stamping or labeling of individual panels;
- (b) Attaching or affixing at least two unit labels to each unit and/or;
- (c) Attaching or affixing one unit label to each unit and including with the shipment a written statement containing the required identifying information.

13.3 FACSIMILE OF GRADEMARKS

Appendix L contains a facsimile of the Grademarks currently authorized by CPA for use solely by CPA Licensees under appropriate license agreements. Also included are descriptive phrases, not a part of the Grademark, explaining the major parts of the Grademark. A facsimile of the Grademark can be used in a form that is large as desired by the Licensee, and only as small that allows the printed text to remain legible for someone with 20/20 vision to read.

14. CONFIDENTIALITY

All information, including data, telephone and e-mail communications and documentation supplied by the Licensee to CPA pursuant to this Grademark Program shall be considered confidential and shall not be disclosed by CPA except as may be required by law.

CPA shall also consider confidential any observations of equipment, process, techniques, or other matters known by CPA to be considered proprietary by the Licensee.

APPENDIX A-1 (NORMATIVE)
STANDARDS APPROVED BY CPA FOR GRADEMARK USE AS OF DECEMBER 2011

1. Department of Housing and Urban Development Standard 24 CFR Part 3280.

Testing Method: ASTM E 1333 (most recent year)
Air Change: 0.5 AC/H
Loading Ratio: 0.13 ft²/ft³
Emission Level: 0.30 ppm

Grademark stamp/label shall include the phrase: "Conforms to HUD Formaldehyde Emission 24 CFR Part 3280 For Particleboard"

2. American National Standard for Particleboard - ANSI A208.1 (2009)

Testing Method: ASTM E 1333 or proven equivalent ASTM D 6007
Air Change: 0.5 AC/H
Loading Ratio: 0.13 ft²/ft³ or 0.04 ft²/ft³ for LD grade
Emission Level: 0.09 ppm or 0.18 ppm

Grademark stamp/label shall include the phrase: "Conforms to ANSI A208.1-2009 for Formaldehyde Emission for Particleboard"

3. American National Standard for Medium Density Fiberboard - ANSI A208.2 (2009)

Testing Method: ASTM E 1333 or proven equivalent ASTM D 6007
Air Change: 0.5 AC/H
Loading Ratio: 0.08 ft²/ft³
Emission Level: 0.21 ppm, 0.11 ppm, or 0.13 for thin MDF

Grademark stamp/label shall include the phrase: "Conforms to ANSI A208.2-2009 for Formaldehyde Emission for MDF"

4. CPA Voluntary Environmentally Preferable Product Specification CPA 3-08 (April 1, 2008)

Formaldehyde Certification: CPA EPPS 3-08
Recycled/recovered Furnish Content: 100%
Emission Level: 0.18 ppm for particleboard
0.21 ppm for MDF
0.20 ppm for hardboard

Grademark stamp/label shall include the phrase: "CPA Voluntary Environmentally Preferable Product Specification"

5. CPA Grademark Plant Specification

Testing Method: Plant Specified
Emission Level: Plant Specified

6. European Standard (EN) – 312 (1996)
 - Testing Method: EN 120
 - Emission Level: Class 1: $\leq 8\text{mg}/100\text{g}$

7. European Standard (EN) – 622 (1997)
 - Testing Method: EN 120
 - Emission Level: Class A: $\leq 9\text{mg}/100\text{g}$

8. California Air Resources Board – Air Toxic Control Measure 93120 Phase 1 and 2
 - Testing Method: ASTM E 1333 or ASTM D 6007
 - Emission Level Phase 1: 0.08 ppm HWPW-CC

 - Emission Level Phase 2: 0.09 ppm for particleboard
 0.11 ppm for MDF
 0.13 ppm for thin MDF
 0.05 for HWPW-VC
 0.05 for HWPW-CC

9. ANSI/HPVA HP-1 (most recent year)
 - Testing Method: ASTM E 1333 (most recent year)
 - Air Change: 0.5 AC/H
 - Loading Ratio: $0.13\text{ ft}^2/\text{ft}^3$ and $0.29\text{ ft}^2/\text{ft}^3$
 - Emission Level: 0.20 ppm for plywood wall paneling
 0.30 ppm for industrial and reconstituted wood

10. CPA Voluntary Eco-Certified Composite (ECC) Standard CPA 4-11 (9/19/11)
 - Formaldehyde Certification: CPA ECC 4-11
 - Emission Level: 0.09 ppm for particleboard
 0.11 ppm for MDF
 0.13 ppm for thin MDF

APPENDIX A-2 (NORMATIVE)
POLICY FOR CPA TESTING, CERTIFICATION, AND GRADEMARK PROGRAMS

CPA members recognize the importance of maintaining a strong, internationally recognized and respected third party testing and certification program for industry products. At the same time, they also recognize the importance of CPA's advocacy of the use of sound science in the development of responsible product standards. The following policy should guide CPA members and staff in testing, certification, and Grademarking issues:

1. CPA Grademark Programs, in which CPA Grademarks or other CPA identification are attached to or placed on the certified products, will continue to be based only on standards approved by the CPA Board of Directors.
2. CPA, in pursuing its objective to promote the full acceptance of North American products internationally, will continue to make testing and certification services available to responsible parties under the following conditions:
 - These services shall not be part of any CPA Grademark Program, and therefore not be CPA Grademarked or have CPA identification attached to the certified products.
 - CPA shall hold the existence, content, and results of these services strictly confidential.
 - CPA shall insist that those utilizing these services refer to them only as may be authorized in their contract with CPA. The parties shall agree that they will identify or otherwise publicly refer to CPA testing and certification only as follows:

"Representative samples of this product were tested by the Composite Panel Association, according to (insert test methods) and found to meet the following (insert tested property) limits: (insert standard or specification)"

3. CPA will continue to be a strong advocate for the use of sound science to address questions on health effects and human exposure, and in the development of reasonable product standards. CPA will continue to actively promote products certified and grademarked to North American national standards (e.g., CARB, HUD, ANSI, CPA). CPA will continue to collect, aggregate, and publish testing and certification statistics developed under its Grademark Programs and report them to appropriate regulatory agencies.
4. CPA will continue to evaluate the appropriateness of providing quality control (system) monitoring or certification services to facilities using ISO 9000 series or other quality control standards.
5. CPA will continue its efforts to become a testing/certification subcontractor to national, recognized, or "notified" organizations in foreign countries, and to eventually become an internationally recognized "notified" body itself.
6. CPA will continue to play an active role in the development of international and foreign standards.

Approved by the Executive Committee on July 26, 1991(Updated: 4/30/2002)

Standards Approved for Use with CPA Grademark

1. HUD 24 CFR 3280 (formaldehyde, manufactured homes)
2. ANSI A208.1 (standard for particleboard)
3. ANSI A208.2 (standard for MDF)
4. HUD (Use of Materials) UM 70b (stepping, physicals)
5. CPA Voluntary Environmentally Preferable Product Specification (CPA 3-08)
6. CPA Voluntary Eco-Certified Composite (CPA 4-11)
7. ANSI A135.4 Basic Hardboard
8. ANSI A135.5 Pre-finished Hardboard Paneling
9. ANSI A135.6 Hardboard Siding
10. CPA Grademark Plant Specification
11. CPA formaldehyde requirements of EN-312
12. CPA formaldehyde requirements of EN-622
13. ANSI/HPVA HP-1

APPENDIX B (NORMATIVE) GLOSSARY

The purpose of this Glossary is to provide the reader with a summary reference to commonly used terms in the Formaldehyde Grademark Program. References to the program sections where the terms and their use are defined (and appendices that elaborate and show examples) are given.

EXCURSION LIMIT - a quality control level that shall not be exceeded by a certified lot (Section 8.6). This "not to exceed" level is established at 1.35 times the standard deviation above the quality control limit (i.e. QCL + 1.35 SD).

LOT - the volume of a product type produced either: (a) from the beginning of a product type run until the first quality control test; (b) between one quality control test and the next one; or (c) from the last quality control test to the end of a product type run (Section 7.4.3.3). When basic testing frequency is utilized, a lot is generally considered to be no more than 8+1 hours of production (Section 8.4).

NONCOMPLYING LOT - a lot not currently suitable for certification (Section 8.6).

QUALITY CONTROL LIMIT (QCL) - the value for any approved small scale quality control test which is the correlative equivalent to the maximum value in the Large Chamber test permitted by the applicable standard for the product type (Section 8.3, Appendix H).

QUALIFICATION - a process of demonstrating compliance with all the requirements of the Program, including providing an acceptable written quality control manual; acceptable quality control facilities and personnel; demonstrating ability to pass Large Chamber qualifying test; having an acceptable small scale quality control test; acceptable procedure for selecting samples; and acceptable correlation between the small scale quality control test and the compliance chamber test (Section 3).

REQUALIFICATION - a process of demonstrating compliance with one or more of the basic Large Chamber Test or small scale quality control test requirements of the Program after certification has lapsed. A Licensee must requalify a product if six consecutive quality control tests are Non-complying or if 11 of the last 100 quality control tests are Non-complying or if there is a failure of a Large Chamber Test for the product type (Sections 7.4.3, 10).

RETEST - a qualifying quality control test (Section 8.8) that determines conformance of a Non-complying Lot. For certification, a retested Non-complying Lot must have a test value at or below the Shipping QCL (Section 8.3).

SHIPPING QUALITY CONTROL LIMIT (SQCL) - a QCL used for determining conformance of a Non-complying Lot. The Shipping QCL is based upon a correlation between the quality control test values of product ready for shipment and the Large Chamber (Section 8.3).

(Continued)

STANDARD DEVIATION (SD) - a measure of variation of the quality control test values (Appendix I - normative). The SD is used for calculation of the Excursion Limit (Section 8.6), testing frequency (Section 8.5), and the optional Target Operating Level (Appendix K).

TARGET OPERATING LEVEL (TOL) - an optional means of maintaining 95% or more of the quality control tests below the QCL. Typically, a running 30 panel average is calculated and compared to a predetermined operating level that reasonably assures the Licensee of operating at 95% or more below the QCL (Appendix K).

APPENDIX C (NORMATIVE)
APPLICATION FOR FORMALDEHYDE EMISSIONS CERTIFICATION UNDER THE
COMPOSITE PANEL ASSOCIATION GRADEMARK PROGRAM

Initial Application*

Amended Application*

**A separate application form is required for each plant. Applications shall be resubmitted as amended applications if circumstances change after submission of an initial application to CPA.*

1. Company

Name:

Corporate Entity (LLC, company, etc.):

Legal Status (private, public, etc.):

2. Plant Address:

3. Plant Manager:

Phone Number:

Fax:

E-mail:

4. Person designated as the *Quality Control Manager* for this Program:

Name:

Phone Number:

Fax:

E-mail:

5. Approximately what percentage of the plant's production will be certified to a standard with the Grademark Formaldehyde Program?

_____ %

6. What is the product scope of Grademark Formaldehyde certification? (All industrial products, specialized category, etc.)

7. What product types to be certified and to which emission standard (ANSI, CARB Phase 1, CARB Phase 2)?

	Yes/No	Standard
Manufactured Home Decking		
Underlayment		
Stair Tread		
Industrial Particleboard		
Thin - Medium Density Fiberboard		
Medium Density Fiberboard		
Hardwood Plywood - Composite Core		
Hardwood Plywood - Veneer Core		
Other (specify)		

8. Location of quality control formaldehyde location emission laboratory? If not in the plant, please provide laboratory contact information.

9. What small scale, quality control formaldehyde emission test does your plant use?

ASTM D5582 (Desiccator- *specify any modifications*) _____

ASTM D6007 (Small Chamber - *specify any modifications*) _____

Other? _____

10. Please attach all data on the correlation between the results of the small scale test listed above and Compliance Test results (if applicable)

11. Please attach a copy of the plant's quality control manual or procedures regarding formaldehyde emissions. (if applicable)

12. This application (or amended) application must be accompanied by an executed copy of the current applicable CPA Grademark License Agreement.

By signing below, the applicant agrees to comply with the requirements for CPA Formaldehyde Emission certification and to supply any information needed for evaluation of products to be certified.

Date

Sign Name

Print Name

Title

Company/Plant

_____ CPA Reviewed	_____ Date
-----------------------	---------------

APPENDIX D (NORMATIVE)

**COMPOSITE PANEL ASSOCIATION
FORMALDEHYDE EMISSIONS GRADEMARK PROGRAM
LICENSE AGREEMENT**

THIS AGREEMENT entered into by and between COMPOSITE PANEL ASSOCIATION (“CPA”), an Illinois not-for-profit corporation, and _____ (“Licensee”), with respect to the plant(s) at the location(s) and for the products listed in the Application for Certification (Appendix C of the CPA Formaldehyde Grademark Program Quality Assurance Manual, hereinafter the “Manual”) attached hereto and made a part hereof.

WHEREAS, the California Air Resources Board (“CARB”) has promulgated an Air Toxic Control Measure limiting the emissions of formaldehyde from particleboard, MDF, and hardwood plywood (CCR 93120); the U.S. Department of Housing and Urban Development (“HUD”) has promulgated regulations limiting the emissions of formaldehyde from particleboard used in manufactured housing (24 CFR, Part 3280); and the International Code Council (ICC) has published the building codes referencing standards for particleboard and such regulations and standards (hereinafter referred to collectively as “Standards”) require certification by a nationally recognized testing laboratory such as CPA; and

WHEREAS, CPA has developed, published, sponsored or revised, and may hereafter further develop, publish, sponsor or revise, certain voluntary Formaldehyde standards for industry products (more particularly described in Appendix A of the CPA Formaldehyde Grademark Program Quality Control Manual); and

WHEREAS, CPA has adopted a Formaldehyde Grademark Program Quality Assurance Manual (“Manual”) which includes, among other things, procedures for initial qualification, minimum requirements for manufacturers’ quality control testing and CPA inspection procedures, and is attached hereto and made a part hereof; and

WHEREAS, CPA owns a Certification Mark, (“Trademark”), being registered with the United States Patent Office, which Trademark or replica thereof (hereinafter “Grademark(s)”) CPA may license for use in connection with products which conform to any of the applicable Standards; and

WHEREAS, CPA has developed certain Grademarks containing its Trademark to identify industry products manufactured in conformance with those Standards specified in each such CPA Formaldehyde Grademark;

NOW, THEREFORE, in consideration of the payment of One Dollar (\$1.00) to CPA by Licensee; the payment of annual fees to CPA by Licensee for the payment

to CPA of such additional fees for administration of this agreement and the Formaldehyde Grademark Program as the CPA Board of Directors may from time to time direct; and other good and valuable consideration, the parties mutually agree as follows:

1. Subject to determination by CPA that Licensee's plant(s) listed in the Application have passed the initial inspection as provided in the Manual, CPA hereby grants to Licensee for the term of this agreement and any extensions thereof, a non-exclusive, non-assignable License to use the applicable CPA Grademark only under the terms and conditions hereinafter set forth.
2. CPA Grademarks may be used by Licensee to identify those of its products which are manufactured and tested in accordance with the Manual and found to meet the requirements of the applicable Standard(s). The Grademarks may only be used on products that are manufactured at the licensee's plant and listed in that plant's Application. Said Grademarks may be applied to or affixed upon such products only by means of CPA approved replicas. A "replica" is defined as a brand, imprint, stamp or label which, among other things (1) contains a counterpart of the Trademark, (2) identifies the applicable Standards to which the mark relates, and (3) identifies the Licensee and plant. In conjunction with the use of such replicas, Licensee may employ Certificates of Conformance to the applicable Standards with respect to any products that do so comply, in such form and style and subject to such rules as may be approved by CPA.
3. The Manual and/or the Standards may be revised or modified by CPA from time to time, and upon due notice to Licensee, such revisions or modifications shall be deemed the applicable Manual and/or Standards referred to herein.
4. Licensee covenants and agrees that said Grademark, replica, or certificates will be used only in connection with products which meet the requirements of the applicable Standards, determined in accordance with procedures set out in the Manual. This Agreement shall not be construed as a commitment by Licensee to produce any or only such products or to use said replica on any or all such products made by it. Licensee may use other symbols, trademarks, or trade names that are not inconsistent with the nature and purpose of the Grademark to identify any products manufactured or sold by the Licensee, provided, however, that no such symbol, trademark, trade name or combination thereof shall be so similar to the CPA Grademark that it could be confused with the Grademark by buyers or users of such products.
5. The manufacturing facilities, quality control program and records with respect to the products in connection with which Licensee is using, planning to use or is qualified to use the Grademark, replica or certificate may be inspected as provided in the Manual by duly authorized CPA inspectors at such reasonable times as determined by CPA. Licensee shall cooperate fully with CPA in conducting all such inspections and tests.

6. In the event a dispute arises between Licensee and CPA concerning Licensee's conformance or nonconformance with the applicable Standards or Manual, Licensee may obtain a review of said matter by the independent Certification Oversight Board and/or the President of CPA, in accordance with Section 12 of the Manual as it may be amended from time to time.

7. CPA, its officers, directors, members, employees and counsel shall not be liable for any act or omission of Licensee and Licensee shall defend CPA, its officers, directors, members, employees and counsel against any claims, and shall indemnify and hold them or any of them harmless from any liability which may be imposed upon them or any of them resulting from or arising out of Licensee's acts or omissions, in connection with its use of the Grademark, its participation in the Formaldehyde Grademark Program, or its reference to any ANSI, CPA or other applicable formaldehyde standard.

8. Licensee shall not be liable to CPA, its officers, directors, members, employees and counsel for any claims or any liability arising out of the acts or omissions of any other Licensee licensed by CPA to use the Grademark.

9. Licensee hereby waives any and all claims it now has or may have against CPA, its officers, directors, members, employees and counsel arising out of the conduct of the CPA Formaldehyde Grademark Program, the duties or responsibilities of CPA under this license agreement or the granting, administration or suspension of this license agreement provided CPA conducts itself in accordance with this license agreement.

10. CPA has, and at all times retains, full and exclusive ownership of and property rights in and to all Grademark replicas, certificates and symbols even though purchased directly by Licensee. In the event such replicas, certificates and symbols become unusable for any reason whatsoever, the unusable material shall be disposed of as directed by CPA. Brands, stamps and other devices or means used to imprint such replicas, certificates and symbols shall not be altered or defaced and shall not be removed from the plant(s) of Licensee for which they were originally purchased and used except as may be directed by an authorized representative of CPA. They shall be maintained and used in a clean condition. Additionally:

- a) Licensee is responsible for maintaining its own inventory of Grademark replicas, certificates and symbols;
- b) Replicas, certificates, stamps and symbols may be purchased directly by the Licensee, but only as approved in writing by CPA. A current list of authorized rubber stamp suppliers is attached as *Exhibit A* and may be revised or modified by CPA from time to time. Licensee shall inform CPA in writing of all purchases and dispositions of replicas, certificates, stamps and symbols; and:
- c) All replicas, certificates and symbols must be available, at any time, for inspection by, or surrender to, a representative of CPA.

11. This License agreement may be suspended immediately at any time by CPA in whole or in part at any time by CPA if:
 - a) An inspection of Licensee's plant discloses that Licensee's quality control system is not adequate to determine whether products do in fact conform to the applicable Standards; or
 - b) An inspection of licensee's plant discloses that Licensee has used or is using Grademarks, or replicas, certificates or symbols thereof, to identify products which do not in fact conform to the applicable Standards or otherwise has misused or is misusing any Grademark replica, certificate, or symbol; or
 - c) Licensee is not complying with the procedures set forth in the Manual; or
 - d) Certification lapses pursuant to the provisions of the Manual; or
 - e) Licensee in any other respect is not complying with any other provision of this License Agreement.

CPA shall notify Licensee in writing of any suspension of all or any part of this Agreement. Such notice shall set forth the reason(s) for the suspension and any supporting facts. Any complete or partial suspension may be lifted only after Licensee has passed a supplementary inspection made at the expense of Licensee.

Certification shall be withdrawn for not abiding by the terms of the license agreement of each program including lack of payment, misrepresentation of Grademark, failure to maintain quality control practices, compliance issues, or other significant failures of conformance as determined by the CPA President.

12. This Agreement shall become effective upon its execution by CPA.
13. After the effective date of this Agreement, it shall continue in force until December 31 of the then current year and shall be automatically renewed from year to year thereafter; provided that it may be terminated at any time by and in the sole discretion of either party by giving sixty (60) days written notice of termination to the other party.
14. In the event of the suspension or termination of this Agreement, Licensee shall immediately cease using all Grademarks, replicas or certificates and, upon demand of an authorized CPA representative, shall surrender to CPA all Grademarks, replicas or certificates and stamps then in Licensee's possession.
15. The CPA Board of Directors shall determine from time to time fees to be paid under the Agreement. Annual fees shall be paid in advance and are non-refundable.
16. This Agreement shall be construed in accordance with the laws of the State of Illinois.
17. The CPA shall make all attempts to keep Licensee information such as e-mails, phone notes, documents, and all items relating to Certification confidential.

Dated: _____

By: _____

President
Composite Panel Association
A not-for-profit Corporation

Dated: _____

By: _____
(Name)

(Corporate Title)

(Company Name), A Corporation

(Location)

EXHIBIT A

RUBBER STAMP SUPPLIERS (for HUD Particleboard Products)

Bill Gabel
Superior Rubber Die Company
311 Madison Avenue
Seattle, WA 98104
(206) 763-2440

Al Gallier
Tacoma Rubber Stamp and Marking Systems
919 Market Street
Tacoma, WA 98401
(253) 383-5433

APPENDIX E-1 (INFORMATIVE)
EXAMPLE OF PB/MDF/HWPW PLANT QUALITY CONTROL MANUAL

Plant Quality Control Manual
For Formaldehyde Emissions
Silver Lake Particleboard Plant
Solo Woods, Inc.
P. O. Box 18928
Silver Lake, Maryland

Revised Date: 7/15/12

(This sample plan contains required and optional ingredients with the goal of an informative document for Grademark participants and CPA.)

PURPOSE

This manual outlines the quality control procedures followed by the Silver Lake plant to measure formaldehyde emission levels from those particleboard products to be certified.

The quality control procedures are designed to provide reasonable assurance that board products in this quality control program produced by this plant will comply with the requirements set out by (*CARB ATCM 93120, ANSI A208.1-2009, ANSI A208.2-2009, EPPS 3-08, HUD 24 CFR, etc.*)

To carry out this purpose the company has retained the Composite Panel Association (CPA) (TPC-1) as the nationally recognized certification, inspection, and testing laboratory for providing certification services.

Plant Quality Control Personnel

<u>Position</u>	<u>Name</u>	<u>Telephone</u>	<u>E-Mail</u>
Plant Manager			
Quality Control Manager			
Formaldehyde QC Supervisor			
Formaldehyde QC Testers			

CPA will be informed of all changes in personnel in these positions.

Annual Review of Quality Control Manual

The contents of this manual will be reviewed annually by the Quality Control Manager and updated as necessary. Both the CPA Program Manager and CPA Technical Representative will be notified of any changes in the plant procedures, personnel or Quality Control Limits contained in this manual. The manual will be updated after changes occur.

CPA Quality Control Personnel

Program Manager

Chris Surak
Director of Certification Services
Composite Panel Association
19465 Deerfield Ave, Suite 306
Leesburg, VA 20176
(703) 724-1128
FAX (703) 724-1588

Technical Representative

John Doe
Technical Representative
Composite Panel Association
8200 Heartland Lane
Forestland, NC 29999
(919) 634-5789
FAX (919) 634-5798

IN-PLANT TESTING PROCEDURE

Test Method - The Silver Lake plant will use ASTM D6007 (most recent year), the small chamber test with a two-hour conditioning period, as its initial in-plant test and the correlation curve relating plant quality control values to those from the Large Chamber (ASTM E1333-) or equivalent Small Chamber (ASTM D6007-) Compliance Tests as compiled by the CPA (see Figure 1).

(Note: If in-plant test methods other than ASTM D5582-(most recent year) or the small chamber test, ASTM D6007-(most recent year), have been approved by CPA for use in a plant, a general description of the test method should be included in this part. The full test protocol as well as the correlation curve and values tables are to be included in the appendix).

Plant Product Categories –

IND – Industrial particleboard; thickness greater than 5/8"; EPP certified; CARB Phase 1

Quality Control Limit (QCL)– Figure 1 shows a correlation curve between Plant Quality Control data using ASTM D6007 and the CPA Compliance Chamber. CPA has established 0.24 ppm as the "Quality Control Limit" which represents the modified ASTM D6007- test value equivalent to a 0.18 ppm value from the Compliance Chamber test in the standard. The values used to generate this correlation are listed in Table 1.

QCL Schedule – The plant will update the QCL and Shipping QCL (SQCL) at least once per year with a new data point.

Test Frequency Timing - The plant normally operates 3-8 hour production shifts per day, 7 days per week. Each shift may produce from 75 to 125 MSF (3/4" basis) of product depending on product thickness. In-plant test samples are taken at the beginning of each 8 hour shift. If the shift is producing at a rate above 100 MSF (3/4" basis) a second test sample is also taken at mid-shift.

Reduced Frequency Testing - Section 8.5 of the CPA Formaldehyde Grademark Quality Control Manual allows for reduced frequency testing when the plant demonstrates to the CPA a consistent ability to produce products whose 30-panel average quality control test value is at least two standard deviations below the quality control limit. After CPA approval to begin reduced frequency testing samples may be collected as outlined in the CPA Manual.

A 30 panel running average and that average plus two standard deviations on the quality control test values will be added to the product data sheet. The standard deviation will be computed as outlined in the CPA Manual. If the 30-panel average plus two standard

deviations should exceed the quality control limit the plant will notify the CPA and immediately resume regular testing frequency. The plant will not resume reduced testing frequency until it demonstrates its consistent ability to achieve it again and gets CPA approval.

Sample Handling - Test samples are taken from boards as they come out of the sander. Samples are cut-to-size, edge sealed, marked for identification, sealed in a plastic bag until conditioning begins, logged into the Q. C. Test Log Book and conditioned in accordance with Modified ASTM D6007-. The Formaldehyde Quality Control Supervisor will then conduct or supervise the chemical analysis of each sample and log results in the Q. C. Test Log Book.

Sample Variation – Test samples are taken from each of the press openings every week as recorded in the Q. C. Test Log Book. The samples are also taken across the board width the capture former variability. Annually, Silver Lake performs a full cut-up of a a section of press production to analyze variability with-in the product.

Additional Testing - If the test result of any sample is a non-complying lot (see Section 8.7 of the CPA Manual), the lot will be isolated and a retest of at least three samples pulled from the same production lot will be made immediately. The lot will not be certified if the average of the retest values exceeds the Shipping Quality Control Limit. CPA has established 0.23 ppm as the "Shipping Quality Control Limit" which represents the modified ASTM D6007-(most recent year) test value from "sanded" test samples equivalent to a 0.18 ppm value from the Compliance Chamber test in the standard (see Figure 2). The values used to generate this correlation are listed in Table 2. All retesting will be carried out in accordance with the CPA Manual Section 8.8.

Back-Up Plan – If Silver Lake's ASTM D6007 testing apparatus is not working properly we will implement the procedures below:

- If the sensor readings are suspect; immediately test all samples with the impinger method
- If the equipment itself is out of commission, The CPA ITCC laboratory will be notified and daily QC tests will be sent immediately until the equipment is repaired.

Laboratory Equipment Maintenance and Calibration – Silver Lake's lab equipment will be verified to the manufacturers specifications. A maintenance and calibration schedule is listed in Table 5.

PROCEDURES TO IDENTIFY CHANGES IN FORMALDEHYDE EMISSIONS RESULTING FROM PRODUCTION CHANGES

Resin Formulation - All plant resin suppliers have been requested in writing to immediately inform us of any increase in the formaldehyde-to-urea ratio or other resin formulation changes that may cause any significant increase in the formaldehyde emission characteristics of board products to be certified. Whenever such notice is received by the plant (1) the CPA Technical Representative will be notified. At the CPA's earliest convenience a Compliance Chamber Test sample will be selected from the lot(s) of board made with the new resin formulation and sent off for Compliance Chamber testing. (2) Small-scale tests of board made with that resin lot will be taken at the beginning of the board run. (3) No lots made with the new resin shall be certified until the Compliance Chamber Test indicates a value of 0.18 ppm for IND or less.

Resin Use Change - For each board product an average resin use (expressed as a % resin solid by weight of the oven dry furnish, face and core, of the unfinished board) is shown by thickness in Table 3. This resin use is the average used in (list year) covering the continuous variation of particle furnish species mix and moisture content. Whenever these furnish characteristics require resin use to be increased by more than 10% from the values given in Table 2; adjusted proportionately for the face and core furnish, a small-scale test will immediately be performed.

Press Cycle Change - For each board product, an average press time is shown by thickness in Table 4. The press time given is the historic average for the past 6 months. Whenever conditions require a decrease in the press time designated in Table 3 by more than 20% a small-scale test will be immediately performed.

Panel Finishing - For all plant-finished panels that are finished with liquid topcoats and subject to formaldehyde emission certification, additional small scale tests will be performed whenever:

1. The finish is changed and the new finish contains formaldehyde; or
2. The finish is changed and the new finish has a greater formaldehyde content; or
3. The amount of formaldehyde containing finish used on the panels is increased.

Suppliers have been requested to inform us of any change in the finish formulation regarding formaldehyde content increases. When any supplier notifies us of such a change, the CPA will be immediately advised and the CPA Technical Representative, at his/her earliest convenience, will make a Compliance Chamber sample selection. No lots finished with the new formulation shall be certified until the Large Chamber Test indicates a value of 0.18 ppm for IND or less.

RECORDKEEPING

The plant will maintain records on the plant production processes and formaldehyde emission testing associated with all board products that are certified under the CPA Formaldehyde Grademark Program (See section 11 of the CPA Manual). These records will be retained for at least 2 years.

Production Process

1. Tracking information to allow each composite wood product produced to be traced to a specific lot number or batch produced;
2. Changes in the resin percentage used in any certified product from levels set out in Table 2 by more than ten percent;
3. Information received from resin suppliers regarding changes in the formaldehyde/urea ratio in the resin used in certified products;
4. Changes in press time by more than 20 percent for any certified product from levels set out in Table 3;
5. Disposition of off-grade lots including date and person taking action to obliterate any stamps or labels those are no longer valid;

Formaldehyde Testing

1. A log of all small-scale tests including board lot number, date and time samples are produced, collected, and tested; the board thickness, resin type, percent resin use, press time, formaldehyde scavenger use, the test value, the average of any lot

retests that are required. The form used is the same as in the Appendix J of the CPA Formaldehyde Grademark Program. The lab technician(s) performing the tests will be recorded.

2. Results of all Large Chamber tests will be recorded and include board lot number, date and time samples are collected and tested, resin type, percent resin use, scavenger use, and press time. A matching sample will be taken, tested according to standard plant quality control procedures, recorded and reported to CPA.
3. Testing of Qualified Quality Control Employees by CPA representatives as outlined in Section 6 of the CPA Manual will be recorded.

For CARB Certified Products

1. Tracking information to allow each composite wood product produced to be traced to a specific lot number or batch produced;
2. Product information (including description of the composite wood product, date of manufacture, and lot/batch number);
3. Purchaser information (including purchaser's name, contact person, address, phone number, purchase order or invoice number, and amount purchased), if applicable;
4. Product transporter information (including delivery company name, contact person, address, phone number, and shipping invoice number), if applicable;
5. Identification of the ARB approved third-party certifier (CPA TPC-1)
6. Records must be kept on the disposition of non-complying lots or batches of composite wood products. These records shall include: product type and amount of composite wood products affected, lot or batch numbers, measures taken to mitigate the non-complying composite wood products, results of retesting, and final disposition of the lots or batches of composite wood products.
7. All records in this section shall be made available to ARB or local air district personnel upon request (Beyond CPA audits).

Reports to CPA

1. CPA shall be informed in writing when there is a change in the Plant Manager or Quality Control Manager.
2. Product data sheets and Graphs shall be submitted weekly to the CPA Technical Representative. (This requirement may be made less frequently at the discretion of the CPA depending on production volume)
3. CPA shall be informed promptly (fax/phone/E-mail) of the certification of any Non-Complying lots in accordance with Section 8.8 of the CPA Formaldehyde Grademark Program.

PANEL IDENTIFICATION

All product lots that conform to the Formaldehyde Emission Standards levels will be identified in accordance with the CPA Formaldehyde Grademark Manual Section 13.2 and Appendix A. Manufactured Home Decking and Underlayment grade lots will be stamped on each panel after sanding. Industrial board products will have the same formaldehyde logo/information as stamped on underlayment but printed on one end of a 4" x 5" heavy paper. Two of these paper tags (one on either side) are inserted under the top panel of a bundle with the stamp showing. The labels are under the strapping for protection.

COMPLAINTS FROM SUPPLIERS

Silver Lake shall keep records of all complaints known relating to the formaldehyde certification to advertised standards. The procedure for such complaints will be to inform

the Quality Control Manager who will investigate the incident and take appropriate action and investigate any known deficiencies. All records and actions will be documented and made available will be made available to the CPA Technical Representative during regular audits.

Figure 1

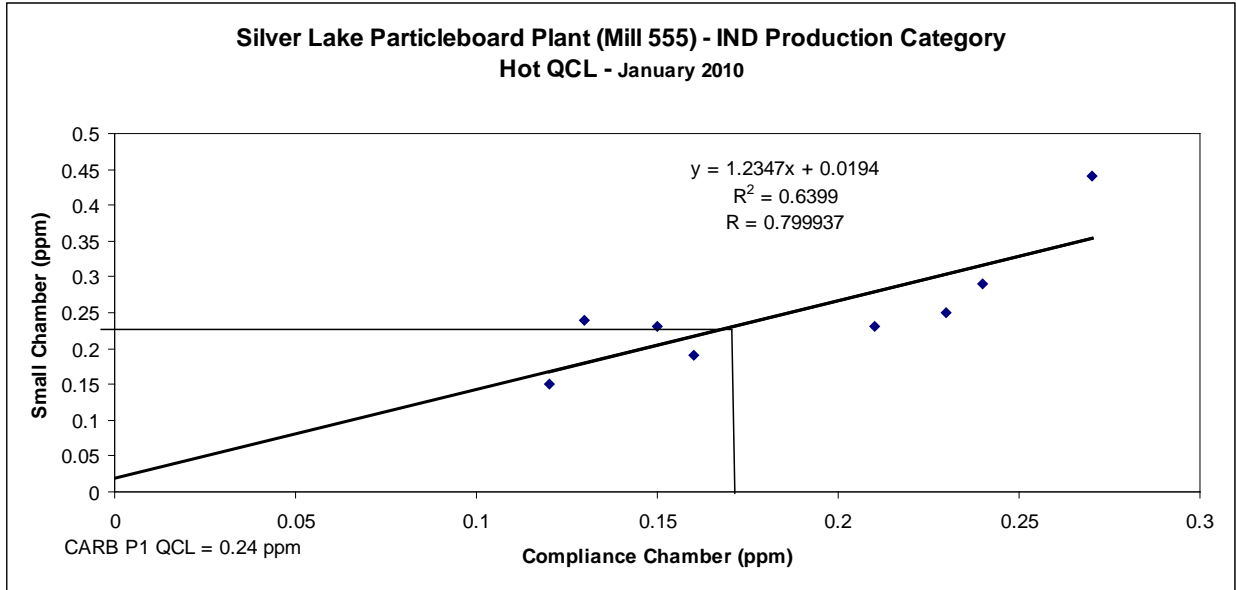


Table 1

IND

Production Date	Plant Code	Press Run	Sample Code	6007 (ppm)	1333 (ppm)
10/1/2008	SL-3	410108	G555F905-906IND	0.19	0.16
10/20/2008	SL-7	430308	G555F915-916IND	0.44	0.27
10/18/2009	SL-6	423708	G555F925-926IND	0.23	0.21
10/28/2009	SL-8	441708	G555F935-936IND	0.23	0.15
1/31/2010	SL-9	441208	G555F945-946IND	0.15	0.12
1/31/2010	SL-10	450108	G555F955-956IND	0.25	0.23
4/15/2008	SL-15	452008	G555F965-966IND	0.29	0.24
4/18/2008	SL-22	440299	G555F975-976IND	0.24	0.13

Figure 2

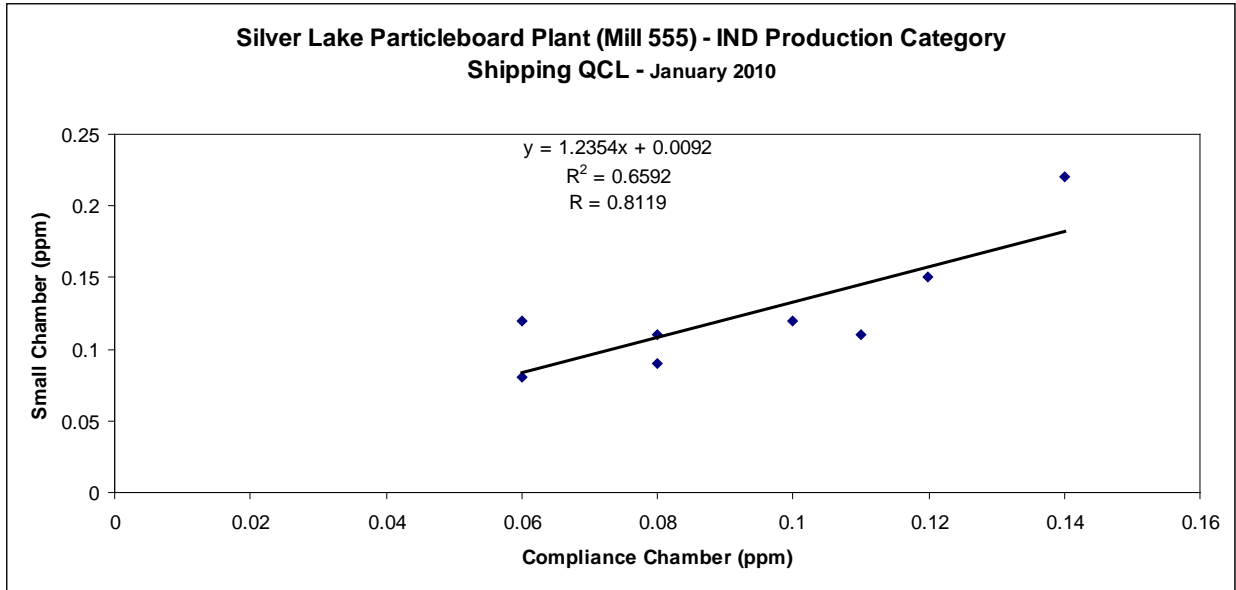


Table 2

IND - Shipping QCL

Production Date	Plant Code	Press Run	Sample Code	6007 (ppm)	1333 (ppm)
10/1/2008	SL-3	410108	G555F905-906IND	0.09	0.08
10/20/2008	SL-7	430308	G555F915-916IND	0.22	0.14
10/18/2009	SL-6	423708	G555F925-926IND	0.11	0.11
10/28/2009	SL-8	441708	G555F935-936IND	0.11	0.08
1/31/2010	SL-9	441208	G555F945-946IND	0.08	0.06
1/31/2010	SL-10	450108	G555F955-956IND	0.12	0.1
4/15/2008	SL-15	452008	G555F965-966IND	0.15	0.12
4/18/2008	SL-22	440299	G555F975-976IND	0.12	0.06

Table 3

Silver Lake Average Resin Use - 2009 Basis (calculated on the basis of resin solids and oven dry wood weight of the face or core furnish)			
Product	Thickness	Face Resin %	Core Resin %
Industrial	$\frac{3}{8}$ "	9.7	9.5
	$\frac{1}{2}$ "	9.6	9.3
	$\frac{5}{8}$ "	9.3	8.9
	$\frac{3}{4}$ "	8.9	9.2
	1"	8.7	8.9
	1 $\frac{1}{8}$ "	8.7	8.9

Table 4

Silver Lake Average Press Time - 2009 Basis		
Product	Thickness	Press Time (seconds)
Industrial	$\frac{3}{8}$ "	200
	$\frac{1}{2}$ "	210
	$\frac{5}{8}$ "	220
	$\frac{3}{4}$ "	260
	1"	420
	1 $\frac{1}{8}$ "	480

Table 5

Silver Lake QC Laboratory Calibration and Maintenance Schedule

Equipment	Company	Serial Number	Maintenance / Calibration
ASTM D6007	Smith & Sons	6	Inspected by company rep; 2/6/10
Balance	Jones	986	Calibrated 3/4/10; Records on file
Pipette	Beng, Inc.	JKGSKLJS7	Calibrated 3/4/10; Records on file
Thermometer	Fasher	SLKJD77	Calibrated 3/4/10; Records on file
Chart Recorder	Saming	9867H	New 4/15/10; Next 4/15/12
Spectrophotometer	Gasser	H987	Validated 3/17/10; Next 3/11

**APPENDIX E-2 (INFORMATIVE)
EXAMPLE OF LAMINATING PLANT QUALITY CONTROL MANUAL**

Plant Quality Control Manual
for Formaldehyde Emissions
Silver Lake Laminating Plant
Solo Woods, Inc.
P. O. Box 18928
Silver Lake, Maryland

Revised: July 15, 2010

(This sample plan contains required and optional ingredients with the goal of an informative document for Appendix M Grademark participants and CPA.)

PURPOSE

This manual outlines the quality control procedures followed by the Silver Lake Laminating plant to measure formaldehyde emission levels from those laminated products to be certified.

The quality control procedures are designed to provide reasonable assurance that laminated products in this quality control program produced by this plant will comply with the requirements set out by the Department of Housing and Urban Development (HUD) in 24 CFR Part 3280 in the Federal Register of August 9, 1984, ANSI A208.1 for Particleboard, ANSI A208.2 for Medium Density Fiberboard, or other applicable standards.

To carry out this purpose the company has retained the Composite Panel Association as the nationally recognized testing laboratory for providing certification services.

Plant Quality Control Personnel

<u>Position</u>	<u>Name</u>	<u>Telephone</u>
Plant Manager		
Quality Control Manager		
Formaldehyde QC Supervisor		

CPA will be informed of all changes in personnel in these positions.

Annual Review of Quality Control Manual

The contents of this manual will be reviewed annually by the Quality Control Manager and updated as necessary. Both the CPA Program Manager and CPA Plant Inspector will be notified of any changes in the plant procedures, personnel or Quality Control Limits contained in this manual. (The manual will be updated after changes occur).

CPA Quality Control Personnel

Program Manager

Richard Roe
Director of Certification Services
Composite Panel Association
19465 Deerfield Ave, Suite 306
Leesburg, VA 20176
(703) 724-1128
FAX (703) 724-1588

Plant Inspector

John Doe
Technical Representative
Composite Panel Association
8200 Heartland Lane
Forestland, NC 29999
(919) 634-5789
FAX (919) 634-5798

USE OF PRECERTIFIED PANELS

Panels certified must carry 3rd Party formaldehyde certification from a nationally recognized, accredited testing agency whose program meets the provisions of HUD 24 CFR Part 200.935 at the time of laminating. Panels recertified under this program will carry the same certification as the raw (unlaminated) panels.

SCREENING TESTS

Six matched pair formaldehyde emission screening tests were performed comparing the raw panel with the laminated Silver Lake product (See Table 1). The tests were done in accordance with the Desiccator Test, ASTM D5582-*(most recent year)*. The tests were performed by CPA and show with 95% confidence that the Silver Lake laminating process does not increase formaldehyde emissions

Additional Screening Tests - If the procedures identified below indicate a change that may increase formaldehyde emissions, an additional six screening tests will be performed on the product incorporating that change.

QUARTERLY LARGE CHAMBER TESTS

Quarterly at least one Large Chamber Test using ASTM E1333 shall be conducted by CPA on a randomly selected sample of laminated product. The emissions must not exceed the maximum limit set forth in the applicable standard.

Large Chamber samples shall be product ready for shipment randomly chosen from a single lot. Neither the top or bottom panels of a bundle shall be selected. The panels must be dead-stacked or air tight wrapped between the time of sample selection and the start of test conditioning. Samples shall be promptly labeled, signed by the CPA inspector, bundled air tight, wrapped in polyethylene, protected by cover sheets, and promptly shipped to CPA. Conditioning shall begin as soon as possible but not in excess of 30 days after production. A second sample set (a reserve set) from a subsequent lot may be selected, handled and shipped in the same manner as the original.

PROCEDURES TO IDENTIFY CHANGES IN FORMALDEHYDE EMISSIONS RESULTING FROM PRODUCTION CHANGES

Laminating Papers - All laminating paper suppliers have been requested in writing to immediately inform Silver Lake of changes that may cause any significant increase in the formaldehyde emission characteristics of laminated products to be recertified. Whenever such notice is received by the plant (1) the CPA Plant Inspector or the Program Manager will

be notified. At the CPA's earliest convenience a Large Chamber Test sample will be selected from the lot(s) of board made with the new laminating paper and sent off for Large Chamber testing. The sample selected may be used as a quarterly test as required by the program. (2) The plant will take small scale screening tests of board made with the new laminating paper. (3) No lots made with the new laminating paper shall be certified until the screening test shows no increase in formaldehyde emissions as described in Appendix M of the CPA Formaldehyde Grademark Program Quality Control Manual. The Large Chamber Test also must not exceed the maximum limit set forth in the applicable standard.

Types of changes that could cause formaldehyde emission increases include:

1. The finish is changed and the new finish has a greater formaldehyde content; or
2. The amount of formaldehyde containing finish used on the panels is increased.

RECORDKEEPING

The plant will maintain records on the plant production processes and formaldehyde emission testing associated with all board products that are certified under the CPA Formaldehyde Grademark Program. These records shall be made readily available to CPA's authorized representative. All records shall be retained for two years.

Production Processes

1. **CERTIFIED SUBSTRATES.** All incoming certified substrate, which is to be laminated and recertified, shall be recorded. Information will include PB/MDF manufacturer, product description, date received and "lot number". Substrate Suppliers are listed in Table 2. Inventory control records and/or labels on substrate must show 3rd Party formaldehyde certification from a nationally recognized, accredited testing agency whose program meets the provisions of HUD 24 CFR Part 200.935 at the time of laminating.
2. **LAMINATING RECORDS.** Records shall be maintained sufficient to establish lamination date, type and supplier of lamination materials, quantity and customer for each shipment of a certified product type. Laminating Paper Suppliers are listed in Table 2.
3. **RAW MATERIAL CHANGES.** Information received from suppliers regarding changes in the laminating papers affecting formaldehyde emissions will be recorded. Examples of changes would include (but not be limited to) changes in laminating adhesives that increase formaldehyde content or emission rate and increases in the amount of laminating adhesives that are used.
4. **OFF GRADE LOTS.** Disposition of off-grade lots including date and person taking action to obliterate any stamps or labels that are no longer valid.

Formaldehyde Testing

1. A log of all small scale comparison tests will be kept.
2. A log of all Large Chamber tests including lot number, date and time samples are produced, collected, and tested; the board thickness, substrate supplier and laminate used.
3. Results of all Large Chamber tests will be kept on file after they are received from the CPA.

Reports to CPA

1. CPA shall be informed in writing of a change in the Plant Manager or Quality Control Manager.
2. The list of particleboard/MDF suppliers for substrates and laminate paper types is included in Table 2. This list will be updated quarterly and reported to CPA during their quarterly inspection.

PANEL IDENTIFICATION

All product lots that conform to the Formaldehyde Emission Standards levels will be identified in accordance with the CPA Manual Section 13.2 and Appendix A. Laminated products will have the formaldehyde information printed on one end of a 4" x 5" heavy paper. Two of these paper tags (one on either side) are inserted under the top panel of a bundle with the stamp showing. The labels are under the strapping for protection.

APPENDIX F-1 (NORMATIVE)
CPA PANEL IDENTIFICATION AND NUMBERING SYSTEM

The following alphanumeric coding system is used to label each panel of a Compliance Chamber sample set. Adherence to this format is required for proper identification of test materials and to be compatible with CPA computer databases. There are 6 sequential parts to the code:

1. **Thickness.** Single letter code.
2. **Plant Number.** Three digit number code.
3. **Certification Type.** Single letter code.
4. **Board Numbers.** Series of two to five three digit number codes.
5. **Product Type.** Three place alphanumeric code.
6. **Year.** An abbreviated reference to the year of sampling.
7. **Press Line.** A parenthetical reference can be used to note the press line in a multi-line plant.

EXAMPLE CODE: E000F301-303IND/05 (L1). Each of the 6 part code is explained below:

1. **Thickness.** One letter code for thickness range.

<u>Inch Unit</u>	
$0 < A < 5/16$	$15/16 \leq G < 1\ 1/16$
$5/16 \leq B < 7/16$	$1\ 1/16 \leq H < 1\ 3/16$
$7/16 \leq C < 9/16$	$1\ 3/16 \leq J < 1\ 5/16$
$9/16 \leq D < 11/16$	$1\ 5/16 \leq K < 1\ 7/16$
$11/16 \leq E < 13/16$	$1\ 7/16 \leq L < 1\ 9/16$
$13/16 \leq F < 15/16$	$1\ 9/16 \leq M < \text{infinite}$

<u>Plantimeter Unit</u>	
$0 < A < 8$	$24 \leq G < 27$
$8 \leq B < 11$	$27 \leq H < 30$
$11 \leq C < 14$	$30 \leq J < 33$
$14 \leq D < 17$	$33 \leq K < 37$
$17 \leq E < 21$	$37 \leq L < 40$
$21 \leq F < 24$	$40 \leq M < \text{infinite}$

From Example Above: E = 11/16 - 13/16 inch, or E = 17 - 21 mm

2. **Plant Number.** Three digit number code for plant's plant number.

From Example Above: 000 is for Strongstuff Corp., Timberlake, MD.

3. **Certification Type.** Single letter code identifying the certification program type.

F = CPA Formaldehyde Program; P = CPA Physical & Mechanical Properties Program;
 K = IKEA formaldehyde certification; E = E1 German, WKI or European certification;
 EF = CPA EPP/ECC Program.

From Example Above: F = Formaldehyde test sample

4. **Board Numbers.** Series of two to five three digit number codes.

100-199	one hundred series for first quarter certification tests
200-299	two hundred series for second quarter certification tests
300-399	three hundred series for third quarter certification tests
400-499	four hundred series for fourth quarter certification tests
500-599	five hundred series for a qualification, requalification, and "reinstatement of certification" tests
700-799	seven hundred series for back-up/audit samples selected by a CPA representative. (Note: a seven hundred series can be changed to a quarterly or 500 series status. Backup samples are not normally tested unless requested by the plant)
900-999	nine hundred series for informational samples not selected by a CPA representative

From Example Above: 301-303 = three boards (301, 302, 303) selected by a CPA representative for a third quarter Large Chamber test.

5. **Product Type.** A three place alphanumeric designates the product type. Over time CPA has established a number of different product types at the request of Grademark program participants. The list below is not exclusive. It contains the current list of ways plants have differentiated their products within the framework of particleboard and MDF products. Plants can request the establishment of a new product category by the procedures outlined in Sections 7 and 8 of the program.

Particleboard

2N1	Thin Industrial Particleboard; CARB Phase 2
2N2	Mid-Thickness Industrial Particleboard; CARB Phase 2
DR2	Door Core; CARB Phase 2
DRC	Particleboard Door Core
DRP	Door Core PF Bonded
FRT	Fire Retardant Industrial Particleboard
I12	Thin Industrial Particleboard; CARB Phase 2
I22	Mid-Thickness Industrial Particleboard; CARB Phase 2
IEX	Extruded Particleboard
IKEA	Particleboard tested to IKEA specifications
IN1	Thin Industrial Particleboard
IN2	Mid-Thickness Industrial Particleboard
IN3	Thick Industrial Particleboard
IN4	Low-density / Commercial Particleboard
IN5	Specialized Particleboard
IN6	Specialized Particleboard
IN7	Specialized Particleboard
IN8	Specialized Particleboard
IND	Industrial Particleboard
INP	Industrial Particleboard PF Bonded
INT	Industrial Particleboard ; CARB Phase 2
MH2	Manufactured Home Decking; CARB Phase 2
MHD	Manufactured Home Decking

PB2	Particleboard Underlayment; CARB Phase 2
PBU	Particleboard Underlayment
PMR	Particleboard Moisture Resistant

Medium Density Fiberboard

MD1	Thin Industrial MDF
MD2	Mid-Thickness Industrial MDF
MD3	Thick Industrial MDF
MD4	Specialized MDF
MD5	Specialized MDF
MD6	Specialized MDF
MDE	MDF made to E-1 Emission Level
MDF	Industrial medium density fiberboard
MDM	Molding Grade Industrial MDF
MDP	MDF PF Bonded
MDT	MDF; CARB Phase 2
MMR	MDF Moisture Resistant
TM2	Thin MDF; CARB Phase 2

Hardwood Plywood

CC1	Plywood - composite core; CARB Phase 1
CC2	Plywood - composite core; CARB Phase 2
CFC	Plywood with Composite Fiber Veneer
MVN	Plywood with MDF Core
PLC	Plywood with Lumber Core
PLY	Plywood with Wood Veneer Core
PVN	Plywood with Particleboard Core
VC1	Plywood - veneer core; CARB Phase 1
VC2	Plywood - veneer core; CARB Phase 2
VEN	Veneer Laminated Composite

Specialty

DFC	Door Facing
HDB	Hardboard

Value Added Products

MO1	Melamine Overlay - 1 side
MO2	Melamine Overlay - 2 sides
PO1	Paper Overlay - 1 side
PO2	Paper Overlay - 2 sides
PT1	Painted MDF/PB 1 Side

From Example Above: IND = Industrial

6. **Year.** An abbreviated reference to the year of the sampling.
For Example: the use of 05 for 2005 in the code.

APPENDIX F-2 (NORMATIVE) MULTIPLE LINE PLANT PRODUCT CATEGORIES

The following guidance is issued to clarify options for plants with multiple production lines on establishing product categories.

1. *A plant may choose to designate each line as a separate product type.* All the production from a production line that a plant chooses to certify together will be treated separately from the production of any other line.
2. *Similar products can be certified separately on different production lines.* A plant can choose to isolate similar products by production line. For example, thin and thick board could be produced on both of two lines. The plant can choose to sample both products from both lines for both in plant quality control and quarterly Large Chambers, thus establishing four separate product categories.
3. *Similar products can be certified across different production lines.* A product can be produced on different lines and treated as a single product category. Each production line must be sampled appropriately for in plant quality control.

APPENDIX G-1 (INFORMATIVE)
EXISTING AND POTENTIAL MEANS OF REDUCING THE IMPACT
OF COMPLIANCE CHAMBER FAILURES

The CPA Formaldehyde Grademark Program requires that at least one random sample of the plant's production be tested quarterly in the reference Compliance Chamber (ASTM E1333 or equivalent ASTM D6007). If the Compliance Chamber test does not meet the limits set for certification requirements, all subsequent products are non-certifiable until a subsequently produced product meets the certification criteria.

A product can potentially be up to 38 days old (30 days before the test must begin and 8 days to test) by the time a Compliance Chamber result is available. This means that up to a month or more of production, is not certifiable. Since much of this production may already be in the hands of customers, the impact of decertification can be substantial.

Program and Participant Actions to Reduce Failure Impact

There are several precautions built into the Program that can reduce the impact of a Compliance Chamber failure. There are also several precautions that Program participants can take on their own.

- A. (PLANT) Back-up Compliance Chamber Samples: Each participating plant should always arrange for the CPA representative to select and label a "back-up" Compliance Chamber sample.
 - 1. The back up should be from production made subsequently to the primary sample (a minimum of two hours apart).
 - 2. It should be dead stacked or plastic wrapped and stored at the production plant.
 - 3. Having a subsequent lot sample on hand ready to ship to the testing plant greatly reduces the cost and time required for an CPA Technical Representative to return to the facility to select the back-up sample.

- B. (PLANT) Sample Shipment from Plant: Many plants hold Compliance Chamber samples prior to shipment on the mistaken assumption that the formaldehyde emissions will decay with age and their test results will be lower. Several studies have shown that panels that are dead stacked or wrapped decay very little after the first 72 hours. By holding test samples, these plants are increasing the delay between production and test results.

- C. (PLANT) Subdividing Product Categories: A plant can have as many product categories as it needs. If a plant has only one product category to represent all of its certified production, a Compliance Chamber failure impacts all of the product. Many plants develop several product categories along natural emission characteristics such as product type (industrial, underlayment), density, or thickness ranges. Subdividing product categories accomplishes two goals: it reduces the amount of product affected by a Compliance Chamber failure; and it increases the quality of the correlation between quality control test and Compliance Chamber, making it easier for the plant to predict Chamber results.

- D. (CPA) CPA Conducted Screening Tests: Each CPA laboratory automatically conducts a small-scale screening test on every certification Compliance Chamber test. The results

of this early test are available after the first day of the 8-day Compliance Chamber protocol. Results are correlated to the Compliance Chamber and if the results of the test indicate a potential Chamber failure, the plant is notified immediately. This gives the plant a 7 day advance opportunity to have the back-up sample shipped to the CPA lab and placed into conditioning, minimizing the potential period of time a plant is without certification if the primary certification sample fails.

- E. (CPA) Chamber Scheduling: CPA gives all certification tests priority access to its Compliance Chambers.

APPENDIX G-2 (INFORMATIVE)
QUARTERLY CERTIFICATION TEST FAILURE PROCEDURES

1. The same day as the test, CPA will notify the quality control contacts by e-mail that the product type in question has not met the requested standard.
2. By the end of the following workday, CPA will notify the plant manager of the loss of certification by e-mail.
3. Plant personnel have the responsibility to inventory or list the location of all products manufactured after the date of production of the failed lots (the "decertified product"). The plant has the responsibility of notifying its customers if the product has been shipped. The names of customers who have received decertified products and notification to them must be made available to the CPA upon request.
4. The plant is responsible for notifying the recipient of the decertified products so that they either (1) isolate the material until it is tested, treated or recertified pursuant to the Grademark Program, or (2) remove CPA tags and obliterate CPA/HUD certification stamps.
5. CPA and the plant will arrange for recertification samples to be selected and tested.
 - a. If recertification samples pass a compliance chamber test, only the product produced between the original quarterly sample and the second sample need be decertified.
 - b. If the recertification test fails to pass the large chamber test, a third sample shall be selected. All production produced between the first test and the test that eventually passes is non-certifiable unless treated and tested in accordance with the CARB and/or HUD Rule and the CPA Formaldehyde Grademark Program.
6. The program allows for recertification of decertified production if the products are treated and brought into compliance. Aging is an acceptable treatment. Decertified lots can be recertified through subsequent tests of representative samples.
7. The plant needs to maintain records sufficient to enable it to trace every production lot should the necessity of decertification arise. Documentation of disposition of decertified material is an essential responsibility of the manufacturer under the CPA certification program.

APPENDIX H (INFORMATIVE) ESTABLISHING A QUALITY CONTROL LIMIT

GENERAL

Quality Control Limits (QCL) provide each product type with a control limit on their product emissions as measured by quality control tests that are the correlative equivalent of the maximum value allowed in the applicable standard. CPA establishes a QCL on the basis of matched sample comparisons between the plant's quality control test(s) and the Large Chamber reference test, ASTM E1333-. The data used for establishing a QCL should be from current production of the product category being certified.

There are two types of QCLs: the operating QCL, referred to as simply the "QCL", and the QCL used for retesting, known as the "Shipping QCL".

THE QCL

The QCL is a control limit based upon quality control tests of product samples taken from a consistent point in the production process. This can be at any point after the hot press and before shipment. Quality control samples are often taken as soon as practical after production and are said to be sampled and tested "hot". Hot tests will typically have different emissions than samples taken from boards that are older, have progressed farther through the production sequence, and have had further opportunity to cure.

THE SHIPPING QCL

The Shipping QCL is a control limit used for determining conformance of Non-complying Lots. The Shipping QCL is based upon products that are completely processed by the panel manufacturer and are ready for shipment. The Shipping QCL may be the same as the operating QCL if both are based upon samples ready for shipment and are shown to be statistically similar.

HOW THE QCL IS ESTABLISHED

- 1) A simple linear regression is used where the dependent variable (Y-axis) is the plant quality control test and the independent variable (X-axis) is the Large Chamber Test. To illustrate the procedure, sample data from a plant using the Desiccator test (ASTM D5582) is given in Table 1 and shown graphically in Figure 1. Similar data from a plant using a small dynamic chamber is given in Table 2 and Figure 2.
- 2) The emphasis will be on recent, product specific data with a sample set target size between 5 and 20.

CORRELATION COEFFICIENTS AND METHODS TO IMPROVE CORRELATION

- 1) Appropriate minimum correlation coefficients (r) are defined by the guidelines set forth in the European Committee for Standardization (CEN) document prEN 326-2, Section 7.3 (Table 3).
- 2) When correlation coefficients are below the appropriate minimum level, the Grademark Program Administrator will work with the plant to improve (increase) the r value during follow up testing. One of the more common reasons for a low correlation value is the "clustering" of data around a plants normal operating level. An effective method of improving r values is to create a wider range of test values. This can be accomplished by producing limited special production runs of very low and/or higher emission products.

TABLE 1. EXAMPLE PLANT A
DESICCATOR TEST QUALITY CONTROL DATA

LARGE CHAMBER (PPM)	PLANT DESICCATOR ($\mu\text{g/ml}$)
0.30	1.35
0.13	0.60
0.17	0.44
0.18	0.64
0.18	0.59
0.26	1.02
0.19	0.80
0.28	1.21
0.20	0.89
0.23	0.87

TABLE 2. EXAMPLE PLANT B
SMALL CHAMBER TEST QUALITY CONTROL DATA

LARGE CHAMBER (PPM)	SMALL CHAMBER (PPM)
0.14	.20
0.11	.18
0.15	.17
0.24	.30
0.12	.14

TABLE 3. MINIMALLY ACCEPTABLE CORRELATION COEFFICIENTS
(From CEN document prEN 326-2, Section 7.3.)

\underline{n}	\underline{r}
5	.79
6	.77
7	.76
8	.74
9	.72
10	.71
11	.69
12	.67
13	.66
14	.64
15	.62
16	.61
17	.59
18	.58
19	.56
20	.55

APPENDIX I (NORMATIVE)
CALCULATION OF STANDARD DEVIATIONS AND EXCURSION LIMITS

GENERAL

The standard deviation (SD) provides each plant with a measure of their emission variability, as measured by plant quality control tests. This variability provides the basis for 1) the excursion limit and 2) choosing an optional target operating level in an informed way (see Appendix K - informative). This practice establishes an excursion limit based on each plant's testing and operational variability.

HOW THE STANDARD DEVIATION IS ESTABLISHED

- 1) The initial standard deviation (SD), determined from recent data, will use at least 20 tests and up to 100 will be used if sufficient data is available.
- 2) Twice a year the SD will be recalculated from the most recent data.
- 3) The plant can request a recalculation of SD if they feel it has changed, but the recalculation must be based on the last 100 tests.
- 4) The formula for calculation of the standard deviation is:

$$SD = \sqrt{\frac{\sum(x - \bar{x})^2}{(n-1)}}$$

x = observed value
 \bar{x} = average of observed values
n = number of data points
 Σ = Sum of values

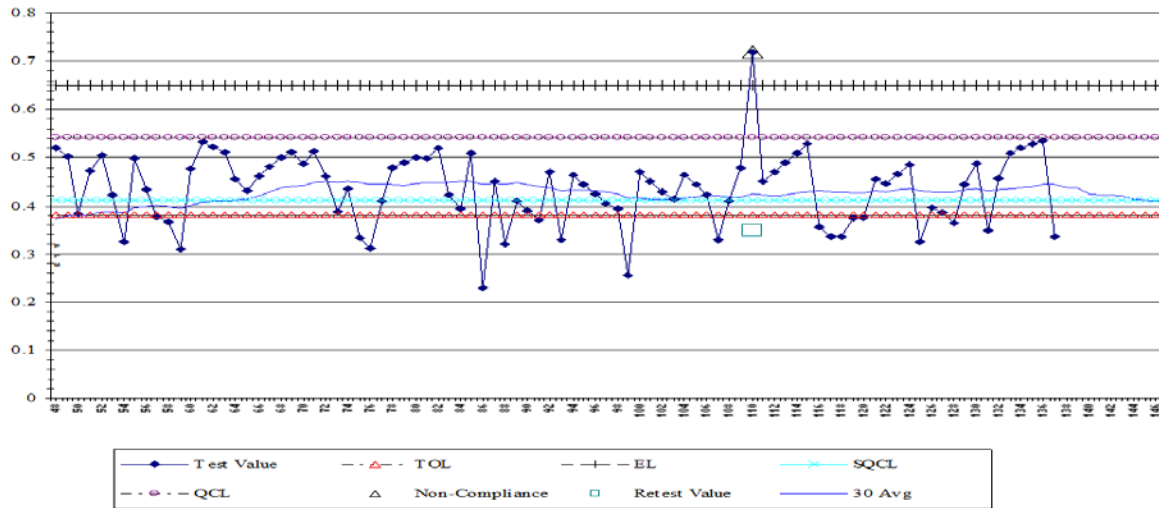
Many electronic calculators use this formula. The formula is usually listed in the operators manual.

HOW THE EXCURSION LIMIT IS ESTABLISHED

Statistical theory is applied to arrive at factor to use with the SD to compute an excursion limit. Multiplying 1.35 times SD and adding that to the QCL (QCL + 1.35SD) is the excursion limit. The excursion limit is designed so that when 95% of all test values fall below the QCL, 99.9% of all values will be below the excursion limit.

APPENDIX J-1 (INFORMATIVE)
EXAMPLE OF QUALITY CONTROL GRAPH
(Data sheet accompanying graph is in Appendix J-2.)

CPA Weekly Report Graph Example



**APPENDIX J-2 (INFORMATIVE)
EXAMPLE OF PRODUCT DATA SHEET**
(Graph of data sheet is in Appendix J-1.)

**Composite Panel Association
Formaldehyde Grademark Program**

Leesburg Company
Leesburg, VA
Test Small Chamber in Units PPM, Product MDF, Mill #000

Date: 22-Jan-99

QCL: 0.542
SD: 0.08
TOL: 0.381

SQCL: 0.412
EL: 0.650

Last 100

Test #	Prod. Date	Shift	Seq	Line	Thickness	Face Resin	Face Resin Description	Face Scav	Core Resin	Core Resin Description	Core Scav	Press Time	Test Date	Test Value	30 Avg	Retest Date	Retest
51	5/31/98	1st	1	1	0.625	10.00%	KL 546	0.10%	7.00%	KL 345	0.20%	212	6/1/98	0.473	0.382		
52	5/31/98	1st	1	1	0.625	10.00%	KL 546	0.10%	7.00%	KL 345	0.20%	212	6/1/98	0.506	0.387		
53	5/31/98	1st	1	1	0.625	10.00%	KL 546	0.10%	7.00%	KL 345	0.20%	212	6/1/98	0.422	0.387		
54	5/31/98	1st	1	1	0.625	10.00%	KL 546	0.10%	7.00%	KL 345	0.20%	212	6/1/98	0.325	0.387		
55	5/31/98	1st	1	1	0.625	10.00%	KL 546	0.10%	7.00%	KL 345	0.20%	212	6/1/98	0.499	0.396		
56	5/31/98	1st	1	1	0.625	10.00%	KL 546	0.10%	7.00%	KL 345	0.20%	212	6/1/98	0.433	0.400		
57	5/31/98	1st	1	1	0.625	10.00%	KL 546	0.10%	7.00%	KL 345	0.20%	212	6/1/98	0.377	0.401		
58	5/31/98	1st	1	1	0.625	10.00%	KL 546	0.10%	7.00%	KL 345	0.20%	212	6/1/98	0.366	0.398		
59	5/31/98	1st	1	1	0.625	10.00%	KL 546	0.10%	7.00%	KL 345	0.20%	212	6/1/98	0.311	0.395		
60	5/31/98	1st	1	1	0.625	10.00%	KL 546	0.10%	7.00%	KL 345	0.20%	212	6/1/98	0.477	0.401		
61	5/31/98	1st	1	1	0.625	10.00%	KL 546	0.10%	7.00%	KL 345	0.20%	212	6/1/98	0.533	0.407		
62	5/31/98	1st	1	1	0.625	10.00%	KL 546	0.10%	7.00%	KL 345	0.20%	212	6/1/98	0.522	0.409		
63	5/31/98	1st	1	1	0.625	10.00%	KL 546	0.10%	7.00%	KL 345	0.20%	212	6/1/98	0.511	0.411		
64	5/31/98	1st	1	1	0.625	10.00%	KL 546	0.10%	7.00%	KL 345	0.20%	212	6/1/98	0.455	0.412		
65	5/31/98	1st	1	1	0.625	10.00%	KL 546	0.10%	7.00%	KL 345	0.20%	212	5/31/98	0.431	0.415		
66	5/31/98	1st	1	1	0.625	10.00%	KL 546	0.10%	7.00%	KL 345	0.20%	212	6/1/98	0.461	0.421		

TestProd. #	Shift Date	Seq	LineThickness	Face	Face Resin Resin	Face Description	Core Scav	Core Resin Resin	Core Description	Press Scav	Test Time	Test Date	30 Value	Retest Avg	Retest Date
67	5/31/98	1st	1	1	0.625	10.00% KL 546	0.10%	7.00%	KL 345	0.20%	212	6/1/98	0.481	0.430	
68	5/31/98	1st	1	1	0.625	10.00% KL 546	0.10%	7.00%	KL 345	0.20%	212	6/1/98	0.501	0.438	
69	5/31/98	1st	1	1	0.625	10.00% KL 546	0.10%	7.00%	KL 345	0.20%	212	5/31/98	0.512	0.440	
70	5/31/98	1st	1	1	0.625	10.00% KL 546	0.10%	7.00%	KL 345	0.20%		6/1/98	0.487	0.443	
71	5/31/98	1st	1	1	0.625	10.00% KL 546	0.10%	7.00%	KL 345	0.20%		6/1/98	0.514	0.448	
72	5/31/98	1st	1	1	0.625	10.00% KL 546	0.10%	7.00%	KL 345	0.20%		6/1/98	0.462	0.450	
73	5/31/98	1st	1	1	0.625	10.00% KL 546	0.10%	7.00%	KL 345	0.20%		6/1/98	0.388	0.448	
74	5/31/98	1st	1	1	0.625	10.00% KL 546	0.10%	7.00%	KL 345	0.20%		6/1/98	0.435	0.451	
75	5/31/98	1st	1	1	0.625	10.00% KL 546	0.10%	7.00%	KL 345	0.20%		6/1/98	0.333	0.448	
76	5/31/98	1st	1	1	0.625	10.00% KL 546	0.10%	7.00%	KL 345	0.20%		6/1/98	0.313	0.444	
77	5/31/98	1st	1	1	0.625	10.00% KL 546	0.10%	7.00%	KL 345	0.20%		6/1/98	0.410	0.445	
78	5/31/98	1st	1	1	0.625	10.00% KL 546	0.10%	7.00%	KL 345	0.20%		6/1/98	0.480	0.444	
79	5/31/98	1st	1	1	0.625	10.00% KL 546	0.10%	7.00%	KL 345	0.20%		6/1/98	0.490	0.443	
80	5/31/98	1st	1	1	0.625	10.00% KL 546	0.10%	7.00%	KL 345	0.20%		6/1/98	0.500	0.447	
81	5/31/98	1st	1	1	0.625	10.00% KL 546	0.10%	7.00%	KL 345	0.20%		6/1/98	0.499	0.448	
82	5/31/98	1st	1	1	0.625	10.00% KL 546	0.10%	7.00%	KL 345	0.20%		6/1/98	0.520	0.448	
83	5/31/98	1st	1	1	0.625	10.00% KL 546	0.10%	7.00%	KL 345	0.20%		6/1/98	0.422	0.448	
84	5/31/98	1st	1	1	0.625	10.00% KL 546	0.10%	7.00%	KL 345	0.20%		6/1/98	0.394	0.451	
85	5/31/98	1st	1	1	0.625	10.00% KL 546	0.10%	7.00%	KL 345	0.20%		6/1/98	0.510	0.451	
86	5/31/98	1st	1	1	0.625	10.00% KL 546	0.10%	7.00%	KL 345	0.20%		6/1/98	0.230	0.444	
87	5/31/98	1st	1	1	0.625	10.00% KL 546	0.10%	7.00%	KL 345	0.20%		6/1/98	0.450	0.447	
88	5/31/98	1st	1	1	0.625	10.00% KL 546	0.10%	7.00%	KL 345	0.20%		6/1/98	0.320	0.445	
89	5/31/98	1st	1	1	0.625	10.00% KL 546	0.10%	7.00%	KL 345	0.20%		6/1/98	0.410	0.448	
90	5/31/98	1st	1	1	0.625	10.00% KL 546	0.10%	7.00%	KL 345	0.20%		6/1/98	0.390	0.445	
91	5/31/98	1st	1	1	0.625	10.00% KL 546	0.10%	7.00%	KL 345	0.20%		6/1/98	0.370	0.440	
92	5/31/98	1st	1	1	0.625	10.00% KL 546	0.10%	7.00%	KL 345	0.20%		6/1/98	0.470	0.438	
93	5/31/98	1st	1	1	0.625	10.00% KL 546	0.10%	7.00%	KL 345	0.20%		6/1/98	0.330	0.432	
94	5/31/98	1st	1	1	0.625	10.00% KL 546	0.10%	7.00%	KL 345	0.20%		6/1/98	0.465	0.433	
95	5/31/98	1st	1	1	0.625	10.00% KL 546	0.10%	7.00%	KL 345	0.20%		6/1/98	0.445	0.433	
96	5/31/98	1st	1	1	0.625	10.00% KL 546	0.10%	7.00%	KL 345	0.20%		6/1/98	0.425	0.432	

#	Test Date	Prod.	Shift	Seq	Line	Thickness	Face Resin	Face Resin Description	Face Scav	Core Resin	Core Resin Description	Core Scav	Press Time	Test Date	Test Value	30 Avg	Retest Date	Retest
97	5/31/98	1st	1	1		0.625	10.00%	KL 546	0.10%	7.00%	KL 345	0.20%		6/1/98	0.405	0.429		
98	5/31/98	1st	1	1		0.625	10.00%	KL 546	0.10%	7.00%	KL 345	0.20%		6/1/98	0.395	0.426		
99	5/31/98	1st	1	1		0.625	10.00%	KL 546	0.10%	7.00%	KL 345	0.20%		6/1/98	0.255	0.417		
100	5/31/98	1st	1	1		0.625	10.00%	KL 546	0.10%	7.00%	KL 345	0.20%		6/1/98	0.470	0.417		
101	5/31/98	1st	1	1		0.625	10.00%	KL 546	0.10%	7.00%	KL 345	0.20%		6/1/98	0.450	0.415		
102	5/31/98	1st	1	1		0.625	10.00%	KL 546	0.10%	7.00%	KL 345	0.20%		6/1/98	0.430	0.413		
103	5/31/98	1st	1	1		0.625	10.00%	KL 546	0.10%	7.00%	KL 345	0.20%		6/1/98	0.415	0.414		
104	5/31/98	1st	1	1		0.625	10.00%	KL 546	0.10%	7.00%	KL 345	0.20%		6/1/98	0.465	0.415		
105	5/31/98	1st	1	1		0.625	10.00%	KL 546	0.10%	7.00%	KL 345	0.20%		6/1/98	0.444	0.419		
106	5/31/98	1st	1	1		0.625	10.00%	KL 546	0.10%	7.00%	KL 345	0.20%		6/1/98	0.422	0.423		
107	5/31/98	1st	1	1		0.625	10.00%	KL 546	0.10%	7.00%	KL 345	0.20%		6/1/98	0.330	0.420		
108	5/31/98	1st	1	1		0.625	10.00%	KL 546	0.10%	7.00%	KL 345	0.20%		6/1/98	0.410	0.418		
109	5/31/98	1st	1	1		0.625	10.00%	KL 546	0.10%	7.00%	KL 345	0.20%		6/1/98	0.480	0.417		
110	5/31/98	1st	1	1		0.625	10.00%	KL 546	0.10%	7.00%	KL 345	0.20%		5/31/98	0.720	0.425		
111	5/31/98	1st	1	1		0.625	10.00%	KL 546	0.10%	7.00%	KL 345	0.20%		6/1/98	0.450	0.423		
112	5/31/98	1st	1	1		0.625	10.00%	KL 546	0.10%	7.00%	KL 345	0.20%		6/1/98	0.470	0.421		
113	5/31/98	1st	1	1		0.625	10.00%	KL 546	0.10%	7.00%	KL 345	0.20%		6/1/98	0.490	0.424		
114	5/31/98	1st	1	1		0.625	10.00%	KL 546	0.10%	7.00%	KL 345	0.20%		6/1/98	0.510	0.428		
115	5/31/98	1st	1	1		0.625	10.00%	KL 546	0.10%	7.00%	KL 345	0.20%		6/1/98	0.530	0.428		
116	5/31/98	1st	1	1		0.625	10.00%	KL 546	0.10%	7.00%	KL 345	0.20%		6/1/98	0.356	0.432		
117	5/31/98	1st	1	1		0.625	10.00%	KL 546	0.10%	7.00%	KL 345	0.20%		6/1/98	0.336	0.429		
118	5/31/98	1st	1	1		0.625	10.00%	KL 546	0.10%	7.00%	KL 345	0.20%		6/1/98	0.336	0.429		
119	5/31/98	1st	1	1		0.625	10.00%	KL 546	0.10%	7.00%	KL 345	0.20%		6/1/98	0.376	0.428		
120	5/31/98	1st	1	1		0.625	10.00%	KL 546	0.10%	7.00%	KL 345	0.20%		6/1/98	0.376	0.428		
121	5/31/98	1st	1	1		0.625	10.00%	KL 546	0.10%	7.00%	KL 345	0.20%		6/1/98	0.456	0.430		
122	5/31/98	1st	1	1		0.625	10.00%	KL 546	0.10%	7.00%	KL 345	0.20%		6/1/98	0.446	0.430		
123	5/31/98	1st	1	1		0.625	10.00%	KL 546	0.10%	7.00%	KL 345	0.20%		6/1/98	0.466	0.434		
124	5/31/98	1st	1	1		0.625	10.00%	KL 546	0.10%	7.00%	KL 345	0.20%		6/1/98	0.486	0.435		
125	5/31/98	1st	1	1		0.625	10.00%	KL 546	0.10%	7.00%	KL 345	0.20%		6/1/98	0.326	0.431		

#	Test Date	Prod.	Shift	Seq	Line	Thickness	Face Resin	Face Resin Description	Face Scav	Core Resin	Core Resin Description	Core Scav	Press Time	Test Date	Test Value	30 Avg	Retest Date	Retest Value
126	5/31/98	1st	1	1		0.625	10.00%	KL 546	0.10%	7.00%	KL 345	0.20%		6/1/98	0.396	0.430		
127	5/31/98	1st	1	1		0.625	10.00%	KL 546	0.10%	7.00%	KL 345	0.20%		6/1/98	0.386	0.429		
128	5/31/98	1st	1	1		0.625	10.00%	KL 546	0.10%	7.00%	KL 345	0.20%		6/1/98	0.365	0.428		
129	5/31/98	1st	1	1		0.625	10.00%	KL 546	0.10%	7.00%	KL 345	0.20%		6/1/98	0.444	0.435		
130	5/31/98	1st	1	1		0.625	10.00%	KL 546	0.10%	7.00%	KL 345	0.20%		6/1/98	0.488	0.435		
131	5/31/98	1st	1	1		0.625	10.00%	KL 546	0.10%	7.00%	KL 345	0.20%		6/1/98	0.350	0.432		
132	5/31/98	1st	1	1		0.625	10.00%	KL 546	0.10%	7.00%	KL 345	0.20%		6/1/98	0.458	0.433		
133	5/31/98	1st	1	1		0.625	10.00%	KL 546	0.10%	7.00%	KL 345	0.20%		6/1/98	0.510	0.436		
134	5/31/98	1st	1	1		0.625	10.00%	KL 546	0.10%	7.00%	KL 345	0.20%		6/1/98	0.520	0.438		
135	5/31/98	1st	1	1		0.625	10.00%	KL 546	0.10%	7.00%	KL 345	0.20%		6/1/98	0.530	0.441		
136	5/31/98	1st	1	1		0.625	10.00%	KL 546	0.10%	7.00%	KL 345	0.20%		6/1/98	0.535	0.444		
137	5/31/98	1st	1	1		0.625	10.00%	KL 546	0.10%	7.00%	KL 345	0.20%		6/1/98	0.335	0.445		
138	5/31/98	1st	1	1		0.625	10.00%	KL 546	0.10%	7.00%	KL 345	0.20%		6/25/98	0.200	0.438		
139	6/24/98	1st	1	1		0.625	10.00%	KL 546	0.10%	7.00%	KL 345	0.20%		6/25/98	0.500	0.438		
140	6/24/98	1st	1	1		0.625	10.00%	KL 546	0.10%	7.00%	KL 345	0.20%		6/25/98	0.300	0.424		
141	6/24/98	1st	1	1		0.625	10.00%	KL 546	0.10%	7.00%	KL 345	0.20%		6/25/98	0.400	0.423		
142	6/24/98	1st	1	1		0.625	10.00%	KL 546	0.10%	7.00%	KL 345	0.20%		6/25/98	0.500	0.424		
143	7/5/98	1st	1	1		0.625	10.00%	KL 546	0.10%	7.00%	KL 345	0.20%	222	7/7/98	0.384	0.420		
144	7/5/98	1st	1	1		0.625	10.00%	KL 546	0.10%	7.00%	KL 345	0.20%	222	7/7/98	0.356	0.415		
145	7/5/98	1st	1	1		0.625	10.00%	KL 546	0.10%	7.00%	KL 345	0.20%	222	7/7/98	0.425	0.411		
146	7/4/98	1st	1	1		0.625	10.00%	KL 546	0.10%	7.00%	KL 345	0.20%	220	7/9/98	0.325	0.410		
147	7/4/98	1st	1	1		0.625	10.00%	KL 546	0.10%	7.00%	KL 345	0.20%	220	7/3/98	0.452	0.414		
148	8/8/98	1st	1	1		0.625	10.00%	KL 546	0.10%	7.00%	KL 345	0.20%	747	8/9/98	0.452	0.418		
149	8/8/98	1st	1	1		0.625	10.00%	KL 546	0.10%	7.00%	KL 345	0.20%	747	8/9/98	0.325	0.416		
150	8/8/98	1st	1	1		0.625	10.00%	KL 546	0.10%	7.00%	KL 345	0.20%	747	8/9/98	0.254	0.412		

APPENDIX K (INFORMATIVE) CALCULATION AND USE OF TARGET OPERATING LEVELS

GENERAL

To reasonably assure that at least 95% of the quality control tests are at or below the QCL, the average value of quality control tests should be at the QCL less a specific value (QCL - X). Determining this specific value requires two steps: 1) a measure of recent test trends, and 2) a comparison between recent test values and the QCL which takes test variability into account.

DETERMINING A TARGET OPERATING LEVEL (TOL)

- 1) MEASURING RECENT PROCESS PERFORMANCE TRENDS. An averaging method may be used to determine trends of current test values. Running averages are suggested since this is a familiar technique. When running averages are used, an appropriate sample size must be selected. A running average of 30 tests provides a good measure of recent average process performance. However, a plant may want to have a process trend indicator that responds quickly to short term trends. In that case a running average of 6 to 10 tests is appropriate.
- 2) COMPARING TESTS TO THE QCL. Standard Deviations (SD) are a good indicator of test variability and will need to be updated regularly (Appendix I - normative). If the plant test data follows a normal distribution (which will be the usual case) statistical practices will indicate a factor to apply with the SD to yield a comparison value.

For a normal distribution, multiplying the SD by 1.65 and subtracting that from the QCL will yield a TOL where theoretically 95% of the plant data will fall below the QCL.

Therefore, when a plant trend exceeded "QCL-1.65SD" (the Target Operating Level), it would warn that the plant risked exceeding the QCL more than 5% of the time. The plant should then take appropriate corrective action to avoid retesting and/or reaudit.

Each plant should use its own data to develop a factor "X", such that "QCL-XSD" would provide an adequate warning that a risk exists of exceeding the QCL by more than 5% of the QC tests. As noted above, "X" will be 1.65 if QC data are normally distributed. However, QC data could also exceed the 5% >QCL level on occasion simply by chance. Thus, a TOL 2SD below the QCL would provide a greater safety margin. Again, each plant must decide on the appropriate safety margin with its inherent operating window. The selected factor could be integrated into a computer program to monitor test results and automatically signal a warning if/when necessary.

TABLE 1. PROBABILITY OF MORE THAN 5% OF QUALITY CONTROL TEST VALUES IN EXCESS OF THE QCL, OR: THE CHANCE OF 6 OR MORE TESTS OUT OF 100 BEING ABOVE THE QCL (A "5%" FAILURE - SEE SECTION 8.7)

OPERATING LEVEL (QCL - XSD)	THEORETICAL # OF TESTS/100 > QCL	PROBABILITY OF 6 OR MORE TESTS > QCL
QCL - 1.65SD	4.95	37.5%
QCL - 1.75SD	4.01	21.3
QCL - 2.00SD	2.28	2.7
QCL - 2.25SD	1.22	0.1

**APPENDIX L (NORMATIVE)
FACSIMILE OF CPA GRADEMARKS**



General Requirements:

- All ANSI A208.1-2009 Table B plus LD products shall be tested by ASTM E1333 method;
- CPA advises all participants who opt to verify compliance with the small chambers to remove the reference to HUD 24 CFR on products until the new standards are adopted by the agencies;
- Terms “conforms” and “complies” are interchangeable;
- If CPA is certifying the physical properties of the material, an additional line on the unit tag may be added near the CPA logo. Example verbiage “Conforms to ANSI A208.1-1999 Grade LD-1”

PARTICLEBOARD

1. Non-EPP/ECC, CARB Certified Particleboard:

- ‘CPA Certified’ oval logo with “California ARB Approved Third Party Certifier TPC-1” in close proximity to logo
- Verbiage “Complies with ANSI A208.1-2009 and California 93120 Phase 2 Formaldehyde Emission Limits”
- Manufacturer’s name
- Plant address (town and state)
- CPA plant number
- Production date - two digit month, two digit day and four digit year (mm/dd/yyyy)
- Production shift/crew
- Product lot number or batch number

Optional:

- ‘HUD 24 CFR’ reference in emission statement if complying particleboard using the E1333 large chamber, testing at the 0.13 ft²/ft³ loading ratio, or using phenol-formaldehyde resin binder exclusively.

2. EPP and CARB Certified Particleboard:

- EPP logo (Correct print colors, grayscale, or black and white) with “California ARB Approved Third Party Certifier TPC-1” in close proximity to logo
- Phrases “Environmentally Preferable Product” and “Specification CPA 3-08” in close proximity to logo
- Phrase “Contains 100% Recycled and/or Recovered Fibers”

- Verbiage "Complies with EPPS 3-08, ANSI A208.1-2009, and California 93120 Phase 2 Formaldehyde Emission Limits"
- Manufacturer's name
- Plant address (town and state)
- CPA plant number
- Production date - two digit month, two digit day and four digit year (mm/dd/yyyy)
- Production shift/crew
- Product lot number or batch number

Optional:

- 'HUD 24 CFR' reference in emission statement if complying particleboard using the E1333 large chamber, testing at the 0.13 ft²/ft³ loading ratio, or using phenol-formaldehyde resin binder exclusively.

3. ECC and CARB Certified Particleboard:

- ECC logo (Correct print colors, grayscale, or black and white) with correct plant certification number embedded in logo.
- "California ARB Approved Third Party Certifier TPC-1"
- Verbiage "Complies with ECC 4-11, ANSI A208.1-2009, and California 93120 Phase 2 Formaldehyde Emission Limits"
- Manufacturer's name
- Plant address (town and state)
- CPA plant number
- Production date - two digit month, two digit day and four digit year (mm/dd/yyyy)
- Production shift/crew
- Product lot number or batch number

Optional:

- 'HUD 24 CFR' reference in emission statement if complying particleboard using the E1333 large chamber, testing at the 0.13 ft²/ft³ loading ratio, or using phenol-formaldehyde resin binder exclusively.

4. ANSI 'F18' Certified Particleboard:

- 'CPA Certified' oval logo
- Verbiage "Complies with ANSI A208.1-2009-F18 Formaldehyde Emission Limits"
- Manufacturer's name
- Mill address (town and state)
- CPA plant number
- Production date - two digit month, two digit day and four digit year (mm/dd/yyyy)
- Production shift/crew
- Product lot number or batch number

Optional:

'HUD 24 CFR' reference in emission statement if complying particleboard using the E1333 large chamber, testing at the 0.13 ft²/ft³ loading ratio, or using phenol-formaldehyde resin binder exclusively.

MDF

1. Non-EPP/ECC, CARB Certified MDF:

- 'CPA Certified' oval logo with "California ARB Approved Third Party Certifier TPC-1" in close proximity to logo
- Verbiage "Complies with ANSI A208.2-2009 and California 93120 Phase 2 Formaldehyde Emission Limits"
- Manufacturer's name
- Plant address (town and state)
- CPA plant number
- Production date - two digit month, two digit day and four digit year (mm/dd/yyyy)
- Production shift/crew
- Product lot number or batch number

2. EPP and CARB Certified MDF:

- EPP logo (Correct print colors, grayscale, or black and white) with "California ARB Approved Third Party Certifier TPC-1" in close proximity to logo
- Phrases "Environmentally Preferable Product" and "Specification CPA 3-08" in close proximity to logo
- Phrase "Contains 100% Recycled and/or Recovered Fibers"
- Verbiage "Complies with EPPS 3-08, ANSI A208.2-2009 and California 93120 Phase {{ 1 or 2 }} Formaldehyde Emission Limits"
- Manufacturer's name
- Plant address (town and state)
- CPA plant number
- Production date - two digit month, two digit day and four digit year (mm/dd/yyyy)
- Production shift/crew
- Product lot number or batch number

3. ECC and CARB Certified MDF:

- ECC logo (Correct print colors, grayscale, or black and white) with correct plant certification number embedded in logo.
- "California ARB Approved Third Party Certifier TPC-1"
- Verbiage "Complies with ECC 4-11, ANSI A208.2-2009, and California 93120 Phase 2 Formaldehyde Emission Limits"
- Manufacturer's name
- Plant address (town and state)
- CPA plant number
- Production date - two digit month, two digit day and four digit year (mm/dd/yyyy)
- Production shift/crew
- Product lot number or batch number

4. ANSI 'F21' Certified:

- 'CPA Certified' oval logo
- Verbiage "Complies with ANSI A208.2-2009-F21 Formaldehyde Emission Limits"
- Manufacturer's name
- Mill address (town and state)
- CPA plant number
- Production date - two digit month, two digit day and four digit year (mm/dd/yyyy)
- Production shift/crew
- Product lot number or batch number

HARDWOOD PLYWOOD

1. CARB Certified Hardwood Plywood (Veneer and Composite Core):

- 'CPA Certified' oval logo with "California ARB Approved Third Party Certifier TPC-1" in close proximity to logo
- Verbiage "Complies with ANSI/HPVA HP-1-2004 and California 93120 Phase {{ 1 or 2 }}) Formaldehyde Emission Limits"
- Manufacturer's name
- Plant address (town and state)
- CPA plant number
- Production date - two digit month, two digit day and four digit year (mm/dd/yyyy)
- Production shift/crew
- Product lot number or batch number

APPENDIX M (NORMATIVE)

CPA FORMALDEHYDE GRADEMARK PROGRAM ADDENDUM FOR RECERTIFICATION OF PRECERTIFIED PANELS AFTER TREATMENT WITH LAMINATES OR FINISHES

1. GENERAL PROVISIONS

Laminating or finishing pre-certified particleboard or MDF with formaldehyde containing materials may require recertification to comply with HUD 24 CFR 3280.308 or the formaldehyde emissions standards in ANSI A208.1 and A208.2. Pre-certified particleboard or MDF panels laminated or finished with formaldehyde-free materials do not need recertification after laminating or finishing according to HUD 24 CFR 3280.308, ANSI A208.1 and A208.2. The prior certification is typically retained. This addendum is intended to cover pre-certified particleboard or MDF panels laminated or finished with materials that contain formaldehyde or materials which could release formaldehyde. The program outlined in this addendum requires a specific recordkeeping system and screening tests to determine program applicability. Laminated or finished products recertified under the program will require quarterly Large Chamber Tests.

A *product type* in this addendum refers to a combination of pre-certified substrate and a specific set of laminates or finishes. In general, products will be considered to be different product types for recertification if the laminate, adhesive or finish changes in a way that can impact formaldehyde emissions. Final judgment on the definition of product type shall rest with CPA.

Each product type to be recertified must meet the provisions of this addendum and must not exceed the emission limits of the standard to which they are certified. Certification provisions described under this addendum do not apply to products treated, retested and certified under sections 7.4.3.3 and 8.2 of the CPA Formaldehyde Grademark Program.

2. REQUIREMENTS FOR RECERTIFICATION

A. PRECERTIFICATION

Panels certifiable under this addendum must carry 3rd Party formaldehyde certification from a nationally recognized, accredited testing agency whose program meets the provisions of HUD 24 CFR Part 200.935 at the time of laminating or finishing. Panels recertified under this addendum must carry the same certification as the raw panels. Thus, raw panels certified to the HUD standard must be certified to the HUD standard after laminating or finishing. Raw panels certified to an ANSI standard for particleboard or MDF may be certified to the same ANSI standard after laminating or finishing. Certification to both the HUD and ANSI standards can only be done if both certifications were on the raw panel.

B. SCREENING TESTS TO DETERMINE APPLICABILITY

The purpose of the screening is to determine with statistical confidence that a laminate or finish causes no increase in formaldehyde emissions of certified particleboard or MDF. Before recertification under the provisions of this addendum, screening tests need to be performed on each product type to determine program applicability.

1. SCREENING TESTS

At least six matched pairs of formaldehyde emission screening tests need to be performed comparing the raw panel with the laminated or finished product. The tests will be done in accordance with the Large Chamber Test (ASTM E 1333), or a small scale test recognized by the CPA Formaldehyde Grademark Program (see section 8.1 of the CPA Manual). The tests will be performed by CPA or a lab certified by CPA to conduct formaldehyde testing (i.e. CPA Formaldehyde Grademark Program participants).

2. STATISTICAL TEST

The screening tests must show with 95% confidence that a treatment does not increase formaldehyde emissions. Statistical confidence should be determined by use of the ¹“Student t” statistical confidence interval test. The comparison will be made on a set of matched pairs: the raw panel emissions versus the laminated/finished panel emissions.

3. PROGRAM CLASSIFICATION BY SCREENING

a) Recertification Program

If results of the screening tests indicate formaldehyde emissions do not increase in the final product, the program may be applied to the product type and may be recertified through the process defined below.

b) Regular CPA Formaldehyde Grademark Program

If the screening test results show that formaldehyde emissions increase in the final product, this addendum can not be used and the product type can only be recertified through the in-plant quality control program outlined in the CPA Formaldehyde Grademark Program Quality Control Manual, Sections 1 through 14. Changing certification also requires use of the regular program.

c) INITIAL (QUALIFYING) CERTIFICATION

For a product type to be certified, a Large Chamber Test (ASTM E1333) will be conducted by CPA within 30 days of lamination or finishing on samples of the product type.

d) QUARTERLY CHAMBER TESTS

Quarterly at least one Large Chamber Test (ASTM E1333) will be conducted and/or witnessed by CPA within 30 days of lamination or finishing on a randomly selected sample of certified product.

E. PERIODIC CPA INSPECTIONS

After a licensee's plant has qualified to use the CPA Grademark on its product types, CPA will conduct quarterly on-site inspections to review the plant's recordkeeping, select samples for Large Chamber Testing, and monitor compliance with the applicable provisions of the Recertification Addendum. Full cooperation shall be given to the CPA representative, including access to all pertinent production and warehouse facilities and records, and assistance with selection of sample panels for testing.

F. RECORDKEEPING

The licensee's plant shall develop and maintain a written inventory and process control plan acceptable to CPA and shall maintain adequate records to document the following:

1. CERTIFIED SUBSTRATES

All incoming certified substrate that is to be laminated or finished and recertified shall be recorded. Information will include PB/MDF manufacturer, product description, date received and "lot number".

2. 3rd PARTY CERTIFICATION

Inventory control records on substrate must show 3rd Party formaldehyde certification from a nationally recognized, accredited testing agency whose program meets the provisions of HUD 24 CFR Part 200.935 at the time of laminating or finishing for products recertified under this program.

3. LAMINATING OR FINISHING RECORDS

Records shall be maintained sufficient to establish lamination or finishing date, type and supplier of lamination or finishing materials, product type, quantity and customer for each shipment of a certified product type.

These records shall be made readily available to CPA's authorized representative. All records shall be retained for two years. The adequacy of the licensee's records shall be left to the judgment of CPA. CPA may withhold or revoke certification if recordkeeping is inadequate.

G. LICENSEE

The actual laminator or finisher shall be the licensee for the purposes of this Addendum.

H. MISCELLANEOUS PROVISIONS

A Quality Control Manual defining the plant program to meet the recertification requirements above and responsible plant personnel is required. In addition to

the above Program requirements, the following sections of the CPA Formaldehyde Grademark Program apply to this Addendum:

Section 1.	Application
Section 2.	Responsibility for Product Performance
Section 6.1	Quality Control Manager
Section 7.4	Subsequent Large Chamber Tests
Section 7.5	Sample Selection, Handling and Shipping
Section 7.6	Annual Calibration
Section 7.7	Witnessing of Large Chamber Tests
Section 9.5	Report of Findings
Section 12	Appeal Procedures
Section 13	CPA Grademarks and Certificates
Section 14	Confidentiality

Approved 4/3/96, CPA Board of Directors

**APPENDIX N-1 (INFORMATIVE)
NOTIFICATION OF EXPERIMENTAL MATERIAL**

The example below is of a notice that can be sent to CPA when trial production (i.e. a resin trial) is scheduled for a regularly certified product. If the product is not certified, the test results will not be included in weekly reports. Print the notice on company letterhead.

This form is to be completed and faxed/E-mailed to CPA, **prior** to the production of any "trial" product, which the plant personnel intend not to certify for formaldehyde emissions under the CPA Formaldehyde Grademark Program. It is to be signed by both the employee filling out the form and the Quality Control Manager. The Grademark Stamp may or may not be used on products (CPA Grademark Manual Section 8) manufactured under the conditions described below.

Product Trial Notice

For the following reason(s), (**Type Company Name, Location**), intends to produce for the length of time specified trial product that may not be certified (check at least one):

- Resin Trial.
- Product Improvement Trial.
- Process Improvement Trial.
- Other:

Specify details, as needed, to explain above:

Duration of time:

Identification of Product not certified:

Product Thickness:

Required Signatures:

Technician

Quality Control Manager

Date

Date

Disposition

Subsequent plant quality control tests, in triplicate, indicate that the product identified on this report meets certification requirements. This plant will ship this product as certified.

Plant Test Results: _____ Average: _____

Quality Control Manager: _____ Date: _____

cc: Plant Test Records, CPA Weekly Test Reports

**APPENDIX N-2 (INFORMATIVE)
NOTIFICATION OF NON-COMPLYING MATERIAL RECERTIFICATION**

The example below is of a notice that can be sent to CPA when Non-complying lots are recertified (See Section 8.8). Print the notice on company letterhead.

NOTIFICATION OF NON-COMPLYING MATERIAL RECERTIFICATION

TO: Name, Director of Certification Services
Date : _____

FROM: _____

SUBJECT: Non-Complying Lot

This is to inform you that the following product resulted in a non-complying lot according to Section 8.7 of the CPA Formaldehyde Grademark Quality Control Manual.

Product: _____ Production Date : _____

Initial Test Value: _____ Plant ID Number : _____

Date Tested: _____ Product Q.C.L. : _____

This lot has been isolated and has been (circle one) retested / non-certified according to Section 8.8 of the CPA Formaldehyde Grademark Program Quality Control Manual. Test results are as follows:

<u>Sample #</u>	<u>Product</u>	<u>Date Tested</u>	<u>Test Value</u>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Shipping Q.C.L.: _____ Average Test Value: _____

Technician: _____

Quality Control Manager: _____

Disposition:

APPENDIX O (INFORMATIVE)
STANDARD OPERATING PROCEDURE FOR
EXTENDING AND REDUCING PRODUCT CATEGORIES

Product Code Changes within Plants:

- 1) To combine Product Codes:
 - a. A written letter of intent must be sent to the Director of Certification Services explaining:
 - i. Purpose
 - ii. Exact move intended
 - iii. Date of execution
 - b. Review of the present product codes shall be done for relevance of product move.
 - c. A qualifying Compliance Chamber sample shall be taken to qualify the product into another category.
 - d. Post Compliance Chamber results, a QCL letter shall be written from the Director of Certification Services of CPA approving the change of products.
 - e. An updated copy of the plant Quality C Manual will be sent to CPA.

- 2) To Separate Product Codes:
 - a. A written letter of intent must be sent to the Director of Certification Services explaining:
 - i. Purpose
 - ii. Exact move intended
 - iii. Date of execution
 - b. A schedule of Compliance Chamber sampling should be created for the new product code. All sampling, testing and QCL creation must follow the Grademark Program Manual.
 - c. A new QCL letter shall be written along with the new QCL graph for the Product Code by the Director of Certification Services of CPA.
 - d. A scheduled date of execution shall be determined.
 - e. New product tags and identifications shall be approved.
 - f. An updated copy of the plant QC Manual will be sent to CPA.

APPENDIX P (INFORMATIVE)

Voluntary Best Practices Recommendations

The following is an Informative Appendix to the Formaldehyde Grademark Program Quality Assurance Manual of the Composite Panel Association (CPA), and was approved by CPA in September 2011.

CPA developed these voluntary best practices recommendations to assist panel producers covered by the California Air Resources Board's (CARB) ATCM on formaldehyde emissions from composite wood products. These recommendations apply to plants participating in CARB's Third Party Certification (TPC) program, including all client plants of CPA's TPC-1.

CPA's narrower objective is to mitigate the possibility of "non-complying lots" entering the stream of commerce and reaching the consumer in the form of a raw panel or in a finished product.

The recommendations are divided into sections and presented in the form of a checklist, with the most significant ones highlighted in bold. If a plant follows the current CPA Formaldehyde Grademark Manual and does not have non-complying events, no additional measures may be required and these voluntary best practices may not be applicable.

CPA client plants are expected to incorporate this checklist into their Formaldehyde Quality Control Manual and to update the checklist on a quarterly basis for one year. The completed checklist and subsequent updates should be shared with the CPA TPC auditor serving the respective plant. After the first year of implementation, CPA will assess whether to continue this reporting and, if so, at what frequency.

QUALITY CONTROL RESOURCES

Quality Control Formaldehyde Testing Laboratory:

Equipment calibrated by an independent calibration laboratory if the plant does not have the expertise or standards in-house to perform the calibration work:

- a) Balance;
- b) Pipettes {dispensers and autopipettors, (calibrated Class A glass pipettes do not require calibration)};
- c) Temperature and humidity monitoring equipment;
- d) Spectrophotometer verified by two calibration curves on different days; or use of a colored filter set;
- e) Calibration curve procedure has additional points on curve at lower formaldehyde concentration levels reflecting today's products (CPA will provide its clients a programmed spreadsheet with a recommended calibration curve procedure for today's lower emitting products);
- f) If using a Dynamic MicroChamber (DMC), perform at least 20 matched sets in the DMC using both wet chemistry and Interscan sensor to validate the DMC at low emission levels;
- g) Have the DMC professionally calibrated to ensure all electronics, mechanical devices, sensors and software is within calibration and functioning properly;
- h) If a plant has poor correlations using desiccators or perforators, the plant should consider using small chambers (ASTM D6007 or DMC) for QC testing.

The following should be investigated if something with the wet chemistry procedure is suspect:

- a) Ensure that chemical reagents are not past the expiration date and are of the proper quality.
- b) Ensure reagent blanks have very low absorbance values.
- c) Ensure that test tubes and test tube caps are free of contamination. This can be accomplished by running a side-by-side matching sets using newly purchased tubes and caps.
- d) It is recommended that a single vial or cuvette be used for all spectrophotometer readings. If more than one vial or cuvette is used, then verify that less than 0.002 absorbance unit variation between all vials or cuvettes used. (Check with distilled or deionized water or check with reagent blank solution prior to use.)

Quality Control Preparedness:

- a) The plant has a documented back-up plan in the event of equipment failure (small chambers, DMC, sensors, desiccators, perforators, etc.);
- b) The plant has trained back-up formaldehyde technicians and has documented this training in the plant's formaldehyde quality control manual.

Chemistry Proficiency:

- a) Plant participates in CPA or other third-party annual proficiency survey;
- b) Develop additional matched testing (on unknown solutions of formaldehyde or actual board samples) with other plants within a company, resin suppliers, independent testing labs or CPA.

PLANT GRADEMARK PROGRAM

Correlation Development, Verification, and Upkeep:

- a) Plant has a valid shipping QCL in addition to its 'hot' QCL and has at minimum, five points at or below the certification level and within the Grademark correlation coefficient (R-Value). When developing a QCL, a plant will be permitted to add a few points above the certification limit; thus allowing for a more accurate slope of the correlation line.
- b) If plant utilizes a small chamber, in addition to the regular "hot QCL," with its associated specimen conditioning time, the plant could also establish hot and shipping QCLs using seven days of conditioning at the plant; thereby more closely mimicking the product as tested by the TPC. Theoretically, the correlation between the plants cold, sanded, ready-to-ship product after 7 days of conditioning should be close to "1.0" representing a one to one relationship. Having dual hot and shipping QCLs with 7 days a week would allow plants to perform additional QCL development/verification of their regular QCLs using internal data; thereby not having to pay a TPC for this information.
- c) Plants may use matching material (on at least one product category per quarter) to test quarterly compliance material, using the regular plant QC test method, and predict the ITCC test result, using the plant's "shipping quality control limit (SQCL)" to within ± 0.03 ppm (preferably ± 0.02 ppm) before the ITCC reports the result. A plant and CPA auditor may work together to sample "hot" boards for quarterly compliance testing, thus allowing a plant to use their QCL to predict the ITCC test result.
- d) Continuously assess and improve QCL by adding new data points and reviewing older points (at least every six months);

Product Category Background:

- a) Plants should have basic decay knowledge of each product category especially over seven days of conditioning.

Quality Control Sampling Procedures:

- a) Lengthen the conditioning time for QC samples if correlations are not adequate (example, change from a 2 hour conditioning period to a 12 hour period);
- b) Sample QC samples that are older in time after pressing, if correlations are not adequate;
- c) Plant may choose random QC samples more frequently than required. Possibilities include early, middle, and late in a lot production;
- d) Quarantine production and re-test all sample results that are above the QCL;
- e) If QC specimens are placed in bags before conditioning, it is recommended that specimens are doubled bagged or at least 6-mil plastic is used to ensure no formaldehyde decay.

Quarterly Compliance Sampling Procedures:

- a) Plant will work with auditors to randomly sample the most recently manufactured product as soon as possible to ensure least amount of time between production and compliance test. Plant will ship material selected by auditor in a timely manner;
- b) Direct ITCC to conduct a screening test if not already taking advantage of this early warning screening (This is not done as part of the test procedure but an extra service by the CPA. Screening to compliance test value comparison is specific to each plant.);
- c) Send quarterly back up samples to ITCC; retain an additional back-up to
- d) the primary back-up samples at the plant;
- e) For each production lot sampled for quarterly compliance testing, including back-up samples sets, retain additional material from each lot for possible "recertification" (recertification = reinstatement of certification on a lot by lot basis) should a particular lot fail its compliance test by the TPC laboratory;
- f) To reduce the processing time at the ITCC, choose small chambers over large chamber (contact the CPA prior to this option to see if it is warranted), if sending Large Chamber (LC), direct ITCC to test as small chambers if the LC loading schedule is greater than 5 days of waiting time.

PLANT SOP'S FOR CONSIDERATION

- a) Plant to develop documented procedures to notify customers if quarterly screening test indicates a possible failure;
- b) Plant to develop standardized letter to customer that has received a non-complying lot (copies of letters sent shall be made available to CPA upon request);
- c) Plants can consider delaying shipping material until the plant has QC test results on cold, sanded, "ready to ship" product;
- d) Run QC Program based on shipping QCL and not "hot tests;"
- e) Lower the target operating level (TOL) for plant QC testing;
- f) Run QC Program at a 99% confidence level as opposed to a 95% level;
- g) For plants using small chambers or DMCs, set the shipping QCL at the emission limit value as opposed to a correlated value. For example, CARB Phase 2 for particleboard is 0.09 ppm; therefore a plant could set the shipping QCL at 0.09 ppm and test, at an appropriate interval (e.g., once a week), against the 0.09 ppm shipping QCL to ensure

product leaving the facility is compliant. The length of time the test specimens are conditioned could be 7 days to coincide with ASTM E1333 Large Chamber method, or could be shorter; thus adding a safety margin.

TPC LABORATORY ASSISTANCE

- CPA's International Testing and Certification Center (ITCC) will continue to notify plants the day of "high" screening test result and a failing compliance test;
- The ITCC will continue to make its services available seven-days-a-week to ensure that a non-complying client event can be addressed as quickly as possible;
- The ITCC can provide a summary of all matching screening tests and chamber tests performed for a client plant so the plant can develop individualized linear regressions for product types and thicknesses as it deems appropriate.

APPENDIX Q (INFORMATIVE)
CPA GRADEMARK PROGRAM APPROVED LABORATORIES

<u>Lab Name and Address</u>	<u>Approved Testing</u>	<u>Accreditations</u>
Element 662 Cromwell Avenue St. Paul, MN 55114	ANSI A135.4 ANSI A135.5 ANSI A135.6 ASTM D1037	IAS ISO 17025 City of LA A2LA