

they are identified, without requiring specific findings of equivalent level of safety under 14 CFR 21.21. Experience has shown that such improvements frequently originate with the International Aircraft Fire Test Working Group (IAMFTWG) and are readily adopted by the industry. The IAMFTWG consists of experts in the materials and fire testing specialties who help refine and support the development of test methods used in aviation, and includes representatives from the airlines, airframe manufacturers, material suppliers, and regulatory authorities, among others. A representative from the FAA Technical Center chairs this group. The IAMFTWG is a technical peer group that contributes to FAA research, but its activities are not regulatory in nature. Readers should note that final parts VI and VII of Appendix F to Part 25 constitute the basic requirements, and that such equivalent methods that might be developed would have to be adopted in total. It is not acceptable to selectively adopt portions of a modified test method that has been found to be equivalent and not all of the modified method. We will make the determination of an acceptable equivalent method.

In proposed § 25.856, we stated that these equivalent test methods would be "FAA-approved." One commenter suggested that, for the sake of consistency with existing regulations, including § 25.853, this simply read "approved." The FAA agrees that the suggested language is consistent with § 25.853. We believe that specifying "FAA-approved" adds no value. Therefore, we have accepted the suggestion and changed the wording of final § 25.856(a) and (b) to allow for "approved equivalent test requirements." We consider this a non-substantive, editorial change.

Two commenters, representing the major airframe manufacturers in the United States and Europe, urged that the FAA withdraw proposed part VII of appendix F to Part 25 and propose instead a general requirement for fuselage fire penetration resistance. Other commenters stated that the FAA must address areas that currently have no insulation, or areas where insulation might be removed. Some commenters stated that insulation should be required as part of this rule.

The FAA disagrees with the comments. As noted in the NPRM, we elected to propose a standard related to thermal/acoustic insulation, since this approach is known to yield improved fire penetration resistance. A requirement related to protection of the fuselage in general involves many

variables and would be much more complicated to define. We recognize that removal of insulation would avoid complying with the requirement. This possibility was discussed in the preamble, and we noted our intent to monitor this possible course of action. We agree that an ideal standard would simply require that the cabin be protected from a post-crash fire of specified intensity for an additional four minutes, and permit the manufacturer to develop his own design approach. At present, we do not have a proposal or test standard to address the overall resistance of the fuselage to fire penetration.

In addition, a proposal of that nature would go beyond the scope of the NPRM, since the NPRM only addressed a material standard for thermal/acoustic insulation. Nonetheless, it appears that industry is considering alternatives that might address the issue more generally, and we do not want to dismiss this possibility. A more general requirement would also address concerns with areas that do not currently have insulation, or where insulation is removed. Nevertheless, we consider that there is a need to adopt a standard that will provide added post-crash fire protection now, and will proceed with adoption of the final rule. Based on the comments, however, we consider it appropriate to review the industry's proposal to approach burnthrough protection as an airplane performance requirement and, if such a standard can be developed, consider it as an alternative means of compliance. Therefore, we are considering assigning the Aviation Rulemaking Advisory Committee (ARAC) the task of developing a recommendation to the FAA for a fuselage burnthrough standard. In the meantime, this regulation will be in effect, but will not actually require compliance for newly manufactured airplanes until four years after the effective date of the rule. If ARAC is successful in developing an alternative approach, we will consider whether a change to the regulations is appropriate or whether approval as an equivalent level of safety under § 21.21(b)(1) is sufficient. Regardless, under the provisions of § 21.21(b)(1), any applicant that wishes to do so can propose an alternative standard and design features meeting the objectives of the requirement at any time.

As noted in the NPRM, we have no plans to require installation of thermal/acoustic insulation in areas that currently do not have this insulation installed. Our intent is to take advantage of materials that are typically installed to affect a safety improvement, and

requiring thermal/acoustic insulation to be installed in such areas would not be consistent with this intent. In fact, this approach would be more consistent with a general requirement for burnthrough protection, as discussed above. Therefore, this issue will necessarily be addressed in the proposed ARAC activity discussed above.

Part VI of Appendix F to Part 25—Flame Propagation Test

Final part VI of Appendix to Part 25 consists of a method of evaluating the flammability and flame propagation characteristics of thermal/acoustic insulation materials when exposed to both a radiant heat source and a flame. The test method we are adopting today includes specific instructions for constructing the test apparatus, calibrating instruments, and conducting the test. It also includes the standards the insulation must meet. The test involves exposing samples of thermal/acoustic insulation to a radiant heat source and a propane burner flame for 15 seconds. The tested insulation must not propagate flame more than 2 inches away from the burner. The flame time after removal of the burner must not exceed 3 seconds on any specimen.

This test method is based on American Society of Testing and Materials (ASTM) test method E 648, which uses a modest ignition source combined with exposure to radiant heat to determine fire propagation performance. This test method represents a realistic fire threat and imposes realistic success criteria, considering the state of the art of insulation materials. The test method we are adopting today is substantially the same as the one included in the NPRM, with the exception of the burn-length and after-flame standards. We discuss the changes to the standards below in the responses to comments. We have also made minor editorial changes to the language of the test method for clarity. These editorial changes are not substantive.

One commenter questioned the rationale for applying the flame propagation test to all forms of thermal/acoustic insulation, rather than just a thin film-encapsulated batting type of thermal/acoustic insulation.

The FAA's intent is to address thermal/acoustic insulation in general because of its location and quantity in inaccessible areas of the fuselage. The flame propagation test represents a realistic in-flight fire threat, and a method of assessing the tendency for materials to spread fire. We recognize that there may be different material/