

Air Carrier Training Aviation Rulemaking Committee (ACT ARC)

Recommendation 16-8: Enhanced Qualification Program

I. Submission

The Education, Training and Experience Alternatives for an ATP Workgroup (ATP WG) submitted the following recommendations on the structure, development, submission, and approval of an enhanced qualification program (EQP), the first alternative pathway to an Airline Transport Pilot (ATP) certificate with restricted privileges (R-ATP), for consideration by the ACT ARC Steering Committee at F2F-10. The ACT ARC Steering Committee adopted the recommendations with the consent of all members except the National Air Disaster Foundation (NADF). Member support for alternative methodologies for determining the value of aeronautical experience credit for EQP is documented in Recommendation 16-8(e). These recommendations are submitted to the Associate Administrator for Aviation Safety (AVS-1) as ACT ARC Recommendation 16-8.

II. Statement of the Issue

On February 12, 2009, a Colgan Air Bombardier DHC-8-400, operating as Continental Connection flight 3407, was on an instrument approach to Buffalo Niagara International Airport in upstate New York. Approximately 5 nautical miles from the airport, the pilot lost control of the airplane, crashing into a house in Clarence Center, New York, killing everyone onboard and one person on the ground. This accident focused Federal Aviation Administration (FAA), National Transportation Safety Board (NTSB), Congressional, and public attention on multiple aspects of pilot qualifications and air carrier training requirements.

The NTSB final accident report identified a number of safety issues, including questions about the adequacy of flightcrew member training and qualifications. The accident raised questions about whether a pilot acting as second in command (SIC) should be held to the same training and flight hour requirements as one acting as pilot in command (PIC), and whether a pilot's overall academic training and quality of flight training were as important as the total number of flight hours. The accident also raised questions about pilot professionalism and whether pilots receive sufficient experience in a multicrew environment.

The Colgan accident was one of several accidents that raised these and other concerns. As stated in the Pilot Certification and Qualification Requirements for Air Carrier Operations notice of proposed rulemaking (FOQ NPRM) published in the Federal Register February 29, 2012,

[T]he FAA evaluated recent accidents in parts 121 and 135 to determine whether current certification requirements are sufficient to produce pilots who can enter an air carrier environment and train and perform their duties effectively. . . .

* * *

The FAA identified 31 accidents in part 121 air carrier operations and 30 accidents in part 135 air carrier operations from fiscal year 2001 through fiscal year 2010 that could have been mitigated if the proposed enhanced ATP qualification standards and part 121 requirements had been in effect at the time of those accidents. The analysis indicated the accidents were a result of various issues, including improper aircraft handling, poor [crew resource management], poor situational awareness, and inadequate training.¹

¹ 77 FR 12374 at 12377, 12380.

In July 2010, the FAA chartered the First Officer Qualification Aviation Rulemaking Committee (FOQ ARC), which was comprised of a cross section of aviation industry subject matter experts (SME), to develop recommendations regarding rulemaking on the flight experience and training requirements for a pilot operating as a first officer for an air carrier conducting operations under Title 14 of the Code of Federal Regulations (14 CFR) part 121 (part 121 air carrier).

In August 2010, President Obama signed into law the Airline Safety and Federal Aviation Administration Extension Act of 2010 (Pub. L. 111–216 (August 1, 2010)) (the Public Law). The Public Law included several specific provisions modifying ATP certification requirements to prepare air carrier pilots to operate more safely. Among those provisions was the requirement for each flightcrew member employed by a part 121 air carrier to hold an ATP certificate, and to have appropriate multi-engine aircraft flight experience. The Public Law also mandated new qualitative requirements for issuance of an ATP certificate, including requiring an ATP applicant to have sufficient aeronautical experience to function effectively in an air carrier operating environment, and to have received flight training, academic training, or operational experience sufficient to prepare him or her to meet the challenges of and fulfill the responsibilities associated with the safe conduct of air carrier flight operations. Finally, the Public Law directed the FAA to require a candidate for an ATP certificate to have a minimum of 1,500 flight hours, including sufficient flight hours in difficult conditions to enable safe operation in such conditions.

Section 217(d) of the Public Law, however, provided for an exception to this requirement by permitting the FAA to award credit toward the flight hours requirement for completion of academic training courses, based on a determination that such training would enhance safety more than requiring a pilot to fully comply with the flight hours requirements.

The FAA asked the FOQ ARC to consider the provisions of the Public Law in developing its final recommendations. The FOQ ARC submitted its recommendations to the FAA in September 2010. Based on the FOQ ARC recommendations, the FAA promulgated 14 CFR 61.160, which provides credit toward the aeronautical experience requirements for issuance of an R-ATP certificate to (1) current and former U.S. military pilots and (2) graduates of aviation degree programs at institutions of higher education that include a ground and flight training curriculum approved under 14 CFR part 141. In accordance with International Civil Aviation Organization (ICAO) Standards and Recommended Practices (SARP) concerning licensing of airmen, § 61.167(b)(1) prevents the holder of an R-ATP certificate from acting as PIC in part 121 operations.

In accordance with ACT ARC Initiative #29 and the ATP WG Terms of Reference, the ATP WG has been tasked to explore the creation of alternative pathway(s) to an R-ATP. These recommendations developed by the ATP WG outline such an alternative pathway to an R-ATP.

The Public Law required the FAA to undertake rulemaking actions within a short timeframe, both to implement the new ATP flightcrew member certification requirements, and to implement the provisions allowing credit for academic training toward the aeronautical experience requirements for an R-ATP.² The ATP WG believes its tasking offers an opportunity to give further consideration to (1) what academic and flight training will best prepare a pilot for the demands of air carrier operations, and (2) what the cumulative value of such training is, in terms of credit toward an R-ATP certificate.

² The Public Law required the publication of a final rule or rules promulgating the mandated regulations within 36 months of its date of enactment, August 1, 2010.

The proposed pathway includes substantial prerequisites, a rigorous candidate assessment process, and intensive, integrated academic and flight training designed to accelerate acquisition and development of knowledge and skills necessary to effective performance in an air carrier line operations environment. The ATP WG believes these recommendations, if implemented, provide an alternative that will result in any R-ATP applicant who successfully completes this pathway meeting or exceeding the requirements for knowledge, skill, and quality of performance, by ensuring consistent, recent training and establishment of competencies required for safe operation of multi-engine, turbine-powered aircraft in a multi-crew air carrier environment.

III. & IV. Recommendations & Rationale

The ACT ARC submits the following recommendations on the structure, development, submission, and approval of an enhanced qualification program (EQP) as an alternative pathway to an airline transport pilot (ATP) certificate with restricted privileges (R-ATP) for FAA consideration.

All ACT ARC member organizations concurred with Recommendations 16-8(a) – (d) and 16-8(f) – (j), except NADF. The NADF dissent appears in its original form (as submitted to the ACT ARC), at the end of this document. Member support for alternative methodologies for determining the value of aeronautical experience credit for EQP are documented in Recommendation 16-8(e).

The following outline of the recommendation comprising ACT ARC Recommendation 16-8 is provided for ease of reference:

- [16-8\(a\)](#): EQP Pathway
- [16-8\(b\)](#): Prerequisites
- [16-8\(c\)](#): Assessment
- [16-8\(d\)](#): EQP Curriculum
- [16-8\(e\)](#): Aeronautical Experience Required for R-ATP
 - [16-8\(e\)\(1\)](#): Method 1 – Uniform Credit
 - [16-8\(e\)\(2\)](#): Method 2 – Variable Credit
 - [16-8\(e\)\(3\)](#): General Support
- [16-8\(f\)](#): Instructor/Evaluator Qualifications
- [16-8\(g\)](#): Transferability
- [16-8\(h\)](#): EQP Submission and Approval
- [16-8\(i\)](#): Data Collection
- [16-8\(j\)](#): Use of FSTDs to Acquire Aeronautical Experience Toward an R-ATP Certificate

[Recommendation 16-8\(a\)](#): EQP Pathway

The ACT ARC recommends the FAA promulgate regulations and associated advisory and inspector guidance establishing an alternative pathway to R-ATP certification, including additional aeronautical experience credit, for a pilot training under an enhanced qualification program (EQP).

The ACT ARC further recommends that part 121 certificate holders be eligible providers of the EQP. An EQP would be developed and administered by the part 121 certificate holder and approved by the FAA. An EQP would include an air carrier assessment, EQP curriculum, and data collection.

(See [Attachment 1: EQP Concept](#).)

The FOQ ARC identified gaps between the training and testing required to obtain a commercial pilot certificate with multi-engine and instrument ratings and the skills, experience, and competencies needed to perform to acceptable levels in part 121 air carrier operations. In its Final Report, the FOQ ARC recommended several methods to improve the flight proficiency of the pilot, including establishment of minimum aeronautical knowledge and experience standards for a pilot acting as SIC in air carrier operations.

Based on the FOQ ARC recommendations, the FAA issued 14 CFR 61.156, which prescribes specific training requirements (referred to as an ATP Certification Training Program (ATP CTP)) for a pilot applying to take the FAA ATP-Multiengine Airplane Knowledge Test. The ATP CTP course required under § 61.156 is intended to ensure a pilot seeking an ATP certificate has been exposed to the academic and flight training topics identified as problem areas in the accidents that led to the enactment of the Public Law and, ultimately, the Pilot Certification and Qualification Requirements for Air Carrier Operations final rule (FOQ final rule),³ before entering air carrier training and serving as a first officer in part 121 air carrier operations. Because the ATP CTP is relatively short,⁴ it is necessarily limited in the scope and the depth to which it addresses topics, as well as the extent of practical training and evaluation provided. The ATP WG proposes a program that will delve more deeply into a broader array of topics, and will include practical training to competency, and a comprehensive evaluation of skills and knowledge.

In addition to ATP CTP, several aviation colleges, universities, and pilot schools teach the theoretical aspects of air carrier inter-departmental relationships and operations. However, these academic organizations generally do not address these topics in significant depth, and very few degree programs offer practical experience in air carrier inter-departmental relationships and operations before a new hire pilot is introduced to these concepts during air carrier initial new hire (INH) training. The EQP is designed to bridge these gaps and better prepare applicants for the air carrier INH curriculum.

Neither an ATP CTP nor collegiate coursework is intended to ensure that an ATP certificate applicant with a multi-engine class rating is fully competent to operate in air carrier operations before entering into air carrier employment. While the EQP does not eliminate the need for INH training, the ATP WG believes that the training the applicant receives and successfully completes via the EQP pathway will better prepare the applicant to successfully complete the air carrier's INH program and enhance the operational safety of the graduate in his or her early years of air carrier operational experience.

³ 78 FR 42324 (July 15, 2013).

⁴ An ATP CTP is typically completed in 5 to 8 days of instruction. By comparison, the EQP proposed by the ATP WG is expected to take substantially longer. (See Recommendation ATP-2(d): Curriculum.)

In an effort to develop training requirements that will effectively prepare pilots for such operations, the ATP WG reviewed a number of highly structured training programs designed to rapidly bring a pilot applicant with no or limited aviation experience up to a readiness level that enables him or her to meet mission demands (for military or air carrier operations) through intense immersion training, including:

- The United States Air Force (USAF) C-17 pilot qualification program;
- USAF requirements for pilot positions;
- U.S. Navy Multi-engine Transport program, which trains for operations in the P8 (B737 military variant);
- European and other country air carrier training academy programs; and
- Some U.S. civilian pilot training programs.

For many years, these programs have successfully trained professional pilots to meet specific job requirements and competencies. Competency-based programs, including those mentioned above, typically include the following elements:

- An assessment and selection process to ensure each candidate/applicant has the aptitudes necessary to successfully complete training;
- Well-designed curricula, building on sound principles, developed using Instructional Systems Design (ISD) processes, to train inexperienced pilots into trained professionals capable of fully functioning in the capacity for which they are trained;
- A well-qualified and experienced instructor staff with a passion to instruct that understands the objectives of the curricula and has been skillfully trained to deliver instruction to expected standards of quality;
- Appropriately determined training media (courseware, delivery (e.g., classroom, distance learning, or computer-based training with both instructor led and self-study portions), and hardware, including aircraft and appropriate flight simulation training devices (FSTD)) to train the pilot student in a structured manner to the highest competency level;
- Systematic collection of data supporting continuous improvement;
- A robust safety management system and quality assurance program; and
- An end goal of the pilot being able to fulfill his/her expected mission, whether military or civilian air carrier employment.

Available data from many such organizations justifies and validates the success of such well-constructed programs, and the FAA would benefit from structuring the EQP to incorporate these elements.

Under the ATP WG proposal, only a part 121 air carrier can submit an EQP for approval. The air carrier would be responsible for administration and oversight of all aspects of the EQP. Required EQP elements would include an assessment process to ensure the suitability of the applicant and a comprehensive curriculum designed to better prepare the applicant to become an air carrier SIC. The air carrier would also be required to develop and specify a data collection methodology (1) to collect relevant deidentified data as the pilot progresses through the EQP, and (2) following completion of the EQP, for the sole purpose of validating and making improvements to the program as appropriate. Advisory guidance should be issued explaining how to develop an EQP, coupled with FAA inspector guidance explaining how to review the EQP.

The EQP will exceed the requirements for an ATP CTP prescribed in § 61.156. A pilot completing Phase I of the EQP curriculum (see Recommendation 16-8(d): EQP Curriculum) will receive the equivalent of an ATP CTP Graduation Certificate, and be eligible to complete the FAA ATP-Multiengine Airplane Knowledge Test. Upon completion of the EQP, including successful completion of the Knowledge Test, the pilot will be eligible to enroll in the air carrier INH training curriculum. Upon completion of INH training (including the ATP practical test), a pilot who meets the alternate aeronautical experience requirements proposed in this Recommendation would be eligible to receive an R-ATP certificate.

Recommendation 16-8(b): Prerequisites

The ACT ARC recommends the FAA set the following minimum academic degree and/or military training, certificate, and aeronautical experience requirements for an applicant enrolling in an FAA-approved air carrier enhanced qualification program (EQP):

Table 1 – EQP Prerequisite Requirements

	14 CFR 61.160(a): Military Pilots	14 CFR 61.160(b): Pilots with a Bachelor's degree who have completed 60 or more semester credit hours of aviation and aviation-related coursework *	14 CFR 61.160(c): Pilots with a Bachelor's degree who have completed more than 30 but fewer than 60 semester credit hours of aviation and aviation-related coursework *	14 CFR 61.160(d): Pilots with an Associate's degree who have completed 30 or more semester credit hours of aviation and aviation-related coursework *
Academic Experience	Graduation from a U.S. Armed Forces undergraduate pilot training school	Degree with an aviation major from an institution of higher education (as defined in 14 CFR 61.1) that has been issued a letter of authorization by the Administrator under 14 CFR 61.169.**		
Certificate Requirements	Commercial pilot certificate with an airplane category and multi-engine and instrument ratings.			

* Aviation and aviation-related coursework that has been recognized by the Administrator as coursework designed to improve and enhance the knowledge and skills of a person seeking a career as a professional pilot.

** The ground training for the commercial pilot certificate and instrument rating must be completed as part of an approved part 141 curriculum at the institution of higher education from which the applicant obtained his degree. The required flight training must be completed as part of an approved part 141 curriculum at the institution of higher education or at a part 141 pilot school that has a written training agreement under 14 CFR 141.26 with the institution of higher education.

Rationale:

Given the intensive nature of the proposed EQP curriculum, the ATP WG recommends such programs include robust prerequisite requirements designed to ensure a pilot entering an EQP already has a solid knowledge and skill baseline upon which the EQP curriculum will build.

Prerequisite aeronautical experience represents the aeronautical experience needed to enter the EQP, not the aeronautical experience needed for issuance of an ATP certificate with restricted privileges (R-ATP), which is described in Recommendation ATP-2(e): Aeronautical Experience Required for R-ATP.

Prerequisite aeronautical experience may be expressed as the aeronautical experience needed for issuance of an R-ATP certificate less the aeronautical experience creditable toward issuance of an R-ATP certificate expected to be obtained during an air carrier EQP and air carrier indoctrination and flight training. (See Recommendation ATP-2(j): Use of FSTDs to Acquire Aeronautical Experience Toward an R-ATP certificate.)

Certificate Requirements

A pilot entering an EQP must have demonstrated the specific skills and knowledge necessary to obtain a rating qualification as a military pilot or a commercial pilot certificate with airplane category and multi-engine and instrument ratings. This ensures a minimum level of familiarity with basic aircraft systems and operations, aircraft performance, flight planning, operations in the national airspace system including cross-country flight, operations under instrument flight rules, and proficiency in executing maneuvers to defined standards.

Note: Under the existing regulations, a pilot seeking an R-ATP is only required to have a commercial pilot certificate and 50 hours in the class of airplane for the rating sought. The ATP WG has deemed it appropriate to require a pilot entering an EQP program to hold an Airplane Multi-Engine Land class rating.

Academic Experience

The requirement that a pilot entering an EQP have graduated from a U.S. Armed Forces undergraduate pilot training school or earned a degree with an aviation major from an authorized institution of higher education will ensure he or she has the requisite breadth and depth of aviation knowledge and the ability to succeed in an integrated academic and flight training program that is highly structured.

In order to be accepted into a pilot training program in one of the branches of the military, an individual must undergo a rigorous screening process including an assessment of his or her aviation aptitude. Three of the four branches of the military require pilots to hold a Bachelor's degree.⁵ Once accepted into a pilot training program, a person is 100 percent dedicated to aviation training. As an example, pilot training administered by the United States Air Force (USAF) starts with Initial Flight Training (IFT), an aptitude screening test including 18 hours of flight time over 4.5 weeks. Following IFT, pilots undergo Specialized Undergraduate Pilot Training (SUPT) consisting of 55 weeks of training.⁶

SUPT includes 4 to 6 weeks of academic and preflight training on aerospace physiology, (including altitude chamber tests), aircraft systems, aviation weather, mission planning, and navigation. After academic and preflight training, the USAF student pilot undergoes 22 weeks of primary aircraft training before transitioning to a track of advanced aircraft training that continues for another 24 to 28 weeks.

A USAF student pilot is committed to a 12 hour duty day while at SUPT, and his or her flight proficiency is continuously assessed throughout training. Additionally, during the flight training phases, a USAF student pilot participates in flight training every day, normally either in a simulator or an aircraft.

⁵ This results in about 95 percent of military pilots being required to hold a Bachelor's degree. The United States Army does not require a degree. However, Army pilots represent a small percentage of U.S. Armed Forces fixed wing pilots.

⁶ As presented by Col. Juan Narvid, USAF (Retired) during the ATP WG meeting on June 9-10, 2015, and subsequently expanded upon by Michael "Norm" Maloy (Chief, Air Mobility Command Aircrew Training Plans and Programs, USAF) via email, facilitated by Mark Caslen (USAF and ACT ARC Steering Committee observer).

Following SUPT, a USAF pilot begins training at a Formal Training Unit (FTU). As an example, FTU training for the C-17 is 15 weeks long and consists of 96 or 134 hours of training, depending on whether the 38 hours of non-level C simulator training in a flight training device is counted. Of the 96 or 134 hours of training, 18 hours is in the aircraft.⁷

Graduates of colleges and universities with aviation-related majors who obtain their commercial pilot certificates and instrument ratings from affiliated part 141 pilot schools also receive concentrated and focused aviation training. Students complete a course of academic study in an aviation-related major while concurrently training at the university's affiliated FAA-approved part 141 pilot school. Through their academic coursework, these students receive a solid foundation in various topics that may include aeronautical science and technology, aviation meteorology, air traffic operations, air transportation, aviation law, aircraft systems, and crew resource management (CRM). The coursework is comprehensive, structured, and focused on preparing the student, over the course of 2 or 4 years, for a professional career in the aviation industry. The aviation related academic courses for a 4-year Bachelor's degree amount to approximately 900 hours of instructor led training, with an additional amount of assigned self-study.⁸ The flight training accomplished through the college or university's part 141 pilot school is integrated with in-depth academic ground training. The student is continuously evaluated with academic testing and flight evaluations throughout the courses that lead to pilot certificates and ratings. In addition, these aviation programs are specifically focused on preparing pilots for careers in aviation.

Aeronautical Experience

The aeronautical experience prerequisites for EQP entry are intended to ensure a pilot successfully completing the EQP and air carrier indoctrination and flight training will have sufficient flight hours to qualify for issuance of an R-ATP certificate. The prerequisites in Table 1, above, are calculated using the aeronautical experience required for issuance of an R-ATP (see Recommendation ATP-2(e): Aeronautical Experience Required for R-ATP), less the total of the amount of aeronautical experience a pilot can expect to receive while completing the EQP and the amount of aeronautical experience a pilot can expect to receive during air carrier indoctrination and flight training.

Recommendation 16-8(c): Assessment

The ACT ARC recommends that enhanced qualification program (EQP) requirements include an assessment process to select candidates/applicants who have been found to possess the aptitude, attitude, motivation, and physical ability to successfully complete the education and training required under the EQP.

Rationale:

Incorporating a qualified assessment process in the EQP ensures selection of candidates/applicants likely to achieve the desired level of aviation experience and required skill sets within the programmed training regimen.⁹

⁷ The data/information regarding C-17 FTU training is a combination of the information provided by Col. Narvid and Chief Maloy.

⁸ As presented by Dr. Gary Northam, President, Aviation Accreditation Board International (ATP WG SME).

⁹ The assessment process is not designed to replace or supplant the pilot interview process typically used by air carriers. The interview remains an integral part of the employment selection process.

Selection programs in place today demonstrate that candidates/applicants who achieve the minimum recommended scores have a very high rate of success in training and line operations with minimal additional training requirements.¹⁰

Selection processes for pilot training programs have been effectively used for decades to achieve these objectives. The U.S. military has a long history of successfully employing pilot training selection criteria to select prospective pilot training candidates/applicants. The military model selects and trains the pilot to fly in high threat environments across a broad spectrum of flight operations. For example, USAF C-17 co-pilots are successfully trained after acquiring approximately 415 hours of aeronautical experience, including 200 hours of actual aircraft flight time and 215 hours of FSTD time.¹¹ The success of these training programs is due, in part, to the process used to select and continually evaluate candidates/applicants with the attributes proven to be compatible with the demands of being a pilot.

The probability of success in both training and commercial line operations is a critical factor to the FAA Administrator, the flying public, the flying organization, and the applicant.

- For the Administrator: Provides a training program that reliably produces an ATP who is fully qualified, experienced, and functional in a commercial aviation crew environment.
- For the flying public: Provides a pilot who has shown both the theoretical aptitude to be a successful and safe air carrier pilot and has been trained in and demonstrated all of the required academic and practical skill sets required of such a pilot.
- For the flying organization: Provides a methodology which predicts the probability of success for selected candidates/applicants, thus providing a reliable and effective training program.
- For the pilot candidate/applicant: Provides a predictive measure of success about his or her ability within the air carrier career field, thus supporting a more informed decision about whether or not to follow this path.

Numerous job task analyses, along with input from practitioners, researchers, and the target pilot population, have identified the knowledge, skills, abilities, and other traits (KSAO) necessary to perform the duties of a pilot. In addition to more traditional cognitive, psychomotor, physical and sensory abilities, desired KSAOs include interactive and social components, for example, communication, cooperation and leadership.

In fact, interpersonal skills are among the highest rated in terms of desired skills of a pilot. The current consensus is that while personality testing may be of limited validity for predicting training outcome, it is very successful for predicting the long-term success of a line pilot.

Effective assessment tests can be taken by potential candidates/applicants with a broad range of life and aviation experiences. Some assessment tests measure basic aviation aptitudes and attitudes, and others measure more aviation-specific knowledge and skill sets. Tests measuring basic aptitudes and attitudes can be taken early in a candidate's/applicant's career decision-making process and are fairly standard. For example: the USAF Test of Basic Aviation Skills (TBAS) assesses foundational skill sets necessary for success in an aviation career. Tests measuring specific aviation skills should be tailored to the likely experience level of the candidate/applicant.

¹⁰ As presented by Dick Verburg, Multi Pilot Simulations (MPS) and Nikki Heath, Resource Group Symbiotic Performance Solutions (ATP WG SMEs) during the ATP WG meeting on August 18-19, 2014.

¹¹ As presented by Col. Juan Narvid, USAF (Retired) during the ATP WG meeting on June 9-10, 2015, and subsequently expanded upon by Michael "Norm" Maloy (Chief, Air Mobility Command Aircrew Training Plans and Programs, USAF) via email, facilitated by Mark Caslen (USAF and ACT ARC Steering Committee observer).

Attributes:

The screening process should test each candidate/applicant with respect to the following attributes:

- English language proficiency;
- Cognitive ability;
- Ability to learn;
- Coordination/spatial ability; and
- Judgment and interpersonal communication skills.

The International Air Transport Association (IATA) references criterion on personality as most important for assessing potential flight crew applicants.¹²

(See [Attachment 2](#) for a more detailed description of pilot assessment attributes.)

Scoring:

Assessment tests should use fixed criteria to determine whether performance is below or above standard. Target attributes should be universally standard and considered independent of culture and generation, and should be normalized against the air carrier's pilot population. There must be a clearly defined acceptance range for each attribute, with independent cutoff criteria; a deficit in one test or subject matter cannot be compensated by good performance in another test (e.g., good spatial orientation does not compensate for bad memory).

Retesting:

Each air carrier should set its own standards for reassessment of candidates determined to be unsuitable. For purposes of reference, the USAF allows only two attempts taking the TBAS and these must be separated by 180 days. The European Pilot Selection & Training (EPST) process allows retests that are separated by at least 90 days.

The ATP WG recommends that a pilot who seeks to enter an air carrier EQP and is not selected be permitted to seek entry to a different air carrier's EQP. The ATP WG also recommends that assessment results and records indicating selection or non-selection for an EQP are not considered "records pertaining to the individual's performance as a pilot" for purposes of requesting, maintaining, and furnishing records under the Pilot Records Improvement Act of 1996 (PRIA), nor that assessment results be included in the Pilot Records Database.

¹² *Guidance Material and Best Practices for Pilot Aptitude Testing*, 2nd Edition (2012), International Air Transport Association.

Recommendation 16-8(d): EQP Curriculum

The ACT ARC recommends the FAA require the participating air carrier to develop an Enhanced Qualification Program (EQP) curriculum, which is comprised of three phases: standardized ATP preparation, transport category aircraft training, and air carrier-specific training. The air carrier can elect to combine phases II and III as long as all of the required content is incorporated in the EQP curriculum. The ACT ARC also recommends that an air carrier be permitted to contract with a part 142 training center to administer portions of the EQP curriculum in accordance with 14 CFR 121.402.

- Academic training includes non-technical skills required of an air carrier pilot and subjects such as advanced aerodynamics, aircraft systems, aviation human factors, air traffic control, airspace, aviation charts, meteorology, aviation law and regulations, and aviation safety.
- Flight training is conducted in high performance turbine-powered transport category airplanes or approved flight simulation training devices (FSTD) and will include systems and integration training (SIT) and realistic air carrier environment line-oriented flight training (LOFT) scenarios. Each EQP graduate will have demonstrated competency (in contrast with the Airline Transport Pilot (ATP) Certification Training Program (ATP CTP), which provides for demonstration-based and experienced-based training, with no flight training evaluation).

The ACT ARC recommends the formation of a Training Standardization Board (TSB) to develop and recommend learning objectives and curriculum requirements for each phase of the EQP, and to develop and recommend a standardized curriculum for the first phase. The TSB should be made up of subject matter experts comprised of representatives of part 121 air carriers, labor organizations, part 142 training centers (as appropriate), and other stakeholders, as well as the FAA Air Transportation Division (AFS-200).

(See [Attachment 3 for a sample EQP curriculum](#) presented as three distinct phases.)

Rationale:

The EQP curriculum is an integrated program consisting of academic training complemented by immersion training for multi-crew operations in transport category airplanes in a realistic air carrier operating environment. The EQP curriculum significantly exceeds the ATP CTP requirements contained in 14 CFR 61.156, as well as the aviation and aviation-related courses and subject areas listed in Advisory Circular (AC) 61-139, Institution of Higher Education's Application for Authority to Certify its Graduates for an Airline Transport Pilot Certificate with Reduced Aeronautical Experience. The intention behind this approach is to incorporate all of the content in the ATP CTP, as well as AC 61-139, and add additional advanced subjects to better prepare the applicant for air carrier employment.

Note: The ATP WG prepared an ATP CTP vs. EQP curriculum comparison document, as well as a comparison of the aviation and aviation-related courses and subject areas in AC 61-139 and the EQP curriculum, which will be provided to the FAA under separate cover.

The process for developing the EQP curriculum should include a team of SMEs. Under a similar model proposed by the ACT ARC for part 135 operator training delivered by a part 142 training center, such a team of SMEs is referred to as a Training Standardization Board (TSB). A similar concept is applied to these recommendations, so the terminology TSB is used in this recommendation as well.¹³

The TSB will apply instructional systems design (ISD) concepts to develop and recommend a standardized curriculum for Phase I of the EQP, and learning objectives and curriculum requirements for Phases II and III. (See phase and topic/module descriptions, below).

The EQP curriculum includes three phases comprised of 14 modules.¹⁴ These recommendations are based on the following EQP curriculum framework, illustrated in the sample EQP curriculum:

- Phase I – ATP Preparation (7 modules)
- Phase II – Transport Category Aircraft Training (3 modules)
- Phase III – Air Carrier-Specific Training (4 modules)

(See [Attachment 3](#) for a sample EQP curriculum that includes three distinct phases and [Attachment 4](#) for sample pilot core competencies.)

Phase I – ATP Preparation (Standardized):

Phase I will be designed as a standardized, non-air carrier specific/non-aircraft specific training curriculum developed at the national level. Each air carrier will be able to include the Phase I modules in its air carrier EQP submission packages. Phase I has two primary purposes: to ensure applicants have appropriate knowledge at the commercial pilot certificate, instrument rating, and airplane multi-engine rating level, and to introduce the pilot to concepts associated with air carrier operations to which he or she may not have been previously exposed. Ensuring all applicants have the appropriate knowledge is necessary because pilots entering the EQP will have differences in training background, recency and recall of training, and experience type. This is accomplished through an assessment of knowledge to identify weaknesses, and review and reinforcement of primary flight and ground training topics.

Introduction to air carrier concepts includes ensuring the applicant has an adequate understanding of the terminology, concepts, policies and procedures, and non-technical skills associated with air carrier flight operations, and introducing the applicant to concepts associated with operation of turbine-powered aircraft, flight deck automation in transport category aircraft, and operations at high altitude regimes.

Phase I will meet all requirements for an ATP CTP contained in § 61.156, using a more comprehensive training footprint. Upon successful completion of Phase I of the EQP curriculum, the applicant will have completed the requirements of § 61.156, and will be eligible to take the FAA ATP-Multiengine Airplane Knowledge Test.

¹³ See ACT ARC Recommendations 15-9: Aircraft-Specific Part 135 Standardized Curriculum Model and 16-1: Scenario Enhanced Recurrent (SER) Training and Checking for 135 operators.

¹⁴ Pending development of comprehensive curriculum requirements, the ATP WG cannot project the anticipated length of an EQP with precision, but estimates, based on the scope and depth of subject matter to be included, that an EQP will comprise between 12 and 26 weeks of instruction and evaluation. The ATP WG emphasizes the preliminary nature of this estimate, which is not to be considered a recommendation or limitation.

Because its content will be standardized across all EQPs, the TSB will develop the curriculum for Phase I. The TSB will develop the Phase I/ATP Preparation aircraft ground and flight training to the element/event level.

Using the TSB model for the Phase I/ATP Preparation segment of the EQP curriculum ensures standardization of content, and industry/FAA ability to update/modify the standardized training based on data collected, industry best practices, regulatory changes, etc. Standardizing Phase I/ATP Preparation also supports the transferability of this aspect of the training. The air carrier will be responsible for developing the courseware used to deliver Phase I.

Phase II – Transport Category Aircraft Training:

Phase II of the EQP is designed around aircraft-specific training in a transport category aircraft currently in use by U.S. air carriers. The training mirrors a type rating training curriculum, including aircraft ground and flight training, and will culminate with the applicant successfully completing a maneuvers evaluation incorporating the elements of an FAA Type Rating practical test. At the option of the air carrier, Phase II may include an actual FAA Type Rating practical test resulting in the issuance of a Type Rating to the applicant.¹⁵ (See Phase II/Phase III Maneuvers Evaluation, below). The purpose of Phase II is to ensure the applicant has an adequate understanding and working knowledge of transport category aircraft automation and autoflight systems, as well as to prepare him or her for advanced air carrier-specific training in Phase III. Phase II training will require the use of an appropriate FSTD qualified under 14 CFR part 60. The TSB will develop learning objectives and curriculum requirements for Phase II, but will not develop a standardized curriculum.

The applicant must successfully complete the FAA ATP-Multiengine Airplane Knowledge Test to be eligible to move on to Phase III. An air carrier submitting an EQP for approval will include in its submission package a policy stating whether and under what circumstances a pilot may retake the Knowledge Test after failure.

Phase III – Air Carrier-Specific Training:

Phase III is designed to incorporate air carrier-specific procedures to further expand on the integral concepts in earlier EQP curriculum phases. This phase allows the air carrier to begin instructing the applicant on air carrier checklist usage, standard operating procedures (SOP), and other subjects. By providing a strong foundation in these areas, the ATP WG foresees pilots completing an EQP will have a lower rate of procedural deviations and need for remedial training during subsequent initial operating experience.

Phase III also integrates aircraft-specific training in appropriate FSTDs qualified under part 60, including complete crew, scenario-based training such as LOFT and Line Operational Simulation (LOS). The TSB will develop learning objectives and curriculum requirements for Phase III, but will not develop a standardized curriculum.

Despite its air carrier-specific nature, the ATP WG emphasizes that Phase III is separate and distinct from air carrier INH training, and is not to be used as part of, or as justification for a reduction of an air carrier's INH curriculum.

¹⁵ One ATP WG member, the National Air Disaster Foundation, recommends the inclusion of a Type Rating practical test be a required EQP element.

Phase II/Phase III Maneuvers Evaluation

Phase II and, in some cases, Phase III of the EQP curriculum will culminate with the applicant successfully completing a maneuvers evaluation incorporating the elements of an FAA Type Rating practical test. At the option of the air carrier, Phases II and/or III may include an actual FAA Type Rating practical test resulting in the issuance of the appropriate rating added to the pilot's commercial pilot certificate.¹⁶ Training in Phases II and III may, at the option of the air carrier, be conducted in FSTDs representing the same airplane type or different airplane types, but Phase III training must be conducted in FSTDs representing an airplane type in operation by the air carrier.¹⁷

If an air carrier chooses to combine Phase II and Phase III training, then all topics/modules must be incorporated in the combined Phase II/Phase III, and such training will be considered air carrier-specific training for transferability purposes.

If an air carrier chooses to conduct training in Phase II and Phase III in FSTDs representing different aircraft types, the training will include a maneuvers evaluation or Type Rating practical test for both aircraft types. In this case, Phase III may be expanded as necessary if training in an additional aircraft is part of curriculum.

A pilot successfully completing an FAA Type Rating practical test will retain that Type Rating on his or her commercial pilot certificate, regardless of whether the pilot completes an EQP or is issued an ATP or R-ATP certificate.

(See [Attachment 3 for a sample EQP curriculum.](#))

The EQP ground and flight training components will train each pilot to competency. Competency, for this purpose, is defined as behaviors that mobilize the knowledge, skills, and attitudes relevant to completion of activities or tasks under specified conditions. To demonstrate competency, such behaviors should be consistently and repeatedly manifested and observed. In setting performance standards, the air carrier should be guided by the requirements of 14 CFR part 61, as well as the requirements of the relevant technical documents.

Under the special rules provisions of 14 CFR 121.402, an air carrier can contract with a part 142 training center to administer portions of the EQP curriculum as long as the instructors/evaluators are trained by the air carrier to deliver the air carrier EQP.

¹⁶ A practical test for a type rating, if administered, will be conducted in accordance with the *ATP and Type Rating Practical Test Standards*, or successor document.

¹⁷ An air carrier may elect to conduct Phase II training in an FSTD representing a different airplane type due to reasons such as limited FSTD availability.

[Recommendation 16-8\(e\)](#): Aeronautical Experience Required for R-ATP

A key question faced by the ATP WG in developing this Proposed Recommendation was the amount of aeronautical experience credit toward an ATP certificate with restricted privileges (R-ATP) pilots successfully completing an EQP should be granted. The ATP WG was unable to achieve consensus on an approach for determining the amount of the credit, with most members advocating the use of one of two different methods, described below.¹⁸

The ATP WG members advocating adoption of each method for determining the aeronautical experience credit (or general support) drafted rationale supporting each position, as well as critical commentary on the method they do not support (where appropriate). The verbiage submitted by the supporting organizations below has been edited only for format and consistency of usage of terminology. It has not been edited for grammatical usage, style, or tone.

[Recommendation 16-8\(e\)\(1\)](#): Method 1 – Uniform Credit

The ACT ARC recommends the FAA grant a pilot successfully completing an air carrier enhanced qualification program (EQP) credit in the amount of 250 flight hours toward the total aeronautical experience requirements for issuance of an ATP certificate with restricted privileges (R-ATP) set forth in § 61.160. This will result in the minimum categorical experience and total aeronautical experience requirements indicated in Table 2, below, for an applicant from each of the entry paths enumerated in § 61.160 who has successfully completed an air carrier EQP and air carrier initial new hire (INH) training. (The ACT ARC does not recommend deviation from the minimum categorical experience requirements contained in § 61.159, except as modified by § 61.160 with respect to cross-country flight requirements.)

The following organizations support Method 1 for calculating the value of aeronautical experience:

- Airline Pilots Association, International (ALPA)
- Airline Dispatchers Federation (ADF) (following Steering Committee discussion)

ALPA supports Method 1 (Uniform Credit), as described in Recommendation 16-8(e)(1), and does not support Method 2 (Variable Credit). As a member of the ATP WG, ALPA submitted the rationale and comments below in support of Recommendation 16-8(e)(1).

¹⁸ All ATP WG members documented their support in Recommendation 16-8(e). With the exception of two members, each ATP WG member organization supports Method 1 or Method 2 outlined herein. One member, the Coalition of Airline Pilots Associations, provided general support without supporting Method 1 or Method 2. One ATP WG member, the National Air Disaster Foundation, does not endorse either of the proposed methods for determining credit.

Table 2 – EQP Aeronautical Experience Credit (Method 1)

	14 CFR 61.160(a): Military Pilots	14 CFR 61.160(b): Pilots with a Bachelor's degree who have completed 60 or more semester credit hours of aviation and aviation-related coursework *	14 CFR 61.160(c): Pilots with a Bachelor's degree who have completed more than 30 but fewer than 60 semester credit hours of aviation and aviation-related coursework *	14 CFR 61.160(d): Pilots with an Associate's degree who have completed 30 or more semester credit hours of aviation and aviation-related coursework *
Categorical Experience	<ul style="list-style-type: none"> • 100 hours of night flight time • 50 hours of multiengine flight time ** • 75 hours of instrument flight time*** • 250 hours of flight time in an airplane as PIC • 200 hours of cross-country flight time 			
EQP Experience Credit	250 hours	250 hours	250 hours	
Total Aeronautical Experience Required for issuance of R-ATP	[750 – 250] = 500 hours	[1,000 – 250] = 750 hours	[1,250 – 250] = 1,000 hours	

* Aviation and aviation-related coursework that has been recognized by the Administrator as coursework designed to improve and enhance the knowledge and skills of a person seeking a career as a professional pilot.

** Up to 25 hours may be accomplished in a multiengine full flight simulator if accomplished as part of an approved course of training under part 121, 135, 141, or 142.

*** Up to 25 hours (50 hours if at a part 142 training center) may be credited if completed in an FSTD.

ALPA Rationale and Comments:

The existing pathways to an R-ATP certificate, under § 61.160, provide for issuance of a certificate with less than the 1,500 hours aeronautical experience specified in § 61.159(a), as provided for in § 217(d) of the Public Law.¹⁹

The reduced aeronautical experience requirements in § 61.160 recognize the value of the academic experience obtained in earning a qualifying aviation degree from an authorized institution of higher education or completing U.S. Armed Forces military pilot training.²⁰

A prerequisite for entry into an EQP is completion of one of the current § 61.160 aviation degree or military pathways. An air carrier EQP builds on the knowledge base and skills acquired by an individual who previously completed one of those § 61.160 training programs. The structured, intensive, as well as integrated academic and flight training of an EQP is designed to further accelerate acquisition and development of knowledge and skills necessary for effective performance at an air carrier. In our view, reducing the total number of flight hours is justified because a pilot successfully completing an EQP followed by the air carrier's indoctrination and initial new hire (INH) flight training can be expected to perform at levels equal to or exceeding those of pilots obtaining an R-ATP certificate in accordance with existing § 61.160 pathways alone.

¹⁹ See also the FOQ Final Rule, 78 FR 42324, 42345-46.

²⁰ See Recommendation ATP-2(b), above, for a more detailed description of the training administered at U.S. Armed Forces undergraduate pilot training schools and authorized colleges and universities with aviation-related majors.

The 250 hours of additional credit that Method 1 provides to those who complete an EQP is deducted from the minimum number of hours of aeronautical experience requirements in § 61.160 (*i.e.*, Associate's degree, 1,250 hours; Bachelor's degree, 1,000 hours; and military pilots, 750 hours). This results in those completing EQP who earned an Associate's degree qualifying for an R-ATP at 1,000 hours, a Bachelor's degree at 750 hours, and pilots who learned to fly in the military at 500 hours.

The baseline requirements under § 61.160 differ depending on the entry path of the pilot seeking an R-ATP certificate. These differences exist to take into account the differing quantities of training received by pilots coming from the different paths that all provide a high level of assurance to the quality of the training received. As a result, each pilot completing an EQP deserves to be provided with a uniform credit against the requirements in § 61.160 that still rewards them commensurately for the training they received prior to the EQP. But the FAA recognized with its final rule, issued in July 2013, that the three different paths to an R-ATP differed in the quality of training, and correspondingly required greater amounts of aeronautical experience on that basis. Method 2 embodies a rejection of that sound philosophy, and ALPA respectfully disagrees.

As required for a pilot obtaining an R-ATP under an existing § 61.160 pathway, pilots who complete the EQP also must satisfy the categorical experience requirements for night flight, instrument flight, multi-engine flight time, and time as pilot in command (PIC) for issuance of an unrestricted ATP certificate contained in § 61.159(a). Under EQP, the pilot must also obtain 200 hours of cross-country flight time, as specified in existing § 61.160(f). This represents a reduction from the 500 hours of cross-country time required for an unrestricted ATP. This reduction reflects the relatively limited opportunity for many pilots to accumulate significant cross-country time prior to entering employment as an air carrier pilot, and is in line with ICAO Standards and Recommended Practices with respect to requirements for an unrestricted ATP certificate.

Method 2 proposes that everyone completing an EQP qualify for an R-ATP with not fewer than 500 hours of aeronautical experience regardless of the existing § 61.160 pathway they came from prior to entering the EQP. What this means is that for completing an EQP, Method 2 allocates an additional 750 hours of credit to an individual with an Associate's degree, 500 hours of credit to an individual with a Bachelor's degree and 250 hours of credit to a pilot who learned to fly in the military.

The aviation-related academic courses for a Bachelor's degree amount to approximately 900 hours of instructor led training, with additional assigned self-study.²¹ The aviation related academic courses for an Associate's degree amount to half of that. It is unreasonable to think that EQP training could raise the knowledge of individuals who received 450 fewer contact hours to an equivalent level of those with twice that who also received the EQP training. It is clear that adoption of Method 2 would create a disincentive for an individual to earn a Bachelor's degree, but that degree is a requisite at most airlines.

Portions of the academics will be repeated information for some of the pilots going through EQP while new for others, and some portions will be new material for everyone. The EQP training is aimed at instilling all the knowledge needed to be a safe and competent pilot. However, learning and the ability to recall knowledge is aided by

²¹ Per Dr. Gary Northam, President, Aviation Accreditation Board International and Prof. Kent Lovelace, Director of Aviation Industry Relations, University of North Dakota (ATP WG SMEs). Referred to as 900 "contact" hours.

repetition of material.²² Therefore, those who have already been exposed to portions of the academics may benefit even more in some ways from EQP than those who are learning the material for the first time. The more training in EQP that is repeat training for an individual, the higher level of learning they are likely to achieve, resulting in a greater ability for them to recall, apply and correlate it later.²³ Therefore, it is appropriate for those with more equivalent quality of training to qualify for an R-ATP with fewer hours.

In summary, Method 2's variable credit for EQP training is not commensurate with the variances in training that pilots received and we believe it is inappropriate because:

1. Method 2 gives unequal credit to different pilots for the same EQP training. By offering the same total time requirement to a pilot who earns an Associate's degree as for a pilot with a Bachelor's degree, Method 2 actually gives more credit toward an R-ATP for the EQP training to the pilot with an Associate's degree. Method 2, therefore, implies that the Associate's degree has a higher value than a Bachelor's degree.
2. Method 2 modifies current § 61.160 pathways by negating the additional credit toward an R-ATP afforded to a pilot with a Bachelor's degree compared with that given to a pilot with an Associate's degree. The benefit of investing the time and expense necessary to acquire the additional training and education to earn a Bachelor's degree are lost.
3. Method 2 removes the incentive to pursue more education and training and rewards those who choose to pursue less.
4. Method 2 is inconsistent with the intent and spirit of the current § 61.160 pathways, the Public Law's allowance for academic credit toward an ATP, and prior FAA and industry rationale in this regard.

[Recommendation 16-8\(e\)\(2\)](#): Method 2 – Variable Credit

The ACT ARC recommends the FAA grant a pilot successfully completing an air carrier enhanced qualification program (EQP) credit toward the total aeronautical experience requirements for issuance of an Airline Transport Pilot (ATP) certificate with restricted privileges (R-ATP) set forth in § 61.160, in the amounts indicated in Table 3, below, for each entry path. (The ACT ARC does not recommend deviation from the minimum categorical experience requirements contained in §§ 61.159 and 61.160 under this recommendation.)

The following organizations support Method 2 (Variable Credit), as described in Recommendation 16-8(e)(2): Airlines for America (A4A), CAE, Inc., FlightSafety International (FSI), Delta Air Lines, National Air Carrier Association (NACA), and the Regional Airline Association (RAA). A4A, CAE, FSI, Delta, NACA and RAA submitted the rationale and comments below in support of Recommendation 16-8(e)(2).

²² See fundamentals of instruction (FOI) contained in the FAA Aviation Instructor Handbook (FAA-H-8083-9A) for many references to the benefits of repetition such as "Each repetition gives the student an opportunity to gain a clearer and more accurate perception of the subject to be learned." And "A time-honored training delivery method . . . promotes learning through repetition because those things most often repeated are best remembered. The human mind rarely retains, evaluates, and applies new concepts or practices after a single exposure."

²³ Per the fundamentals of instruction (FOI) contained in the FAA Aviation Instructor Handbook (FAA-H-8083-9A), the levels of learning from lowest to highest are: rote, understanding, application, and correlation.

Table 3 – EQP Aeronautical Experience Credit (Method 2)

	14 CFR 61.160(a): Military Pilots	14 CFR 61.160(b): Pilots with a Bachelor's degree who have completed 60 or more semester credit hours of aviation and aviation-related coursework *	14 CFR 61.160(c): Pilots with a Bachelor's degree who have completed more than 30 but fewer than 60 semester credit hours of aviation and aviation-related coursework *	14 CFR 61.160(d): Pilots with an Associate's degree who have completed 30 or more semester credit hours of aviation and aviation-related coursework *
Categorical Experience	<ul style="list-style-type: none"> • 100 hours of night flight time • 50 hours of flight time in the class of airplane for the rating sought ** • 75 hours of instrument flight time*** • 250 hours of flight time in an airplane as PIC • 200 hours of cross-country flight time 			
EQP Experience Credit	250 hours	500 hours	750 hours	
Total Aeronautical Experience Required for issuance of R-ATP	[750 – 250] = 500 hours	[1,000 – 500] = 500 hours	[1,250 – 750] = 500 hours	

- * Aviation and aviation-related coursework that has been recognized by the Administrator as coursework designed to improve and enhance the knowledge and skills of a person seeking a career as a professional pilot.
- ** Up to 25 hours may be accomplished in a multiengine full flight simulator if accomplished as part of an approved course of training under part 121, 135, 141, or 142.
- *** Up to 25 hours (50 hours if at a part 142 training center) may be credited if completed in an FSTD.

Method 2 Rationale:

The existing pathways to obtain an R-ATP certificate under § 61.160 provide for issuance of a certificate with less than the 1,500 hours of aeronautical experience specified in § 61.159(a), as provided for in § 217(d) of the Public Law.

The reduced aeronautical experience requirements in § 61.160 recognize the value of the academic experience obtained in earning a qualifying aviation degree from an authorized institution of higher education or completing U.S. Armed Forces military pilot training.²⁴

An air carrier EQP builds on the base of knowledge and skills acquired by an individual completing such an academic training program. The intensive, integrated academic and flight training of an EQP is designed to further accelerate acquisition and development of knowledge and skills necessary for effective performance at an air carrier. A pilot successfully completing an EQP, air carrier indoctrination, and flight training can be expected, with fewer total flight hours, to perform at levels equal to or exceeding those of pilots obtaining an R-ATP certificate in accordance with existing § 61.160.

The reduced aeronautical experience requirements provided for in § 61.160 recognize the differences in the depth and intensity of training received during the various existing pathways.

²⁴ See Recommendation ATP-2(b), above, for a more detailed description of the training administered at U.S. Armed Forces undergraduate pilot training schools and authorized colleges and universities with aviation-related majors.

A pilot graduating from a U.S. Armed Forces undergraduate pilot training school receives the most intensive, in depth training, and is consequently given the most credit toward aeronautical experience requirements. Likewise, a graduate of an aviation university or college earning a Bachelor's degree receives a greater amount of academic training than one earning an Associate's degree, and is given greater credit toward experience.

By the time pilots enter an air carrier's initial training program, they should have the requisite knowledge and skills to allow them to progress similarly to classmates and on par with the level of instruction provided by an air carrier. To ensure this level of preparedness, the EQP will close any knowledge gap that may exist as a result of background and experience obtained from the various pathways. The greater the progress a pilot has made toward achieving the competencies required to be an air carrier pilot, the more overlap there is between training received prior to entry into an EQP and the EQP curriculum.

For example, a military pilot entering an EQP will already have had training with respect to high altitude operations and the aerodynamics of high performance swept wing aircraft, while a graduate of an aviation university likely will not have had such training. As a result, a pilot who has received less training prior to entry into an EQP has more to gain from the experience.

Further, the U.S. military imparts the entire body of academic coursework required of its prospective C-17 pilots during approximately 523 hours of academic training. The military student pilot has no requirement for aviation related academic coursework prior to beginning military flight school. Military flight school academic coursework includes many topics not required in air carrier operations such as: low level navigation, formation flying, air drops, air refueling, use of night vision goggles and assault landings. Conversely, military pilots do require additional academic coursework beyond that provided in military training to perform the duties of an R-ATP safely such as, ATC procedures at high density airports, managing preflight duties to enable on time performance, dispatch procedures, and communication requirements.

All pilots in EQP training programs will receive approximately 326 hours of academic coursework. The academic coursework required of the EQP student with a military background is covered in the EQP course. But the remainder of the EQP academic coursework will be on subjects that the military pilot has already mastered and applied on the flight deck, such as high altitude performance in swept wing aircraft and turbine engine operation. No new knowledge will be imparted to the military trained pilot in these subject areas.

For the EQP student with a 2-year Associate's degree and a commercial, instrument, multiengine airplane rating, the academic coursework from attending an aeronautical university amounts to approximately 450 contact hours. At this entry level, the student has little or no academic coursework that addresses subjects including, but limited to, multi-pilot flight deck operations and CRM, turbine-powered aircraft, high altitude performance of large jet aircraft, ATC procedures at high density airports, managing flight deck preflight duties to enable on time performance or dispatch procedures and communications requirements.

However, even the 2-year degree pilot, when exposed to the 326 hours of aviation-related academic coursework in the EQP, now has the benefit of a cumulative 776 hours (approximately) of academic coursework. This exceeds the amount of academic coursework that the U.S. military believes is required to train its own co-pilots of high performance jet transport aircraft. Furthermore, in 776 hours of academic coursework, the entire body of knowledge required to safely exercise the privileges of an R-ATP can be taught and tested.

Pilots qualified under § 61.160 have been equalized by the different number of hours of credit given under sections a, b, c, and, d. The training proposed in the EQP produces pilots with specific preparations for part 121 air carrier operations. The successful completion of the EQP will produce pilots equally prepared for airline operations when they complete the airline training program. Therefore, the credit given for the EQP should follow the same logic and maintain the equivalent status as the pilots enter the airline training program. This justifies the staggered number of credit hours given for completion of the EQP. Note: Regardless of the actual total time of a pilot upon acquiring the R-ATP, in order to move to PIC, the pilot must have a minimum total time of 1,500 hours.

For these reasons, the ATP WG members supporting Method 2 believe that pilots completing an EQP should receive differential amounts of credit toward aeronautical experience requirements, dependent on how much of the EQP curriculum represents new material to which they have not had previous exposure. The Method 2 supporters recommend pilots entering an EQP from the various entry paths receive credit against the aeronautical experience requirements for an R-ATP certificate, as indicated in Table 3, above. A pilot obtaining an R-ATP under existing § 61.160 or the ATP WG proposal must satisfy the categorical experience requirements for night flight, instrument flight, multiengine flight time in the class of airplane which a rating is sought, and time as PIC for issuance of an unrestricted ATP certificate contained in § 61.159(a). The pilot must also obtain 200 hours of cross-country flight time, as specified in § 61.160(f). This represents a reduction from the 500 hours of cross-country time required for an unrestricted ATP. This reduction reflects the relatively limited opportunity for many pilots to accumulate significant cross-country time prior to entering employment as an air carrier pilot, and is in line with International Civil Aviation Organization (ICAO) Standards and Recommended Practices (SARP) with respect to requirements for an unrestricted ATP certificate.

Method 2 Comments:

Method 2 supporters believe Method 1 incorrectly assumes that EQP academic coursework will have the same safety benefit for three different groups of students that have been exposed to varying depths of knowledge in the areas addressed in the EQP.

The EQP content is designed in part to affirm the comprehension of basic academic material that was previously taught to commercial, instrument, multiengine rated pilots. In addition, EQP academic material will cover advanced subjects required to safely exercise the privileges of an R-ATP, which no military flight training or aviation university program covers. The argument that student pilots from three different knowledge levels will all gain the same benefit from material that is new to some but review to others is flawed. It is in conflict with the long standing instructional design principle of considering student entry levels when designing curricula.

EQP academic coursework provides focused training on topics directly related to safely and competently operating aircraft for part 121 air carrier operations. Conversely, the academic course offerings include subjects not required for the safe and competent operation of aircraft in part 121 operations. For example, Associate's and Bachelor's aviation degrees at a popular aviation university include, "Aviation Legislation," Aviation Law," and "Instructional Design in Aviation." (Embry-Riddle Aeronautical University 2015-2016 Course Catalog, Daytona Campus).

Instructor qualifications and experience requirements are significantly more stringent for EQP instructors than university instructors. (See Recommendation 16-8(f): Instructor/Evaluator Qualifications.) The qualifications of the instructor are a key factor in determining the benefit of any academic instruction. EQP academics are integrated with concurrent FSTD training that requires the EQP student to apply the academic coursework during the FSTD training sessions.

It would be incorrect to assess the value of the EQP on content alone. As previously acknowledged in § 61.160(a), an intensive and highly structured program, such as military pilot programs, receives additional credit for its value. The EQP provides more than just intensive academics; it also provides structure for critical components such as recency. The data from Phase IV of the Pilot Source Study confirms the importance of recency – one of our primary laws of learning – and highlights the importance of quality over quantity. The Pilot Source Study town hall presentation states that, "None of the three pilot source studies has shown that hours is a reliable predictor of the performance by pilots."

The academic coursework in EQP is more directly applicable to, and will have a greater safety impact on prospective air carrier pilots than that offered by aviation universities. This is due to the level of FAA oversight of the EQP course content. Whereas aviation university coursework is evaluated using course outlines in the regional accreditation process, FAA oversight and approval of EQP is a higher bar which ensures the applicability and safety benefit that will result from EQP academic coursework.

Method 2 maintains the intent and spirit of the current § 61.160. To infer, as Method 1 does, that the aeronautical knowledge outlined in § 61.155 will fulfill the knowledge gaps outlined in § 61.156 is false; as evident by the AC 61-138 (10 hours of simulator time). Therefore, it is imperative to identify these gaps at the onset of the EQP to affirm the comprehension by all pilots.

Figure 1 – EQP Aeronautical Experience Credit (Method 2)

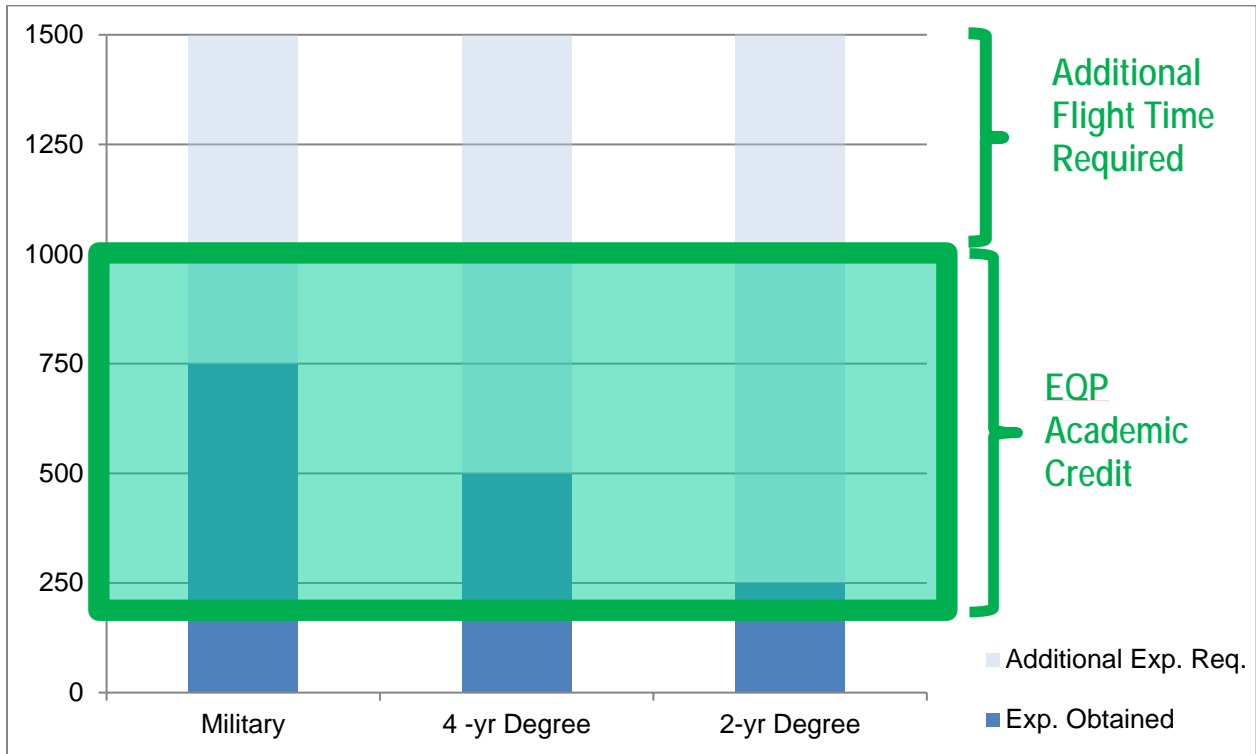
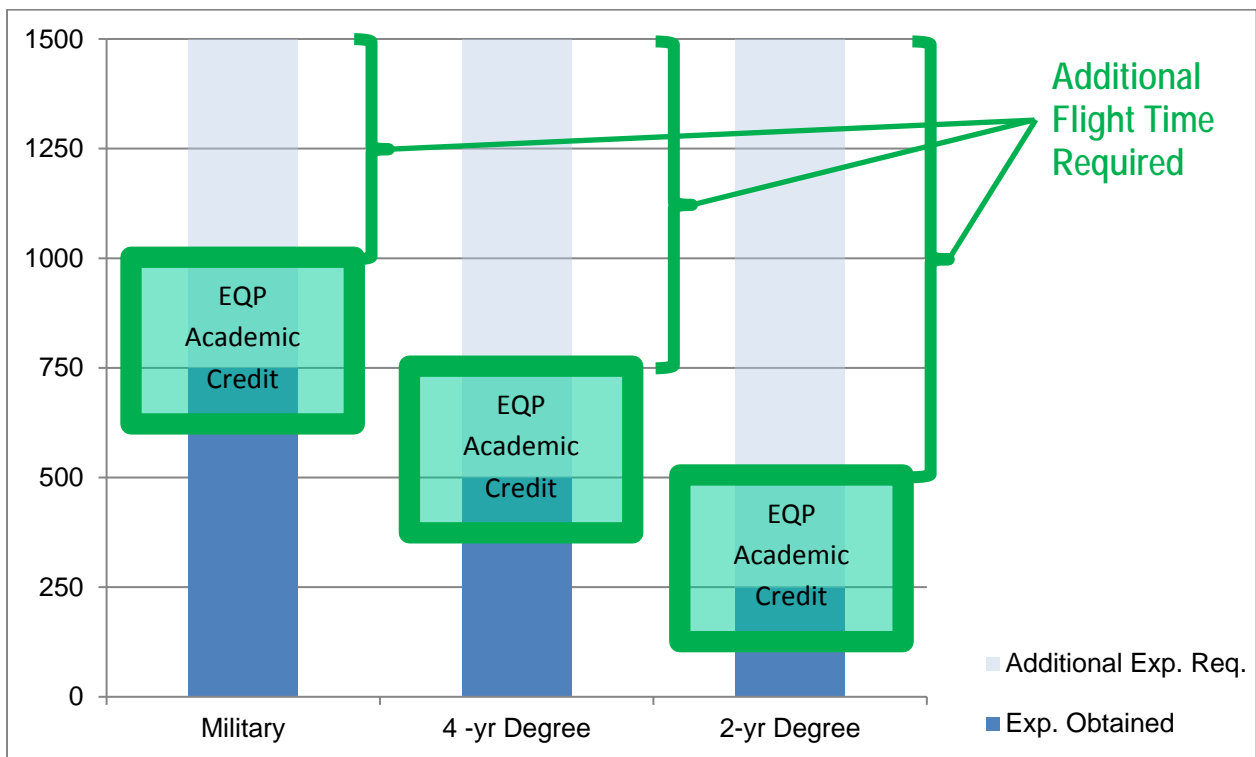


Figure 2 – EQP Aeronautical Experience Credit (Method 1)



[Proposed Recommendation ATP-2\(e\)\(3\)](#): Aeronautical Experience Required for R-ATP (General Support)

The following organizations generally support Proposed Recommendation ATP-2 and the concepts enumerated in Proposed Recommendation ATP-2(a) – (d) & (f) – (j); however these organizations do not specifically support Method 1 (which details uniform credit in Table 2) or Method 2 (which details variable credit in Table 3) for determining a value for the aeronautical experience gained through EQP:

- Coalition of Airline Pilots Associations (CAPA)
- Association of Flight Attendants (AFA) (following Steering Committee discussion)

As a member of the ATP WG, CAPA submitted the following rationale and comments with their general support.

CAPA Rationale and Comments:

The Coalition of Airline Pilots Associations (CAPA) supports the proposed EQP program and structure as an additional pathway as it has the potential to prepare individuals with knowledge that would allow them to be successful at a Part 121 air carrier. However, because of the almost infinite variability across each of the three pre-requisite paths, each individual pilot entering EQP will gain or refresh uniquely different knowledge and skills relevant to airline §121 flight operations.

While helpful, credit hours for EQP are not an adequate substitute for manual, stick-and-rudder skills required to fly in today's challenging airline flight operations environment, national airspace system, all while operating advanced aircraft systems. CAPA does not support any reduction in the already low, minimum flight time pathways established by the FAA.

CAPA does not support the theory that particular pilots (identified solely by pre-requisite academic path) will inherently have more or less to gain from EQP. While the existing authorization for Aeronautical Experience credit of §61.160 rightly may differentiate Aeronautical Experience value for these respective paths, it does so only because it still requires significant additional total Aeronautical Experience. CAPA, therefore, contends either method to assigning additional credit value (beyond the reduced hours already authorized in §61.160) is not in keeping with underlying historical FAA principles for Airmen Certification, the expectations of statutes found in PL111-216, nor is it consistent with our vast experience and safety perspectives on §121 line flying.

While we believe EQP is an enhancement to pilot training, it alone does not create a safer pilot. Airmanship skills cannot be attained through ground training; they are learned, developed and honed only through actual flight experience.

Recommendation 16-8(f): Instructor/Evaluator Qualifications

The ACT ARC recommends that instructors/evaluators conducting training, testing and checking under an enhanced qualification program (EQP) curriculum possess at least 2 years of experience as a pilot in command (PIC) or second in command (SIC) in any operation conducted under 14 CFR part 121. All EQP instructors/evaluators must also be qualified in accordance with § 121.410(b)(1) and (3), and EQP flight instructors must be qualified in accordance with § 121.410(b)(4). Additionally, instructors/evaluators administering type rating practical tests must be appropriately qualified examiners.

In addition, The ACT ARC recommends that EQP instructors/evaluators be trained and qualified in facilitation, threat and error management (TEM), risk mitigation, and reliable data collection, as well as receiving inter-rater reliability (IRR)/calibration training.

The ACT ARC further recommends that EQP instructors/evaluators complete initial and annual recurrent training to maintain the qualification to instruct/evaluate under an EQP curriculum.

Rationale:

EQP instructors/evaluators must meet the minimum requirements for ATP Certification Training Program (CTP) instructors in accordance with § 121.410(b)(1) and (3). EQP flight instructors will be qualified in accordance with § 121.410(b)(4). Under § 121.410(b)(2) and AC 61-138, ATP CTP instructors must have at least 2 years of air carrier experience. For purposes of an ATP CTP, instructors may acquire air carrier experience as a PIC in operations under Subpart K of 14 CFR part 91 or 14 CFR part 135, or as PIC or SIC in operations under part 121. Under EQP, the ATP WG determined that instructor qualification/experience should be limited to part 121.

Although AC 61-138, Airline Transport Pilot Certification Training Program, requires training on certain advanced topics for pilots, the AC does not recommend training to competency on all of these topics. The EQP curriculum is based on airline environment training to competency. EQP instructors/evaluators must have a greater depth of knowledge on these subjects to be able to train pilots to this higher standard. ATP CTP instructors currently receive training on these topics:

- Leadership/Professional Development;
- Crew Resource Management (CRM);
- Pilot Monitoring;
- Decision-making (to some extent); and
- Safety Management Systems (SMS).

In addition to the topics included in ATP CTP instructor training (as listed above), EQP instructors/evaluators will also receive training in facilitation, TEM, and risk mitigation. The EQP instructors/evaluators must complete initial and annual recurrent air carrier-centric training on the EQP curriculum.

Practical experience and more comprehensive instructor training will ensure instructors/evaluators can apply the course content to part 121 operations, which supports the requirement of having 2 years of experience as a PIC or SIC in part 121 operations.

Facilitation Training:

To further ensure each applicant will be well trained and qualified for air carrier operations, facilitated training should be a major component of EQP. EQP instructors will need to be well-versed and skilled in the art of facilitated training. Consequently, each EQP instructor/evaluator will be required to complete facilitation training as part of the initial and annual recurrent training requirement.

Data Collection and Inter-rater Reliability/Calibration Training:

Comprehensive data tracking is an integral part of the EQP to ensure each applicant has the competencies required to meet the criteria for an airline pilot. Consistent and reliable data collection by instructors/evaluators is pivotal for an effective internal evaluation process to measure, track, and analyze the proposed training program. The data will also be used to identify and eliminate deficiencies in the proposed training program and provide continuous feedback on the EQP concept for the industry and the FAA. Data collection will also allow the air carrier to evaluate the EQP curriculum's effectiveness in meeting set objectives. This includes spotting trends, assessing instructor/evaluator performance, and identifying any problems that may be noted.

The proposed methodology for data collection and analysis will likely mirror the methodology for collecting data and training instructors/evaluators under a Part 121 Advanced Qualification Program (AQP). Under AQP, the air carrier collects data at each validation or evaluation gate, with data collection requirements varying with the curriculum, type of activity, type of participant, and overall management objectives for use of the data.

IRR training ensures the consistency of reliable data collection by different instructor/evaluators when rating and grading flight crew member performance. Calibration training is designed to assist instructors/evaluators in identifying their strengths and weaknesses in assessing flight crew member performance, and to reduce common rater errors.

Calibration training is typically accomplished through group sessions in which instructor/evaluators observe video recordings of crew performance segments, making independent ratings. Following such sessions, the instructor/evaluators discuss their ratings and the reasons for their differences of opinion to establish consensus and a common frame of reference (the gold bar standard). Additionally, the different instructor/evaluators' ratings are compared to identify variations from group norms or other standards established with respect to both the numerical ratings assigned to individual event sets, and the shifts in ratings provided when observing differing levels of performance. Personalized feedback based on such variations is provided to each instructor/evaluator.

The AQP process (as described in AC 120-54A) outlines methods to ensure a universal standard, which is already in place at almost all part 121 air carriers.

Recommendation 16-8(g): Transferability

The ACT ARC recommends that transferability of the enhanced qualification program (EQP) curriculum be specified as follows:

- Assessment: Air carrier assessments of pilots are not transferable. An air carrier must assess each pilot prior to entry into an EQP, regardless of whether he or she has been accepted to another air carrier's EQP or has otherwise been assessed by another air carrier.
- EQP Curriculum – Phase I: An air carrier is not required to administer Phase I of the EQP curriculum to an applicant who has successfully completed Phase I of an EQP curriculum administered under a different FAA-approved air carrier EQP within the previous 12 months. Following assessment, an air carrier may, on a case-by-case basis, elect to condition transferability of credit on completion of a review of material contained in Phase I and/or a test of the pilot's retention of Phase I content.
- EQP Curriculum – Phase II (Aircraft-Specific Training): An air carrier is not required to administer Phase II of the EQP curriculum to an applicant who has, within the previous 12 months, successfully completed Phase II of a different FAA-approved air carrier EQP curriculum in a transport category aircraft currently in use by a U.S. air carrier. Following assessment, an air carrier may, on a case-by-case basis, elect to condition transferability of credit on completion of a review of material contained in Phase II and/or a test of the pilot's retention of Phase II content.
- EQP Curriculum – Phase III (Air Carrier-Specific Training): Phase III is not transferable. An air carrier must administer Phase III of the EQP curriculum to each applicant seeking an Airline Transport Pilot (ATP) certificate with restricted privileges (R-ATP) via the EQP alternative pathway, regardless of whether the applicant successfully completed Phase III of a different FAA-approved EQP curriculum. If Phases II and III are combined by the air carrier, then the combined Phase II/Phase III is not transferable.
- Regardless of transfer of credit for completion of portions of an EQP from one air carrier to another, a pilot relying on completion of an EQP to satisfy requirements for an R-ATP certificate must complete all required portions (Phases I – III and FAA ATP-Multiengine Airplane Knowledge Test) of the EQP within a period of 24 months.

Rationale:

Timing of pilot hiring and training in the air carrier industry is subject to a wide range of variables and factors, such as: long and short-term economic trends, including fluctuations in the price of fuel, financial considerations, corporate mergers, regulatory compliance action, changes in regulatory requirements, and changes in demand for travel, which is, in turn driven by factors such as marketplace competition, evolving technology and common business practices, changing social trends, public perception of the individual air carrier and the industry as a whole, and the impact of events such as aviation accidents, terrorist attacks and natural disasters. An air carrier may suspend, cancel, or reschedule hiring and training activity without prior notice, including suspending or canceling training in progress. Further, a pilot's admission to an air carrier EQP is neither employment nor a promise of employment by that air carrier.

Additionally, an air carrier may furlough pilots already trained and hired in response to the factors described above.

As a result of the factors described above, it is possible for a pilot who has completed all or part of an EQP curriculum administered by an air carrier to be accepted into an EQP administered by another air carrier.

The table below illustrates transferability of each phase/component of the EQP Curriculum:

Table 4 – EQP Phase/Component Transferability

EQP Curriculum Phase/Component	Transferable	Not Transferable
Assessment		x
Phase I: ATP Preparation—Standardized Curriculum	x	
Phase II: Aircraft-Specific Training	x	
Phase III: Air Carrier-Specific Training		x
Phase II/III Combined: Air Carrier-Specific Training (if air carrier elects to combine Phase II and Phase III)		x
FAA ATP-Multiengine Airplane Knowledge Test	x	
Type Rating (if included by air carrier)	x	

Transfer of credit for previously completed EQP phases is at the discretion of the air carrier conducting subsequent training. If a pilot is eligible, under the provisions described in this recommendation, to transfer credit for an EQP phase or phases previously completed at another air carrier, the air carrier administering the EQP may, nevertheless, elect to administer the phase(s) previously completed. Similarly, if, following its assessment of a pilot, an air carrier has any concerns regarding the pilot's retention of content from previously completed EQP phases, the air carrier may conduct further testing of the pilot's retention or require the pilot to complete a review of such content before accepting a transfer of credit.

The determination of transferability used to develop these recommendations focuses on the nature of each phase of the EQP curriculum. Assessments are not transferable between EQPs. Each air carrier will develop its own assessment attributes, criteria and format, tailored to its training and operational environments and organizational culture. Assessments developed by different air carriers will differ, and candidates deemed suitable for one air carrier EQP may not be suitable for another.

For Phase I, the curriculum is standardized, so transferability should be seamless across air carriers, provided the pilot's retention of content is adequate. To ensure reasonable retention of content, transferability is limited to 12 months after completion of Phase I.

For Phase II, the training should be transferable where the applicant has, within 12 months, successfully completed the end-of-phase maneuvers evaluation (see Recommendation ATP-2(d): EQP Curriculum) in an aircraft operated by an air carrier, because the applicant will have received sufficient experience in operations involving multi-crew, turbine-powered, transport category aircraft to have satisfied the objectives of the phase. However, due to the air carrier-specific nature of Phase III of the EQP curriculum, the ATP WG determined there was little, if any, opportunity for transferability.

If the air carrier elects to combine Phase II and Phase III of the EQP curriculum, both phases of the resulting combined Phase II/Phase III will be considered to be air carrier-specific training, and therefore non-transferable.

A pilot successfully completing an optional FAA Type Rating practical test during Phase II or Phase III (see Recommendation ATP-2(c): Curriculum) will retain that Type Rating on his or her commercial pilot certificate, regardless of whether the pilot is permitted to transfer credit for completion of the phase.

An EQP is intended to be a concentrated, immersive training program. Training conducted in this manner, with few or no gaps in the training, leads to more learning and better skill development. As such, and to ensure adequate retention of content from the entire EQP, a pilot must complete all required phases of an EQP within a period of 24 months, regardless of whether or not the pilot completes the entire EQP under a single air carrier's administration.

Recommendation 16-8(h): EQP Submission and Approval

The ACT ARC recommends the guidance for submission of an enhanced qualification program (EQP) package mirror the ATP Certification Training Program (ATP CTP) approval process. An air carrier will submit the EQP package to the FAA through the air carrier principal operations inspector (POI) for approval at the national level (e.g., AFS-200).

Rationale:

The EQP approval process can mirror the ATP CTP approval process, because the existing process is already used by the FAA. Given the nature of the EQP, the ATP WG believes approval at the national level is prudent to establish clear approval standards and consistent application of them. The air carrier will be required to prepare an EQP submission package.

The package will include the air carrier's proposed—

- Program entry prerequisites;
- Assessment methodology, including reassessment policy and standards;
- EQP curriculum, including—
 - Programmed hours by topic/module;
 - Phase II and Phase III content demonstrating all required topics/modules are incorporated (or combined Phase II/Phase III content with all topics/modules incorporated if the air carrier elects this approach);
 - Whether Phase II and/or Phase III will include an FAA Type Rating practical test;
 - When pilots in the EQP are to undergo the FAA ATP-Multiengine Airplane Knowledge Test; and
 - The air carrier's policy regarding retesting after a failure of the ATP Knowledge Test, as well as any other tests/checks/evaluations, as appropriate;
- Instructor/evaluator training curriculum; and
- Data collection methodology and framework.

Due to the volume of anticipated course materials and the likelihood of frequent revision, the ATP WG does not recommend that each air carrier be required to submit all courseware to the FAA as part of its submission package, as is the case with submission and approval of an ATP CTP.

Because a pilot completing an air carrier EQP will receive the equivalent of an ATP CTP Graduation Certificate, program developers must ensure that the program submitted to the FAA for approval meets all current FAA requirements of § 61.156.

Once an air carrier POI is satisfied the EQP submission meets all of the requirements of § 61.156 (and any subsequent regulatory requirements issued to enact these recommendations), the POI should forward the completed job aid and submission package to the Regional Office (RO) for review and approval. Once the RO has completed its review and determined all requirements have been met, it will forward it to the Air Transportation Division (AFS-200), using the specified routing, so AFS-200 can conduct a review of the program. AFS-200 must concur with initial and final approval. Initial approvals will be valid for 1 year (unless extended by AFS-200).

As is the case with ATP CTP approvals, within 1 year, AFS-200 will conduct a site visit/audit of each approved EQP. If the EQP meets all of the requirements of the rule, the program will receive final approval. A similar process can be introduced for revisions to the EQP.

Recommendation 16-8(j): Data Collection

The ACT ARC recommends that each air carrier collects and submits de-identified data gathered during the enhanced qualification program (EQP) to the FAA for the purpose of validating that the EQP provides adequate training to allow graduates to demonstrate they meet or exceed the knowledge and skill requirements of a pilot entering an air carrier initial training curriculum.

- The data collected will be used to gauge EQP performance and provide feedback for future enhancements.

The ACT ARC further recommends that each air carrier continue to measure all aspects of the pilot's professional development beyond completion of the EQP, from selection and training through first flight during initial operating experience, upon initial qualification, and again during either transition first officer training in the next aircraft the pilot flies, or initial Captain upgrade training. The data collected will be used to assess the effectiveness of the EQP.

Rationale:

The recommended data collection strategy for an EQP focuses on capturing competency-based training data and qualification data. The intent is to store, access, analyze, and assimilate the data collected for use by industry stakeholders (e.g., the FAA, air carriers, aircraft manufacturers, labor organizations, etc.) with the goal to substantiate the program's effectiveness and make adjustments if needed.

Data collection is required to gauge effectiveness of the EQP and quality on a global scale to determine needed improvements and identify overall program effectiveness. Data will be collected throughout and beyond the program, beginning with the assessment process and continuing through completion of the EQP and initial new hire (INH) training, with additional collection points thereafter. Data will be used as part of an internal evaluation process to assess the performance of applicants, instructors, and the EQP as a whole, and to identify deficiencies or opportunities for improvement with respect to instructor performance or course material. Specifically, collected data may be used to validate an air carrier's assessment process or prerequisites for entry to the EQP under different entry paths.

Post-EQP data collection may aid air carriers and the FAA in assessing the effectiveness of air carrier EQPs, and will permit comparison of the performance of pilots obtaining an R-ATP by the EQP alternate pathway with that of pilots obtaining an R-ATP by other alternate pathways or obtaining an unrestricted ATP under 14 CFR 61.159.

The EQP alternate pathway to an R-ATP will include collection of applicant data, training data, and performance/proficiency data. The EQP submission package must include the data collection methodology proposed by the air carrier.

Applicant data:

Applicant data encompasses identifiable individual training records. The main purpose of this data is to track an applicant's progression through individual subparts of the EQP curriculum. It serves both as a means for the applicant to track his/her own performance through the program as well as a means for an instructor/evaluator to assess where the performance level should be. This data establishes a track record for the individual and will also be important as a decision aid concerning additional training and remediation strategies. As this data is mainly used to identify individual performance, specific collection procedures will mostly be air carrier-specific. An air carrier may choose to collect demographic information such as flying background (e.g., military vs. civilian), total flight time, and recency of experience.

Training data:

Training data measures the lesson objectives and the applicable subsets within the lesson objectives (tasks). Training data analysis gauges EQP curriculum effectiveness and quality on a global scale to determine needed improvements to the lesson level.

Performance/Proficiency data:

Performance/Proficiency data is de-identified data collected at milestones in the curriculum (validation lessons) and after hire. This data is mainly used to identify overall program effectiveness. The FAA can use this data to identify global issues while the air carrier can use it to determine long-range trends and to support training program validation and improvement initiatives.

Applicant, training and performance/proficiency data involves measurement of technical and non-technical skills. Individual measurement items should follow a multi-point scale to increase sensitivity of the scale. As a balance between statistical and practical concerns, the implementation of grade scales is recommended as outlined in the Advanced Qualification Program (AQP) Data Management Guide. Well-defined performance measures, conditions, and standards (Qualification Standards) are necessary to ensure consistent and fair grading of applicable items by the instructor/evaluator.

The FAA can describe the specifics and provide examples of reporting format and frequency in advisory guidance. Such data will mostly consist of de-identified data from validation lessons and checks, which will aid in identifying overall training issues. In addition, each air carrier will implement an internal data analysis and reporting requirement so that performance/proficiency data is furnished to an air carrier's Responsible Manager of Training no later than 60 days following the month of collection (or at a more appropriate interval). It is the intention of the ATP WG that EQP data submitted to the FAA be protected from disclosure in the same manner and to the same extent as data submitted under an AQP.

Recommendation 16-8(j): Use of FSTDs to Acquire Aeronautical Experience Toward an R-ATP Certificate

The ACT ARC recommends the FAA amend Title 14 of the Code of Federal Regulations (14 CFR) part 61 to increase the amount of aeronautical experience credit an applicant for an ATP certificate with restricted privileges (R-ATP) who has completed an enhanced qualification program (EQP) may take for time in a Flight Simulation Training Device (FSTD) from 100 hours to 200 hours, provided the FSTD used for the additional 100 hours is qualified under 14 CFR part 60 and represents a multi-engine turbine airplane and the aeronautical experience was accomplished as part of an approved training course under 14 CFR part 121.

Rationale:

14 CFR 61.159(a)(6) permits a pilot seeking an ATP or R-ATP certificate to obtain not more than 100 hours of the total aeronautical experience required in an FSTD, provided the FSTD represents an airplane and the aeronautical experience was accomplished as part of a training course approved under 14 CFR part 121, 135, 141, or 142.

Anecdotal evidence indicates that a pilot currently entering indoctrination training with an air carrier often has obtained 75 to 100 hours of flight instruction in FSTDs as part of a training course approved under part 121, 135, 141, and/or 142 in satisfying training and experience requirements for the FAA certificate(s) and rating(s) obtained.

The ATP WG expects the majority of flight training administered under an EQP will be in FSTDs, with little or no training in aircraft. Given the amount of flight training expected to be administered in FSTDs under EQPs, by the time a pilot completes EQP training, he or she will have exceeded 100 hours in FSTDs as part of approved training courses. Without an increase in allowable FSTD time to be credited towards the total time requirements, some of the valuable training time received will not count toward minimum certification requirements.²⁵

Note: The pilot will have accrued all of the required airplane time prior to course entry.

Flight simulators provide a safe flight training environment, which reduces the number of training accidents by allowing training for emergency situations (e.g., fire, total loss of thrust, and systems failures) that cannot be safely conducted in flight. Flight simulators allow pilots to hone skills in management of flight deck automation, which will be critical to operation in a NextGen environment, as well as to coordinate and smoothly transition between automation procedures and conventional stick and rudder skills. Flight simulators also permit the conduct of scenario based training involving factors such as crew resource management (CRM) in ways that would not be feasible in flight. In many cases, flight simulators have proven to provide more thorough training than can be accomplished in the aircraft.

The use of flight simulators and flight training devices in lieu of aircraft has resulted in a reduction in air traffic congestion, noise and carbon emissions, and training costs. The increased use of flight simulators is also consistent with the national policy for fuel conservation.

²⁵ The ATP WG is limiting its recommendation to pilots completing an EQP. However, as other recommendations for alternative pathways to an R-ATP certificate are potentially developed, they may include similar recommendations.

The FAA has determined that, if a student has prerequisite experience, a qualified flight simulator or flight training device used in an approved training program will provide for an effective transfer of skills to the actual aircraft. The FAA has accordingly recognized the value of flight simulation and has awarded credit for the completion of certain required training, testing, and checking by use of simulation. In 1992, the FAA promulgated the provision now contained in § 61.159(a)(6).

Flight simulation technology has shown enormous advancement since 1992. The ever increasing sophistication of FSTDs, and the correspondingly increasing value of training received in them may, by themselves, justify increasing the 100 hour limitation prescribed by § 61.159(a)(6). Further, the FAA has recognized, in connection with the issuance of 14 CFR part 142, the benefits of completing a course of standardized instruction in a structured training environment, and in a timeframe that allows for a building-block approach to learning. The additional value of training administered as part of an intensive, integrated course of instruction in an EQP further justifies such an increase.

To ensure the quality of FSTD training applied toward the aeronautical experience requirements for an R-ATP certificate supports the recommended increase, the ATP WG has specified that only experience obtained as part of an approved training course under 14 CFR part 121 or 142 in FSTDs qualified under 14 CFR part 60 may be so applied. This precludes the use of Aviation Training Devices approved for use by the FAA under 14 CFR 61.4(c) to obtain aeronautical experience required for an R-ATP certificate.

V. Source Material (Background Information)

Recommendation 16-8 partially addresses the ATP WG Scope of Work and Initiative #29 assigned to the ATP WG. Recommendation 16-8 is the first alternative pathway developed by the ATP WG.

ATP WG Terms of Reference Scope of Work:

1. Explore the creation of additional paths to fulfill the requirements for the aeronautical education, training and experience required for a U.S. Airline Transport Pilot certificate with restricted privileges (R-ATP).
 - The ATP WG will focus exclusively on ATP certification requirements for Part 121 operations.
2. Determine the components of each additional path. The components may include: pre-enrollment selection criteria and processes; academic education, flight and simulator training and testing; aeronautical experience requirements; instructor/evaluator training and qualification; and data collection, analysis and reporting.
 - Proposed pathways must result in a level of competence, proficiency, and safety equal to or better than the existing regulations.

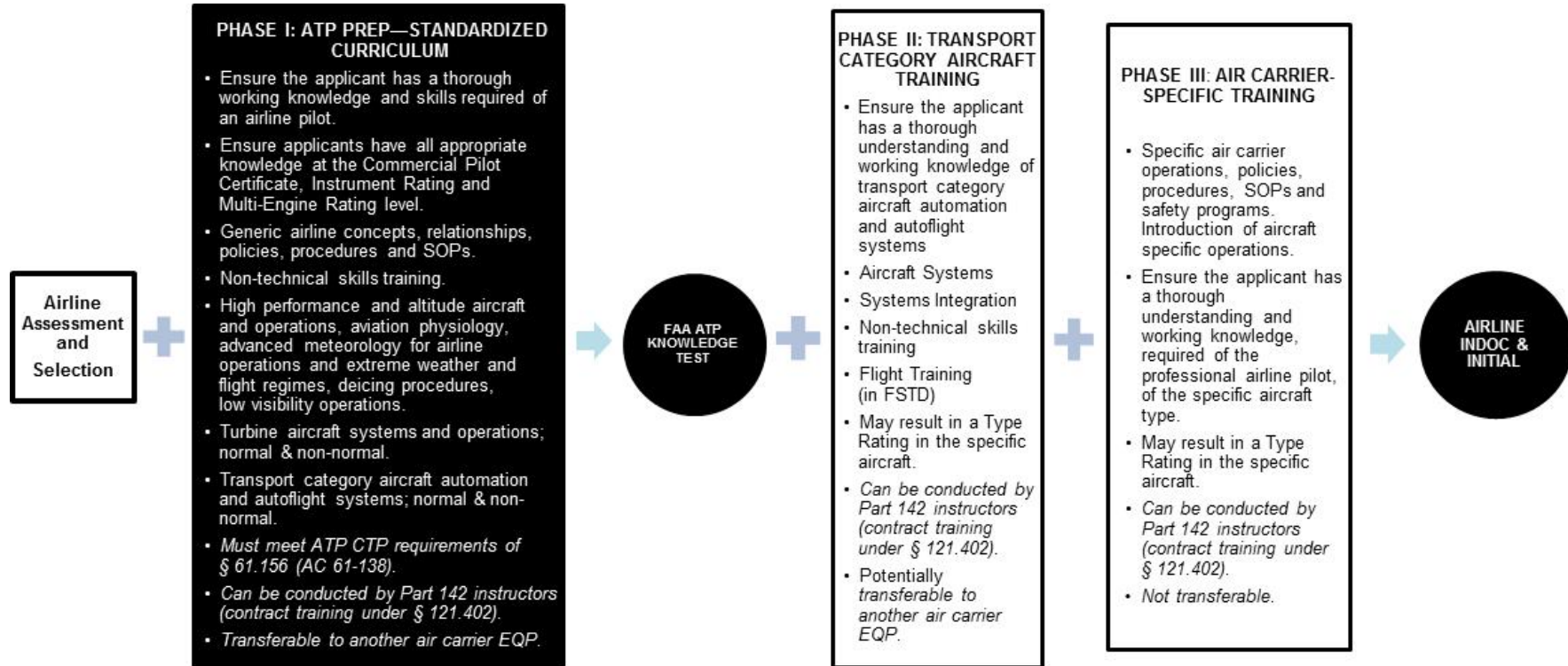
ACT ARC Initiative(s):

Initiative #29: Recommend additional Training Pathway(s) for ATP Certification.

(See [Attachment 5: Reference Documents](#) for a complete listing of the documents and presentations referenced by the ATP WG while developing these recommendations.)

Attachment 1: Enhanced Qualification Program (EQP) Concept

This illustration of the EQP concept places the FAA ATP-Multiengine Airplane Knowledge Test after Phase I and incorporates Phase II and Phase III as distinct phases.



Attachment 2: Pilot Assessment Attributes

The screening process should test each candidate/applicant with respect to the following attributes:

1. English language proficiency – The candidate/applicant must be able to read, speak, write, and understand the English language. The language proficiency test should be sufficient to assess each of the components listed in Appendix 1 to AC 60-28A, English Language Skill Standards Required by 14 CFR Parts 61, 63, and 65, which are based on the Operational Level 4 of the International Civil Aviation Organization Language Proficiency Rating Scale.
2. Cognitive ability – The test should assess the candidate's/applicant's ability to comprehend and respond to information provided aurally and visually. The test should include content intended to assess the candidate's/applicant's—
 - a. Short term memory;
 - b. Performance of mental calculations; and
 - c. Verbal and numerical reasoning.
3. Ability to learn – The test should establish the candidate's/applicant's ability to quickly, and with minimal repetition, comprehend and apply concepts presented in training.
4. Coordination/spatial ability – The test should assess the candidate's/applicant's hand-eye coordination and spatial awareness skills as sufficient to manually fly an aircraft to the Airline Transport Pilot (ATP) Practical Test Standards or successor publication.
5. Judgment and interpersonal communication skills – The test should assess the candidate's/applicant's judgment and interpersonal communication and relationship skills, including the following:
 - a. Integrity
 - b. Professionalism
 - c. Leadership
 - d. Resource Management
 - e. Communication
 - f. Innovation
 - g. Mentoring

Attachment 3: Enhanced Qualification Program (EQP) Sample Curriculum

The EQP curriculum incorporates training the applicant needs to meet those requirements and competencies necessary for pilot deployment with a part 121 air carrier. The sample curriculum includes three distinct phases (with Phase II and Phase III separate). An air carrier can elect to combine Phase II and Phase III, as long as all required topics/modules are incorporated in the EQP curriculum.

(See [Attachment 4](#) for sample core pilot competencies).

I. LEARNING OBJECTIVES (by phase/module):

A. Phase I: ATP Preparation—Standardized Curriculum

- Module 1—Ensure all applicants have knowledge at the Commercial Pilot Certificate, Instrument Rating and Airplane Multi-Engine Rating level.
- Module 2—Ensure the applicant has an adequate understanding and working knowledge of air carrier concepts, relationships, policies, procedures and Standard Operating Procedures (SOP).
- Module 3—Ensure the applicant has an adequate understanding and working knowledge of the non-technical skills required of a professional air carrier pilot.
- Module 4—Ensure the applicant has an adequate understanding and working knowledge of high performance and altitude aircraft and operations, hypoxia and its effects, fatigue and fatigue mitigation, weight and balance for air carrier operations, advanced meteorology for air carrier operations, icing/deicing procedures and processes, and extreme weather and flight regimes.
- Module 5—Ensure the applicant has an adequate understanding and working knowledge of transport category aircraft automation and autoflight systems, including normal and non-normal operations.
- Module 6 & 7—Ensure the applicant has an adequate understanding and working knowledge of turbine aircraft systems and operations in normal and non-normal environments.

Note: Upon successful completion of Phase I of the EQP curriculum, the applicant will have completed the requirements of 14 CFR 61.156, and will be eligible to take the FAA ATP-Multiengine Airplane Knowledge Test. The applicant must successfully complete the Knowledge Test to complete Phase II and move on to Module 11 (Phase III) of the EQP curriculum.

B. Phase II: Transport Category Aircraft Training

- Module 8—Ensure the applicant has an adequate understanding and working knowledge of transport category aircraft automation and autoflight systems, including normal and non-normal operations.
- Module 9—Ensure the applicant has an adequate understanding and working knowledge of turbine aircraft systems and operations in normal and non-normal environments.

- Module 10—Maneuvers Evaluation. The training culminates with the applicant successfully completing a maneuvers evaluation incorporating the elements of an FAA Type Rating practical test. Alternatively, at the option of the air carrier, Phase II may include an actual FAA Type Rating practical test resulting in the issuance of a Type Rating (added to the applicant's Commercial Pilot certificate).

C. Phase III: Air Carrier-Specific Training

- Module 11—Ensure the applicant has an adequate understanding and working knowledge of the specific air carrier's operations, policies, procedures, SOPs and safety programs. Introduction of aircraft-specific operations.
- Module 12 & 13—Ensure the applicant has an adequate understanding and working knowledge, required of the professional air carrier pilot, of the specific aircraft type. Module 13 completes the aircraft specific training and the applicant should be capable of successfully completing a practical test required of an ATP Type Rating also meeting the specific air carrier's requirements. At the option of the air carrier, Module 13 may include an actual FAA Type Rating practical test resulting in the issuance of a Type Rating (added to the applicant's Commercial Pilot certificate).
- Module 14—Ensure the applicant has an adequate understanding and working knowledge of Line Oriented Flight Training (LOFT) and Line Operational Simulations (LOS).

Note: The air carrier can elect to combine Phases II and III of the EQP curriculum.

Note: Upon successful completion of Phases I – III of the EQP curriculum, including the FAA ATP-Multiengine Airplane Knowledge Test, the applicant is eligible to immediately enroll in the air carrier INH training curriculum.

II. EQP CURRICULUM

A. Phase I: ATP Preparation—Standardized Curriculum

Notional phase time: 278 hours classroom instruction and 10 hours Flight Simulation Training Device (FSTD) time

1. **Module 1**—Ensuring applicants are at the Commercial Pilot Certificate, Instrument Rating and Multi-Engine Rating level

Notional module time/method of delivery: 40 hours classroom instruction

Start of module—test each applicant's knowledge at the Commercial Pilot Certificate (CPC), Instrument Rating (IR), and Airplane Multi-Engine Rating (ME) level;

- a. Review topics should include all components or required knowledge for the CPC, IR and ME;
- b. By end of first module, review and ensure each applicant's knowledge is at, or the applicant has been given task(s) to bring his or her knowledge up to the required level;
- c. End of module test to measure knowledge and progress.

Note: Subsequent training is designed to bring the applicant up to a current working knowledge of air carrier operations.

2. Module 2—CORE Academics (air carrier-level knowledge)

Notional module time/method of delivery: 40 hours classroom instruction

- a. Air carrier operations, the FAA and the International Civil Aviation Organization (ICAO);
- b. Air Carrier Structure, Departments and role in the Corporation;
- c. Departmental Relationships and Processes;
- d. Pilot Working Environment
 - i. Policy;
 - ii. SOP structure;
 - iii. Dispatching;
 - iv. Contracts;
 - v. Bidding;
 - vi. Labor relations;
- e. Aviation Law and Regulations;
- f. Aviation Safety programs and processes
 - i. Incidents;
 - ii. Accidents;
 - iii. Safety Studies;
 - iv. Accident investigations;
- g. Operation manuals, advisory circulars, Information for Operators (InFO), and Safety Alerts for Operators (SAFO);
- h. End of module test to measure knowledge and progress.

Note: Sources for reference for these topics come from aviation textbooks, FAA handbooks and manuals, advisory circulars, InFOs, SAFOs, and aircraft manufacturers. The training should cover all current Notices, InFOs and SAFOs relevant to Part 121 operations.

3. Module 3—Non-technical skills (Includes theoretical training as well as practical scenario training)

Notional module time/method of delivery: 40 hours classroom instruction

- a. Aviation Human Factors
 - i. In depth study into topics such as How the Mind Works, Belief Systems, Forming Opinions, Attitudes & Behavior, Habits & Routines, and Compartmentalization;
- b. Crew Concept
 - i. Crew Resource Management behaviors/skills;
 - ii. Diplomacy & Advocacy;
 - iii. Self & Group Efficacy;
 - iv. Duties of the Pilot Monitoring (PM) (understanding new FAA requirements/duties for the PM);

- c. Communication (as required)
 - i. Company;
 - ii. Other departments/customers;
 - iii. Air Traffic Control (ATC);
- d. Leadership development;
- e. In depth study into topics of various types of leadership strategies and approaches;
- f. Decision-making;
- g. Risk analysis and mitigation
 - i. Threat & Error Management;
- h. Mentoring/Coaching;
- i. End of module test to measure knowledge and progress.

4. Module 4—Advanced Topics

Notional module time/method of delivery: 56 hours classroom instruction

- a. Aerodynamics and Aircraft Performance (emphasis on high performance turbine aircraft in all regimes); weight and balance for air carrier operations;
- b. Extreme regimes and Aircraft Handling, including recommendations of ICAO Doc 10011, Upset Prevention and Recovery Training (training includes theory and practical to a proficiency level, not just introduced);
- c. Aviation Physiology, including hypoxia and its effects and fatigue;
- d. Aviation Weather/ Advanced Meteorology; icing/deicing procedures and processes;
- e. Low visibility operations; ground and flight;
- f. Aircraft systems;
- g. ATC, Airspace and Aviation Charts;
- h. End of module test to measure knowledge and progress.

5. Module 5—Advanced Avionics

Notional module time/method of delivery: 40 hours, including a minimum of 4 hours flight simulation training device (FSTD) time

- a. Automation and Autoflight Systems
 - i. Basic design and theory;
 - ii. Components, design and operation;
 - iii. Proficiency in hand flying basic attitude and instrument flight;
 - iv. Normal modes;
 - v. Non-normal modes;

Note: This module includes automation “gotchas” (example altitude capture phase and changing altitude indicator as the auto systems are in altitude capture; descend via clearances, cancelling of Vertical Navigation (VNAV) when departing Lateral Navigation (LNAV)). Such automation “gotchas” could be termed “System Behavioral Challenges and Responses”.

- vi. Mode and operations interpretation;
 - vii. Recovery from non-normal autoflight operations (should include any new maneuvers to be trained as recommended and accepted by the ACT ARC from the Flight Path Management Working Group (FPM WG) (“Unusual Automation State Recovery”);
 - viii. Crew coordination and monitoring (captures how to monitor, what does that mean);
- b. Teaching and enforcing latest knowledge and skill best practices from ACT ARC and other industry initiatives;
 - c. End of module test to measure knowledge and skill progress.

Note: Module 5 will require the use of appropriate FSTDs approved under part 60 for training and checking.

6. *Module 6*—Basic Turbine Phase, including Generic Aircraft Systems (includes concurrent appropriate FSTD training)

Notional module time/method of delivery: 40 hours, including a minimum of 6 hours FSTD time

- a. Checklists;
- b. Limitations;
- c. Controls, functions and indications;
- d. Normal operations and procedures;
- e. Alternate operations and procedures;
- f. Abnormal/Emergency operations and procedures;
- g. End of module test to measure knowledge and progress.

7. *Module 7*—Basic Turbine Phase, including Generic Aircraft Systems (*continued*)

Notional module time/method of delivery: 32 hours classroom instruction

Extension of Module 6 to complete all topics;

- a. Review of topics covered in Modules 1 thru 6;
- b. Mastery test (Phase I test including both knowledge and practical application of covered topics specific to the competencies required at this level).

B. Phase II: Transport Category Aircraft Training

Notional phase time: 40 hours classroom instruction and 40 hours Full Flight Simulator (FFS) time (in an FFS level C or higher)

Note: The next 3 modules progress the applicant through a type specific transport category aircraft Type Rating Course

1. Module 8—Aircraft-Specific Training

Notional module time/method of delivery: 40 hours classroom instruction, plus part task trainer

- a. Aircraft Ground Training
 - i. Aircraft Systems;
 - ii. Systems Integration;
- b. Training.

2. Module 9—Transport Category Aircraft Training (*continued*)

Notional module time/method of delivery: 20 hours FFS time, plus brief/debrief

3. Module 10—Transport Category Aircraft Training (*continued*)

Notional module time/method of delivery: 20 hours FFS time, plus brief/debrief

Note: Phase II of the EQP curriculum may culminate with the applicant successfully completing an FAA Type Rating practical test (which meets the requirements of an ATP Type Rating practical test) and receiving the appropriate rating added to his or her commercial pilot certificate.

C. Phase III: Air Carrier-Specific Training

Notional phase time: 40 hours classroom instruction and 48 hours FFS time (in an FFS level C or higher)

Note: Phase III of the EQP curriculum may be accomplished in the same aircraft type, which the air carrier operates and chooses.

1. Module 11—Air Carrier-Specific Training

Notional module time/method of delivery: 40 hours classroom instruction, plus part task trainer

- a. Relate the Air Carrier (air carrier providing "Oversight") policies, procedures, SOPs and safety programs to all previous topics;
- b. International operations;
- c. Begin aircraft specific training covering:
 - i. Checklists;
 - ii. Limitations;
 - iii. Controls, functions and indications;
 - iv. Normal operations and procedures;
 - v. Alternate operations and procedures;

- vi. Abnormal/Emergency operations and procedures;
- d. End of module test.

2. Module 12—Air Carrier-Specific Training (continued)

Notional module time/method of delivery: 16 hours FFS time, plus brief/debrief

- a. Continue aircraft specific training covering:
 - i. Checklists;
 - ii. Limitations;
 - iii. Controls, functions and indications;
 - iv. Normal operations and procedures;
 - v. Alternate operations and procedures;
 - vi. Abnormal/Emergency operations and procedures;
- b. End of module test.

3. Module 13—Transport Category Aircraft Training (continued from Phase II)

Notional module time/method of delivery: 16 hours FFS time, plus brief/debrief

- a. Continue aircraft specific training covering:
 - i. Normal operations and procedures;
 - ii. Alternate operations and procedures;
 - iii. Abnormal/Emergency operations and procedures;
- b. End of course knowledge and skill test (this test(s) could result in a Type Rating in the specific aircraft.

Note: Aircraft training during Phase III will require the use of appropriate FSTDs approved under part 60 for training and checking. Additionally, Phase III may result in a full Type Rating.

4. Module 14—Line Oriented Flight Training

Notional module time/method of delivery: 16 hours FFS time

- a. Introduction to LOFT and LOS concepts and requirements;
- b. LOFT and LOS planning and training
 - i. Minimum of two LOFT events (Pilot Flying (PF) & (PM));
 - ii. Minimum of two LOS events.

Attachment 4: Sample Core Pilot Competencies

Definitions:

- **Competency.** A combination of skills, knowledge and attitudes required to perform a task to the prescribed standard. **Competency** is a dimension of human performance that is used to reliably predict successful performance on the job. A competency is manifested and observed through behaviors that mobilize the relevant knowledge, skills and attitudes to carry out activities or tasks under specified conditions. Trainees successfully demonstrate competency by meeting the associated competency standard.
- The **Competency standard** is a level of performance that is defined as acceptable.

Categories of Core Pilot Competencies²⁶

Competency	Competency Description	Behavioural indicator
Application of procedures	Identifies and applies procedures in accordance with published operating instructions and applicable regulations, using the appropriate knowledge	<ul style="list-style-type: none"> • Identifies the source of operating instructions • Follows standard operating procedures (SOP) unless a higher degree of safety dictates an appropriate deviation • Identifies and follows all operating instructions in a timely manner • Correctly operates aircraft systems and associated equipment • Complies with applicable regulations • Applies relevant procedural knowledge

²⁶ The following core pilot competencies are an example set contained in International Civil Aviation Organization (ICAO) Doc 9995, *Manual of Evidence-based Training*, for a pilot to operate a multi-crew aircraft safely and efficiently and to effectively apply threat and error management. The behavioral indicators of the various categories of competencies were developed for the pilots of commercial air transport multi-crew aircraft. However, they can be applied to all pilots where the individual indicator is applicable to the specific operational environment.

Competency	Competency Description	Behavioural indicator
<p>Communication</p>	<p>Demonstrates effective oral, nonverbal and written communications, in normal and non-normal situations</p>	<ul style="list-style-type: none"> • Ensures the recipient is ready and able to receive the information • Selects appropriately what, when, how and with whom to communicate • Conveys messages clearly, accurately and concisely • Confirms that the recipient correctly understands important information • Listens actively and demonstrates understanding when receiving information • Asks relevant and effective questions • Adheres to standard radiotelephone phraseology and procedures • Accurately reads and interprets required company and flight documentation • Accurately reads, interprets, constructs and responds to datalink messages in English • Completes accurate reports as required by operating procedures • Correctly interprets non-verbal communication. Uses eye contact, body movement and gestures that are consistent with and support verbal messages
<p>Aircraft flight path management, automation</p>	<p>Controls the aircraft flight path through automation, including appropriate use of flight management system(s) and guidance</p>	<ul style="list-style-type: none"> • Controls the aircraft using automation with accuracy and smoothness as appropriate to the situation • Detects deviations from the desired aircraft trajectory and takes appropriate action • Contains the aircraft within the normal flight envelope • Manages the flight path to achieve optimum operational performance • Maintains the desired flight path during flight using automation whilst managing other tasks and distractions • Selects appropriate level and mode of automation in a timely manner considering phase of flight and workload • Effectively monitors automation, including engagement and automatic mode transitions

Competency	Competency Description	Behavioural indicator
<p>Aircraft flight path management, manual control</p>	<p>Controls the aircraft flight path through manual flight, including appropriate use of flight management system(s) and flight guidance systems</p>	<ul style="list-style-type: none"> • Controls the aircraft manually with accuracy and smoothness as appropriate to the situation • Detects deviations from the desired aircraft trajectory and takes appropriate action • Contains the aircraft within the normal flight envelope • Controls the aircraft safely using only the relationship between aircraft attitude, speed and thrust • Manages the flight path to achieve optimum operational performance • Maintains the desired flight path during manual flight whilst managing other tasks and distractions • Selects appropriate level and mode of flight guidance systems in a timely manner considering phase of flight and workload • Effectively monitors flight guidance systems including engagement and automatic mode transitions
<p>Leadership and teamwork</p>	<p>Demonstrates effective leadership and team working</p>	<ul style="list-style-type: none"> • Understands and agrees with the crew's roles and objectives. • Creates an atmosphere of open communication and encourages team participation • Uses initiative and gives directions when required • Admits mistakes and takes responsibility • Anticipates and responds appropriately to other crew members' needs • Carries out instructions when directed • Communicates relevant concerns and intentions • Gives and receives feedback constructively • Confidently intervenes when important for safety • Demonstrates empathy and shows respect and tolerance for other people • Engages others in planning and allocates activities fairly and appropriately according to abilities • Addresses and resolves conflicts and disagreements in a constructive manner • Projects self-control in all situations

Competency	Competency Description	Behavioural indicator
Problem solving and decision-making	Accurately identifies risks and resolves problems. Uses the appropriate decision-making processes	<ul style="list-style-type: none"> • Seeks accurate and adequate information from appropriate sources • Identifies and verifies what and why things have gone wrong • Employ(s) proper problem-solving strategies • Perseveres in working through problems without reducing safety • Uses appropriate and timely decision-making processes • Sets priorities appropriately • Identifies and considers options effectively. • Monitors, reviews, and adapts decisions as required • Identifies and manages risks effectively • Improvises when faced with unforeseeable circumstances to achieve the safest outcome
Situation awareness	Perceives and comprehends all of the relevant information available and anticipates what could happen that may affect the operation	<ul style="list-style-type: none"> • Identifies and assesses accurately the state of the aircraft and its systems • Identifies and assesses accurately the aircraft's vertical and lateral position, and its anticipated flight path. • Identifies and assesses accurately the general environment as it may affect the operation • Keeps track of time and fuel • Maintains awareness of the people involved in or affected by the operation and their capacity to perform as expected • Anticipates accurately what could happen, plans and stays ahead of the situation • Develops effective contingency plans based upon potential threats • Identifies and manages threats to the safety of the aircraft and people • Recognizes and effectively responds to indications of reduced situation awareness
Task/Workload management	Managing available resources efficiently to prioritize and perform tasks in a timely manner under all circumstances	<ul style="list-style-type: none"> • Maintains self-control in all situations • Plans, prioritizes and schedules tasks effectively • Manages time efficiently when carrying out tasks • Offers and accepts assistance, delegates when necessary and asks for help early • Reviews, monitors and cross-checks actions conscientiously • Verifies that tasks are completed to the expected outcome • Manages and recovers from interruptions, distractions, variations and failures effectively

Note: Demonstration of the competencies can be assessed using the behavioural indicators, which should meet the required level of performance.

Attachment 5: Reference Documents

The ATP WG referenced the following while developing Recommendation 16-8.

Statute:

Airline Safety and Federal Aviation Administration Extension Act of 2010 (P.L. 111–216, Aug. 1, 2010)

Regulations:

Pilot Qualification Rule: *Pilot Certification and Qualification Requirements for Air Carrier Operations* (and subsequent corrections/amendments), 78 FR 42323 (July 15, 2013)

- 14 CFR 61.159 – Aeronautical experience: Airplane category rating.
- 14 CFR 61.160 – Aeronautical experience—airplane category restricted privileges.
- FAA-S-8081-5F (with Changes 1, 2, 3, 4, 5, 6, & 7) Airline Transport Pilot and Aircraft Type Rating Practical Test Standards for Airplane (July 2008)

Guidance Documents:

- FAA Advisory Circular (AC) 60-28A, English Language Skill Standards Required by 14 CFR Parts 61, 63, and 65 (12/11/13)
- FAA AC 61-38, Airline Transport Pilot Certification Training Program (7/2/13)
- FAA AC 61-139, Institution of Higher Education’s Application for Authority to Certify its Graduates for an Airline Transport Pilot Certificate with Reduced Aeronautical Experience (7/12/13)
- FAA AC 120-54A, Advanced Qualification Program (6/23/06)
- FAA AC 120-68F, Pilot Records Improvement Act of 1996 (5/31/12)
- ICAO Doc 9995, *Manual of Evidence-based Training*

Reports/Articles:

- First Officer Qualification Aviation Rulemaking Committee (FOQ ARC): *Recommendations Regarding Rulemaking on Flight Experience, Training, and Academic Requirements Prior to Operating as a First Officer in Part 121 Air Carrier Operations*, September 28, 2010.
- Flightcrew Member Training Hours Requirement Review Aviation Rulemaking Committee: *Report from THRR ARC* (ARC 209), May 23, 2011.
- Carretta, T.R. (2011), *Pilot Candidate Selection Method: Still an Effective Predictor of US Air Force Pilot Training Performance*, *Aviation Psychology and Applied Human Factors*, Vol. 1, pp. 3-8.
- Goeters, Maschke, & Eißfeldt (2004), *Ability Requirements in Core Aviation Professions: Job Analysis of Airline Pilots and Air Traffic Controllers*, *Aviation Psychology: Practice and Research*.
- Hedge, J.W., et al. (2000), *Selecting Pilots with Crew Resource Management Skills*, *The International Journal of Aviation Psychology*, Vol. 10, pp. 377-392.
- Hoermann, H.-J. & Goerke, P. (2014), *Assessment of Social Competence for Pilot Selection*, *The International Journal of Aviation Psychology*, Vol. 24, pp. 6-28.
- Bell, C., & Goldsmith, M. (2013). *Managers as Mentors: Building Partnerships for Learning* (3rd ed.). Berrett-Koehler.

Reports/Articles (continued):

- FAA, *Best Practices for Mentoring in Flight Instruction*, 2009. Retrieved from https://www.faa.gov/training_testing/training/media/mentoring_best_practices.pdf.
- National Aeronautics and Space Administration, *Facilitating LOS Debriefings: A Training Manual* (Technical Memorandum No. 112192). (1997).
- FAA, *Developing Advanced Crew Resource Management (ACRM) Training: A Training Manual*, (1998), p. 65. Retrieved from http://www.faa.gov/training_testing/training/aqp/training/manual/media/dacrmmt.pdf.
- FAA, *AQP Data Management Guide*, p. 23. Retrieved from http://www.faa.gov/training_testing/training/aqp/library/media/dmg.pdf.

Presentations:

- Col. Juan Narvid, USAF (Ret.), *Phases of Instruction for Transport Aircraft Pilots*, presented during the ATP WG meeting on June 9-10, 2015.
- David Oord, Aircraft Owners and Pilots Association, *Airman Certification Safety Continuum*, presented during the ATP WG meeting on January 28-29, 2016.
- MaryJo O. Smith, PhD, Ypsilon Associates, *2015 Pilot Source Study*, presented during the ATP WG meeting on June 15-16, 2016.

Attachment 6: Acronyms and Abbreviations

AC	Advisory Circular
ACT ARC	Air Carrier Training Aviation Rulemaking Committee
AFS	FAA Flight Standards Service
AFS-200	Air Transportation Division
AQP	Advanced Qualification Program
ARC	Aviation Rulemaking Committee
ATC	Air traffic control
ATP	Airline Transport Pilot
ATP CTP	ATP Certification Training Program
ATP WG	Education, Training and Experience Alternatives for an ATP Workgroup
CFR	Code of Federal Regulations
CPC	Commercial pilot certificate
CRM	Crew resource management
EQP	Enhanced Qualification Program
FAA	Federal Aviation Administration
FFS	Full Flight Simulator
FOQ	First Officer Qualification
FOQ Final Rule	Pilot Certification and Qualification Requirements for Air Carrier Operations final rule
FOQ NPRM	Pilot Certification and Qualification Requirements for Air Carrier Operations notice of proposed rulemaking
FPM WG	ACT ARC Flight Path Management Workgroup
FSTD	Flight Simulation Training Device
FTU	Formal Training Unit
IATA	International Air Transport Association
ICAO	International Civil Aviation Organization
IFT	Initial Flight Training
InFO	Information for Operators
INH	Initial New Hire
IR	Instrument rating
IRR	Inter-rater reliability
ISD	Instructional Systems Design
KSAO	Knowledge, skills abilities, and other traits
LNAV	Lateral Navigation

LOFT	Line-oriented flight training
LOS	Line Operational Simulation
ME	Multi-engine rating
NPRM	Notice of proposed rulemaking
NTSB	National Transportation Safety Board
PIC	Pilot in command
PM	Pilot monitoring
POI	Principal Operations Inspector
PRD	Pilot Records Database
PRIA	Pilot Records Improvement Act of 1996
R-ATP	Airline Transport Pilot certificate with restricted privileges
RO	Regional Office
SAFO	Safety Alert for Operators
SARP	Standards and Recommended Practices
SIC	Second in command
SIT	Systems and integration training
SME	Subject matter expert
SMS	Safety Management System
SOP	Standard operating procedures
SUPT	Specialized Undergraduate Pilot Training
TBAS	USAF Test of Basic Aviation Skills
TSB	Training Standardization Board
USAF	United States Air Force
VNAV	Vertical Navigation