



DEPARTMENT OF THE AIR FORCE  
WASHINGTON DC

OFFICE OF THE ASSISTANT SECRETARY

AFGM2020-63-148-01

6 August 2020

MEMORANDUM FOR SEE DISTRIBUTION C  
MAJCOMs/FOAs/DRUs

FROM: SAF/AQ  
1790 Air Force Pentagon, Rm 4E1024  
Washington, D.C. 20330-1080

SUBJECT: Air Force Guidance Memorandum (AFGM) Anthropometric Design Specifications for the Department of the United States Air Force (DAF) Acquisitions Programs

By Order of the Secretary of the Air Force, this AFGM is the first instance of a to-be published SAF/AQ publication that establishes anthropometric design specifications for all acquisitions programs using current male and female recruitment population data. Compliance with this publication is mandatory and effective immediately unless waived in writing by the Service Acquisition Executive. To the extent its directions are inconsistent with other Air Force publications, the information herein prevails, in accordance with Air Force Instruction 33-360, *Publications and Forms Management*.

Long-term military competition has no boundaries: all variables are in play, all aspects of national strength. Our military is a long-time beneficiary of nonpareil elements of U.S. soft power: a strong economy, healthy population, world-leading education, and high-tech industrial base. With these, maintaining a war-winning force is simple math. But now these elements of national power are contested and, consequently, our customary calculus for how to prevail.

To put it bluntly, the U.S. faces a crisis of scale. By the end of this decade, China will likely double our gross domestic product, quadruple our population, and have a whopping 15 times the number of STEM graduates. During this same period, U.S. minority populations are expected to continue growing, with international migration surpassing natural increase as the dominant factor in population growth by 2030. Though any individual number could vary, the trend lines will likely not. The recent memo I sent the acquisition workforce (Attachment 1) is not only about pursuing diversity and inclusion as a matter of principle; it also reflects the practical necessity of leveraging our nation's entire talent pool to beat these odds.

Both principle and practicality could be no more important than democratized access to future warfighting systems. Minimum size design specifications for DAF flight training are presently based on a 1967 male pilot survey. When compared to the Center for Disease Control's National Health Statistic Report (December 2018), *Mean Body Weight, Height, Waist Circumference, and Body Mass Index Among Adults: United States, 1999-2000 Through 2015-2016*, the 1967 survey excludes 44 percent of the U.S. female population—including 74 percent of African Americans, 72 percent of Latino Americans, and 61 percent of Asian Americans—unless they receive a waiver. Though waivers are typically granted, broad aircraft opportunities are not. As an example, the F-15 presently accommodates only 8.9 percent of women.

**BREAKING BARRIERS...SINCE 1947**

With accelerating disruptive technologies—like artificial intelligence, ubiquitous sensing, and autonomy—rewriting Air Power for all nations, not just the U.S., continuing our rich tradition of operator advantage is paramount to overcome unprecedented battlefield challenges. Ensuring our maximum recruitment population can be that deciding factor nearly doubles our odds in what is already a stacked deck. The time to move out is now.

Accordingly, this AFGM immediately implements guidance establishing that all Program Managers will work with their lead Commands to use the central 95 percent of the U.S. recruiting population body size when defining design specifications for aircrew flight equipment and new aircrew or operator station designs, instead of defining design specifications based on the current aircrew population. As an interim measure, the eight anthropometric cases in Attachment 2 shall be used as the basis for compliance. However, the Air Force Lifecycle Management Center shall conduct a new representative survey to supersede Attachment 2, as well as use of all previous incomplete surveys to include the 1967 USAF Aircrew Anthropometric Survey, 2011 Aircrew Sizing Survey, and 2012 Army Anthropometric Survey.

There are no releasability restrictions on this publication. This guidance applies to individuals at all levels, including the United States Space Force, the Regular Air Force, the Air Force Reserve, and Air National Guard (ANG). Ensure all records created as a result of processes prescribed in this publication are maintained in accordance with AFI 33-322, *Records Management and Information Governance Program*, and disposed of in accordance with the Air Force Records Disposition Schedule located in the Air Force Records Management System. The authorities to waive wing/unit level design specifications in this AFGM are identified with a Tier (“T-0, T-1, T-2, T-3”) number following each compliance statement. See AFI 33-360, *Publications and Forms Management*, for a description of the authorities associated with the Tier numbers. Submit requests for waivers through the chain of command to the appropriate Tier waiver approval authority, or alternately, to the requestor’s commander for non-tiered compliance items.

Ensuring a diverse and inclusive future force is not just a practical policy for competing long term, it effects our nation’s very founding ideals the future force will defend. And quite appropriately, those ideals have been beating odds since 1776.

This Memorandum becomes void after one year has elapsed from the date of this Memorandum, or upon publishing of a new Instruction or incorporation of the criteria/standards in Attachment 2 into appropriate AF/A5 and SAF/AQ instructions permanently establishing this guidance, whichever is earlier.

William B. Roper, Jr.  
Assistant Secretary of the Air Force  
(Acquisition, Technology & Logistics)

Attachments:

1. Making Diversity Count Memo
2. Anthropometric Design Specifications for Department of the Air Force Acquisition Programs

**AFGM2020-63-148-01, 6 August 2020**  
**Attachment 1**  
**Making Diversity Count Memo**



OFFICE OF THE ASSISTANT SECRETARY

**DEPARTMENT OF THE AIR FORCE**  
WASHINGTON DC

09 June 2020

MEMORANDUM FOR AIR FORCE AND SPACE FORCE ACQUISITION WORKFORCE

FROM: SAF/AQ

SUBJECT: MAKING DIVERSITY COUNT

As you know, my correspondence tends to share positive messages about technology, innovation, or the future in general. We all have a hand in shaping it for the better in the Air and Space Force.

But the tragic death of George Floyd, and protests around the country, call into question that future and whether it truly can be better when life, liberty, and the pursuit of happiness—the founding ideals of this nation—still have not taken root from sea to shining sea. We must uproot racism in all its forms to be the one, truly indivisible, nation that lives up to its calling. We cannot hope to overcome other long-term challenges otherwise, and we all have a role to play in solving this problem.

First, it is obvious our acquisition team does not mirror society. A preponderance of our workforce, and nearly all of its leaders, are Caucasian males, so I can only imagine the uneven slope this creates for our African American, minority, and female teammates. Without leaders that embody and represent you, how do we avoid organizational bias, provide mentors with whom you feel similitude, or recruit future talent from across our nation, not just communities and demographics with historical connections to our Services?

The answer is: “We can’t.”

Floyd’s death, the just anger it elicits, and many painful memories it reawakens must lead to national awareness and meaningful action. All must join the fight, including Air and Space Force acquisition.

Owning bias is our starting point. No matter who we are, our experiences shape how we view the world. Though we may never consciously discriminate, our unconscious patterns, expectations, and even language—though for all purposes well-meaning—are formed by those experiences: familiar to those who share them, foreign to those who do not. Without sufficient diversity, that majority worldview homogenizes, and its biases go unchecked. I can only imagine—but never fully appreciate—how this creates myriad challenges for our African American and minority teammates. But I want to understand better.

I will be asking for volunteers to advise me on diversity and brainstorm initiatives we can start trialing now. I want to understand our biases—and ways we can immediately address

them—as we work to make our team more diverse in the long run. I expect leadership throughout our acquisition team to do the same.

I know this will be a difficult, sensitive topic, but I ask we be bold in talking about issues and leaving both assumptions and trepidation at the door. I am confident I will say and get things wrong. But *“fail fast, learn, and correct”* is how we innovate and create change. Let’s create a safe environment to begin the discussion, prototype ideas, and make understanding, inclusiveness, and diversity our long-term competitive advantage.

People make the magic that is our military happen. That next change agent, brilliant engineer, contracting ninja, financial wizard, or inspiring leader needs to find, enter, and thrive in our Department, no matter where they are born or how they look. Our future security, quite literally, depends on it.

Let’s make this happen, together.



William B. Roper, Jr.  
Assistant Secretary of the Air Force  
(Acquisition, Technology & Logistics)

Attachment 2

**Anthropometric Design Specifications for Department of the Air Force Acquisition Programs**

**1. Overview:** This AFGM requires all Air Force acquisitions programs to create a requirement for an applicable system modification and new acquisitions to address body size.

1.1. All programs will use the eight (8) cases identified in Table 1 below and require the central 95% accommodation of the United States' recruitment population in all designs.

1.2. This guidance applies to all modifications and formal acquisitions programs.

**2. Roles and Responsibilities:**

2.1. The Program Manager (PM) is responsible to:

2.1.1. Contact the Crew Systems Engineering and Human Systems Integration Enterprise Branch (AFLCMC/EZFC) within the Flight Systems Engineering Division of the Engineering Directorate of Air Force Lifecycle Management Center when considering making changes to aircrew or operator station designs, or when defining design specifications for new aircrew or operator station designs. Contact the Human Systems Division (AFLCMC/WNU) to obtain the most current anthropometric accommodation data when considering making changes to aircrew flight equipment. Use the following link to submit Crew Station Accommodation Team support requests: <https://cs2.eis.af.mil/sites/23229/Crew/CSAT/SitePages/Home.aspx>

2.1.2. Identify the anthropometric minimum design specifications to the Lead MAJCOM.

2.1.3. Ensure systems and end items meet or exceed the minimum anthropometric standards listed in this document.

2.1.4. Derive appropriate System Design Specification Document.

2.2. The Chief Developmental Tester is responsible to:

2.2.1. Maintain oversight of program contracted, Government and other program-related anthropometric testing activities.

2.3. Implementing Commanders are responsible to:

2.3.1. Collaborate with lead commands and PMs to ensure a minimum anthropometric requirement is written, validated, and maintained for each modification and formal acquisitions program.

2.4. Air Force Life Cycle Management Center (AFLCMC) is responsible to:

2.4.1 Document the anthropometric-based design specifications and accomplish any additional analysis to ensure the widest possible diverse population of body size is met by the design specification. Advocate needs through the design specification process (T-1).

2.4.1.1. AFLCMC’s Crew Systems Engineering and Human Systems Integration Enterprise Branch (AFLCMC/EZFC) and Human Systems Division’s Airmen Accommodation Lab (AAL) will ensure long-term anthropometric studies, existing and future anthropometric data as well as planned studies are included in design specification building.

2.4.1.2. Establish standardized procedures to ensure all applicable modification proposals include or already meet anthropometric accommodation minimums.

### 3. Operation within the Defense Acquisition System.

3.1. Anthropometric Design Specifications: Anthropometric minimums below will be included on all applicable modifications and acquisitions.

3.1.2. Must accommodate body size of at least the central 95% of the US recruiting population including all races and genders. Program design specification will be built to ensure all systems meet the 8 test cases identified in Table 1 below to ensure 95% accommodation. Preference will be given to solutions that exceed 95% accommodation rates. AFLCMC is authorized to update Table 1 as needed to meet policy intent.

**Table 1. Use Cases for 95% Accommodation.**

(dimensions in inches)	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6	Case 7	Case 8
	Small	Medium Build Short Limbs	Medium Build Long Limbs	Tall Sitting Short Limbs	Overall Large	Longest Limbs	Overall Small	Longest Torso
Thumb tip reach	27.0	27.6	33.9	29.7	35.6	36.0	26.1	33.3
Buttock-knee length	21.3	21.3	26.5	22.7	27.4	27.9	20.8	25.4
Knee-height sitting	18.7	19.1	23.3	20.6	24.7	24.8	18.1	23.2
Sitting height	32.8	35.5	34.9	38.5	40.0	38.0	31.0	41.0
Eye height sitting	28.0	30.7	30.2	33.4	35.0	32.9	26.8	35.9
Shoulder height sitting	20.6	22.7	22.6	25.2	26.9	25.0	19.5	27.6
Shoulder breadth range	14.7-18.1	16.4-20.6	16.2-21.2	16.8-21.7	16.9-22.6	16.8-22.5	14.2-18.0	16.9-22.6
Chest depth range	7.4-10.9	6.9-10.6	7.2-11.3	7.1-11.0	7.3-12.1	7.4-12.2	7.2-10.2	7.4-12.4
Thigh circumference range	18.5-25.0	17.1-25.0	20.2-27.6	17.6-26.3	18.6-29.2	19.1-29.7	17.8-25.2	18.6-29.1
Weight range	103 to 245 pounds							

3.1.3. Require acquisitions policy language in contracts that will define a minimum accommodation level (Air Force entry requirement) and encourage companies to accommodate the widest possible range of stature as a competitive edge.

3.1.4. To the extent greater flexibility in the minimum accommodation level is necessary due to mission impact, consider inserting language in the contract solicitation permitting offerors to submit proposals that depart from the anthropometric minimums only if the contractor can provide sufficient justification by means of significant fiscal restraints, mission risk, and/or mission degradation.

3.1.5. When circumstances arise that prevent meeting the 95 percent accommodation threshold, a waiver must be granted from the Service Acquisition Executive for the program. The Service Acquisition Executive may choose to delegate waiver authority.