DoD Space Planning Criteria

Chapter 430: Neonatal Intensive Care Unit
June 1, 2016

Purpose: This issuance: To provide space planning criteria guidance in support of planning, programming and budgeting for DoD Military Health System (MHS) facilities.

SUMMARY *of* CHANGE

This revision, dated 1 June 2016 includes the following:

- o On page 10, reference TABLE 2: PATIENT UNIT CALCULATION changed the "*MIN" note to read "The minimum recommended number of projected bedrooms required to plan a UNIT."

- o On page 11, section 3.1. INPUT DATA STATEMENETS, number 8, changed IDS to read "Is a Satellite Laboratory for NICU Support authorized? (M)"

- o On page 12, section 4.1. FA1: NEONATAL INTENSIVE CARE UNIT CALCULATION, room 1, Number of NICU Units (CALC1), changed the criteria statement to read "The minimum recommended number of bedrooms to generate one Neonatal Intensive Care Unit is 8; the maximum recommended number of bedrooms is 16."

- o On page 12, section 4.2.FA2: NICU FAMILY / VISITOR AREA, room 1, Waiting (WRC01), changed criteria statement to read "Minimum NSF; provide an additional 120 NSF for every increment of eight NICU Bedrooms, of all types, greater than eight."

- o On page 12, section 4.2.FA2: NICU FAMILY / VISITOR AREA, room 2, Playroom (PLAY1), changed starting NSF to 120 NSF, changed criteria statement to read Minimum one; provide an additional one for every increment of sixteen NICU Bedrooms, of all types, greater than sixteen."

- o On page 12, section 4.2.FA2: NICU FAMILY / VISITOR AREA, room 4, Consult Room (OFDC2), changed the criteria statement to read "Minimum one; provide an additional one for every increment of sixteen NICU Bedrooms, of all types, greater than sixteen

- o On page 12, section 4.2.FA2: NICU FAMILY / VISITOR AREA, room 5, EDUCATION / RESOURCE CUBICLE (CLSC1), changed criteria statement to read "Minimum one; provide an additional one for every increment of eight NICU Bedrooms, of all types, greater than eight."

- o On page 13, section 4.2.FA2: NICU FAMILY / VISITOR AREA, room 7, LOUNGE, FAMILY / VISITOR (SL001), changed criteria statement to read "Minimum NSF; provide an additional 30 NSF for every increment of four NICU Bedrooms, of all types, greater than eight.

o On page 13, section 4.2.FA2: NICU FAMILY / VISITOR AREA, room 8, TOILET, FAMILY / VISITOR (TLTU1), changed criteria statement to read "Minimum one; provide an additional one for every increment of sixteen NICU Bedrooms, of all types, greater than sixteen.

o On page 13, section 4.2.FA2: NICU FAMILY / VISITOR AREA, room 9, TOILET / SHOWER, FAMILY / VISITOR (TLTS1), changed criteria statement to read "Minimum one; provide an additional one for every increment of sixteen NICU Bedrooms, of all types, greater than sixteen.

o On page 14, section 4.3. FA3: NURSE STATION (NSTA1) room 10, CAREGIVER WORKSTATION (NSTA3), Change room name to read "WORKSTATION, CAREGIVER (NSTA3)"

o On page 14, section 4.3. FA3: NURSE STATION (NSTA1) room 11, changed starting NSF to 120 NSF, changed criteria statement to read "Minimum NSF; provide an additional 30 NSF for every increment of four NICU Bedrooms, of all types, greater than six."; added descriptor sentence to read "NSF may be sub-divided during design."

o On page 14, section 4.3. FA3: NICU PATIENT CARE AREA room 12, Monitoring Station (NSTA3), changed criteria statement to read "Minimum NSF if a Monitoring Station for the NICU Patient Care Area is authorized; provide an additional 30 NSF for every increment of six NICU Bedrooms, of all types, greater than twelve."; deleted descriptor statement.

o On page 14, section 4.3. FA3: NICU PATIENT CARE AREA room 13, Team Collaboration Room (WRCH1), changed criteria statement to read "Minimum NSF; provide an additional 30 NSF for every increment of four NICU Bedrooms, of all types, greater than six."

o On page 15, section 4.4. FA4: NICU SUPPORT, room 1, Laboratory, Point Of Care (LBSP1), changed room name and room code to read: "Laboratory, Satellite (LBBG2)"; changed criteria statement to read "Minimum one if a Satellite Laboratory for the NICU Support Area is authorized; provide an additional one for every increment of sixteen NICU Bedrooms, of all types, greater than sixteen."

o On page 15, section 4.4. FA4: NICU SUPPORT, room 2, Pharmacy, Satellite (PHDS3), changed criteria statement to read "Provide one if a Satellite Pharmacy for the NICU Support Area is authorized."

o On page 16, section 4.4. FA4: NICU SUPPORT, room 11, Decontamination, Respiratory Therapy (OPRC1), changed criteria statement to read "Minimum one; provide an additional one for every increment of sixteen NICU Bedrooms, of all types, greater than sixteen."

o On page 16, section 4.4. FA4: NICU SUPPORT, room 14, Storage, Gas Cylinder (SRGC2), changed criteria statement to read "Minimum one; provide an additional one for every increment of sixteen NICU Bedrooms, of all types, greater than sixteen."

TABLE OF CONTENTS

SECTION 1: PURPOSE AND SCOPE

1.1.

This chapter outlines space planning criteria for services provided in the Neonatal Intensive Care Unit within the Military Health System (MHS). Specifically, it will accommodate Level II, III, and IV levels of neonatal care. Space planning criteria for the Level I Newborn Nursery, or the Holding Nursery, is covered in Chapter 420: Labor & Delivery / Obstetrics Units.

Most infants born in LDR or LDRP rooms will "transition" (pass through the critical four-hour period following birth where intensive observation is needed) in the LDR or LDRP room with the mother during her recovery period. A space is required for potentially sick infants who need special observation or medical intervention following birth (i.e. Level II Specialty Care). For hospitals providing only Level I nursery care, this Level II space is provided in the Holding Nursery when LDRPs are programmed. In a hospital providing only Level I nursery care, using the LDR concept, this specialty care may be provided in the isolation nursery room. For those hospitals providing Level II, III or IV care, Level II care will be provided in either the Nursery or the NICU. This will depend on the Concept of Operations.

The NICU may encompass both intensive (Level III/IV) and special care (Level II). When mixing infants of varying acuity, requiring different levels of care in the same area, intensive care design standards will be followed to provide maximum clinical flexibility.

LEVELS OF NEWBORN CARE:

The following are levels of neonatal care provided in a hospital as classified by the American Academy of Pediatrics:

Level I Well Newborn Nursery: Provides a basic level of care to healthy newborn infants. It is organized with personnel and equipment to perform neonatal resuscitation and postnatal care. In addition, this nursery can provide postnatal care for preterm infants at 35 to 37 weeks' gestation who are physiologically stable and can stabilize newborn infants who are less than 35 weeks of gestation or who are ill until they can be transferred to a facility that can provide the appropriate level care.

Level II Special Care Nursery: Provides personnel and equipment to provide a specialty level of care to infants born at 32 weeks' gestation or more and weighing 1500 g or more at birth who have physiologic immaturity, such as apnea of prematurity, inability to maintain body temperature, or inability to take oral feedings; who are moderately ill with problems that are expected to resolve rapidly and are not anticipated to need subspecialty services on an urgent basis; or who are convalescing from a higher level of intensive care. A level II center has the capability to provide continuous positive airway pressure and may provide mechanical ventilation for brief durations (less than 24 hours).

Level III NICU: A hospital NICU organized with personnel and equipment to provide continuous life support and comprehensive care for extremely high-risk newborn infants and

those with critical illness. This includes infants born weighing <1500 g or at <32 weeks' gestation. Level III units have the capability to provide critical medical and surgical care. Level III units routinely provide ongoing assisted ventilation; have ready access to a full range of pediatric medical subspecialists; have advanced imaging with interpretation on an urgent basis, including CT, MRI, and echocardiography; have access to pediatric ophthalmologic services with an organized program for the monitoring, treatment, and follow-up of retinopathy of prematurity; and have pediatric surgical specialists and pediatric anesthesiologists on site or at a closely related institution to perform major surgery. Level III units can facilitate transfer to higher-level facilities or children's hospitals, as well as back transport recovering infants to lower-level facilities, as clinically indicated.

Level IV Regional NICU: Level IV units include the capabilities of level III units with additional capabilities and considerable experience in the care of the most complex and critically ill newborn infants and should have pediatric medical and pediatric surgical specialty consultants continuously available 24 hours a day. Level IV facilities would also include the capability for surgical repair of complex conditions (e.g., congenital cardiac malformations that require cardiopulmonary bypass with or without extracorporeal membrane oxygenation (ECMO).

POLICIES:

A healthcare requirements analysis should be accomplished when nursery services of Level II, III or IV are included in a MILCON project to determine the desired capacity and resources. This analysis must consider: population served and future trends for that population, fertility rates in the population by segments both past and future, obstetric service staffing projections, availability and cost of nursery services in the geographic area and concepts of care. For Level III and IV services, the analysis must include the Poisson process calculation for determining required number of bassinets. The analysis may include a simulation evaluation, which includes projected occupancy over time, to justify and display the risk associated with the number of bassinets proposed.

The space planning criteria in this chapter apply to all Military Medical Treatment Facilities (MTFs) and are based on current DoD policies and directives, established and/or anticipated best practices, industry guidelines and standards, and input from DoD Subject Matter Experts (SME) and Defense Health Agency (DHA) Service contacts. As directed by the DHA, these space criteria are primarily workload driven; additional drivers are staffing and mission. Room Codes (RCs) in this document are based on the latest version of DoD UFC 4-510-01, Appendix B.

SECTION 2: OPERATING RATIONALE AND BASIS OF CRITERIA

2.1.

A. Workload projections and planned services / modalities for a specific MHS facility project shall be sought by the planner in order to develop a project based on these Criteria. Healthcare and clinical planners working on military hospitals, medical centers and clinics shall utilize and apply the workload based criteria set forth herein for identified services and modalities to determine space requirements for the project.

B. Space planning criteria have been developed on the basis of an understanding of the activities involved in the functional areas required for the Neonatal Intensive Care Unit (NICU) and their relationship with other services of a medical facility. These criteria are predicated on established and/or anticipated best practice standards, as adapted to provide environments supporting the highest quality health care for Service Members and their dependents.

C. These criteria are subject to modification relative to equipment, medical practice, vendor requirements, and subsequent planning and design. The final selection of the size and type of medical equipment is determined during the design process.

D. Calculation of the number and -in some cases- the area (NSF) of rooms is executed in one of the following methods:

1. Directly workload-driven
2. Indirectly workload-driven
3. Mission or Staffing-driven

The directly workload-driven rooms are based on workload projections entered in response to the Workload Input Data Statements (IDSs) included in Section 4. The directly workload driven rooms in this chapter are the NICU Single Birth and the NICU Multiple Birth Bedrooms.

The indirectly workload-driven rooms are derived from the preceding group. They are typically in the Reception and Support Functional Areas. Examples are Waiting, or the number of clean or soiled utility rooms.

The mission / staffing-driven rooms are created based on Boolean 'yes/no' or numeric responses to the Mission and Staffing Input Data Statements (IDSs).

E. The Net Square Feet (NSF) and Room Code (RC) for each room in Section 5: Space Planning Criteria of this chapter was provided by or approved by the Defense Health Agency (DHA) Template Board.

F. Section 4: Input Data Statements and Section 5: Space Planning Criteria have been implemented and tested in the Space and Equipment Planning System (SEPS). To gain access to

SEPS planner should contact a Defense Health Agency (DHA) representative; access to SEPS is provided via a 16-hour hands-on training session.

G. Calculation of each of the directly workload-driven room types is implemented in SEPS based on the following methodology / formulae:

Normative formulae are provided below for the purpose of both quick and comparative program development. The Poisson process will be used to provide the accepted quantity solutions. An example Poisson distribution example is provided following the formulas.

H. Common Planning Factors

Actual experience rates are more desirable and should be obtained from the historic workload for the facility. The following factors are provided for comparative purposes.

a. Infant's ALOS for a normal vaginal birth (DRG 391) = 1.5 days.
b. Infant's ALOS for Cesarean birth = 3.5 days
c. Cesarean birthrate (nationally) = +/- 30%

For more information about how to obtain ALOS information, see Chapter 420 (Labor and Delivery / OB Unit)

Formula 1: Total Number of Holding Nursery Bassinets (Level I)
Level I is covered in DoD 420: Labor and Delivery; the following formula is included here for reference.

$$\frac{(Total\ Number\ of\ LDRP)}{LDRP} + Postpartum\ Rooms\ (10\%)$$

Formula 2: Total Number of Special Care Nursery Bassinets (Level II):

$$\frac{(\ (A\ +\ B)(ALOS\ )) + ((C)(0.167))}{(365)(Occupancy\ Rate)}$$

Where:

A = Projected number of annual sick infant births
B = Projected number of annual sick infant admissions / transfers
C = Projected number of annual cesarean section birth

Step 1: Determine the projected number of annual sick infant births and admissions (annual admissions to Level II, Special Care Nursery, do not include Level III NICU).

Step 2: Determine the Average Length of Stay (ALOS) in the Level II Special Care Nursery unit. For more information in how to obtain ALOS information, see Chapter 420 (Labor and Delivery / OB Unit).

Step 3: Determine the Occupancy Rate in the Special Care Nursery, Level II. The most widely used value in the private sector is 70%.

Step 4: Determine the projected number of annual cesarean section births and multiply this by 0.167 (0.167 is the ALOS for a cesarean section infant prior to being returned to its mother in a LDRP or in Postpartum.)

Formula 3: Total Number of NICU Bassinets (Level III):

$$\frac{(\text{Projected number of annual admissions to the NICU})(\text{ALOS})}{(365)(\text{Occupancy Rate})}$$

Step 1: Determine the projected number of admissions to the NICU

Step 2: Determine the Average Length of Stay (ALOS) in the NICU

Step 3: Determine the Occupancy Rate for the NICU.

Formula 4: NICU Total Number of Airborne Infection Isolation (AII) Rooms:

$$\frac{(A)(B)}{100}$$

Where:

    A. NICU Total Number of NICU Bassinets
    B. Percentage of NICU admissions requiring isolation

Step 1: Determine the percentage of admissions requiring isolation. (Base on historic data)

Step 2: Calculate the total number of NICU bassinets. (Formula 3)

TABLE 2: PATIENT UNIT CALCULATION

430: NICU UNITS		
UNIT	**NUMBER OF BEDS / BASSINETS PER**	
	***MIN**	***MAX**
Neonatal Intensive Care Unit	8	16
*MIN: The minimum recommended number of projected bedrooms required to plan a UNIT. *MAX: the maximum recommended number of bedrooms per UNIT.		

SECTION 3: PROGRAM DATA REQUIRED

3.1. INPUT DATA STATEMENTS. Input Data Statements are based on questions about Workload (W), Mission (M), Staffing (S) and Miscellaneous (Misc) information.

1. Is a Neonatal Intensive Care Unit (NICU) authorized? (M)
2. How many NICU beds / bassinets are projected? (W)
    a. How many NICU Airborne Infection Isolation (AII) beds / bassinets, greater than one, are authorized per the MTFs Infection Control Risk Assessment (ICRA)? (Misc)
3. Is this NICU a Level III? (M)
4. Is this NICU a Level IV? (M)
    a. Is an ECMO Room for the NICU Patient Care Area authorized (Level IV Only)? (M)
5. Is a Procedure Room for the NICU Patient Care Area authorized? (M)
6. Are Caregiver Workstations for the NICU Unit Patient Care Area authorized? (M)
7. Is a Monitoring Station in the NICU Patient Care Area authorized? (M)
8. Is a Satellite Laboratory for NICU Support authorized? (M)
9. Is a Satellite Pharmacy for NICU Support authorized? (M)
10. How many Transport Units, greater than two, are authorized? (Misc)
11. How many NICU FTE positions are authorized? (S)
    a. How many NICU FTE positions are authorized to have a private office in NICU Staff and Administration? (Misc)
    b. How many NICU FTE positions are authorized to have a shared office in NICU Staff and Administration? (Misc)
    c. How many NICU FTE positions are authorized to have a cubicle in NICU Staff and Administration? (Misc)
    d. How many NICU Male FTE positions will work on peak shift? (S)
    e. How many NICU Female FTE positions will work on peak shift? (S)
    f. How many Respiratory Therapist FTE positions are authorized? (S)
12. Is Sub-Waiting in NICU Staff and Administration authorized? (Misc)
13. Is a Conference Room in NICU Staff and Administration authorized? (Misc)
14. Are Toilet / Showers in NICU Staff and Administration authorized? (Misc)
15. Is a Scrubs Distribution Room for NICU Staff and Administration authorized? (Misc)
16. Is a NICU Graduate Medical Education (GME) program authorized? (M)
    a. How many NICU resident / student FTE positions are authorized? (S)

SECTION 4: SPACE PLANNING CRITERIA

For calculation of the number of Vending Machine areas, Public Toilets, Communication Closets, and Janitor Closets for this Chapter, please refer to DoD Space Planning Criteria Chapter 610: Common Areas.

4.1. FA1: NEONATAL INTENSIVE CARE UNIT CALCULATION

1. **Number of NICU Units (CALC1)**   **0 NSF**
   The minimum recommended number of bedrooms to generate one Neonatal Intensive Care Unit is 8; the maximum recommended number of bedrooms is 16.

4.2. FA2: NICU FAMILY / VISITOR AREA

1. **Waiting (WRC01)**   **120 NSF**
   Minimum NSF; provide an additional 120 NSF for every increment of eight NICU Bedrooms, of all types, greater than eight.

2. **Playroom (PLAY1)**   **120 NSF**
   Minimum one; provide an additional one for every increment of sixteen NICU Bedrooms, of all types, greater than sixteen.

   This space is provided to accommodate children's play activities maybe an open or an enclosed area and should be included within or adjacent to Waiting.

3. **Reception (RECP3)**   **60 NSF**
   Minimum NSF; provide an additional 30 NSF for every increment of sixteen NICU Bedrooms, of all types, greater than sixteen.

   This space serves as the control station for the NICU.

4. **Consult Room (OFDC2)**   **120 NSF**
   Minimum one; provide an additional one for every increment of sixteen NICU Bedrooms, of all types, greater than sixteen.

5. **Education / Resource Cubicle (CLSC2)**   **30 NSF**
   Minimum one; provide an additional one for every increment of eight NICU Bedrooms, of all types, greater than eight.

6. **Lockers, Family / Visitor (LR001)**   **30 NSF**
   Minimum NSF; provide an additional 30 NSF for every increment of four NICU Bedrooms, of all types, greater than eight.

7. **Lounge, Family / Visitor (SL001)**   **120 NSF**
Minimum NSF; provide an additional 30 NSF for every increment of four NICU Bedrooms, of all types, greater than eight.

8. **Toilet, Family / Visitor (TLTU1)**   **60 NSF**
Minimum one; provide an additional one for every increment of sixteen NICU Bedrooms, of all types, greater than sixteen.

9. **Toilet / Shower, Family / Visitor (TLTS1)**   **60 NSF**
Minimum one; provide an additional one for every increment of sixteen NICU Bedrooms, of all types, greater than sixteen.

4.3. FA3: NICU PATIENT CARE AREA

1. **Nursery, Parent Teaching Room (NYPT1)**   **240 NSF**
Minimum NSF; provide an additional 30 NSF for every increment of the four NICU Bedrooms, of all types, greater than eight.

2. **Gowning Station (NYAR1)**   **90 NSF**
Minimum one; provide an additional one for every increment of sixteen NICU Bedrooms, of all types, greater than sixteen.

   This anteroom is for family and staff to scrub and gown prior to entering the NICU Patient Care Area.

3. **Bedroom, NICU Single Birth (NYUN1)**   **240 NSF**
Provide one per each NICU bed / bassinet projected; deduct the beds / bassinets in each NICU Multiple Birth and NICU Airborne Infection Isolation (AII) Bedroom.

   This is a private (single-family) room that will accommodate the Level II (Special Care Nursery) or Level III and IV (NICU) neonatal patient in a family-centered environment.

4. **Bedroom, NICU Multiple Birth (NYUN2)**   **330 NSF**
Provide one for every increment of eight projected beds / bassinets.

   These beds / bassinets are part of the total number of projected beds / bassinets. This is a private (single-family) room equipped for multiple infants of the same family. It will accommodate the Level II (Special Care Nursery) or Level III and IV (NICU) neonatal patient in a family-centered environment.

5. **Bedroom, NICU Airborne Infection Isolation (AII) (NYIR1)**   **240 NSF**
Minimum one; provide an additional one per each NICU Airborne Infection Isolation (AII) Bedroom authorized, greater than one, per the MTFs Infection Control Risk Assessment (ICRA).

These beds / bassinets are part of the total number of projected NICU beds / bassinets. The number of Airborne Infection Isolation Rooms shall be determined by the infection control risk assessment (ICRA), which shall be conducted during the early planning phase of a project.

6. **Anteroom, Airborne Infection Isolation (AII) (NYAR1)**   **90 NSF**
   Provide one per each NICU Airborne Infection Isolation (AII) Bedroom.

7. **ECMO Room (NYEC1)**   **300 NSF**
   Provide one if an ECMO Room in the NICU Patient Care Area is authorized (Level IV Only).

   Space provided for extracorporeal membrane oxygenation (ECMO).

8. **Storage, ECMO Equipment (SRE01)**   **120 NSF**
   Provide one if an ECMO Room in the Neonatal Intensive Care Units (NICU) Patient Care Area is authorized.

9. **Procedure Room (NYPR1)**   **180 NSF**
   Provide one if a Procedure Room for the Neonatal Intensive Care Units (NICU) Patient Care Area is authorized.

10. **Workstation, Caregiver (NSTA3)**   **30 NSF**
    Provide one for every increment of two NICU Bedrooms, of all types, if Caregiver Workstations are authorized for the NICU Patient Care Area.

11. **Nurse Station (NSTA1)**   **120 NSF**
    Minimum NSF; provide an additional 30 NSF for every increment of four NICU Bedrooms, of all types, greater than six.

    NSF may be sub-divided during design.

12. **Monitoring Station (NSTA3)**   **60 NSF**
    Minimum NSF if a Monitoring Station for the NICU Patient Care Area is authorized; provide an additional 30 NSF for every increment of six NICU Bedrooms, of all types, greater than twelve.

13. **Team Collaboration Room (WRCH1)**   **120 NSF**
    Minimum NSF; provide an additional 30 NSF for every increment of four NICU Bedrooms, of all types, greater than six.

4.4. FA4: NICU SUPPORT

1. **Laboratory, Satellite (LBBG2)**   **120 NSF**
   Minimum one if a Satellite Laboratory for the NICU Support Area is authorized;
   provide an additional one for every increment of sixteen NICU Bedrooms, of all
   types, greater than sixteen.

2. **Pharmacy, Satellite (PHDS3)**   **240 NSF**
   Provide one if a Satellite Pharmacy for the NICU Support Area is authorized.

3. **Medication Room (MEDP1)**   **120 NSF**
   Minimum one; provide an additional one for every increment of sixteen NICU
   Bedrooms, of all types, greater than sixteen.

4. **Infant Feeding Preparation (NYFP1)**   **120 NSF**
   Minimum one; provide an additional one for every increment of sixteen NICU
   Bedrooms, of all types, greater than sixteen.

   This space accommodates the preparation and storage of formula and additives to
   human milk and formula.

5. **Anteroom, Feeding Preparation (NYAF1)**   **90 NSF**
   Provide one for each Infant Feed Preparation Room.

6. **Storage, Breast Milk / Formula (NYFS1)**   **60 NSF**
   Minimum one; provide an additional one for every increment of sixteen NICU
   Bedrooms, of all types, greater than sixteen.

   This space may be combined with the Infant Feeding Preparation Room.

7. **Lactation Room (LAC01)**   **120 NSF**
   Minimum one; provide an additional one for every increment of sixteen NICU
   Bedrooms, of all types, greater than sixteen.

8. **Utility Room, Clean (UCCL1)**   **120 NSF**
   Minimum one; provide an additional one for every increment of sixteen NICU
   Bedrooms, of all types, greater than sixteen.

9. **Utility Room, Soiled (USCL1)**   **90 NSF**
   Provide Minimum one; provide an additional one for every increment of sixteen
   NICU Bedrooms, of all types, greater than sixteen.

10. **Storage, Equipment (SRSE1)**   **120 NSF**
    Minimum NSF; provide an additional 60 NSF for every increment of eight NICU
    Bedrooms, of all types, greater than eight.

11. **Decontamination, Respiratory Therapy (OPRC1)**   **120 NSF**
Minimum one; provide an additional one for every increment of sixteen NICU Bedrooms, of all types, greater than sixteen.

This space accommodates the cleaning of ventilators used in the NICU.

12. **Workstation, Respiratory Therapist (OFA03)**   **60 NSF**
Provide one per each NICU Respiratory Therapist FTE position authorized.

13. **Storage, Respiratory Equipment (SRE01)**   **120 NSF**
Minimum NSF; provide an additional 30 NSF for every increment of eight NICU Bedrooms, of all types, greater than eight.

14. **Storage, Gas Cylinder (SRGC2)**   **60 NSF**
Minimum one; provide an additional one for every increment of sixteen NICU Bedrooms, of all types, greater than sixteen.

15. **Alcove, Transport Unit (NYTU1)**   **60 NSF**
Minimum NSF; provide an additional 30 NSF per each transport unit authorized greater than two.

Minimum NSF accommodates two transport units.

16. **Alcove, Crash Cart (RCA01)**   **30 NSF**
Minimum one; provide an additional one for every increment of sixteen NICU Bedrooms, of all types, greater than sixteen.

17. **Alcove, Portable Imaging (XRM01)**   **30 NSF**
Minimum one; provide an additional one for every increment of thirty two NICU Bedrooms, of all types, greater than thirty two.

4.5. FA5: NICU STAFF AND ADMINISTRATION

1. **Office, Private (OFA04)**   **120 NSF**
Provide one per each NICU FTE position authorized to have a private office.

Consider the following positions: Clinical Nurse Specialist; Lactation Support; Physician Assistant, Perinatologist, Unit Chief / Supervisor, NCOIC / LCPO / LPO.

2. **Office, Shared (OFA05)**   **120 NSF**
Provide one for every increment of two NICU FTE positions authorized to have a shared office.

3. **Cubicle (OFA03)**   **60 NSF**
Provide one per each NICU FTE position authorized to have a cubicle.

These cubicles may be collocated in a shared space or dispersed as required.

4. **Sub-Waiting (WRC03)**   **60 NSF**
Provide one if Sub-Waiting for NICU Staff and Administration is authorized.

5. **Conference Room (CRA01)**   **240 NSF**
Minimum NSF; provide an additional 60 NSF if the total number of NICU FTE positions authorized is greater than ten.

Planner must determine adequacy and availability of existing Conference Room space and the ability to optimize resources by sharing Conference Room space with other departments.

6. **Lounge, Staff (SL001)**   **120 NSF**
Minimum NSF, provide an additional 60 NSF for every increment of five NICU FTEs working on peak shift greater than ten; maximum 360 NSF.

7. **Toilet, NICU Staff (TLTU1)**   **60 NSF**
Minimum one provide an additional one every increment of fifteen NICU FTE positions working on peak shift greater than fifteen.

8. **Copy / Office Supply (RPR01)**   **120 NSF**
Minimum one; provide an additional one for every increment of thirty two NICU Bedrooms, of all types, greater than thirty two.

9. **Locker / Changing Room, Male Staff (LR002)**   **120 NSF**
Minimum NSF; provide an additional 10 NSF for every increment of two NICU Male FTE positions working on peak shift greater than twelve.

10. **Locker / Changing Room, Female Staff (LR002)**   **120 NSF**
Minimum NSF; provide an additional 10 NSF for every increment of two NICU Female FTE positions working on peak shift greater than twelve.

11. **Toilet / Shower, NICU Staff (TLTS1)**   **60 NSF**
Provide two if Toilet / Showers for NICU Staff and Administration are authorized.

12. **On-Call Room (DUTY1)**   **120 NSF**
Minimum one; provide an additional one for every increment of sixteen NICU Bedrooms, of all types, greater than sixteen.

13. **Toilet / Shower, On-Call Room (TLTS1)**   **60 NSF**
Provide one per each On-Call Room.

14. **Scrubs Distribution Room (LCCL4)**   **120 NSF**
Provide one if a Scrubs Distribution Room in NICU Staff and Administration is authorized.

4.6. FA6: NICU GRADUATE MEDICAL EDUCATION (GME) / TRAINING AREA.

1. **Office, Residency Program Director (OFA04)**   **120 NSF**
   Provide one if a NICU GME program is authorized.

2. **Resident Collaboration Room (WKTM1)**   **240 NSF**
   Minimum NSF if a NICU GME program is authorized; provide an additional 60 NSF per each Resident / Student FTE position authorized greater than two.

   Minimum NSF accommodates two residents, and a collaboration / reference area.

3. **Conference /Classroom (CRA01)**   **240 NSF**
   Provide one if the total number of Resident / Student FTE positions authorized is greater than five.

SECTION 5: PLANNING AND DESIGN CONSIDERATIONS

The following design considerations are intended to provide planners and designers with guidance on how to follow world-class and evidence-based design strategies for new and renovation of existing healthcare facilities. For a more comprehensive list of design guidelines for the Neonatal Intensive Care Units, refer to the FGI Guidelines for Design and Construction of Hospitals and Outpatient Facilities by the Facility Guidelines Institute (FGI Guidelines); the World Class Checklist (https://facilities.health.mil/home/); The Recommended Standards for Newborn ICU Design (Report of the Eight Consensus Conference on Newborn ICU Design, January 26, 2012 Clearwater Beach, Florida); and the Guidelines for Perinatal Care, 7th Edition (Jointly developed by the AAP Committee on Fetus and Newborn and ACOG Committee on Obstetric Practice).

5.1. NET-TO-DEPARTMENT GROSS FACTOR. The net-to-department gross factor (NTDG) for the Neonatal Intensive Care Unit is 1.45. This number when multiplied by the programmed net square foot (NSF) area determines the departmental gross square feet. This factor accounts for the space occupied by internal department circulation and interior partitions and other construction elements not defined by the net square foot area. Refer to UFC 4-510-01 and DoD Space Planning Criteria Chapter 130: Net to Gross Conversion Factors.

5.2. FAMILY / VISITOR AREA

a. The NICU should have a clearly identified entrance and area for families and visitors.

b. Safety and security is crucial, and the NICU should be designed to minimize risk of infant abduction. The Reception should be located within close proximity and direct visibility of the entrance to the unit. It serves as control point and should be situated so that all visitors must walk past the station to enter the unit.

c. This area will have a hands-free handwashing / gowning station for family and visitors to wash and gown prior to visiting the patient.

d. This area should have lockable storage facilities for families' personal belongings (unless provided elsewhere).

e. Family / Visitor waiting and lounge will be located immediately accessible to the NICU.

f. Seating should be comfortable with adequate space for patients with wheelchairs and walking aids.

g. The playroom (or play area) for children shall be constructed of surfaces and materials that are easy to clean and durable (nonporous and smooth).

5.3. PATIENT CARE AREA

a. Table 1 above provides direction on the number of beds per unit. The planner may choose to plan for two vs. three NICU units (E.g. two 12-bed units vs. three 8-bed units). If this is the case, the planner must adjust unit support spaces accordingly.

b. NICU Single Birth Bedroom shall be designed with dedicated patient, provider, and family zones. It includes a hands-free handwashing station, work counter, sleeper-sofa for parent overnight stay, wardrobe, privacy for breast-feeding mom, and a rocker / glider. There is adequate space to accommodate procedures. An outside window is not required. There are communication capabilities in order to avoid isolation and excessive walking of caregivers.

c. The number of Airborne Infection Isolation (AII) bedrooms for the NICU will be determined by the MTF's Infection Control Risk Assessment (ICRA). The planner will need to address how to distribute these rooms if more than one is required. In other words, two AII Rooms may be located in one unit or dispersed among two units.

d. This chapter does not include the Family Transition Room, a special bedroom designed to help both parents and infants adjust to life after the NICU, for the reason that all NICU bedrooms are designed as private, single family rooms, with space for parents to room in with their infants.

e. Provide acoustic privacy by controlling sound transmission between rooms and wherever else patient information is exchanged.

f. Patient care space shall be designed to allow visual privacy for the infant and family.

g. Include adjustable, directional lighting to enable medical invasive procedures with non-shadowed lighting. In addition, it must be possible to turn off all lights to achieve a completely dark patient care area, for use of directed diagnostic illumination without interference from ambient lighting.

h. Provide access to technology, internet access, communication with RN.

i. Nurse Station: Locate the nurse stations so that they can have direct visual observation of patient rooms as well as department entrances and exits.

5.4. SUPPORT

a. Optimize staff efficiency and performance by providing decentralized support spaces (e.g. charting, supplies, medications and equipment). Keep staff travel distances to a minimum.

b. In all equipment storage rooms, assure adequate electrical outlets is provided for all equipment housed within these rooms.

c. The medication preparation areas should be enclosed to minimize distractions. A glass wall or window may be provided to permit observation of patients and NICU activities.

d. Pharmacy services: The design of the NICU must consider the pharmaceutical delivery process. Whether the NICU relies on the central inpatient pharmacy or a satellite pharmacy within or near the NICU, pharmacy services should be readily accessible, available 24/7, and provide all medications needed. Space in the NICU should be designated for point-of-care pharmacist activity and may include a dedicated computer terminal and work station. Pneumatic tube systems may be used to transport medications to and from the main pharmacy. Satellite pharmacies within or near NICU can allow for immediate access to medications prepared by a pharmacist, decreasing medication delivery time. These spaces may also be sized for larger equipment. If a satellite pharmacy serves the unit, medication prep and storage may be less extensive than for units that rely on the inpatient or central pharmacy of the hospital.

e. Laboratory services: The NICU must have access to 24-hr clinical laboratory services. These can be provided by (1) the main laboratory in the hospital, or (2) a decentralized "point of care" laboratory within or near the NICU. Pneumatic tube systems may be used for rapid transport of specimens to and from the laboratory.

5.5. STAFF AND ADMINISTRATION

a. Team collaboration rooms and staff areas should be located so staff members may have conversations regarding patients and clinical matters without being heard by patients or visitors.
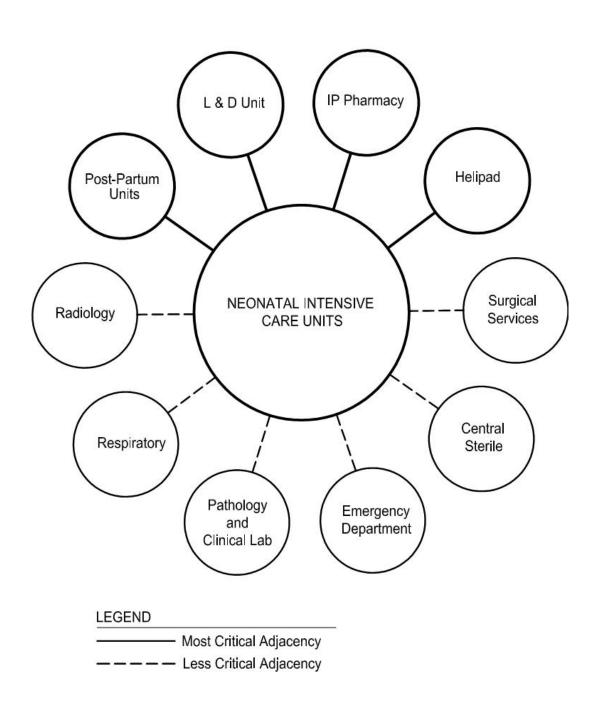
5.6. OTHER GENERAL DESIGN CONSIDERATIONS

a. Consider security requirements early on in design. Care should be given to limiting the number of exits and entrances into the NICU.

b. Consider technology requirements early on in design. Technology can be leveraged for safety and efficiency.

c. Consideration should be given to the placement of air vents. They shall be situated to minimize drafts on or near the infant beds / bassinets.

SECTION 6: FUNCTIONAL RELATIONSHIPS (INTERDEPARTMENTAL)
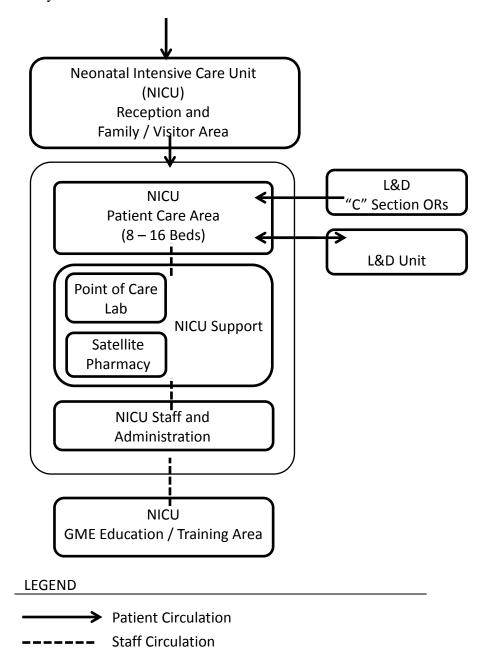
6.1.

Primary Care / The Neonatal Intensive Care Units will rely on a number of other services in a Military Treatment Facility (MTF) for patient care and support functions. The diagram below represents desirable relationships based on efficiency and functional considerations.

SECTION 7: FUNCTIONAL DIAGRAM (INTRADEPARTMENTAL)

7.1.

The diagram below illustrates intradepartmental relationships among key areas / spaces within the Neonatal Intensive Care Units. The diagram is necessarily generic. The planner shall use this as a basis for design only and shall consider project-specific requirements for each Military Treatment Facility.

LEGEND

→ Patient Circulation

- - - - - Staff Circulation

GLOSSARY

G.1. DEFINITIONS

Airborne Infection Isolation (AII) Bedroom: Formerly called negative pressure isolation room, an AII Bedroom is a single-occupancy patient-care room used to isolate persons with certain suspected or confirmed infections. Examples are tuberculosis, measles, and chicken pox. Environmental factors are controlled in AII Bedrooms to minimize the transmission of infectious agents that are usually spread from person-to-person by droplet nuclei associated with coughing or aerosolization of contaminated fluids. AII Bedrooms should be provided with negative pressure (so that air flows under the door gap into the bedroom), an air flow rate of a minimum of 10 Air Changes per Hour (ACH), and direct exhaust of air from the room to the outside of the building or recirculation of air through a HEPA filter.

Authorized: This document uses the term "authorized" to indicate that, during a project's space plan development, a planner shall seek approval from the appropriate official in the chain of command to activate certain spaces or certain groups of spaces. Typical components that may require authorization are certain programs or services that activate Functional Areas (e.g., GME); office spaces (e.g., FTE position); specialized rooms (e.g., Hybrid OR) or other spaces (e.g., On-Call Room). Typically, Mission, Staffing and Miscellaneous Input Data Statements require authorization, while directly and indirectly workload driven rooms / spaces do not.

Average Length of Stay (ALOS): The length of stay for an individual patient is the total amount of time that he/she stays in a healthcare facility between arrival (admission) and departure (discharge) and is determined based on the midnight census. The average length of stay for a specific patient population or facility is the total of all patient days (lengths of stay) divided by the number of patient admissions / discharges.

Bedroom, NICU Single Birth: This is a private (single-family) room that will accommodate the Level II (Special Care Nursery) or Level III/IV (NICU) neonatal patient in a family-centered environment. The private (single-family) room is the standard of care for infants in the NICU. The room includes space for the infant, family and staff and includes a handwashing sink, work counter, sleeper-sofa for parent overnight stay, wardrobe, privacy for breast-feeding mom, and a rocker/glider. This room can accommodate procedures.

Bedroom, NICU Multiple Birth: As with the Single Birth NICU Bedroom above, this is also a private (single family) room. However it will be sized and equipped for multiple births.

Clean Utility Room: This room is used for the storage and holding of clean and sterile supplies. Clean linen may be stored in a designated area in the clean utility room if space is not provided in a separate room or in an alcove.

Cubicle: A cubicle is a partially enclosed workspace, separated from neighboring workspaces by partitions. Managers and other staff with no supervisory responsibilities as well as part-time, seasonal, and job-sharing staff may qualify for a cubicle.

Decentralized Workstation: Workstation for nursing unit personnel. Workstations can be "centralized" or "decentralized". An example of "centralized" is the central nursing station that serves as the information hub of the unit and contains workspace for all care givers. An example of the "decentralized" workstation are workstations that are distributed throughout the nursing unit, often located outside each patient room or between every two patient rooms to allow a caregiver to work efficiently while observing and caring for patients. Additionally, decentralized "teaming" workstations or substations can be provided for several caregivers to collaborate about the patient's care.

ECMO Room: Babies in the Level IV NICU can undergo extracorporeal membrane oxygenation (ECMO). Similar to a heart-lung bypass machine used for an open-heart surgery, it mimics the natural function of the heart and lungs, allowing an infant or child to survive while natural healing of the affected organ takes place.

Family Consultation Room: A private, quiet room where a patient's family will meet with the provider(s) to discuss sensitive information.

Family Education Room: A classroom where families can go to learn about newborn illnesses, child development, parenting issues, etc. It may be a place to attend discharge planning classes and receive education on equipment use and caregiving techniques. It may include written educational materials, audiovisual resources and internet access.

Full-Time Equivalent (FTE): A staffing parameter equal to the amount of time assigned to one full time employee. It may be composed of several part-time employees whose total time commitment equals that of a full-time employee. One FTE equals a 40-hour per week workload. The FTE measure may also be used for specific workload staffing parameters such as a clinical FTE; the amount of time assigned to an employee providing clinical care. For example, a 0.5 clinical FTE for a healthcare worker would indicate that the healthcare worker provides clinical care half of the time per 40-hour work week.

Functional Area (FA): The grouping of rooms and spaces based on their function within a clinical service. Typical Functional Areas are Reception Area, Patient Area, Support Area, Staff and Administrative Area, and Education Area.

Graduate Medical Education (GME): All internship and residency years fall under the umbrella of GME. After a physician completes 4 years of medical school, he/she must then complete an internship (also called PGY-1 or Post Graduate Year 1) and then a post-internship residency (termed PGY-2, PGY-3, etc.). An internship typically lasts one year, and a residency may last from two to seven years depending on the specialty.

Handwashing / Gowning Station: Area for family and visitors to wash hands and gown prior to visiting the NICU patient.

Hours of Operation per Day: These are the hours of operation within a department. For example, a hospital nursing unit and an emergency department will operate 24 hours per day; whereas a clinic may be operational 8 hours or more, depending on the clinic.

Infant Feeding Prep Room: Also known as "formula prep room", this is space for the preparation and storage of formula and additives to human milk and formula. A dedicated space is required for all Level III / IV units. If dedicated space is not allocated in a food services area, where infant milk and formula are prepared in a clean manner by pediatric nutritionists, then a dedicated space in the NICU, within the secure unit is required. This room must include all of the dedicated spaces to support this function as noted in Functional Area 6 of this chapter.

Infant Prep Room: Room for staff to provide post-mortem care of body prior to family viewing. This room is also provided in Chapter 420: Labor and Delivery / OB Units. Planner must coordinate with Labor and Delivery / OB Unit and not duplicate this room.

Infection Control Risk Assessment (ICRA): An ICRA is a multidisciplinary, organizational, documented process that considers the medical facility's patient population and mission to reduce the risk of infection based on knowledge about infection, infectious agents, and the care environment, permitting the facility to anticipate potential impact.

Input Data Statement: A set of questions designed to elicit information about the healthcare project in order to create a Program for Design (PFD) (see definition below); based on the space criteria parameters (refer to Section 4) set forth in this document. Input Data Statements are defined as Mission, Workload, Staffing or Miscellaneous.

Kitchenette: Part of Family Respite space, a kitchenette is where families may eat meals and snacks as well as store personal food and beverages.

Lactation Support Room: This is a room for mothers to use when they come visit their infant in the NICU. Room provides a handwashing station, counter, storage for pump and attachments and educational materials. Mothers may also choose to pump at their baby's bedside.

Net Square Feet (NSF): The area of a room or space derived by multiplying measurements of the room or space taken from the inside surface of one wall to the inside surface of the opposite wall.

Net-to-Department Gross Factor (NTDG): A parameter used to calculate the Department Gross Square Foot (DGSF) area based on the programmed Net Square Foot (NSF) area. Refer to DoD Chapter 130 for the NTDG factors for all Space Planning Criteria chapters.

Office, Private: A single occupancy office provided for confidential communication.

Office, Shared: An office that accommodates two workstations.

Personal Property Lockers: This is a small-sized locker, commonly called purse or cell phone locker, and is generally used to secure purses and smaller valuables. Staff members who do not have an office or cubicle space where they can safely store belongings will be assigned these lockers.

Point of Care Laboratory: A laboratory that is located permanently away from the central laboratory, with one or several analyzers operated by either laboratory or non-laboratory

personnel. The objective of creating this laboratory is to provide rapid point-of-care tests and improve turnaround time for critical tests.

Procedure Room: In the NICU, a procedure room may be provided for performing invasive procedures where additional space, equipment and surgical lighting are needed. Certain procedures can be performed in the NICU without compromising patient safety or outcomes. Consideration should be given to performing procedures at the infant's bedside.

Program for Design (PFD): A listing of all of the rooms / spaces generated based on answers to the Input Data Statements (see Section 3) and the space planning criteria outlined in this document (Section 4) in SEPS. The list is organized by Functional Area and includes the Room Quantity, Room Code, Room Name and generated Net Square Feet (NSF), Construction Phase and Construction Type.

Project Room Contents (PRC): A listing of the assigned contents (medical equipment, FF&E, etc.) for each room in a PFD. This list is generated by SEPS. The list includes Joint Schedule Number (JSN), Content Name, Quantity, Unit of Issue, Unit Price, Logistical Category, Utilities, and National Stock Number (NSN).

Provider: A medical professional, such as a physician, nurse practitioner, or physician assistant, who examines, diagnoses, treats, prescribes medications, and manages the care of patients within the scope of their practice as established by the governing body of a healthcare organization.

Resident Collaboration Room: This room is provided for the Residents. It will contain one cubicle per Resident, a table with chairs for collaboration space and bookcases.

Satellite Pharmacy: A smaller, decentralized pharmacy within the hospital, staffed by at least one pharmacist and technician, which provides specialized services. It is dependent upon the centrally located pharmacy for administrative control, staffing and drug procurement. In the NICU, a satellite pharmacy will provide a high level of oversight and quick, safe access to medication for patients.

Space and Equipment Planning System (SEPS): A digital tool developed by the Department of Defense (DoD) and the Department of Veterans Affairs to generate a Program for Design (PFD) and a Project Room Contents list (PRC) for a DoD healthcare project based on approved Space Planning Criteria, the chapter and specific project-related Mission, Workload and Staffing information entered in response to the Program Data Required - Input Data Statements (IDSs).

Soiled Utility Room: This space provides an area for cleanup of medical equipment and instruments, and for disposal of medical waste material. It provides temporary holding for material that will be picked up by Central Sterile or similar service. It should be accessible to staff.

Team Collaboration Room: This space provides staff with an environment conducive to collaboration. Room contains touchdown computer workstations for documentation and a table with chairs to hold meetings.

Utilization Factor: Also known as capacity utilization rate, this factor provides flexibility in the utilization of a room to account for patient delays, scheduling conflicts and equipment maintenance. A room with an 80% utilization factor provides a buffer to assume that this room would be available 20% of the time beyond the planned operational practices for this room.

Workload: Space Planning Criteria per DHA Policy shall be workload driven. Workload projections divided by the throughput determined in this document for each workload driven room determines the quantity of rooms needed to satisfy the projected workload demand.