15A NCAC 18A .1949  SEWAGE FLOW RATES FOR DESIGN UNITS

(a) In determining the volume of sewage from dwelling units, the flow rate shall be 120 gallons per day per bedroom. The minimum volume of sewage from each dwelling unit shall be 240 gallons per day and each additional bedroom above two bedrooms shall increase the volume of sewage by 120 gallons per day. In determining the number of bedrooms in a dwelling unit, each bedroom and any other room or addition that can reasonably be expected to function as a bedroom shall be considered a bedroom for design purposes. When the occupancy of a dwelling unit exceeds two persons per bedroom, the volume of sewage shall be determined by the maximum occupancy at a rate of 60 gallons per person per day.

(b) Table No. I shall be used to determine the minimum design daily flow of sewage required in calculating the design volume of sanitary sewage systems to serve selected types of establishments. The minimum design volume of sewage from any establishment shall be 100 gallons per day. Design of sewage treatment and disposal systems for establishments not identified in this Rule shall be determined using available flow data, water-using fixtures, occupancy or operation patterns, and other measured data.

<table>
<thead>
<tr>
<th>TYPE OF ESTABLISHMENT</th>
<th>DAILY FLOW FOR DESIGN</th>
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<tbody>
<tr>
<td>Airports (Also R.R. stations, bus terminals --not including food service facilities)</td>
<td>5 gal/passenger</td>
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<tr>
<td>Barber Shops</td>
<td>50 gal/chair</td>
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<tr>
<td>Bars, Cocktail Lounges (Not including food service)</td>
<td>20 gal/seat</td>
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<tr>
<td>Beauty Shops (Style Shops)</td>
<td>125 gal/chair</td>
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<tr>
<td>Bowling Lanes</td>
<td>50 gal/lane</td>
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<tr>
<td>Businesses (other than those listed elsewhere in this table)</td>
<td>25 gal/employee</td>
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<tr>
<td>Camps</td>
<td>60 gal/person</td>
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<tr>
<td>Construction or Work Camps</td>
<td>40 gal/person</td>
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<tr>
<td>Summer Camps</td>
<td>60 gal/person</td>
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<tr>
<td>Campgrounds -- With Comfort Station (Without water and sewer hookups)</td>
<td>100 gal/campsite</td>
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<tr>
<td>Travel Trailer/Recreational Vehicle Park (With water and sewer hookups)</td>
<td>120 gal/space</td>
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<tr>
<td>Churches (Not including a Kitchen, Food Service Facility, Day Care or Camp)</td>
<td>3 gal/seat</td>
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<tr>
<td>Churches (With a Kitchen but, not including a Food Service Facility, Day Care, or Camp)</td>
<td>5 gal/seat</td>
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<tr>
<td>Country Clubs</td>
<td>20 gal/member</td>
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<tr>
<td>Day Care Facilities</td>
<td>15 gal/person</td>
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<tr>
<td>Factories (Exclusive of industrial waste)</td>
<td>25 gal/person/shift</td>
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<tr>
<td>Add for showers</td>
<td>10 gal/person/shift</td>
</tr>
<tr>
<td>Food Service Facilities</td>
<td>40 gal/seat or 40 gal/15 ft² of dining area, whichever is greater</td>
</tr>
<tr>
<td>Restaurants</td>
<td>75 gal/seat</td>
</tr>
<tr>
<td>24-hour Restaurant Food Stands</td>
<td>50 gal</td>
</tr>
<tr>
<td>(1) Per 100 square feet of food stand floor space</td>
<td>25 gal</td>
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<tr>
<td>(2) Add per food employee</td>
<td>5 gal/meal</td>
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<tr>
<td>Other Food Service Facilities</td>
<td>300 gal/bed</td>
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<tr>
<td>Hospitals</td>
<td>10 gal/boat slip</td>
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<tr>
<td>Marinas</td>
<td>30 gal/boat slip</td>
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<tr>
<td>With bathhouse</td>
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<tr>
<td>Meat Markets</td>
<td></td>
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</tbody>
</table>
(1) Per 100 square feet of market floor space 50 gal
(2) Add per market employee 25 gal
Motels/Hotels 120 gal/room
    With cooking facilities 175 gal/room
Offices (per shift) 25 gal/person
Residential Care Facilities 60 gal/person
Rest Homes and Nursing Homes
    With laundry 120 gal/bed
    Without laundry 60 gal/bed
Schools
    Day Schools
        With cafeteria, gym, and showers 15 gal/student
        With cafeteria only 12 gal/student
        With neither cafeteria nor showers 10 gal/student
    Boarding Schools 60 gal/person
Service Stations
    24-hour Service Stations 250 gal/water closet
    Service Stations 325 gal/water closet
Stores, Shopping Centers, and Malls
    (Exclusive of food service and meat markets) 120 gal/1000 ft2
    of retail sales area
Swimming Pools, Spas, and Bathhouses
    5 gal/seat or space
    10 gal/person
(c) An adjusted design daily sewage flow may be granted by the local health department upon a showing as specified in Subparagraphs (c)(1) through (c)(2) that a sewage system is adequate to meet actual daily water consumption from a facility included in Paragraph (b) of this Rule.

(1) Documented data from that facility or a comparable facility justifying a flow rate reduction shall be submitted to the local health department and the State. The submitted data shall consist of at least 12 previous consecutive monthly total water consumption readings and at least 30 consecutive daily water consumption readings. The daily readings shall be taken during a projected normal or above normal sewage flow month. A peaking factor shall be derived by dividing the highest monthly flow as indicated from the 12 monthly readings by the sum of the 30 consecutive daily water consumption readings. The adjusted design daily sewage flow shall be determined by taking the numerical average of the greatest ten percent of the daily readings and multiplying by the peaking factor. Further adjustments shall be made in design sewage flow rate used for sizing nitrification fields and pretreatment systems when the sampled or projected wastewater characteristics exceed those of domestic sewage, such as wastewater from restaurants or meat markets.

(2) An adjusted daily sewage flow rate may be granted contingent upon use of extreme water-conserving fixtures, such as toilets which use 1.6 gallons per flush or less, spring-loaded faucets with flow rates of one gallon per minute or less, and showerheads with flow rates of two gallons per minute or less. The amount of sewage flow rate reduction shall be determined by the local health department and the State based upon the type of fixtures and documentation of the amount of flow reduction to be expected from the proposed facility. Adjusted daily flow rates based upon use of water-conserving fixtures shall apply only to design capacity requirements of dosing and distribution systems and nitrification fields. Minimum pretreatment capacities shall be determined by the design flow rate of Table I of this Rule.

History Note: Authority G.S. 130A-335(e);
Eff. July 1, 1982;