

UNITED STATES DEPARTMENT OF AGRICULTURE  
Rural Utilities Service

RUS BULLETIN 1724E-400

**SUBJECT:** Guide to Presentation of Building Plans and Specifications

**TO:** All RUS Borrowers

**EFFECTIVE DATE:** Date of Approval

**EXPIRATION DATE:** Seven years from effective date

**OFFICE OF PRIMARY INTEREST:** Electric Staff Division

**PREVIOUS INSTRUCTION:** This guide bulletin replaces REA Bulletin 1724E-400, "Presentation of Building Plans and Specifications," issued December 8, 1993.

**FILING INSTRUCTIONS:** Discard REA Bulletin 1724E-400 dated December 8, 1993, and replace with this RUS Bulletin 1724E-400. File with 7 CFR 1724 and is available to RUS staff on RUSNET.

**PURPOSE:** This bulletin sets forth guidelines for expediting the review and acceptance of building plans and specifications. Some information is presented to assist borrowers in complying with the provisions of the public laws. Other guidelines draw attention to contract forms, energy conservation, specifications, standard/sound building practices, etc.

Wally Beyer

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Administrator

8/16/95

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Date

TABLE OF CONTENTS

	<u>Page</u>
1. Purpose.....	4
2. General.....	4
3. Energy Conservation Design.....	4
4. Specifications.....	7
5. Public Laws.....	8
6. Telephone Central Office Buildings.....	13
7. Headquarters Facilities (Office, Garage, Warehouse, Storage, Etc.).....	15
8. All Buildings.....	15
9. Drawings.....	16

Exhibit A: Metric Conversion Factors.....19

INDEX: ARCHITECTURAL SERVICES:  
Plans and Specifications for Buildings  
BUILDINGS:  
Plans and Specifications

ABBREVIATIONS

ADA.....Americans with Disabilities Act  
AIA.....American Institute of Architects  
ANSI.....American National Standards Institute  
ASHRAE....American Society of Heating, Refrigerating and Air  
Conditioning Engineers  
CFR.....Code Of Federal Regulations  
COP.....Coefficient of Performance  
DOE.....Department of Energy  
EER.....Energy Efficiency Ratio  
HVAC.....Heating, Ventilating, and Air Conditioning  
OSHA.....Occupational Safety and Health Act  
R.....Thermal Resistance Insulating Value  
REA.....Rural Electrification Administration (now called RUS)  
RUS.....Rural Utilities Service (formerly REA)  
Specs.....Specifications  
U.....Thermal Transmittance Insulating Value (1/R)  
U.S.C.....United States Code  
UFAS.....Uniform Federal Accessibility Standards

DEFINITIONS

**Architect**.....means a registered architect (and  
authorized personnel) licensed to provide  
architectural services.

**Engineer**.....means a registered engineer (and  
authorized personnel) licensed to provide  
engineering services.

**Borrower/Cooperative**..means an organization which has an outstanding loan made or guaranteed by RUS, or is seeking such financing.

**Contract Documents**...means the final plans/specifications signed and dated by the architect (for example, the contract between the borrower and architect and the contract between the borrower and builder).

**Plans**.....means architectural, structural, mechanical, plumbing, electrical drawings.

**Project**.....means the building (it may also include related work such as site development, parking layout, sedimentation control, etc.).

**Finals**.....means final plans and specifications.

1. **PURPOSE:** This bulletin sets forth guidelines for expediting the review and acceptance of building plans/specifications.

## 2. GENERAL

2.1 In reviewing building plans, RUS finds some items are often omitted or not clearly shown. Acceptance can be expedited when the applicable guidelines, which are provided in this bulletin, are included in the contract documents.

2.2 Some of the guidelines highlight public law requirements which need compliance. Others are suggestions for standard and sound building practices.

2.3 When the building design is to be reviewed by an outside party, the review of the preliminary plans and subsequent final plans and specifications is considerably facilitated when two sets of each are submitted.

## 3. ENERGY CONSERVATION DESIGN

3.1 A building's site orientation, insulation, thermal mass, lighting, etc., should be carefully considered by the architect whether a passive or active solar energized system is used. Such consideration should result in a building which will effectively reduce annual maintenance, heating and air conditioning costs.

3.2 RUS strongly recommends that heated or air conditioned areas such as offices, lobbies, meeting rooms, etc., be provided with the following minimum values of thermal insulation:

TABLE 1

Degree Days Per Year	Ceilings		Recommended Minimum Insulation				Slab Edge		Glazing
	U	R	Walls		Floors		U	R	
			U	R	U	R	U	R	
2500 or less	.038	26	.077	13	.09	11	None	None	Single
2501 to 4500	.03	33	.05	19	.077	13	.20	5	Double
4501 to 6000	.03	33	.05	19	.05	19	.13	7.5	Double
6001 to 8000	.026	38	.05	19	.05	19	.13	7.5	Double
8001 or more	.026	38	.05	19	.05	19	.10	10.0	Triple

**3.3** Heating, ventilating and air conditioning (HVAC) systems should be designed for efficient operation for the type of expected use. The hours of operation at full load and at various part loads (operation of systems and components) should be considered in studies and projects of building energy use. Where appropriate, an economy cycle should be considered so that outside air can be appropriately introduced into the system to provide cooling to the extent possible. Also, consideration should be given to the possibility of reclaiming excess heat in other parts of the building. Decisions regarding the type of system, economy cycle, heat reclaim system, etc., should be based on long-range economic evaluations rather than simple first-cost comparisons.

**3.4** Recommended minimum ratings for Coefficient of Performance (COP) and Energy Efficiency Ratio (EER) are given in the ASHRAE publication 90.1-89, "Energy Efficient Design of New Buildings, Except Low Residential Buildings" or the DOE publication DOE/CE-0304t, "Performance Standards for New Commercial and Multi-Family High Rise Residential Buildings."

**3.5** RUS recommends that borrowers and their architects consider using natural light and energy-efficient artificial lighting systems in the design of headquarters facilities. Significant energy savings are also possible by relamping existing installations with more efficient sources of illumination.

**3.5.1** Natural Lighting Systems : The amount of daylight that can be effectively introduced into a building is related to the design and orientation of the facility. Because of this, a borrower and architect should study a proposed project to determine whether a natural lighting system supplemented by artificial illumination is a cost-effective alternative. In making this determination, all possible costs and benefits associated with a natural lighting system should be evaluated.

**3.5.2** Lighting Levels : The ability of a person to perform specific tasks is related to the level of illumination present in the working environment. Table 2 contains recommended illumination levels for new or modified commercial (headquarters) facilities. These recommendations apply to the illumination level on the "work station" (the place where the task is actually performed) as opposed to the level of the "work area" which surrounds the work station and generally requires less illumination. To optimize energy utilization, RUS recommends that this type of "nonuniform" illumination approach be used.

TABLE 2

## Recommended Lighting Levels

Task or Area	Illumination Level (Footcandles*)
Hallways or Corridors	10 <u>+5</u>
Work and Circulation Areas Surrounding Work Station	30 <u>+5</u>
Normal Office Work (Task Only)	50+10**

\*footcandle = 1 lumen per square foot

\*\*prolonged or visually difficult tasks may require illumination levels above this guideline. In such cases, the additional illumination should be concentrated on the task itself and not the work station.

### 3.5.3 Some considerations for evaluating various lighting systems are:

- Is the system designed for the expected activity?
- Are efficient light sources and fixtures utilized?
- Is flexibility provided for controlling the system and its components?
- Is natural light used to maximum economic advantage?
- Is lighting equipment easily cleaned and relamped?
- Are the illuminating characteristics suitable for the tasks?

The lighting system selected should be consistent with the overall energy conservation package for the specific project under construction.

**3.6** Load management can be useful, not only in customer load control, but also in load control of borrower facilities. A load management plan for headquarters facilities should allow for either separate building load control or total system control. In new facilities, equipment should be installed which can be used with load control devices. In existing facilities, equipment should be retrofitted or systematically replaced by equipment capable of being used with load control devices. Examples of equipment controlled by load management are water heaters, central air conditioning, and heating systems.

3.7 To help control a building's temperature, the structure should be properly caulked, weatherstripped, exterior doors self closing, insulating glass, exterior walls and ceilings insulated, insulation beneath floor slabs, etc.

3.8 Landscaping can have energy-saving effects. Evergreens planted along the windward side of a building act as a windbreaker and can be quite effective in reducing wind infiltration. Deciduous trees, planted on the south side of a building can provide shade from the summer sun. Buildings should not be constructed on hilltops or in open areas which allow wind infiltration.

#### 4. SPECIFICATIONS

4.1 The RUS Form 257, "Contract to Construct Buildings," needs to be part of the specifications. If AIA forms (or others) are included, then a statement needs to be furnished claiming that "the RUS form shall take precedence over AIA forms" (or others).

4.2 Alternates should be included in Article I of RUS Form 257 and numbered in the same sequence as shown on the drawings.

4.3 For liquidated damages included in Article V of RUS Form 257, the amount should be determined fairly for the actual or potential delay of the project's completion date.

4.4 For ease of reference, an "Index to the Specifications" should be furnished.

4.5 An "as-built drawings" clause should be included in the mechanical, plumbing and electrical sections of the specifications.

4.6 In accordance with 7 CFR 1792, Subpart C, Seismic Safety of Federally Assisted New Building Construction, finals must include the architect's acknowledgment that one of the three codes described in paragraph 5.3 of this bulletin, was used for the building's seismic design. The architect's seismic certification is to be furnished at completion of project's construction.

4.7 If a project includes a pre-engineered metal building, then its roof live load and the structure's wind load should be specified. Also, the identification and date of the code that was used for the seismic design of the building and the seismic factor needs to be specified.

4.8 A 5 to 10 year guarantee (from the date of final acceptance of the project) against defects, faulty workmanship, etc., should be specified for built-up roofing.

4.9 Proprietary named products and material should not be specified. If they are specified, an "or approved equal" clause is to be included.

**5. PUBLIC LAWS**

**5.1 Public Law 90-480 (42 U.S.C. 4151)** regards the handicapped and pertains to the design, construction and equipment of certain buildings that must be made accessible and usable by physically handicapped employees and the public. The applicable provisions of the law always apply to the office portion (new or remodeled, single-story or multi-storied) of a headquarters facility; may apply to the service portion of a headquarters facility if offices are included for which handicapped persons may be employed; do not apply to unattended central office buildings, even though a small office may be included for use by technical or field personnel.

**RUS projects are to comply with UFAS (Uniform Federal Accessibility Standards), not with ADA.** UFAS incorporates the requirements of the Architectural Barriers Act (P.L.90-480) of August 12, 1968, as amended, through 1984. Public Law 90-480 requirements which are to be addressed on all plans and specifications include:

**5.1.1 Parking:** Parking spaces for use by the handicapped must be 13' wide or 5' wide access aisle between two 8' wide spaces. The number of parking spaces required are shown in Table 3.

TABLE 3

Total Parking in Lot	Required Minimum Number of Accessible Spaces
1 to 25.....	1
26 to 50.....	2
51 to 75.....	3
76 to 100.....	4
101 to 150.....	5
151 to 200.....	6
201 to 300.....	7
301 to 400.....	8
401 to 500.....	9
501 to 1000.....	2 percent of total
1001 and over.....	20 plus 1 for each 100 over 1000

Curb cuts at raised curbs must be at least 3 feet wide and slopped at 1:12. Surfaces at required parking spaces, access aisles, walks to building entrances, etc., must be stable and firm such as concrete, asphalt, etc.



**5.1.2 Entrance Ramp :** A ramp from the parking level to the building's first floor level must be provided and designed as follows:

- a. The ramp must be at least 4 feet wide with a maximum slope of 1:12 and be constructed of nonslip material.
- b. The ramp must have a level platform, 5 feet wide by 5 feet long at the building's entrance.
- c. A level platform, 4 feet wide by 6 feet long, must be provided every 30 feet (maximum) and at changes in direction.
- d. At least one continuous railing 32 inches high must be provided on one side. Where there is an appreciable drop to the grade from either side of the ramp, a guardrail with a 2-inch high curb must be provided on each side.

**5.1.3 Toilet Rooms - Adequate toilet facilities must be provided and their requirements must be clearly shown on the plans:**

- a. All toilets per floor must accommodate the handicapped.
- b. All toilet entrance doors must be 36" wide.
- c.
  - (1) Public toilets (e.g. multi-person use) must include one 4'-8" x 5'-0" stall with perhaps a 33" wide stall door to satisfy the 32" wide minimum clearance required when stall door is in an open position .
  - (2) Stall doors must swing outward
  - (3) Grab bars must be provided behind and adjacent to a water closet. The center line of a water closet to its adjacent "wall" must be 18".
  - (4) A 3'-0" x 5'-6" stall with outswinging door may be used in alteration or remodeling projects if existing conditions warrant it.
- d. Unisex toilet rooms (e.g. used by one person, one at a time) must have a 5'-0" clear diameter from a water closet and lavatory. Depending on how these fixtures are located and their type specified, unisex toilets should be about 6'-0" x 7'-0" or 6'-0" x 10'-0" for outswinging or inswinging doors respectively. These doors must be self closing .
- e. A private toilet (e.g. one adjacent to a manager's office or perhaps elsewhere) must be adaptable for handicap use, having the same room requirements as 5.1.3d. However, fixture heights may be standard and grab bars excluded with the understanding that they may have to satisfy handicap requirements eventually.
- f. A 30" wide open knee space in vanities, must be provided beneath one lavatory in public toilets and in all unisex toilets.

g. Fixture mounting heights above finished floor must be as follows:

- (1) wall hung urinal rim...15" to 17"
- (2) water closet.....17" to 19"
- (3) grab bars.....33" to 36"
- (4) lavatory.....34"
- (5) bottom of mirror.....40"

**5.1.4 Interior Ramps:** Ramps sloped at 1:12 maximum must be provided where a change in floor elevations occurs.

**5.1.5 Elevators:** An elevator must be provided in multi-storied buildings and additions in which the floors are designed to be used by handicapped employees and/or the public. Certain buildings or additions are designed in which the function of the floors seemingly precludes the use of an elevator. In such cases, we suggest this provision be reviewed with RUS during the preliminary stage, so that a clear understanding of the intended use of the floors can be established.

**5.1.6. Corridor Width:** Corridors must be at least 3 feet wide; however, most building codes require greater widths to satisfy emergency egress requirements regardless of the minimum handicapped provision.

**5.1.7 Telephones:** Regarding wall-hung public telephones when furnished:

- a. At least one phone must be mounted so that persons in wheelchairs have access to it (conventional phone booths are unacceptable).
- b. The top of the operating mechanism must not exceed four feet above the finished floor.

**5.1.8 Drinking Fountains:**

- a. Parallel approached fountains must have a clear floor space of at least 2 feet 6 inches wide by 4 feet long. (The 2 feet 6 inches dimension to be measured from the wall when fountains are fully recessed or from the fountain's face when semi-recessed/free standing).
- b. Forward approached cantilevered fountains are preferable.

**5.1.9 Doors at vestibules, alcoves, and other areas:**

- a. A minimum clearance of 12 or 18 inches (push or pull condition respectively) must be provided from the latch side edge of a door to its adjacent wall (usually applicable at "alcoves" to and from rest rooms, offices, etc.).

- b. The minimum clear distance between hinged doors in series having same door swings (e.g. @ vestibules), must be 48 inches plus the required minimum door width of 36 inches. Only 48 inches is required if these same doors have opposite swings.
- c. One of double leaf doors must be 36" wide minimum.
- d. Doors at lobbies, vestibules, office /conference rooms, etc., must be 36" wide minimum.

**5.1.10 Counter (reception, information, etc.):**

- a. The vertical portion of a counter (e.g. "teller window", often 12 to 18 inches high and running the length of the counter) must be interrupted by a 30-inch long "pass-through."
- b. The counter height at this "pass-through" must not exceed 34 inches above the finished floor.
- c. At least one 30 inch long open-knee space must be provided on the work side of the counter.

**5.2 Public law 91-596 (29 U.S.C. 651), "Occupational Safety and Health Act of 1970," (OSHA)** pertains to the design, construction and equipment of all buildings (new or remodeled) for the safety and health of employees.

The OSHA standards furnish a comprehensive list of requirements. The following are some of the OSHA provisions which are most often omitted or not clearly presented in the plans:

**5.2.1** Depending on the size of a service area (e.g., garage, warehouse, storage, etc.) at least two exterior remotely located pedestrian doors must be provided (overhead doors with personnel doors in them are not acceptable as a means of emergency egress).

**5.2.2** An adequate number of drinking fountains and fire extinguishers must be provided.

**5.2.3** The floors, walls, ceilings, etc., of all toilet rooms must be of a finish that can be easily cleaned. The following are recommended:

- a. Floors.....ceramic tile, vinyl or asphalt tile
- b. Walls.....ceramic tile or liquid tile paint
- c. Ceilings.....ceramic acoustical tile or liquid tile paint.

**5.2.4** Adequate exit lights or signs must be provided, especially at the intersection of corridors, at pedestrian doors in service areas, at stairwells and generally at areas where immediate access and egress to the building's exterior are not readily discernible.

**5.2.5** Railings, at least 42 inches high, must be provided at platforms, storage decks, etc., which are 4 feet or more above lower floors or ground level.

**5.2.6** Railings with a vertical height of 30 inches minimum to 34 inches maximum above stair treads must be provided as follows:

- a. One handrail on one side of stairways less than 44 inches wide, having both sides enclosed.
- b. One handrail on each side of stairways less than 44 inches wide, having both sides open.
- c. One handrail on the open side of stairways less than 44 inches wide, having one side open.
- d. One handrail at each enclosed side and one handrail at each open side of stairways 44 inches to 88 inches wide.
- e. Railings are required at stairs with four rises or more.

**5.2.7** A continuous toeboard, 4 inches high must be provided at areas such as storage decks and platforms of stairs leading up to them to prevent material from falling and injuring persons below.

**5.2.8** The nose of each stair tread must extend 1/2 inch to 1 inch beyond each riser.

**5.2.9** Metal access ladders must be provided with the following:

- a. The rungs must be at least 16 inches wide, spaced not more than 12 inches on center (o.c.), and have a minimum diameter of 3/4 inch ( a minimum diameter of 1 inch is required for individual rungs imbedded in concrete or if access ladders are located in damp areas).
- b. The clear distance of the rung's centerline to its adjacent wall must be at least 7 inches.

**5.2.10** A "Caution--Step Down" sign must be posted on doors having a substantial difference in floor levels (e.g., doors having sill heights 3 inches or more).

**5.2.11** Entrance doors to toilet rooms designed for single occupancy must be provided with privacy locks.

**5.2.12** Windowless toilet rooms must be mechanically ventilated.

5.2.13 Water closet seats must be of the open-front type.

5.3 Public Law 95-124 (42 U.S.C. 7701) "Earthquake Hazards Reduction Act of 1977" pertains to designing and constructing new buildings for earthquake resistance in various seismic areas. Executive Order 12699, "Seismic Safety of Federal and Federally Assisted Regulated New Building Construction" was signed by the President on January 5, 1990, to further the goals of Public Law 95-124.

To implement the Executive Order, RUS issued 7 CFR 1792, Subpart C, Seismic Safety of Federally Assisted New Building Construction. **This regulation applies to all new building construction in which RUS financial assistance is provided by a loan, loan guarantee, or lien accommodation.** All federally assisted buildings shall be designed to the seismic requirements of one of the following codes:

- (1) 1991 International Conference of Building Officials (ICBO) Uniform Building Code;
- (2) 1992 Supplement to the Building Officials and Code Administration, International, Inc. (BOCA) National Building Code; or
- (3) 1992 Amendments to the Southern Building Code Congress (SBCC) Standard Building Code.

## 6. TELEPHONE CENTRAL OFFICE BUILDINGS

6.1 Exterior walls and roof systems should be constructed of masonry, concrete, concrete planks, etc., to afford maximum protection against fire and vandalism.

6.2 Pre-engineered metal buildings are acceptable. However, valuable equipment should be further protected against vandalism, fire, etc., by supplementary construction within the shell of the metal building as follows:

- a. Masonry walls (concrete block 6 inches or 8 inches thick) throughout the inside perimeter of the exterior metal walls should be installed. Also, ceilings designed to rest on these walls (constructed of precast concrete units, concrete slab, etc.,) should be installed.
- b. Wood or steel studs throughout the interior perimeter of the exterior metal walls should be installed. The "outside" and "inside" faces of the studs, respectively, should be installed with plywood (or fiberboard) and fire code "60" drywall. In addition, a suspended fire-rated acoustical tile or fire code "60" drywall ceiling should be installed.

- 6.3 Building and equipment racks are to be designed and constructed to resist stresses induced by seismic forces in accordance with the requirements of one of the codes in paragraph 5.3 of this bulletin.
- 6.4 In the construction of additions, a temporary dust-proof partition should be provided to protect telephone equipment.
- 6.5 An electric generator within the building should be enclosed by firewalls. Access to the generator room should be made available from the exterior as well as the interior of the building.
- 6.6 To minimize the danger of fire spreading into the telephone equipment room, the interior walls should be firewalls with class "B" labeled doors.
- 6.7 Cable openings should be firmly sealed with cementitious material after the cables are in place.
- 6.8 The cable vault exterior walls should be waterproofed.
- 6.9 Carpet should not be used in the telephone equipment room because it is difficult to clean; it sheds textile particles which could harm equipment and it may cause static-induced failure of switching equipment. A resilient floor (vinyl or asphalt tile) - easier to clean, fire-resistant and free from static electricity - is recommended.
- 6.10 Exposed downspouts in the telephone equipment room are discouraged because they may create dampness which could corrode valuable equipment. Downspouts should be fully insulated, installed within an exterior wall or enclosed in a furred space.
- 6.11 Shoescrapers imbedded in stoops of exterior doors should be provided if the surrounding area is unpaved.
- 6.12 The door between the frame and telephone equipment rooms (as well as the exterior door) should be furnished with a threshold and be weatherstripped to help prevent dust and dirt from entering the equipment rooms.
- 6.13 At least one carbon dioxide or halon type fire extinguisher should be provided in each of the telephone equipment and generator rooms.
- 6.14 Exterior wall louvers should be furnished with fire dampers.
- 6.15 Gas-type automatic fire suppression systems should be considered for all equipment rooms.

6.16 The electric power service entrance should be protected by an overvoltage arrester.

**7. HEADQUARTERS FACILITIES (OFFICE, GARAGE, WAREHOUSE, STORAGE, ETC.)**

7.1 The floor of a mezzanine storage area should be designed for a live load of 125 PSF to 300 PSF (depending on its intended use) and the load should be clearly posted.

7.2 The vault light switch should be on the exterior of the vault and should be equipped with a pilot light.

7.3 Wall receptacles in garage or tune-up areas designed for heavy and sustained maintenance work should be of the explosion-proof type.

7.4 Wood or rubber bumper guards should be furnished at loading docks.

7.5 The jambs of overhead doors should be provided with continuous steel angles or other methods of protecting them from damage.

7.6 Doors to toilet and mechanical equipment rooms should be self-closing.

7.7 The walls separating the office and service portions should be firewalls with class "B" labeled doors.

7.8 For ease of cleaning and maintenance, the interior walls of service areas, if painted, should receive a 5-foot high wainscot of liquid tile paint.

7.9 The garage slab should be depressed at least 6 inches relative to the floor slab of an adjacent office area.

7.10 The garage slab should slope toward a floor drain or toward an overhead door.

7.11 Stairwells, record vaults and mechanical equipment rooms should be of fire-resistant construction and furnished with fire doors.

7.12 A night depository and a drive-through collection window are recommended.

**8. ALL BUILDINGS**

8.1 Every new footing adjacent to an existing one should be investigated and designed to satisfy existing foundation and soil conditions.

- 8.2 Horizontal metal reinforcing should be provided at every second bed joint, (e.g., 16 inches o.c) throughout all concrete block walls.
- 8.3 Interior concrete floor slabs should be reinforced with welded wire mesh and rest on a plastic vapor barrier on a bed of gravel or crushed stone over well tamped earth.
- 8.4 Exterior soffits should be provided with screened vents to help minimize condensation in the areas above them.
- 8.5 Toilet fixtures should be hung on interior walls to help minimize the danger of water freezing in pipes.
- 8.6 A 1/2-inch premolded expansion joint filler should be provided where the concrete floor slab meets the foundation wall.
- 8.7 A coat of 3/4-inch cement parging or other approved type of waterproofing (from top of footings to grade level), should be provided on the exterior face of foundation walls, especially if constructed with concrete blocks. Foundation walls should be waterproofed whether or not the building has a basement.
- 8.8 Fire dampers with fusible links should be provided at areas where ducts penetrate firewalls.
- 8.9 Unfinished interior concrete floor slabs should receive at least one coat of hardener.
- 8.10 A continuous steel bond angle or 1-inch expansion joint cover should be provided where new exterior walls meet existing walls.
- 8.11 Glazing materials are to comply with the "Safety Standard for Architectural Glazing Materials" (16 CFR part 1201) issued by the Consumer Products Safety Commission on January 6, 1977.

## 9. DRAWINGS

- 9.1 The plot plan should be oriented the same as the building floor plan for ease of cross-reference.
- 9.2 Floor plans should identify room designations by name (not by number alone) so that room functions are more easily understood and cross-referenced.
- 9.3 Overall dimensions should be shown on the structural as well as the architectural floor plans (e.g., building line to building line). They need not be shown on mechanical, plumbing, and electrical plans.
- 9.4 For large projects requiring more than one sheet in laying out floor plans, a heavy and bold "match line" should be used to indicate where the plan on one sheet continues on another sheet.



- 9.5 If possible, exterior elevations of buildings should be included in the preliminary submittal so that RUS can more effectively determine a building's estimated cost.
- 9.6 In extensive and complicated remodeling projects, an existing floor plan (in addition to the new floor plan) should be furnished (instead of combining them). This will facilitate RUS review of the new and old work by clearly showing the scope and intent of the project.
- 9.7 Regarding the handicapped laws previously mentioned, the site plan must clearly show the following:
- a. The required parking spaces (and access aisles, when applicable.)
  - b. Ramps not to exceed 1:12 slope.
  - c. Curb cuts.
- 9.8 The following should be furnished:
- a. A room finish schedule with finished ceiling heights.
  - b. A door schedule.
  - c. Door and window types, sizes, etc.
- 9.9 The architectural site plan should include the approximate location of a well and sewage disposal system or clearly note and refer this work to the utility plan or specifications.
- 9.10 A north arrow should be furnished on all plans. This arrow should be superimposed by a reference north arrow (when applicable) so that drawings are more easily cross-referenced as North, South, etc., instead of the more complicated Northeast, Southeast, etc.
- 9.11 Preliminary plans should acknowledge the three public laws described in paragraphs 5.1, 5.2, and 5.3 of this bulletin. This assures RUS of the architect's awareness that Physically Handicapped, "OSHA", and Seismic requirements respectively, will be included in the final plans.
- 9.12 In accordance with 7 CFR 1792, Subpart C, finals must include the architect's acknowledgement that one of the three codes described in paragraph 5.3 of this bulletin, was used for the building's seismic design. The architect's seismic certification is to be furnished on completion of project's construction. These will not be required as long as RUS receives a borrower's confirmation stating in effect..."we intend to use only general funds and will not request any type of RUS funding for this project..."

**9.13** Final plans/specifications need to be signed and dated by the architect.

**9.14** When the building design is to be reviewed by an outside party, the review of the preliminary plans and subsequent final plans and specifications is considerably facilitated when two sets of each are submitted. Final plans and specifications that have been reviewed and accepted by RUS do not need to be resubmitted.

**Exhibit A**  
**Metric Conversion Factors**

To Convert From	To	Multiply by
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AREA

square foot (ft <sup>2</sup> )	square meter (m <sup>2</sup> )	9.290304 E-02
square inch (in <sup>2</sup> )	square meter (m <sup>2</sup> )	6.451600 E-04

LENGTH

foot (ft)	meter (m)	3.048 E-01
inch (in)	meter (m)	2.540 E-02

PRESSURE

kip per square foot (kip/ft <sup>2</sup> )	pascal (Pa)	4.788026 E+04
kip per square inch (kip/in <sup>2</sup> )	pascal (Pa)	6.894757 E+06
pound per square foot (lb/ft <sup>2</sup> )	pascal (Pa)	4.788026 E+01
pound per square inch (lb/in <sup>2</sup> )	pascal (Pa)	6.894757 E+03

To Convert From	To	Equation
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TEMPERATURE

Degrees Celsius ( °C)	Degrees Fahrenheit ( °F)	9/5( °C) + 32
Degrees Fahrenheit ( °F)	Degrees Celsius ( °C)	5/9 ( °F-32)