

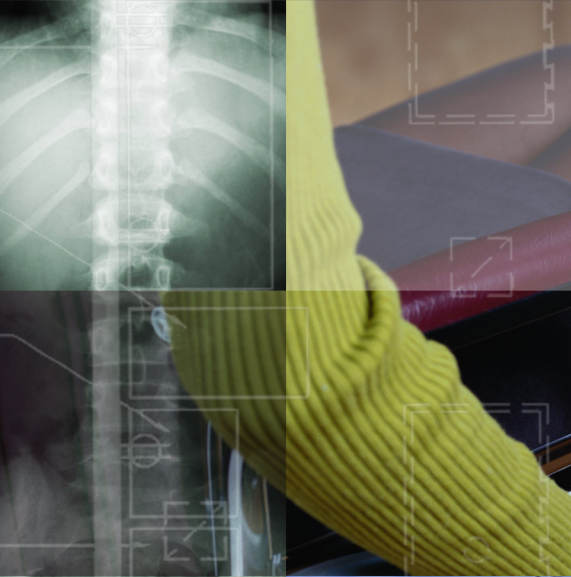
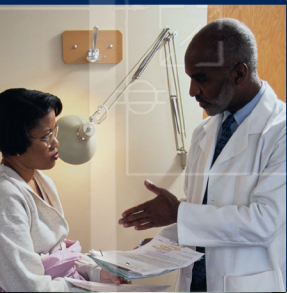


Department of  
Veterans Affairs  
*Office of Construction & Facilities Management*

# designguide

JUNE 2008

## SPINAL CORD INJURY/ DISORDERS CENTER



STARTER UNIT  
K-9402

CEILING MOUNTED  
FLUORESCENT  
FIXTURES SERIES  
SD-E-F-27-B

FLOOR-MOUNTED  
RECEPTACLE

MOBILE COLD  
SERVING UNIT  
W/TRAY SLIDING

FLOOR DRAIN

MOBILE HOT  
SERVING UNIT  
W/TRAY SLIDING

DINING ROOM  
ACCESS

TOASTER (VV)

GENERAL PURPOSE  
SERVING UNIT  
W/TRAY SLIDING

COFFEE MAKER  
(VV)

COFFEE MUG  
DISPENSER



Department of  
Veterans Affairs

*Office of Construction & Facilities Management*

Preface

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SPINAL CORD  
INJURY/  
DISORDERS  
CENTER

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## Foreword

The material contained in the Spinal Cord Injury / Disorders Center Design Guide is the culmination of a partnering effort by the Veterans Health Administration, Paralyzed Veterans of America, and the Office of Construction & Facilities Management. The goal of this Design Guide is to facilitate the design process and to ensure the quality of VA facilities, while controlling construction and operating costs.

This document is intended to be used as a guide to supplement VA Space Planning Criteria, other technical criteria, and related VA programs and policies for Spinal Cord Injury / Disorders. Use of this Design Guide does not preclude the need for a functional and physical design program for each specific project. It is the responsibility of the Project Architect and the Project Engineer to develop a complete and accurate project design that best meets the users' needs and complies with applicable standards and code requirements.

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## Introduction

Spinal cord injury is a condition where an individual sustains a lesion of the spinal cord that results in either paraplegia or tetraplegia. Paraplegia is the loss of nerve control approximately from the waist down and accounts for approximately 40% of all spinal cord injuries. Tetraplegia is the loss of nerve control from the neck or shoulders down and accounts for 30%. Most individuals with tetraplegia lack control of the legs, lower torso, and bowel and bladder. Many are without upper torso control, arms and hands control, and intrinsic hand articulation. Spinal cord damage can be complete or incomplete. Complete damage is the permanent loss of movement or sensation below the level of injury. Incomplete damage occurs when the spinal cord is not completely damaged at the level of injury. This allows some sensation and movement in the body areas below the level of injury.

The immediate change that occurs from a Spinal Cord Injury/Disorders (SCI/D) is a life altering event. Following the injury, a period of mourning is not uncommon. SCI/D spans all ages and genders although in the general public, the majority of occurrences are found in young males taking risks while playing sports and other circumstances. The injuries in the case of veterans are related to both combat as well as non-combat related incidents. Dramatic changes and improvements have taken place since the previous SCI/D Center Design Guide in the 1990's and continued progress is ongoing in both the private and public sectors in the field of Spinal Cord Injury/Disorders research, treatment, and care.

Among the many developments is the degree to which activity can continue among SCI/D patients. Increased access to public facilities, development in technology for mobility, expansion of the types of activities available, interactive communication devices, and sporting activities are some of the ways individuals are able to better mainstream into society and develop a degree of independence. Independence and mobility are important factors in the rehabilitation of the SCI/D patients.

During the course of the development of this update to the VA Spinal Cord Injury/Disorders Design Guide, the team visited and studied Spinal Cord Injury/Disorders Centers across the country. The dedication to care exhibited by the nurses, doctors and staff of the facilities is unrivaled in healthcare.

The core mission of the Department of Veterans Affairs contrasts that of the private sector. For example, private sector facilities have a limitation to the time an acute care patient may remain at the facility. Although there are specific aspects related to outpatient care and some long term care, insurance industry practices dictate limitations on SCI/D facilities in the private sector. By contrast, the VA is committed to a lifetime of care for our Nation's Veteran population in all facets of health care including Spinal Cord Injury/Disorders care.

As this is not a scientific document, several aspects of Spinal Cord Injury/Disorders technology, science, and application of techniques are not a



part of this text. For more in depth analysis of information related to the medical and research aspects of the field, it is recommended that other sources be utilized. As with all Design

Guides, this document is not a code, it is a tool to establish minimum requirements as an introduction to the development of a quality or “state of the art” Spinal Cord Injury/Disorders Center.



## Glossary

**Acute rehabilitation program** - Primary emphasis on the early rehabilitation phase which usually begins as soon as a person is medically stable. The program is designed to be comprehensive and based in a medical facility with a typical length of stay of 2-3 months. Treatment is provided by an identifiable team in a designated unit.

**ADL** - Activities of daily living: eating, dressing, grooming, shaving, etc. Nurses, occupational and physical therapists are the main coaches for ADL, which is sometimes called DLS or daily living skills.

**Cauda Equina (CE)** - The cauda equina (CE) is formed by nerve roots caudal to the level of spinal cord termination. Cauda equina syndrome (CES) has been defined as low back pain, unilateral or usually bilateral sciatica, saddle sensory disturbances, bladder and bowel dysfunction, and variable lower extremity motor and sensory loss.

**Cystogram (CG)** - X-ray taken after injecting dye into bladder.

**G.U. (Genitourinary)** - of or relating to the genital and urinary organs or functions.

**Incontinence** - Lack of bowel and/or bladder control.

**Kinesiotherapy (KT)** -The treatment of disease by means of passive and active movements, such as massage and exercise. Also called kinesiatics.

**Lithotripsy** - A non-invasive treatment for kidney stones. Shock waves, generated under water by a spark plug, crumble stones into pieces that will pass with urine.

**Occupational Therapist (OT)** An occupational therapist is a person trained in or engaged in the practice of occupational therapy. The role of an occupational therapist is to work with a client through the use of "purposeful activity or interventions" designed to achieve functional outcomes which promote health, prevent injury or disability and which develop, improve, sustain or restore the highest possible level of independence.

**Occupational Therapy (OT)** - Structured activity focused on activities of daily living skills (feeding, dressing, bathing, grooming), arm flexibility and strengthening, neck control and posture, perceptual and cognitive skills, and using adaptive equipment to facilitate ADL.

**Orthotic** - A support or brace for weak or ineffective joints or muscles.

**Paraplegia**- Refers to impairment or loss of motor and/or sensory function in the thoracic, lumbar or sacral (but not cervical) segments of the spinal cord, secondary to damage of neural elements within the spinal canal. With paraplegia, arm functioning is spared, but, depending on the level of injury, the trunk, legs, and pelvic organs may be



involved. There are some types of paralysis involving the legs that are described by the impairment they cause.

**Physical Therapist (PT)** - A health professional who teaches exercises and physical activities that help condition muscles and restore strength and movement.

**Physical Therapy (PT)** - Structured activity focused on mobility skills (bed, transfers, wheelchair use, walking), leg flexibility and strengthening, trunk control and balance, endurance training, and using adaptive equipment to facilitate mobility.

**Pressure Ulcer** - Also known as a pressure sore, potentially dangerous skin breakdown due to pressure on skin resulting in infection, tissue death.

**Quadripareisis** - Partial loss of function of all four (4) extremities of the body.

**Quadriplegia** - Quadriplegia is the loss of nerve control from the neck or shoulders down that often results in the lack of control of the legs, lower torso, and bowel and bladder.

**Range of Motion (ROM)** - The normal range of movement of any body joint. Range of Motion also refers to exercises designed to maintain this range and prevent contractures.

**Rehabilitation** - Retraining to normal functionality or training for new functionality.

**Tetraplegia** –Also termed quadriplegia. Describes the complete or incomplete paralysis from the neck downwards, affecting all four limbs and the trunk. This is the result of damage to the spinal cord between C1 and C8 (cervical spine).

**Ventilator** - Mechanical device to facilitate breathing in persons with impaired diaphragm function.



## Abbreviations

<b>A</b>	Amps
<b>ABA</b>	Architectural Barriers Act
<b>AC/HR</b>	Air Changes per Hour
<b>ADA</b>	Americans with Disability Act
<b>ADAAG</b>	ADA Accessibility Guidelines
<b>A/E</b>	Architectural / Engineering Firm
<b>AHJ</b>	Authority Having Jurisdiction
<b>AIA</b>	American Institute of Architects
<b>ANSI</b>	American National Standards Institute
<b>AR</b>	As Required
<b>ASHRAE</b>	American Society of Heating Refrigerator & Air-Conditioning Engineers
<b>BGSF</b>	Building Gross Square Feet
<b>CARES</b>	Capital Assets Realignment for Enhanced Services
<b>CFM</b>	Cubic Feet per Minute
<b>DOE</b>	Department of Energy
<b>DGSF</b>	Departmental Gross Square Feet
<b>DVA</b>	Department of Veterans Affairs
<b>FAR</b>	Floor Area Ratio
<b>FC</b>	Foot Candle
<b>FM</b>	Office of Facilities Management
<b>GSF</b>	Gross Square Feet
<b>GSM</b>	Gross Square Meters
<b>HIPAA</b>	Healthcare Insurance Portability and Accountability Act
<b>HP</b>	Horsepower
<b>HVAC</b>	Heating, Ventilating and Air Conditioning
<b>IAQ</b>	Indoor Air Quality
<b>IBC</b>	International Building Code
<b>IRSC</b>	Intensive Rehab and Sustaining Care
<b>JCAHO</b>	Joint Commission on Accreditation of Healthcare Organizations



**Abbreviations** - *continued*

<b>KT</b>	Kinesiotherapy
<b>LB</b>	Pound, Pounds
<b>LUX</b>	Lumen per Square Meter
<b>LTC</b>	Long Term Care
<b>NEC</b>	National Electrical Code
<b>NHRA</b>	Nursing Home Reform Act (of 1987)
<b>NFPA</b>	National Fire Protection Association
<b>NHCU</b>	Nursing Home Care Unit
<b>NR</b>	Not Required
<b>NSF</b>	Net Square Feet
<b>NSM</b>	Net Square Meters
<b>NTS</b>	Not to Scale
<b>NUSIG</b>	National Uniform Seismic Installation Guidelines
<b>OSHA</b>	Occupational Safety and Health Administration
<b>OT</b>	Occupational Therapy
<b>PT</b>	Physical Therapy
<b>PVA</b>	Paralyzed Veterans of America
<b>RMS</b>	Rehabilitation Medicine Services
<b>RCP</b>	Reflected Ceiling Plan
<b>RH</b>	Relative Humidity
<b>RT</b>	Recreation Therapy
<b>SCI/D</b>	Spinal Cord Injury Disorders
<b>SCI/DC</b>	Spinal Cord Injury/Disorders Center
<b>SF</b>	Square Feet, Square Foot
<b>SMACNA</b>	Sheet Metal and Air Conditioning Contractor's National Association
<b>SVH</b>	State Veterans Home
<b>SqM</b>	Square Meters
<b>TIL</b>	Technical Information Library
<b>TV</b>	Television
<b>UBC</b>	Uniform Building Code



**Abbreviations** – *continued*

<b>UFAS</b>	Uniform Federal Accessibility Standards
<b>V</b>	Volts
<b>VA</b>	Department of Veterans Affairs
<b>VACO</b>	Veterans Affairs Central Office
<b>VA CFM</b>	Veterans Affairs Office of Facilities Management
<b>VA OCFM</b>	Veterans Affairs Office of Facilities Management
<b>VAMC</b>	Veterans Affairs Medical Center
<b>VHA</b>	Veterans Health Administration
<b>VISN</b>	Veterans Integrated Service Network

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