

TABLE OF CONTENTS

CHAPTER 1

BASIS AND USE OF TABLES 1-1 to 1-3

CHAPTER 2

STRENGTH DESIGN OF COLUMNS 2-1 to 2-2

CHAPTER 3

SQUARE AND RECTANGULAR

COLUMNS 3-1 to 3-470

General 3-1

Scope 3-1

Code Requirements 3-1

Design from Tables 3-3

Manual Example 3-5

Tables for Square Columns 3-9

Tables for Rectangular Columns 3-34

CHAPTER 4

ROUND-TIED COLUMNS 4-1 to 4-62

General 4-1

Spirals Versus Ties 4-1

Interaction Curves 4-1

Cover 4-2

Steel Areas and Bar Orientation 4-2

Tie Patterns 4-2

Use of Tables for Round Columns 4-3

Manual Calculations 4-4

Tables 4-6

CHAPTER 5

STRENGTH DESIGN OF FLEXURAL

MEMBERS AND REBAR DEVELOPMENT

AND SPLICE DESIGN DATA 5-1 to 5-8

Introduction 5-1

Strength Design – General Principles 5-1

Rebar Development and Splice Design Data.. 5-3

Standard Hooks 5-8

CHAPTER 6

SERVICEABILITY CHECKS –

FLEXURAL MEMBERS 6-1 to 6-4

General 6-1

Deflection Control 6-1

Deflection Computations 6-1

Applications 6-2

Crack Control 6-3

Computation of Maximum Spacings for

Grade 60 Bars 6-3

CHAPTER 7

ONE-WAY SLABS

One-Way Solid Slabs 7-1 to 7-23

General Code Considerations 7-1

Scope of Load Tables 7-1

Basis for Design 7-1

CHAPTER 7 (Continued)

Assumptions in Design 7-2

Use of Load Tables – Single Span 7-2

Load Tables – Solid Slabs (Single Span) ... 7-4

Manual Calculation 7-6

Use of Load Tables for End Span and

Interior Span 7-6

Load Tables – Solid Slabs (End Span) 7-7

Load Tables – Solid Slabs (Interior Span) . 7-9

Manual Calculation 7-12

One-Way Void Slabs 7-14

General 7-14

How to Use Void-Slab Tables 7-15

Load Tables – Void Slabs 7-16

Manual Calculations 7-22

CHAPTER 8

ONE-WAY CONCRETE JOIST

CONSTRUCTION 8-1 to 8-60

General Considerations 8-1

Design Considerations for Joist

Construction 8-1

Factored Load Capacity Tables for Design.. 8-3

Multiple Span Joist Construction –

Design from Load Tables 8-5

Manual Calculation 8-7

Standard Joist Sizes 8-10

Load Tables – Multiple Spans 8-11

Simple Span Joist Construction –

Design from Load Tables 8-29

Manual Calculation 8-29

Load Tables – Single Span 8-32

Wide-Module Joist Construction 8-50

Introduction 8-50

Standard Form Data 8-50

General Structural Considerations 8-50

Load Capacity Tables for Design 8-51

Multiple Span Wide-Module Joist Construction –

Design from Load Tables 8-51

Load Tables – Multiple Spans 8-53

CHAPTER 9

SOLID TWO-WAY FLAT PLATES

FOR SQUARE PANELS 9-1 to 9-25

General 9-1

Flat Plate Advantages 9-1

Design Considerations 9-1

Scope of Flat Plate Load Tables 9-1

Basis of Tabulated Load Capacities 9-2

Use of Flat Plate Load Tables 9-2

Direct Design of Flat Plates 9-8

ACI 318 Moment Coefficients for

Distributing M_o in End Span 9-12

Manual Example 9-12

Load Capacity Tables 9-17

TABLE OF CONTENTS (Continued)

CHAPTER 10

TWO-WAY SOLID FLAT SLABS – SQUARE PANELS WITH DROPS...	10-1 to 10-27
General	10-1
Flat Slab Advantages	10-1
Design Considerations	10-1
Column Sizes	10-1
Drop Panels	10-1
Deflection	10-1
Reinforcement	10-2
Use of Flat Slab Load Tables	10-2
Manual Calculations	10-5
Load Capacity Tables	10-11

CHAPTER 11

WAFLE FLAT SLABS – SQUARE PANELS	11-1 to 11-39
General Considerations	11-1
Design Considerations in Waffle Construction	11-2
Description of Tables	11-5
Basis of Table Values	11-7
Use of Tables	11-7
Design from Load Tables	11-9
Special Details	11-15
Manual Calculations	11-15
Load Capacity Tables	11-22

CHAPTER 12

BEAMS	12-1 to 12-57
Introduction	12-1
Basis for Design	12-2
How to Use Beam Tables	12-5
Beam Tables – Examples of Use	12-6
Design for Serviceability	12-7
Coefficients for Deflection Computations..	12-8
Maximum Number of Bars in Beam Stems	12-9
Manual Example – Beam B-1	12-10
Manual Example – Beam B-2	12-12
Stirrup-Tie Designation Notation	12-13
Special Stirrup-Tie Layout Requirements	12-14
Selection of (Open) Stirrups/(Closed) Ties for Flexural Members under Shear or Combined Shear and Torsion	12-15
Beam Design Tables, End Spans	12-16
Interior Spans	12-31
Joist-Band Beam Design Tables, End Spans	12-46
Interior Spans	12-52

CHAPTER 13

SPREAD FOOTINGS, PILE CAPS AND DRILLED PIERS	13-1 to 13-28
Square Footings for Individual Columns ..	13-1
Design Considerations	13-2
Scope of Load Tables	13-2
Basis of Tabulated Capacities	13-2
Use of Tables	13-2
Manual Example	13-2
Flexural Punching	13-3
Development of Dowels in Footings	13-4
Tables	13-5
Pile Caps for Individual Columns	13-10
General	13-10
Basis of Tabulated Designs	13-10
Design Procedure	13-11
Special Investigations	13-12
Tied Arch Behavior	13-14
Special Anchorage Requirements	13-14
Shear at Critical Sections Around Piles ..	13-15
Use of Tables	13-15
Manual Calculations	13-16
Tables	13-18
Use of Drilled Pier (Caisson) Tables	13-25
Tables	13-27

CHAPTER 14

CANTILEVERED RETAINING WALLS	14-1 to 14-22
Introduction	14-1
Cost Considerations in Wall Design	14-2
Crack Control in Cantilever Walls	14-4
Tabulated Retaining Wall Design Data ..	14-5
How to Use Tables	14-5
Analysis and Design Procedures	14-5
Service Load Analysis for Sliding Shear ($h_w > 7'$)	14-7
Factored Load Design Procedures	14-8
Design	14-9
Manual Review	14-14
Tables	14-17